

**297-8001-547**

DMS-100 Family

## **North American DMS-100**

Card Replacement Procedures

Volume 5 of 7

LEC0015 and up   Standard   14.02   May 2001

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DMS-100 Family

## **North American DMS-100**

Card Replacement Procedures

Volume 5 of 7

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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 | AC, AD     | DS30 C-side interface card |
| NT6X40 | FA, FB, FC | DS512 link controller card |
| NT6X40 | GA         | DS512 link paddle board    |



#### WARNING

**Possible service disruption or loss of diagnostic functionality when installing or replacing NT6X40 cards versions AD, FB, or FC**

NT6X40AD, FB, or FC 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.

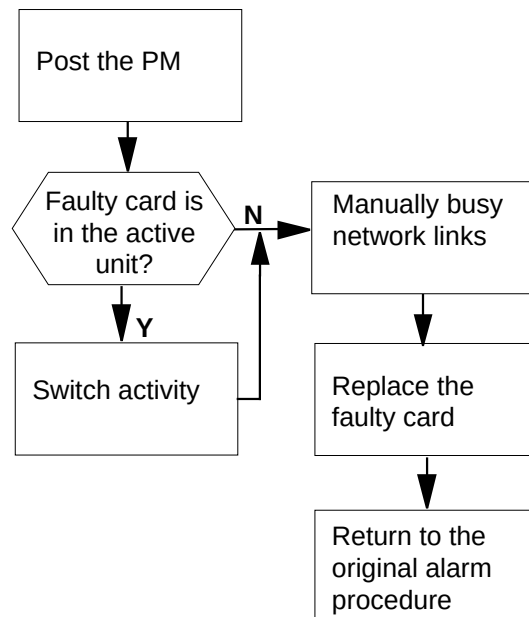
**Action**

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.                                                                                                                                  |           |
|   | <b>If the state of the PM unit is</b>                                                                                                                                                                                             | <b>Do</b> |
|   | ISTb, InSv, SysB, or CBSy, and active                                                                                                                                                                                             | step 7    |
|   | ISTb, InSv, SysB, or CBSy, and inactive                                                                                                                                                                                           | step 11   |
|   | ManB                                                                                                                                                                                                                              | step 11   |
| 7 | OffL                                                                                                                                                                                                                              | step 37   |
|   | From the MAP display, determine the state of the mate PM unit.                                                                                                                                                                    |           |
|   | <b>If the SMA unit is</b>                                                                                                                                                                                                         | <b>Do</b> |
|   | ISTb or InSv                                                                                                                                                                                                                      | step 8    |
| 8 | any other state                                                                                                                                                                                                                   | step 40   |
|   | Switch activity by typing                                                                                                                                                                                                         |           |
|   | <b>&gt;SWACT</b>                                                                                                                                                                                                                  |           |
|   | and pressing the Enter key.                                                                                                                                                                                                       |           |
|   | A confirmation prompt for the SWACT command is displayed at the MAP terminal.                                                                                                                                                     |           |
| 9 | <b>If SWACT</b>                                                                                                                                                                                                                   | <b>Do</b> |
|   | can continue at this time                                                                                                                                                                                                         | step 9    |
|   | cannot continue at this time                                                                                                                                                                                                      | step 42   |
|   | Confirm the command by typing                                                                                                                                                                                                     |           |
|   | <b>&gt;YES</b>                                                                                                                                                                                                                    |           |
|   | and pressing the Enter key.                                                                                                                                                                                                       |           |
|   | <b>Note:</b> 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. |           |
|   | <b>If the MAP response is</b>                                                                                                                                                                                                     | <b>Do</b> |
|   | SWACT passed                                                                                                                                                                                                                      | step 11   |

## NT6X40 in an SMA (continued)

|           | If the MAP response is                                                                                                                                                                                                                                                                      | Do      |
|-----------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|
|           | SWACT failed Rea-<br>son: XPM SWACTback                                                                                                                                                                                                                                                     | step 10 |
|           | SWACT refused by<br>SWACT Controller                                                                                                                                                                                                                                                        | step 10 |
| <b>10</b> | 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.<br>Go to step 40. |         |
| <b>11</b> | 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.                                                                        |         |
| <b>12</b> | 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      |
|-------------------------|---------|
| GA                      | step 15 |
| AC, AD, 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)

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### *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.



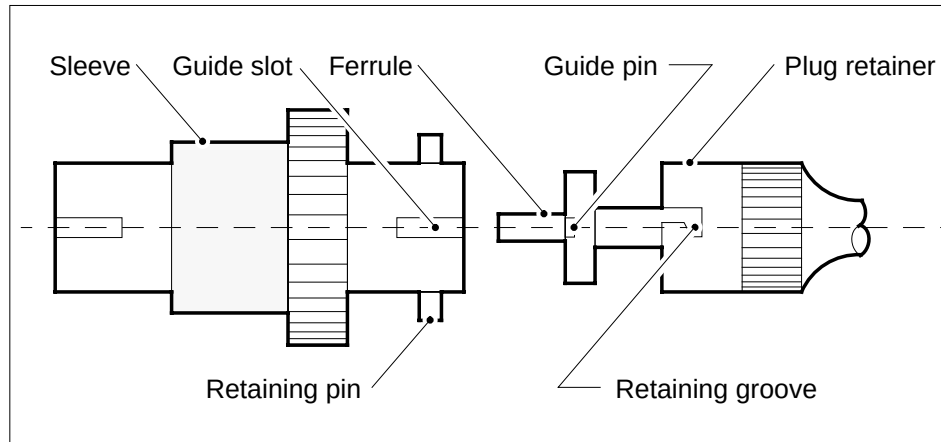
#### **DANGER**

##### **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.

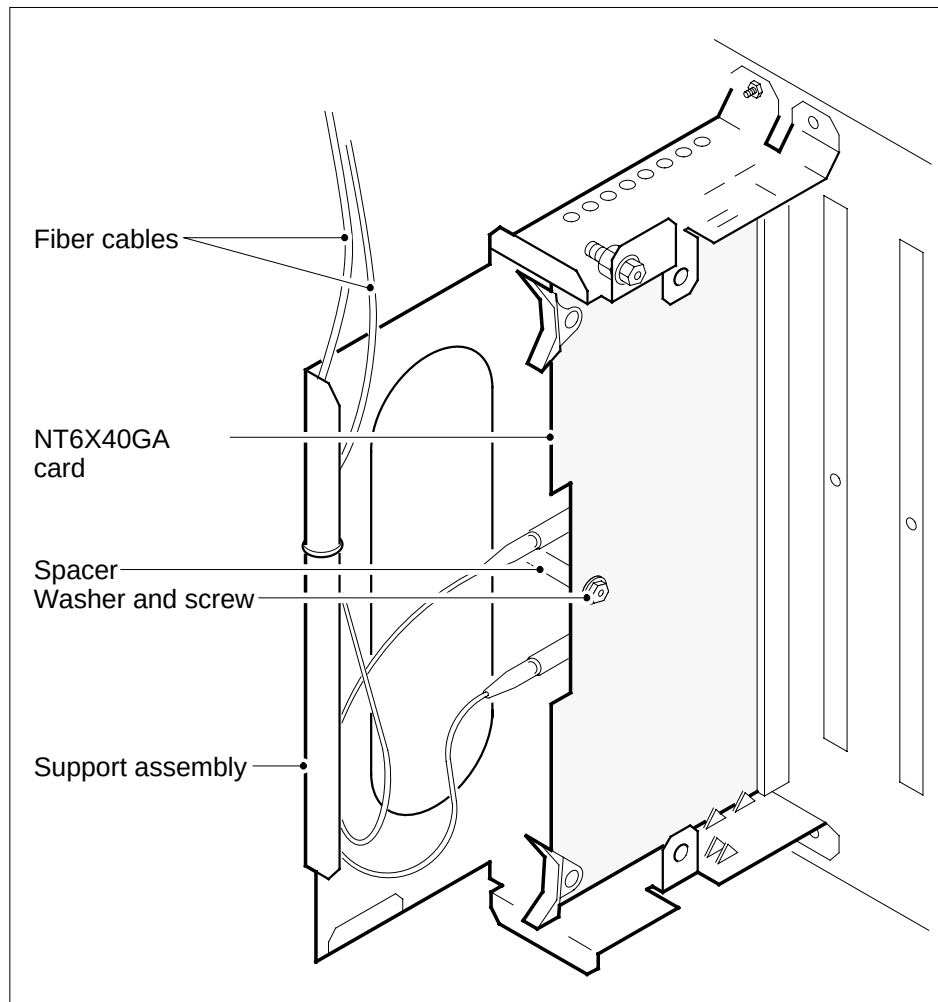
20

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)

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- 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.

| <b>If you are working on</b> | <b>Do</b> |
|------------------------------|-----------|
| 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)

|           | <b>If the link</b>                                                                                                                                                                                                                                                                                                                                                                                                              | <b>Do</b> |
|-----------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|
|           | 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   |
| <b>31</b> | 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.                                                                                                                                                                                                                                                                                              |           |
| <b>32</b> | Return the network link to service by typing<br><b>&gt;RTS plane_no LINK link_no</b><br>and pressing the Enter key.<br><i>where</i><br><b>plane_no</b><br>is the number of the plane (0 or 1) for the link<br><b>link_no</b><br>is the link number (0 to 3)<br><i>Example of a MAP response:</i><br>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. |           |
|           | <b>If the link</b>                                                                                                                                                                                                                                                                                                                                                                                                              | <b>Do</b> |
|           | returned to service                                                                                                                                                                                                                                                                                                                                                                                                             | step 33   |
|           | did not return to service                                                                                                                                                                                                                                                                                                                                                                                                       | step 40   |
| <b>33</b> | Post the SMA you are working on by typing<br><b>&gt;PM;POST SMA sma_no</b><br>and pressing the Enter key.<br><i>where</i><br><b>sma_no</b><br>is the SMA number (0 to 255)                                                                                                                                                                                                                                                      |           |
| <b>34</b> | Determine the status of the XPM unit containing the NT6X40 circuit card you replaced by typing<br><b>&gt;QUERYPM</b><br>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 |
| <b>35</b> | 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 |
| <b>36</b> | Return to the maintenance procedure that sent you to this procedure and continue as directed.                                                                       |         |
| <b>37</b> | Consult office personnel to determine why the component is offline. Continue as directed by office personnel.                                                       |         |
| <b>38</b> | Remove the sign from the active SMA unit.                                                                                                                           |         |
| <b>39</b> | Go to the common returning a card procedure in this document.<br>Go to step 41.                                                                                     |         |
| <b>40</b> | For further assistance, contact the personnel responsible for the next level of support.                                                                            |         |
| <b>41</b> | You have completed this procedure. Return to the maintenance procedure that directed you to this card replacement procedure and continue as directed.               |         |
| <b>42</b> | For further assistance with switch of activity, contact the personnel responsible for the next level of support.                                                    |         |
|           | <b>Note:</b> 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

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### 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 | AC, AD     | DS30 C-side interface card |
| NT6X40 | FA, FB, FC | DS512 link controller card |
| NT6X40 | GA         | DS512 link paddle board    |



#### WARNING

**Possible service disruption or loss of diagnostic functionality when installing or replacing NT6X40 cards versions AD, FB, or FC**

NT6X40AD, FB, or FC 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)

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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

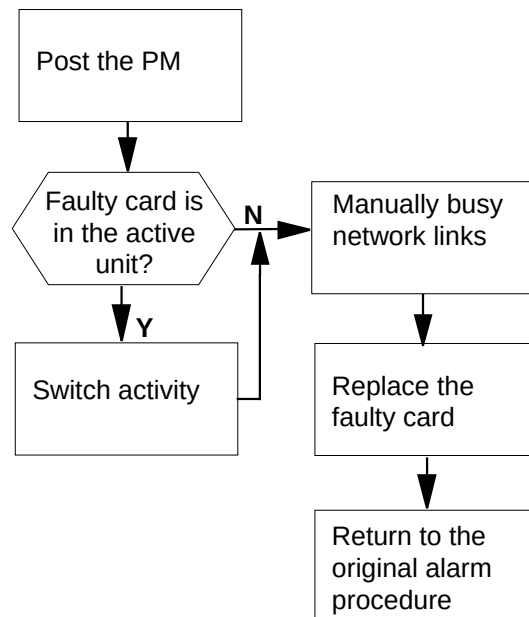
Do not go to a common procedure unless directed to do so in the step-action procedure.

### **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                                       | <p>Switch activity by typing<br/> <b>&gt;SWACT</b><br/>         and pressing the Enter key.<br/>         A confirmation prompt for the SWACT command is displayed at the MAP terminal.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                |    |                                       |        |                                         |         |      |         |      |         |
|                                         | <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                                       | <p>Reject the prompt to SWACT of the units by typing<br/> <b>&gt;NO</b><br/>         and pressing the Enter key.<br/>         The system discontinues the SWACT.<br/>         Return to step 8 during a period of low traffic.</p>                                                                                                                                                                                                                                                                                                                                                                                                 |                                |    |                                       |        |                                         |         |      |         |      |         |
| 10                                      | <p>Confirm the command by typing<br/> <b>&gt;YES</b><br/>         and pressing the Enter key.</p> <p><b>Note:</b> A maintenance flag (Mtce) may appear, indicating that system-initiated maintenance tasks are in progress. Wait until the flag</p>                                                                                                                                                                                                                                                                                                                                                                                |                                |    |                                       |        |                                         |         |      |         |      |         |

## 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-<br>son: XPM SWACTback | step 11 |
| SWACT refused by<br>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      |
|-------------------------|---------|
| GA                      | step 16 |
| AC, AD, 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**

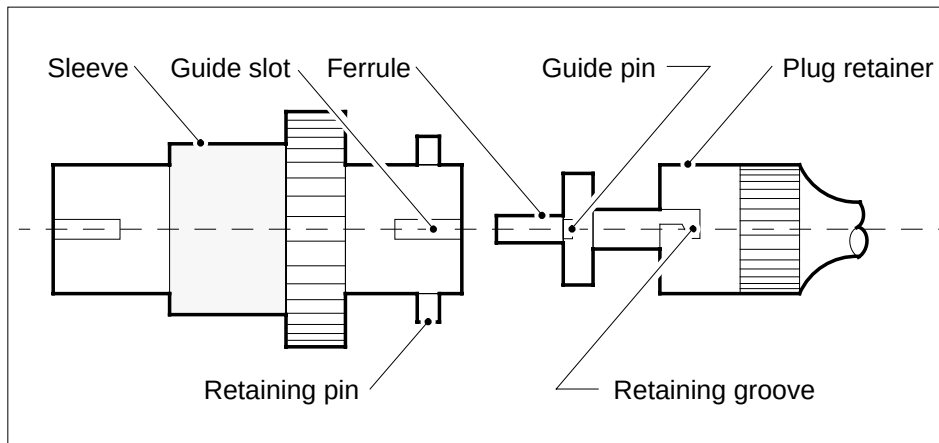
Take care when handling fiber cables. Do not crimp or bend fiber cables to a radius of less than 25 mm (1 in.).



## 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.

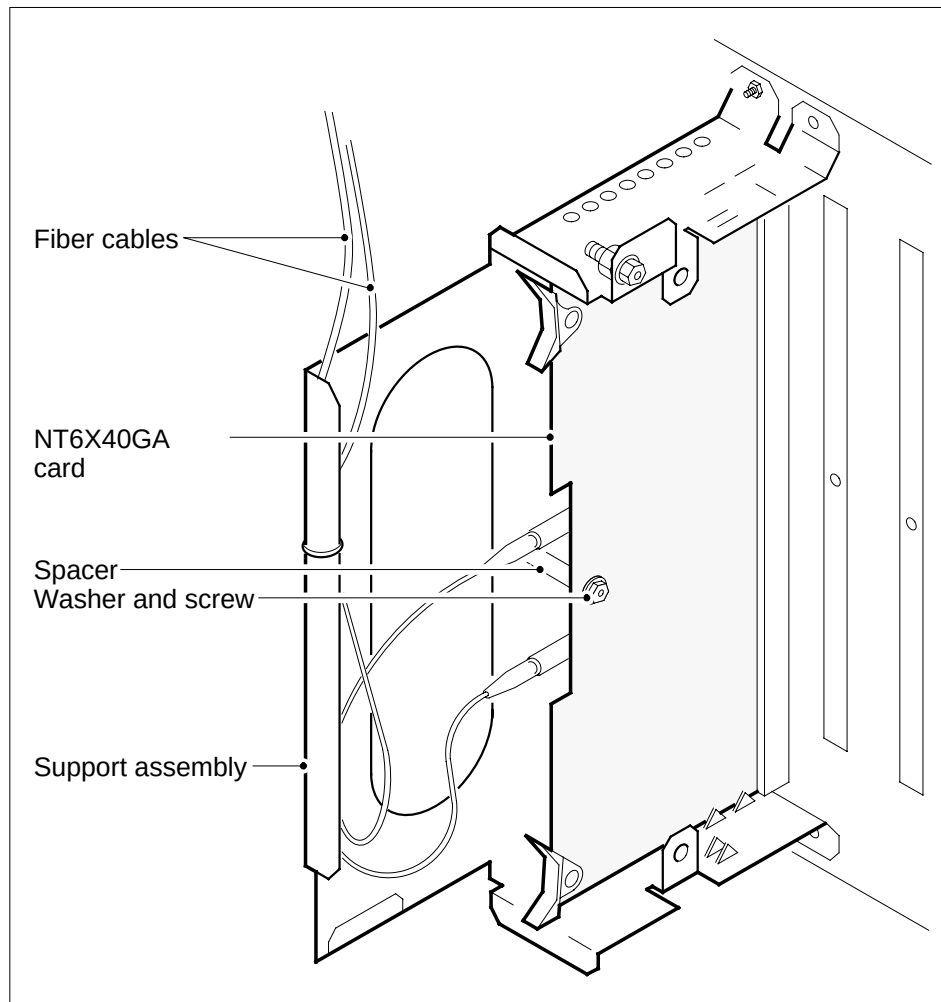
21

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)

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- 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

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

NT6X40AD, FB, or FC cards must 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 | AC, AD        | DS30 Network Interface              |
| NT6X40 | FA, FB,<br>FC | DS512 Network Interface             |
| NT6X40 | 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**

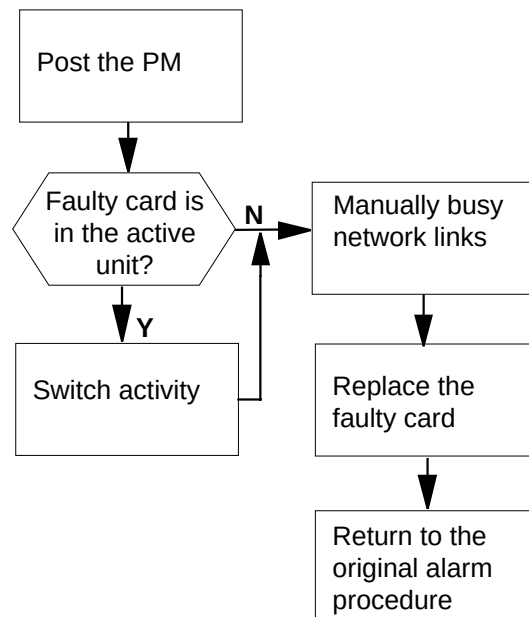
The following flowchart is only a summary of the procedure. To replace the card, use the instructions in the step-action procedure that follows the flowchart.

## 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.                                                                                       |
| <b>If the state of the SMA2 unit is</b> |                                                                                                                                                                                             |
| <b>Do</b>                               |                                                                                                                                                                                             |
| 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.                                                                                                                            |
| <b>If the SMA2 unit is</b>              |                                                                                                                                                                                             |
| <b>Do</b>                               |                                                                                                                                                                                             |
| ISTb or InSv                            | step 8                                                                                                                                                                                      |
| any other state                         | step 41                                                                                                                                                                                     |
| 8                                       | SWACT the units by typing<br><b>&gt;SWACT</b><br>and pressing the Enter key.<br>A confirmation prompt for the SWACT command is displayed at the MAP terminal.                               |
| <b>If SWACT</b>                         |                                                                                                                                                                                             |
| <b>Do</b>                               |                                                                                                                                                                                             |
| 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<br><b>&gt;NO</b><br>and pressing the Enter key.<br>The system discontinues the SWACT.<br>Return to step 8 during a period of low traffic. |
| 10                                      | Confirm the system prompt by typing<br><b>&gt;YES</b><br>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-<br>son: XPM SWACTback | step 11 |
| SWACT refused by<br>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      |
|------------------------------|---------|
| GA                           | step 16 |
| AC, AD, 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**

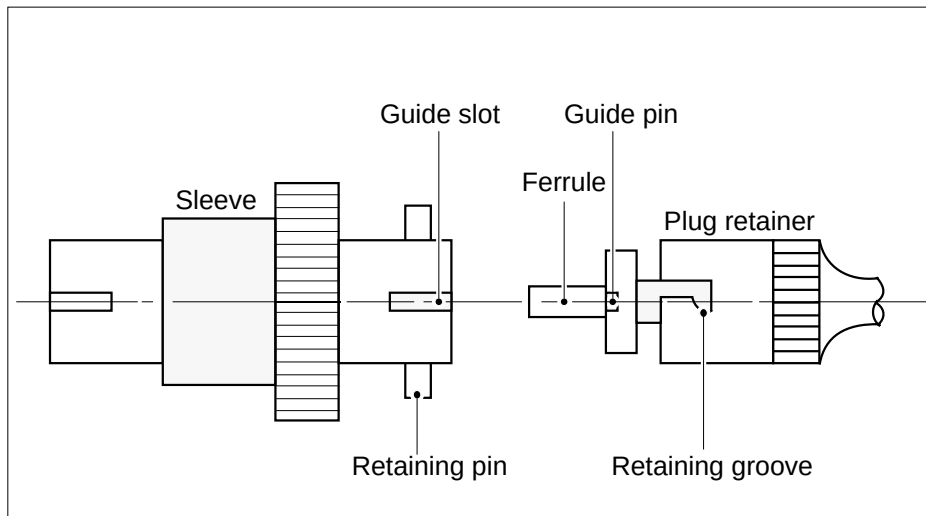
**Fiber cable may become damaged**

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

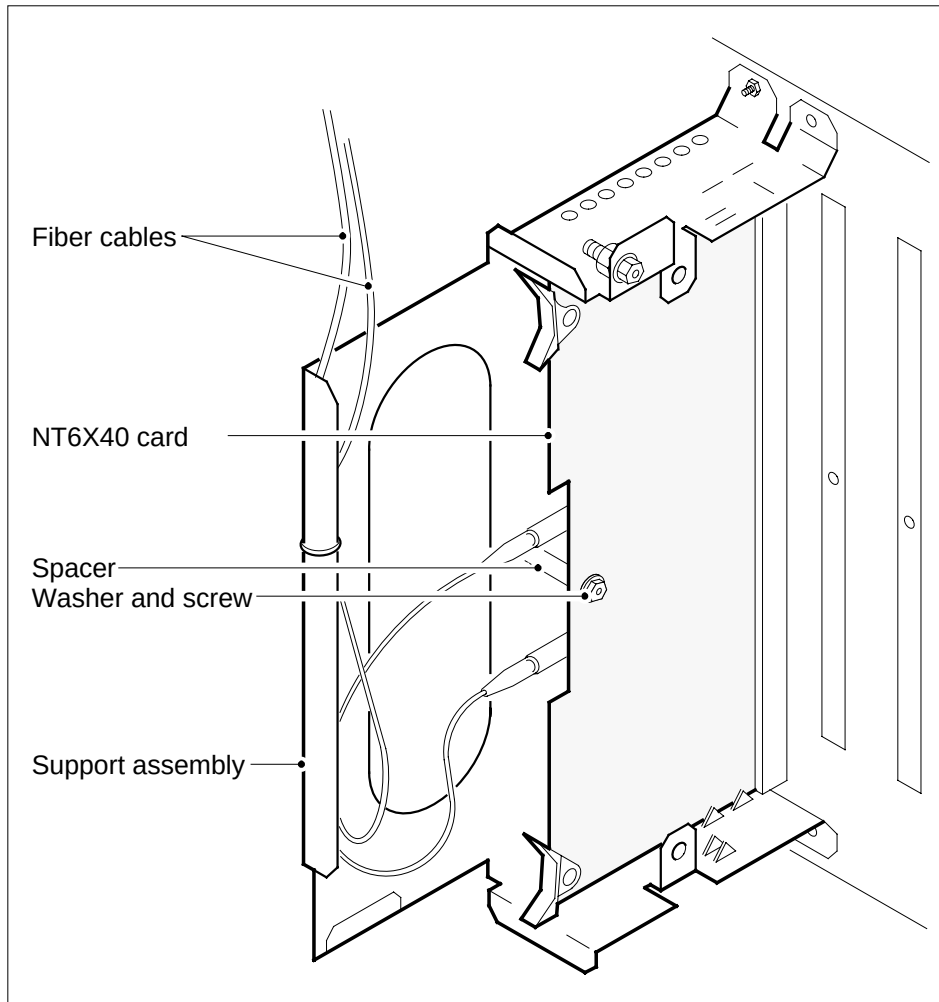
Remove the screw that holds the card to the support assembly by performing the following steps:

- 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)

|           | <b>If the link</b>                                                                                                                                                                                                                                                                                                                                                                                                              | <b>Do</b> |
|-----------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|
|           | 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   |
| <b>32</b> | 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.                                                                                                                                                                                                                                                                                              |           |
| <b>33</b> | Return the network link to service by typing<br><b>&gt;RTS plane_no LINK link_no</b><br>and pressing the Enter key.<br><i>where</i><br><b>plane_no</b><br>is the number of the plane (0 or 1) for the link<br><b>link_no</b><br>is the link number (0 to 3)<br><i>Example of a MAP response:</i><br>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. |           |
|           | <b>If the link</b>                                                                                                                                                                                                                                                                                                                                                                                                              | <b>Do</b> |
|           | returned to service                                                                                                                                                                                                                                                                                                                                                                                                             | step 34   |
|           | did not return to service                                                                                                                                                                                                                                                                                                                                                                                                       | step 41   |
| <b>34</b> | Post the SMA2 you are working on by typing<br><b>&gt;PM;POST SMA2 sma2_no</b><br>and pressing the Enter key.<br><i>where</i><br><b>sma2_no</b><br>is the SMA2 number (0 to 255)                                                                                                                                                                                                                                                 |           |
| <b>35</b> | Determine the status of the SMA2 unit containing the NT6X40 card you replaced by typing<br><b>&gt;QUERYPM</b><br>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

|           | <b>If the inactive unit status is</b>                                                                                                                              | <b>Do</b> |
|-----------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|
|           | InSv                                                                                                                                                               | step 36   |
|           | anything else                                                                                                                                                      | step 41   |
| <b>36</b> | The next action depends on your reason for performing this procedure.                                                                                              |           |
|           | <b>If you were</b>                                                                                                                                                 | <b>Do</b> |
|           | directed to this procedure from a maintenance procedure                                                                                                            | step 37   |
|           | not directed to this procedure from a maintenance procedure                                                                                                        | step 39   |
| <b>37</b> | Return to the maintenance procedure that sent you to this procedure and continue as directed.                                                                      |           |
| <b>38</b> | Consult office personnel to determine why the component is offline. Continue as directed by office personnel.                                                      |           |
| <b>39</b> | Remove the sign from the active SMA2 unit.                                                                                                                         |           |
| <b>40</b> | Go to the procedure in this document for returning a card for repair or replacement.<br>Go to step 42.                                                             |           |
| <b>41</b> | For further assistance, contact the personnel responsible for the next level of support.                                                                           |           |
| <b>42</b> | 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 | AC, AD        | DS30 C-side interface card |
| NT6X40 | FA, FB,<br>FC | DS512 link controller card |
| NT6X40 | 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 AD, FB or FC.**

NT6X40AD, FB, or FC 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.

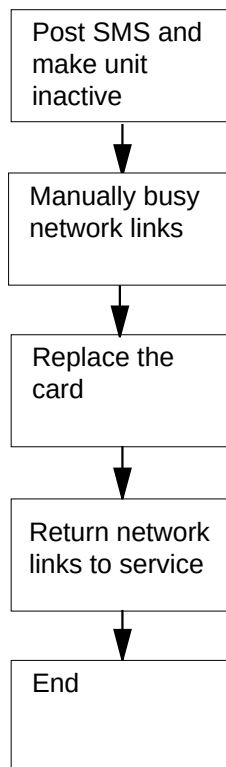
**Action**

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      |
|-----------------------------|---------|
| NT6X40GA                    | step 12 |
| NT6X40AC, AD, 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**

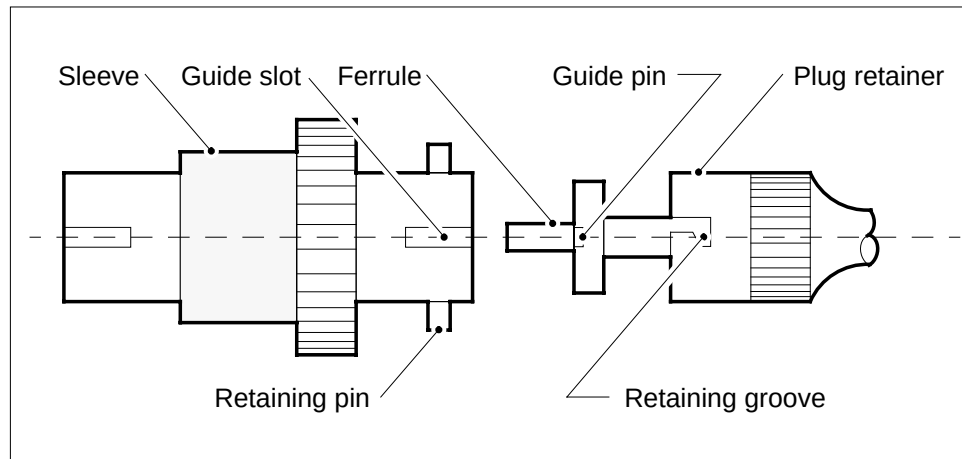
Take care when handling fiber cables. Do not crimp or bend fiber cables to a radius of less than 25 mm (1 in.).



## 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.

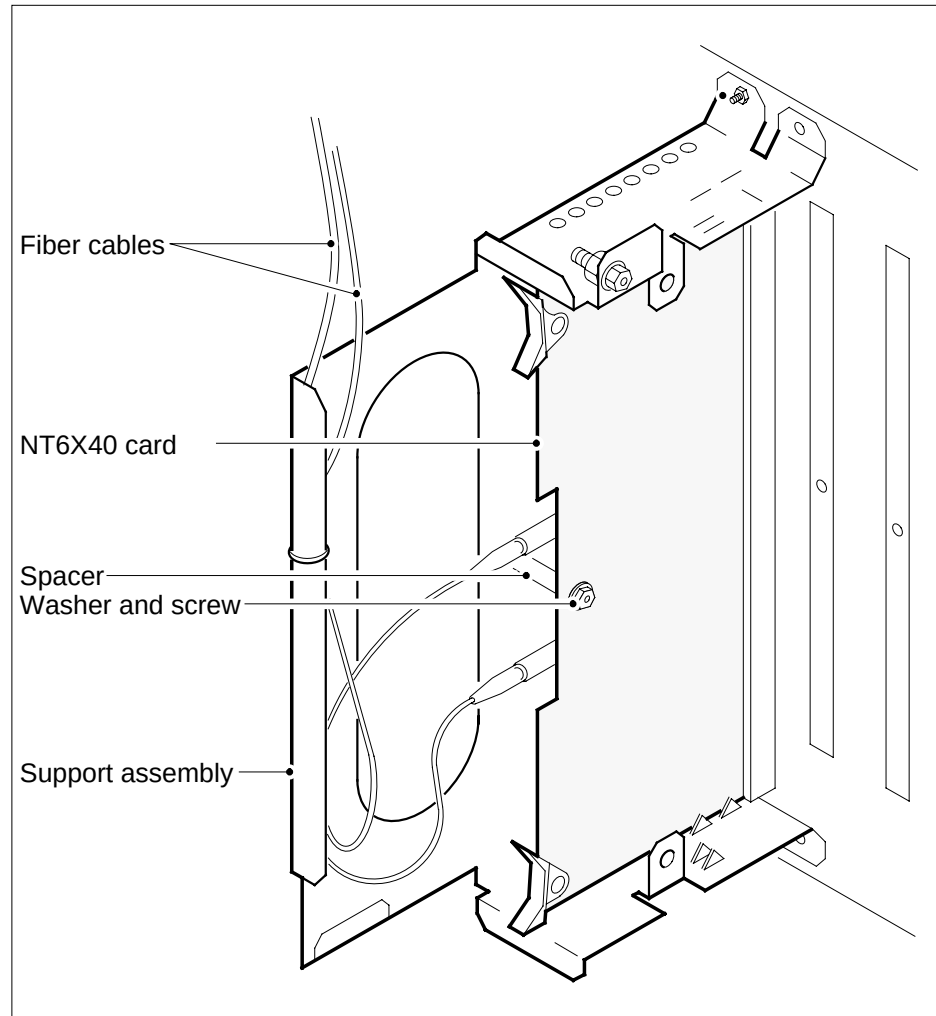
17

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<br><b>&gt;RTS plane_no LINK link_no</b><br>and pressing the Enter key.<br><i>where</i><br><b>plane_no</b><br>is the number of the plane (0 or 1) for the link<br><b>link_no</b><br>is the link number (0 to 3)<br><i>Example of a MAP response:</i><br><br>Request to RTS ENET Plane:0 Shelf:00 Slot:32 Link:01 submitted.<br>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<br><b>&gt;PM;POST pm_type pm_no</b><br>and pressing the Enter key.<br><i>where</i><br><b>pm_type</b><br>the PM type (DTC, ILGC, LTCI, PDTC, SMS)<br><b>pm_no</b><br>is the PM number (0 to 255)                                                                                                                                                                                               |         |
| 30 | Determine the status of the XPM unit containing the NT6X40 circuit card you replaced by typing<br><b>&gt;QUERYPM</b><br>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 |
| <b>31</b> | 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 |
| <b>32</b> | Return to the maintenance procedure that sent you to this procedure and continue as directed.                                                                       |         |
| <b>33</b> | Consult office personnel to determine why the component is offline. Continue as directed by office personnel.                                                       |         |
| <b>34</b> | For further assistance with switch of activity, contact the personnel responsible for the next level of support.                                                    |         |
|           | <b>Note:</b> 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. |         |
| <b>35</b> | 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 | AC, AD     | DS30 C-side interface card |
| NT6X40 | FA, FB, FC | DS512 link controller card |
| NT6X40 | 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 AD, FB or FC.**

NT6X40AD, FB, or FC 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:

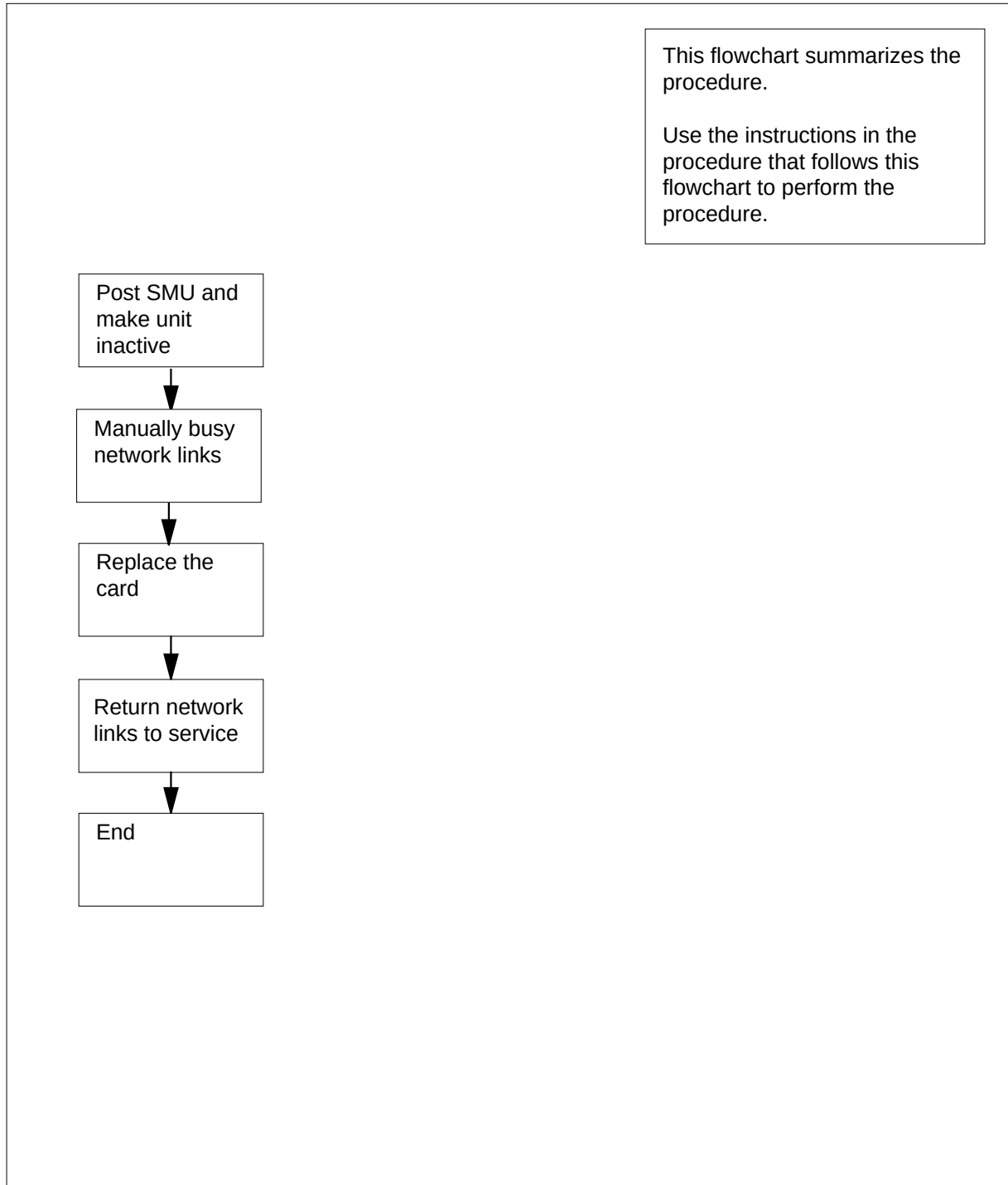
- “Manually busying SMU C-side links”
- replacing a card
- returning a card

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**

## 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      |
|-----------------------------|---------|
| NT6X40GA                    | step 12 |
| NT6X40AC, AD, 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.

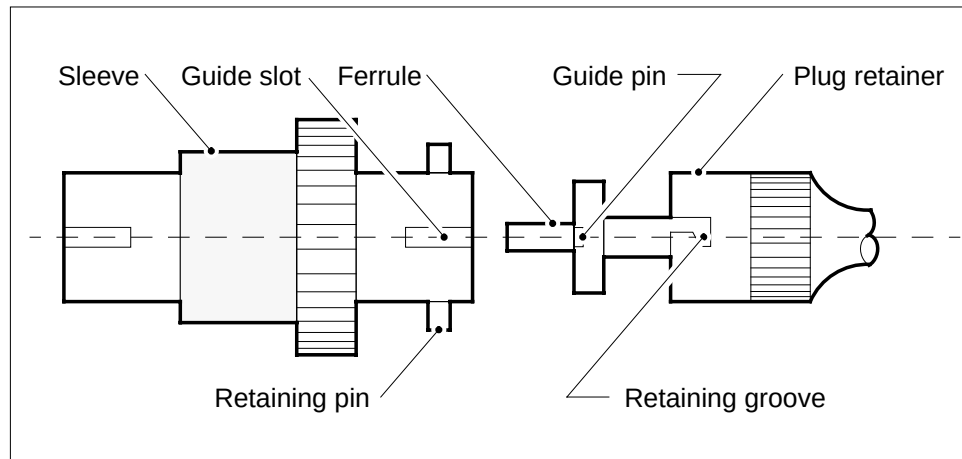
**DANGER****Fiber cable may become damaged**

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

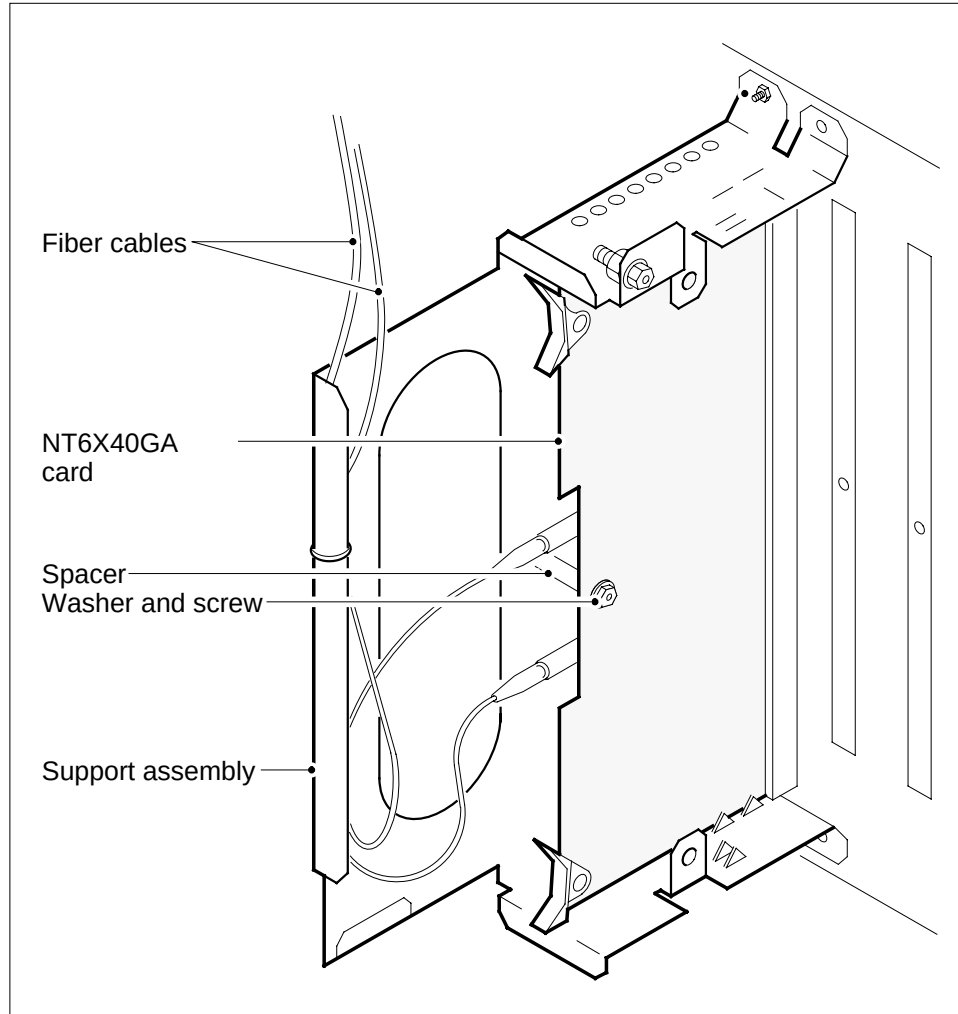
Remove the screw that holds the circuit card to the support assembly.

- 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<br><b>&gt;RTS plane_no LINK link_no</b><br>and pressing the Enter key.<br><i>where</i><br><b>plane_no</b><br>is the number of the plane (0 or 1) for the link<br><b>link_no</b><br>is the link number (0 to 3)<br><i>Example of a MAP response:</i> |         |
| Request to RTS ENET Plane:0 Shelf:00 Slot:32 Link:01 submitted.<br>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<br><b>&gt;PM;POST pm_type pm_no</b><br>and pressing the Enter key.<br><i>where</i><br><b>pm_type</b><br>the PM type (DTC, ILGC, LTCI, PDTC, SMU)<br><b>pm_no</b><br>is the PM number (0 to 255)                                                        |         |
| 30                                                                                                                              | Determine the status of the XPM unit containing the NT6X40 circuit card you replaced by typing<br><b>&gt;QUERYPM</b><br>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

```

|           | <b>If the inactive unit status is</b>                                                                                                                               | <b>Do</b> |
|-----------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|
|           | InSv                                                                                                                                                                | step 31   |
|           | anything else                                                                                                                                                       | step 35   |
| <b>31</b> | The next action depends on your reason for performing this procedure.                                                                                               |           |
|           | <b>If you were</b>                                                                                                                                                  | <b>Do</b> |
|           | directed to this procedure from a maintenance procedure                                                                                                             | step 32   |
|           | not directed to this procedure from a maintenance procedure                                                                                                         | step 36   |
| <b>32</b> | Return to the maintenance procedure that sent you to this procedure and continue as directed.                                                                       |           |
| <b>33</b> | Consult office personnel to determine why the component is offline. Continue as directed by office personnel.                                                       |           |
| <b>34</b> | For further assistance with switch of activity, contact the personnel responsible for the next level of support.                                                    |           |
|           | <b>Note:</b> 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. |           |
| <b>35</b> | 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.

| <b>PEC</b> | <b>Suffixes</b> | <b>Name</b>          |
|------------|-----------------|----------------------|
| 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

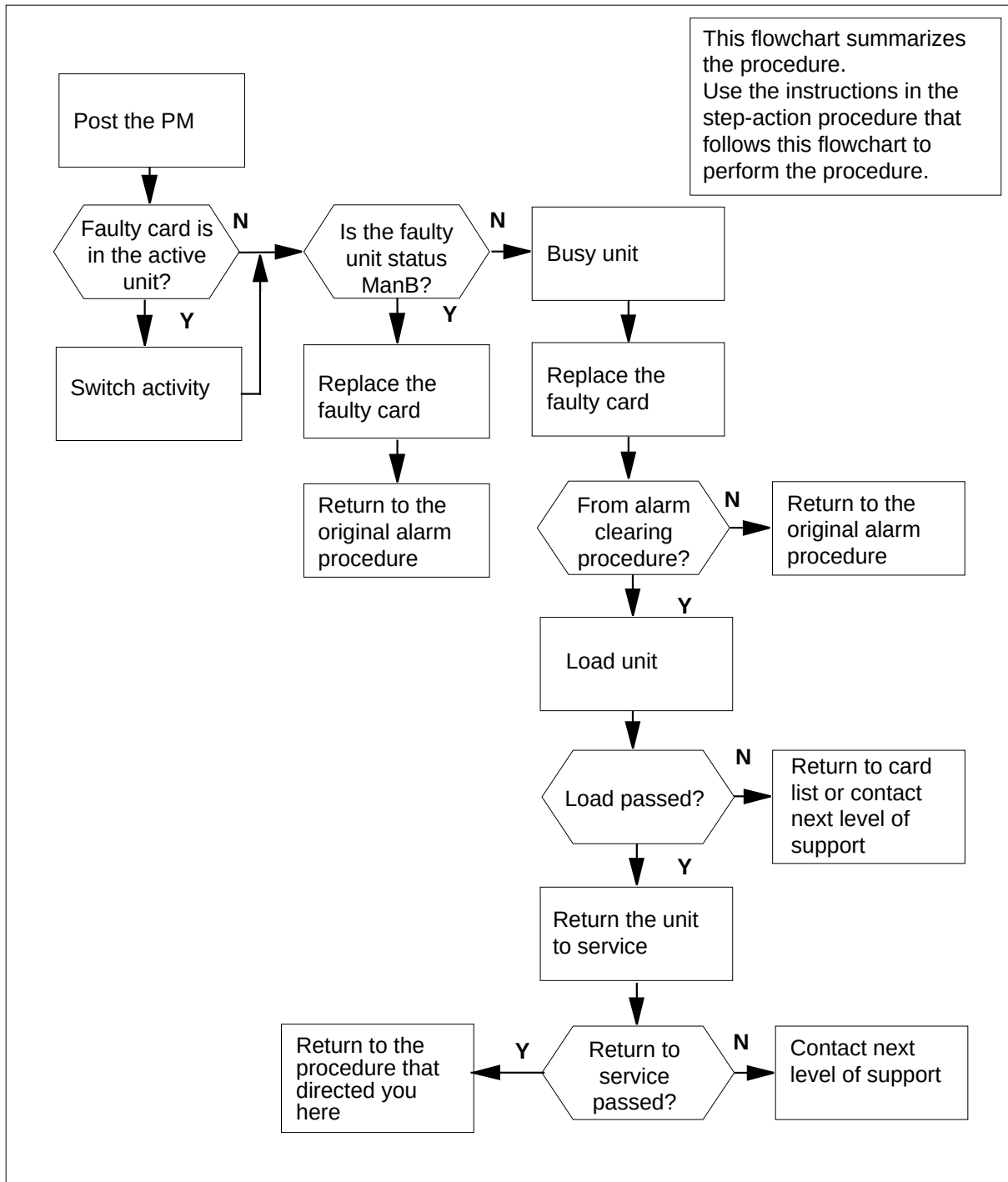
Do not go to the common procedures unless directed to do so in the step-action procedure.

### **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

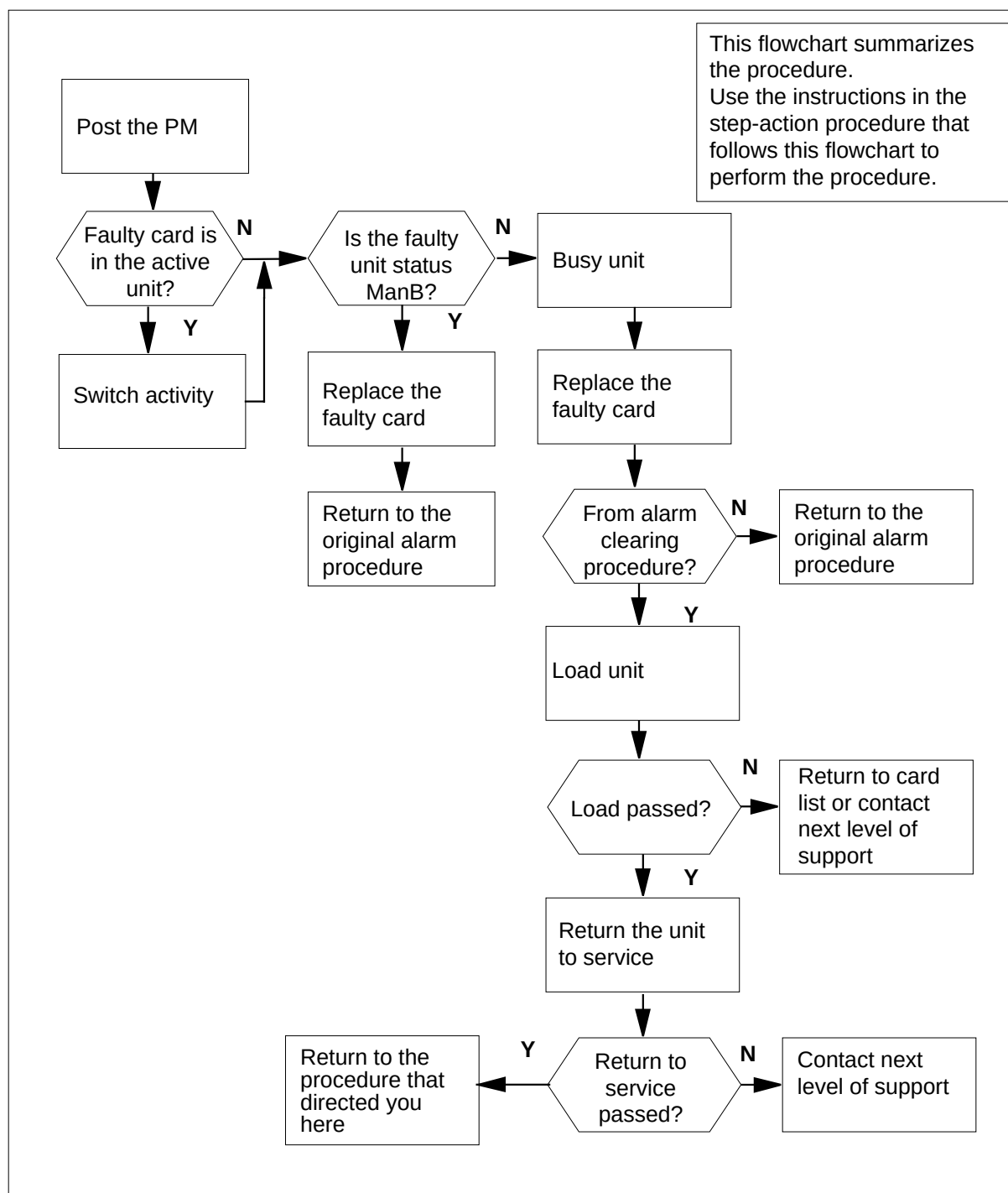
Do not go to the common procedures unless directed to do so in the step-action procedure.

**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 Reason: XPM SWACTback                                                                                                                                                                                                                                    | Rea - 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.<br>Go to step 22. |               |
| <b>At the equipment frame</b> |                                                                                                                                                                                                                                                                       |               |
| 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.                                                                                                                              |               |
| <b>At the MAP terminal</b>    |                                                                                                                                                                                                                                                                       |               |
| 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<br><b>&gt;BSY UNIT unit_no</b><br>and pressing the Enter key.<br><i>where</i><br><b>unit_no</b><br>is the number of the inactive SMA unit (0 or 1)                                                                                |               |
| 14                            | Reset the inactive PM unit to inhibit messaging by typing<br><b>&gt;PMRESET UNIT unit_no NORUN</b><br>and pressing the Enter key.<br><i>where</i><br><b>unit_no</b><br>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.

Perform the common replacing a card procedure in this document.

16

Use the following information to determine the next step.

| <b>If you were directed here from</b> | <b>Do</b> |
|---------------------------------------|-----------|
| 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

| <b>If load</b> | <b>Do</b> |
|----------------|-----------|
| 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

| <b>If RTS</b> | <b>Do</b> |
|---------------|-----------|
| passed        | step 19   |



---

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

---

---

**If RTS**

failed

---

**Do**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.

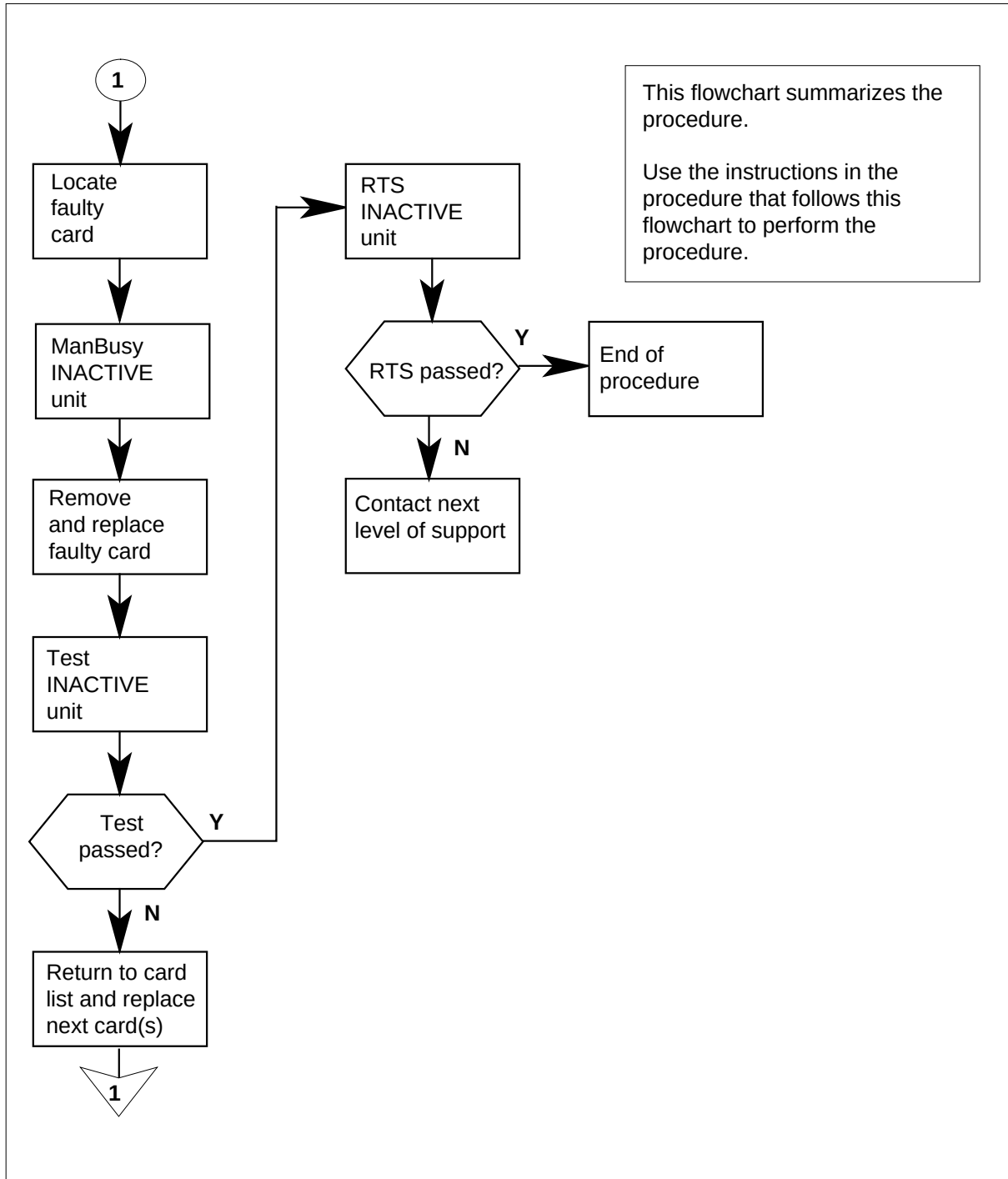
| PEC    | Suffixes     | Name                 |
|--------|--------------|----------------------|
| NT6X41 | AA,AB,<br>CA | Speech bus formatter |

### **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:<br>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)**

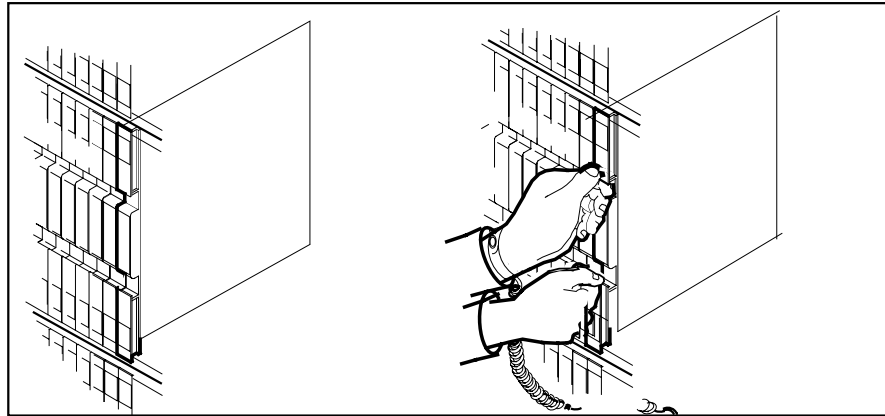
13

**DANGER****Equipment damage**

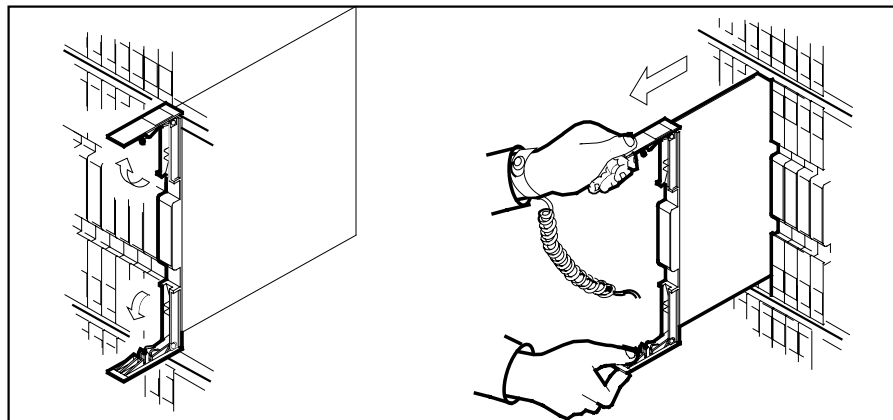
When removing or inserting a card, do not apply direct pressure to the components and do not force the cards into the slots.

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.

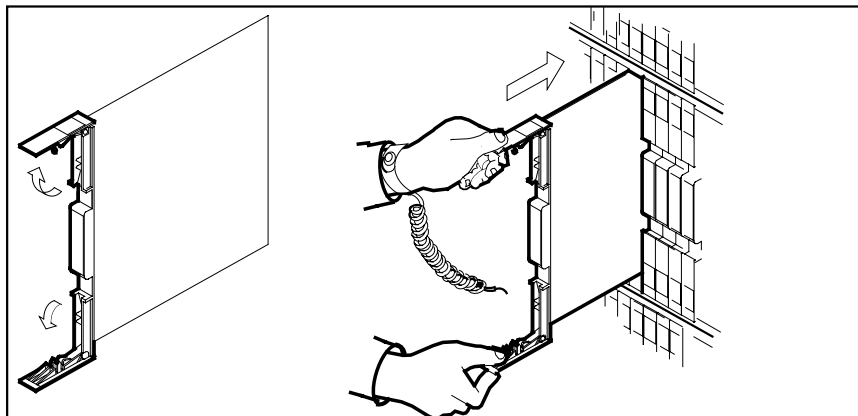


- c** Verify the replacement card has the same PEC, including suffix, as the card you just removed.

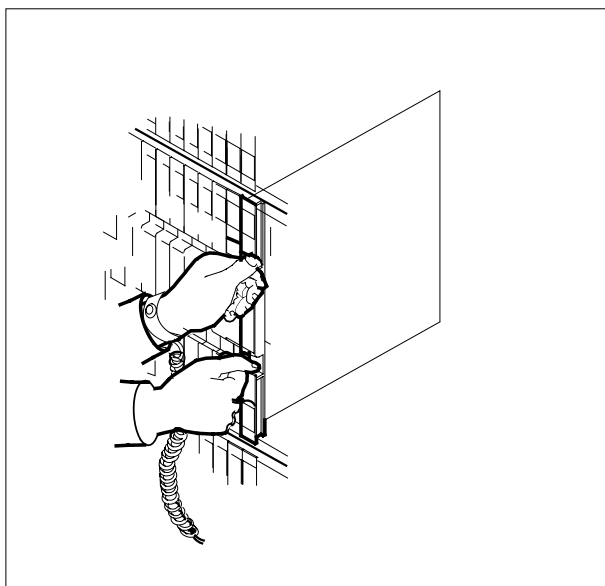
## NT6X41 in an SMS (continued)

---

- 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<br><b>&gt;TST UNIT unit_no</b><br>and pressing the Enter key.<br><i>where</i><br><b>unit_no</b><br>is the number of the faulty SMS unit                                                                                             |           |
|                     | <b>If TST</b>                                                                                                                                                                                                                                                        | <b>Do</b> |
|                     | passed                                                                                                                                                                                                                                                               | step 18   |
|                     | failed                                                                                                                                                                                                                                                               | step 19   |
| 18                  | Return the inactive SMS unit to service by typing<br><b>&gt;RTS UNIT unit_no</b><br>and pressing the Enter key.<br><i>where</i><br><b>unit_no</b><br>is the number of the faulty SMS unit                                                                            |           |
|                     | <b>If RTS</b>                                                                                                                                                                                                                                                        | <b>Do</b> |
|                     | 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.                                                                                                                                                |           |
| <b>At the frame</b> |                                                                                                                                                                                                                                                                      |           |
| 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: <ul style="list-style-type: none"> <li>• date the card was replaced</li> <li>• serial number of the card</li> <li>• symptoms that prompted replacement of the card</li> </ul>                |           |

**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**

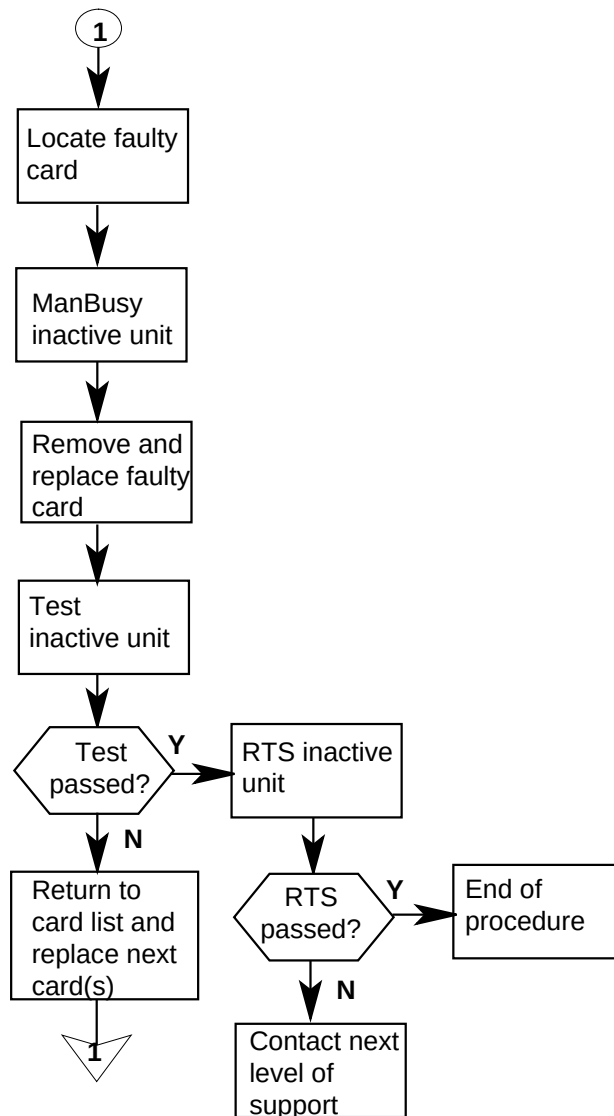
Not applicable

**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:<br>XPM SwActback | step 7 |
| SwAct refused by SwAct<br>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.

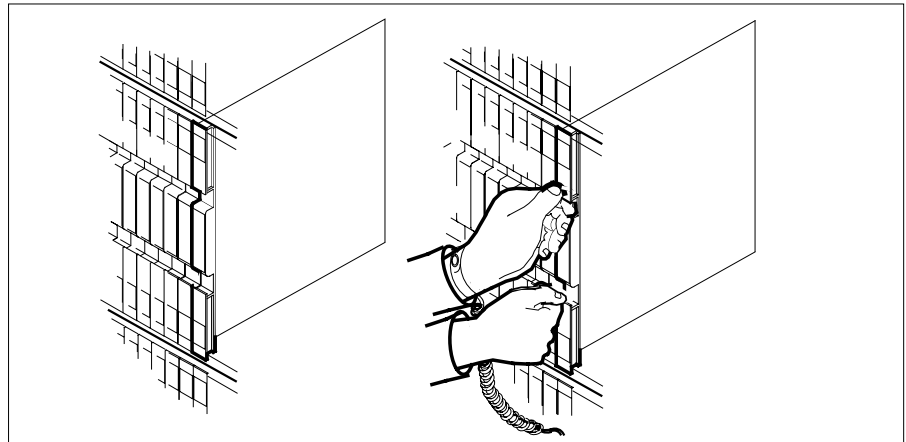
**11****DANGER****Equipment damage**

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.

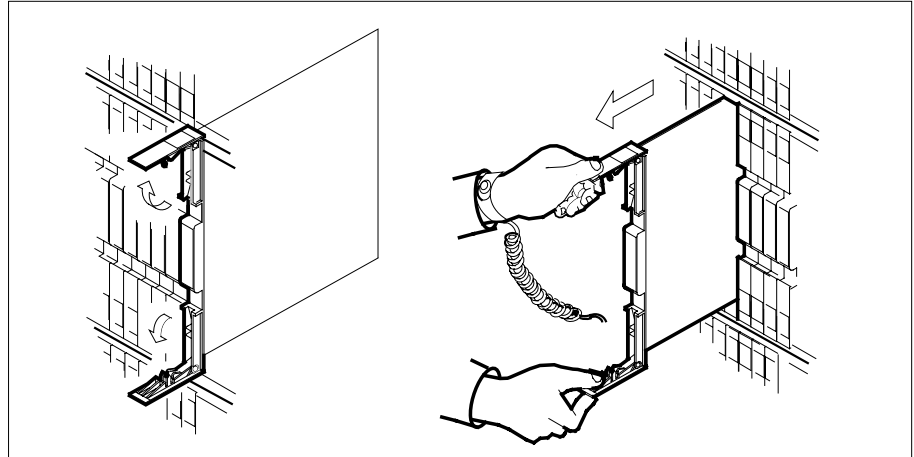
**a** Locate the card to be removed on the appropriate shelf.

**12**

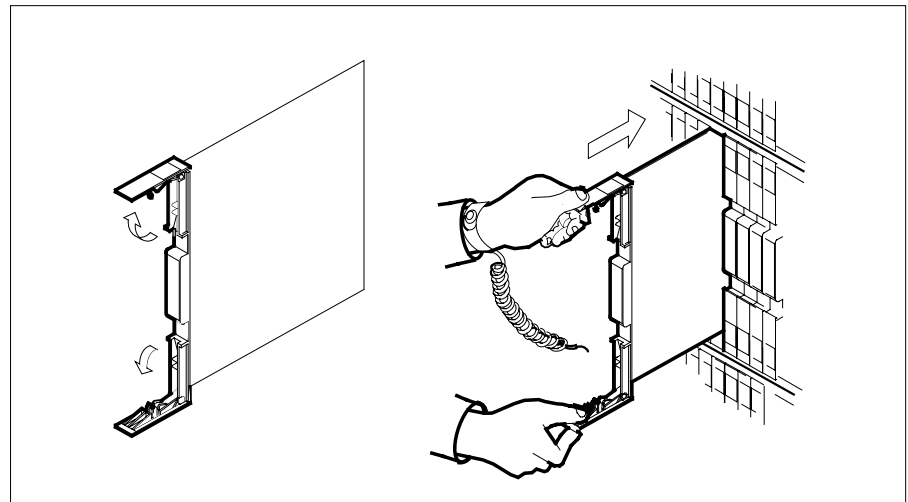
Open the locking levers on the card to be replaced and gently pull the card toward you until it clears the shelf.

## NT6X41 in an SMS-R (continued)

---



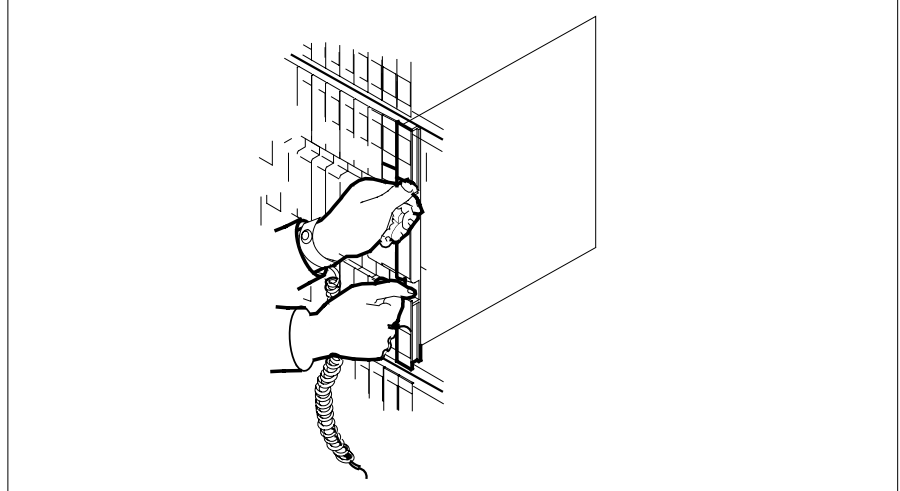
- 13 Verify that the replacement card has the same PEC, including suffix, as the card you just removed.
- 14 Open the locking levers on the replacement card.
  - a Align the card with the slots in the shelf and gently slide the card into the shelf.



- 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**

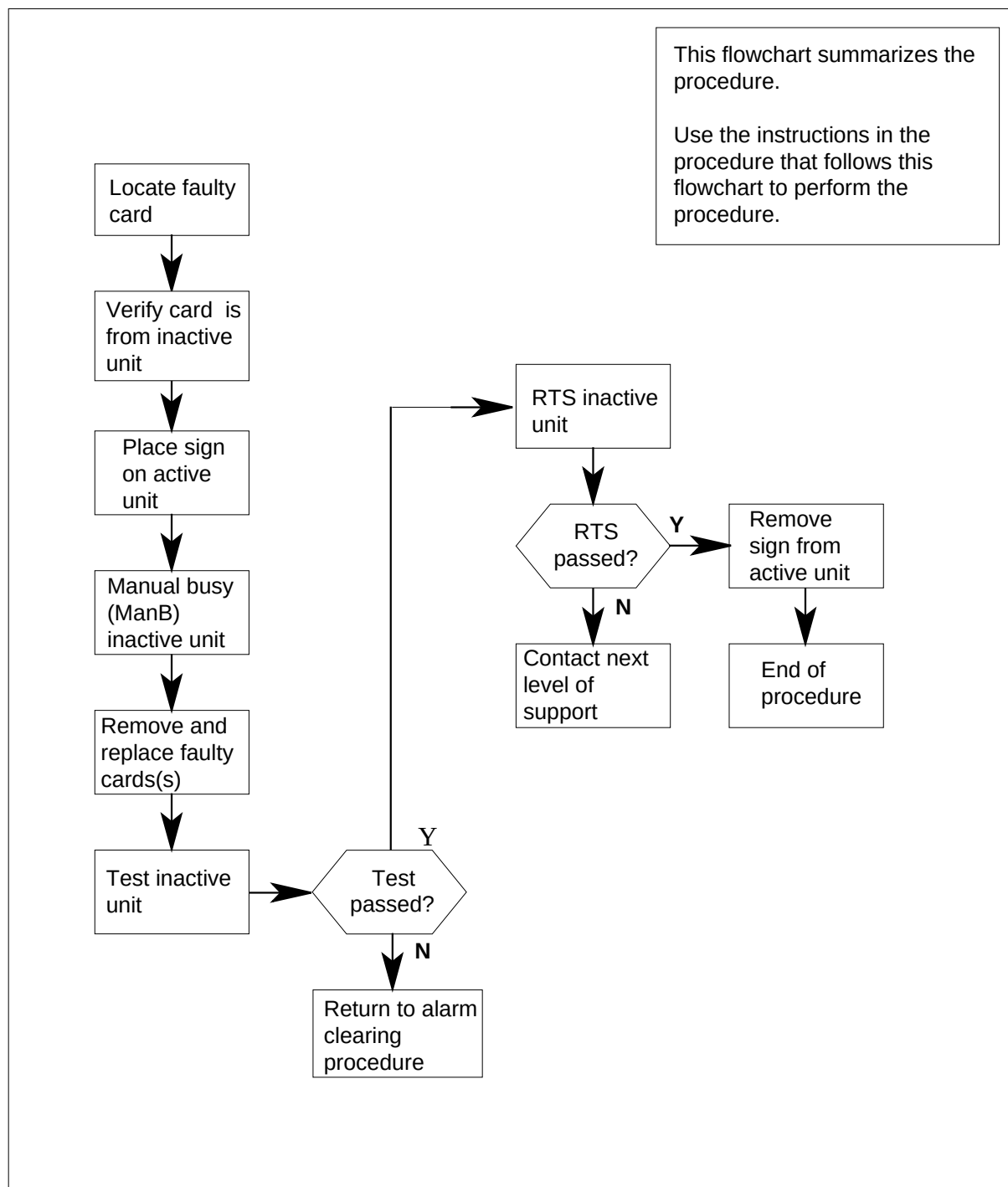
The common replacing a card procedure is referenced in this procedure.

**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:<br>XPM SwActback | step 7 |
| SwAct refused by SwAct<br>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

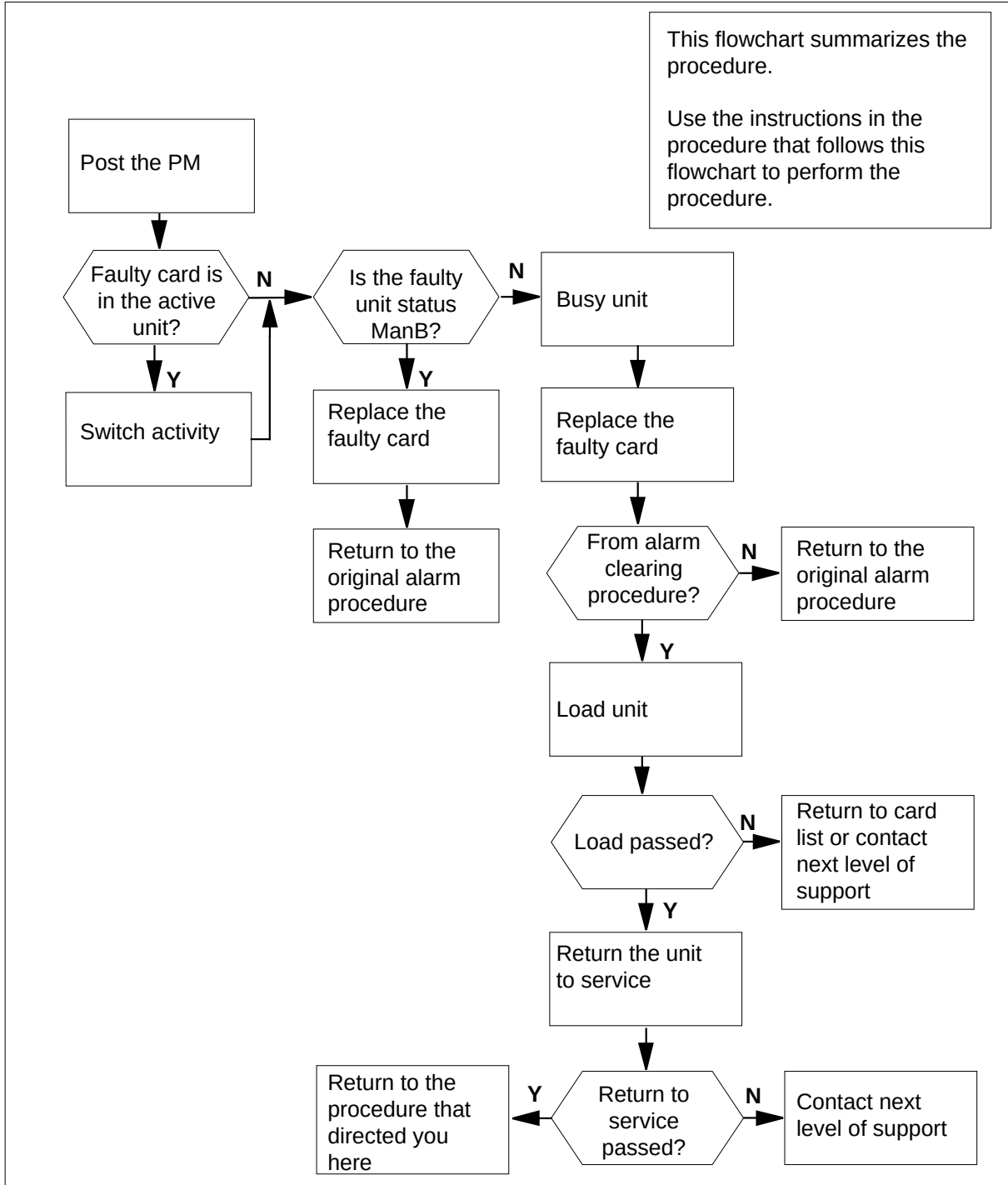
Do not go to the common procedures unless directed to do so in the step-action procedure.

**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:<br>XPM SWACTback | step 9  |
| SWACT refused by SWACT<br>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

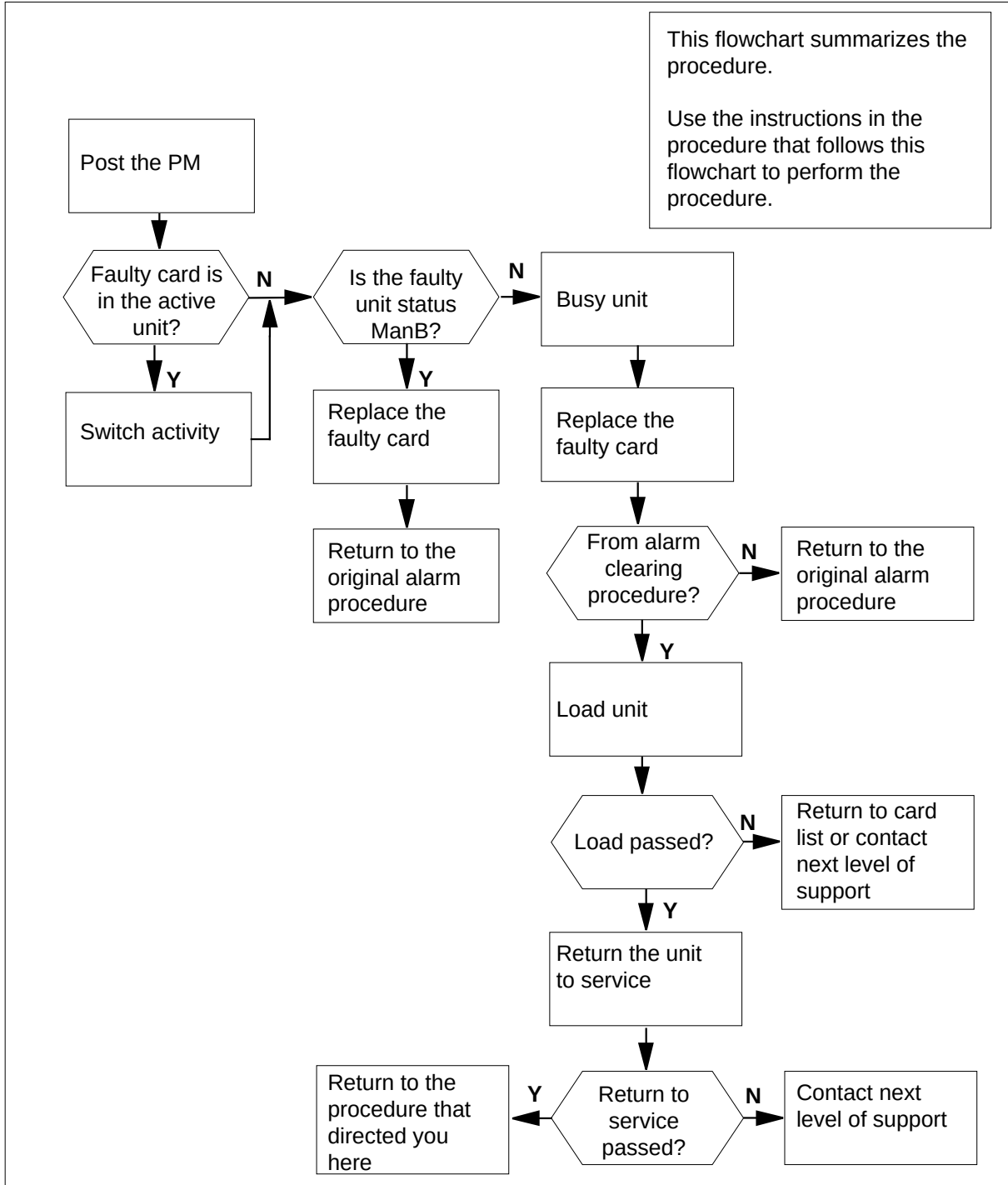
Do not go to the common procedures unless directed to do so in the step-action procedure.

**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:<br>XPM SWACTback                                                                                                                                                                                                                                      | step 10 |
|           | SWACT refused by SWACT<br>Controller                                                                                                                                                                                                                                      | step 10 |
| <b>10</b> | 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.<br><br>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<br>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

---

**Do**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.

## **NT6X42 in an SMS**

---

### **Application**

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

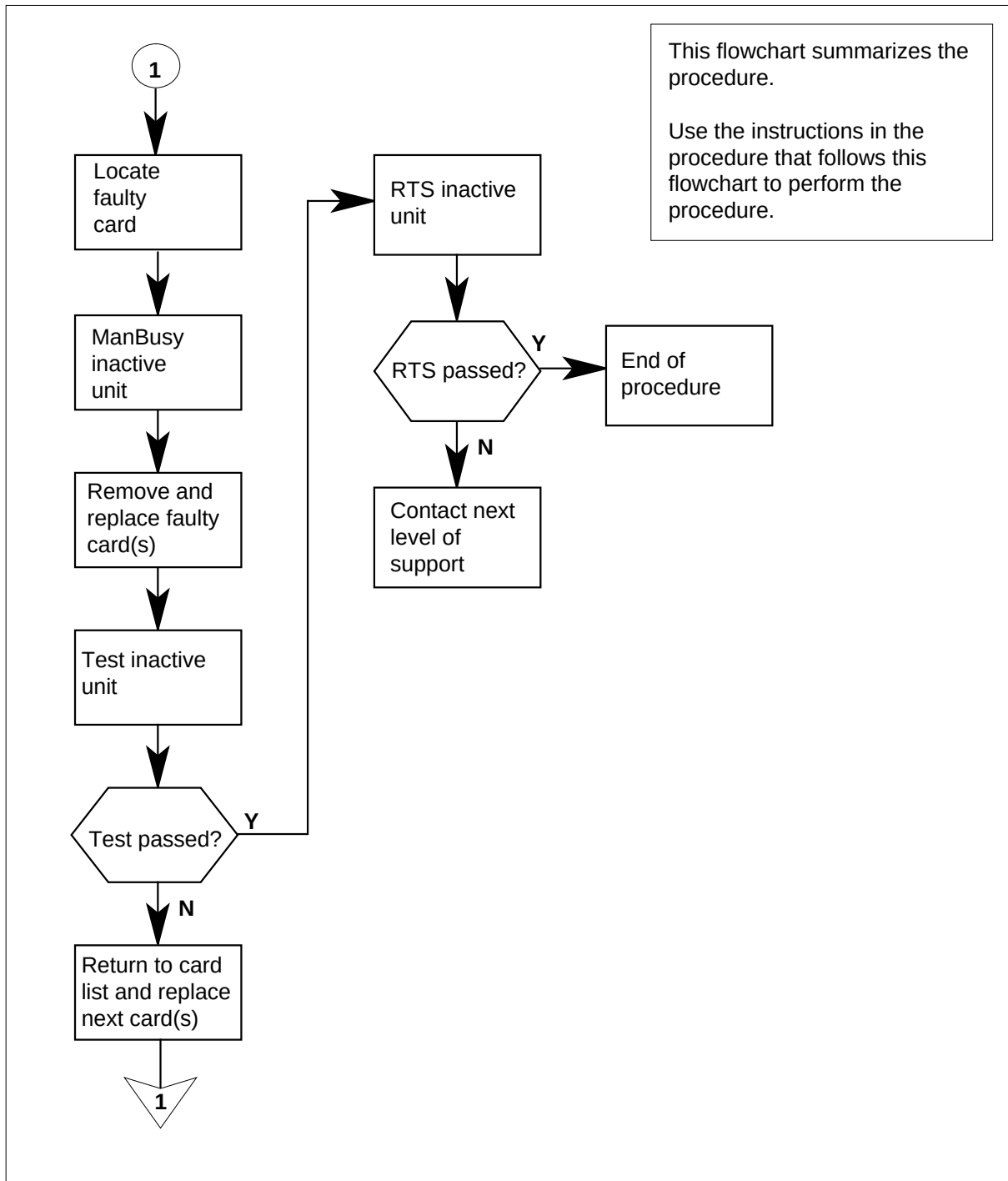
| <b>PEC</b> | <b>Suffixes</b> | <b>Name</b>                 |
|------------|-----------------|-----------------------------|
| NT6X42     | AA              | Channel supervision message |

### **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:<br>XPM SWACTback | step 7 |
| SWACT refused by SWACT<br>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



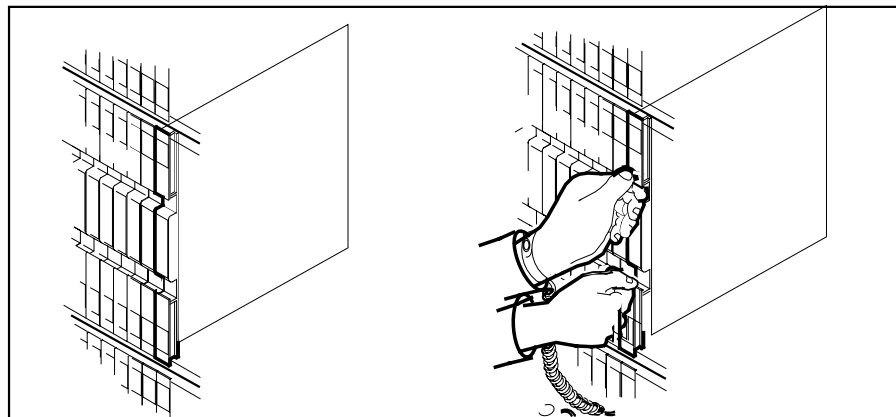
**DANGER**

**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.

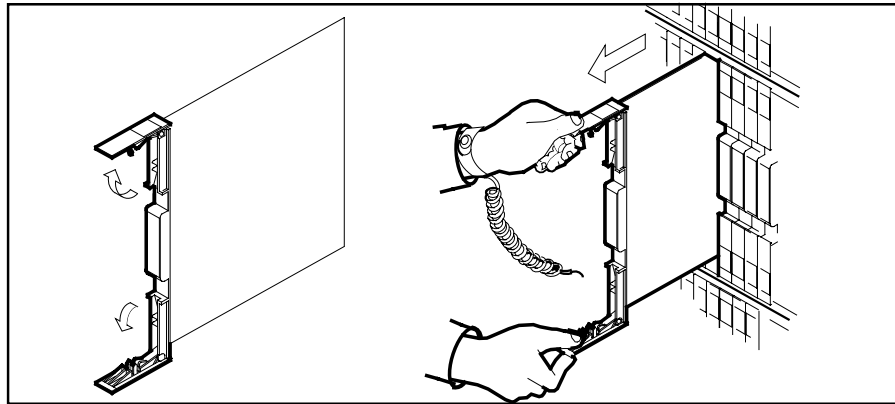
Remove the NT6X42 card as shown in the following figures.

- 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.

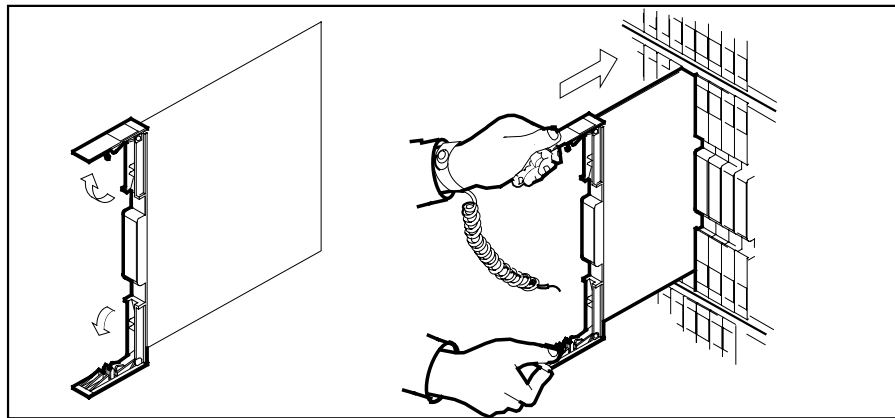
**NT6X42**  
**in an SMS (continued)**



- 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.

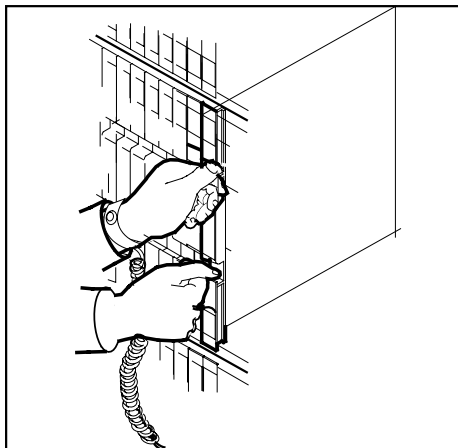


**13** Seat and lock the card.

- 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.

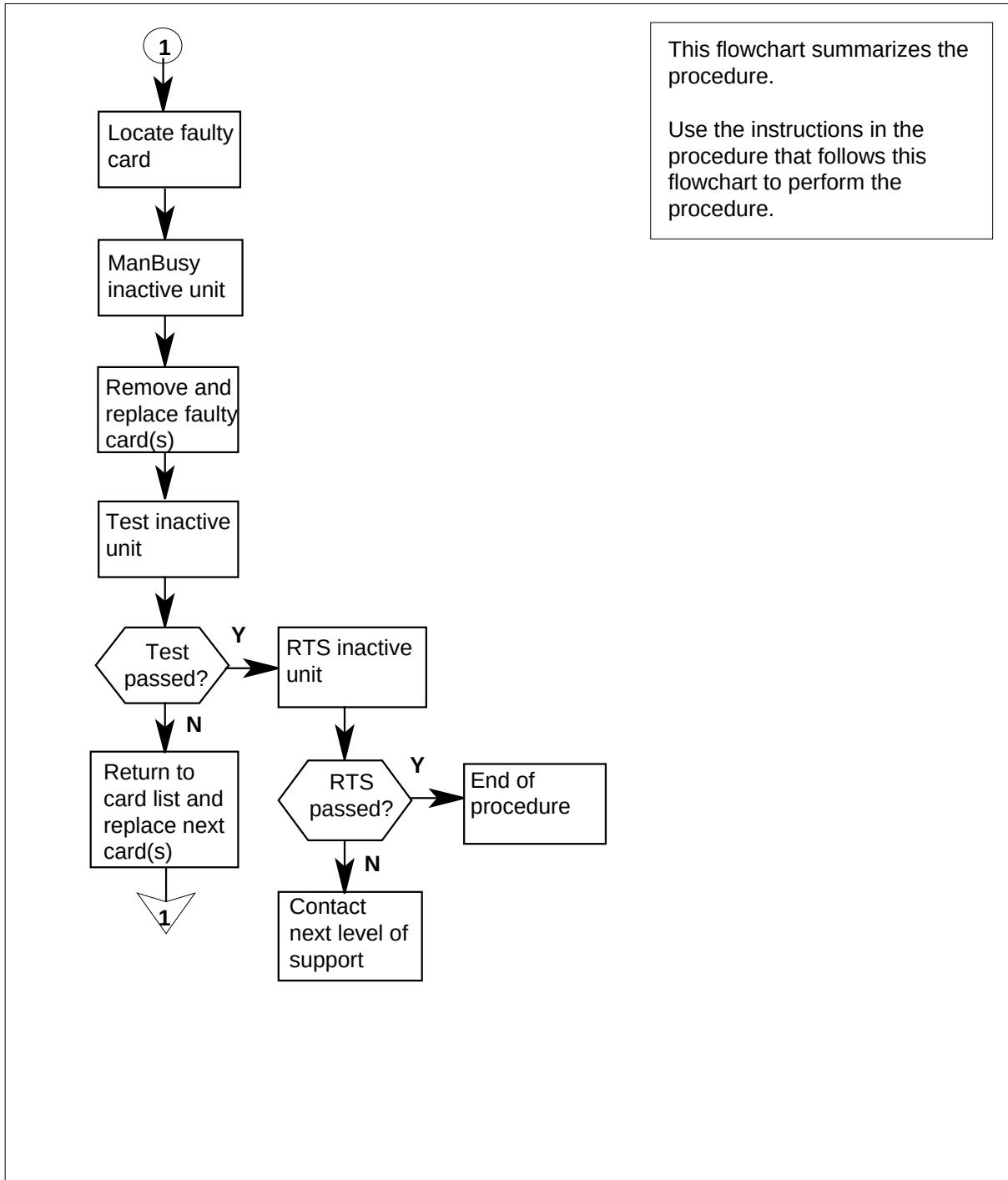
| <b>PEC</b> | <b>Suffixes</b> | <b>Name</b>                 |
|------------|-----------------|-----------------------------|
| NT6X42     | AA              | Channel Supervision Message |

### **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:<br>XPM SwActback | step 7 |
| SwAct refused by SwAct<br>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**

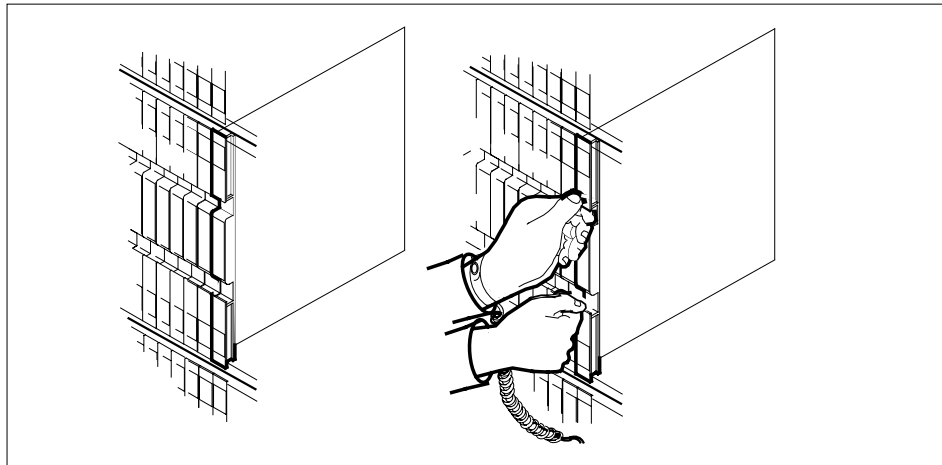
**Equipment damage**

Take the following precautions when removing or inserting a card:

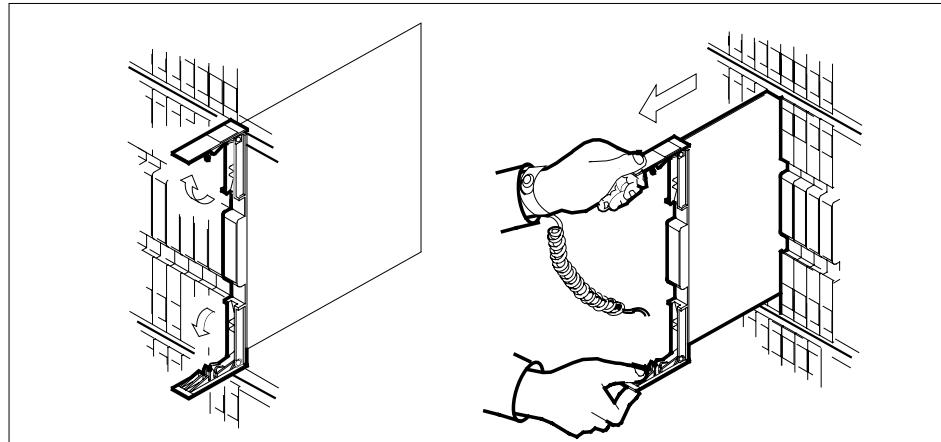
1. Do not apply direct pressure to the components.
2. Do not force the cards into the slots.

Remove the NT6X42 card as shown in the following figures.

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



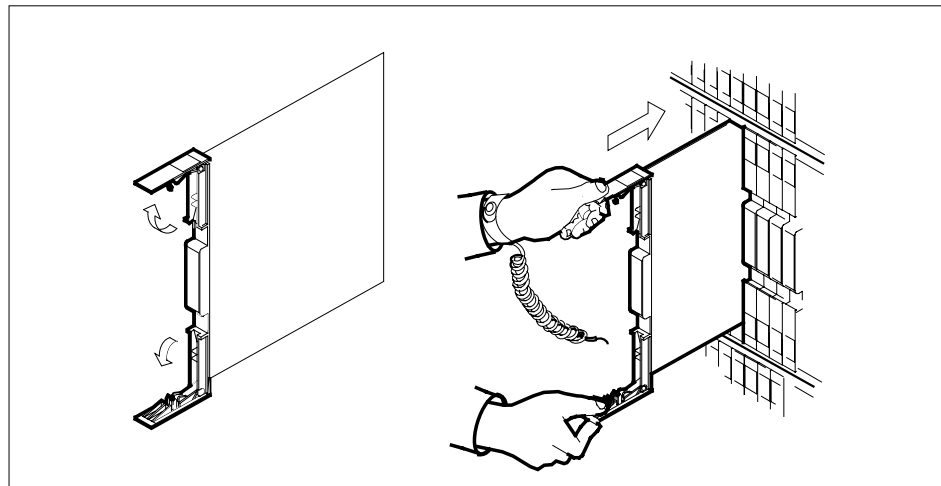
- b** Open the locking levers on the card to be replaced and gently pull the card toward you until it clears the shelf.

**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.

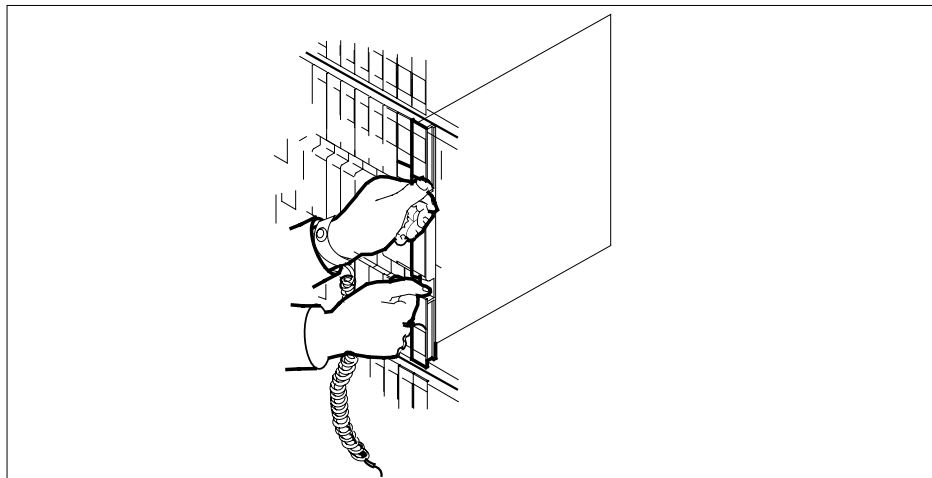
- a Align the card with the slots in the shelf and gently slide the card into the shelf.

**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.

| <b>PEC</b> | <b>Suffixes</b> | <b>Name</b> |
|------------|-----------------|-------------|
| NT6X44     | AA, EA          | Time switch |

### **Common procedures**

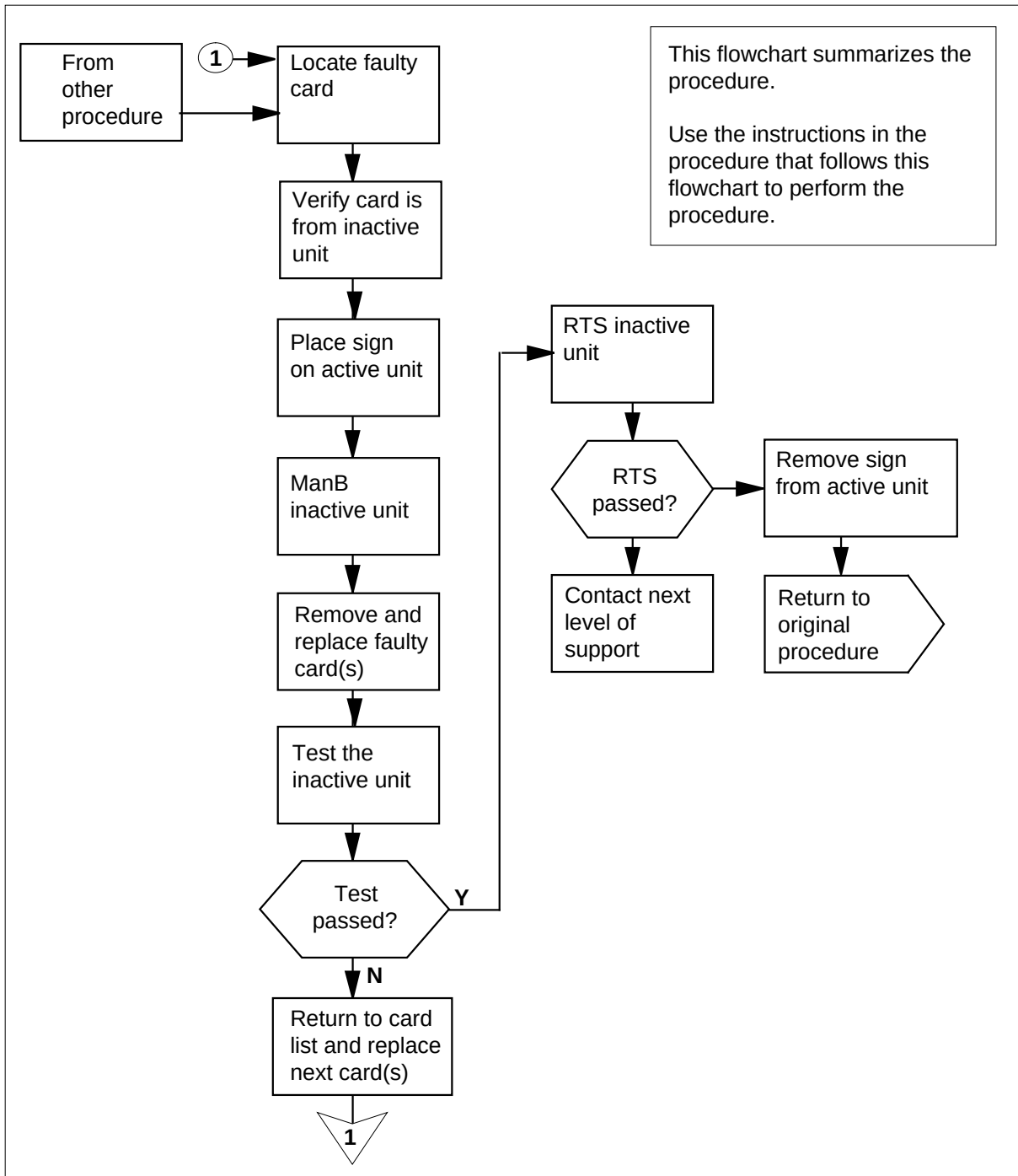
None

### **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**

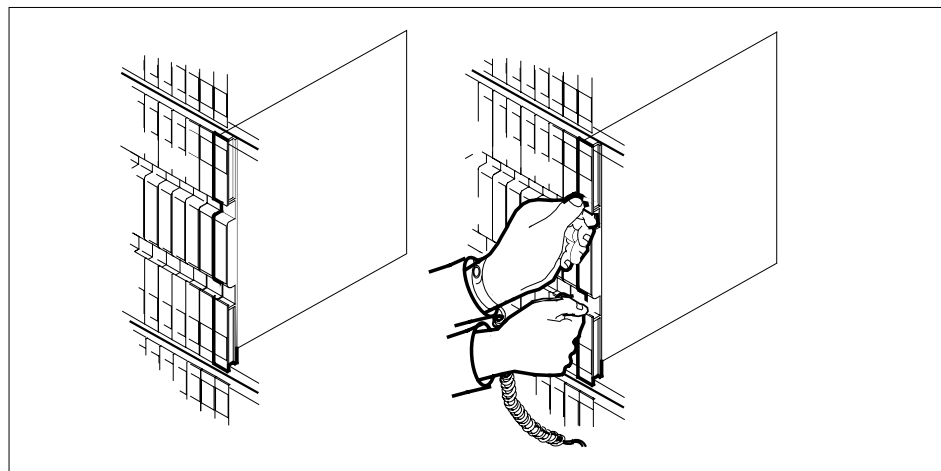
Take the following precautions when removing or inserting a card:

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

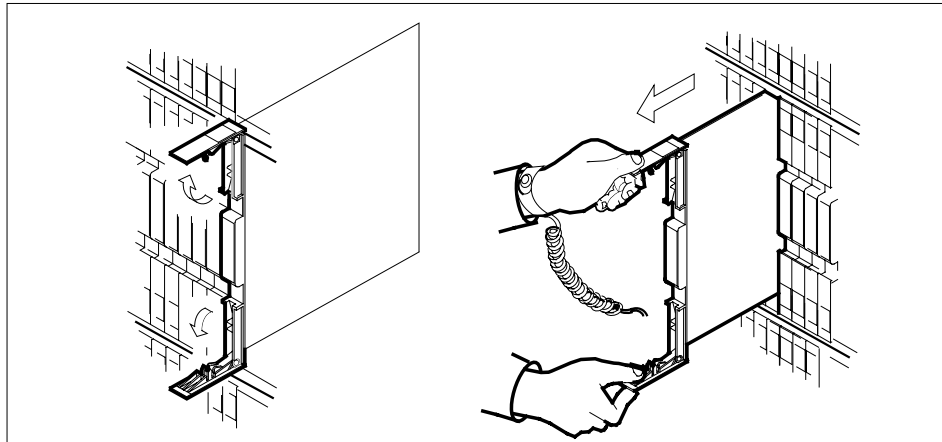
Put on a wrist strap.

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

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

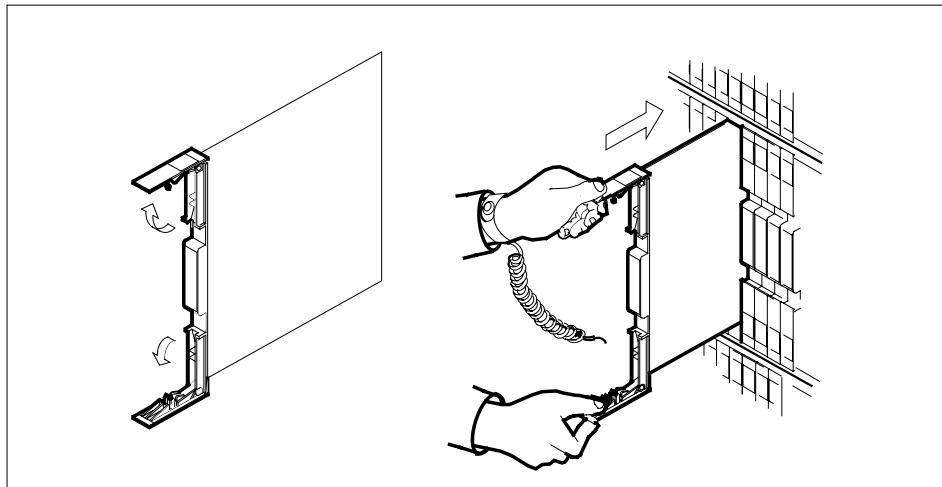


b Open the locking levers on the card to be replaced and gently pull the card towards you until it clears the shelf.

**NT6X44**  
**in an RSC (continued)**

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

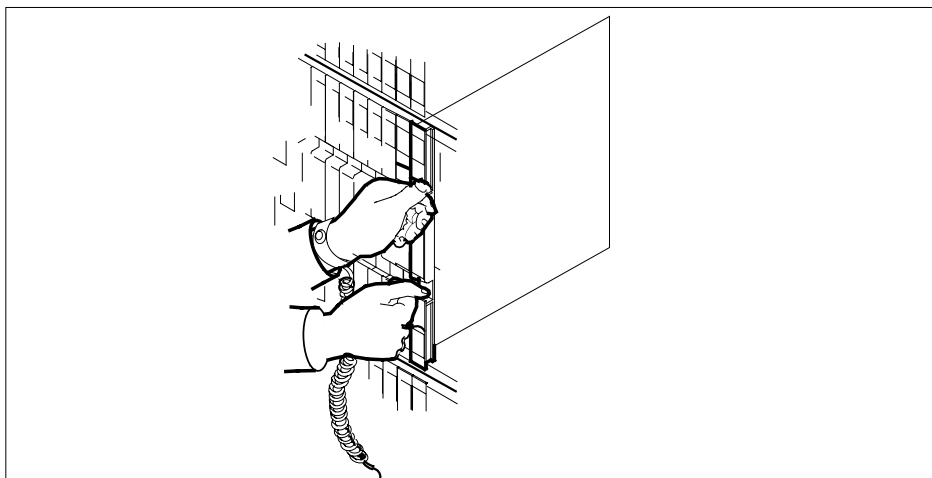
- 9** Open the locking levers on the replacement card.  
Align the card with the slots in the shelf and gently slide the card into the shelf.



- 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.

| <b>If you entered this procedure from</b> | <b>Do</b> |
|-------------------------------------------|-----------|
| 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.

| <b>If RTS</b> | <b>Do</b> |
|---------------|-----------|
| 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.

| <b>PEC</b> | <b>Suffixes</b> | <b>Name</b> |
|------------|-----------------|-------------|
| NT6X44     | CA              | Time Switch |

### **Common procedures**

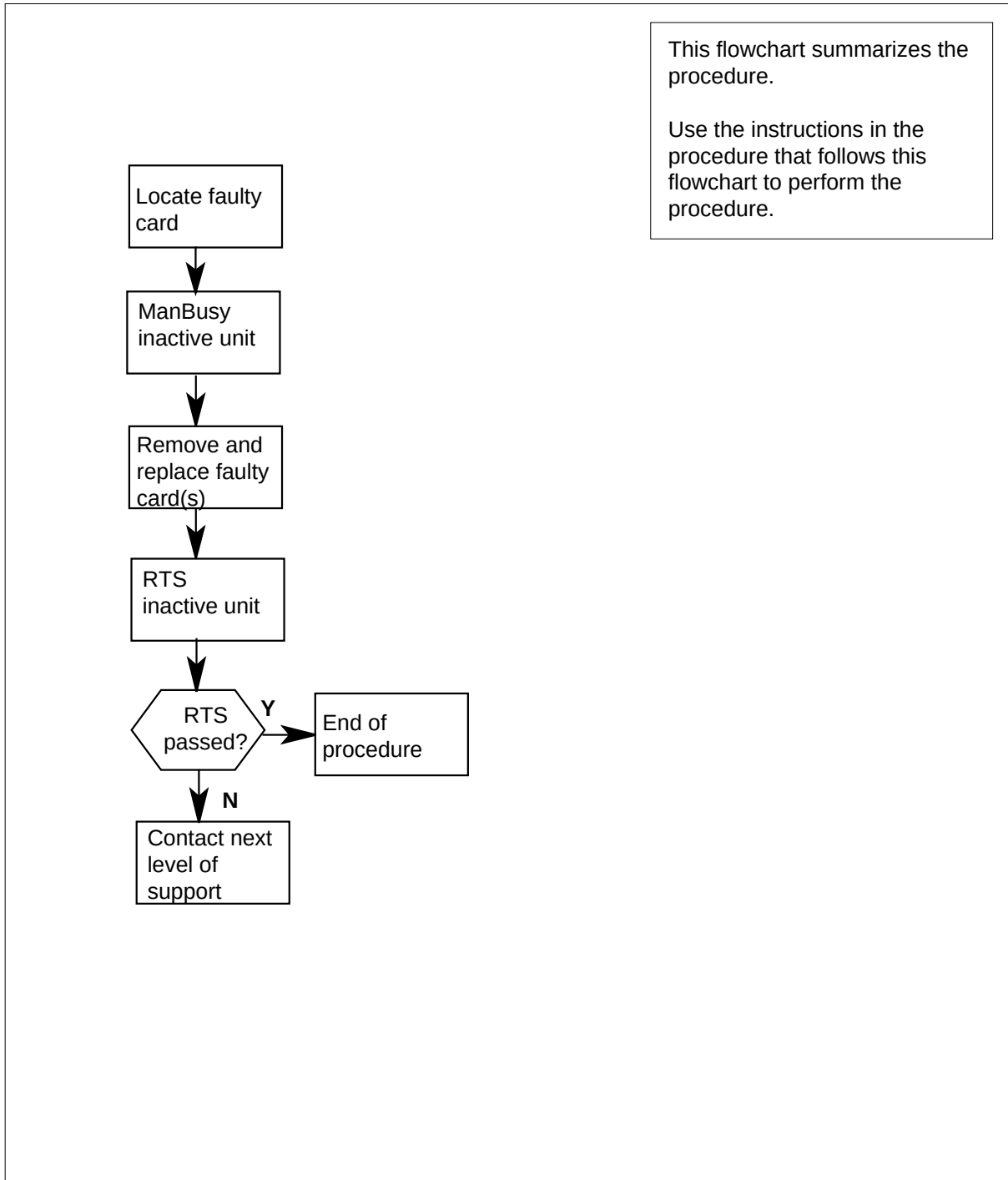
The following procedures are referenced in this procedure:

- 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:<br>XPM SwActback | step 7 |
| SwAct refused by SwAct<br>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<br><b>&gt;bsy UNIT unit_no</b><br>and pressing the Enter key.<br><i>where</i><br><b>unit_no</b><br>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

---

**Do**step 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.

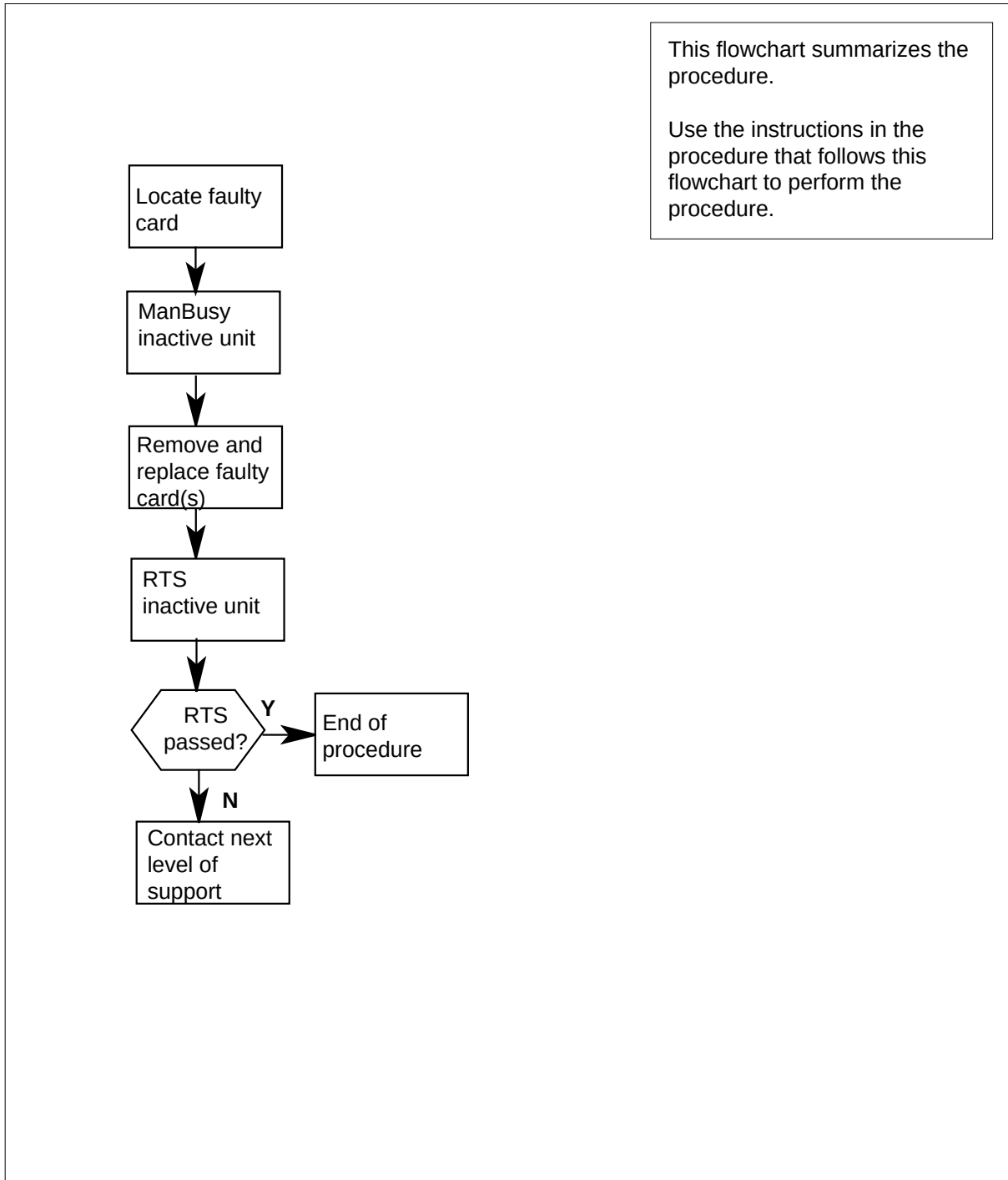
| <b>PEC</b> | <b>Suffixes</b> | <b>Name</b> |
|------------|-----------------|-------------|
| NT6X44     | CA              | Time Switch |

### **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**

## 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<br><b>&gt;NO</b><br>and pressing the Enter key.<br>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<br><b>&gt;YES</b><br>and pressing the Enter key.<br>The system runs a pre-SWACT audit to determine the ability of the inactive unit to accept activity reliably.<br><br><b>Note:</b> 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:<br>XPM SwActback                                                                                                                                                                                                                                                                                                                                                | step 8 |
|                               | SwAct refused by SwAct<br>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.<br><br>Go to step 19.                                                                                          |        |
| <b>At the equipment frame</b> |                                                                                                                                                                                                                                                                                                                                                                                      |        |
| 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

| <b>If RTS</b> | <b>Do</b> |
|---------------|-----------|
| 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 card
- Go 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.

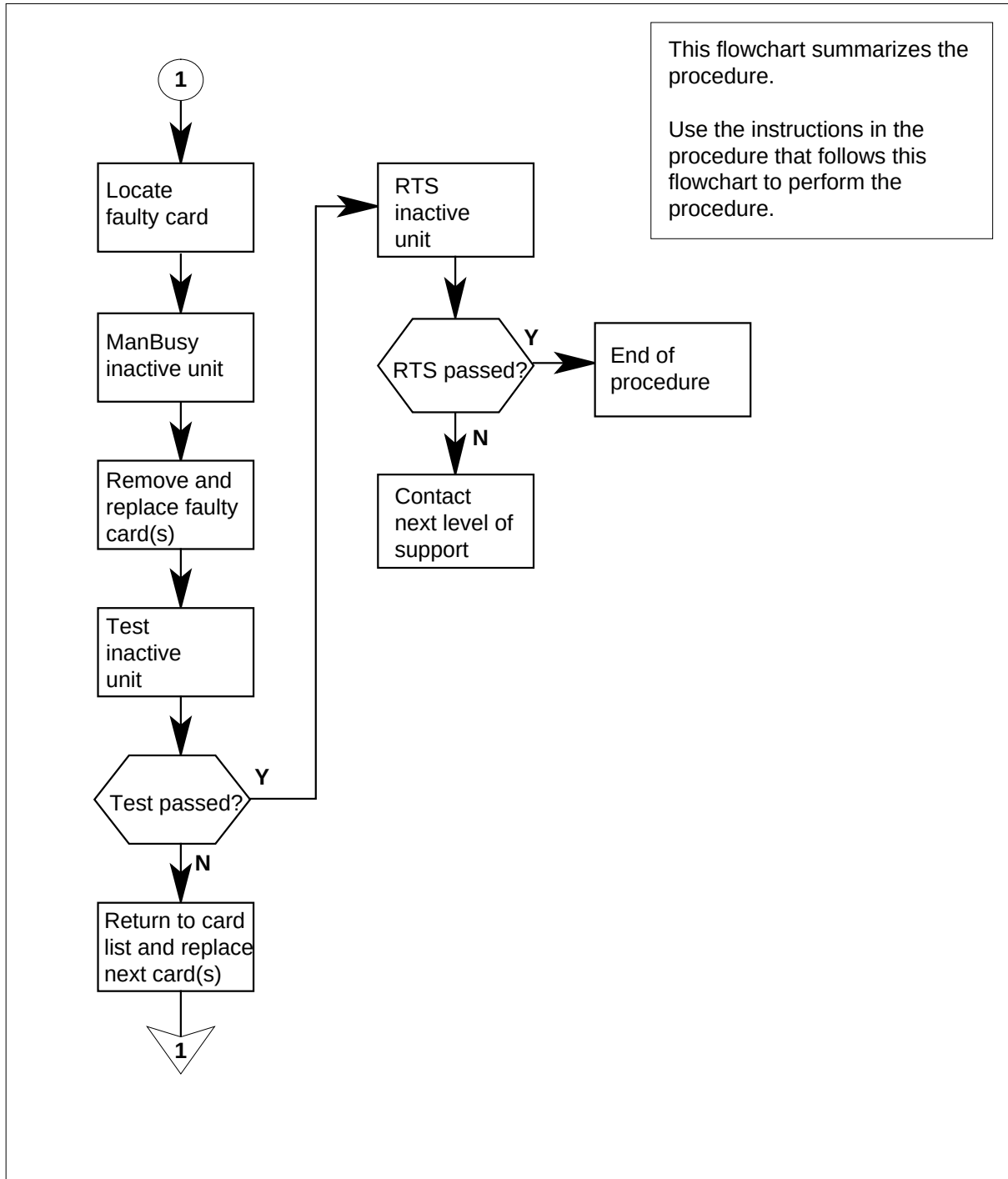
| PEC    | Suffixes | Name        |
|--------|----------|-------------|
| NT6X44 | AB, CA   | Time switch |

### **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.

---

| <b>If faulty card is on</b> | <b>Do</b> |
|-----------------------------|-----------|
| 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:<br>XPM SwActback | step 7 |
| SwAct refused by SwAct<br>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



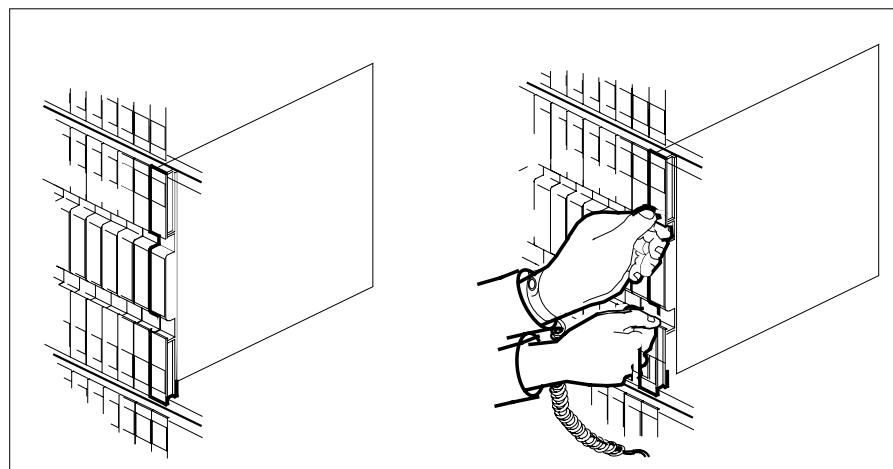
**DANGER**

**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.

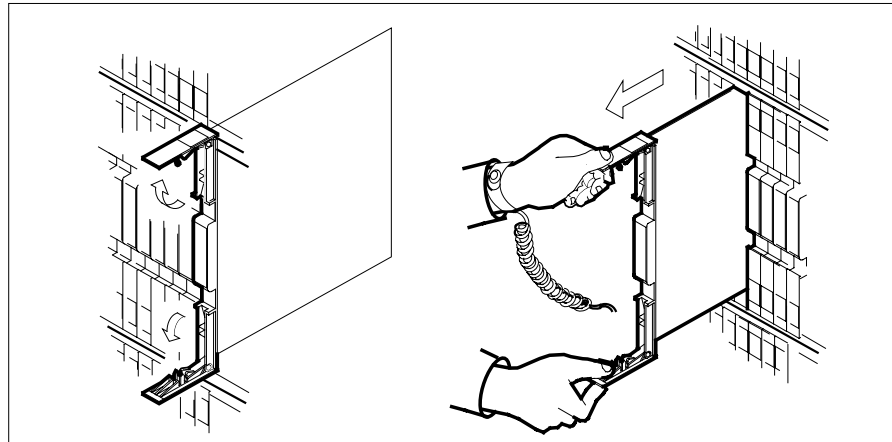
Remove the NT6X44 card as shown in the following figures.

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



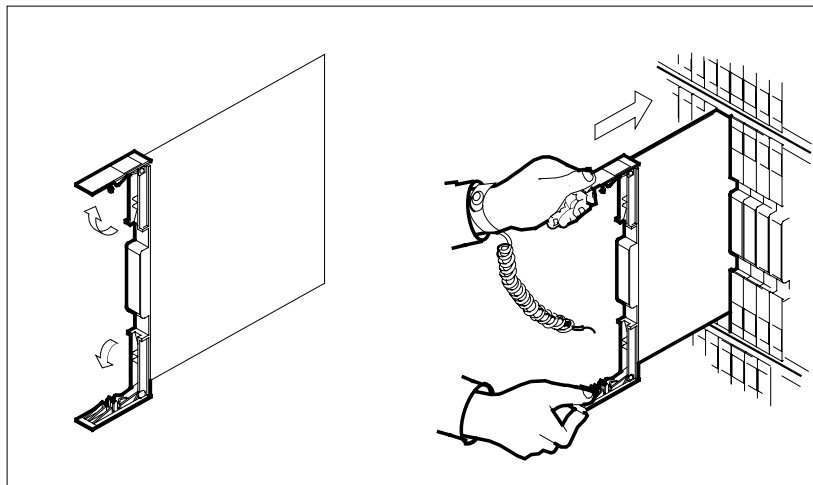
- b** Open the locking levers on the card to be replaced and gently pull the card toward you until it clears the shelf.

## 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.

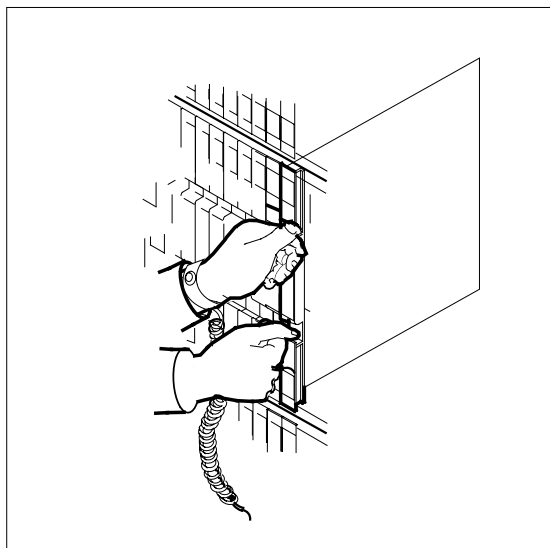


- 13** Seat and lock the card.

- 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

| <b>If RTS</b> | <b>Do</b> |
|---------------|-----------|
| 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.

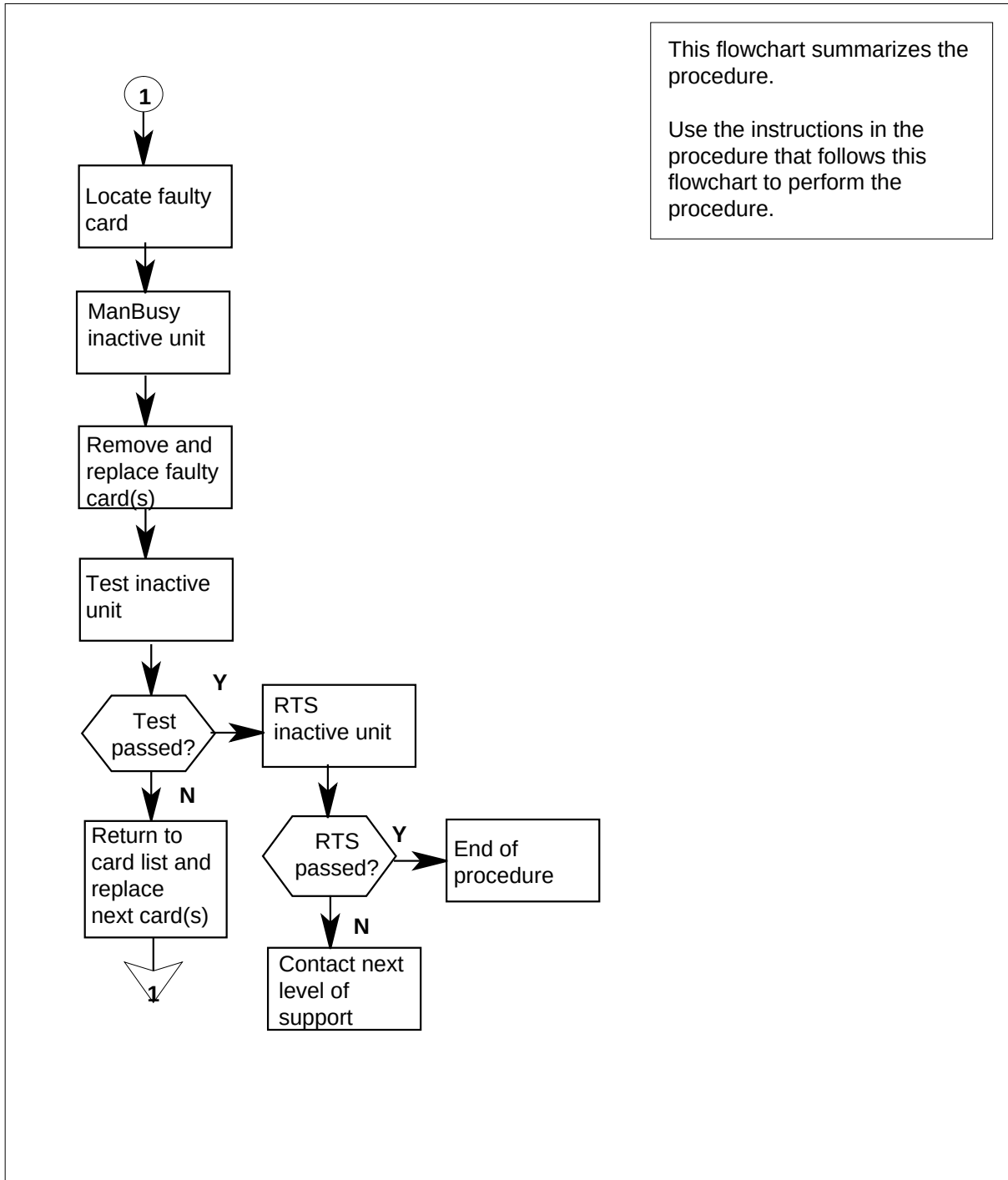
| <b>PEC</b> | <b>Suffixes</b> | <b>Name</b> |
|------------|-----------------|-------------|
| NT6X44     | AB, CA          | Time Switch |

### **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:<br>XPM SwActback | step 7 |
| SwAct refused by SwAct<br>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**

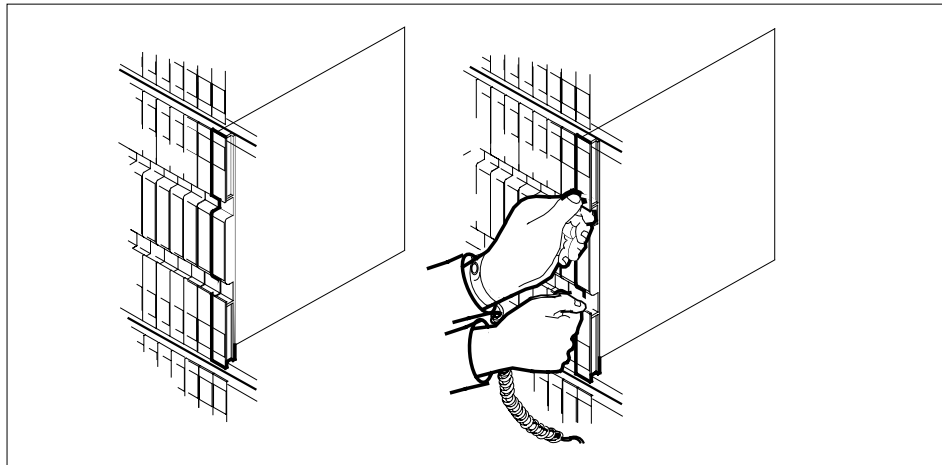
##### **Equipment damage**

Take the following precautions when removing or inserting a card:

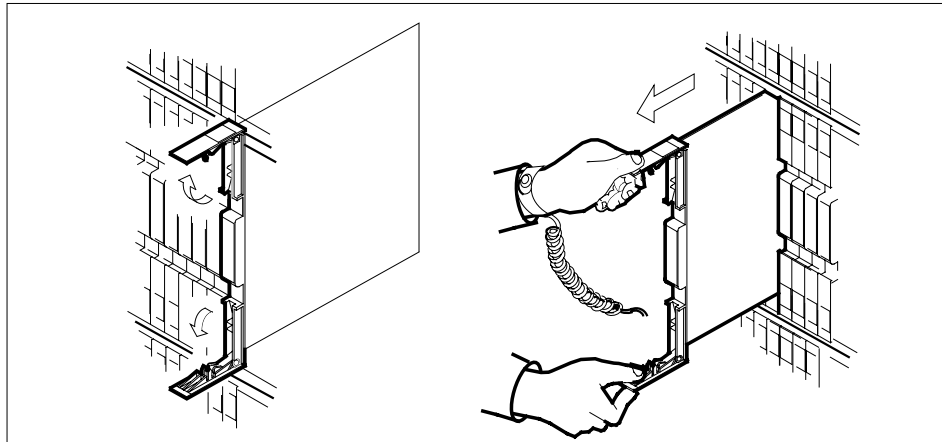
1. Do not apply direct pressure to the components.
2. Do not force the cards into the slots.

Remove the NT6X44 card as shown in the following figures.

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



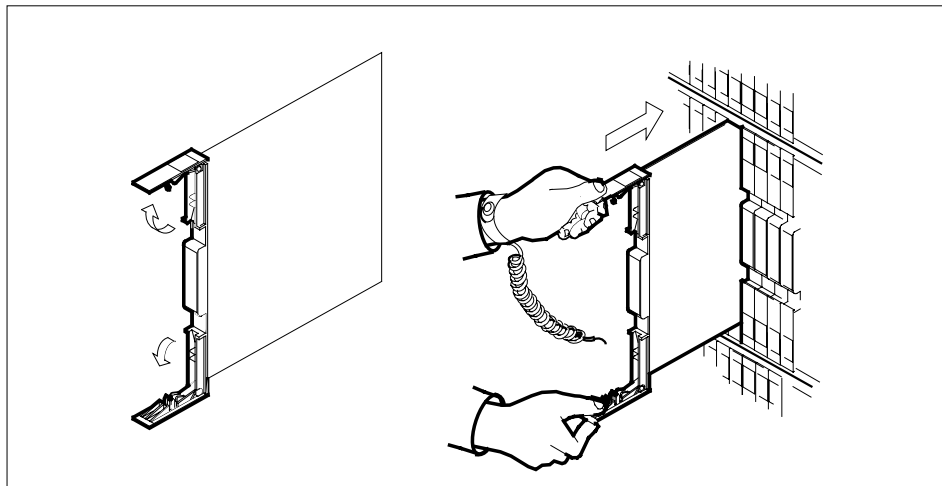
- b** Open the locking levers on the card to be replaced and gently pull the card toward you until it clears the shelf.

**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.

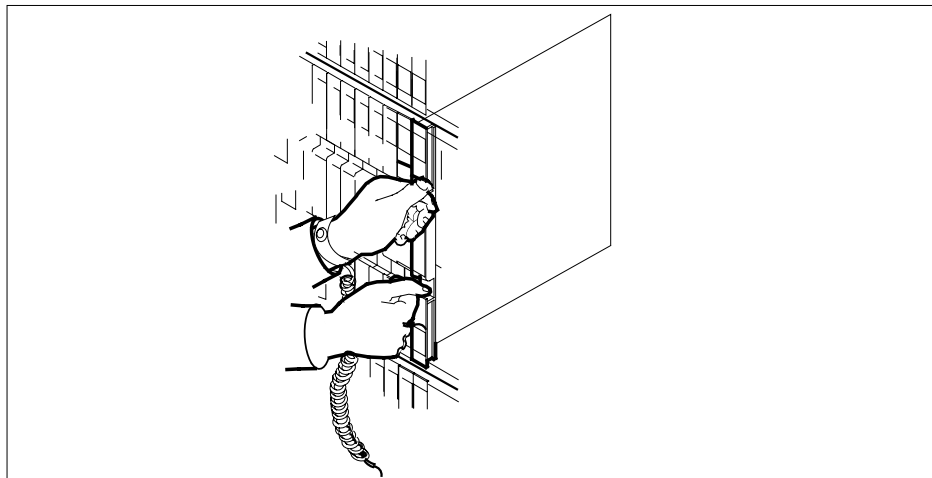
- a Align the card with the slots in the shelf and gently slide the card into the shelf.

**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

| <b>If RTS</b> | <b>Do</b> |
|---------------|-----------|
| 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.

| <b>PEC</b> | <b>Suffix</b> | <b>Name</b>   |
|------------|---------------|---------------|
| NTX645     | AF            | ESA processor |

### **Common procedures**

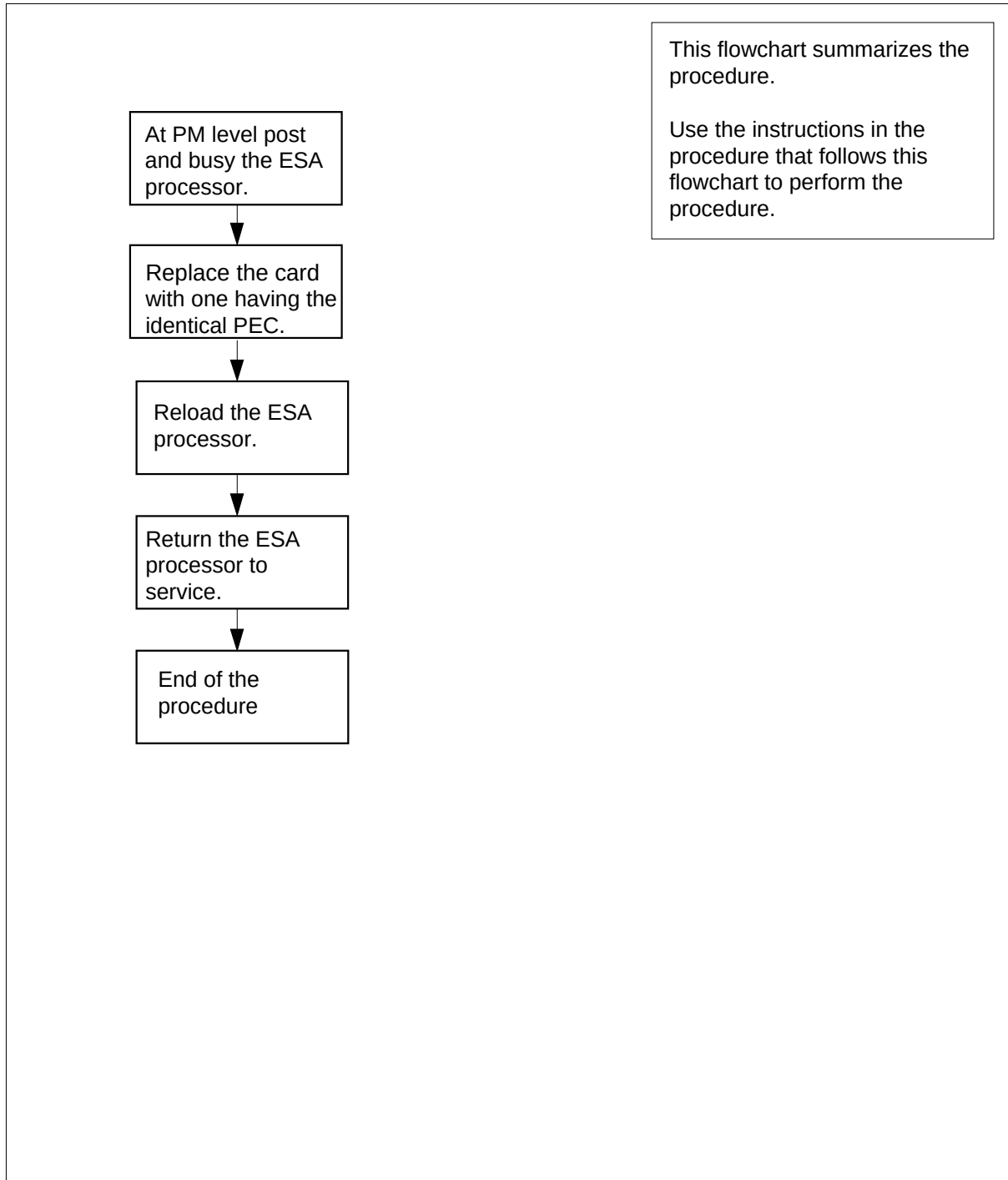
The common replacing a card procedure is referenced in this procedure.

### **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.

| <b>If</b>                                                             | <b>Do</b> |
|-----------------------------------------------------------------------|-----------|
| 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.

| <b>If load files are located on</b> | <b>Do</b> |
|-------------------------------------|-----------|
| 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<br><b>&gt;RTS</b><br>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: <ul style="list-style-type: none"><li>• date the card was replaced</li><li>• serial number of the card</li><li>• symptoms that prompted replacement of the card</li></ul> 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.

| <b>PEC</b> | <b>Suffix</b> | <b>Name</b>   |
|------------|---------------|---------------|
| NTX645     | AF            | ESA processor |

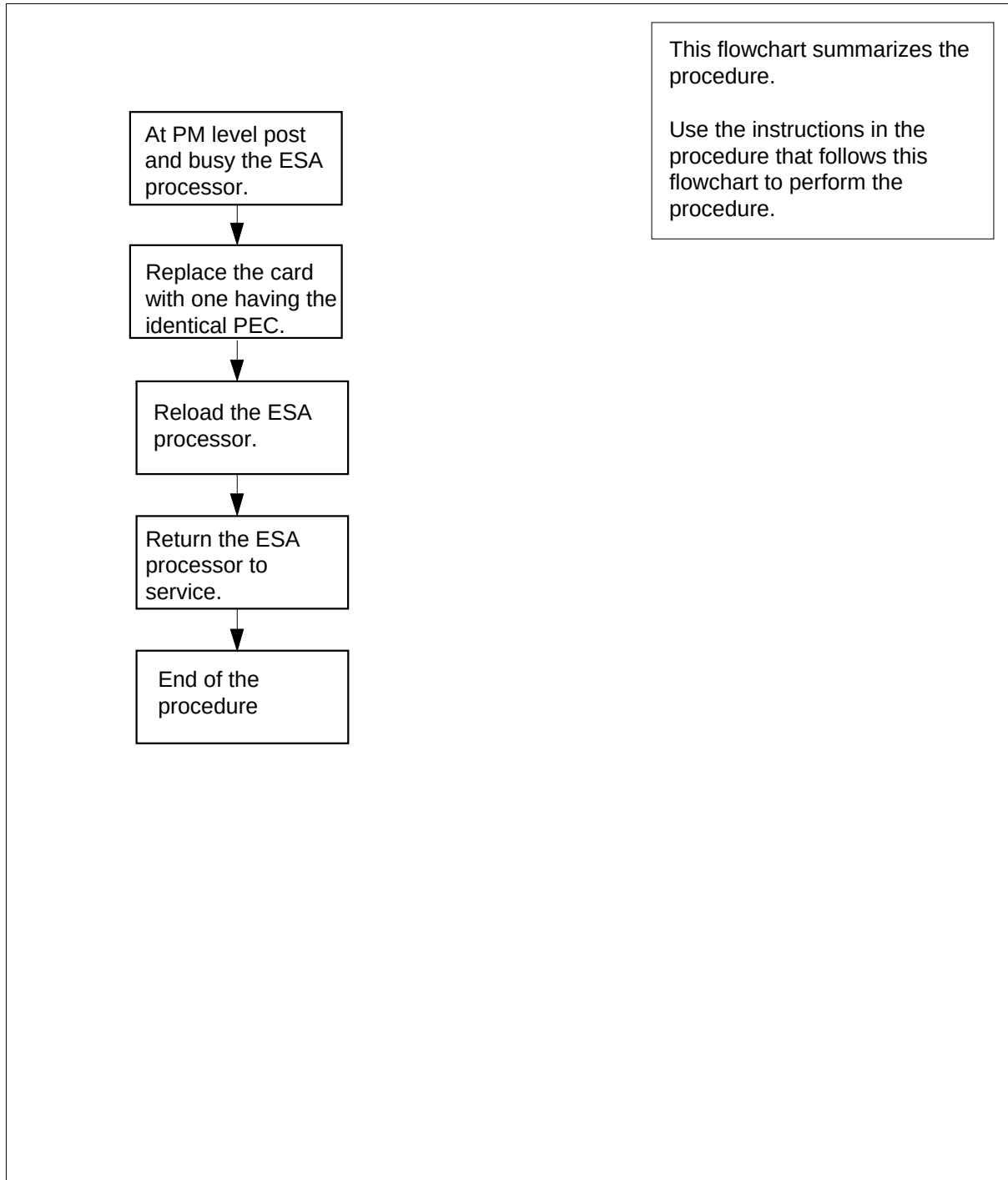
### **Common procedures**

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.

| <b>If</b>                                                             | <b>Do</b> |
|-----------------------------------------------------------------------|-----------|
| 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.

| <b>If load files are located on</b> | <b>Do</b> |
|-------------------------------------|-----------|
| 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.

|           |                                                                                                                                                                                                                                        | <b>If</b>     | <b>Do</b> |
|-----------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|-----------|
|           |                                                                                                                                                                                                                                        | load failed   | step 29   |
|           |                                                                                                                                                                                                                                        | load passed   | step 26   |
| <b>26</b> | Return the ESA processor to service by typing<br><b>&gt;RTS</b><br>and pressing the Enter key.                                                                                                                                         |               |           |
|           |                                                                                                                                                                                                                                        | <b>If RTS</b> | <b>Do</b> |
|           |                                                                                                                                                                                                                                        | passed        | step 27   |
|           |                                                                                                                                                                                                                                        | failed        | step 29   |
| <b>27</b> | Send any faulty cards for repair according to local procedure.                                                                                                                                                                         |               |           |
| <b>28</b> | Record the following items in office records: <ul style="list-style-type: none"><li>• date the card was replaced</li><li>• serial number of the card</li><li>• symptoms that prompted replacement of the card</li></ul> Go to step 30. |               |           |
| <b>29</b> | Obtain further assistance in replacing this card by contacting the personnel responsible for higher level of support.                                                                                                                  |               |           |
| <b>30</b> | 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) |

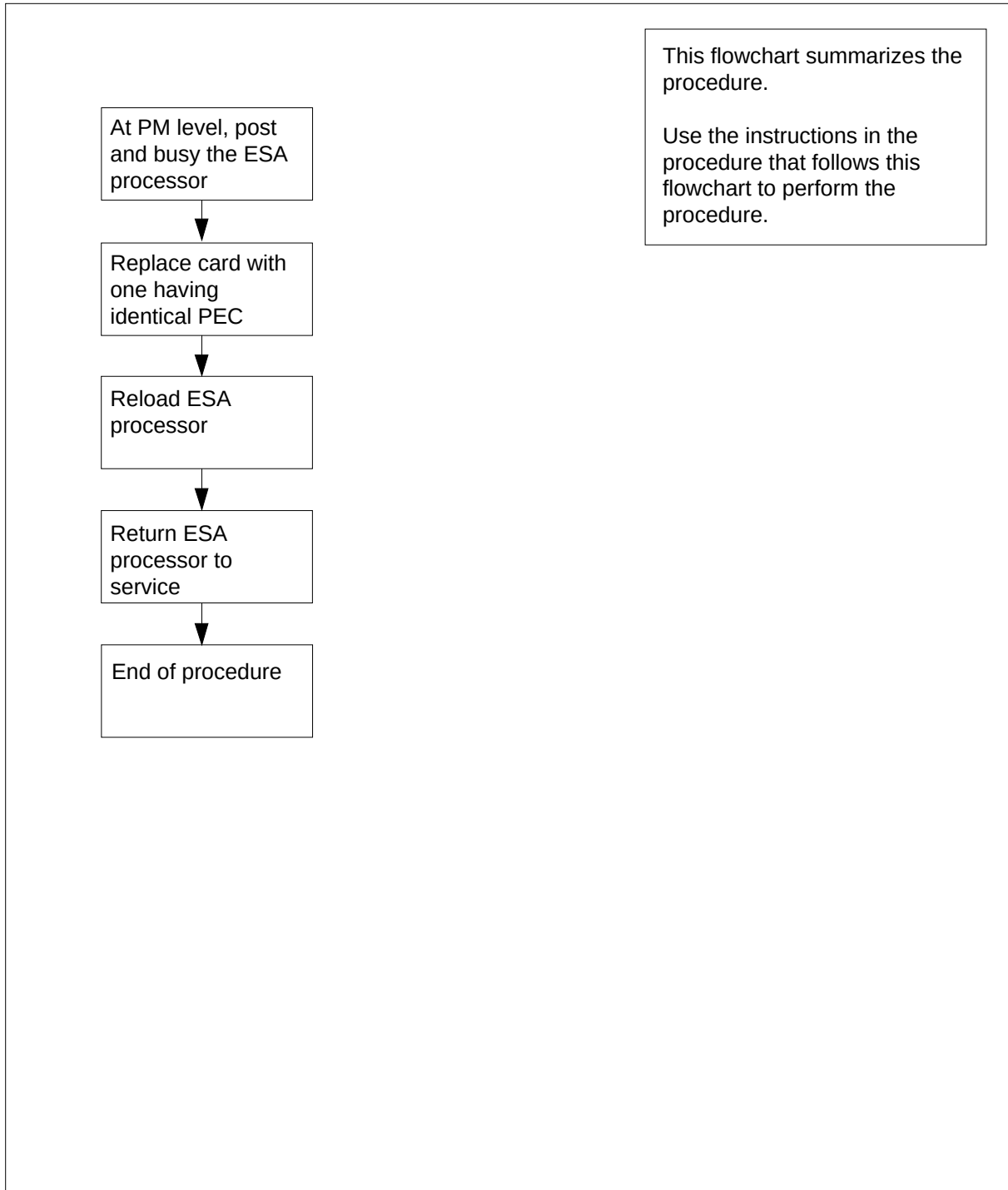
**Note:** NT6X45 with suffix AF is the ESA processor supported only for OPM ESA.

### 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.                                                                                                                                                         |           |
|                            | <b>If load files are located on</b>                                                                                                                                                                                          | <b>Do</b> |
|                            | 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.                                                                                                                                                                                     |           |
| <b>At the MAP terminal</b> |                                                                                                                                                                                                                              |           |
| 11                         | Download the tape by typing<br><b>&gt;MOUNT tape_no</b><br>and pressing the Enter key.<br><i>where</i><br><b>tape_no</b><br>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<br><b>&gt;LIST T tape_no</b><br>and pressing the Enter key.<br><i>where</i><br><b>tape_no</b><br>is the number of the tape drive containing the PM load files |           |
| 13                         | Demount the tape by typing<br><b>&gt;DEMOUNT T tape_no</b><br>and pressing the Enter key.<br><i>where</i><br><b>tape_no</b><br>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<br><b>&gt;DSKUT</b>                                                                                                                                               |           |

## 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)**

---

|           | <b>If loadpm</b>                                                                                                                                                                                                                       | <b>Do</b> |
|-----------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|
|           | passed                                                                                                                                                                                                                                 | step 26   |
| <b>26</b> | Return the ESA processor to service by typing<br><b>&gt;RTS</b><br>and pressing the Enter key.                                                                                                                                         |           |
|           | <b>If RTS</b>                                                                                                                                                                                                                          | <b>Do</b> |
|           | passed                                                                                                                                                                                                                                 | step 27   |
|           | failed                                                                                                                                                                                                                                 | step 29   |
| <b>27</b> | Send any faulty cards for repair according to local procedure.                                                                                                                                                                         |           |
| <b>28</b> | Record the following items in office records: <ul style="list-style-type: none"><li>• date the card was replaced</li><li>• serial number of the card</li><li>• symptoms that prompted replacement of the card</li></ul> Go to step 30. |           |
| <b>29</b> | Obtain further assistance in replacing this card by contacting the personnel responsible for higher level of support.                                                                                                                  |           |
| <b>30</b> | 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) |

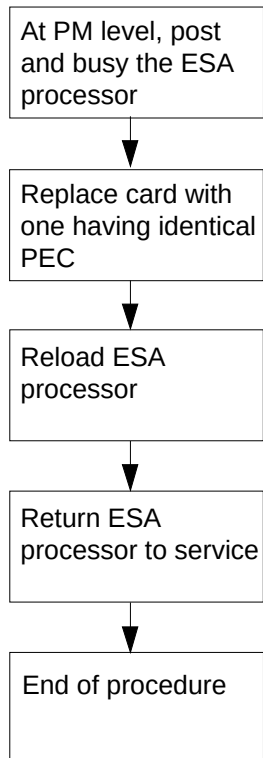
**Note:** NT6X45 with suffix AF is the ESA processor supported only for RLCM ESA.

### 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.                                                                                                                                                         |           |
|                            | <b>If load files are located on</b>                                                                                                                                                                                          | <b>Do</b> |
|                            | 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.                                                                                                                                                                                     |           |
| <b>At the MAP terminal</b> |                                                                                                                                                                                                                              |           |
| 11                         | Download the tape by typing<br><b>&gt;MOUNT tape_no</b><br>and pressing the Enter key.<br><i>where</i><br><b>tape_no</b><br>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<br><b>&gt;LIST T tape_no</b><br>and pressing the Enter key.<br><i>where</i><br><b>tape_no</b><br>is the number of the tape drive containing the PM load files |           |
| 13                         | Demount the tape by typing<br><b>&gt;DEMOUNT T tape_no</b><br>and pressing the Enter key.<br><i>where</i><br><b>tape_no</b><br>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) |

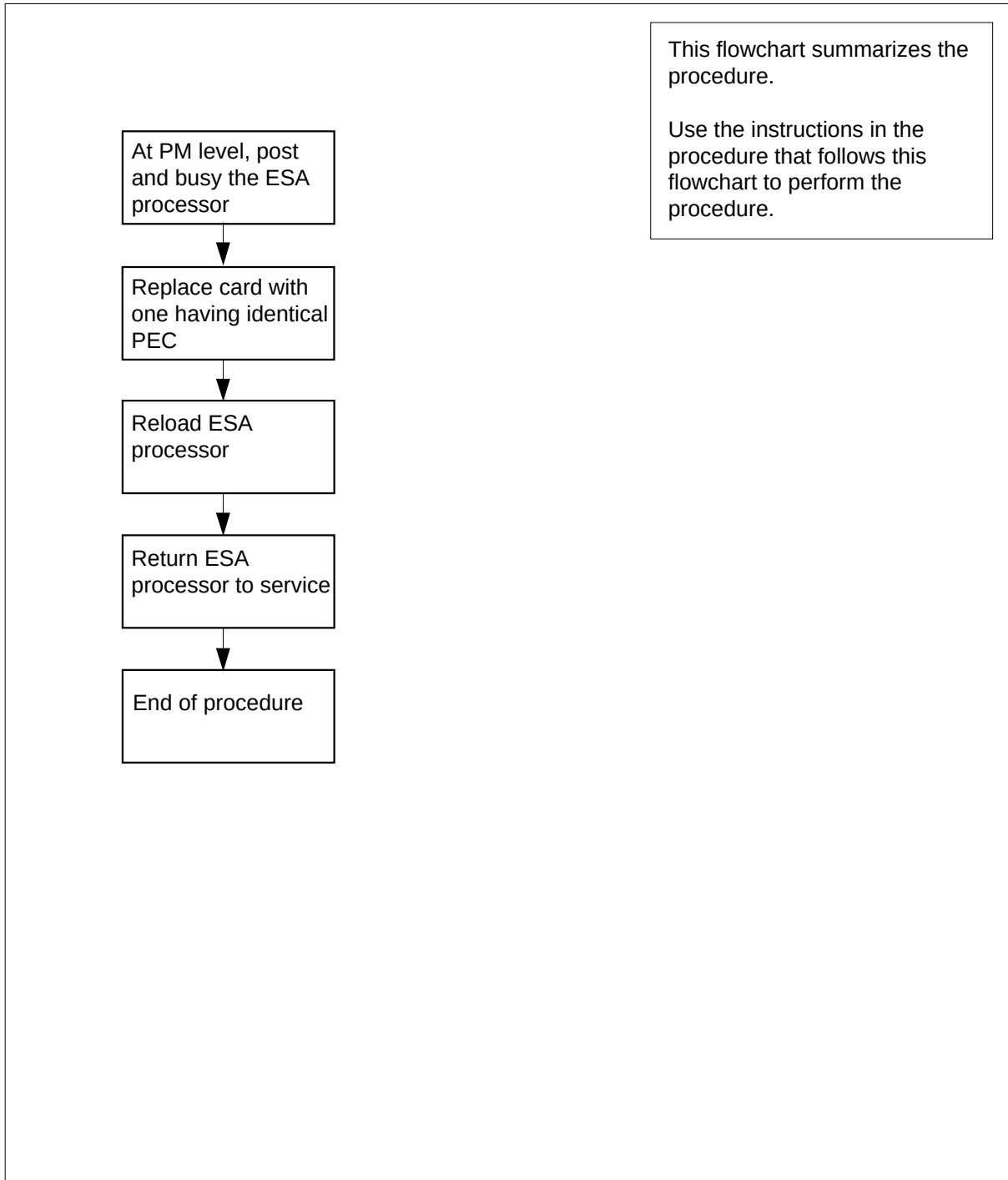
**Note:** This card is also referred to as the ESA memory card.

### 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.

| <b>If</b>                                           | <b>Do</b> |
|-----------------------------------------------------|-----------|
| 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.

| <b>If load files are located on</b> | <b>Do</b> |
|-------------------------------------|-----------|
| 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.

| <b>If</b>   | <b>Do</b> |
|-------------|-----------|
| load failed | step 29   |
| load passed | step 26   |

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

| <b>If RTS</b> | <b>Do</b> |
|---------------|-----------|
| 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.

| <b>PEC</b> | <b>Suffixes</b> | <b>Name</b>                        |
|------------|-----------------|------------------------------------|
| NT6X47     | AB, AC          | Master Processor Memory (ESA) Plus |

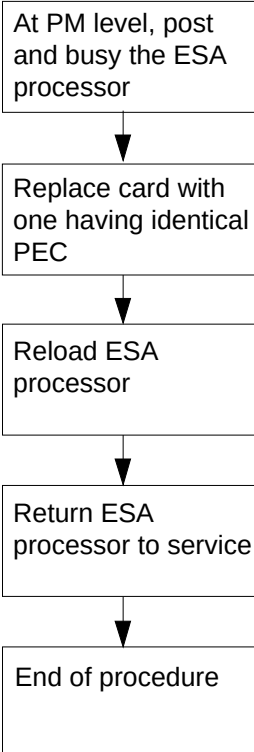
### **Common procedures**

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**

This flowchart summarizes the procedure.

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

## 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.

| <b>If</b>   | <b>Do</b> |
|-------------|-----------|
| load fails  | step 29   |
| load passes | step 26   |

**26** Return the ESA processor to service by typing

**>RTS**

and pressing the Enter key.

| <b>If RTS</b> | <b>Do</b> |
|---------------|-----------|
| 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.

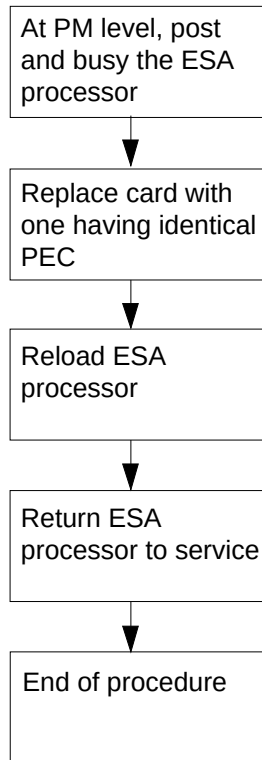
| <b>PEC</b> | <b>Suffixes</b> | <b>Name</b>                        |
|------------|-----------------|------------------------------------|
| NT6X47     | AB, AC          | Master Processor Memory (ESA) Plus |

### **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.

| <b>PEC</b> | <b>Suffixes</b> | <b>Name</b>           |
|------------|-----------------|-----------------------|
| NT6X48     | AA              | DS-30A interface card |

### **Common Procedures**

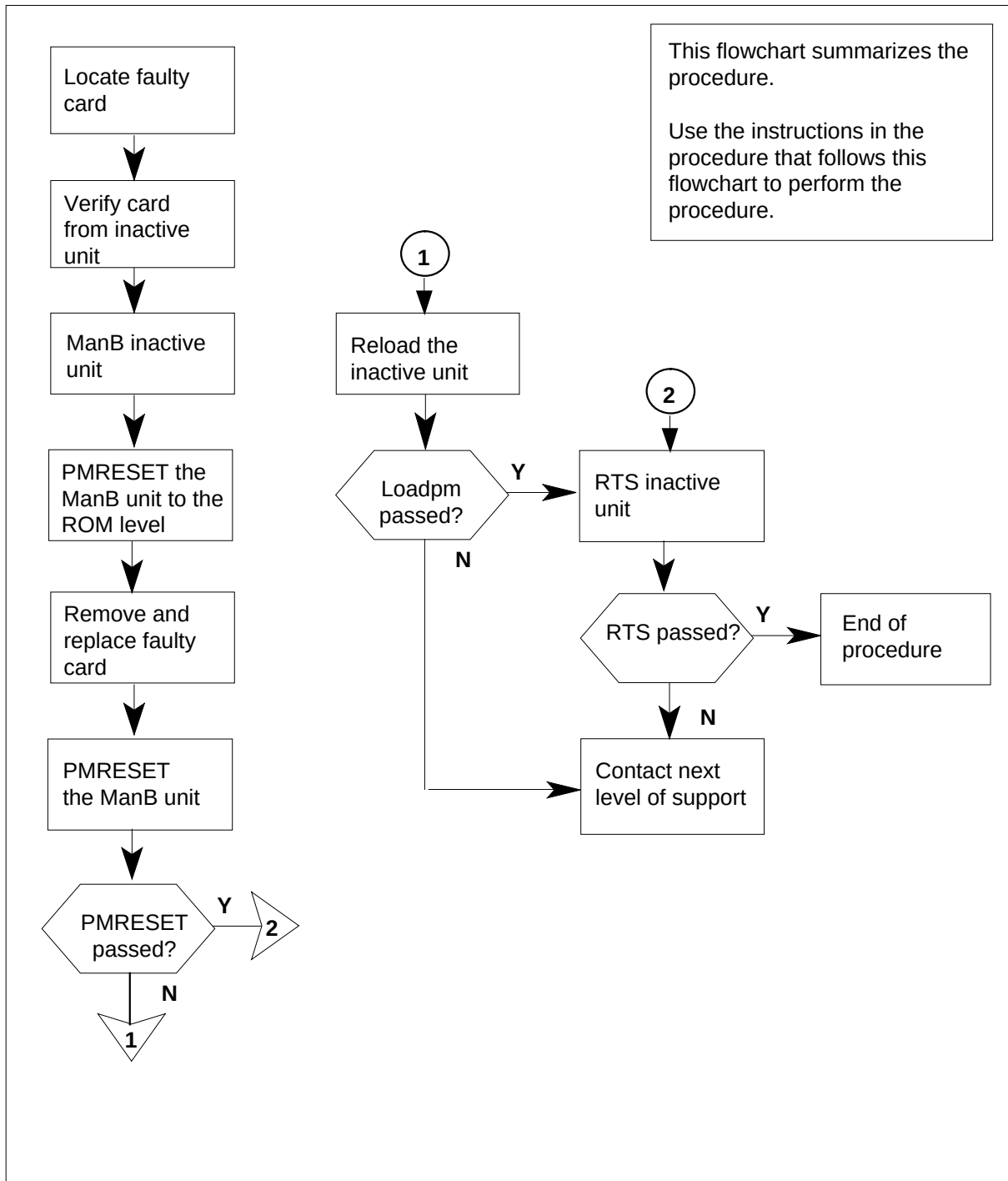
None

### **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     |     | SysB 0 | ManB 0     | OffL 2 |     | CBsy 0 | ISTb 2 | InSv 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**

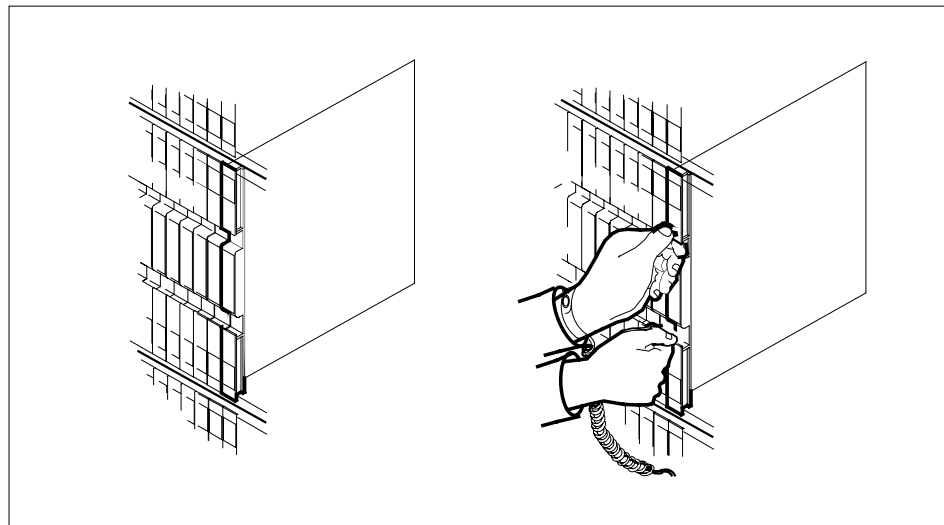
##### **Equipment damage**

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.

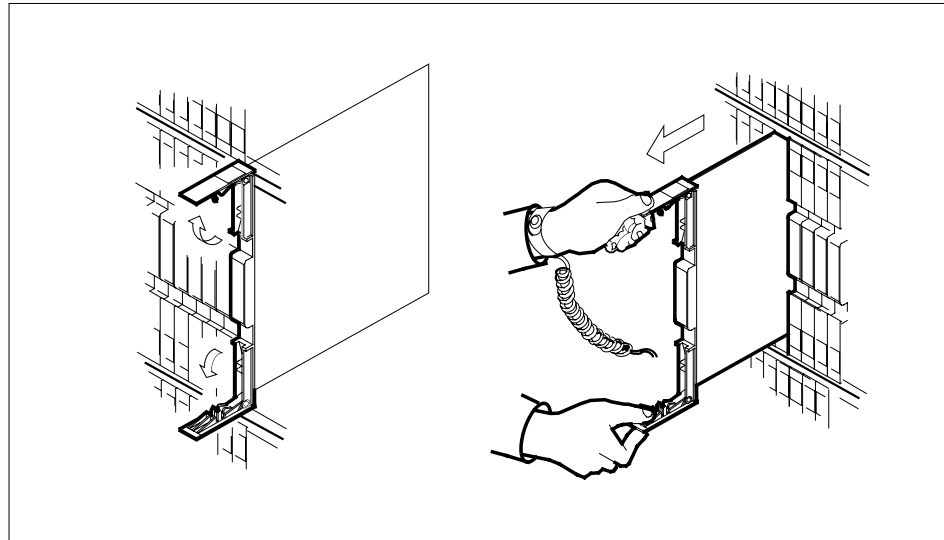
- a** Locate the card to be removed on the appropriate shelf.



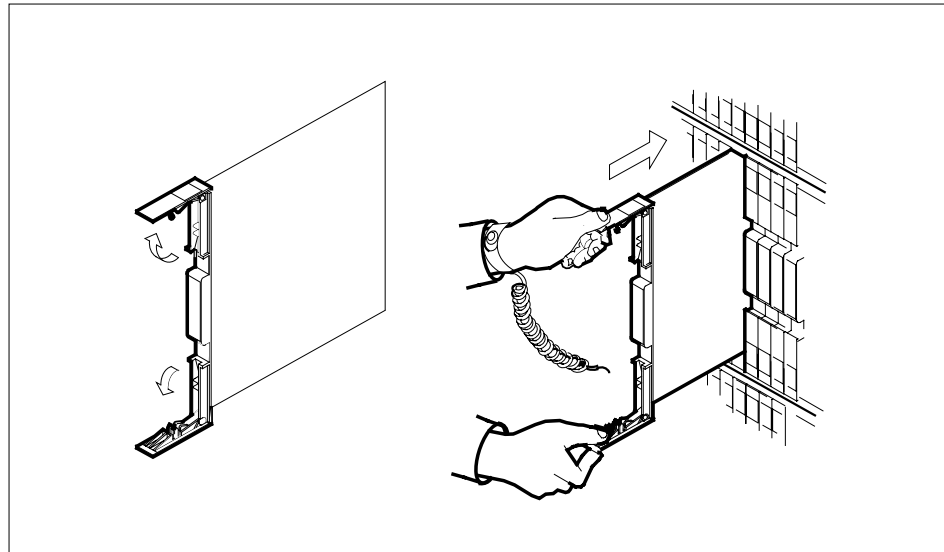
- b** Open the locking levers on the card to be replaced and gently pull the card towards you until it clears the shelf.



## 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.



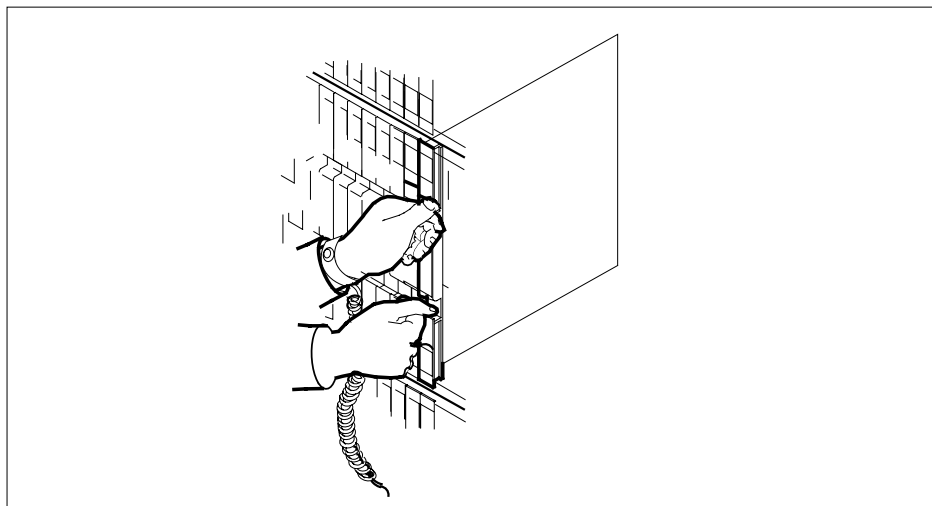
### 10 Seat and lock the card.

- 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.”

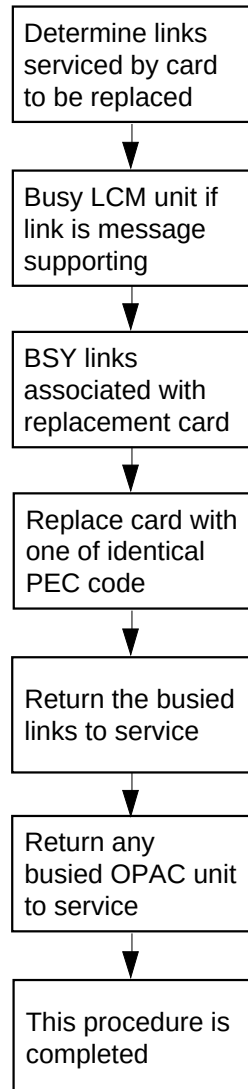
**Note 2:** This card has also been referred to as the “DS-1 interface card.”

### 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

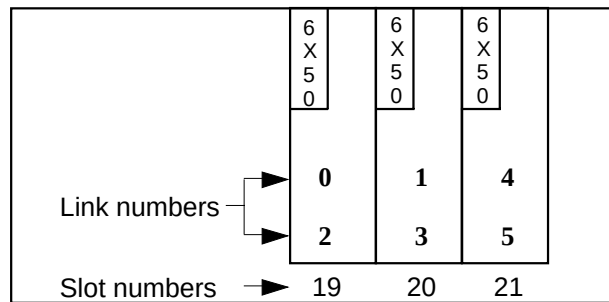
**>TRNSL P**

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).

---

| <b>If RTS</b> | <b>Do</b> |
|---------------|-----------|
| 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.

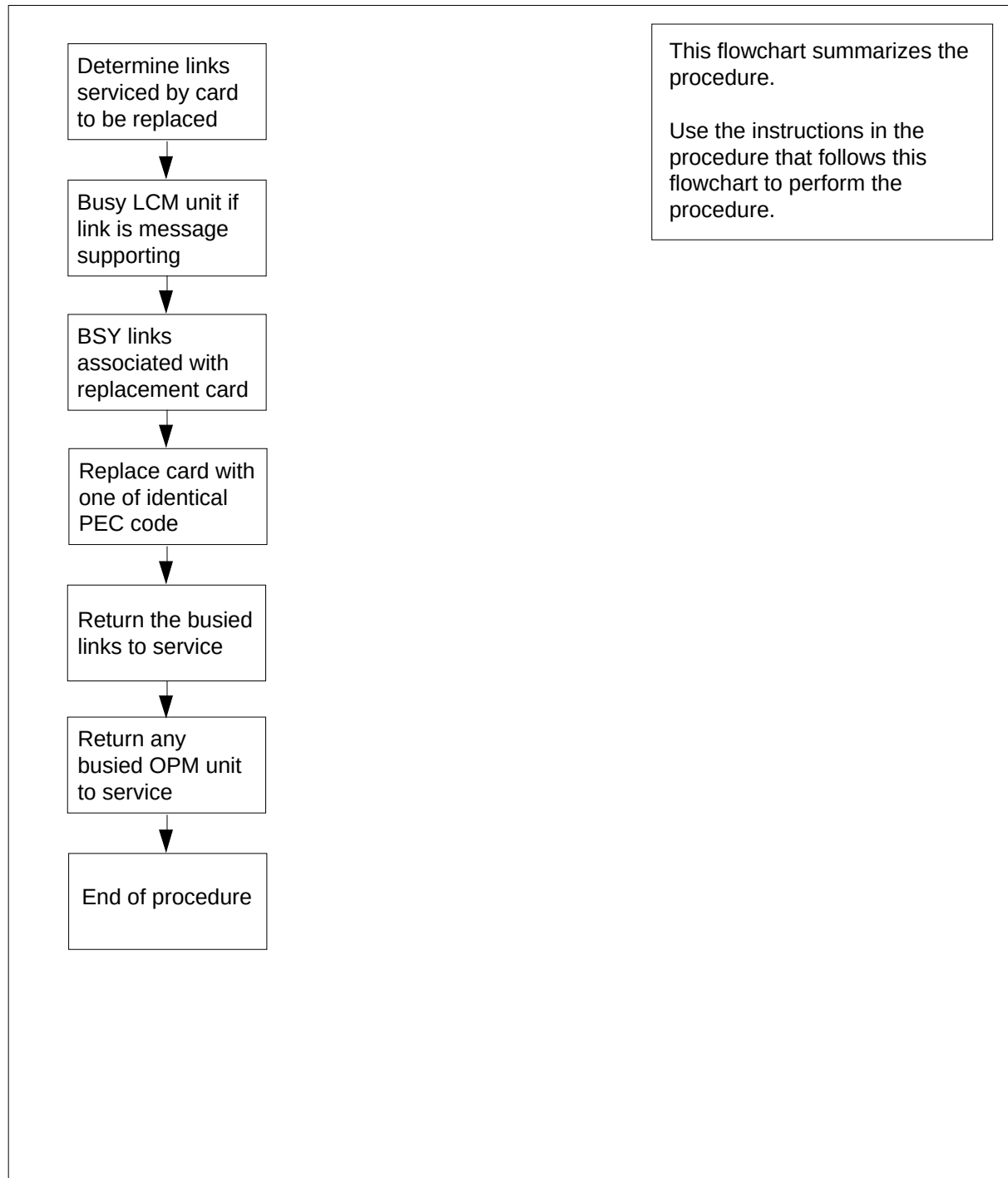
**Action**

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.

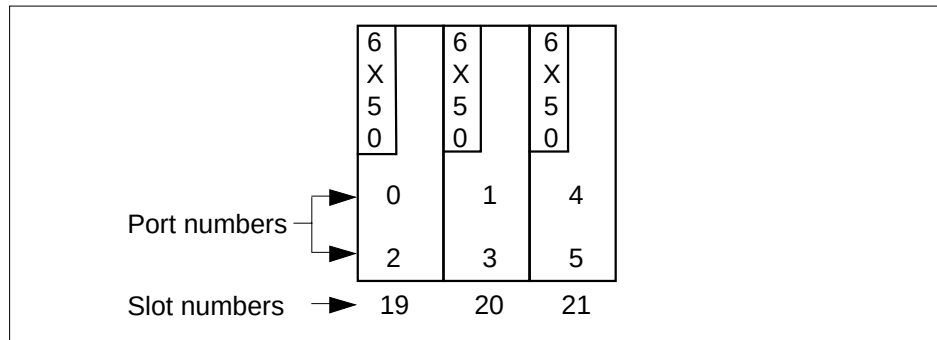
*Example of a MAP response:*

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)**


---

|           | <b>If LCM unit</b>                                                                                                                                                                                                                                                              | <b>Do</b> |
|-----------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|
|           | is not ManB                                                                                                                                                                                                                                                                     | step 22   |
| <b>20</b> | Post the LCM by typing<br><b>&gt;POST LCM site frame lcm</b><br>and pressing the Enter key.<br><i>where</i><br><b>site</b><br>is the site name of the OPM (alphanumeric)<br><b>frame</b><br>is the frame number of the OPM (0 to 511)<br><b>lcm</b><br>is the number of the LCM |           |
| <b>21</b> | Return the busied unit to service by typing<br><b>&gt;RTS UNIT lcm_unit</b><br>and pressing the Enter key.<br><i>where</i><br><b>lcm_unit</b><br>is the OPM unit busied in step 10                                                                                              |           |
|           | <b>If RTS</b>                                                                                                                                                                                                                                                                   | <b>Do</b> |
|           | failed                                                                                                                                                                                                                                                                          | step 24   |
|           | passed                                                                                                                                                                                                                                                                          | step 22   |
| <b>22</b> | Send any faulty cards for repair according to local procedure.                                                                                                                                                                                                                  |           |
| <b>23</b> | Record the following items in office records: <ul style="list-style-type: none"> <li>• date the card was replaced</li> <li>• serial number of the card</li> <li>• symptoms that prompted replacement of the card</li> </ul> Proceed to step 25.                                 |           |
| <b>24</b> | Obtain further assistance in replacing this card by contacting the personnel responsible for higher level of support.                                                                                                                                                           |           |
| <b>25</b> | 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.

| <b>PEC</b> | <b>Suffixes</b> | <b>Card name</b>    | <b>Shelf/frame name</b> |
|------------|-----------------|---------------------|-------------------------|
| 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**

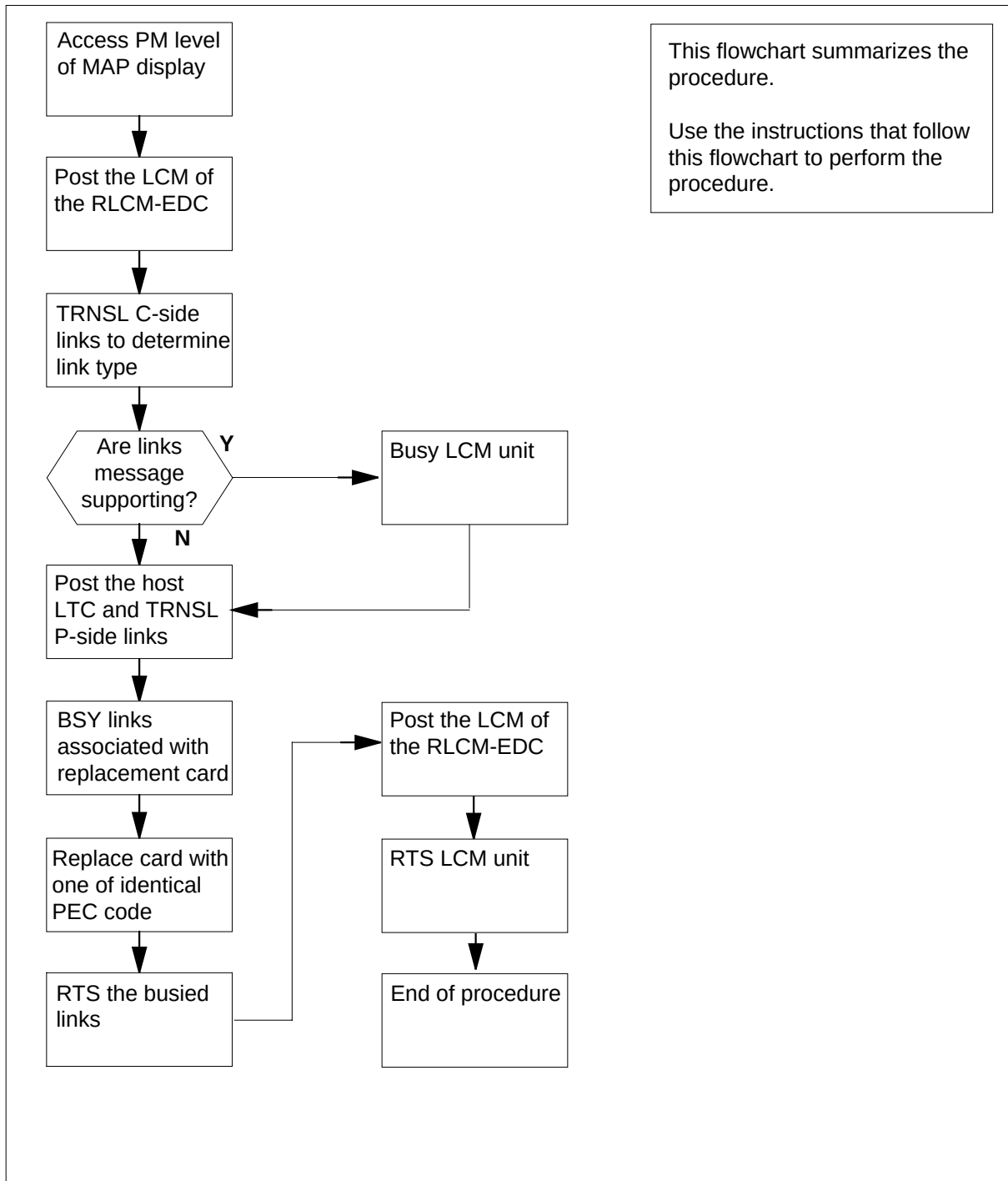
The common replacing a card procedure is referenced in this procedure.

### **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



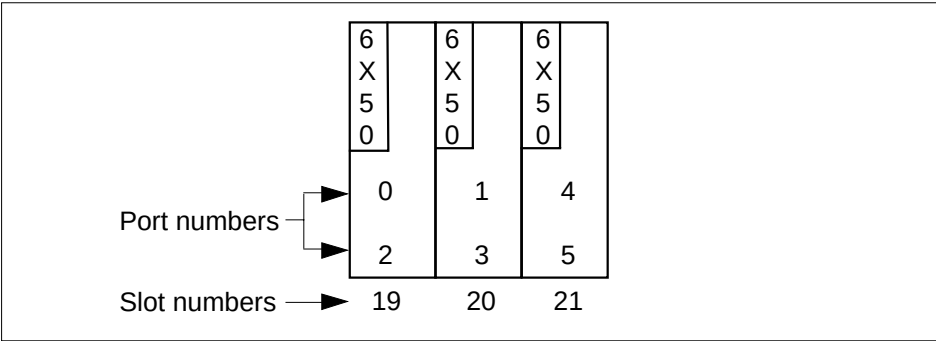


**NT6X50**  
**in an RLCM-EDC HIE** (continued)

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.

|           | <b>If test</b>                                                                                                                                                                                                                                                                                                                | <b>Do</b> |
|-----------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|
|           | failed                                                                                                                                                                                                                                                                                                                        | step 24   |
|           | passed                                                                                                                                                                                                                                                                                                                        | step 16   |
| <b>16</b> | <p>To return to service the links busied in step 12, type<br/> <b>&gt;RTS LINK link_no</b><br/> and press the Enter key.<br/> <i>where</i><br/> <b>link_no</b><br/> is one of two links associated with the replacement card<br/> <b>Note:</b> Repeat this entry for the other link associated with the replacement card.</p> |           |
|           | <b>If RTS</b>                                                                                                                                                                                                                                                                                                                 | <b>Do</b> |
|           | failed                                                                                                                                                                                                                                                                                                                        | step 24   |
|           | passed                                                                                                                                                                                                                                                                                                                        | step 17   |
| <b>17</b> | <p>Determine if links remain for you to clear.</p>                                                                                                                                                                                                                                                                            |           |
|           | <b>If links that you must clear</b>                                                                                                                                                                                                                                                                                           | <b>Do</b> |
|           | remain                                                                                                                                                                                                                                                                                                                        | step 12   |
|           | do not remain                                                                                                                                                                                                                                                                                                                 | step 18   |
| <b>18</b> | <p>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.</p>                                                                                                                   |           |
| <b>19</b> | <p>Determine if an LCM unit is manual busy.</p>                                                                                                                                                                                                                                                                               |           |
|           | <b>If LCM unit</b>                                                                                                                                                                                                                                                                                                            | <b>Do</b> |
|           | is ManB                                                                                                                                                                                                                                                                                                                       | step 20   |
|           | is not ManB                                                                                                                                                                                                                                                                                                                   | step 22   |
| <b>20</b> | <p>To post the LCM, type<br/> <b>&gt;POST LCM site cabinet lcm</b><br/> and press the Enter key.</p>                                                                                                                                                                                                                          |           |

## 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

---

| <b>If RTS</b> | <b>Do</b> |
|---------------|-----------|
| 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.

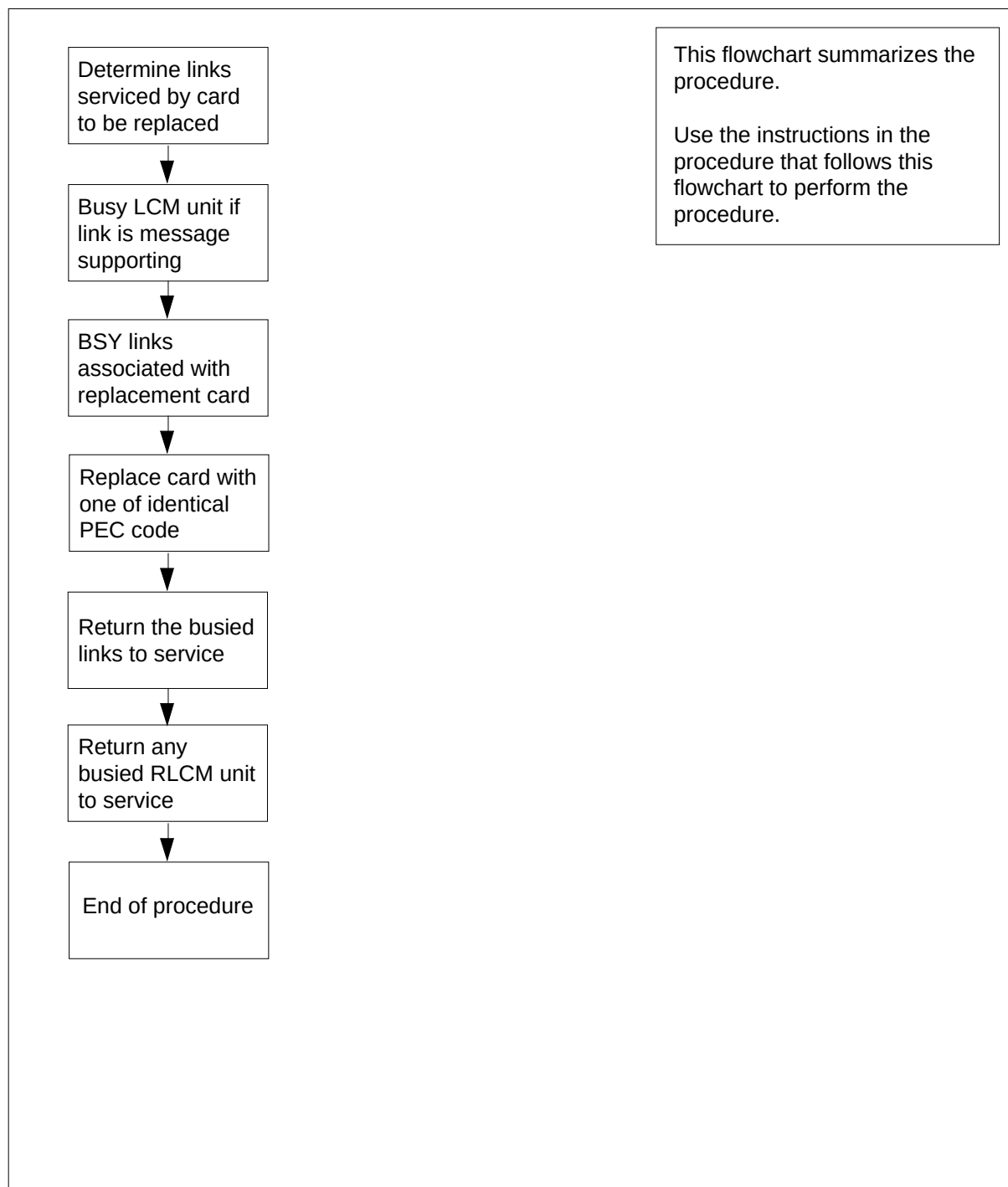
**Action**

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**

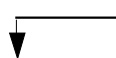
is the frame number of the RLCE (0 to 511)

**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.

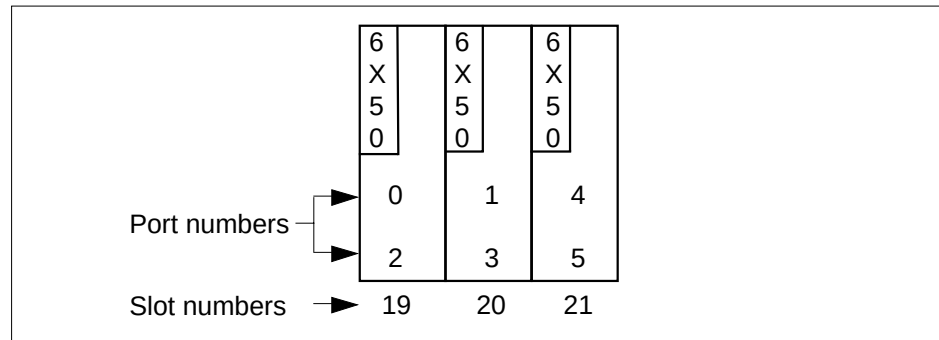
*Example of a MAP response:*

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 |
| <b>20</b> | Post the LCM by typing<br><b>&gt;POST LCM site frame lcm_no</b><br>and pressing the Enter key.<br><i>where</i><br><b>site</b><br>is the site name of the RLCM (alphanumeric)<br><b>frame</b><br>is the frame number of the RLCE (0 to 511)<br><b>lcm_no</b><br>is the number of the LCM |         |
| <b>21</b> | Return the busied unit to service by typing<br><b>&gt;RTS UNIT lcm_unit</b><br>and pressing the Enter key.<br><i>where</i><br><b>lcm_unit</b><br>is the RLCM unit busied in step 10                                                                                                     |         |
|           | If RTS                                                                                                                                                                                                                                                                                  | Do      |
|           | failed                                                                                                                                                                                                                                                                                  | step 24 |
|           | passed                                                                                                                                                                                                                                                                                  | step 22 |
| <b>22</b> | Send any faulty cards for repair according to local procedure.                                                                                                                                                                                                                          |         |
| <b>23</b> | Record the following items in office records: <ul style="list-style-type: none"> <li>• date the card was replaced</li> <li>• serial number of the card</li> <li>• symptoms that prompted replacement of the card</li> </ul> Proceed to step 25.                                         |         |
| <b>24</b> | Obtain further assistance in replacing this card by contacting the personnel responsible for higher level of support.                                                                                                                                                                   |         |
| <b>25</b> | 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.

| <b>PEC</b> | <b>Suffixes</b> | <b>Name</b>    |
|------------|-----------------|----------------|
| NT6X50     | AA, AB          | DS-1 interface |

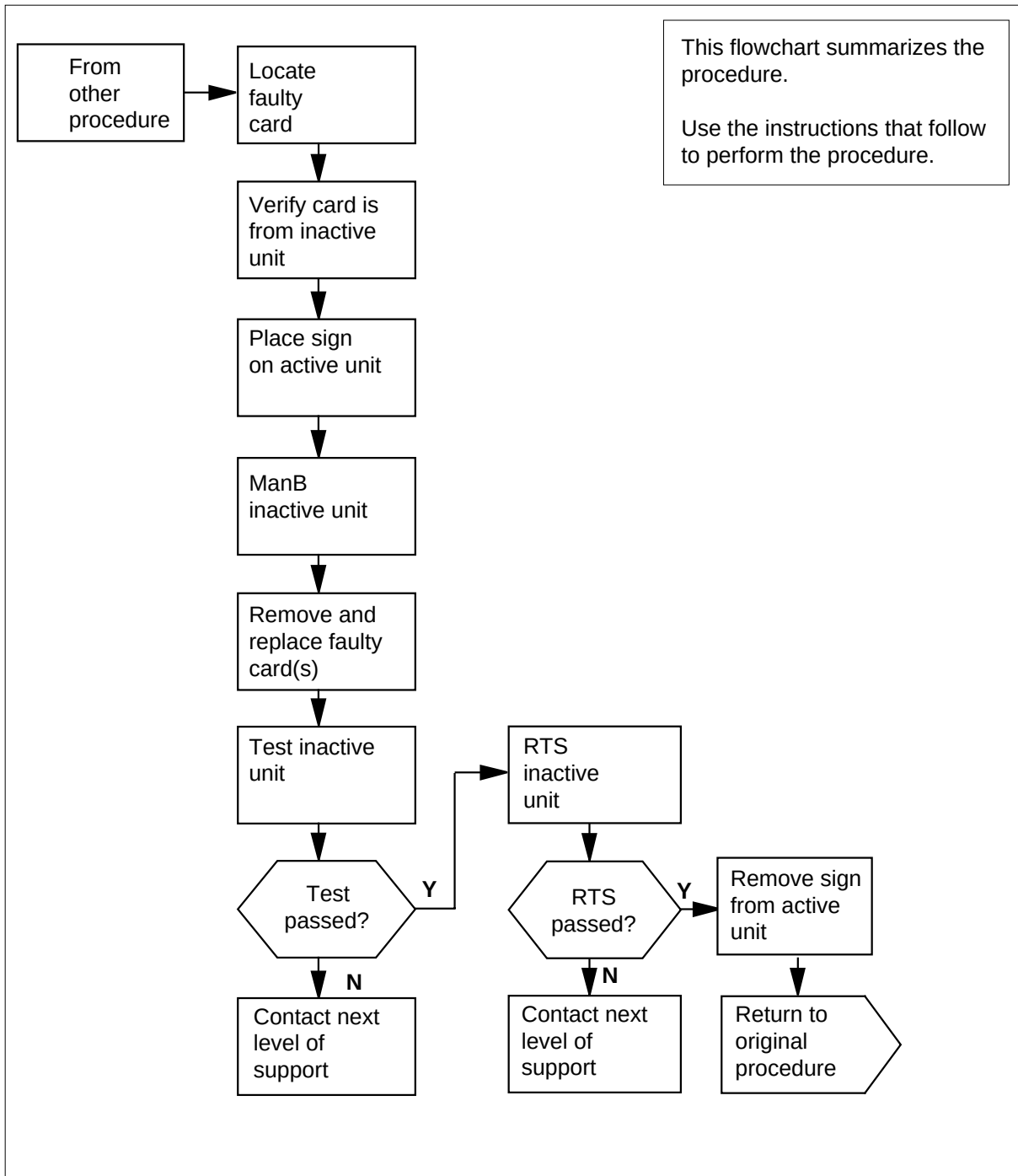
### **Common Procedures**

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**

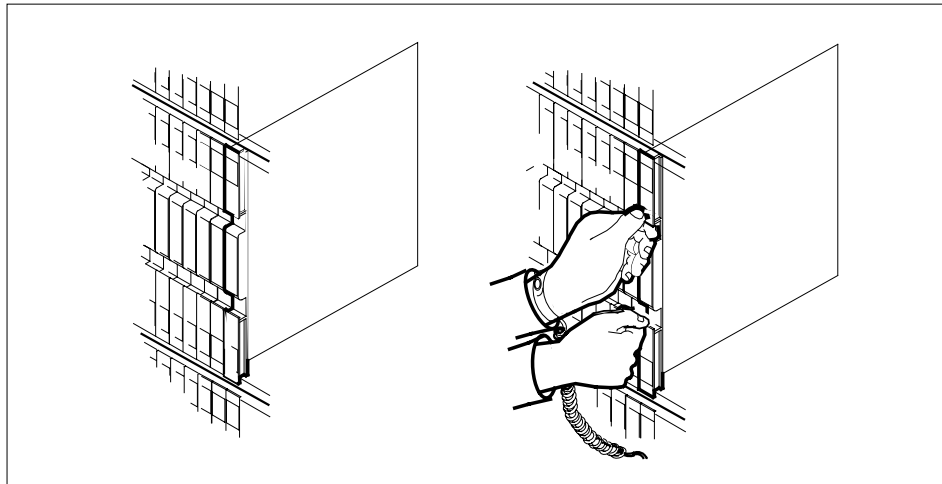
##### **Equipment damage**

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.

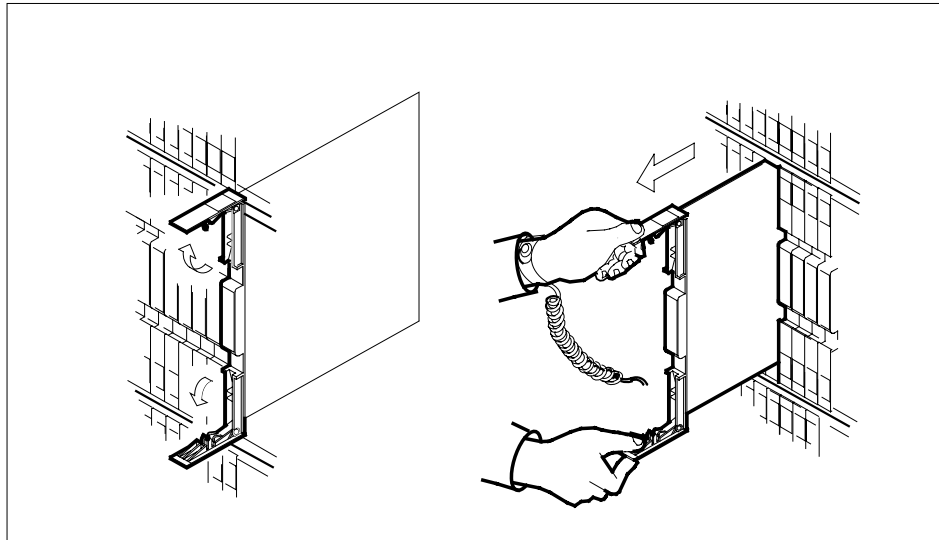
- a** Locate the card to be removed on the appropriate shelf.



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

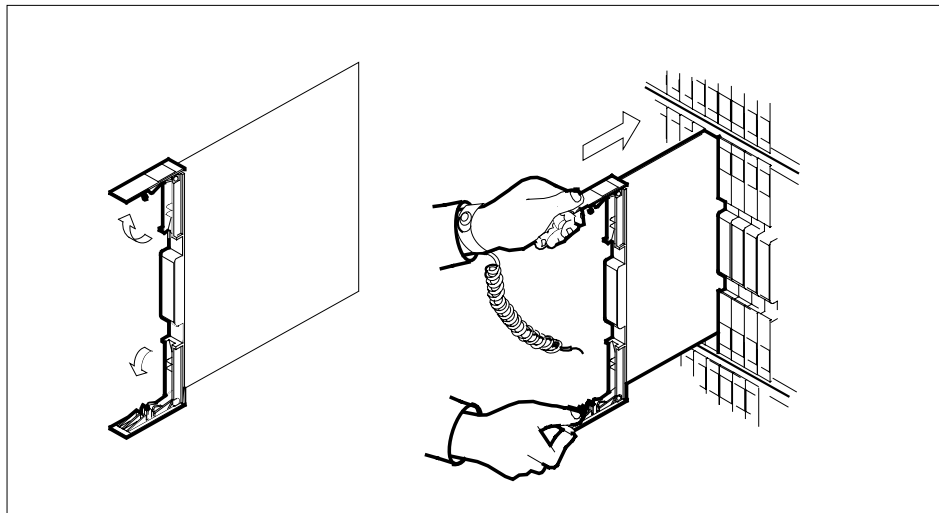


**NT6X50**  
**in an RSC (continued)**



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

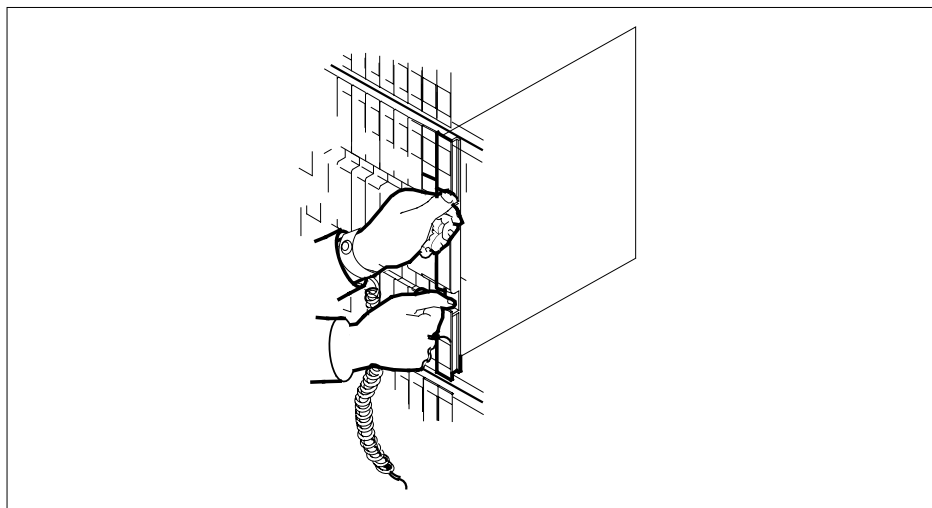
- 20** Open the locking levers on the replacement card.  
Align the card with the slots in the shelf and gently slide the card into the shelf.



- 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
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

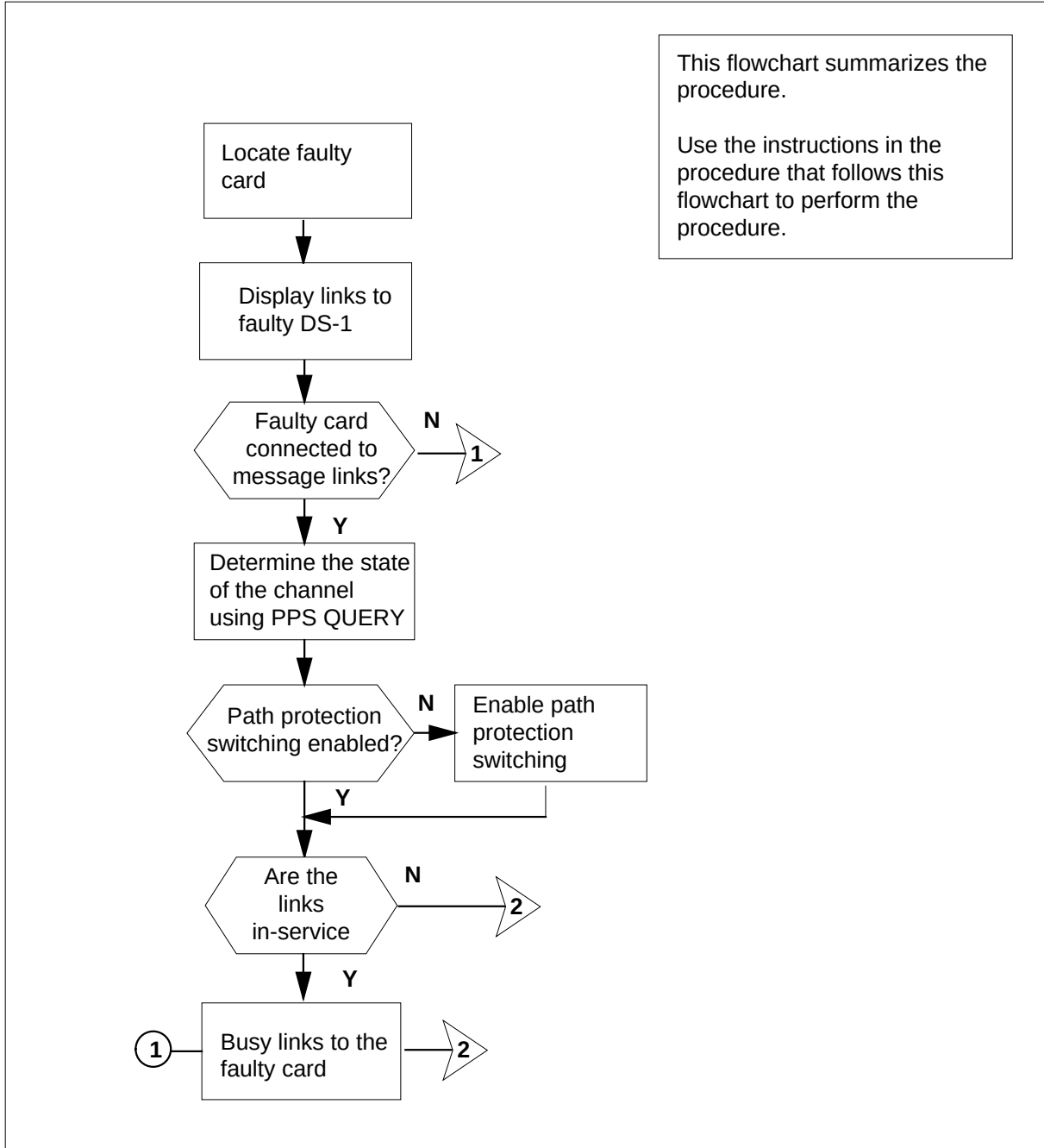
Do not go to the common procedures unless directed to do so in the step-action procedure.

**Action**

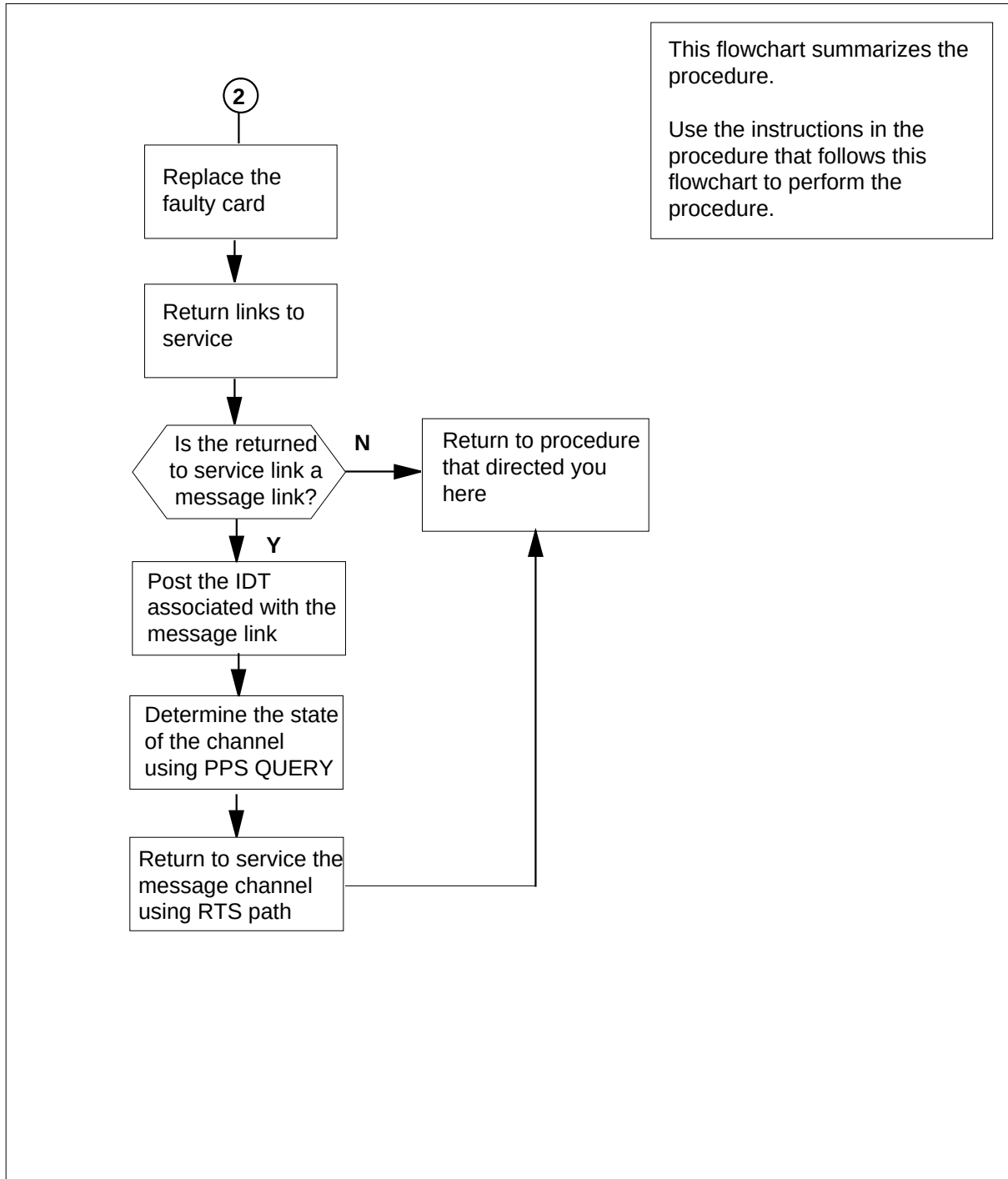
The following flowchart is a summary of this procedure. To replace the card, use the instructions in the step-action procedure that follows the flowchart.

## 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-<br>son: XPM SWACTback | step 10 |
| SWACT refused by SWACT<br>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:*

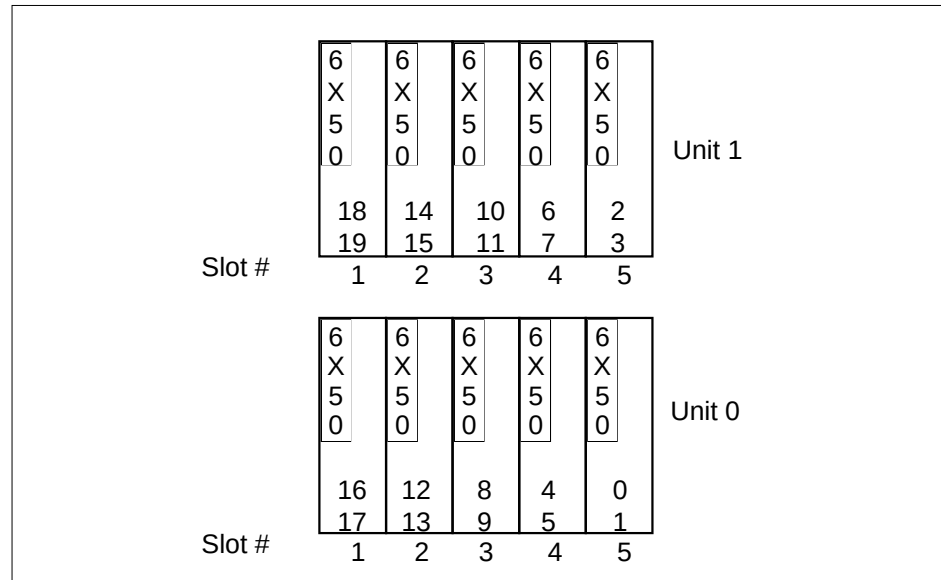
```
LINK3: IDT 1 3;Cap:MS; Status:OK; MsgCond:OPN
LINK4: IDT 1 4;Cap:MS; Status:OK; MsgCond:CLS
LINK5: IDT 1 Carrier of CLASS - Trunk;Status:SBusy
LINK6: IDT 1 Carrier of CLASS - Trunk;Status:SBusy
LINK7: IDT 2 0;Cap:MS; Status:OK; MsgCond:OPN
LINK8: IDT 2 1;Cap:MS; Status:SBSy; MsgCond:OPN
```

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,<br>release number 39<br>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,<br>release numbers<br>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,<br>release numbers<br>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-<br>turned to service | step 38 |
| no more links are to be returned<br>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)**

---

| <b>If</b>                               | <b>Do</b> |
|-----------------------------------------|-----------|
| 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

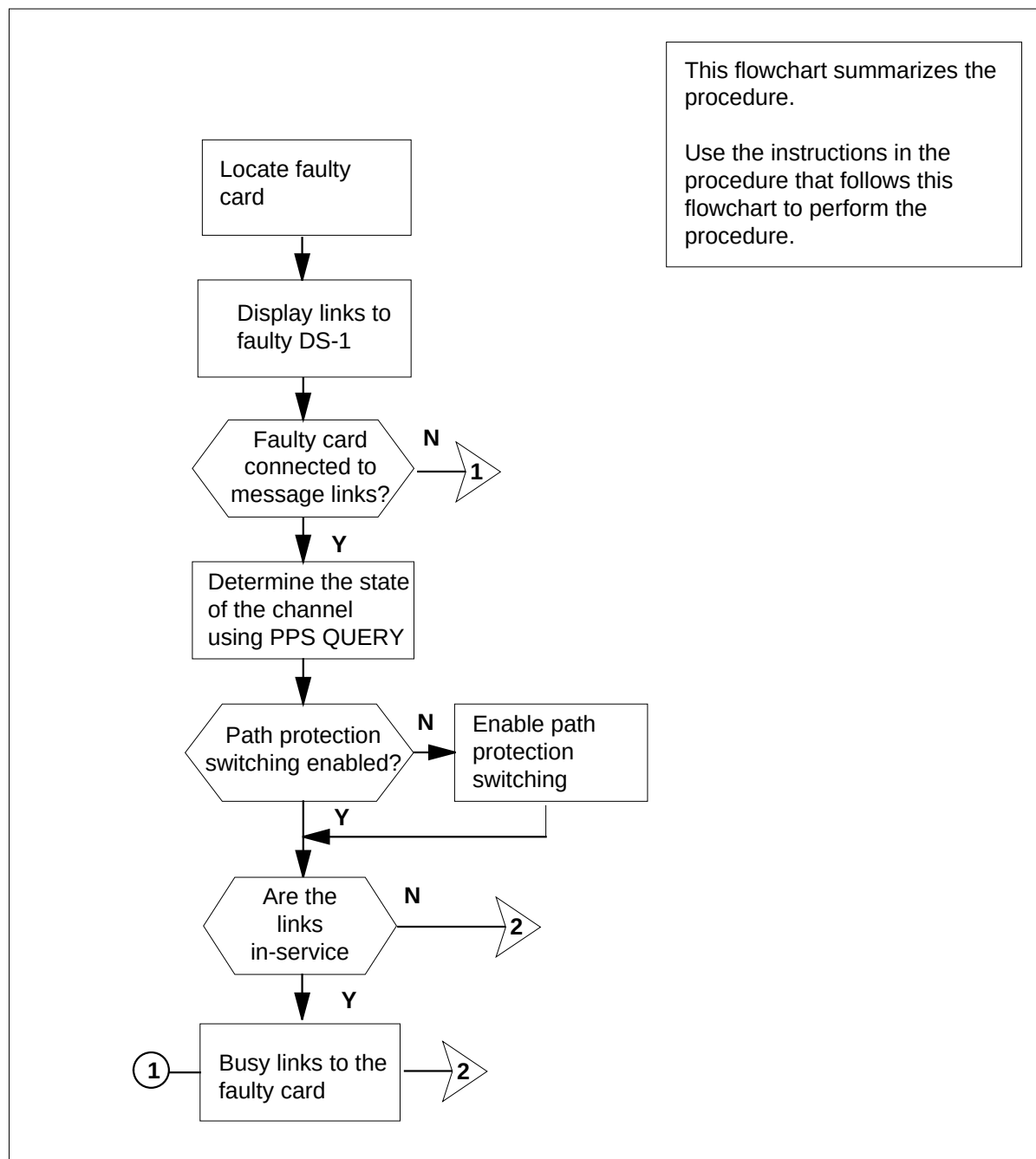
Do not go to the common procedures unless directed to do so in the step-action procedure.

**Action**

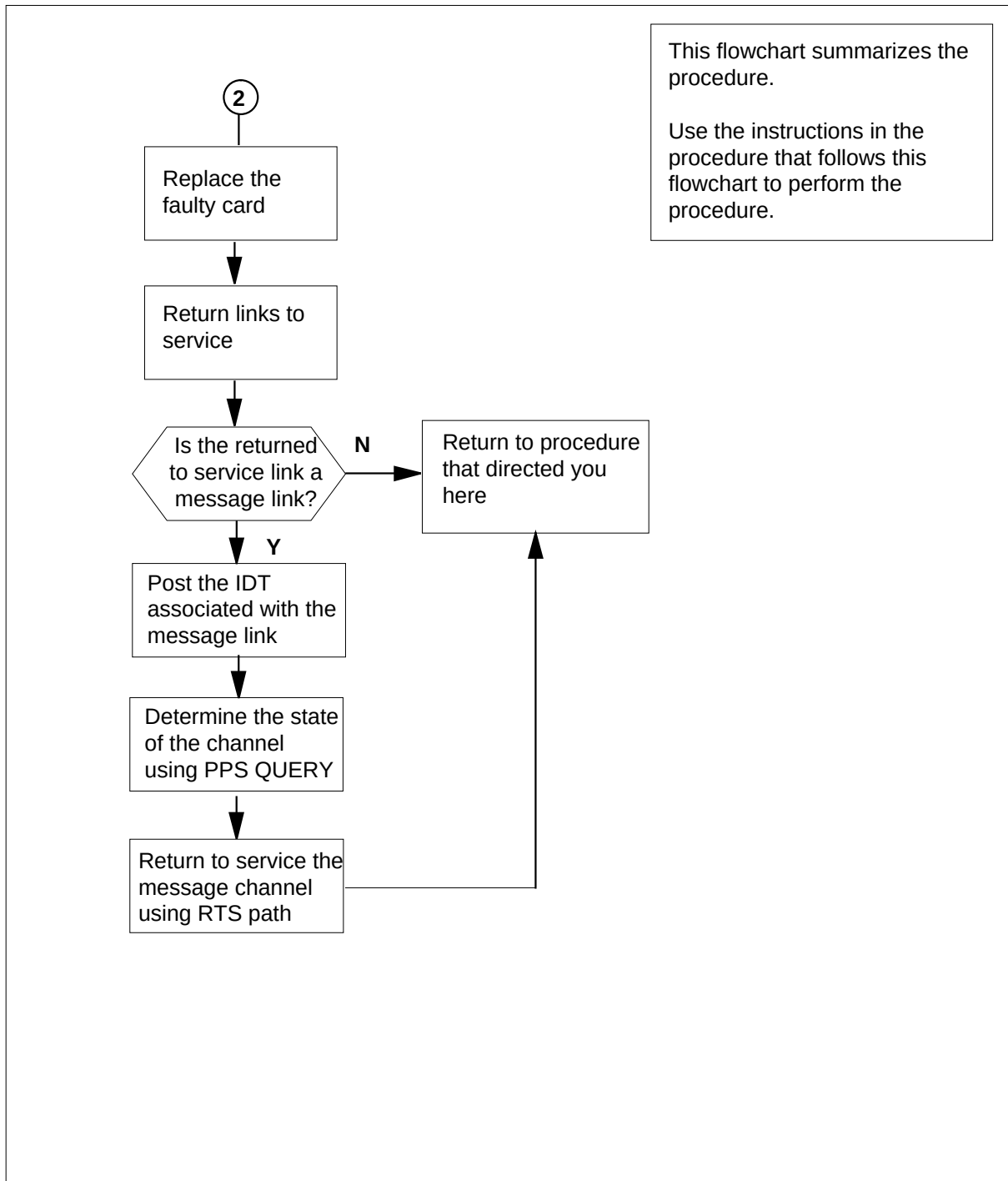
The following flowchart is a summary of this procedure. To replace the card, use the instructions in the step-action procedure that follows the flowchart.

## 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-<br>son: XPM SWACTback | step 10 |
| SWACT refused by SWACT<br>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:*

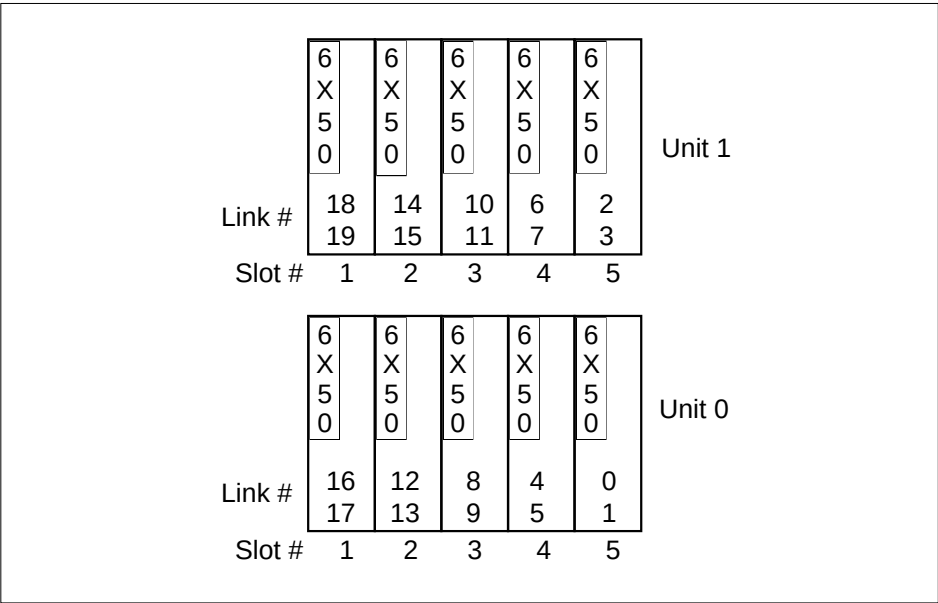
```
LINK3: IDT 1 3;Cap:MS; Status:OK; MsgCond:OPN
LINK4: IDT 1 4;Cap:MS; Status:OK; MsgCond:CLS
LINK5: IDT 1 Carrier of CLASS - Trunk;Status:SBusy
LINK6: IDT 1 Carrier of CLASS - Trunk;Status:SBusy
LINK7: IDT 2 0;Cap:MS; Status:SBsy; MsgCond:OPN
LINK8: IDT 2 1;Cap:MS; Status:OK; MsgCond:OPN
```

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   |
| <b>26</b> | Reject the prompt to BSY the link by typing<br><b>&gt;NO</b><br>and pressing the Enter key.<br>The system discontinues the BSY command. |           |
| <b>27</b> | Determine if the link is a message link                                                                                                 |           |
|           | <b>If the link has a CAP of</b>                                                                                                         | <b>Do</b> |
|           | MS                                                                                                                                      | step 28   |
|           | S                                                                                                                                       | step 48   |
| <b>28</b> | Post the IDT associated with the link by typing<br><b>&gt;POST IDT idt_no</b><br>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 |
|-----------------------------------------------|-------------------------------------------------------|
| <b>NT6X50AB, release number 39 or lower</b>   |                                                       |
| 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                                           |
| <b>NT6X50AB, release numbers 60 or higher</b> |                                                       |
| 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

| <b>If RTS</b> | <b>Do</b> |
|---------------|-----------|
| passed        | step 39   |
| failed        | step 48   |

- 39** Determine if the link that was returned to service is a messaging link.

| <b>If the link has a CAP of</b> | <b>Do</b> |
|---------------------------------|-----------|
| 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

| <b>If</b>                                           | <b>Do</b> |
|-----------------------------------------------------|-----------|
| an additional link must be re-<br>turned to service | step 38   |
| no more links are to be returned<br>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\_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:*

```
TMC1: SMA 7 7 24; 00S;Standby;Enable
EOC1: SMA 7 7 12;InSv;Active ;Enable
TMC2: 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 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-turned to service | step 37 |

**NT6X50**  
**in an SMA-MVI-20 (end)**

---

---

| <b>If</b>                               | <b>Do</b> |
|-----------------------------------------|-----------|
| 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.

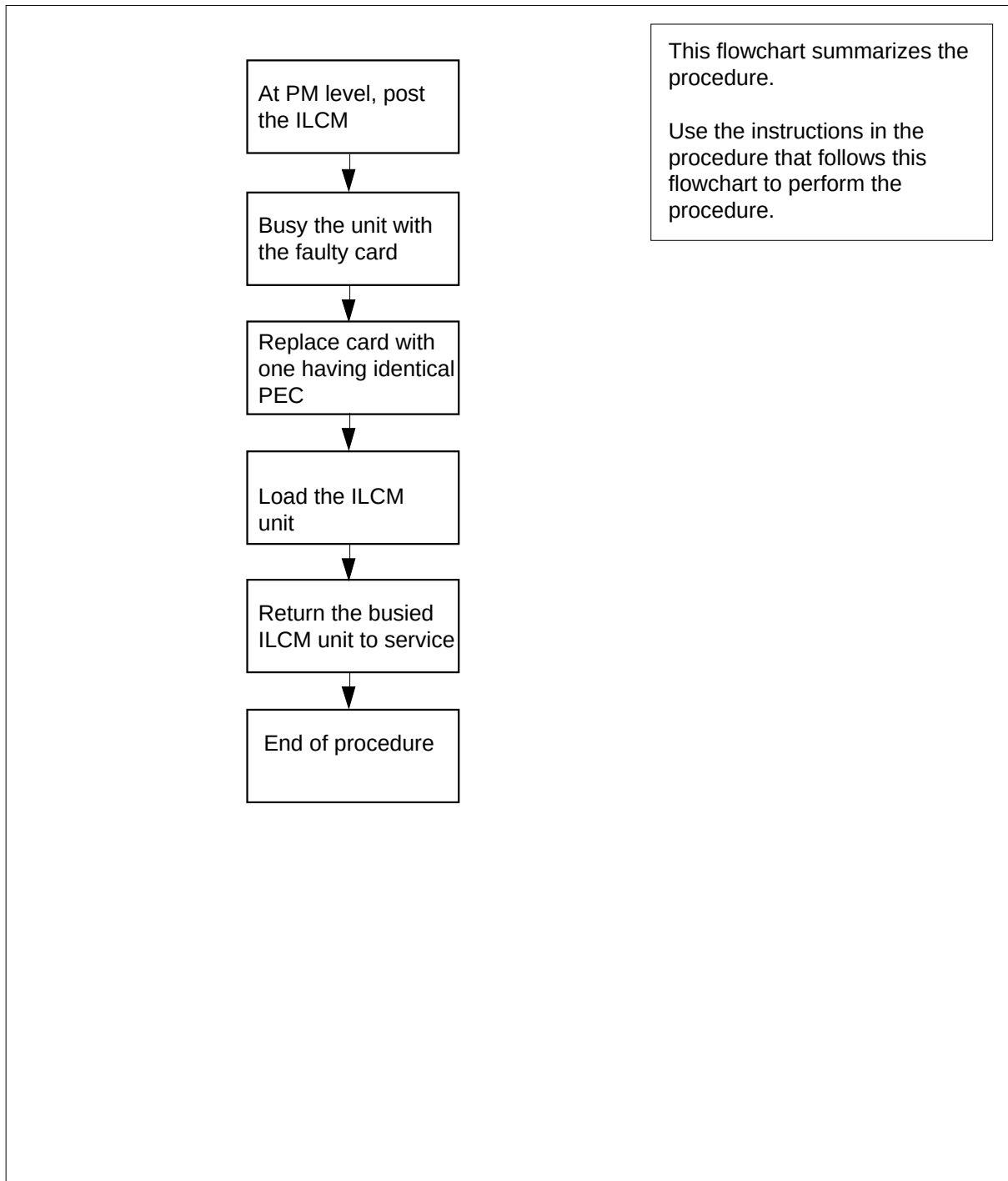
**Action**

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)

| <b>lcm_unit</b><br>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                                                                                                                                                                                                                |
| <b>9</b>                                                  | 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                                                                                                                                                                                                                |
| <b>10</b>                                                 | Locate the tape that contains the PM load files.                                                                                                                                                                       |
| <b>11</b>                                                 | Mount the tape on a magnetic tape drive.                                                                                                                                                                               |
| <b>12</b>                                                 | Download the tape by typing<br><b>&gt;MOUNT tape_no</b><br>and pressing the Enter key.<br><i>where</i><br><b>tape_no</b><br>is the number of the tape containing the PM load files                                     |
| <b>13</b>                                                 | List the contents of the tape in your user directory by typing<br><b>&gt;LIST T tape_no</b><br>and pressing the Enter key.<br><i>where</i><br><b>tape_no</b><br>is the number of the tape containing the PM load files |
| <b>14</b>                                                 | Demount the tape drive by typing<br><b>&gt;DEMOUNT T tape_no</b><br>and pressing the Enter key.<br><i>where</i><br><b>tape_no</b><br>is the number of the tape drive containing the PM load files                      |
| <b>15</b>                                                 | 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)**

---

| <b>lcm_unit</b><br>is the ILCM unit to be loaded (0 or 1) |                                                                                                                                                                                                                                            |
|-----------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>If</b>                                                 | <b>Do</b>                                                                                                                                                                                                                                  |
| load failed                                               | step 29                                                                                                                                                                                                                                    |
| load passed                                               | step 26                                                                                                                                                                                                                                    |
| <b>26</b>                                                 | Return the ILCM unit to service by typing<br><b>&gt;RTS UNIT lcm_unit</b><br>and pressing the Enter key.<br><i>where</i><br><b>lcm_unit</b><br>is the ILCM busied in step 5 (0 or 1)                                                       |
| <b>If RTS</b>                                             | <b>Do</b>                                                                                                                                                                                                                                  |
| passed                                                    | step 27                                                                                                                                                                                                                                    |
| failed                                                    | step 29                                                                                                                                                                                                                                    |
| <b>27</b>                                                 | Send any faulty cards for repair according to local procedure.                                                                                                                                                                             |
| <b>28</b>                                                 | Record the following items in office records: <ul style="list-style-type: none"> <li>• date the card was replaced</li> <li>• serial number of the card</li> <li>• symptoms that prompted replacement of the card</li> </ul> Go to step 31. |
| <b>29</b>                                                 | Obtain further assistance in replacing this card by contacting the personnel responsible for higher level of support.                                                                                                                      |
| <b>30</b>                                                 | Consult office personnel to determine why the component is offline. Continue as directed by office personnel.                                                                                                                              |
| <b>31</b>                                                 | 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).

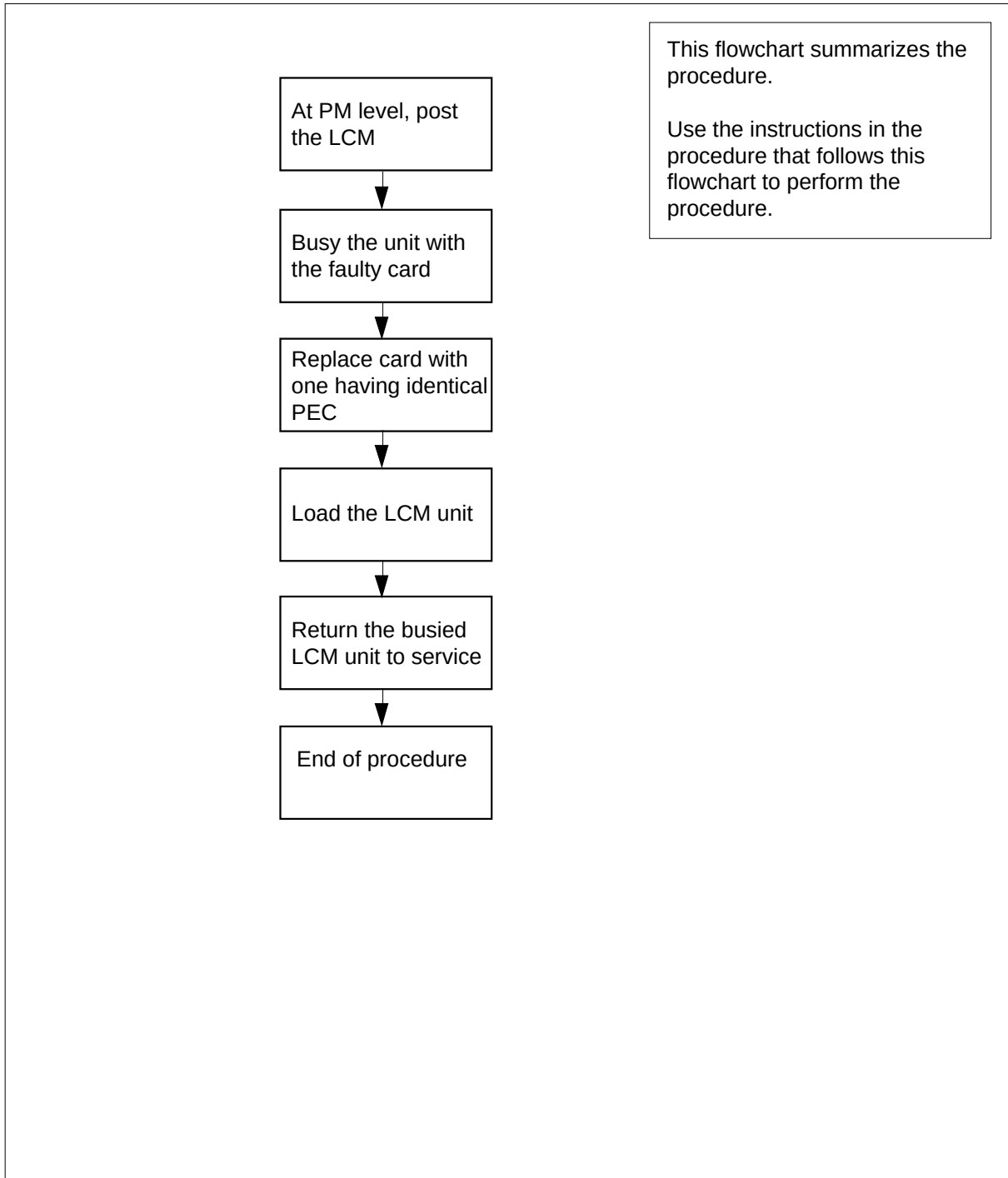
| <b>PEC</b> | <b>Suffixes</b> | <b>Name</b>            |
|------------|-----------------|------------------------|
| NT6X51     | AB, AC          | Extended LCM processor |

### **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)

| <p><b>lcm_unit</b><br/>is the LCM unit to be loaded (0 or 1)</p> |                                                                                                                                                                                                                        |
|------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| If                                                               | Do                                                                                                                                                                                                                     |
| message loadfile not found in directory is received              | step 9                                                                                                                                                                                                                 |
| load passed                                                      | step 26                                                                                                                                                                                                                |
| load failed                                                      | step 29                                                                                                                                                                                                                |
| <b>9</b>                                                         | 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                                                                                                                                                                                                                |
| <b>10</b>                                                        | Locate the tape that contains the PM load files.                                                                                                                                                                       |
| <i>At the IOE frame</i>                                          |                                                                                                                                                                                                                        |
| <b>11</b>                                                        | Mount the tape on a magnetic tape drive.                                                                                                                                                                               |
| <i>At the MAP display</i>                                        |                                                                                                                                                                                                                        |
| <b>12</b>                                                        | Download the tape by typing<br><b>&gt;MOUNT tape_no</b><br>and pressing the Enter key.<br><i>where</i><br><b>tape_no</b><br>is the number of the tape containing the PM load files                                     |
| <b>13</b>                                                        | List the contents of the tape in your user directory by typing<br><b>&gt;LIST T tape_no</b><br>and pressing the Enter key.<br><i>where</i><br><b>tape_no</b><br>is the number of the tape containing the PM load files |
| <b>14</b>                                                        | Demount the tape drive by typing<br><b>&gt;DEMOUNT T tape_no</b><br>and pressing the Enter key.<br><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,<br>AC | LCM Processor Card |

**Common procedures**

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

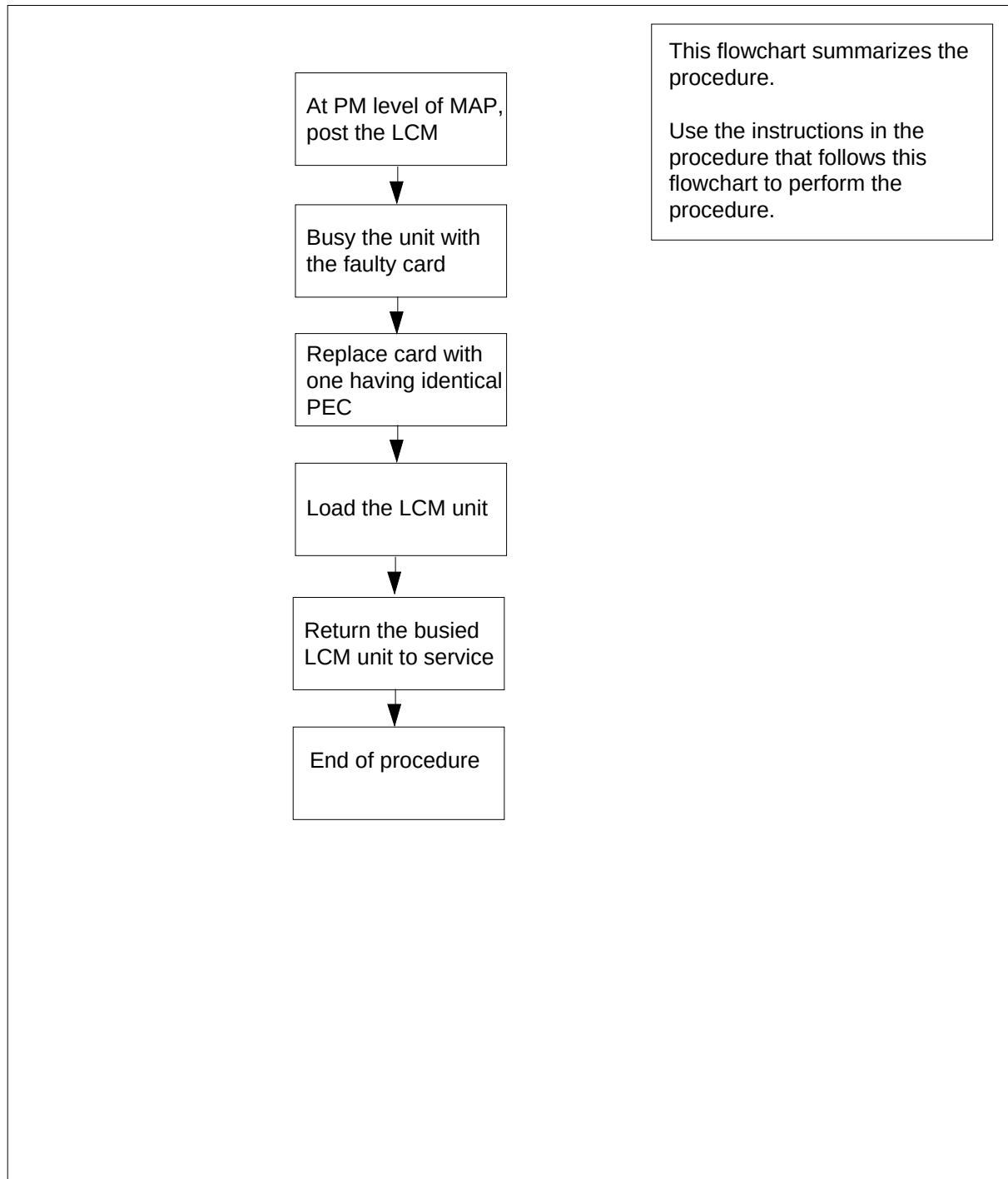
**Action**

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.                                                                                                                                                          |           |
|                           | <b>If load files are located on</b>                                                                                                                                                                                           | <b>Do</b> |
|                           | tape                                                                                                                                                                                                                          | step 10   |
|                           | IOC disk                                                                                                                                                                                                                      | step 16   |
|                           | SLM disk                                                                                                                                                                                                                      | step 21   |
| 10                        | Locate the tape that contains the PM load files.                                                                                                                                                                              |           |
| <b>At the OPM frame</b>   |                                                                                                                                                                                                                               |           |
| 11                        | Mount the tape on a magnetic tape drive.                                                                                                                                                                                      |           |
| <b>At the MAP display</b> |                                                                                                                                                                                                                               |           |
| 12                        | Download the tape by typing<br><b>&gt;MOUNT tape_no</b><br>and pressing the Enter key.<br><i>where</i><br><b>tape_no</b><br>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<br><b>&gt;LIST T tape_no</b><br>and pressing the Enter key.<br><i>where</i><br><b>tape_no</b><br>is the number of the tape drive containing the PM load files. |           |
| 14                        | Demount the tape drive by typing<br><b>&gt;DEMOUNT T tape_no</b><br>and pressing the Enter key.<br><i>where</i><br><b>tape_no</b><br>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.

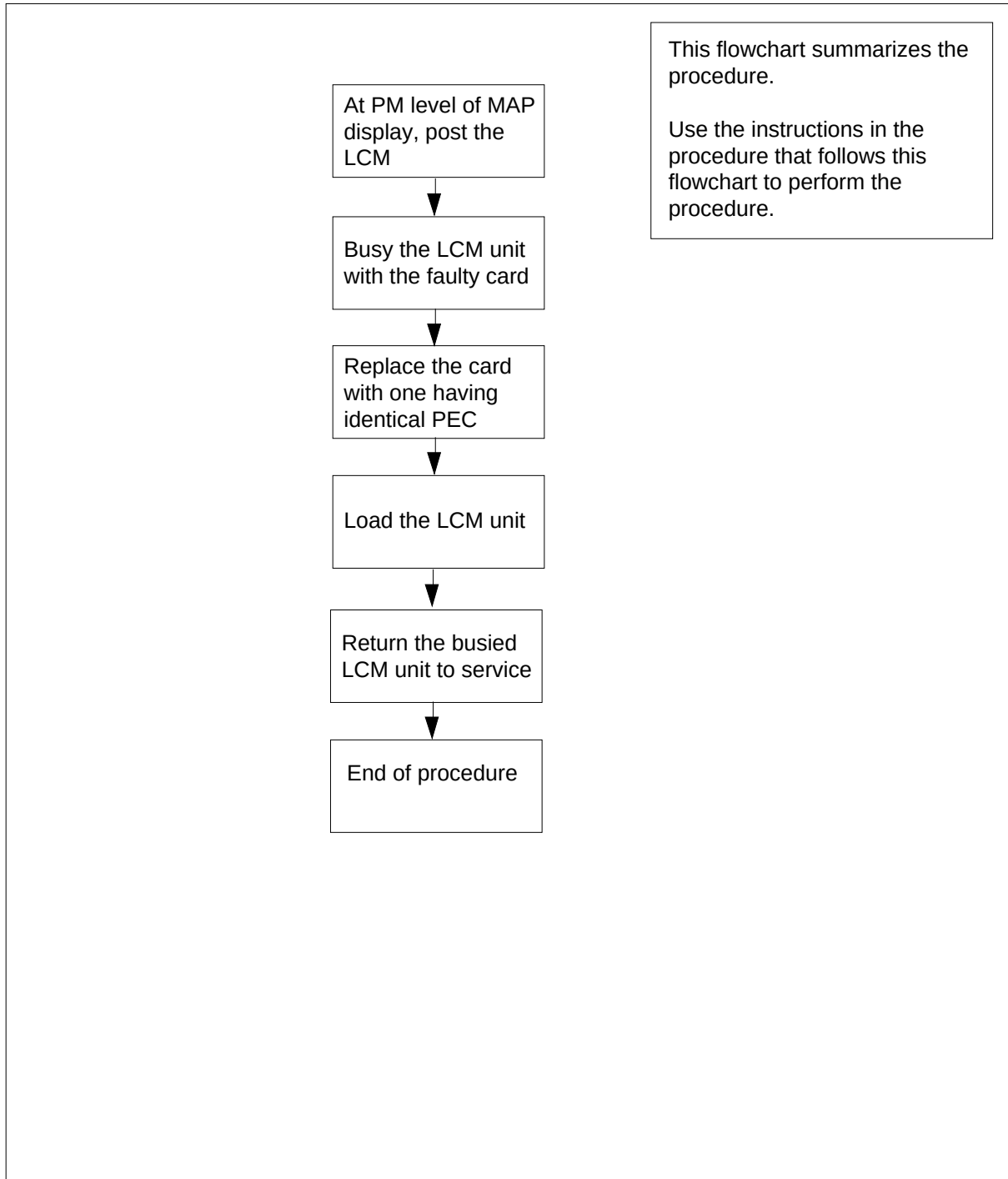
| <b>PEC</b> | <b>Suffixes</b> | <b>Name</b>        |
|------------|-----------------|--------------------|
| NT6X51     | AA, AB,<br>AC   | LCM Processor Card |

### **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.                                                                                                                                                          |           |
|                           | <b>If load files are located on</b>                                                                                                                                                                                           | <b>Do</b> |
|                           | 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<br><b>&gt;MOUNT tape_no</b><br>and pressing the Enter key.<br><i>where</i><br><b>tape_no</b><br>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<br><b>&gt;LIST T tape_no</b><br>and pressing the Enter key.<br><i>where</i><br><b>tape_no</b><br>is the number of the tape drive containing the PM load files. |           |
| 14                        | Demount the tape drive by typing<br><b>&gt;DEMOUNT T tape_no</b><br>and pressing the Enter key.<br><i>where</i><br><b>tape_no</b><br>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)**

---

|                                                          |                                                                                                                                                                                                                                         |
|----------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>lcm_unit</b><br>is the LCM unit to be loaded (0 or 1) |                                                                                                                                                                                                                                         |
| <b>If</b>                                                | <b>Do</b>                                                                                                                                                                                                                               |
| load failed                                              | step 29                                                                                                                                                                                                                                 |
| load passed                                              | step 26                                                                                                                                                                                                                                 |
| <b>26</b>                                                | Return the LCM unit to service by typing<br><b>&gt;RTS UNIT lcm_unit</b><br>and pressing the Enter key.<br><i>where</i><br><b>lcm_unit</b><br>is the LCM busied in step 5 (0 or 1)                                                      |
| <b>If RTS</b>                                            | <b>Do</b>                                                                                                                                                                                                                               |
| passed                                                   | step 27                                                                                                                                                                                                                                 |
| failed                                                   | step 29                                                                                                                                                                                                                                 |
| <b>27</b>                                                | Send any faulty cards for repair according to local procedure.                                                                                                                                                                          |
| <b>28</b>                                                | Record the following items in office records: <ul style="list-style-type: none"><li>• date the card was replaced</li><li>• serial number of the card</li><li>• symptoms that prompted replacement of the card.</li></ul> Go to step 31. |
| <b>29</b>                                                | Obtain further assistance in replacing this card by contacting the personnel responsible for higher level of support.                                                                                                                   |
| <b>30</b>                                                | Consult office personnel to determine why the component is offline. Continue as directed by office personnel.                                                                                                                           |
| <b>31</b>                                                | 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**

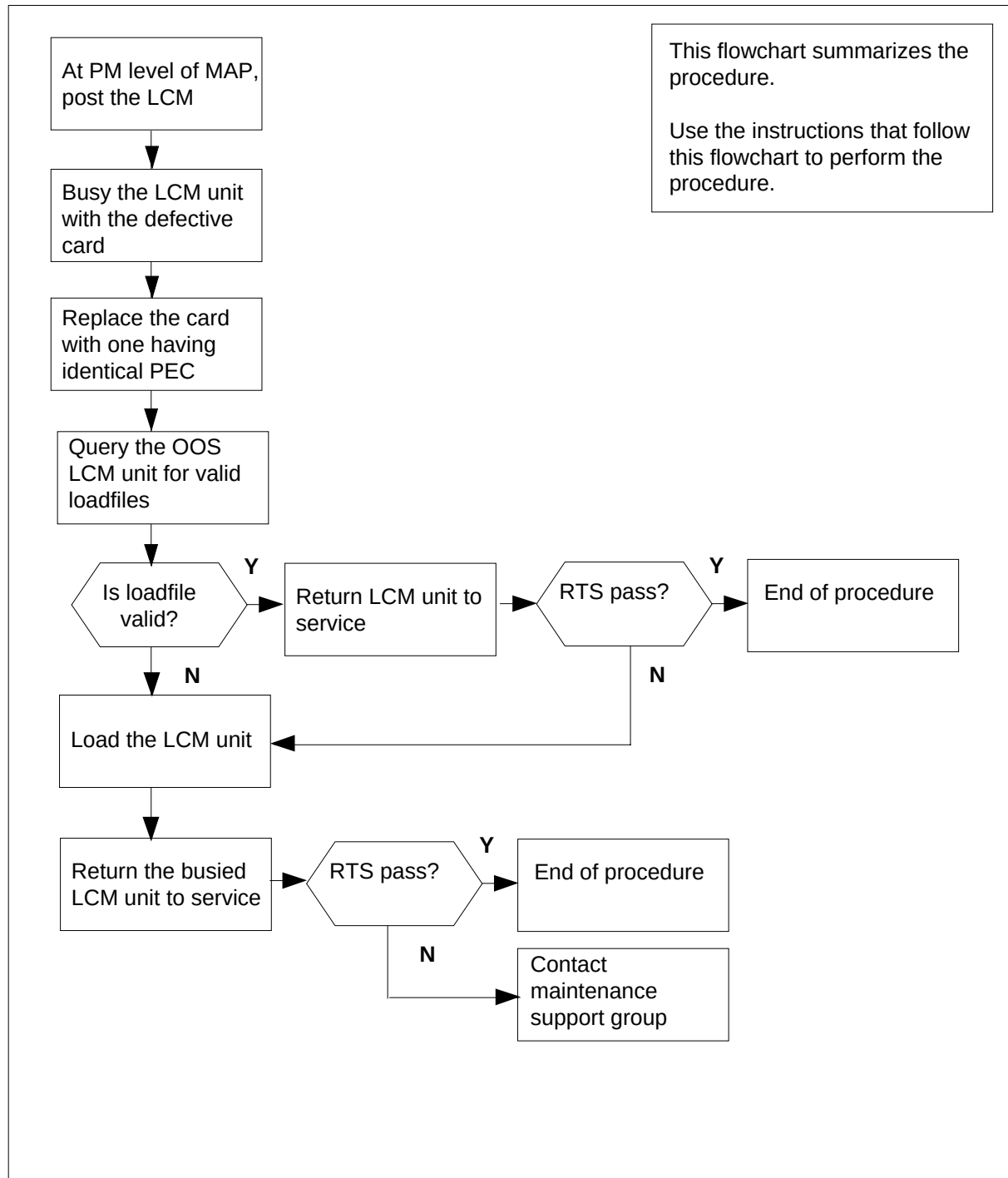
The common replacing a card procedure is referenced in this procedure.

**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  |
| <b>8</b> | To return the LCM unit to service, type<br><b>&gt;RTS UNIT lcm_unit</b><br>and press the Enter key.<br><i>where</i><br><b>lcm_unit</b><br>is the LCM unit (0 or 1) busied in step 4 |         |
|          | If RTS                                                                                                                                                                              | Do      |
|          | passed                                                                                                                                                                              | step 11 |
|          | failed                                                                                                                                                                              | step 9  |
| <b>9</b> | To load the LCM unit, type<br><b>&gt;LOADPM UNIT unit_no CC</b><br>and press the Enter key.<br><i>where</i><br><b>unit_no</b><br>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

---

| <b>If RTS</b> | <b>Do</b> |
|---------------|-----------|
| 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.

| <b>PEC</b> | <b>Suffixes</b> | <b>Name</b>            |
|------------|-----------------|------------------------|
| NT6X51     | AB, AC          | Extended LCM Processor |

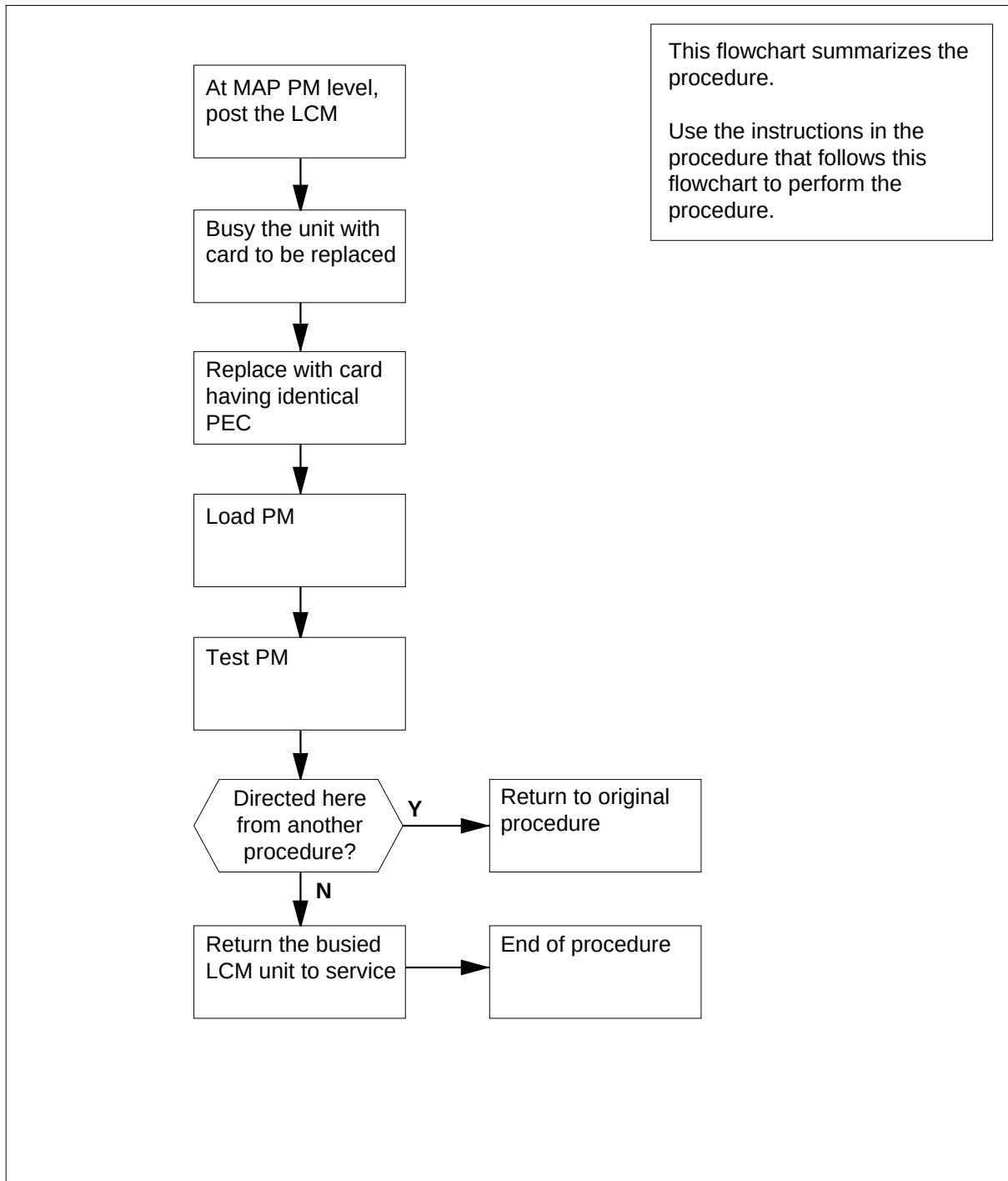
### **Common procedures**

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          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 frame supervisory panel (FSP) of the LCM. This protects the equipment against damage caused by static electricity.

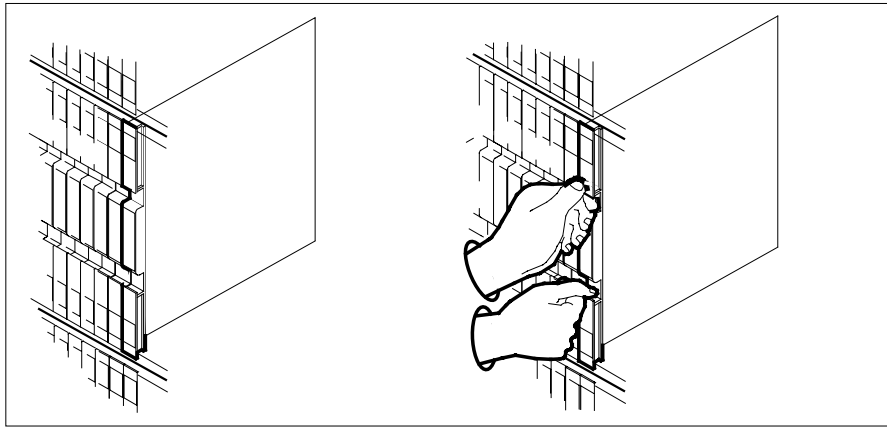
Put on a wriststrap.

5 Remove the card to be replaced.

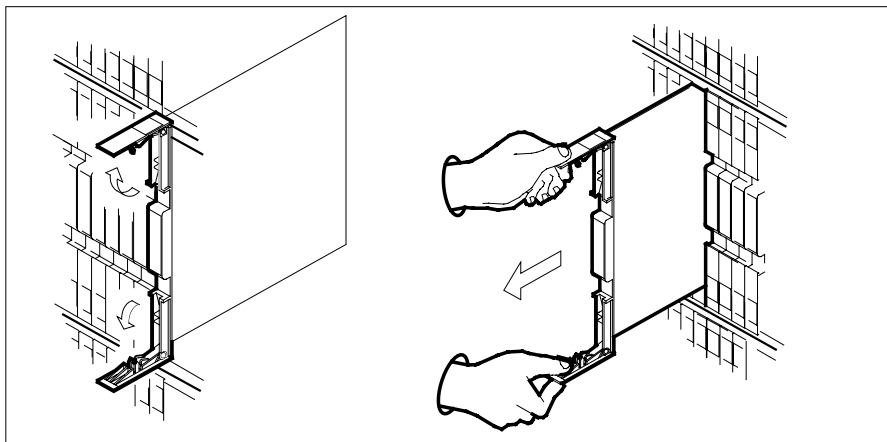
a Locate the card to be removed on the appropriate shelf.

**NT6X51**  
**in an RSC-S (DS-1) Model A LCM (continued)**

---

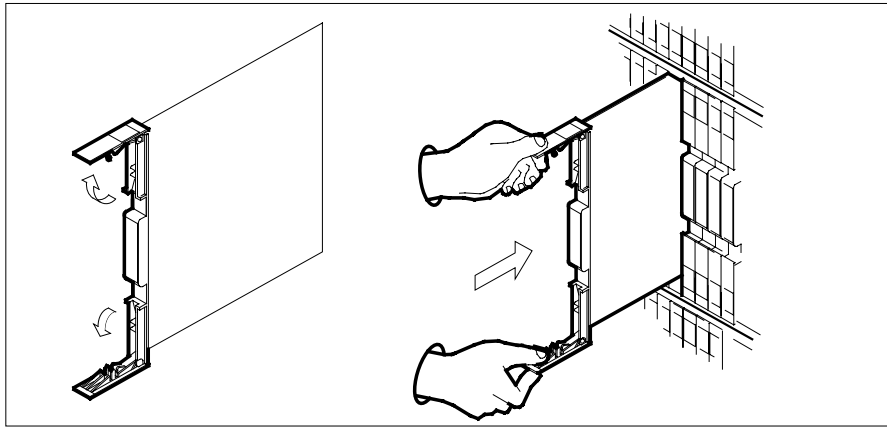


- b** Open the locking levers on the card to be replaced and gently pull the card toward you until it clears the shelf.



- 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**

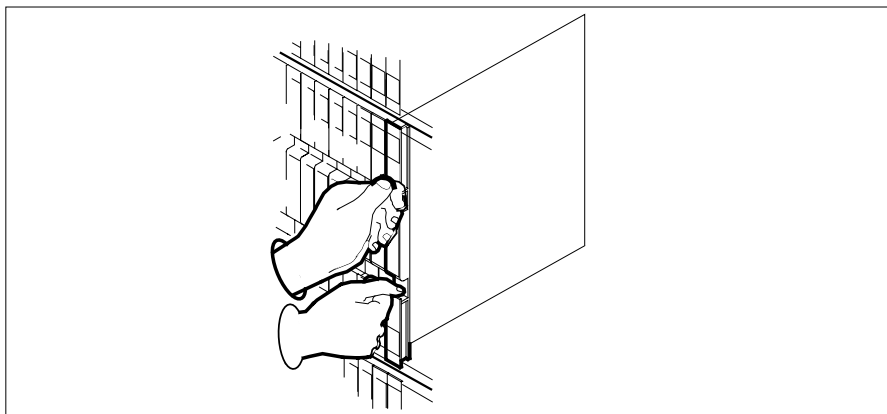
#### **Equipment damage**

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.

| <b>PEC</b> | <b>Suffixes</b> | <b>Name</b>            |
|------------|-----------------|------------------------|
| NT6X51     | AB, AC          | Extended LCM Processor |

### **Common procedures**

None

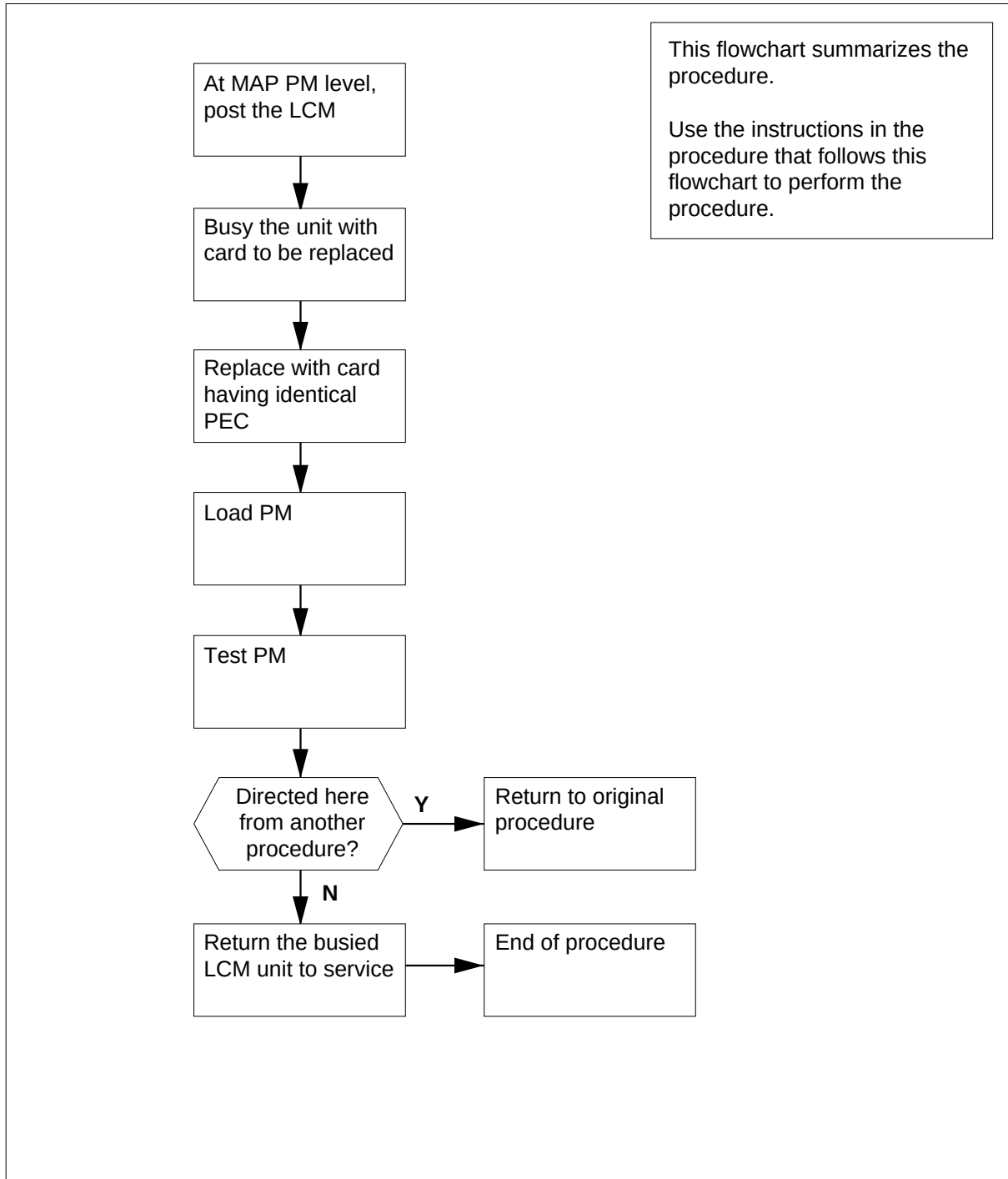
### **Action**

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**

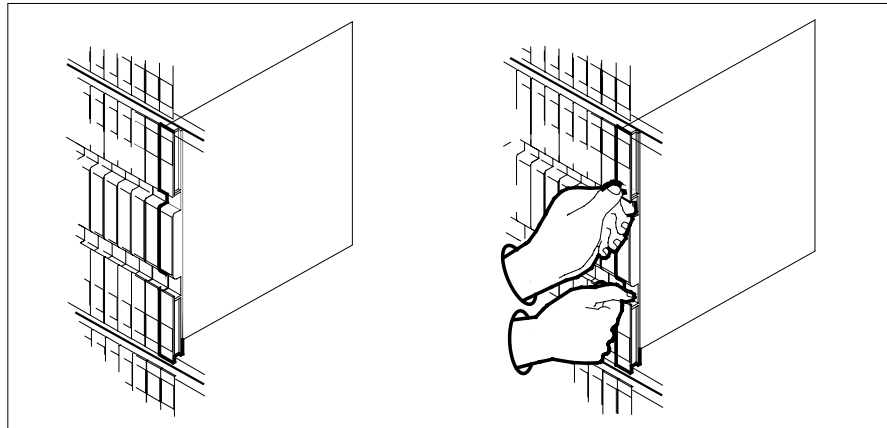
Remove the NT6X51 card as shown in the following figures.

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

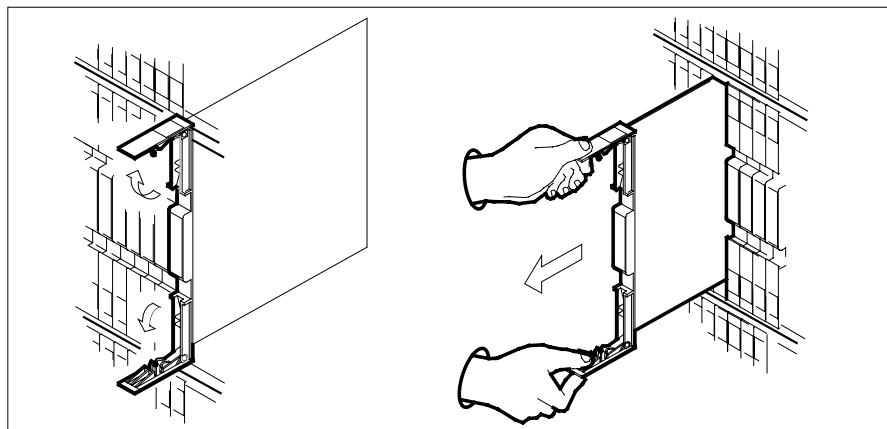
## NT6X51

### in an RSC-S (DS-1) Model B LCME (continued)

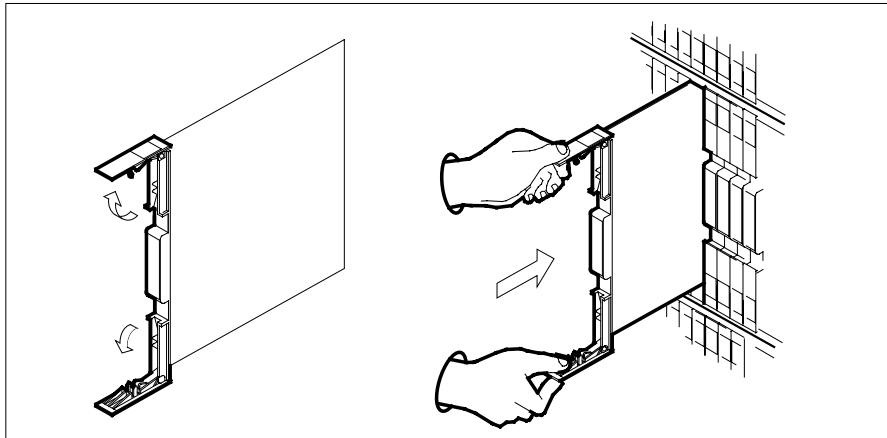
---



- 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

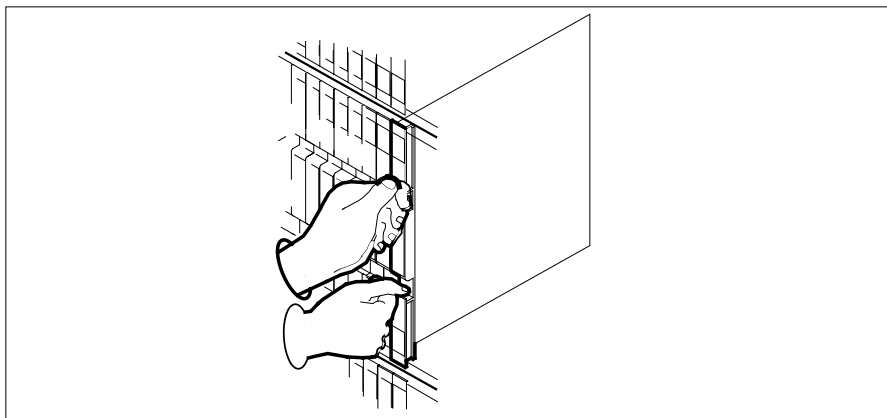
**DANGER****Equipment damage**

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.

| <b>PEC</b> | <b>Suffixes</b> | <b>Name</b>            |
|------------|-----------------|------------------------|
| NT6X51     | AB, AC          | Extended LCM Processor |

### **Common procedures**

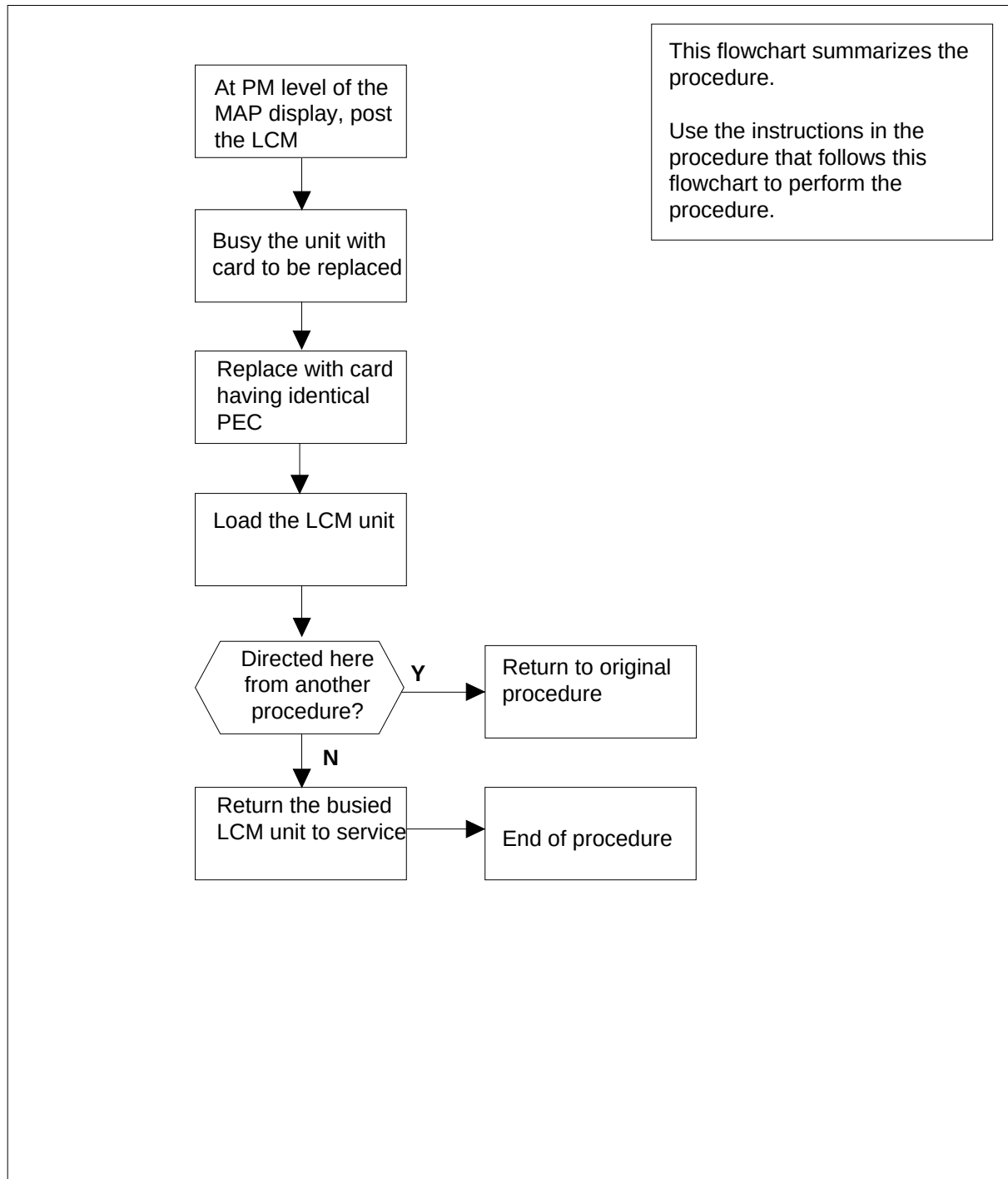
None

### **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      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**

#### **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.

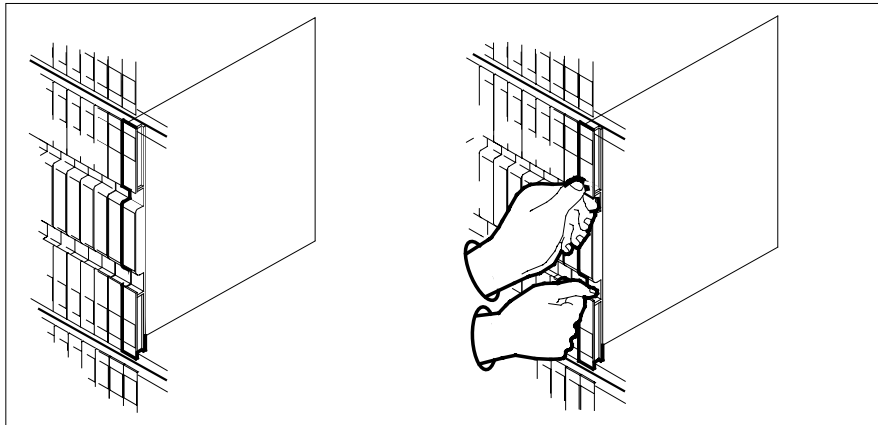
Put on a wrist strap.

**5**

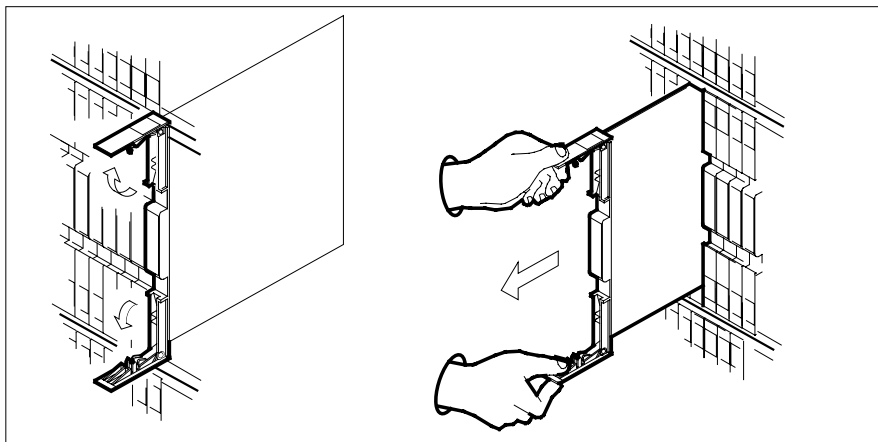
Remove the NT6X51 card as shown in the following figures.

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

**NT6X51**  
**in an RSC-S (PCM-30) Model A LCM (continued)**



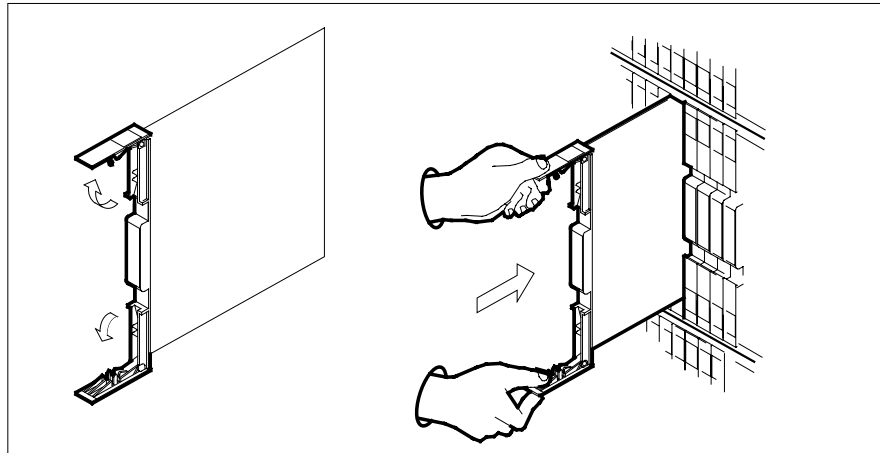
- b** Open the locking levers on the card to be replaced and gently pull the card toward you until it clears the shelf.



- 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**

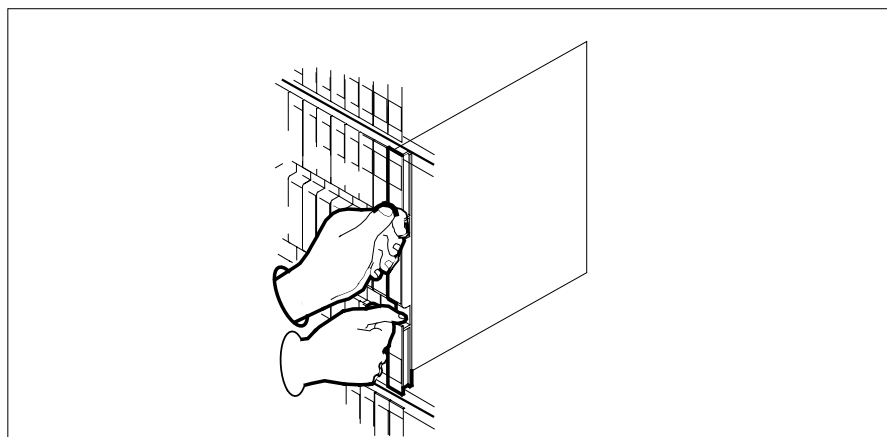
#### **Equipment damage**

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.

| <b>PEC</b> | <b>Suffixes</b> | <b>Name</b>            |
|------------|-----------------|------------------------|
| NT6X51     | AB, AC          | Extended LCM Processor |

### **Common procedures**

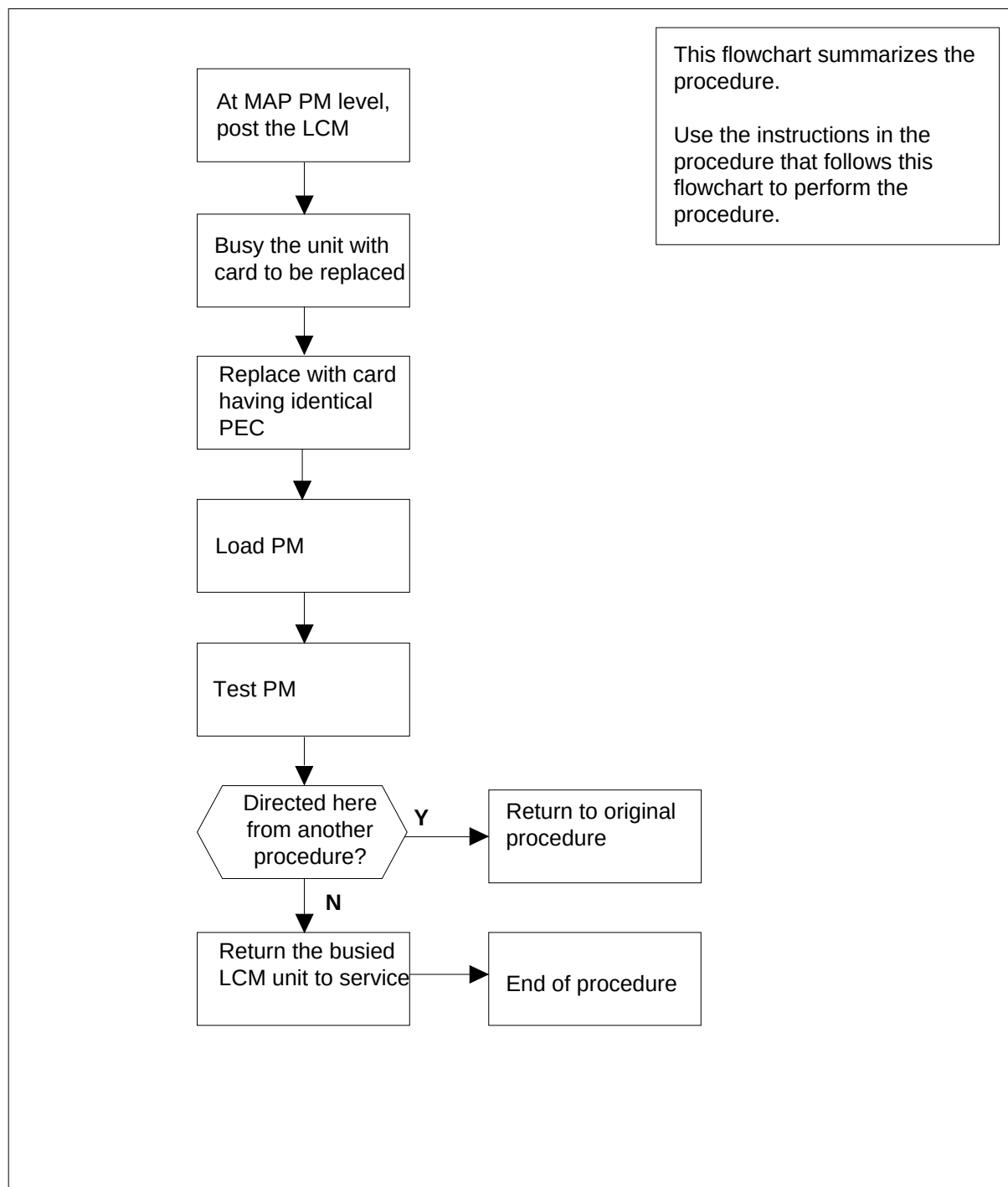
None

### **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
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**

#### **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.

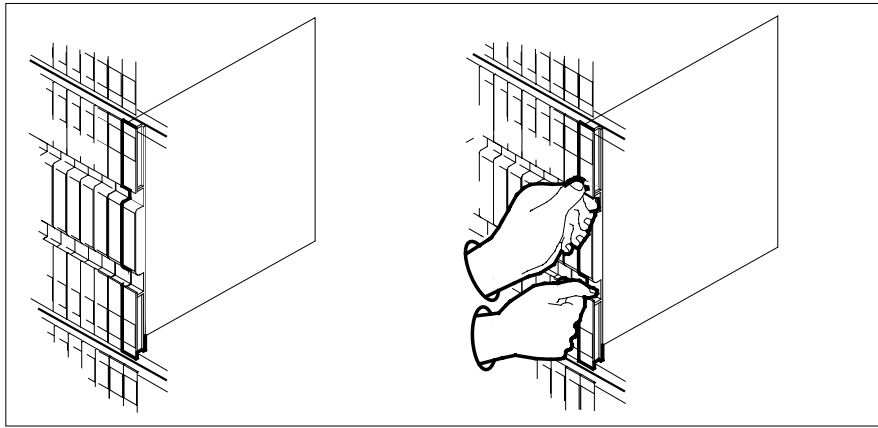
Put on a wrist strap.

**5**

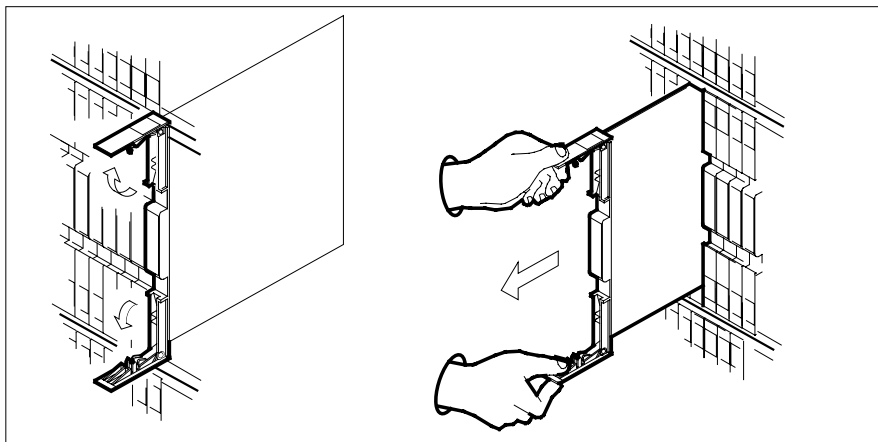
Remove the NT6X51 card as shown in the following figures.

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

**NT6X51**  
**in an RSC-S (PCM-30) Model B LCM (continued)**



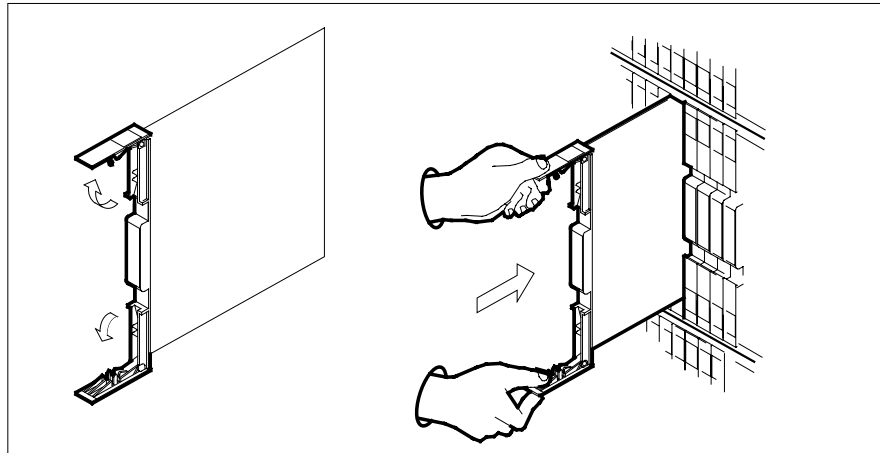
- b** Open the locking levers on the card to be replaced and gently pull the card toward you until it clears the shelf.



- 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**

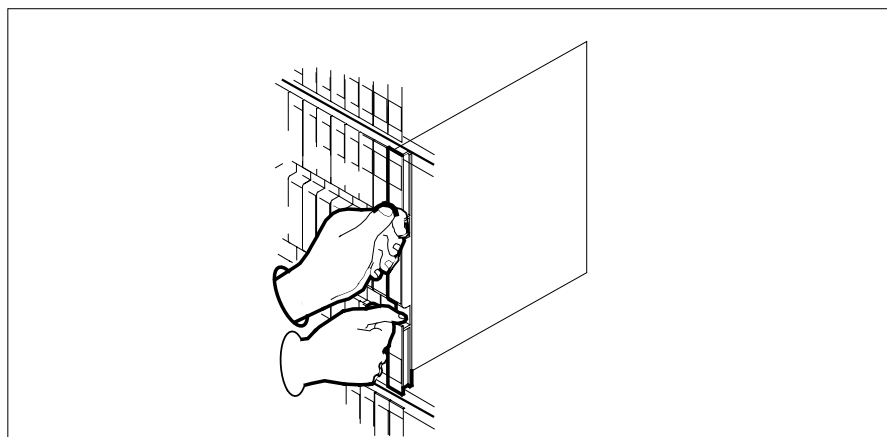
#### **Equipment damage**

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.

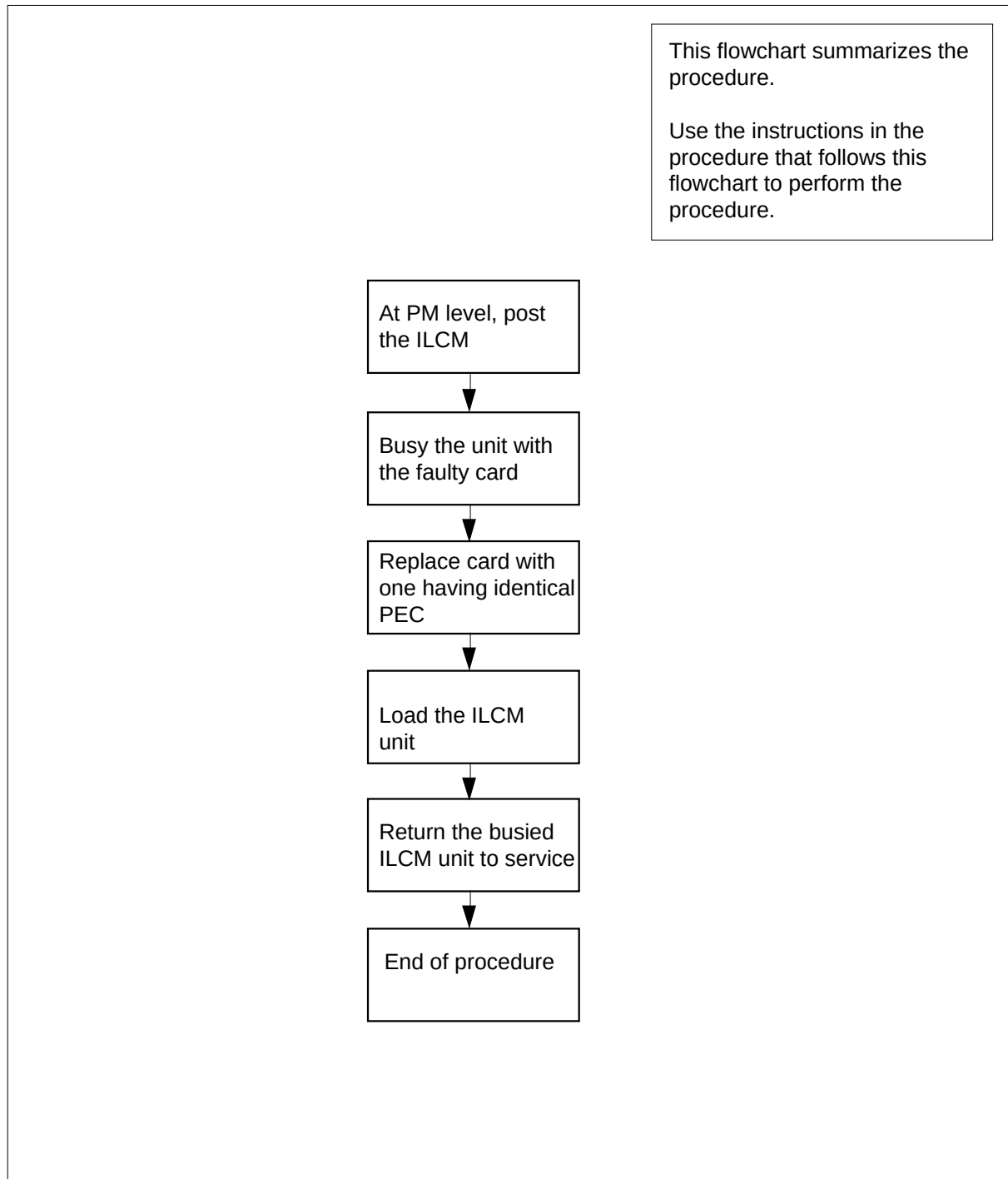
**Action**

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





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## 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)

|           |                                                                                                                                                                                                                        |                                                           |           |
|-----------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------|-----------|
|           |                                                                                                                                                                                                                        | <b>lcm_unit</b><br>is the ILCM unit to be loaded (0 or 1) |           |
|           |                                                                                                                                                                                                                        | <b>If</b>                                                 | <b>Do</b> |
|           |                                                                                                                                                                                                                        | message loadfile not found in directory                   | step 9    |
|           |                                                                                                                                                                                                                        | is received                                               |           |
|           |                                                                                                                                                                                                                        | load passes                                               | step 26   |
|           |                                                                                                                                                                                                                        | load fails                                                | step 29   |
| <b>9</b>  | Determine the type of device on which the PM load files are located.                                                                                                                                                   |                                                           |           |
|           |                                                                                                                                                                                                                        | <b>If load files located on</b>                           | <b>Do</b> |
|           |                                                                                                                                                                                                                        | tape                                                      | step 10   |
|           |                                                                                                                                                                                                                        | IOC disk                                                  | step 16   |
|           |                                                                                                                                                                                                                        | SLM disk                                                  | step 21   |
| <b>10</b> | Locate the tape that contains the PM load files.                                                                                                                                                                       |                                                           |           |
| <b>11</b> | Mount the tape on a magnetic tape drive.                                                                                                                                                                               |                                                           |           |
| <b>12</b> | Download the tape by typing<br><b>&gt;MOUNT tape_no</b><br>and pressing the Enter key.<br><i>where</i><br><b>tape_no</b><br>is the number of the tape containing the PM load files                                     |                                                           |           |
| <b>13</b> | List the contents of the tape in your user directory by typing<br><b>&gt;LIST T tape_no</b><br>and pressing the Enter key.<br><i>where</i><br><b>tape_no</b><br>is the number of the tape containing the PM load files |                                                           |           |
| <b>14</b> | Demount the tape drive by typing<br><b>&gt;DEMOUNT T tape_no</b><br>and pressing the Enter key.<br><i>where</i><br><b>tape_no</b><br>is the number of the tape drive containing the PM load files                      |                                                           |           |
| <b>15</b> | Go to step 25.                                                                                                                                                                                                         |                                                           |           |

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**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)

---

|             | <b>lcm_unit</b><br>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<br><b>&gt;RTS UNIT lcm_unit</b><br>and pressing the Enter key.<br><i>where</i><br><b>lcm_unit</b><br>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: <ul style="list-style-type: none"><li>• date the card was replaced</li><li>• serial number of the card</li><li>• symptoms that prompted replacement of the card</li></ul> 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.

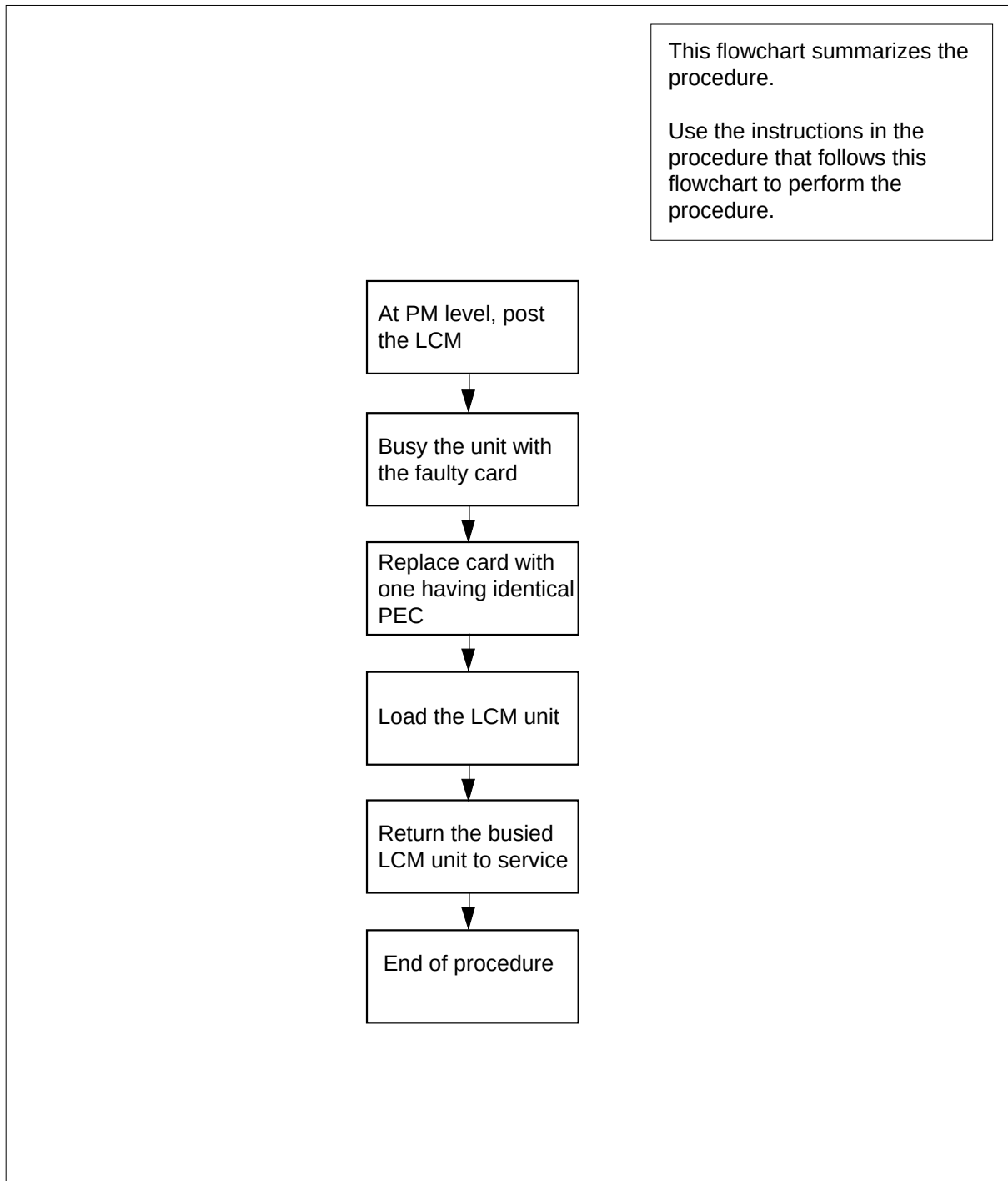
**Action**

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)

| <b>lcm_unit</b><br>is the LCM unit to be loaded (0 or 1) |                                                                                                                                                                                                                        |
|----------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>If</b>                                                | <b>Do</b>                                                                                                                                                                                                              |
| message loadfile not found in directory is received      | step 9                                                                                                                                                                                                                 |
| load passes                                              | step 26                                                                                                                                                                                                                |
| load fails                                               | step 29                                                                                                                                                                                                                |
| <b>9</b>                                                 | Determine the type of device on which the PM load files are located.                                                                                                                                                   |
| <b>If load files located on</b>                          | <b>Do</b>                                                                                                                                                                                                              |
| tape                                                     | step 10                                                                                                                                                                                                                |
| IOC disk                                                 | step 16                                                                                                                                                                                                                |
| SLM disk                                                 | step 21                                                                                                                                                                                                                |
| <b>10</b>                                                | Locate the tape that contains the PM load files.                                                                                                                                                                       |
| <b>11</b>                                                | Mount the tape on a magnetic tape drive.                                                                                                                                                                               |
| <b>12</b>                                                | Download the tape by typing<br><b>&gt;MOUNT tape_no</b><br>and pressing the Enter key.<br><i>where</i><br><b>tape_no</b><br>is the number of the tape containing the PM load files                                     |
| <b>13</b>                                                | List the contents of the tape in your user directory by typing<br><b>&gt;LIST T tape_no</b><br>and pressing the Enter key.<br><i>where</i><br><b>tape_no</b><br>is the number of the tape containing the PM load files |
| <b>14</b>                                                | Demount the tape drive by typing<br><b>&gt;DEMOUNT T tape_no</b><br>and pressing the Enter key.<br><i>where</i><br><b>tape_no</b><br>is the number of the tape drive containing the PM load files                      |
| <b>15</b>                                                | 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)**

|                                                          |                                                                                                                                                                                                                                        |
|----------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>lcm_unit</b><br>is the LCM unit to be loaded (0 or 1) |                                                                                                                                                                                                                                        |
| <b>If</b>                                                | <b>Do</b>                                                                                                                                                                                                                              |
| load failed                                              | step 29                                                                                                                                                                                                                                |
| load passed                                              | step 26                                                                                                                                                                                                                                |
| <b>26</b>                                                | Return the LCM unit to service by typing<br><b>&gt;RTS UNIT lcm_unit</b><br>and pressing the Enter key.<br><i>where</i><br><b>lcm_unit</b><br>is the LCM busied in step 5 (0 or 1)                                                     |
| <b>If RTS</b>                                            | <b>Do</b>                                                                                                                                                                                                                              |
| passed                                                   | step 27                                                                                                                                                                                                                                |
| failed                                                   | step 29                                                                                                                                                                                                                                |
| <b>27</b>                                                | Send any faulty cards for repair according to local procedure.                                                                                                                                                                         |
| <b>28</b>                                                | Record the following items in office records: <ul style="list-style-type: none"><li>• date the card was replaced</li><li>• serial number of the card</li><li>• symptoms that prompted replacement of the card</li></ul> Go to step 30. |
| <b>29</b>                                                | Obtain further assistance in replacing this card by contacting the personnel responsible for higher level of support.                                                                                                                  |
| <b>30</b>                                                | 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.

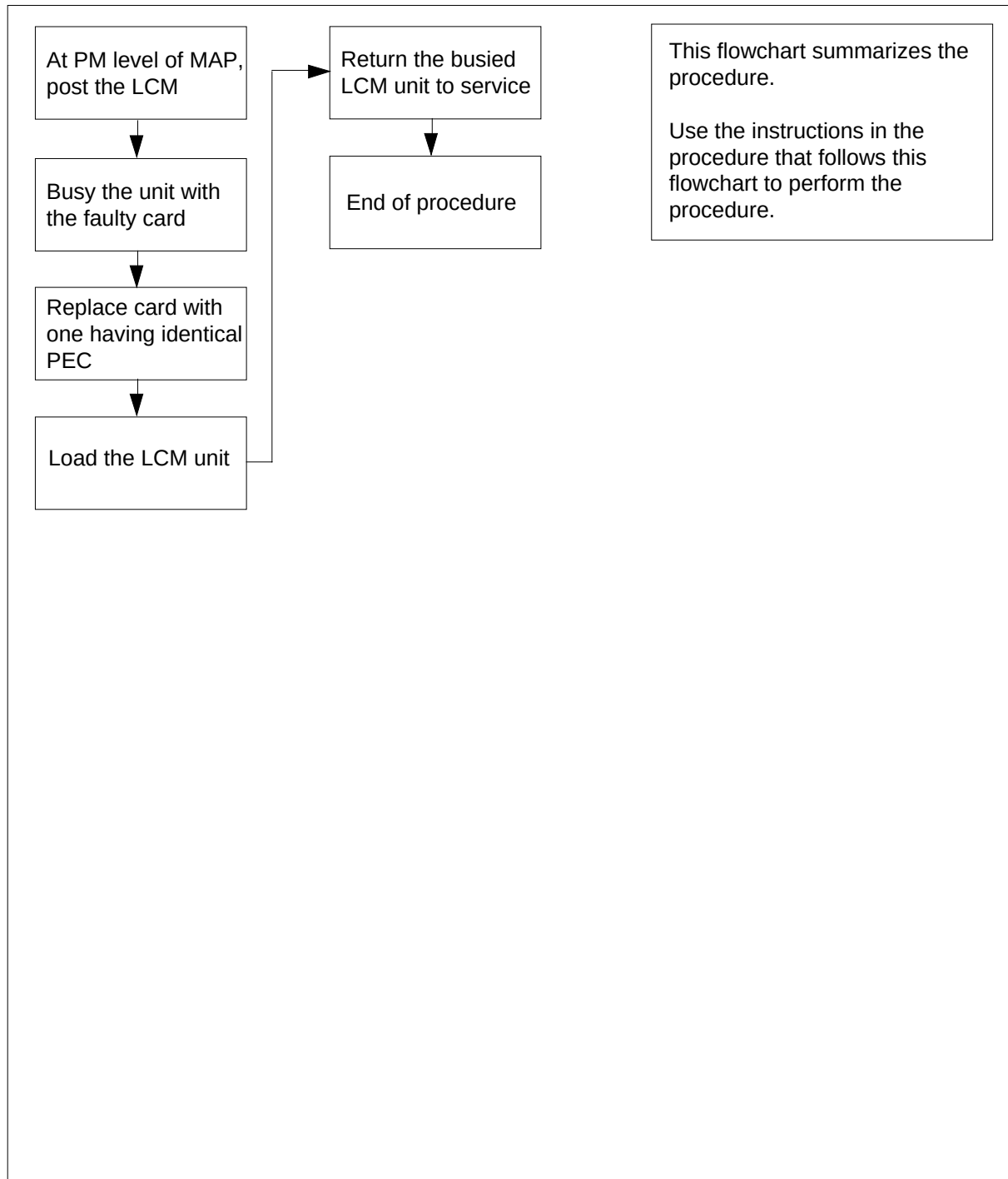
**Action**

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)

|                                                       | <b>lcm_unit</b><br>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                                                                                                                                                                                                                                 |                              |    |                                                       |        |             |         |             |         |
| <b>8</b>                                              | 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                                                                                                                                                                                                                                 |                              |    |                                                       |        |             |         |             |         |
| <b>9</b>                                              | Locate the tape that contains the PM load files.                                                                                                                                                                                        |                              |    |                                                       |        |             |         |             |         |
| <b>10</b>                                             | Mount the tape on a magnetic tape drive.                                                                                                                                                                                                |                              |    |                                                       |        |             |         |             |         |
|                                                       | <b>At the MAP display</b>                                                                                                                                                                                                               |                              |    |                                                       |        |             |         |             |         |
| <b>11</b>                                             | Download the tape by typing<br><b>&gt;MOUNT tape_no</b><br>and pressing the Enter key.<br><i>where</i><br><b>tape_no</b><br>is the number of the tape drive containing the PM load files                                                |                              |    |                                                       |        |             |         |             |         |
| <b>12</b>                                             | List the contents of the tape in your user directory by typing<br><b>&gt;LIST T tape_no</b><br>and pressing the Enter key.<br><i>where</i><br><b>tape_no</b><br>is the number of the tape drive containing the PM load files            |                              |    |                                                       |        |             |         |             |         |
| <b>13</b>                                             | Demount the tape by typing<br><b>&gt;DEMOUNT T tape_no</b><br>and pressing the Enter key.<br><i>where</i><br><b>tape_no</b><br>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.

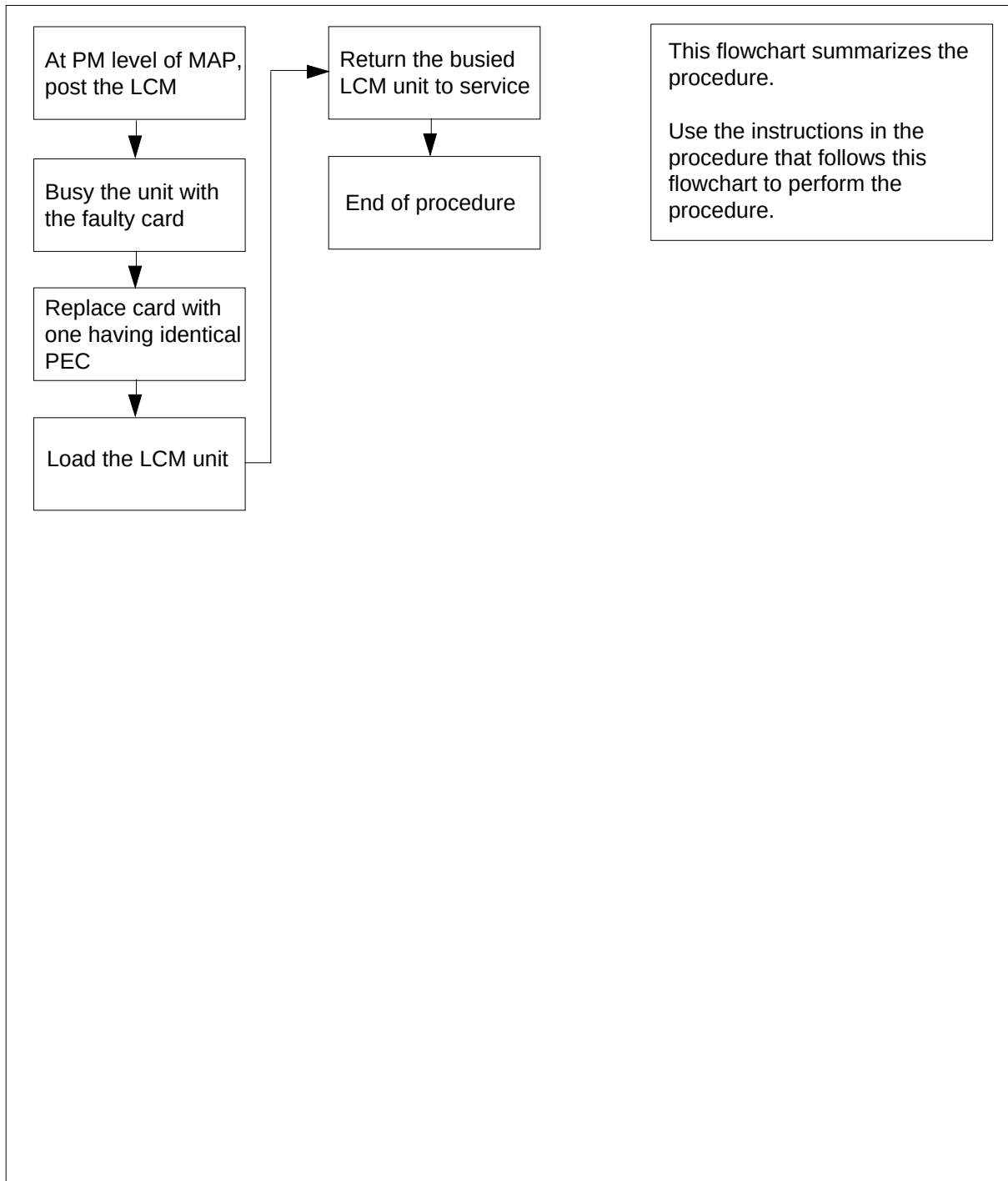
**Action**

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)

|                                                       | <b>lcm_unit</b><br>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.                                                                                                                                                                                                |                              |    |                                                       |        |             |         |             |         |
|                                                       | <b>At the MAP display</b>                                                                                                                                                                                                               |                              |    |                                                       |        |             |         |             |         |
| 11                                                    | Download the tape by typing<br><b>&gt;MOUNT tape_no</b><br>and pressing the Enter key.<br><i>where</i><br><b>tape_no</b><br>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<br><b>&gt;LIST T tape_no</b><br>and pressing the Enter key.<br><i>where</i><br><b>tape_no</b><br>is the number of the tape drive containing the PM load files            |                              |    |                                                       |        |             |         |             |         |
| 13                                                    | Demount the tape by typing<br><b>&gt;DEMOUNT T tape_no</b><br>and pressing the Enter key.<br><i>where</i><br><b>tape_no</b><br>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**

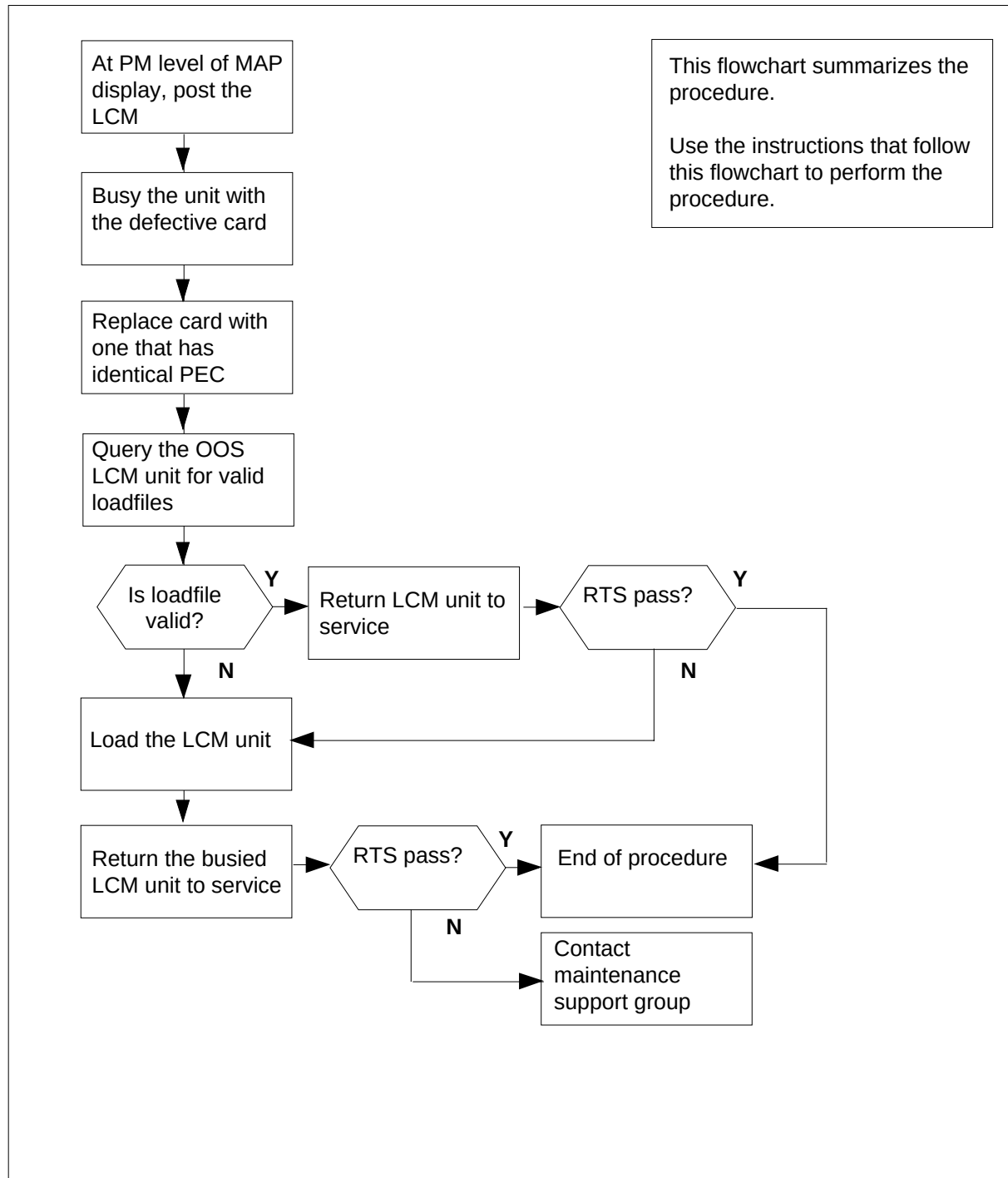
The common replacing a card procedure is referenced in this procedure.

**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





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## 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  |
| <b>8</b> | To return the LCM unit to service, type<br><b>&gt;RTS UNIT unit_no</b><br>and press the Enter key.<br><i>where</i><br><b>unit_no</b><br>is the LCM unit (0 or 1) busied in step 4 |         |
|          | If RTS                                                                                                                                                                            | Do      |
|          | passed                                                                                                                                                                            | step 11 |
|          | failed                                                                                                                                                                            | step 9  |
| <b>9</b> | To load the LCM unit, type<br><b>&gt;LOADPM UNIT unit_no CC</b><br>and press the Enter key.<br><i>where</i><br><b>unit_no</b><br>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.

| <b>PEC</b> | <b>Suffixes</b> | <b>Name</b>                |
|------------|-----------------|----------------------------|
| NT6X52     | AA, AB          | Digital control card (DCC) |

### **Common procedures**

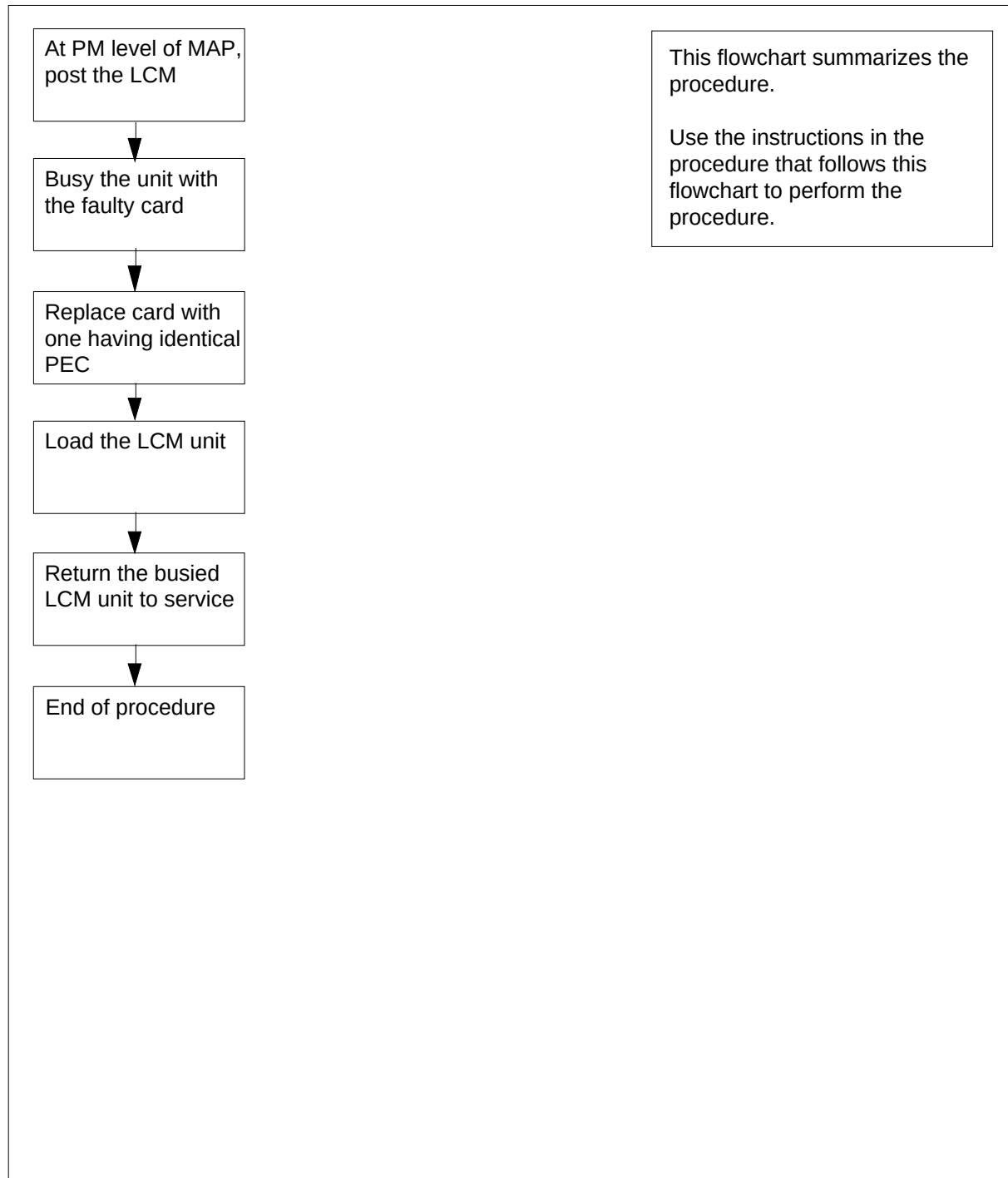
None

### **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
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 1 PSide 0
5 TrnsL      Unit-0:  InSv  Mtce TakeOver  /RG:  0
6 Tst      Unit-1:  SysB  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
```

**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.

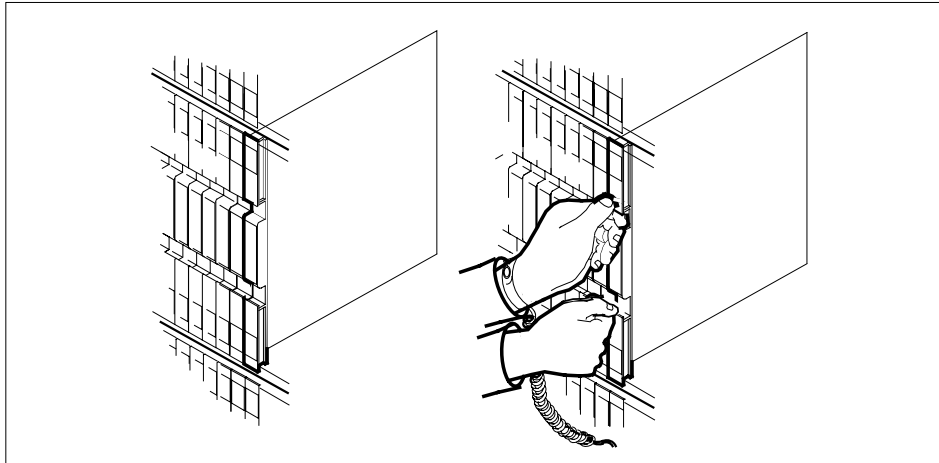
- a Locate the card to be removed on the appropriate shelf.



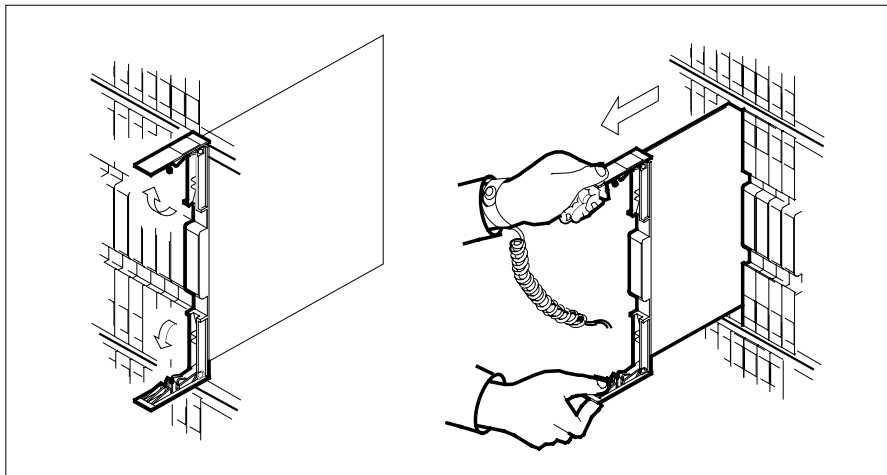
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**NT6X52**  
**in an RSC LCM (continued)**

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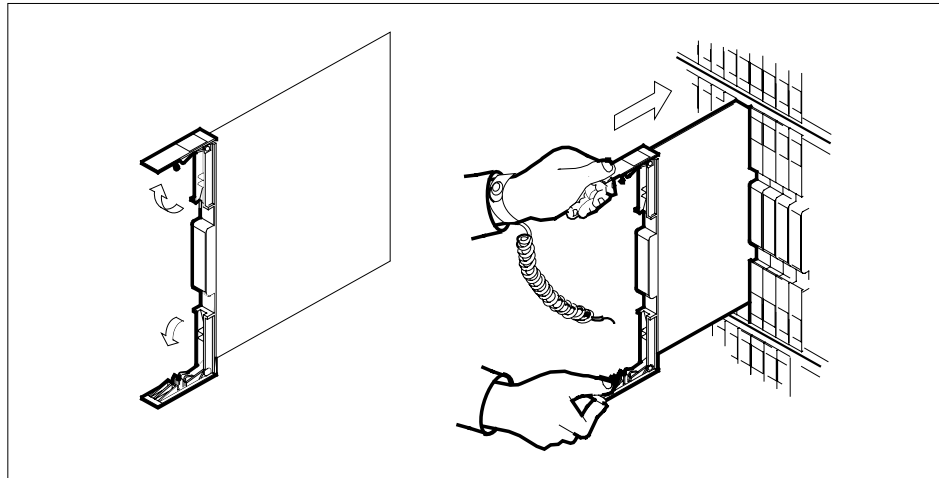
- 7 Open the locking levers on the card to be replaced and gently pull the card towards you until it clears the shelf.



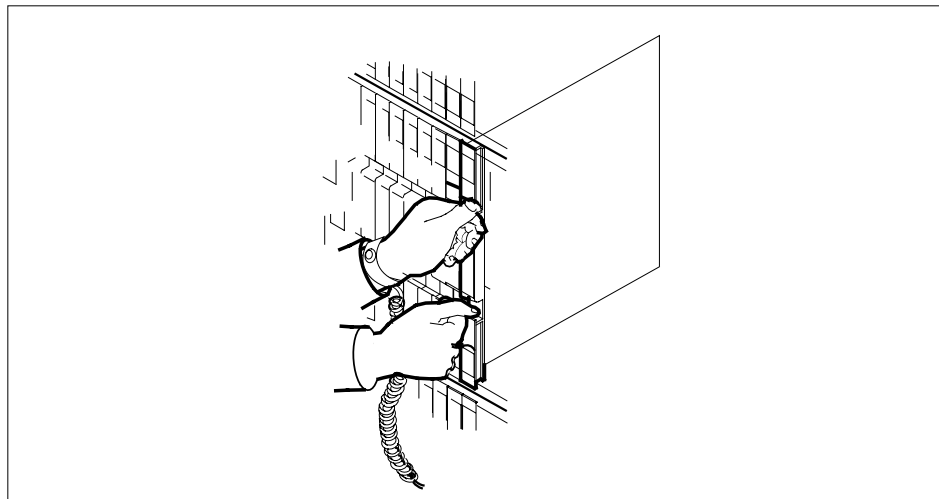
- 8 Ensure the replacement card has the same PEC including suffix, as the card you just removed.
- 9 Open the locking levers on the replacement card.  
Align the card with the slots in the shelf and gently slide the card into the shelf.

## 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   |
| <b>12</b> | Load the LCM unit by typing<br><b>&gt;LOADPM UNIT lcm_unit CC</b><br>and pressing the Enter key.<br><i>where</i><br><b>lcm_unit</b><br>is the LCM unit to be loaded (0 or 1)                                                                                                            |           |
|           | <b>If</b>                                                                                                                                                                                                                                                                               | <b>Do</b> |
|           | load passed                                                                                                                                                                                                                                                                             | step 13   |
|           | load failed                                                                                                                                                                                                                                                                             | step 17   |
| <b>13</b> | Return the LCM unit to service by typing<br><b>&gt;RTS UNIT lcm_unit</b><br>and pressing the Enter key.<br><i>where</i><br><b>lcm_unit</b><br>is the LCM unit, (0 or 1) busied in step 4                                                                                                |           |
|           | <b>If RTS</b>                                                                                                                                                                                                                                                                           | <b>Do</b> |
|           | passed                                                                                                                                                                                                                                                                                  | step 14   |
|           | failed                                                                                                                                                                                                                                                                                  | step 17   |
| <b>14</b> | Send any faulty cards for repair according to local procedure.                                                                                                                                                                                                                          |           |
| <b>15</b> | Record the following items in office records: <ul style="list-style-type: none"> <li>• date the card was replaced</li> <li>• serial number of the card</li> <li>• symptoms that prompted replacement of the card</li> </ul> Go to step 18.                                              |           |
| <b>16</b> | 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. |           |
| <b>17</b> | Obtain further assistance in replacing this card by contacting the personnel responsible for higher level of support.                                                                                                                                                                   |           |
| <b>18</b> | You have successfully completed this procedure.                                                                                                                                                                                                                                         |           |

## **NT6X52 in an RSC-S (DS-1) Model A LCME**

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### **Application**

Use this procedure to replace an NT6X52 card in an RSC-S LCME.

| <b>PEC</b> | <b>Suffixes</b> | <b>Name</b>          |
|------------|-----------------|----------------------|
| NT6X52     | AA              | Digroup Control card |

### **Common procedures**

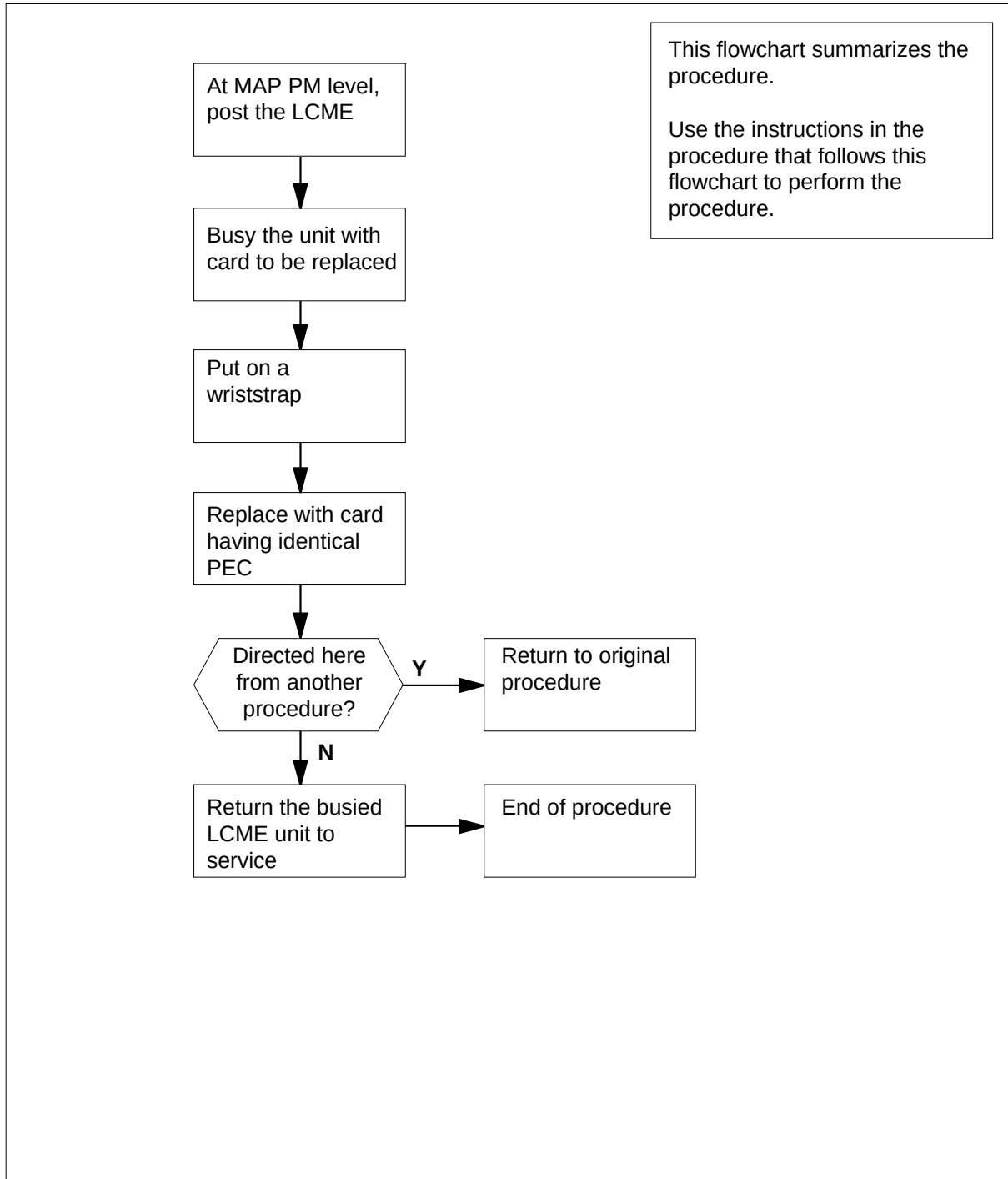
None

### **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 lcme\_unit\_no**  
and pressing the Enter key.  
where  
**lcme\_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.

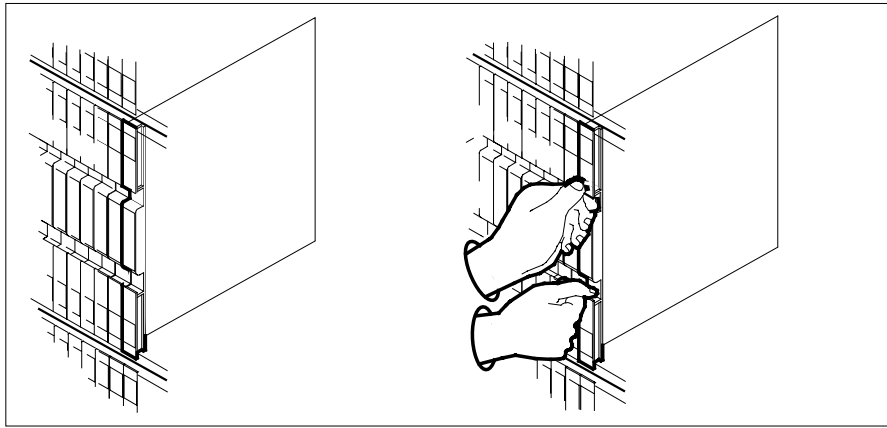


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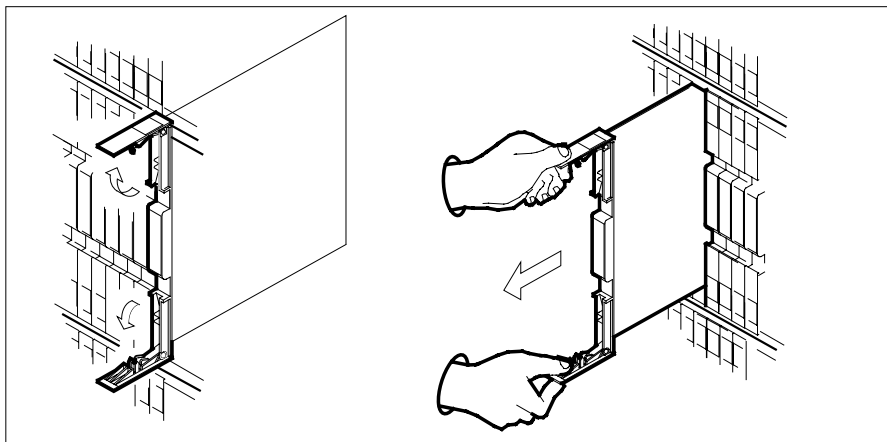
**NT6X52**

**in an RSC-S (DS-1) Model A LCME (continued)**

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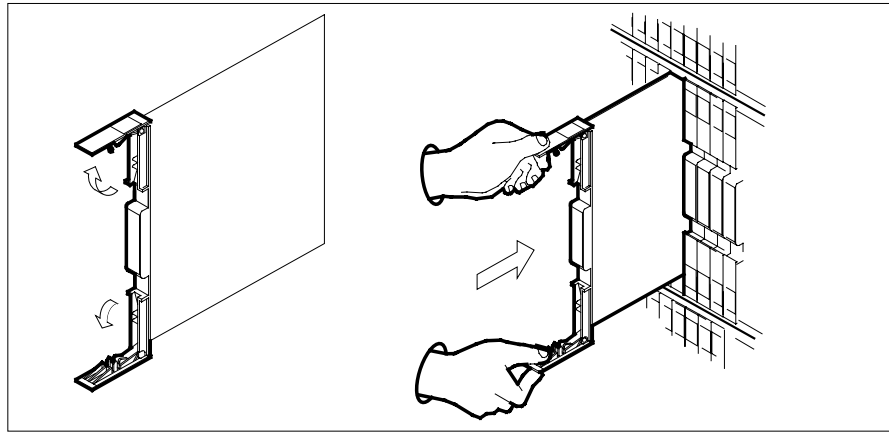
- b** Open the locking levers on the card to be replaced and gently pull the card toward you until it clears the shelf.



- 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)

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8



### **DANGER**

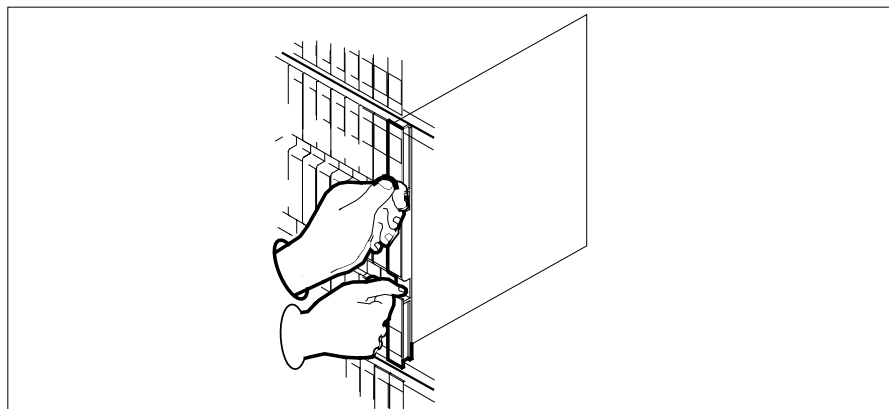
#### **Equipment damage**

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)**

---

|           | <b>If RTS</b>                                                                                                                                                                                                                                                         | <b>Do</b> |
|-----------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|
|           | failed                                                                                                                                                                                                                                                                | step 16   |
| <b>13</b> | Send any faulty cards for repair according to local procedure.                                                                                                                                                                                                        |           |
| <b>14</b> | 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.                                                                                                                          |           |
| <b>15</b> | 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> . |           |
| <b>16</b> | Obtain further assistance in replacing this card by contacting operating company maintenance personnel.                                                                                                                                                               |           |
| <b>17</b> | 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**

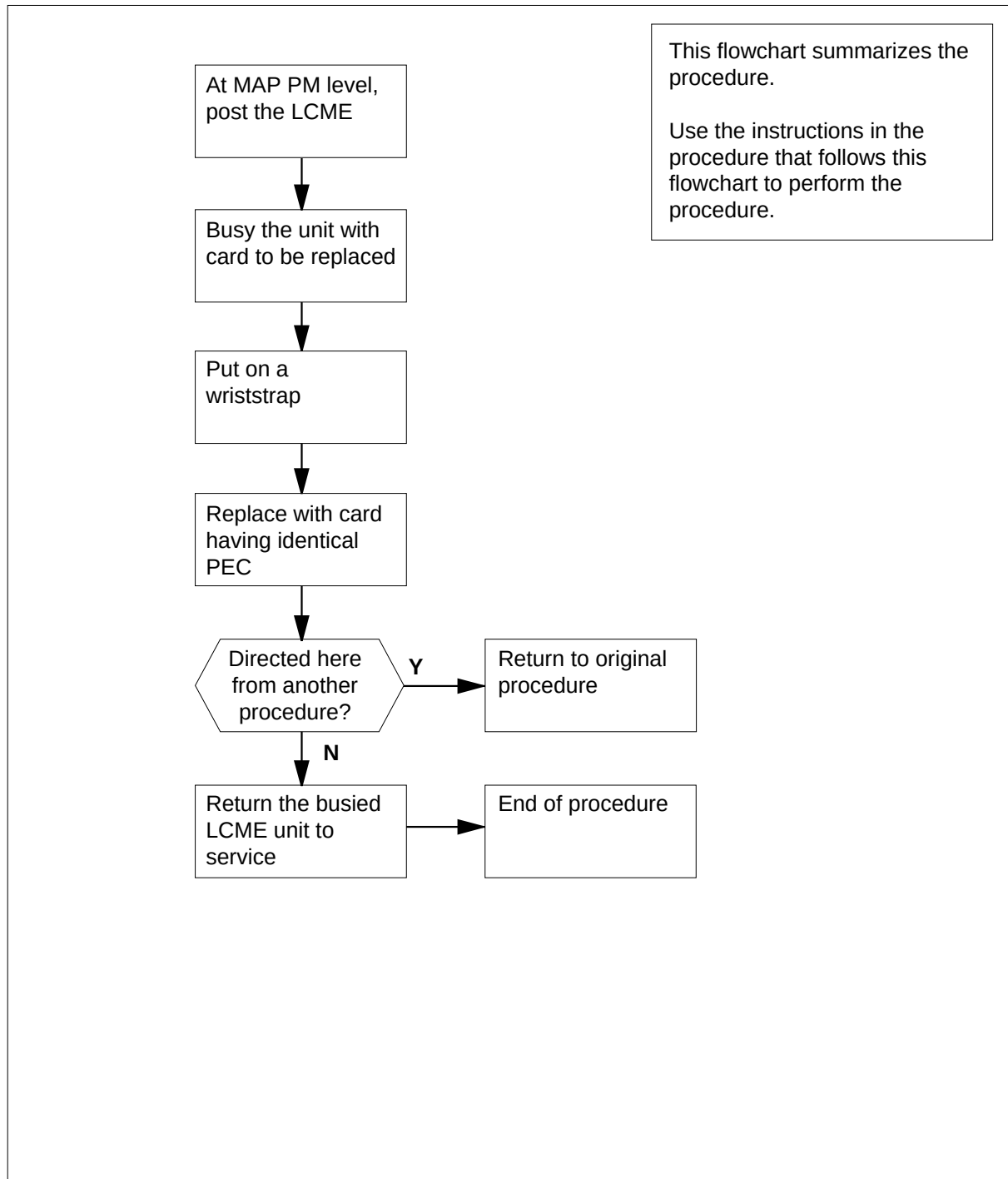
None

**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         |         |                |          |          |            |           |      |       |      |



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**NT6X52**  
**in an RSC-S (DS-1) Model B LCME (continued)**

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*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.

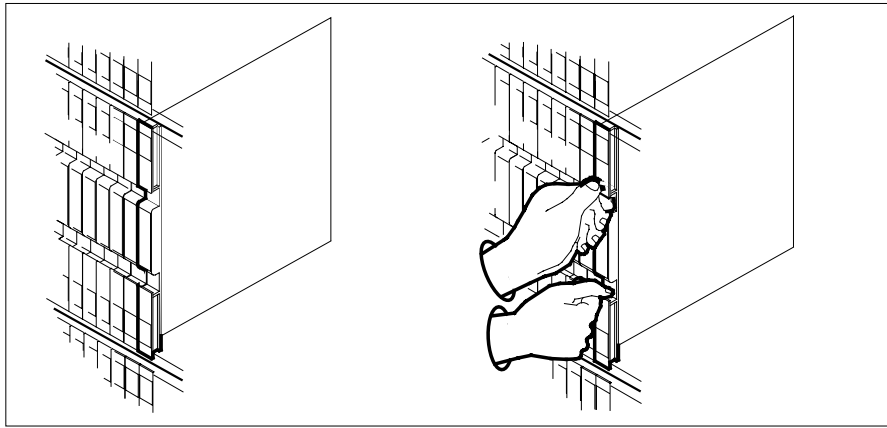
**6**

Remove the NT6X52 card as shown in the following figures.

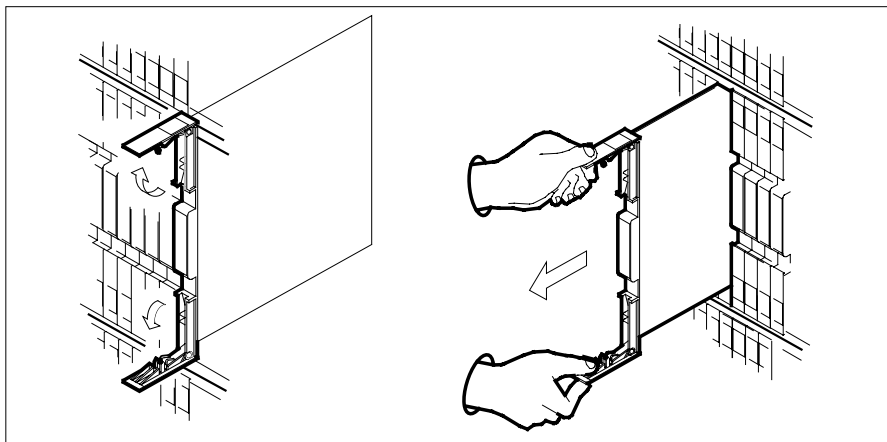
- a** Locate the card to be removed on the appropriate shelf.

**NT6X52**  
**in an RSC-S (DS-1) Model B LCME (continued)**

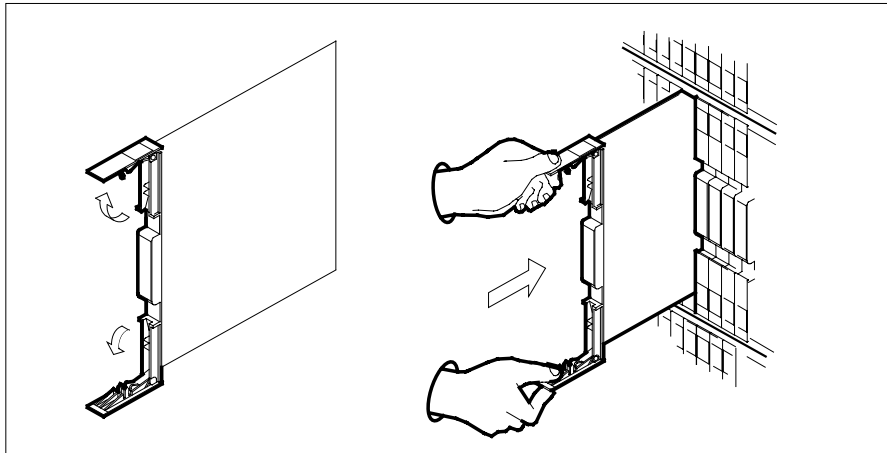
---



- 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

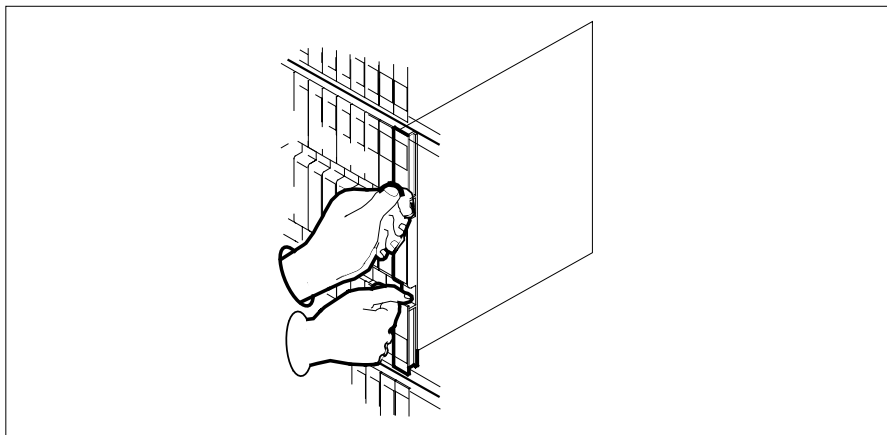
**DANGER****Equipment damage**

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.

| <b>PEC</b> | <b>Suffixes</b> | <b>Name</b>          |
|------------|-----------------|----------------------|
| NT6X52     | AA              | Digroup Control card |

### **Common procedures**

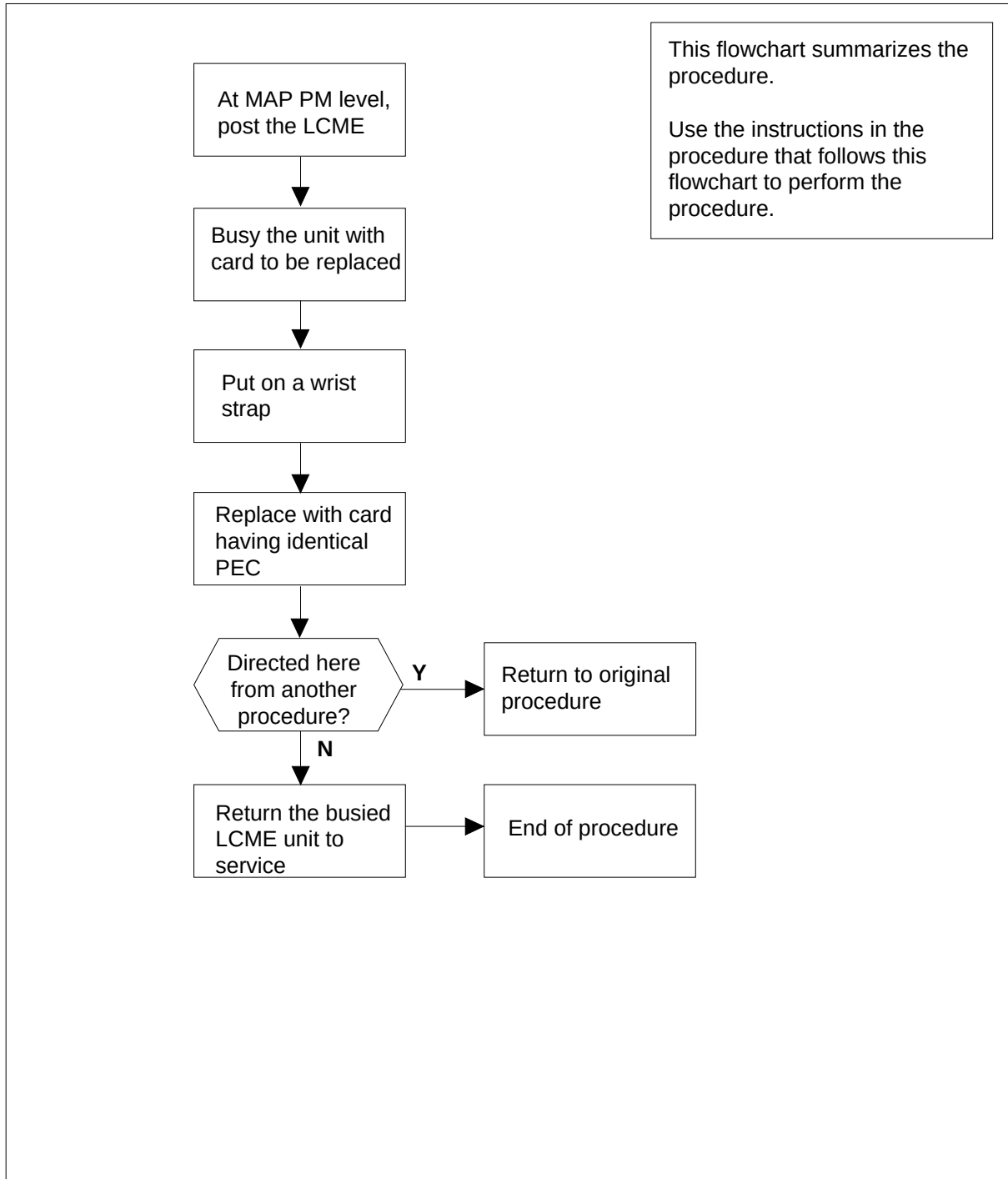
None

### **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 lcm\_unit\_no**

and pressing the Enter key.

where

**lcm\_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**

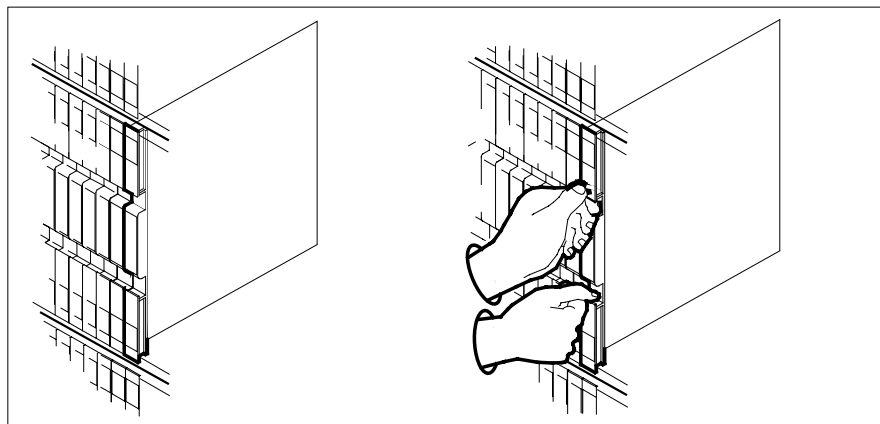
Take these precautions when removing or inserting a card:

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

Put on a wrist strap.

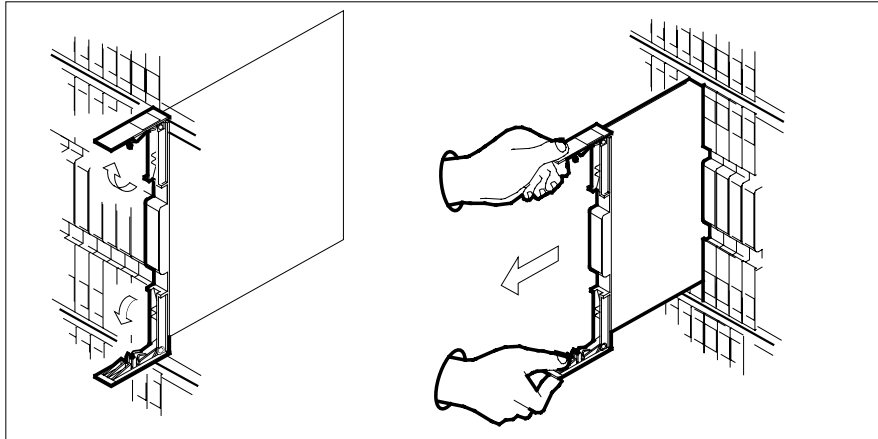
6 Remove the NT6X52 card as shown in the following figures.

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

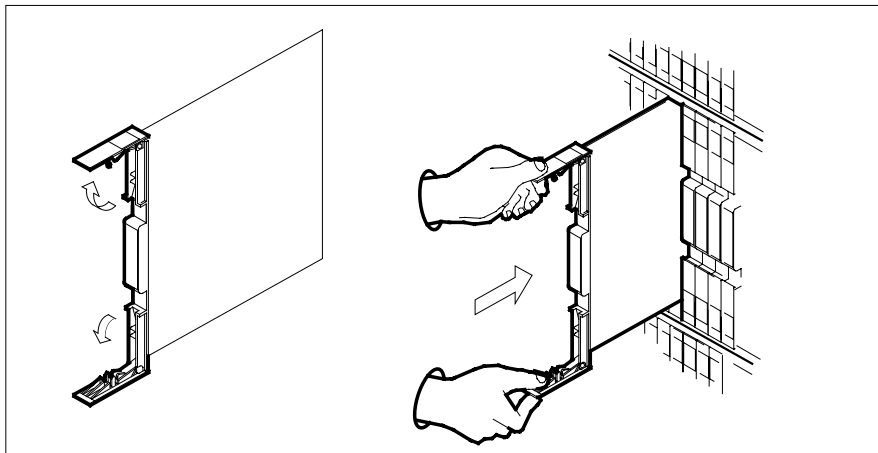


## NT6X52 in an RSC-S (PCM-30) Model A LCME (continued)

- 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

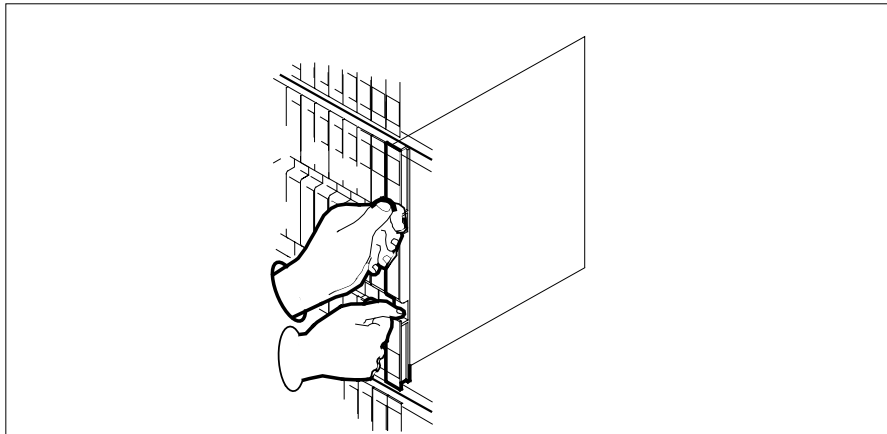
#### Equipment damage

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).

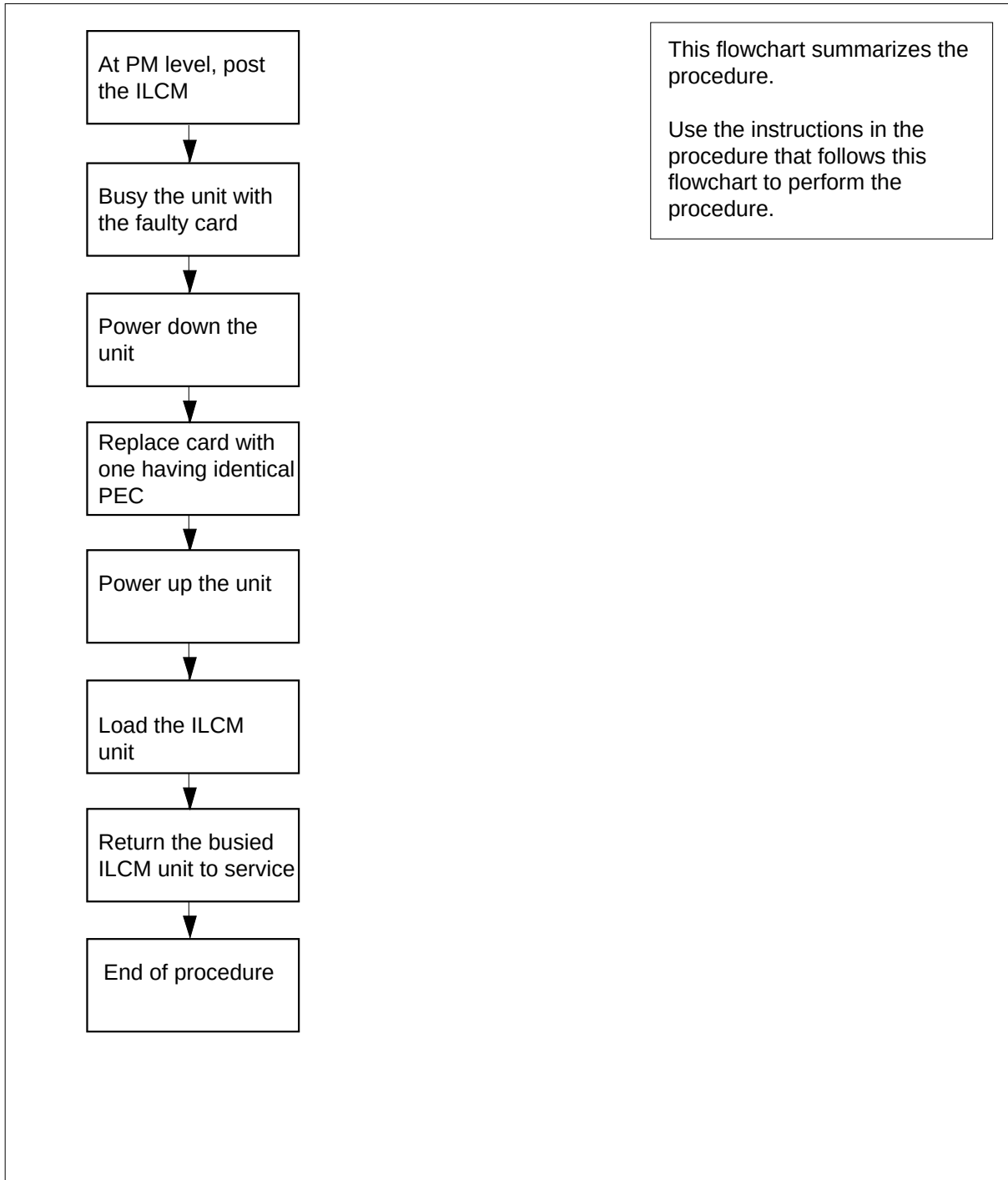
| <b>PEC</b> | <b>Suffixes</b> | <b>Name</b>              |
|------------|-----------------|--------------------------|
| NT6X53     | AA              | Power converter (5V/15V) |

### **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 |
| <b>11 Determine the type of device on which the PM load files are located.</b> |         |
| 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<br><b>&gt;MOUNT tape_no</b><br>and pressing the Enter key.<br><i>where</i><br><b>tape_no</b><br>is the number of the tape containing the PM load files                                                                      |         |
| 15 | List the contents of the tape in your user directory by typing<br><b>&gt;LIST T tape_no</b><br>and pressing the Enter key.<br><i>where</i><br><b>tape_no</b><br>is the number of the tape containing the PM load files                                  |         |
| 16 | Demount the tape drive by typing<br><b>&gt;DEMOUNT T tape_no</b><br>and pressing the Enter key.<br><i>where</i><br><b>tape_no</b><br>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<br><b>&gt;DSKUT</b><br>and pressing the Enter key.                                                                                                                                          |         |
| 20 | List the IOC file names into your user directory by typing<br><b>&gt;LISTVOL volume_name ALL</b><br>and pressing the Enter key.<br><i>where</i><br><b>volume_name</b><br>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)**

---

|               | <b>lcm_unit</b><br>is the ILCM busied in step 5 (0 or 1)                                                                                                                                                                               |               |           |        |         |        |         |
|---------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|-----------|--------|---------|--------|---------|
|               | <table><tr><th><b>If RTS</b></th><th><b>Do</b></th></tr><tr><td>passed</td><td>step 29</td></tr><tr><td>failed</td><td>step 31</td></tr></table>                                                                                       | <b>If RTS</b> | <b>Do</b> | passed | step 29 | failed | step 31 |
| <b>If RTS</b> | <b>Do</b>                                                                                                                                                                                                                              |               |           |        |         |        |         |
| passed        | step 29                                                                                                                                                                                                                                |               |           |        |         |        |         |
| failed        | step 31                                                                                                                                                                                                                                |               |           |        |         |        |         |
| <b>29</b>     | Send any faulty cards for repair according to local procedure.                                                                                                                                                                         |               |           |        |         |        |         |
| <b>30</b>     | Record the following items in office records: <ul style="list-style-type: none"><li>• date the card was replaced</li><li>• serial number of the card</li><li>• symptoms that prompted replacement of the card</li></ul> Go to step 32. |               |           |        |         |        |         |
| <b>31</b>     | Obtain further assistance in replacing this card by contacting the personnel responsible for higher level of support.                                                                                                                  |               |           |        |         |        |         |
| <b>32</b>     | 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.

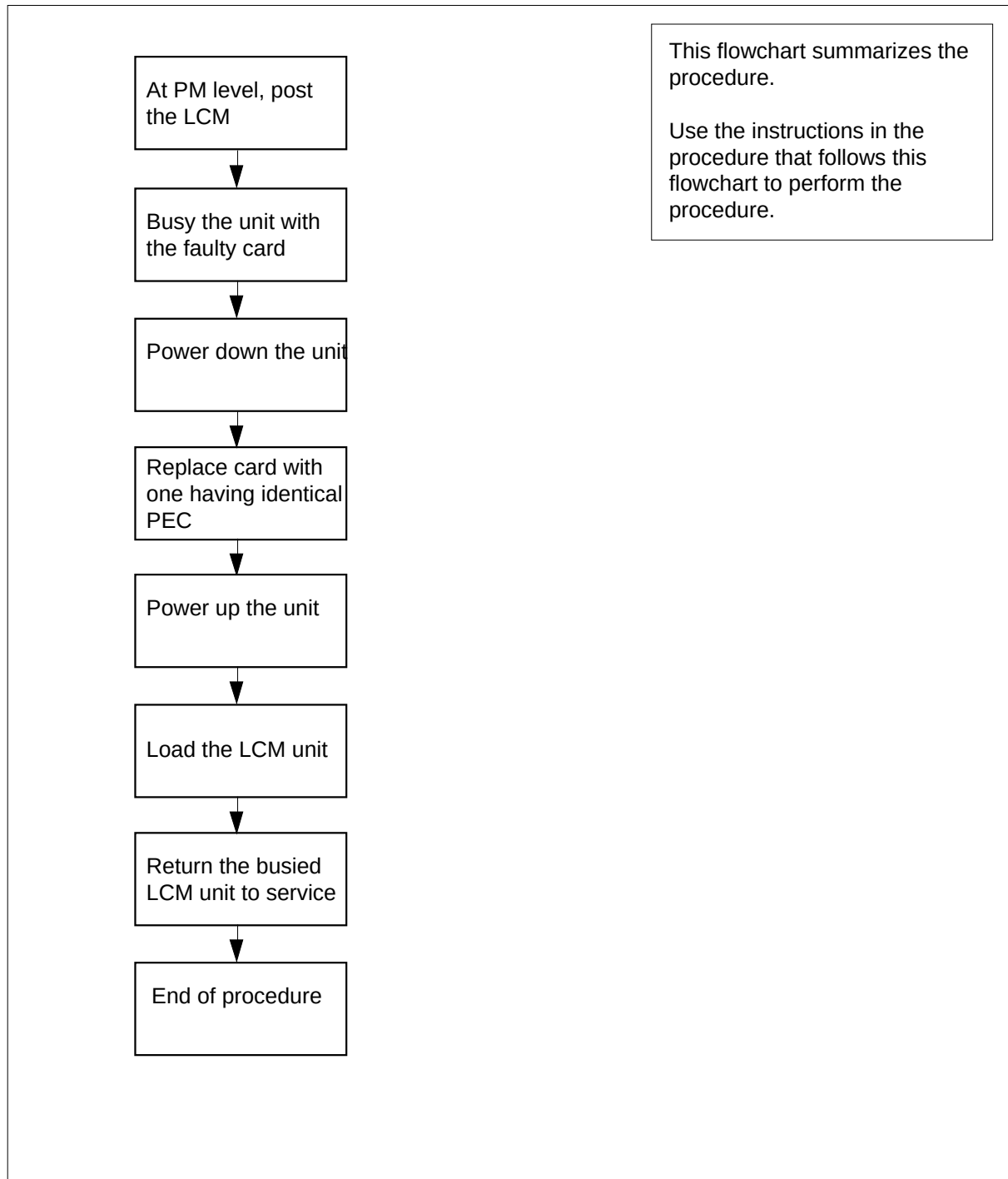
**Action**

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 |
| <b>11 Determine the type of device on which the PM load files are located.</b> |         |
| 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<br><b>&gt;MOUNT tape_no</b><br>and pressing the Enter key.<br><i>where</i><br><b>tape_no</b><br>is the number of the tape containing the PM load files                                                 |         |
| 15 | List the contents of the tape in your user directory by typing<br><b>&gt;LIST T tape_no</b><br>and pressing the Enter key.<br><i>where</i><br><b>tape_no</b><br>is the number of the tape containing the PM load files             |         |
| 16 | Demount the tape drive by typing<br><b>&gt;DEMOUNT T tape_no</b><br>and pressing the Enter key.<br><i>where</i><br><b>tape_no</b><br>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<br><b>&gt;DSKUT</b><br>and pressing the Enter key.                                                                                                                     |         |
| 20 | List the IOC file names into your user directory by typing<br><b>&gt;LISTVOL volume_name ALL</b><br>and pressing the Enter key.<br><i>where</i><br><b>volume_name</b><br>is the name of the volume that contains the PM load files |         |
| 21 | Leave the disk utility by typing<br><b>&gt;QUIT</b>                                                                                                                                                                                |         |

## 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)**

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- 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**

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### **Application**

Use this procedure to replace the following card in an OPM

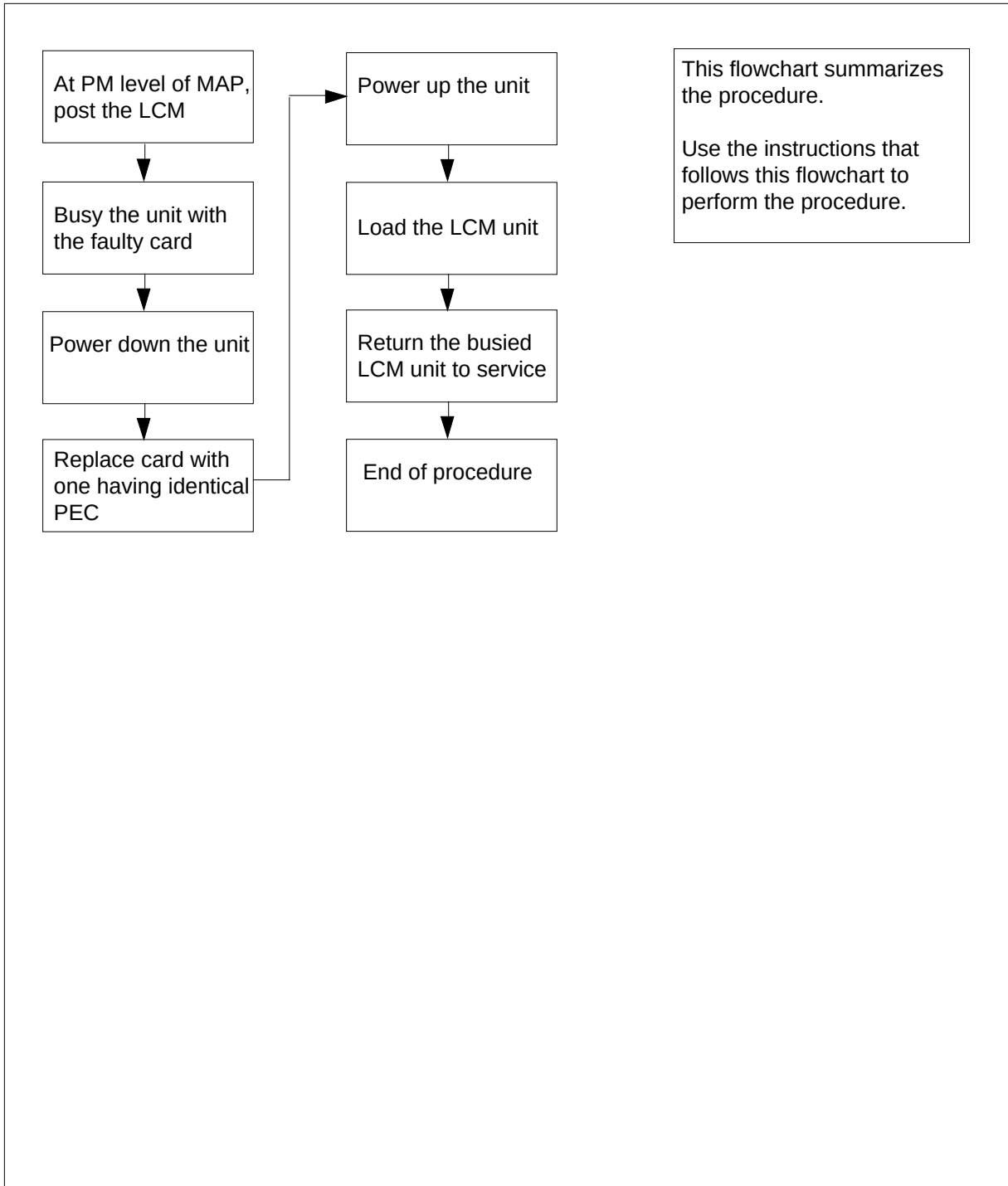
| <b>PEC</b> | <b>Suffixes</b> | <b>Name</b>                   |
|------------|-----------------|-------------------------------|
| NT6X53     | AA, BA,<br>CA   | Power Converter Card (5V/15V) |

### **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        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 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         |     |         |                |                |          |                |            |       |         |

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**NT6X53**  
**in an OPM** (continued)

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**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 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** 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.

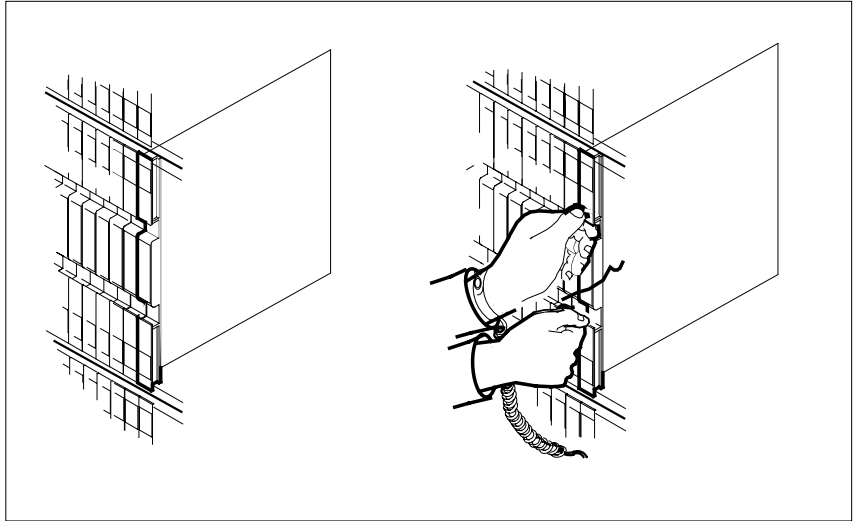
8

Remove the NT6X53 card as shown in the following figures.

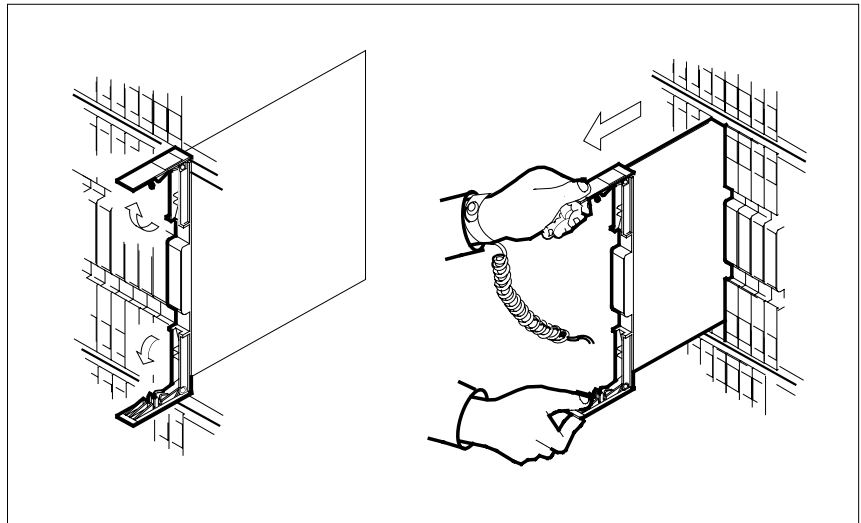
- a Locate the card to be removed on the appropriate shelf.

## NT6X53 in an OPM (continued)

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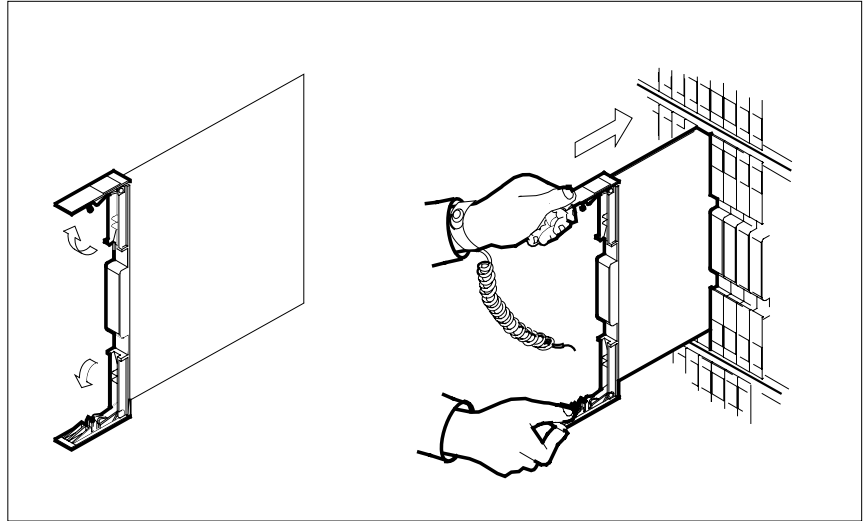


- b** Open the locking levers on the card to be replaced and gently pull the card towards you until it clears the shelf.

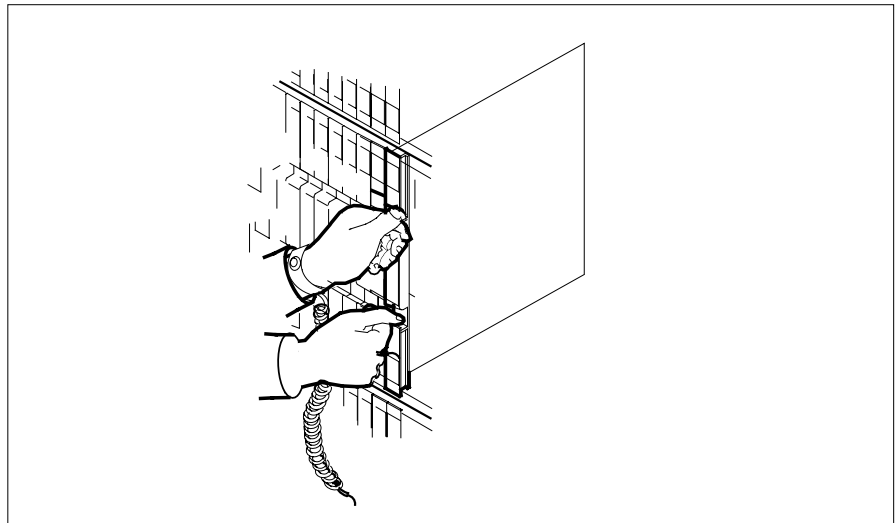


- c** Ensure that the replacement card has the same PEC including suffix, as the card you just removed.
- 9** Open the locking levers on the replacement card.
- a** Align the card with the slots in the shelf and gently slide the card into the shelf.

## 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   |
| <b>14</b> | Determine the type of device on which the PM load files are located.                                                                                                                                                          |           |
|           | <b>If load files are located on</b>                                                                                                                                                                                           | <b>Do</b> |
|           | tape                                                                                                                                                                                                                          | step 15   |
|           | IOC disk                                                                                                                                                                                                                      | step 21   |
|           | SLM disk                                                                                                                                                                                                                      | step 26   |
| <b>15</b> | Locate the tape that contains the PM load files.                                                                                                                                                                              |           |
|           | <i>At the OPM cabinet</i>                                                                                                                                                                                                     |           |
| <b>16</b> | Mount the tape on a magnetic tape drive.                                                                                                                                                                                      |           |
|           | <i>At the MAP display</i>                                                                                                                                                                                                     |           |
| <b>17</b> | Download the tape by typing<br><b>&gt;MOUNT tape_no</b><br>and pressing the Enter key.<br><i>where</i><br><b>tape_no</b><br>is the number of the tape drive containing the PM load files                                      |           |
| <b>18</b> | List the contents of the tape in your user directory by typing<br><b>&gt;LIST T tape_no</b><br>and pressing the Enter key.<br><i>where</i><br><b>tape_no</b><br>is the number of the tape drive containing the PM load files. |           |
| <b>19</b> | Release the tape drive from your user directory by typing:<br><b>&gt;DEMOUNT T tape_no</b><br>and pressing the Enter key.<br><i>where</i><br><b>tape_no</b><br>is the number of the tape drive mounted in step 17.            |           |
| <b>20</b> | Go to step 31.                                                                                                                                                                                                                |           |
| <b>21</b> | 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)

| <b>lcm_unit</b><br>is the LCM unit (0 or 1) to be loaded |                                                                                                                                                                                                                                                                                         |
|----------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>If</b>                                                | <b>Do</b>                                                                                                                                                                                                                                                                               |
| load failed                                              | step 37                                                                                                                                                                                                                                                                                 |
| load passed                                              | step 32                                                                                                                                                                                                                                                                                 |
| <b>32</b>                                                | Use the following information to determine the next step in this procedure.                                                                                                                                                                                                             |
| <b>If you entered this procedure</b>                     | <b>Do</b>                                                                                                                                                                                                                                                                               |
| an alarm clearing procedure                              | step 36                                                                                                                                                                                                                                                                                 |
| other                                                    | step 33                                                                                                                                                                                                                                                                                 |
| <b>33</b>                                                | Return the LCM unit to service by typing<br><b>&gt;RTS UNIT lcm_unit</b><br>and pressing the Enter key.<br><i>where</i><br><b>lcm_unit</b><br>is the LCM (0 or 1) busied in step 4                                                                                                      |
| <b>If RTS</b>                                            | <b>Do</b>                                                                                                                                                                                                                                                                               |
| passed                                                   | step 34                                                                                                                                                                                                                                                                                 |
| failed                                                   | step 37                                                                                                                                                                                                                                                                                 |
| <b>34</b>                                                | Send any faulty cards for repair according to local procedure.                                                                                                                                                                                                                          |
| <b>35</b>                                                | Record the following items in office records: <ul style="list-style-type: none"> <li>• date the card was replaced</li> <li>• serial number of the card</li> <li>• symptoms that prompted replacement of the card.</li> </ul> Go to step 38.                                             |
| <b>36</b>                                                | 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. |
| <b>37</b>                                                | Obtain further assistance in replacing this card by contacting the personnel responsible for higher level of support.                                                                                                                                                                   |
| <b>38</b>                                                | You have successfully completed this procedure.                                                                                                                                                                                                                                         |

## **NT6X53 in an RLCM**

---

### **Application**

Use this procedure to replace the following card in an RLCM

| <b>PEC</b> | <b>Suffixes</b> | <b>Name</b>                   |
|------------|-----------------|-------------------------------|
| NT6X53     | AA, BA,<br>CA   | Power Converter Card (5V/15V) |

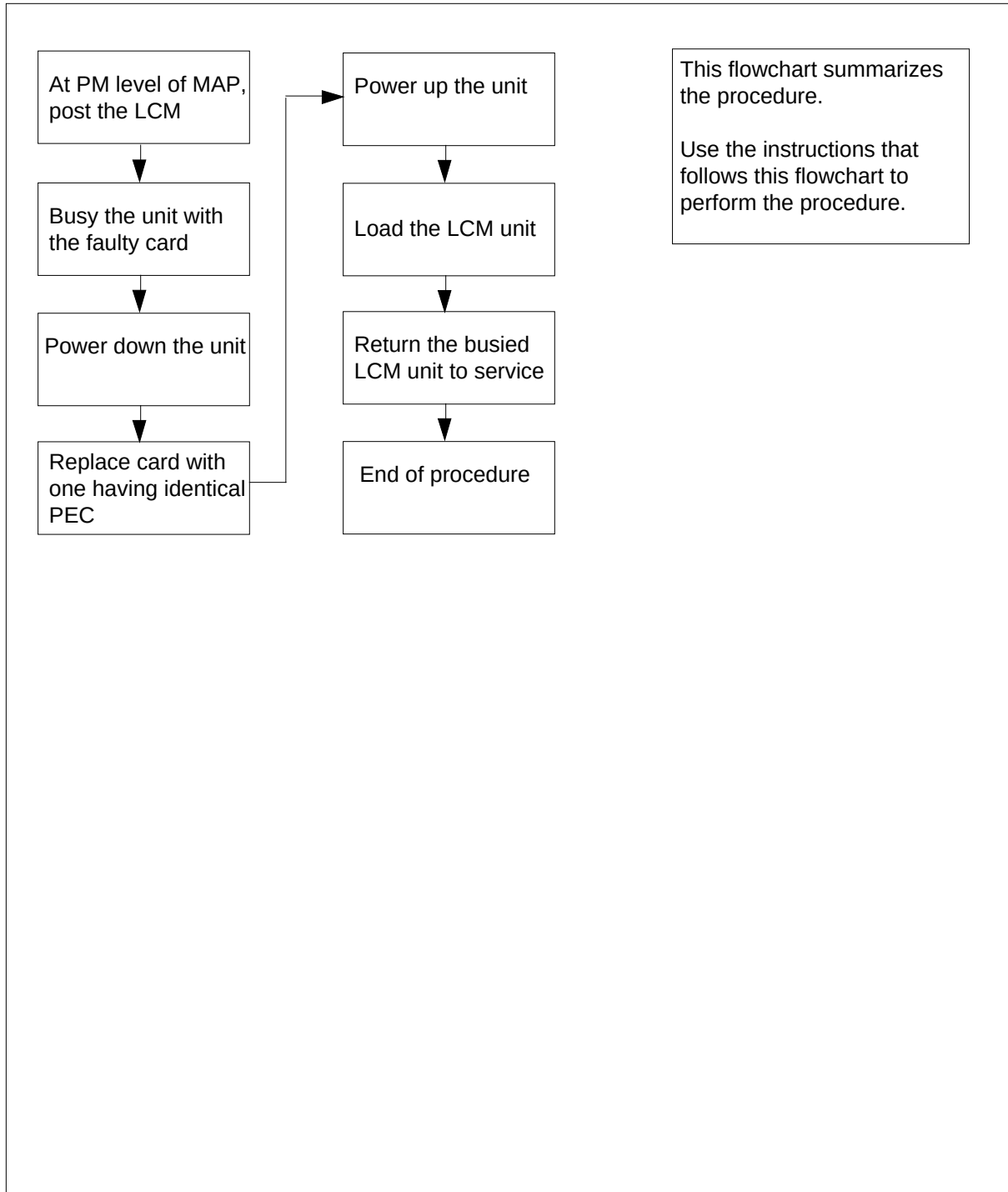
### **Common procedures**

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)

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### *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)

| <b>lcm_unit</b><br>is the LCM unit (0 or 1) to be loaded |                                                                                                                                                                                                                                                                                         |
|----------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| If                                                       | Do                                                                                                                                                                                                                                                                                      |
| load failed                                              | step 33                                                                                                                                                                                                                                                                                 |
| load passed                                              | step 28                                                                                                                                                                                                                                                                                 |
| <b>28</b>                                                | 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                                                                                                                                                                                                                                                                                 |
| <b>29</b>                                                | Return the LCM unit to service by typing<br><b>&gt;RTS UNIT lcm_unit</b><br>and pressing the Enter key.<br><i>where</i><br><b>lcm_unit</b><br>is the LCM (0 or 1) busied in step 4                                                                                                      |
| If RTS                                                   | Do                                                                                                                                                                                                                                                                                      |
| passed                                                   | step 30                                                                                                                                                                                                                                                                                 |
| failed                                                   | step 33                                                                                                                                                                                                                                                                                 |
| <b>30</b>                                                | Send any faulty cards for repair according to local procedure.                                                                                                                                                                                                                          |
| <b>31</b>                                                | Record the following items in office records: <ul style="list-style-type: none"> <li>• date the card was replaced</li> <li>• serial number of the card</li> <li>• symptoms that prompted replacement of the card.</li> </ul> Go to step 34.                                             |
| <b>32</b>                                                | 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. |
| <b>33</b>                                                | Obtain further assistance in replacing this card by contacting the personnel responsible for higher level of support.                                                                                                                                                                   |
| <b>34</b>                                                | 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<br>(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**

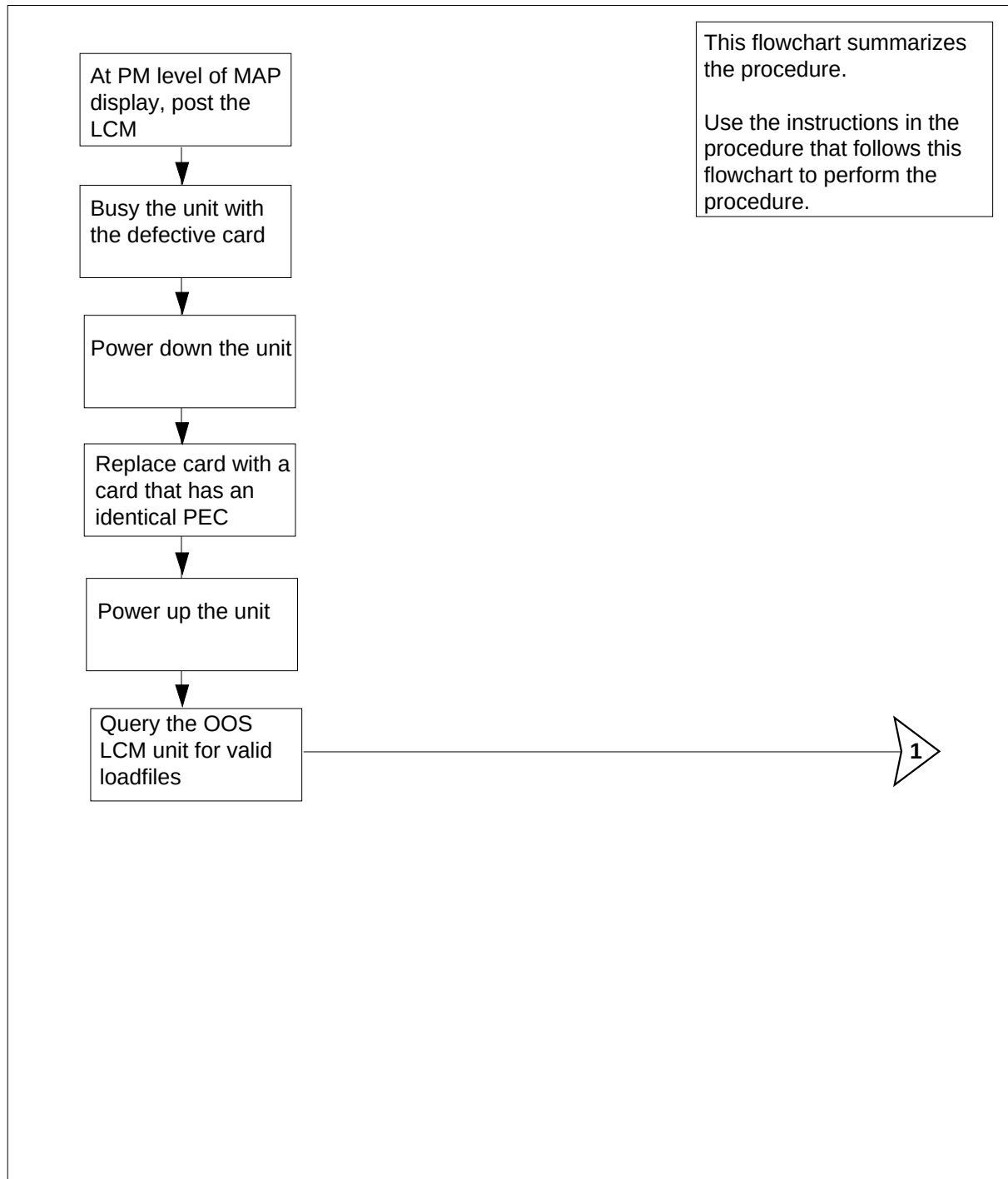
The common replacing a card procedure is referenced in this document.

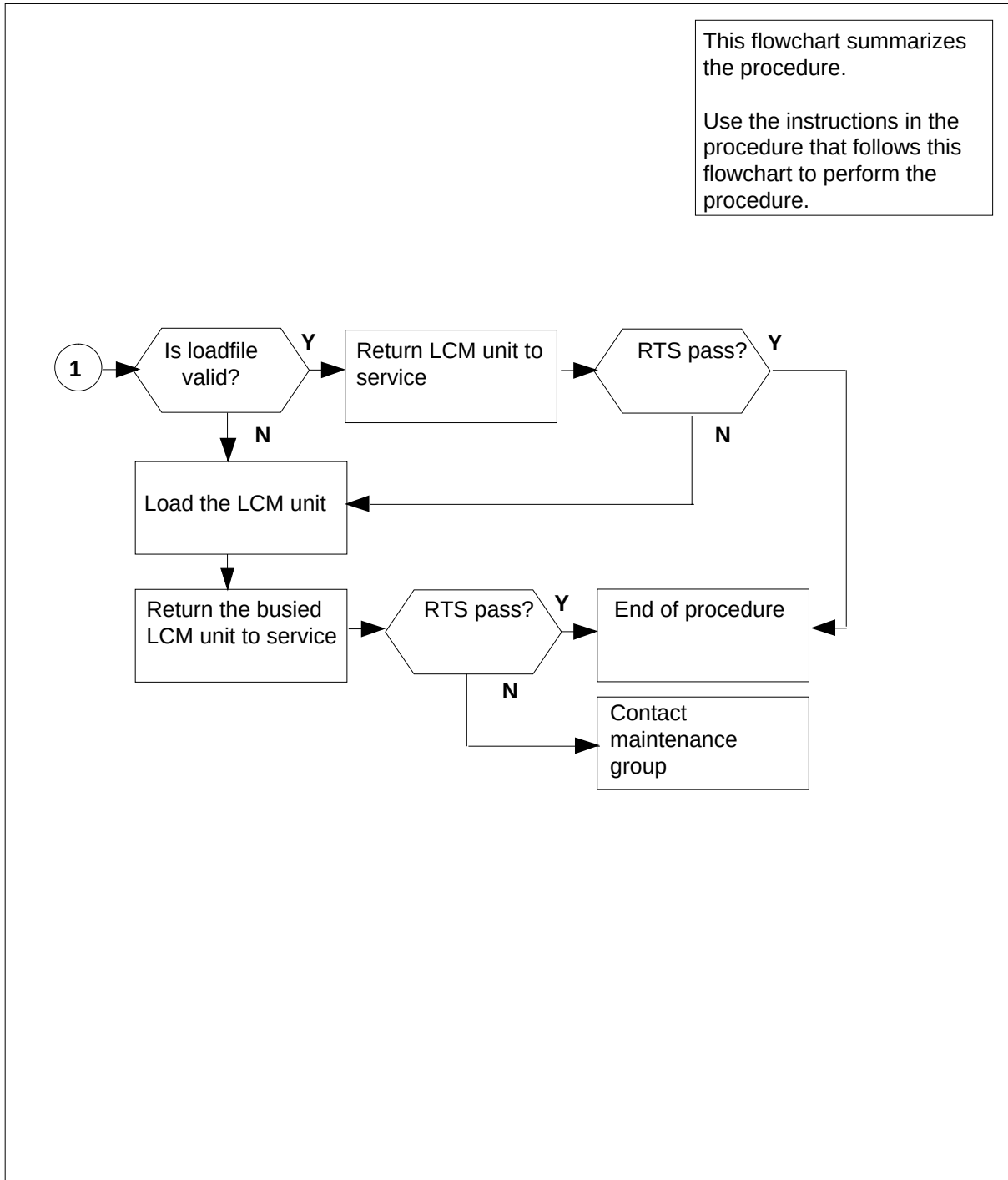
**Action**

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 |
| <b>10</b> | To return the LCM unit to service, type<br><b>&gt;RTS UNIT lcm_unit</b><br>and press the Enter key.<br><i>where</i><br><b>lcm_unit</b><br>is the LCM (0 or 1) busied in step 4 |         |
|           | If RTS                                                                                                                                                                         | Do      |
|           | passes                                                                                                                                                                         | step 13 |
|           | fails                                                                                                                                                                          | step 11 |
| <b>11</b> | To load the LCM unit, type<br><b>&gt;LOADPM UNIT unit_no CC</b><br>and press the Enter key.<br><i>where</i><br><b>unit_no</b><br>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.

| <b>PEC</b> | <b>Suffixes</b> | <b>Name</b>                   |
|------------|-----------------|-------------------------------|
| NT6X53     | AA, BA,<br>CA   | Power converter card (5V/15V) |

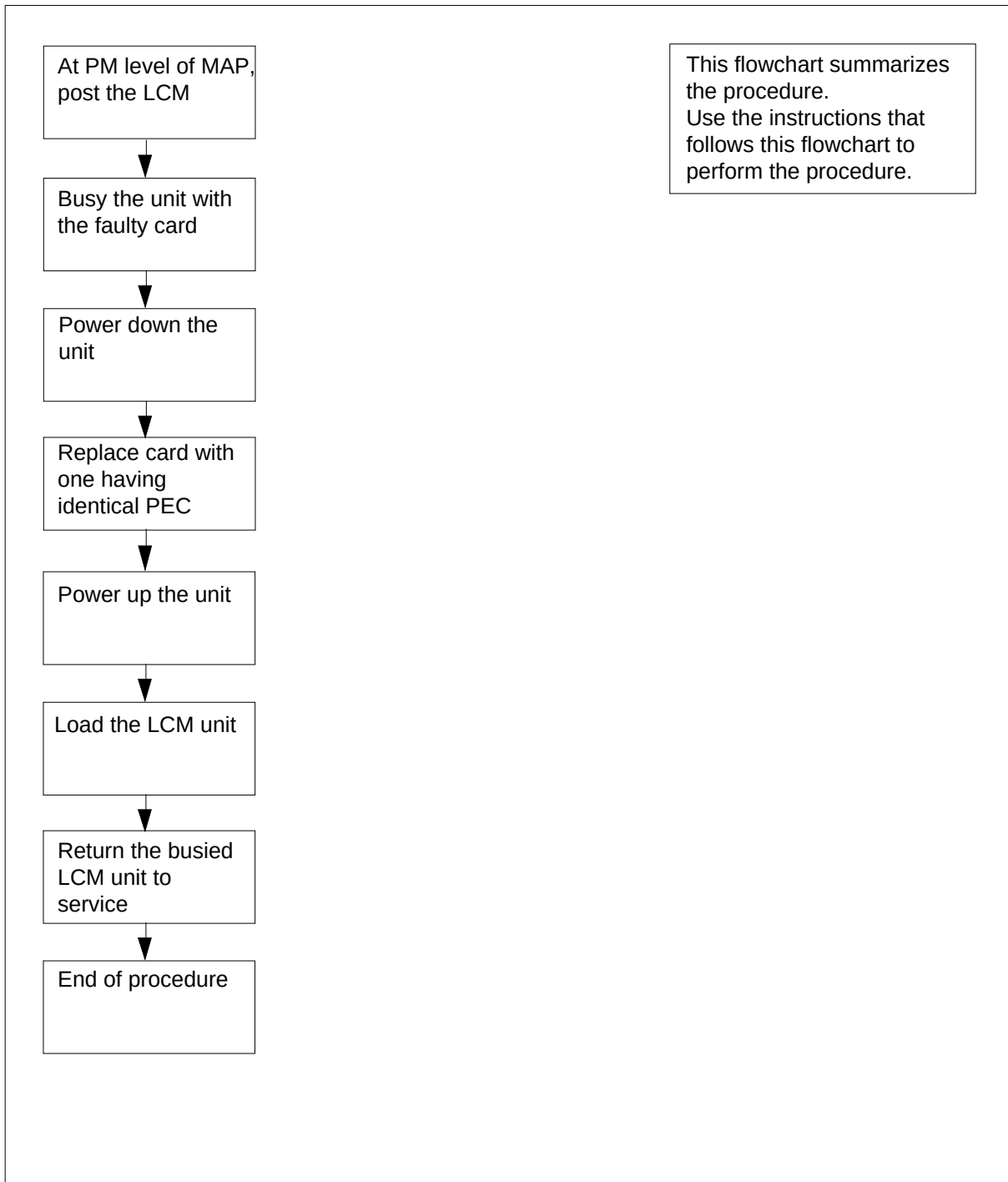
### **Common procedures**

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        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:

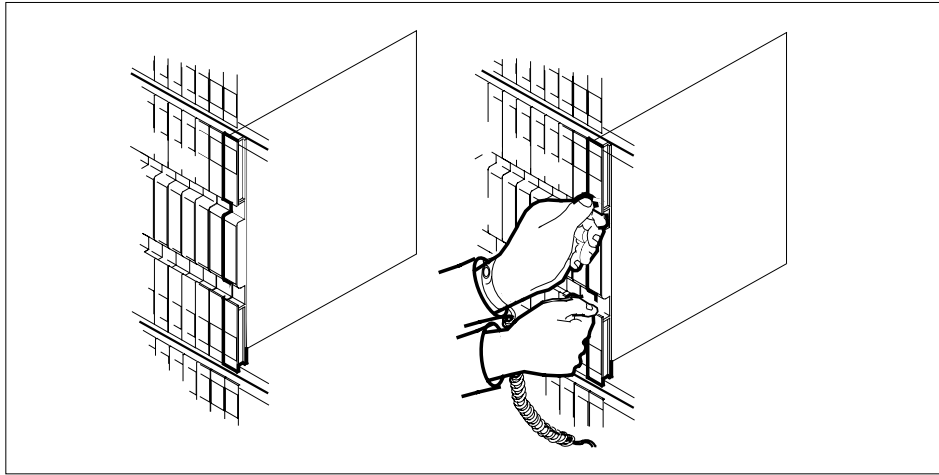
1. Do not apply direct pressure to the components.
2. Do not force the cards into the slots.

Put on a wrist strap.

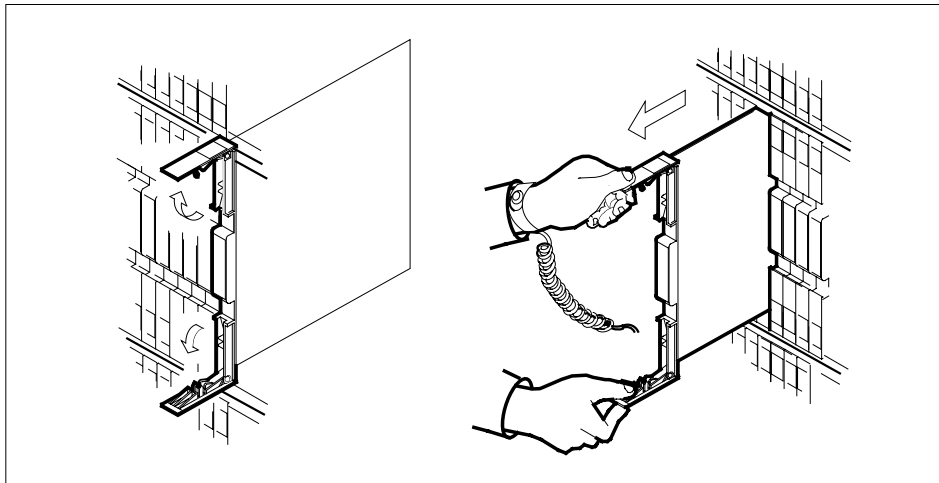
8 Remove the NT6X53 card as shown in the following figures.

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

**NT6X53**  
**in an RSC LCM (continued)**



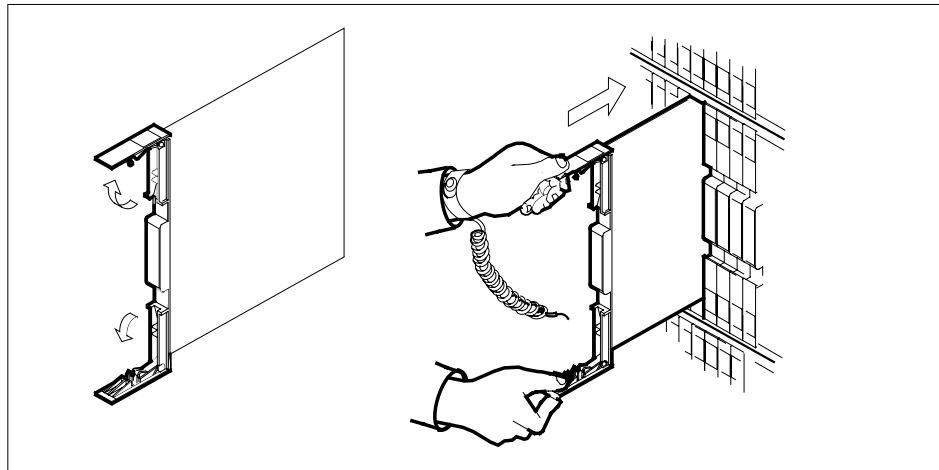
- b** Open the locking levers on the card to be replaced and gently pull the card towards you until it clears the shelf.



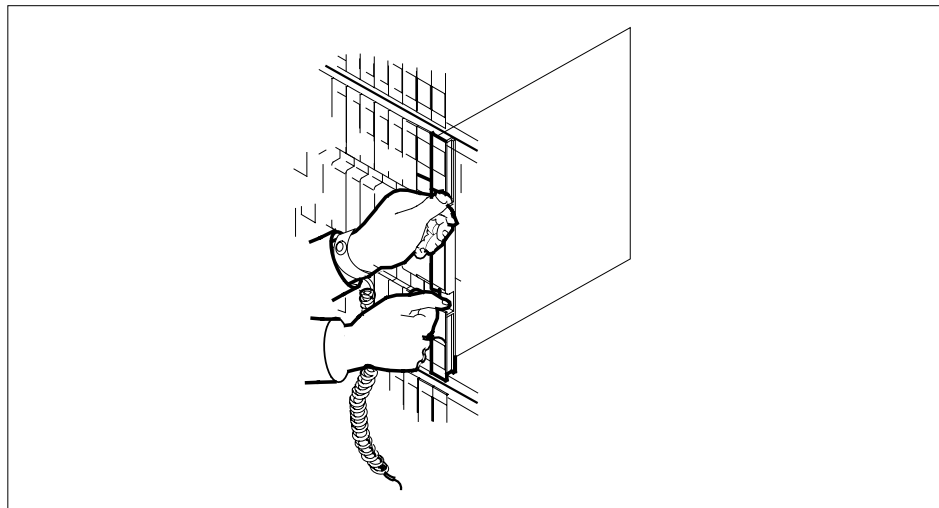
- c** Ensure the replacement card has the same PEC, including suffix, as the card you just removed.
- 9** Open the locking levers on the replacement card.
- a** Align the card with the slots in the shelf and gently slide the card into the shelf.

## 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).

| <b>PEC</b> | <b>Suffixes</b> | <b>Name</b>     |
|------------|-----------------|-----------------|
| NT6X53     | CA              | Power Converter |

### **Common procedures**

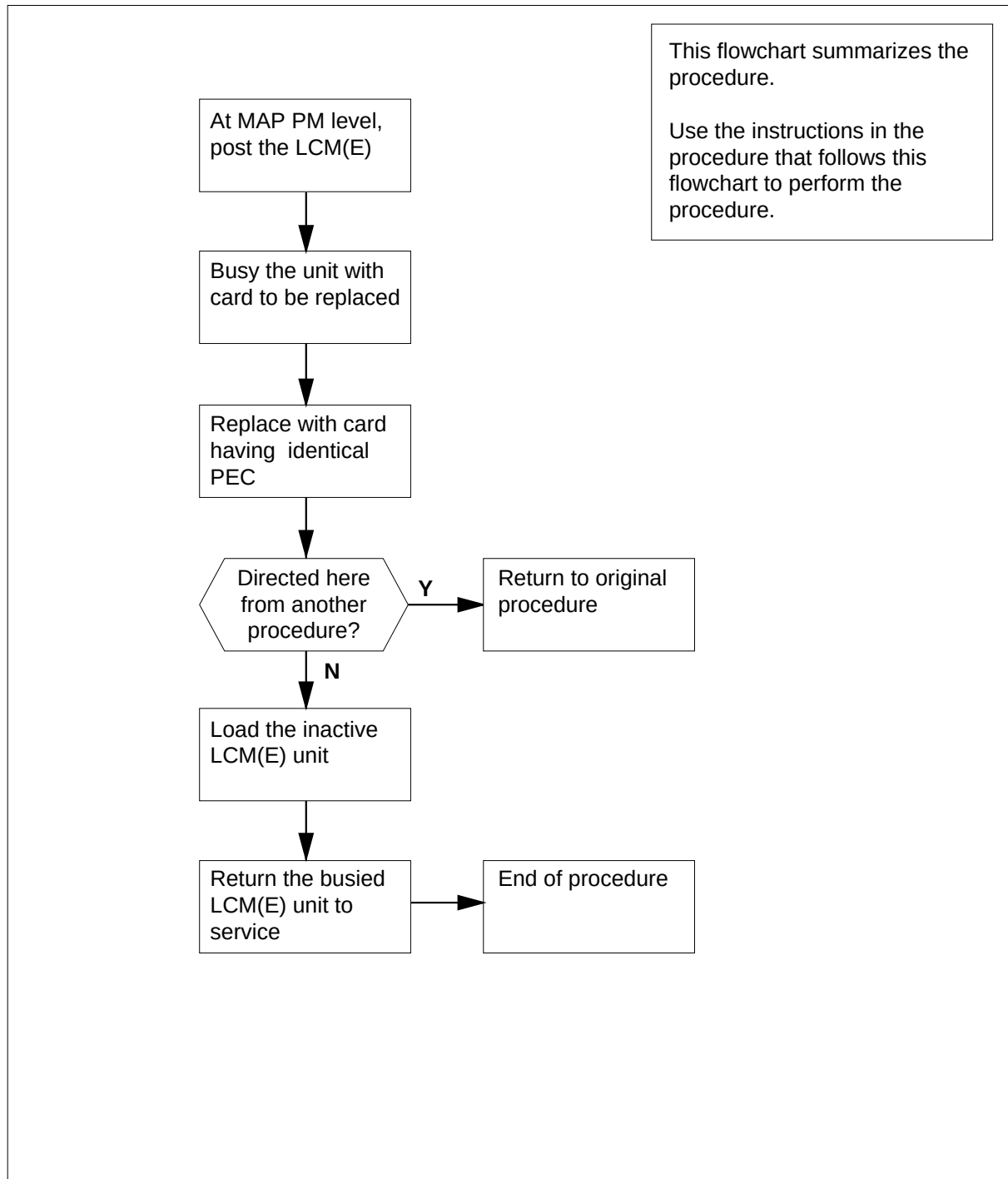
None

### **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    | .          | .     | .    | .   | .    |
| <b>LCME</b> |             | SysB           | ManB     | OffL     | CBsy       | ISTb  | InSv |     |      |
| 0 Quit      | PM          | 4              | 1        | 10       | 3          | 3     | 130  |     |      |
| 2 Post_     | <b>LCME</b> | 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**

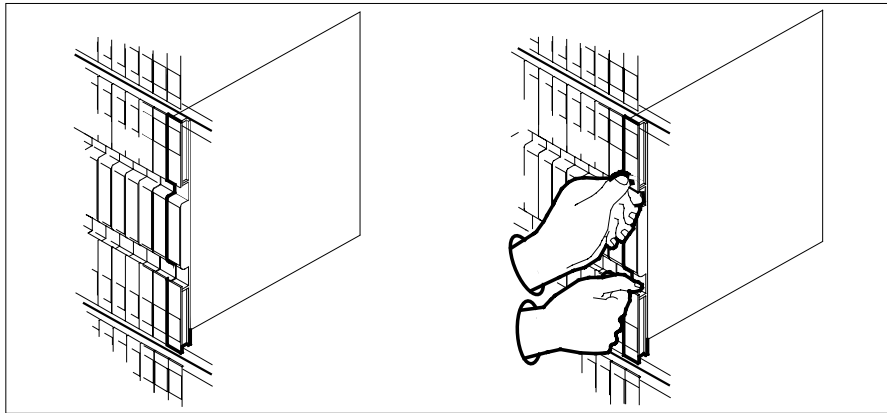
and pressing the Enter key.

- 7 Remove the NT6X53 card as shown in the following figures.
  - a Locate the card to be removed on the appropriate shelf.

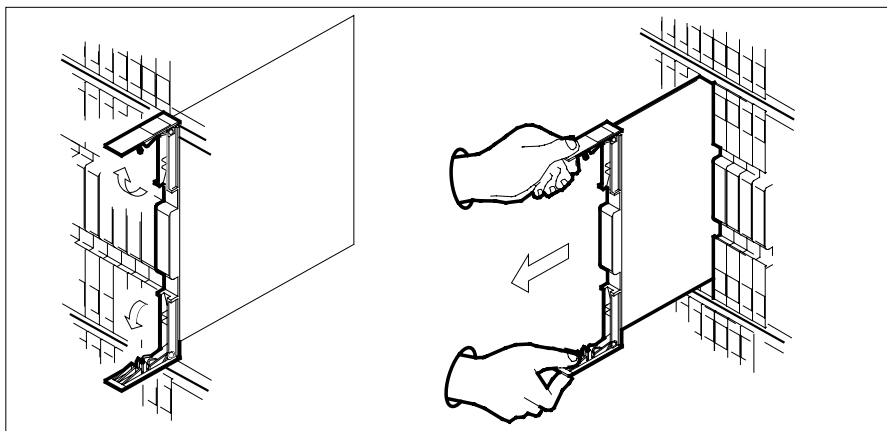
## NT6X53

### 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.



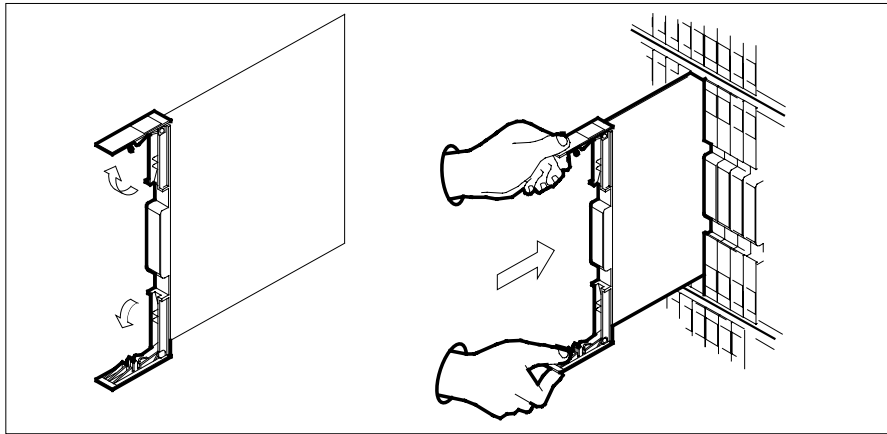
- 8** Open the locking levers on the replacement card.
  - a** Align the card with the slots in the shelf.
  - b** Gently slide the card into the shelf.

---

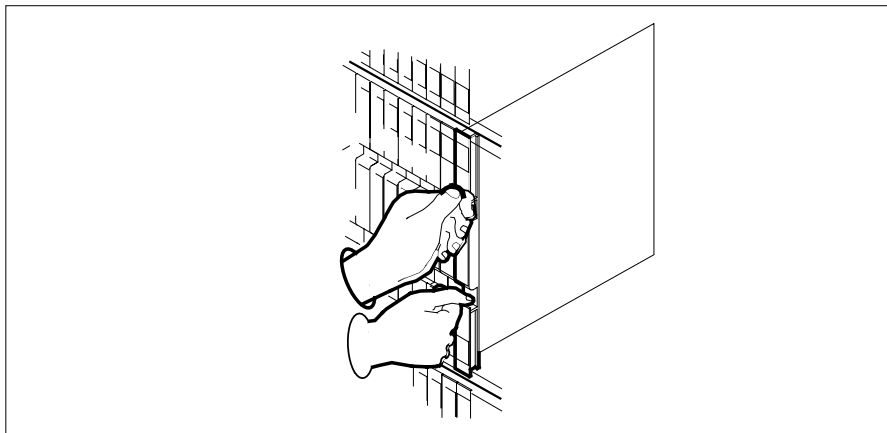
**NT6X53**

**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

| <b>If RTS</b> | <b>Do</b> |
|---------------|-----------|
| 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).

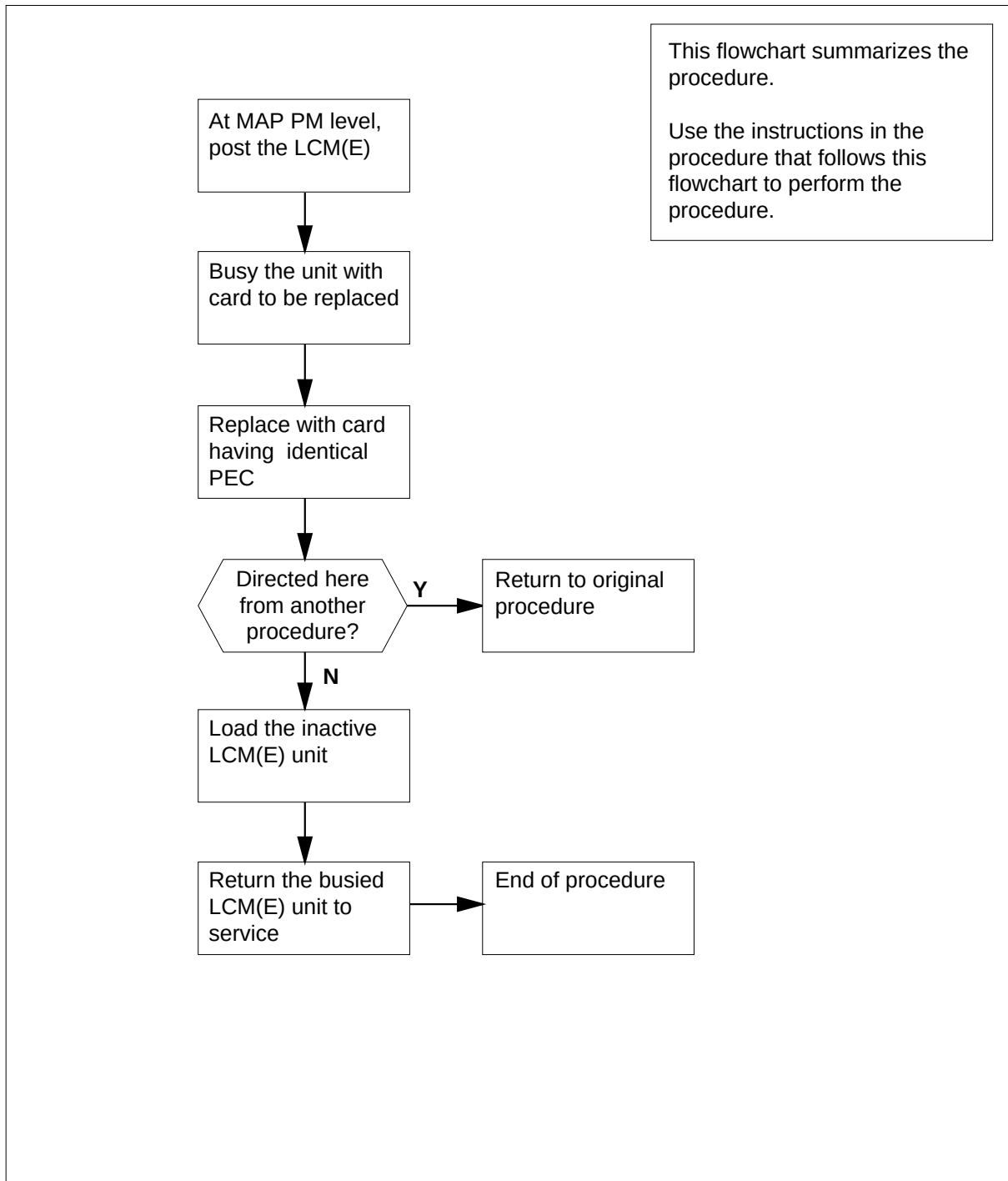
| PEC    | Suffixes | Name            |
|--------|----------|-----------------|
| NT6X53 | CA       | Power Converter |

### **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.

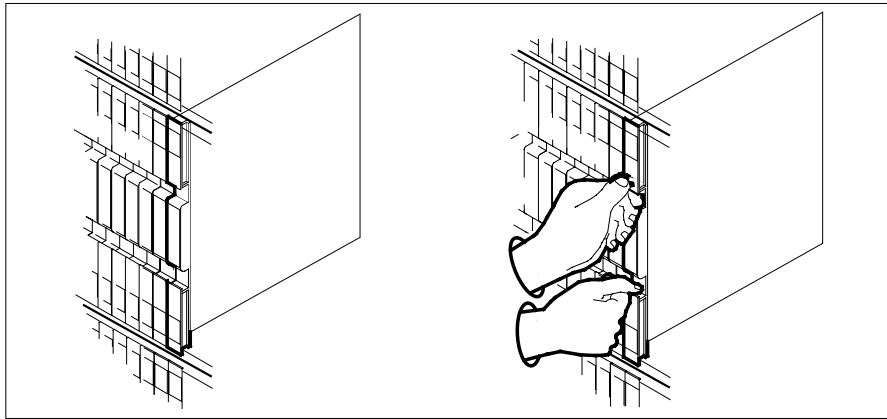
- 7 Remove the NT6X53 card as shown in the following figures.

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

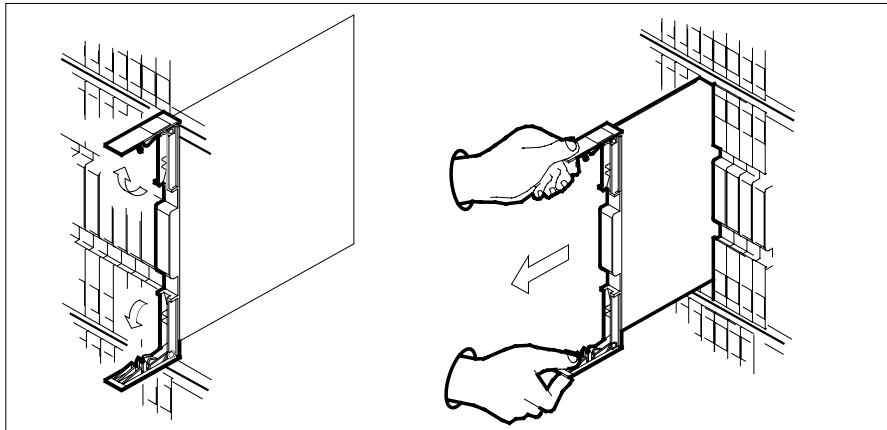
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**NT6X53**  
**in an RSC-S (DS-1) Model B LCM(E) (continued)**

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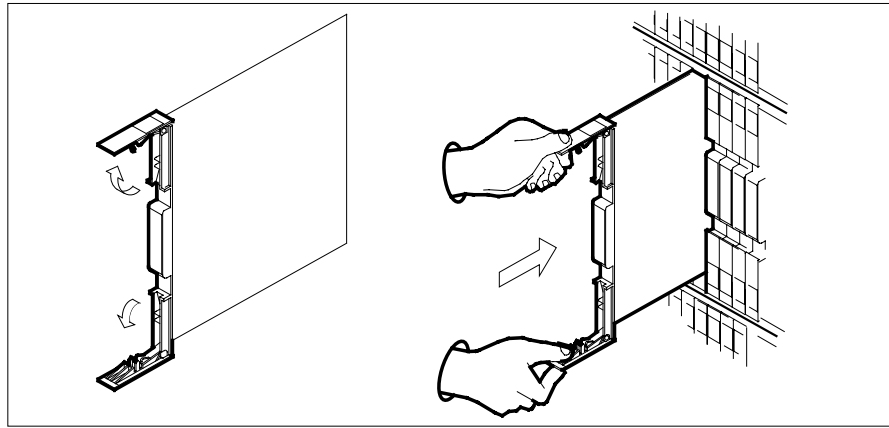
- b** Open the locking levers on the card to be replaced and gently pull the card toward you until it clears the shelf.
- c** Ensure the replacement card has the same PEC, including suffix, as the card you just removed.



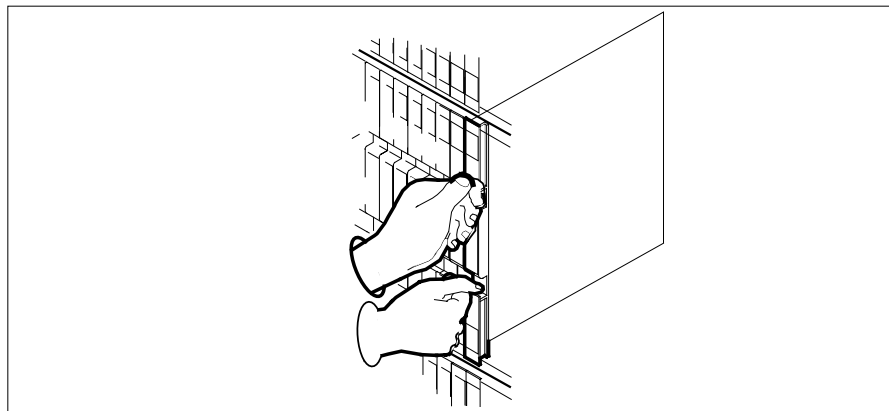
- 8** Open the locking levers on the replacement card.
- a** Align the card with the slots in the shelf.
  - b** Gently slide the card into the shelf.

## NT6X53 in an RSC-S (DS-1) Model B LCM(E) (continued)

---



- 9 Seat and lock the card.
- 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.
  - Close the locking levers.



- 10 Power up the LCM(E) unit as follows:
- Ensure 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 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.

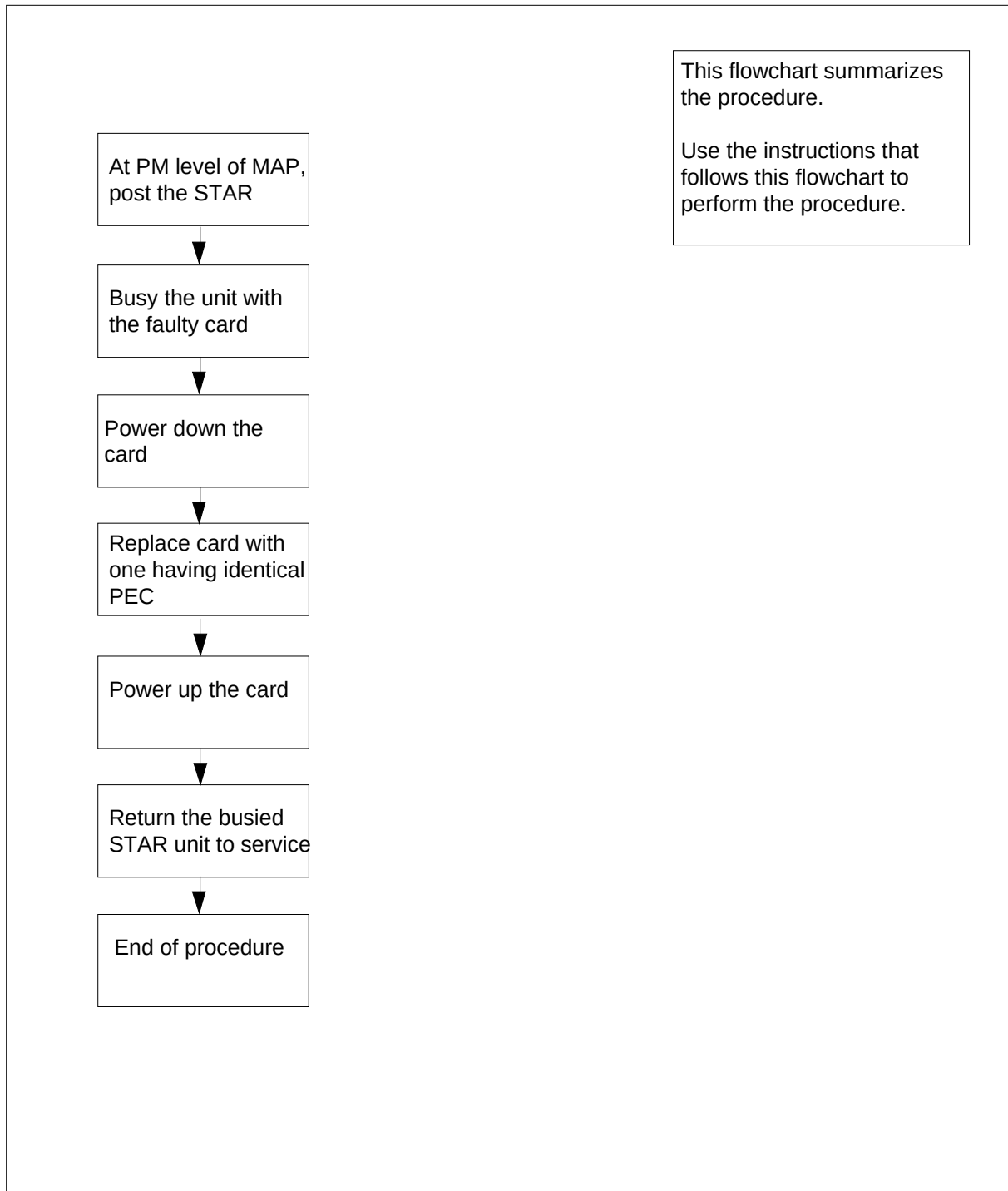
**Action**

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_OOS: 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 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**

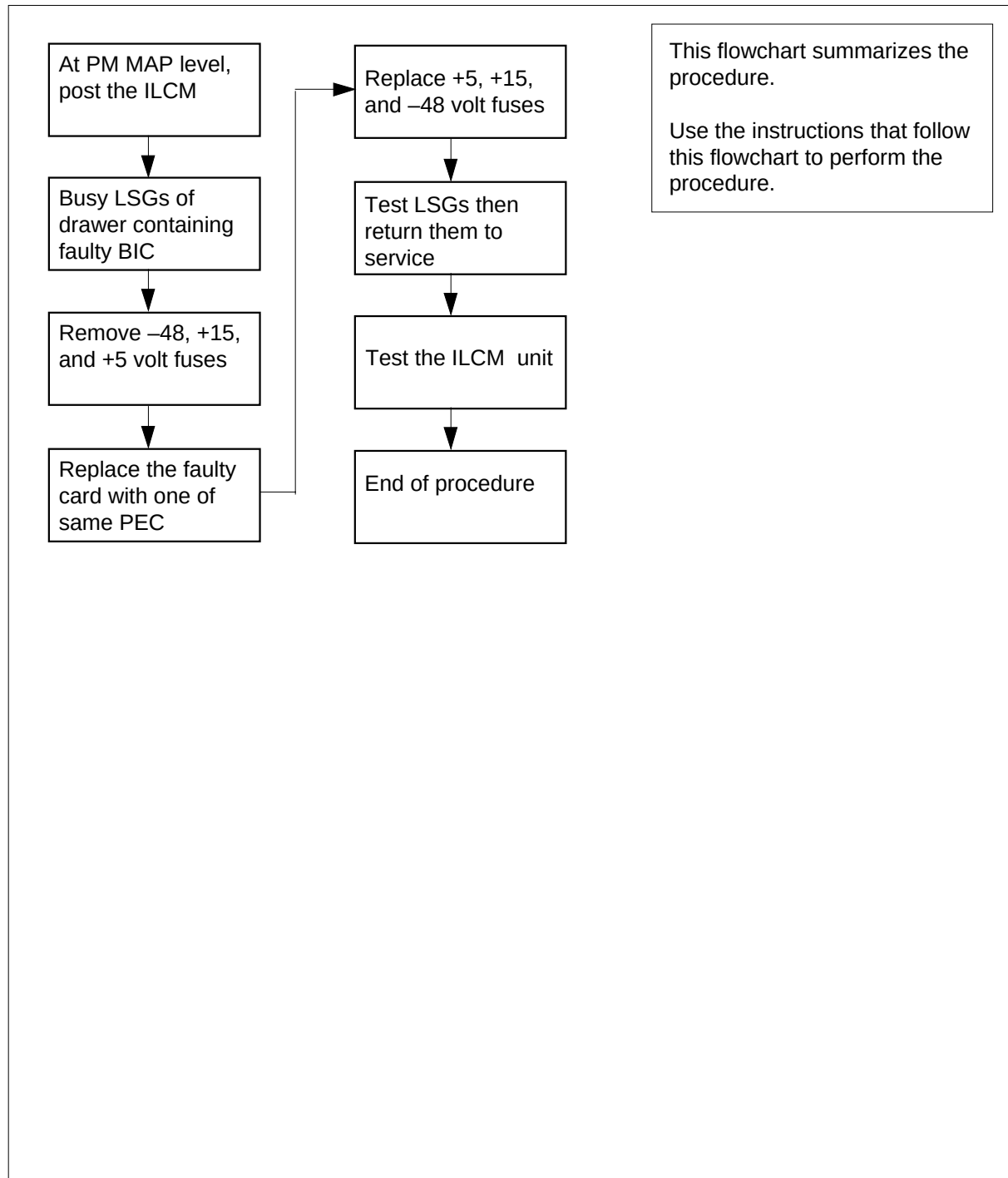
None

**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.

- ### At the MAP terminal

- step 23

- >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.

|           | <b>If RTS</b>                                                                                                                                                                                                                              | <b>Do</b> |
|-----------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|
|           | passed                                                                                                                                                                                                                                     | step 20   |
|           | failed                                                                                                                                                                                                                                     | step 23   |
| <b>20</b> | Test the ILCM by typing<br><b>&gt;TST PM</b><br>and pressing the Enter key.                                                                                                                                                                |           |
|           | <b>If the TST</b>                                                                                                                                                                                                                          | <b>Do</b> |
|           | passed                                                                                                                                                                                                                                     | step 21   |
|           | failed                                                                                                                                                                                                                                     | step 23   |
| <b>21</b> | Send any faulty cards for repair according to local procedure.                                                                                                                                                                             |           |
| <b>22</b> | Record the following items in office records: <ul style="list-style-type: none"> <li>• date the card was replaced</li> <li>• serial number of the card</li> <li>• symptoms that prompted replacement of the card</li> </ul> Go to step 24. |           |
| <b>23</b> | Obtain further assistance in replacing this card by contacting the personnel responsible for higher level of support.                                                                                                                      |           |
| <b>24</b> | 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) |
| <b>Note:</b> 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. |          |                                         |

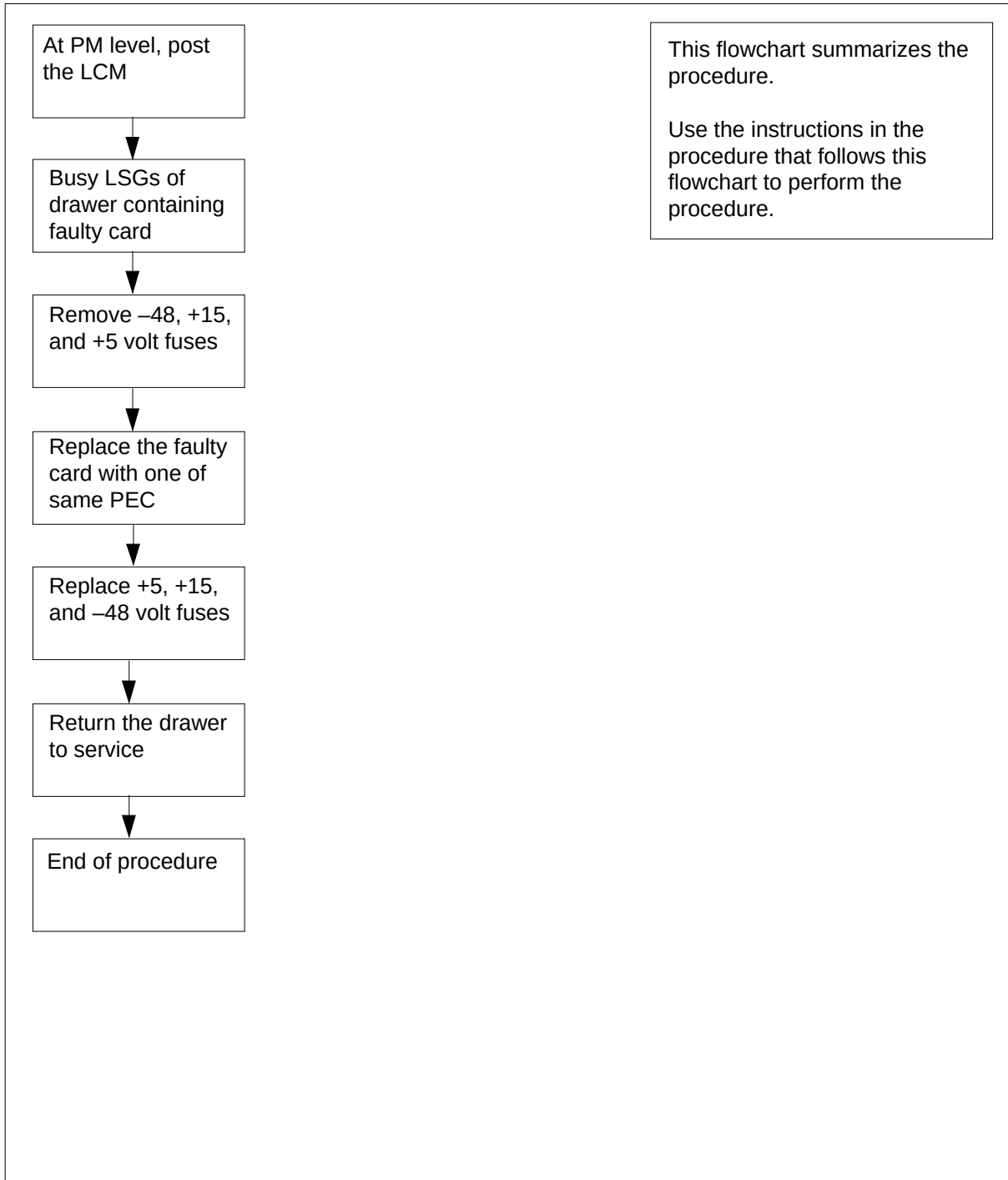
### Common procedures

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       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 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.

|           | <b>If RTS</b>                                                                                                                                                                                                                          | <b>Do</b> |
|-----------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|
|           | passed                                                                                                                                                                                                                                 | step 24   |
|           | failed                                                                                                                                                                                                                                 | step 26   |
| <b>24</b> | Send any faulty cards for repair according to local procedure.                                                                                                                                                                         |           |
| <b>25</b> | Record the following items in office records: <ul style="list-style-type: none"><li>• date the card was replaced</li><li>• serial number of the card</li><li>• symptoms that prompted replacement of the card</li></ul> Go to step 27. |           |
| <b>26</b> | Obtain further assistance in replacing this card by contacting the personnel responsible for higher level of support.                                                                                                                  |           |
| <b>27</b> | 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) |
| <b>Note:</b> 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

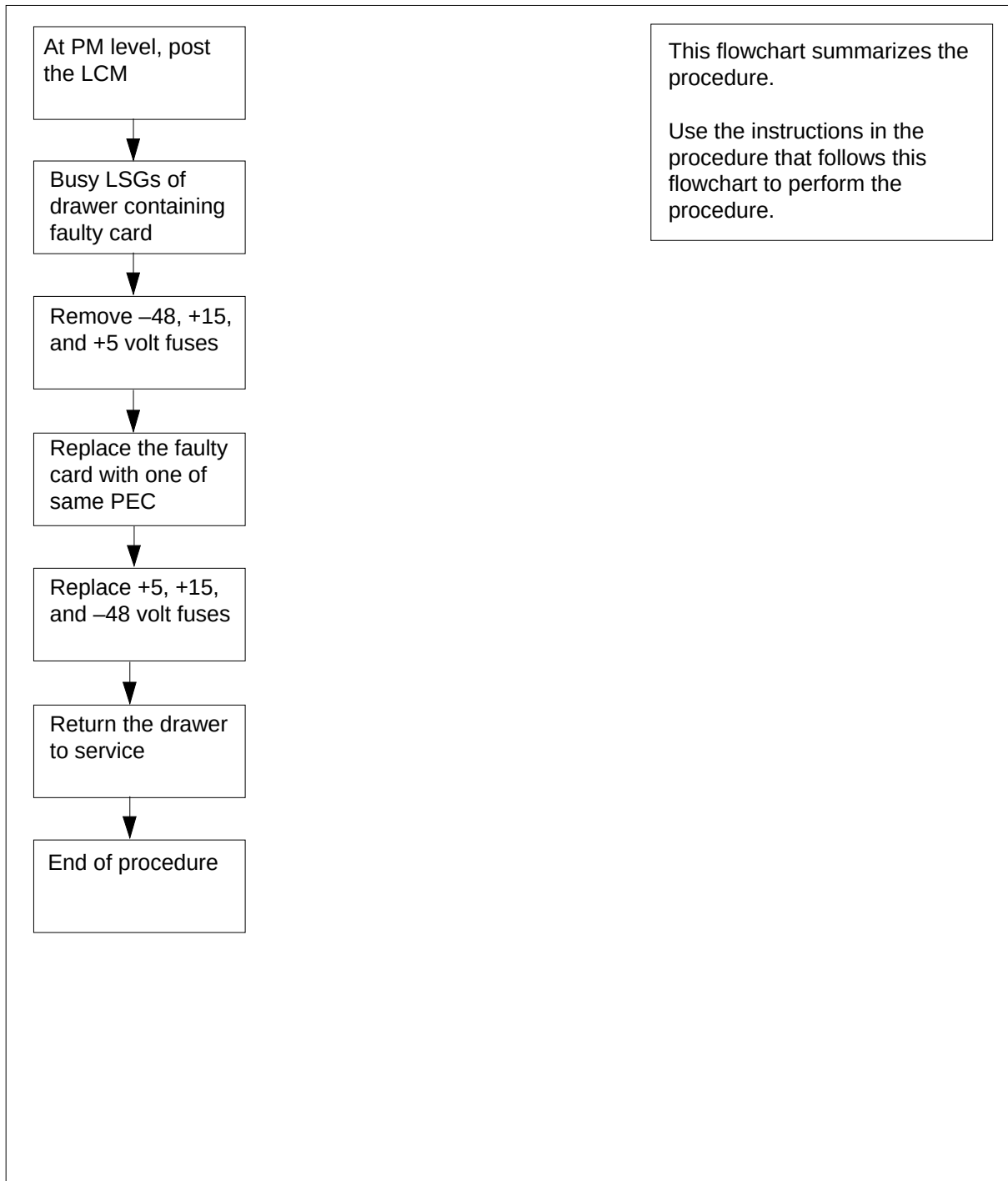
**Action**

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      .. .. 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**  
 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.

- ### ***At the MAP terminal***

- | If the card you are replacing is | Do      |
|----------------------------------|---------|
| NT6X54AA                         | step 22 |
| NT6X54DA                         | step 23 |

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---

**NT6X54**  
**in an OPM (end)**

---

**Note:** Repeat this step for the other line subgroup associated with the line drawer.

|           | <b>If RTS</b>                                                                                                                                                                                                                          | <b>Do</b> |
|-----------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|
|           | passed                                                                                                                                                                                                                                 | step 24   |
|           | failed                                                                                                                                                                                                                                 | step 26   |
| <b>23</b> | Return the line subgroups to service by typing<br><b>&gt;RTS DRWR</b><br>and pressing the Enter key.                                                                                                                                   |           |
|           | <b>If RTS</b>                                                                                                                                                                                                                          | <b>Do</b> |
|           | passed                                                                                                                                                                                                                                 | step 24   |
|           | failed                                                                                                                                                                                                                                 | step 26   |
| <b>24</b> | Send any faulty cards for repair according to local procedure.                                                                                                                                                                         |           |
| <b>25</b> | Record the following items in office records: <ul style="list-style-type: none"><li>• date the card was replaced</li><li>• serial number of the card</li><li>• symptoms that prompted replacement of the card</li></ul> Go to step 27. |           |
| <b>26</b> | Obtain further assistance in replacing this card by contacting the personnel responsible for higher level of support.                                                                                                                  |           |
| <b>27</b> | You have successfully completed this procedure.                                                                                                                                                                                        |           |

## NT6X54 in an RLCM

---

### Application

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

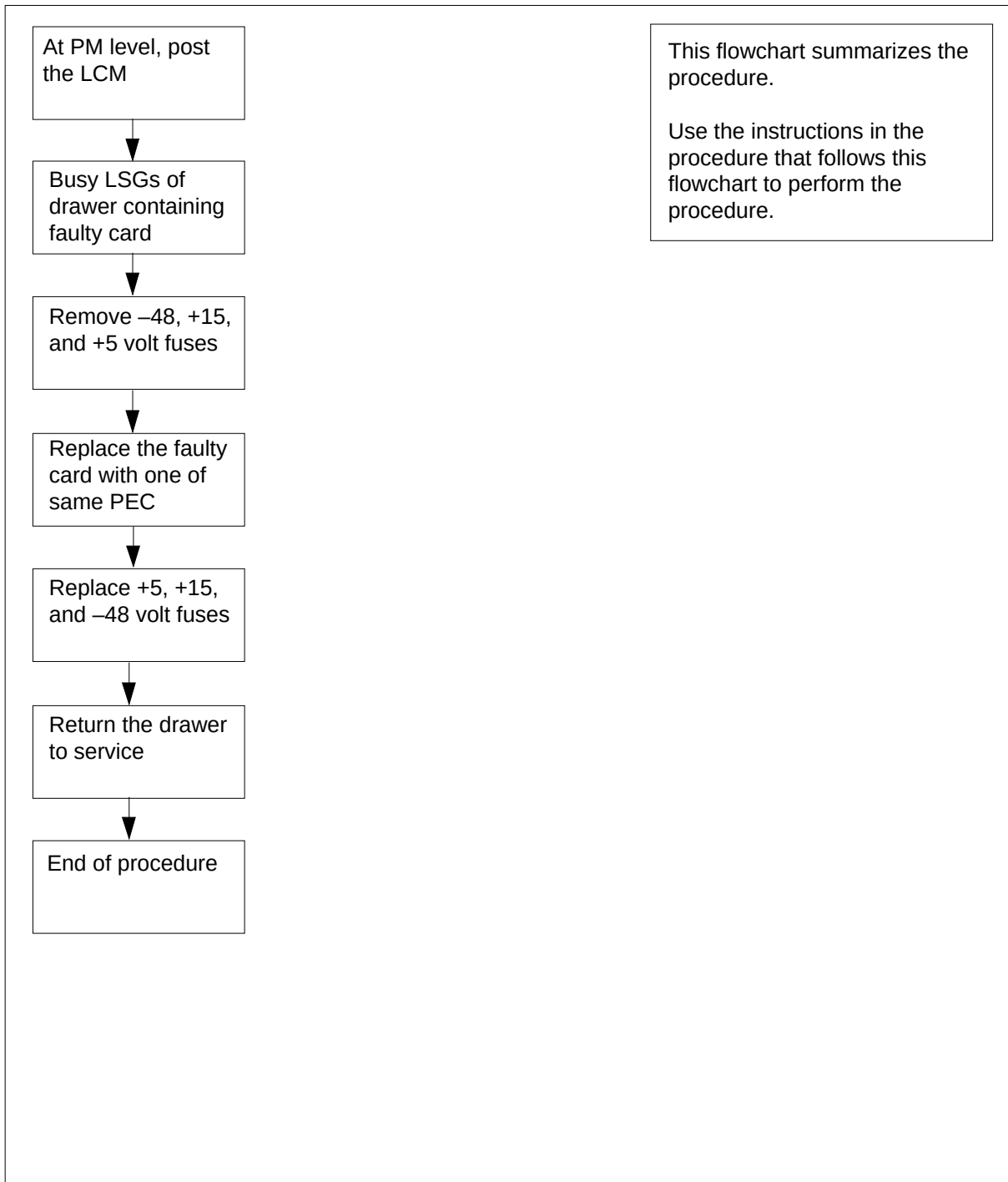
| PEC                                                                                                                                                                                                                                                                                                                                                                                                                                  | Suffixes | Name                                    |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|-----------------------------------------|
| NT6X54                                                                                                                                                                                                                                                                                                                                                                                                                               | AA       | Bus Interface Card (BIC)                |
| NT6X54                                                                                                                                                                                                                                                                                                                                                                                                                               | DA       | ISDN drawer controller (IDC) card (BIC) |
| <b>Note:</b> 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       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 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.

|           | <b>If RTS</b>                                                                                                                                                                                                                          | <b>Do</b> |
|-----------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|
|           | passed                                                                                                                                                                                                                                 | step 24   |
|           | failed                                                                                                                                                                                                                                 | step 26   |
| <b>23</b> | Return the line subgroups to service by typing<br><b>&gt;RTS DRWR</b><br>and pressing the Enter key.                                                                                                                                   |           |
|           | <b>If RTS</b>                                                                                                                                                                                                                          | <b>Do</b> |
|           | passed                                                                                                                                                                                                                                 | step 24   |
|           | failed                                                                                                                                                                                                                                 | step 26   |
| <b>24</b> | Send any faulty cards for repair according to local procedure.                                                                                                                                                                         |           |
| <b>25</b> | Record the following items in office records: <ul style="list-style-type: none"><li>• date the card was replaced</li><li>• serial number of the card</li><li>• symptoms that prompted replacement of the card</li></ul> Go to step 27. |           |
| <b>26</b> | Obtain further assistance in replacing this card by contacting the personnel responsible for higher level of support.                                                                                                                  |           |
| <b>27</b> | 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.

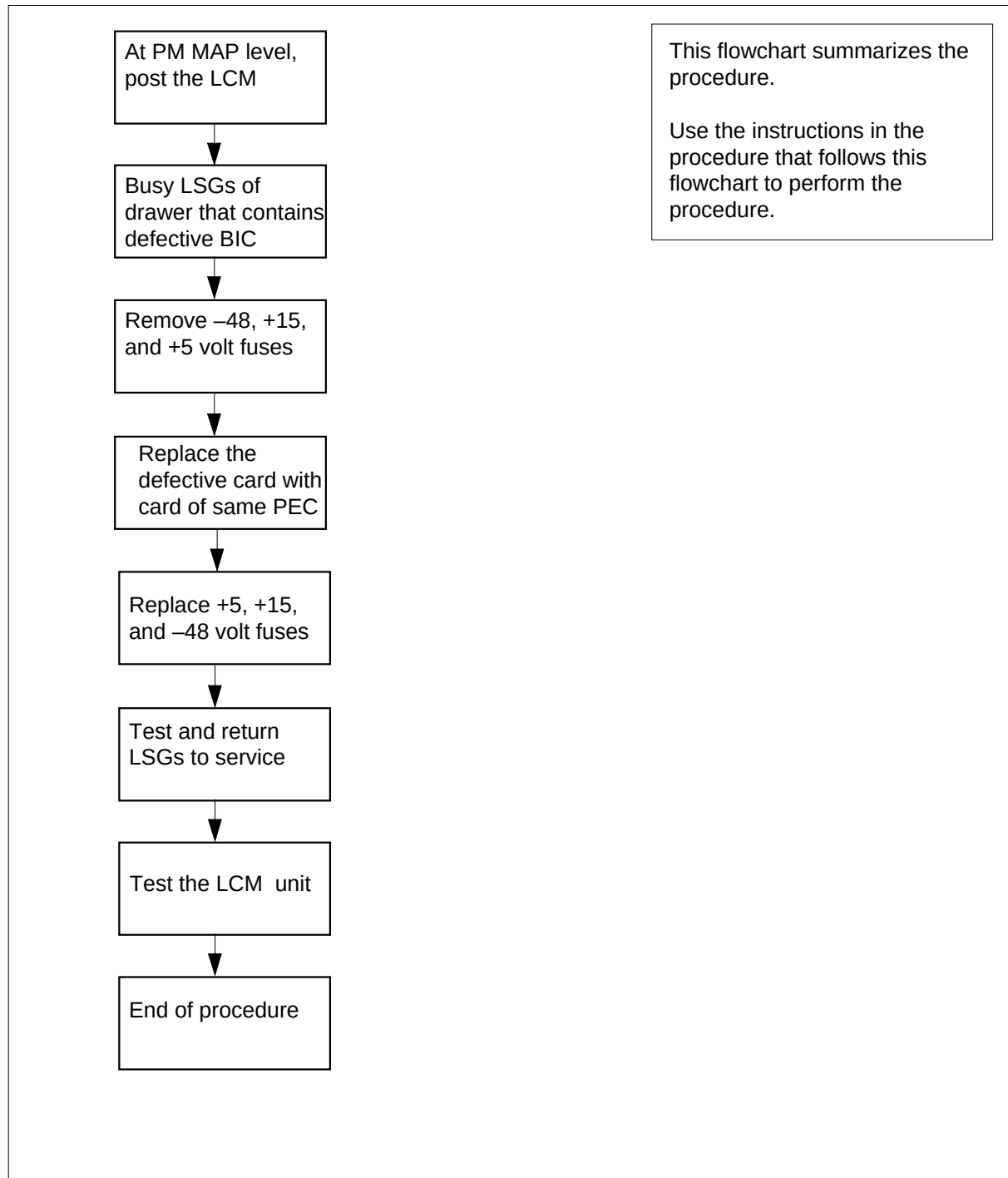
**Action**

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) |
| <b>Note:</b> 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

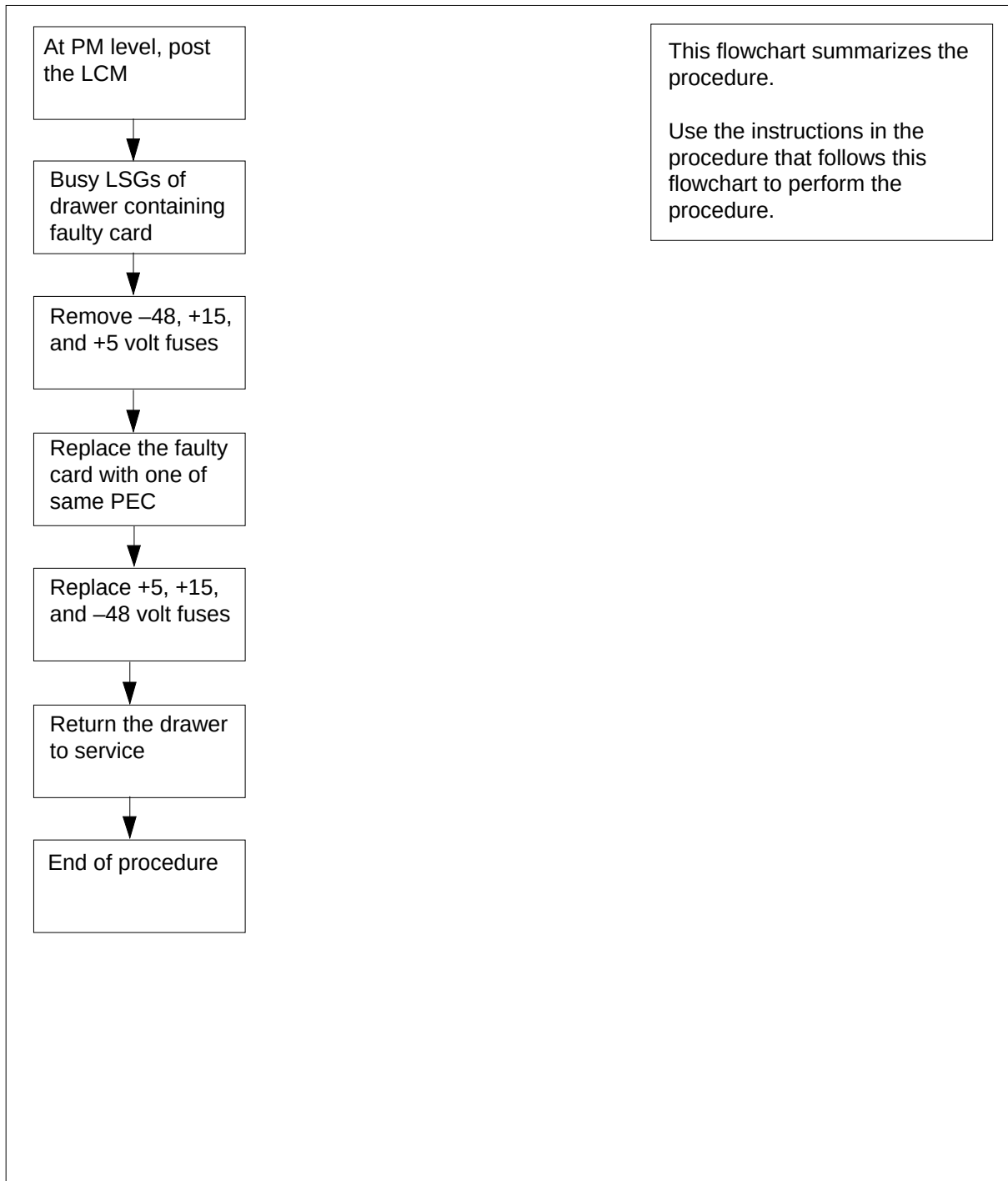
**Action**

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).

| <b>PEC</b> | <b>Suffixes</b> | <b>Name</b>              |
|------------|-----------------|--------------------------|
| NT6X54     | AA              | Bus Interface Card (BIC) |

### **Common procedures**

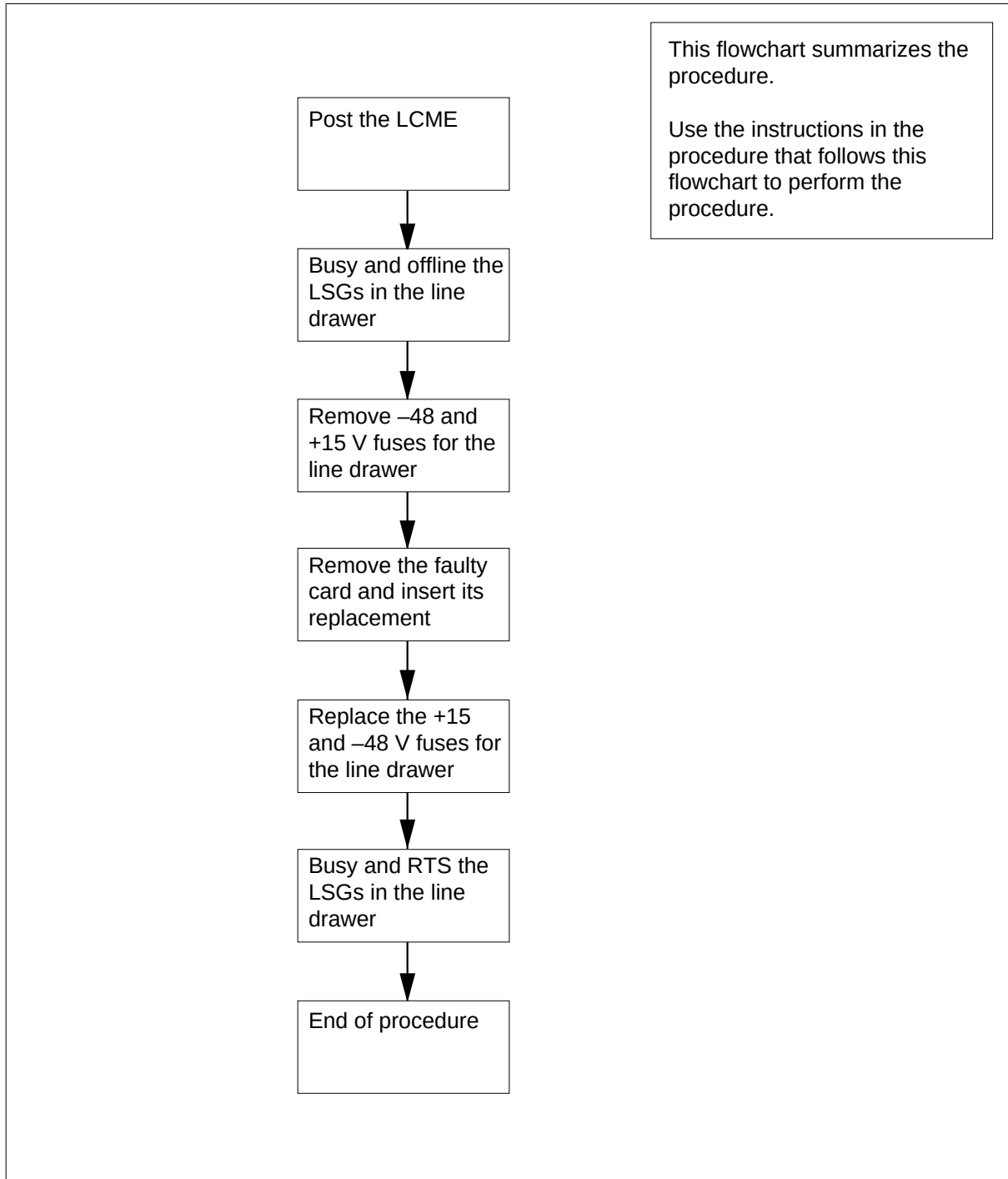
None

### **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).

| <b>PEC</b> | <b>Suffixes</b> | <b>Name</b>              |
|------------|-----------------|--------------------------|
| NT6X54     | AA              | Bus Interface Card (BIC) |

### **Common procedures**

None

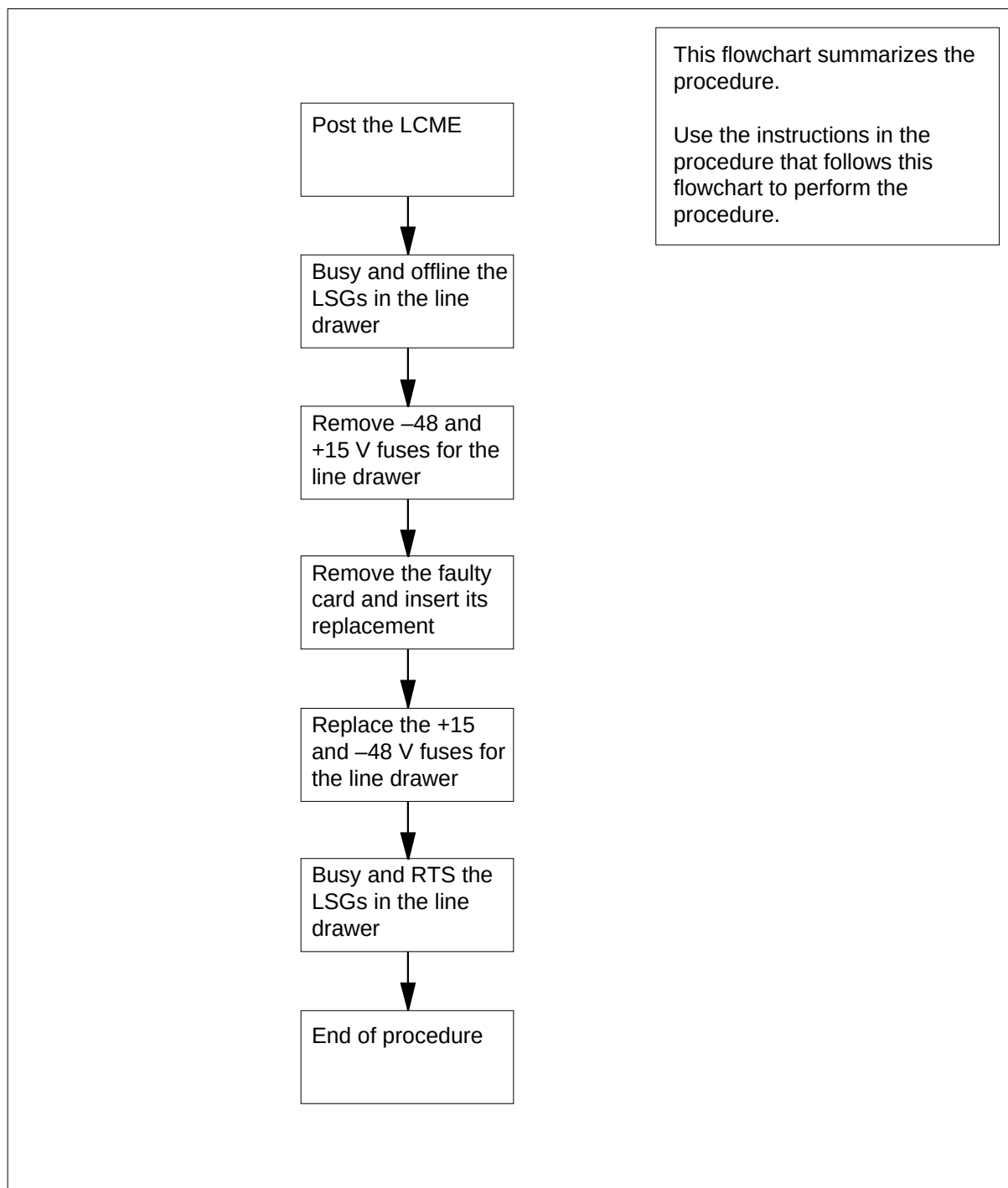
### **Action**

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) |
| <b>Note:</b> The ISDN line drawer for remotes (ILD-R) must use the NT6X54DA card. |          |                                         |

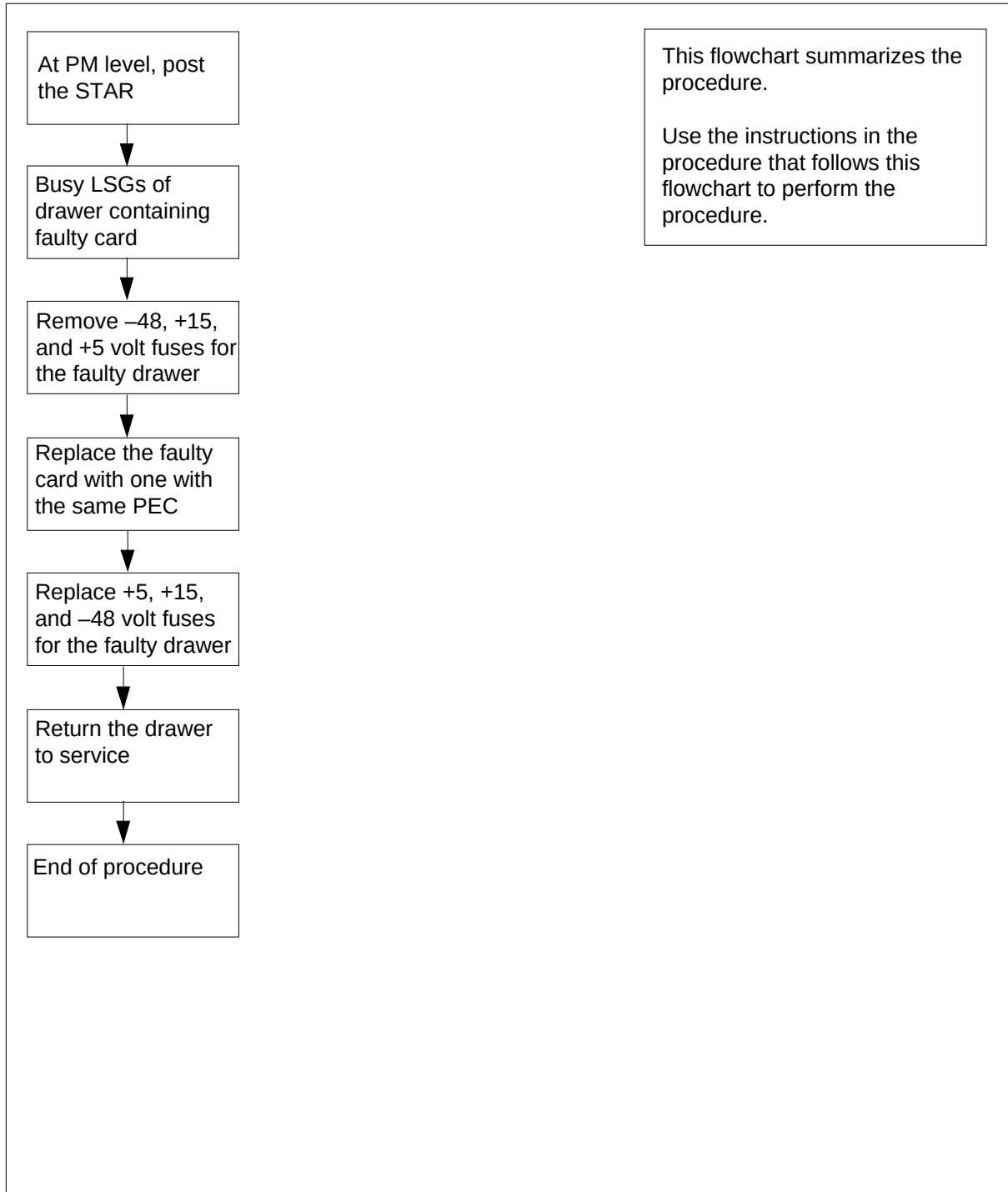
### Common procedures

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 0        | UMP 00S: 0     |             |
| 5 Trnsl    | Unit 0:        | InSv           | Mtce           |                | /RG: 0         |                |                |                |             |
| 6 Tst      | Unit 1:        | InsV           | Mtce           |                | /RG: 0         |                |                | RG             |             |
| 7 Bsy      |                |                | 11 11 11 11    | 11 11 22 22    | 22 22 22 22    | 22 22 33 33    | 33 33 33       | Pref 0         | InSv        |
| 8 RTS      | 01 23 45 67 89 | 01 23 45 67 89 | 01 23 45 67 89 | 01 23 45 67 89 | 01 23 45 67 89 | 01 23 45 67 89 | 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:** 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**

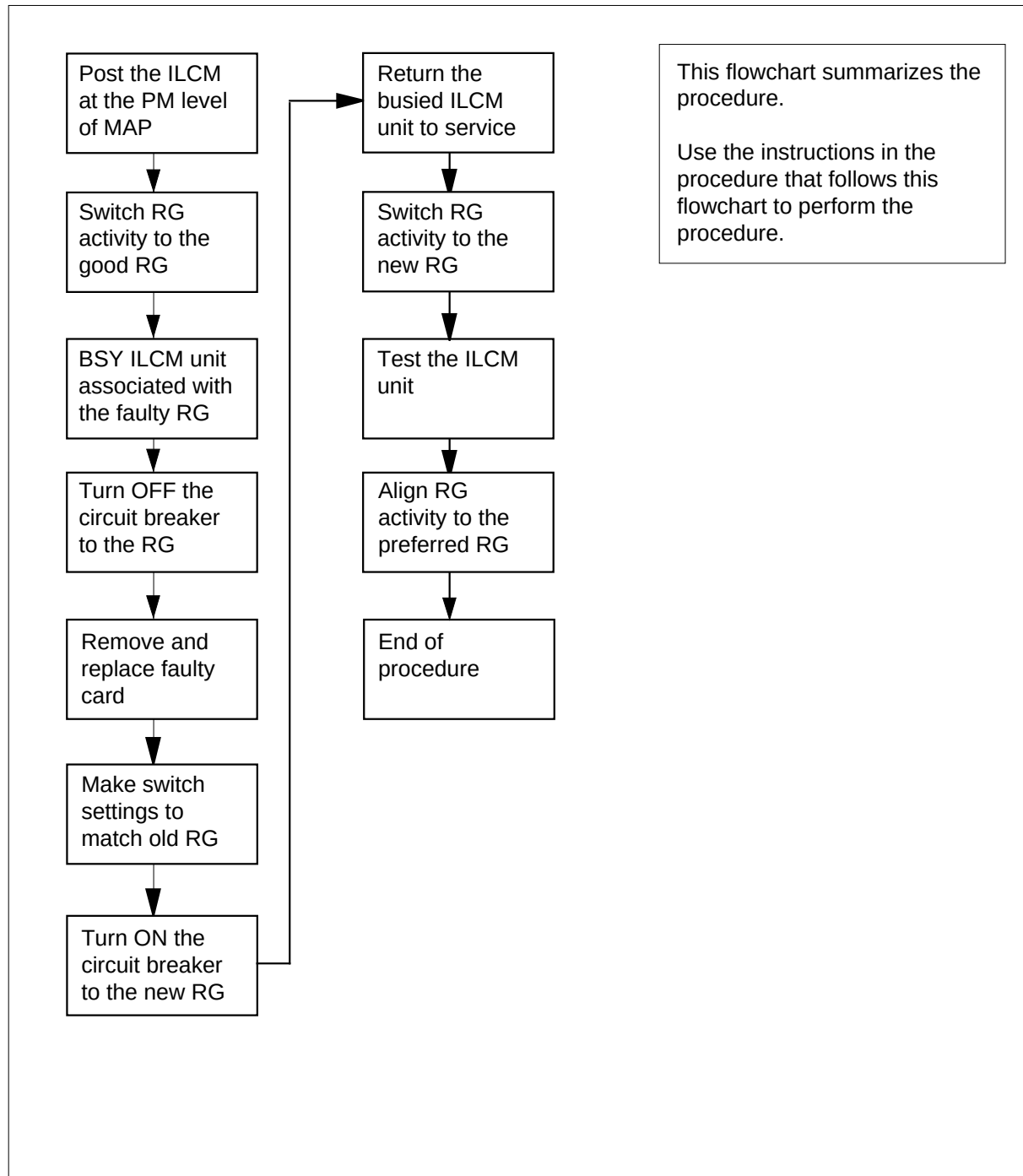
None

**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.

where

**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).

| <b>PEC</b> | <b>Suffixes</b>  | <b>Name</b>                        |
|------------|------------------|------------------------------------|
| NT6X60     | AA, BA,<br>CA,DA | North American ring generator (RG) |

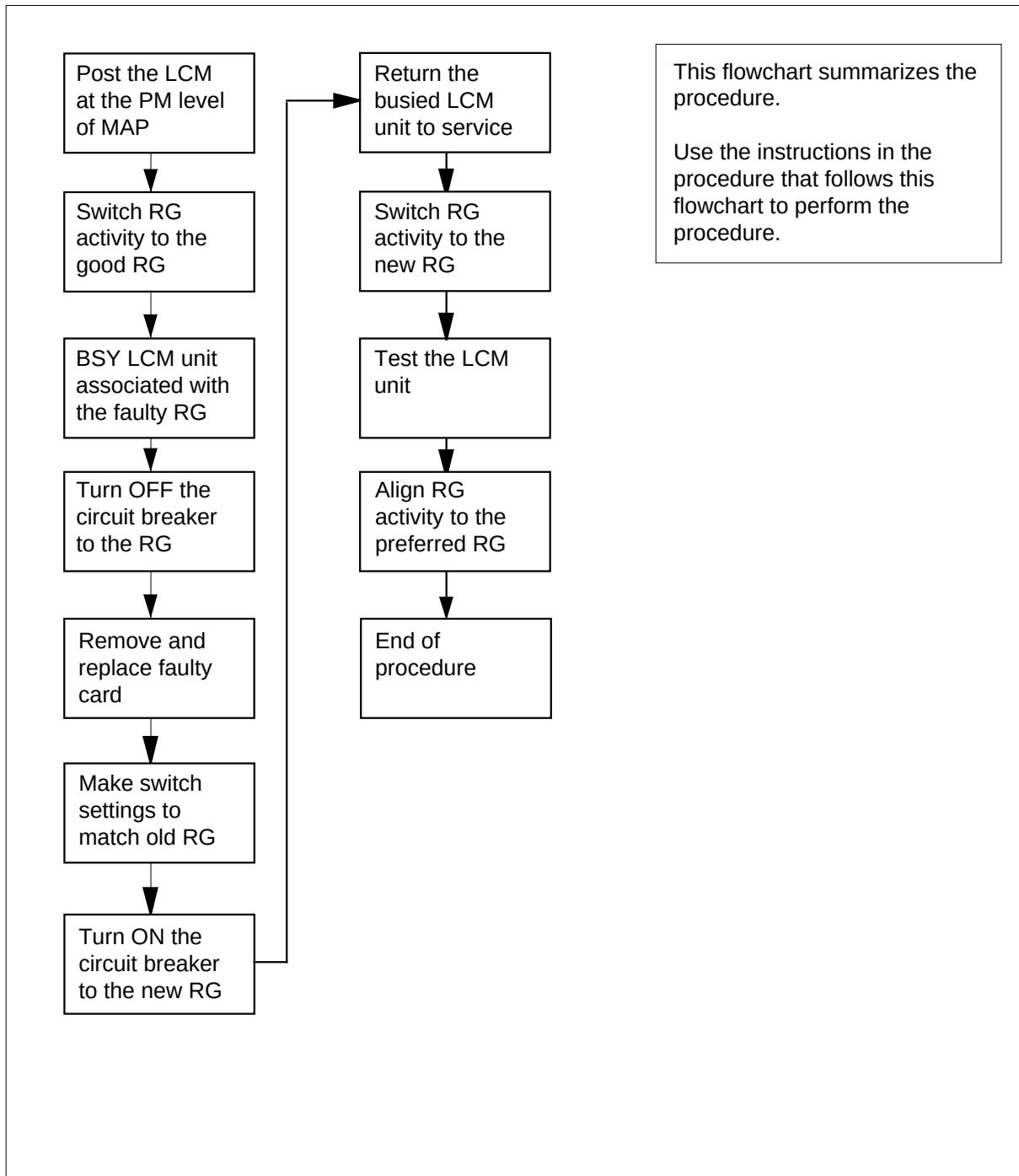
### **Common procedures**

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 busying 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<br>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,<br>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**

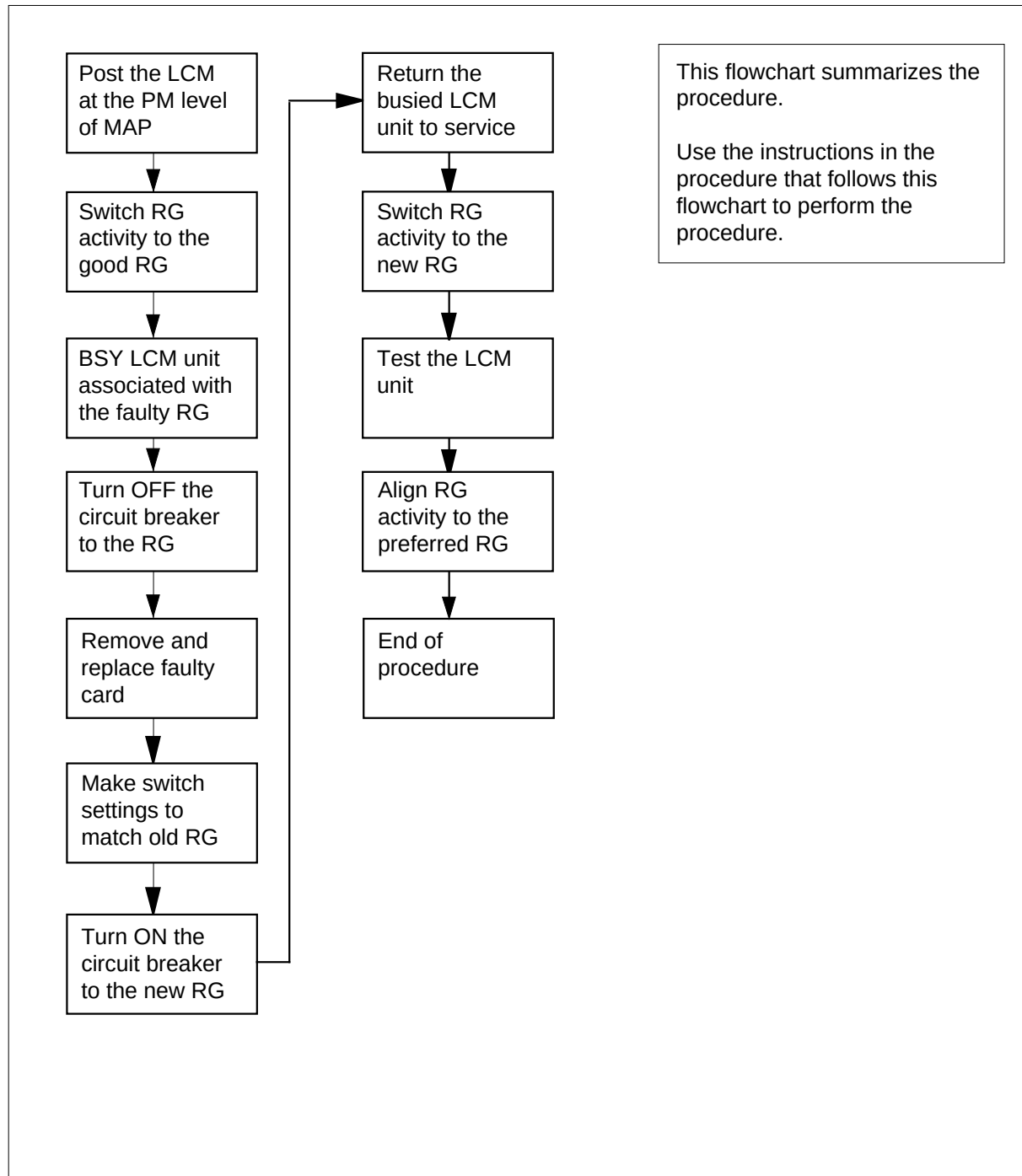
None

**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<br>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              | step23 |

- 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,<br>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**

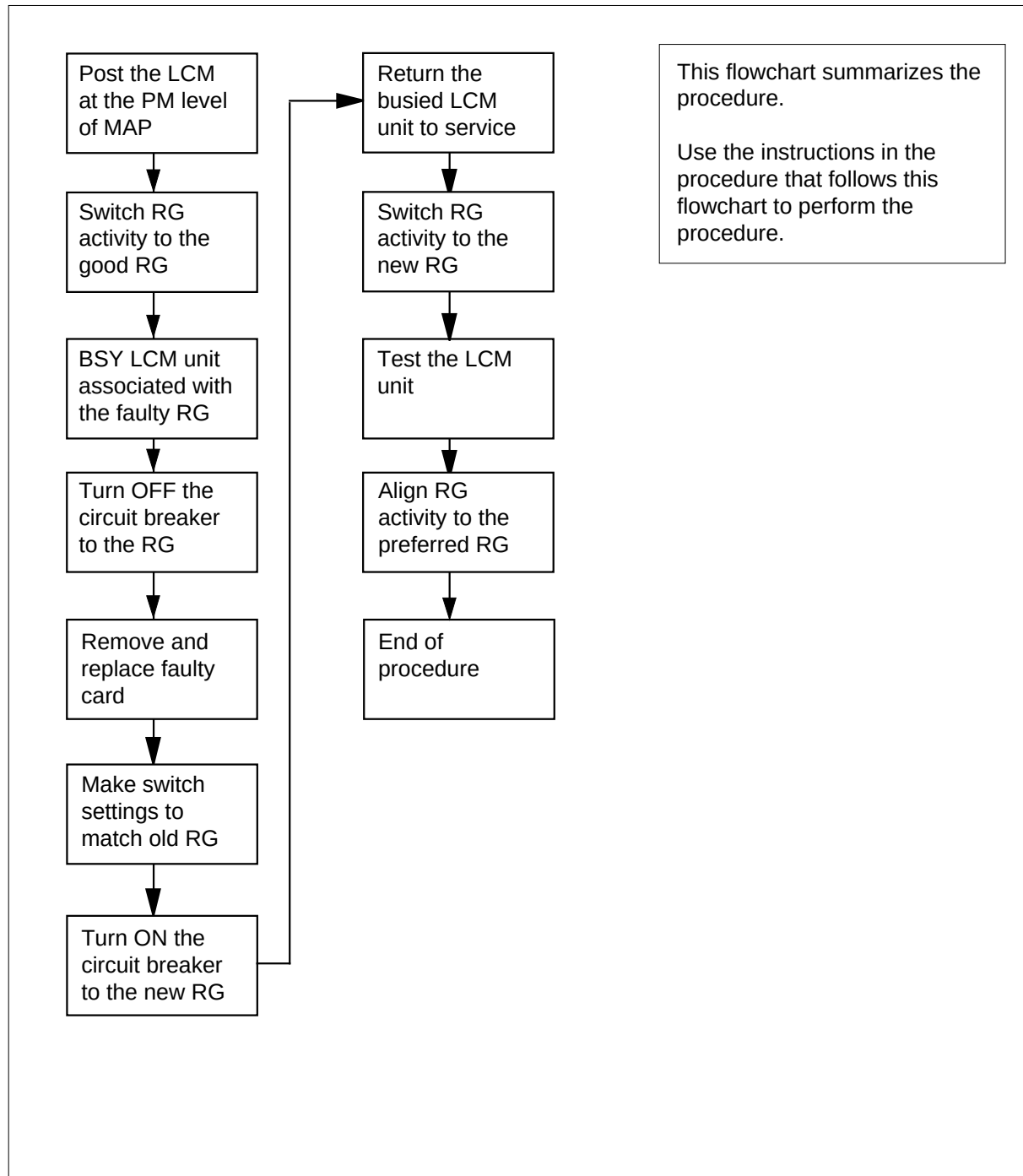
None

**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 busying 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**

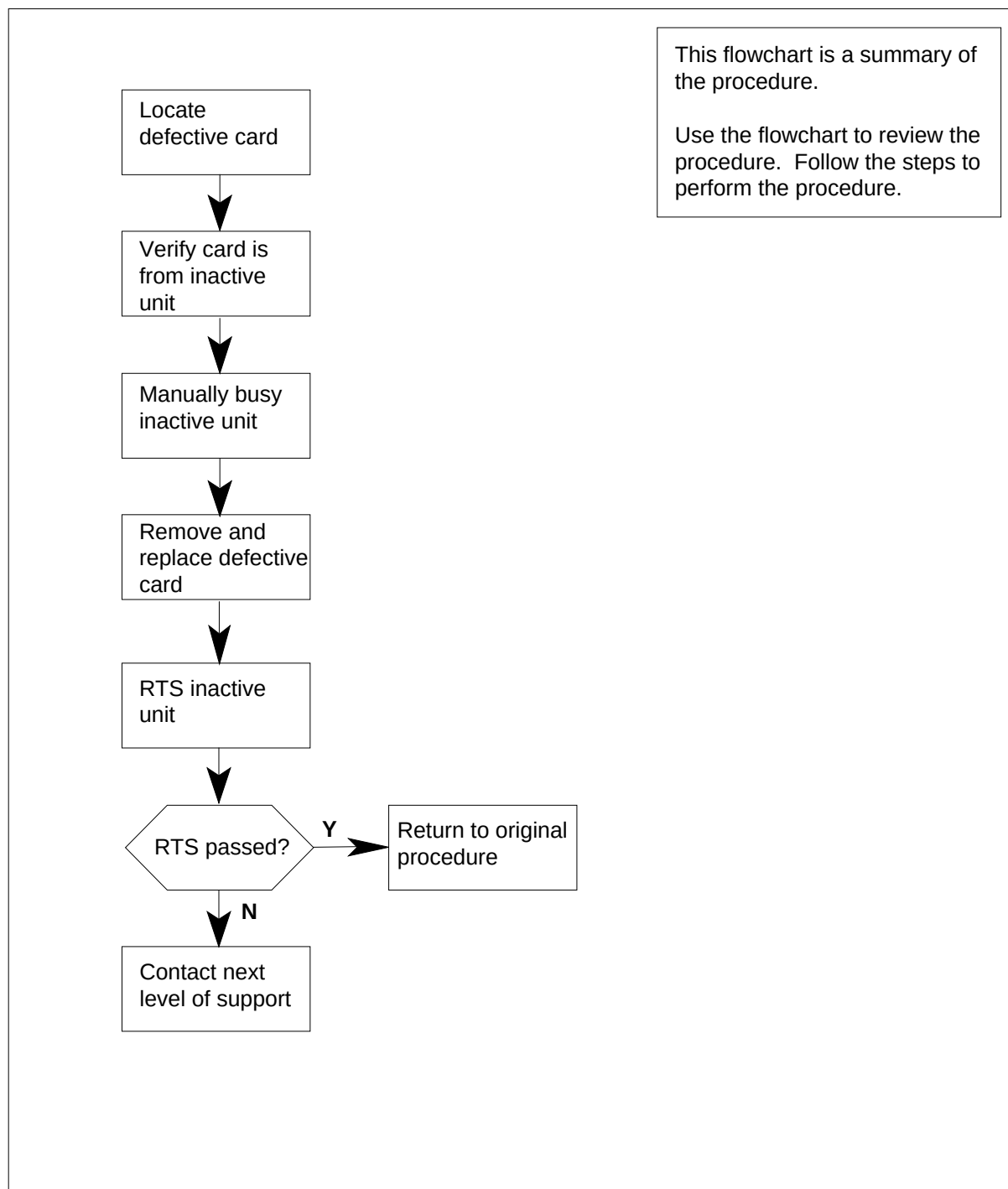
Does not apply

**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**

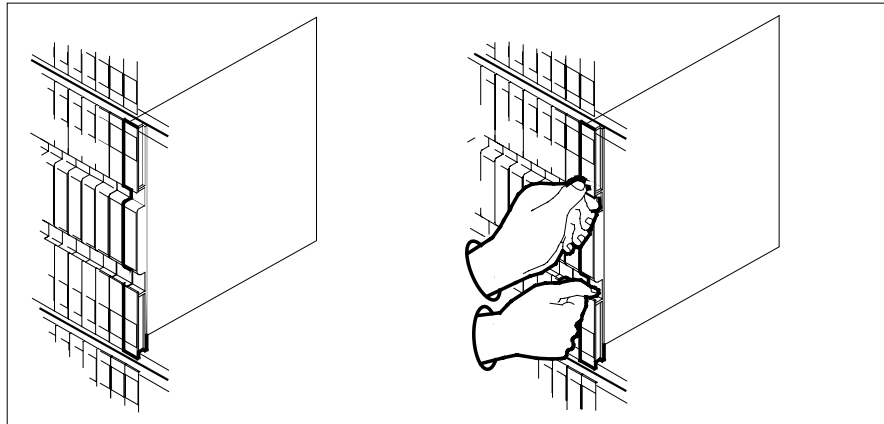
Take these precautions when you remove or insert a card:

1. Do not apply direct pressure to the components.
2. Do not force the card in the slots.

Put on a wrist strap.

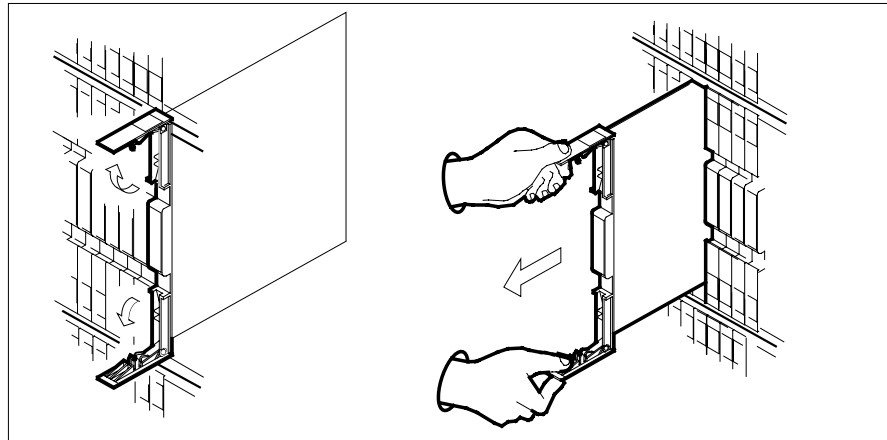
**11** The following figures show how to remove the NT6X69 card:

**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.

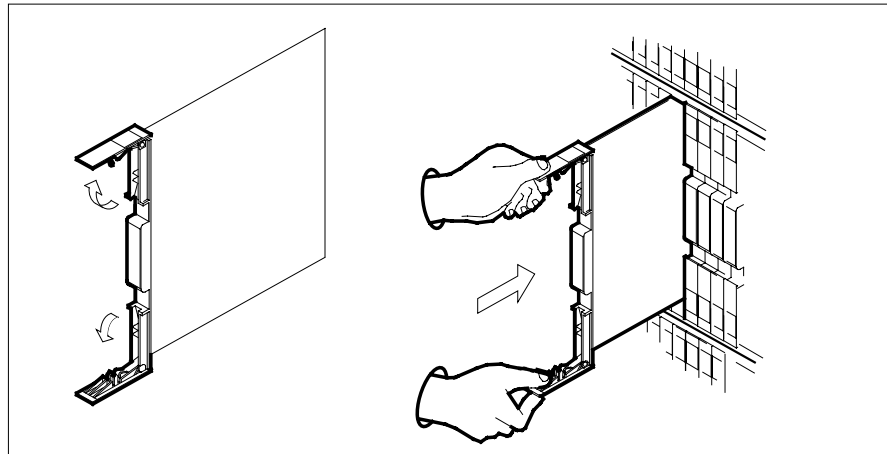
**NT6X69**  
**in an RSC-M (continued)**



- 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

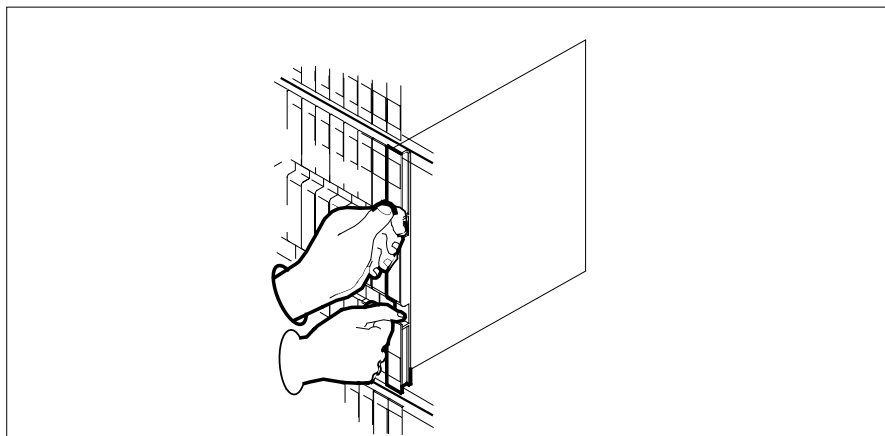
#### Loss of subscriber service

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 | <b>If PMRESET</b>                                                                                                                                                                                                | <b>Do</b> |
|    | fails with a card list                                                                                                                                                                                           | step 20   |
|    | To load the inactive unit, type:<br><b>&gt;LOADPM UNIT rco2_unit_no CC</b><br>and press the Enter key.<br><i>where</i><br><b>rco2_unit_no</b><br>is the number of the inactive RCO2 unit zero or one             |           |
|    | <b>If LOADPM</b>                                                                                                                                                                                                 | <b>Do</b> |
| 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 | <b>If you entered this procedure from</b>                                                                                                                                                                        | <b>Do</b> |
|    | How to clear an procedure                                                                                                                                                                                        | step 20   |
|    | other                                                                                                                                                                                                            | step 17   |
|    | To return the inactive RCO2 unit to service, type:<br><b>&gt;RTS UNIT rco2_unit_no</b><br>and press the Enter key.<br><i>where</i><br><b>rco2_unit_no</b><br>is the number of the inactive RCO2 unit zero or one |           |
| 18 | <b>If RTS</b>                                                                                                                                                                                                    | <b>Do</b> |
|    | 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,<br>AD, QA | Message and tone card |

### Common Procedures

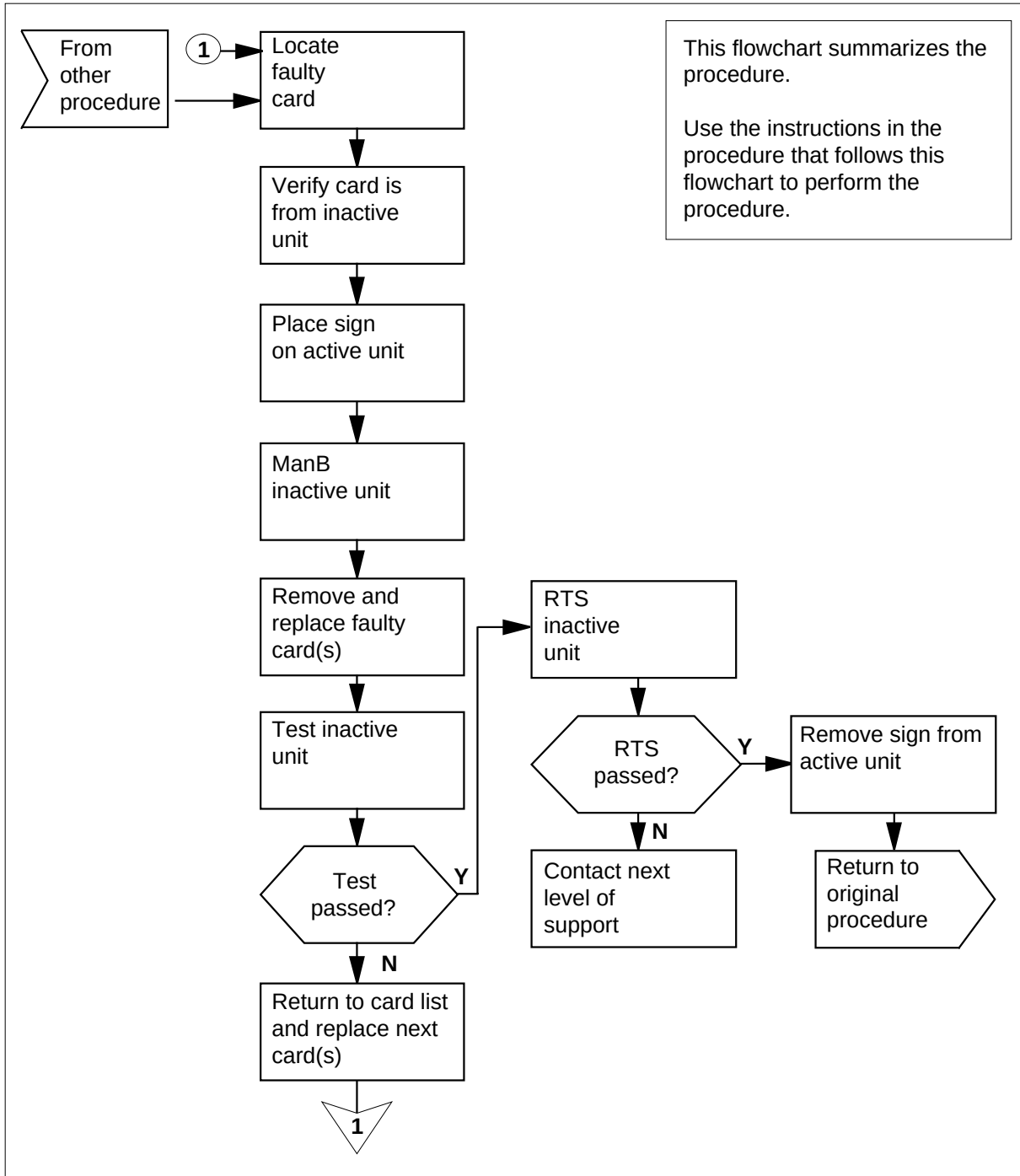
None

### 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.

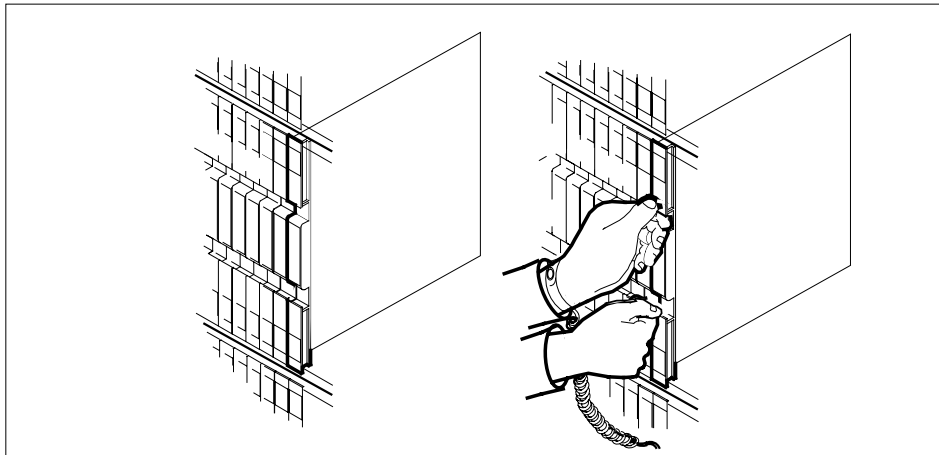
**9****DANGER****Equipment damage**

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.

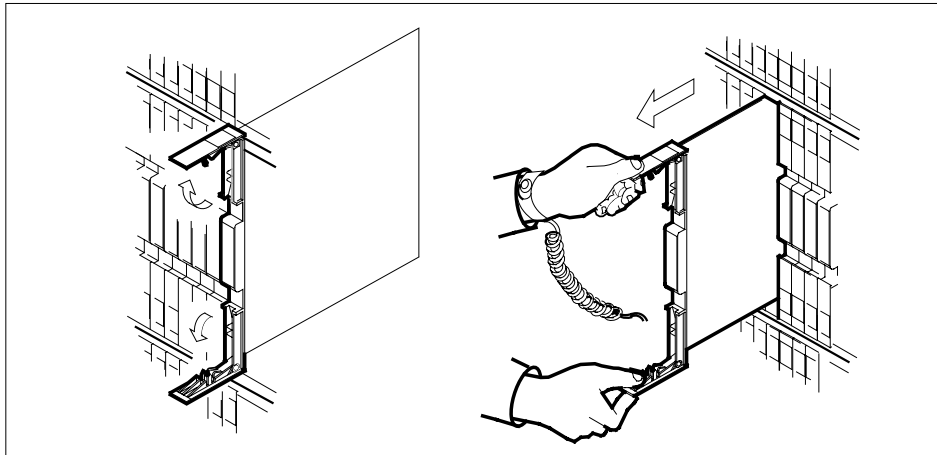
- a** Locate the card to be removed on the appropriate shelf.



- 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.

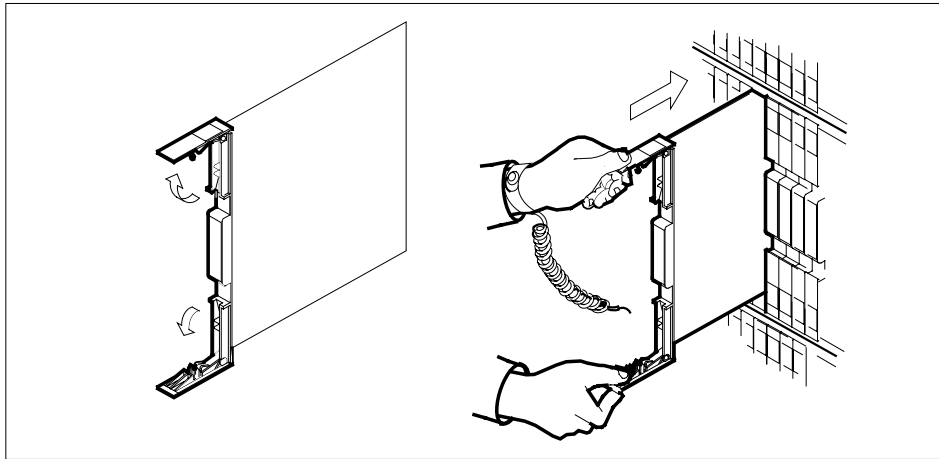
Open the locking levers on the replacement card.

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

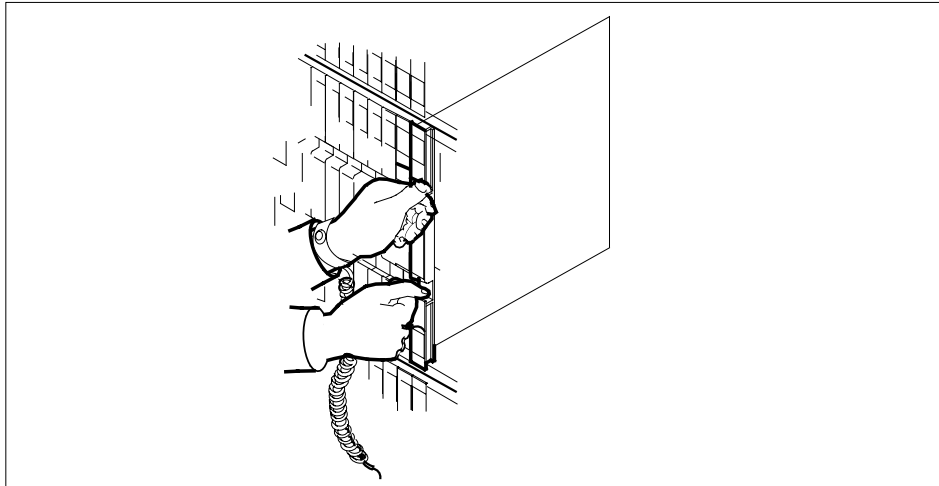
---

**NT6X69**  
**in an RSC RCC/RCC2 (continued)**

---



- 11** Seat and lock the card.
- 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.
  - 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,<br>QA | Message and Tone Card |

**Common procedures**

None

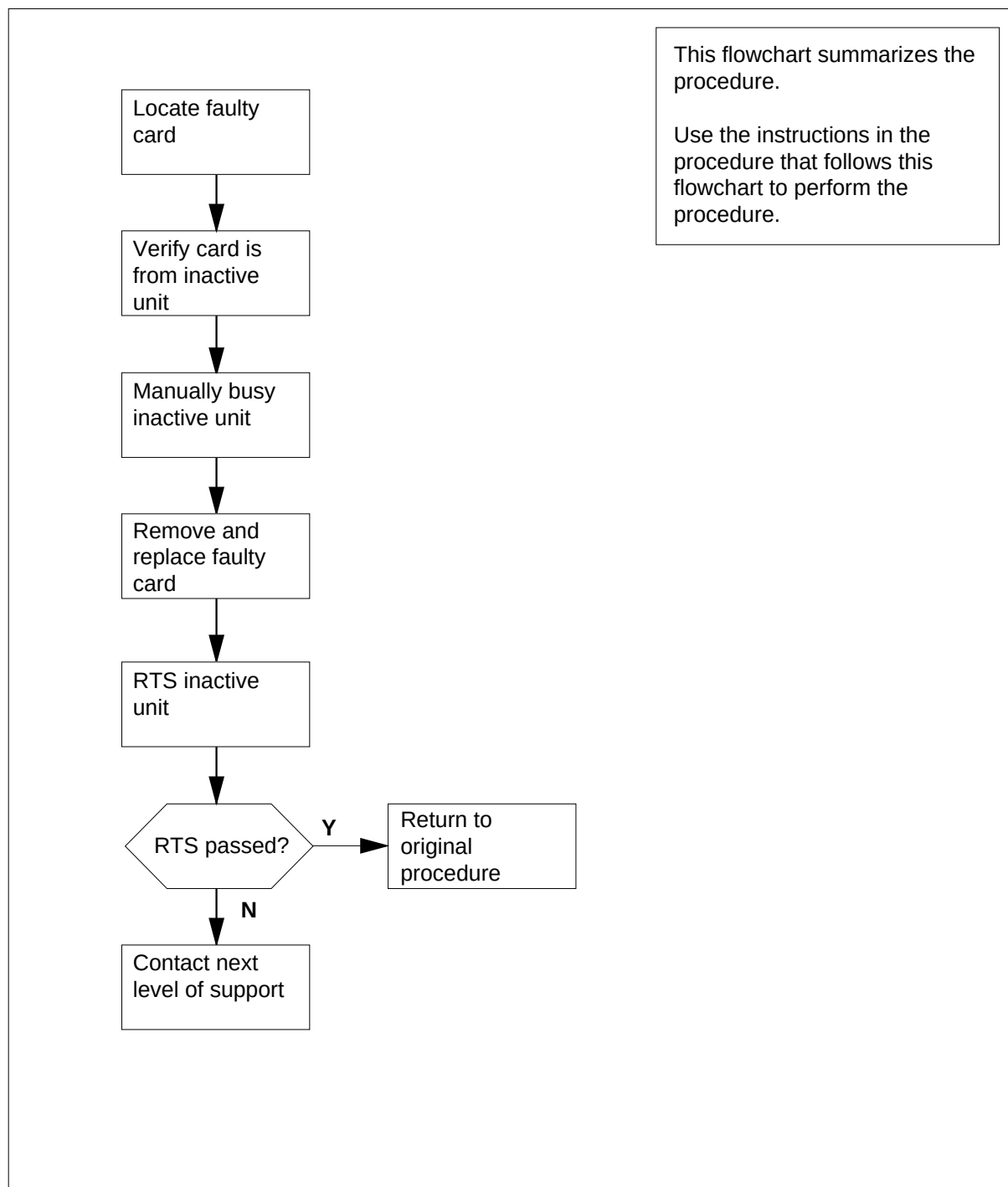
**Action**

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.

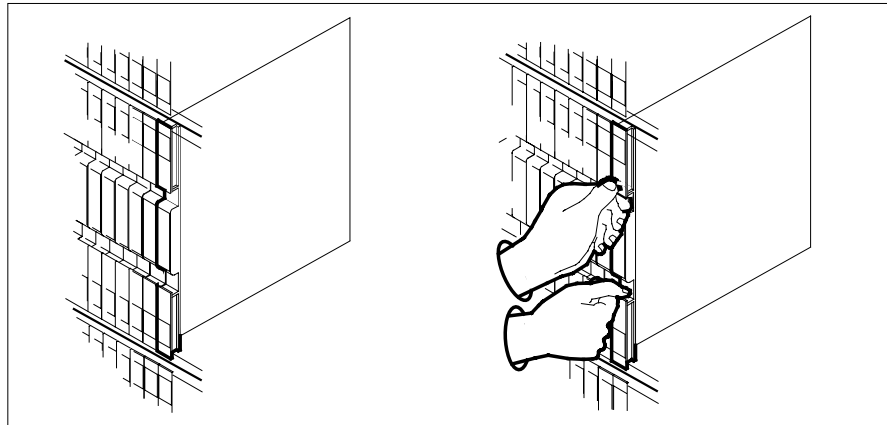
Put on a wrist strap.

- 11** Remove the NT6X69 card as shown in the following figures.
- a** Locate the card to be removed on the appropriate shelf.

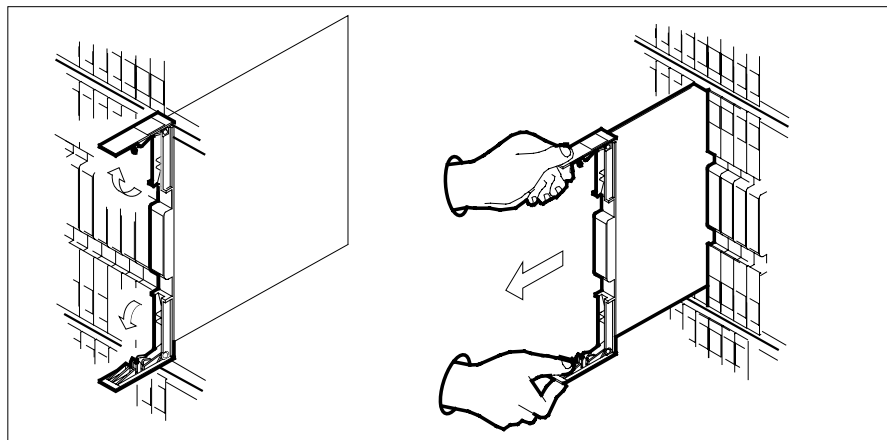
## NT6X69

### 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.

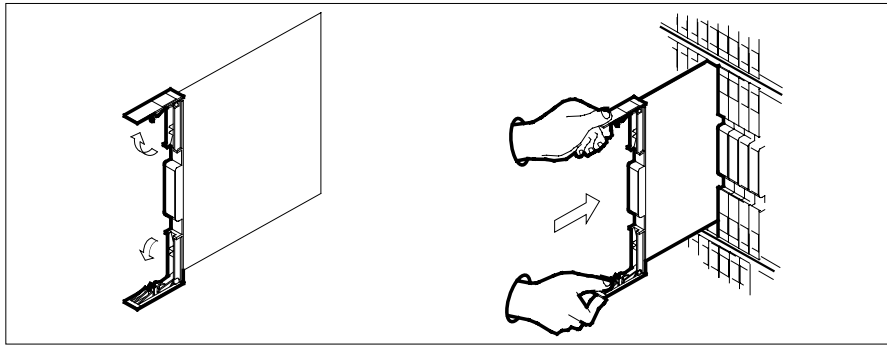


- c** Ensure the replacement card has the same PEC, including suffix, as the card you just removed.
- 12** Open the locking levers on the replacement card.
- a** Align the card with the slots in the shelf.
- b** Gently slide the card into the shelf.

---

**NT6X69**  
**in an RSC-S (DS-1) Model A RCC2 (continued)**

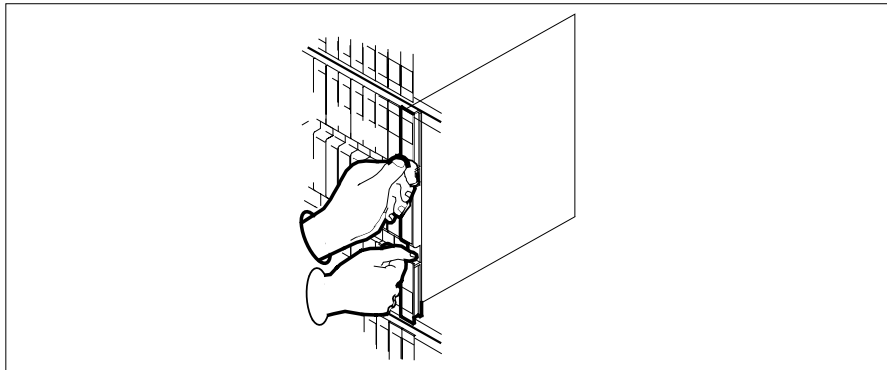
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**13****CAUTION****Loss of subscriber service**

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)

| <b>If PMRESET</b>                                                                                                                                                                                                          |  | <b>Do</b> |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|-----------|
| passed                                                                                                                                                                                                                     |  | step 17   |
| fails, try reloading this unit                                                                                                                                                                                             |  | step 15   |
| fails with a card list                                                                                                                                                                                                     |  | step 20   |
| <b>15</b> Load the inactive unit by typing<br><b>&gt;LOADPM UNIT rcc2_unit_no CC</b><br>and pressing the Enter key.<br><i>where</i><br><b>rcc2_unit_no</b><br>is the number of the inactive RCC2 unit (0 or 1)             |  |           |
| <b>If LOADPM</b>                                                                                                                                                                                                           |  | <b>Do</b> |
| passed                                                                                                                                                                                                                     |  | step 16   |
| failed                                                                                                                                                                                                                     |  | step 21   |
| fails with a card list                                                                                                                                                                                                     |  | step 20   |
| <b>16</b> Use the following information to determine what step to go to next in this procedure.                                                                                                                            |  |           |
| <b>If you entered this procedure from</b>                                                                                                                                                                                  |  | <b>Do</b> |
| alarm clearing procedures                                                                                                                                                                                                  |  | step 20   |
| other                                                                                                                                                                                                                      |  | step 17   |
| <b>17</b> Return the inactive RCC2 unit to service by typing<br><b>&gt;RTS UNIT rcc2_unit_no</b><br>and pressing the Enter key.<br><i>where</i><br><b>rcc2_unit_no</b><br>is the number of the inactive RCC2 unit (0 or 1) |  |           |
| <b>If RTS</b>                                                                                                                                                                                                              |  | <b>Do</b> |
| passed                                                                                                                                                                                                                     |  | step 18   |
| failed                                                                                                                                                                                                                     |  | step 21   |



**NT6X69**

**in an RSC-S (DS-1) Model A RCC2 (end)**

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- 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.

| <b>PEC</b> | <b>Suffixes</b> | <b>Name</b>           |
|------------|-----------------|-----------------------|
| NT6X69     | AC, AD,<br>QA   | Message and Tone Card |

### **Common procedures**

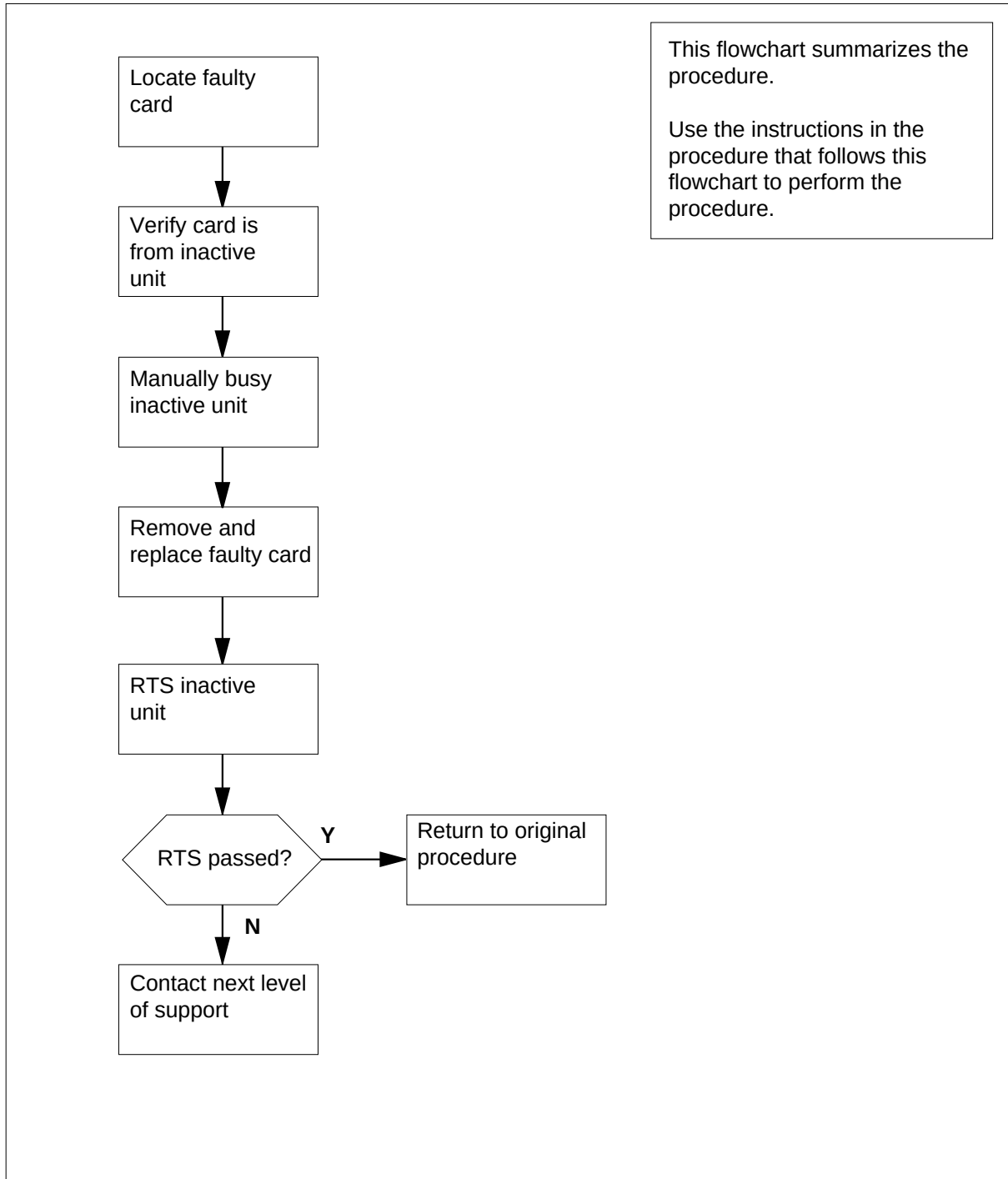
None

### **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**

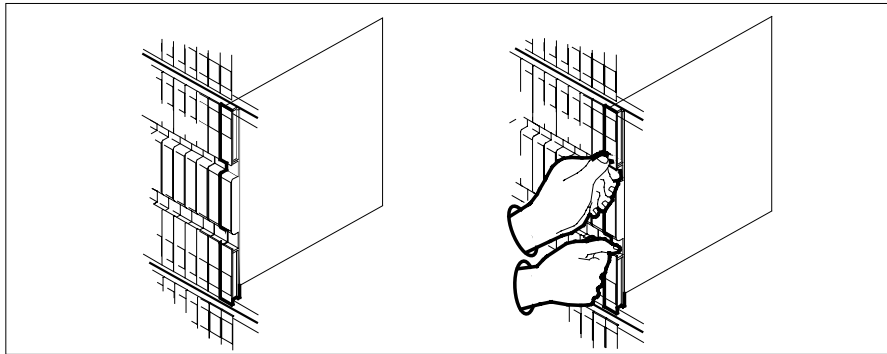
Take these precautions when removing or inserting a card:

1. Do not apply direct pressure to the components.
2. Do not force the card into its slot.

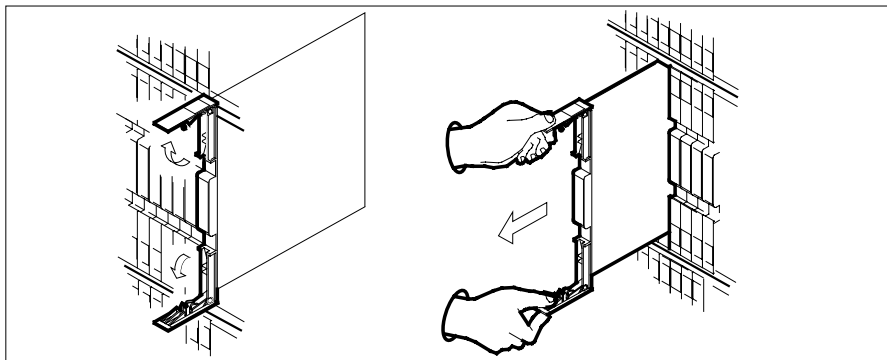
Put on a wrist strap.

- 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)**



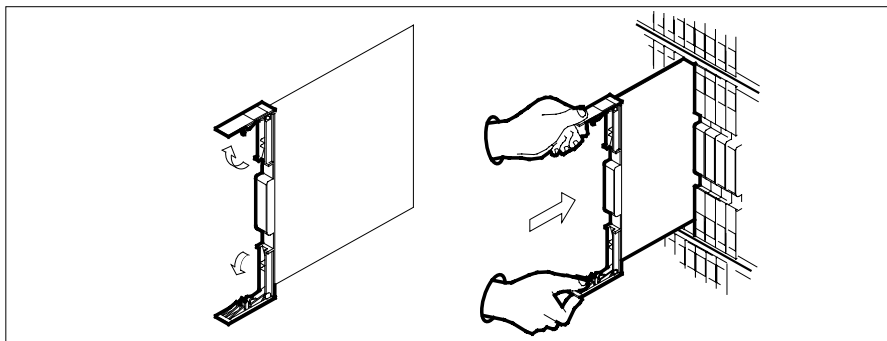
- b** Open the locking levers on the card to be replaced and gently pull the card toward you until it clears the shelf.



- 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



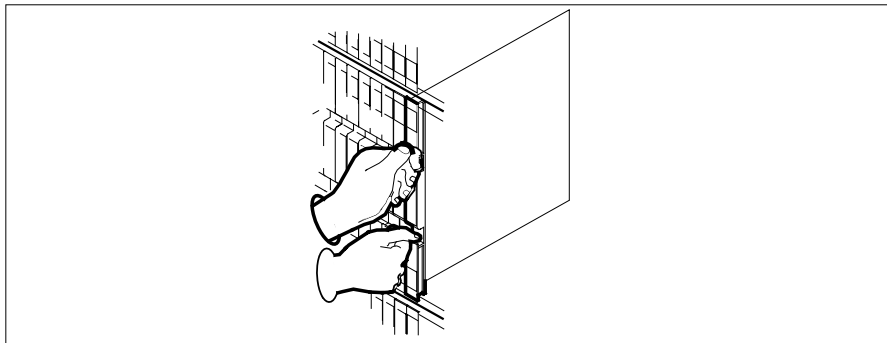
### CAUTION

#### 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)

|           | <b>If LOADPM</b>                                                                                                                                                                                                                                                      | <b>Do</b> |
|-----------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|
|           | passed                                                                                                                                                                                                                                                                | step 16   |
|           | failed                                                                                                                                                                                                                                                                | step 21   |
|           | fails with a card list                                                                                                                                                                                                                                                | step 20   |
| <b>16</b> | Use the following information to determine what step to go to next in this procedure.                                                                                                                                                                                 |           |
|           | <b>If you entered this procedure from</b>                                                                                                                                                                                                                             | <b>Do</b> |
|           | alarm clearing procedures                                                                                                                                                                                                                                             | step 20   |
|           | other                                                                                                                                                                                                                                                                 | step 17   |
| <b>17</b> | Return the inactive RCC2 unit to service by typing<br><b>&gt;RTS UNIT rcc2_unit_no</b><br>and pressing the Enter key.<br>where<br><b>rcc2_unit_no</b><br>is the number of the inactive RCC2 unit (0 or 1)                                                             |           |
|           | <b>If RTS</b>                                                                                                                                                                                                                                                         | <b>Do</b> |
|           | passed                                                                                                                                                                                                                                                                | step 18   |
|           | failed                                                                                                                                                                                                                                                                | step 21   |
| <b>18</b> | Send any faulty cards for repair according to local procedure.                                                                                                                                                                                                        |           |
| <b>19</b> | 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.                                                                                                                          |           |
| <b>20</b> | 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> . |           |
| <b>21</b> | Obtain further assistance in replacing this card by contacting the personnel responsible for higher level of support.                                                                                                                                                 |           |
| <b>22</b> | 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.

| <b>PEC</b> | <b>Suffixes</b> | <b>Name</b>           |
|------------|-----------------|-----------------------|
| NT6X69     | LA, LB          | Message and Tone Card |

### **Common procedures**

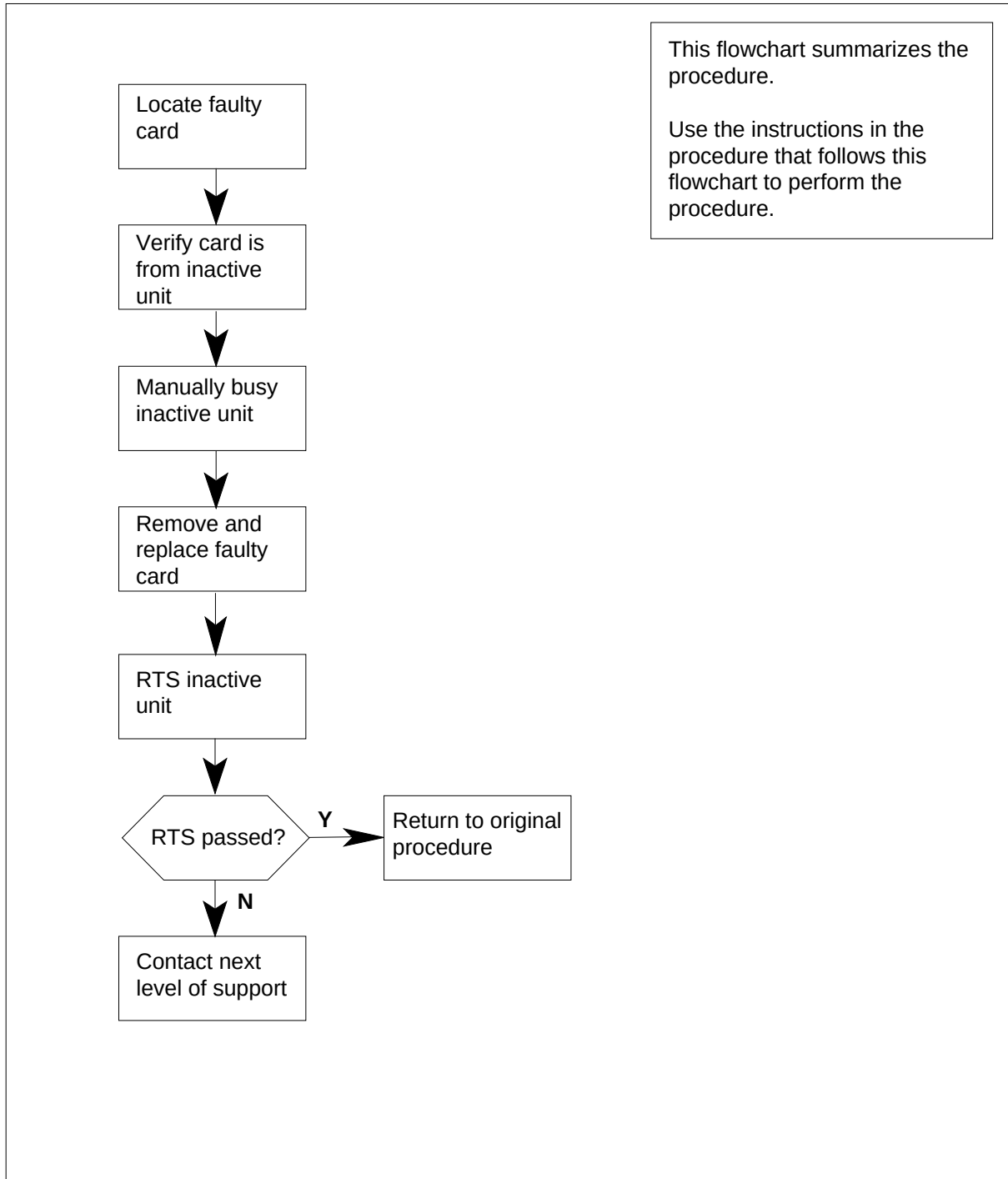
None

### **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.

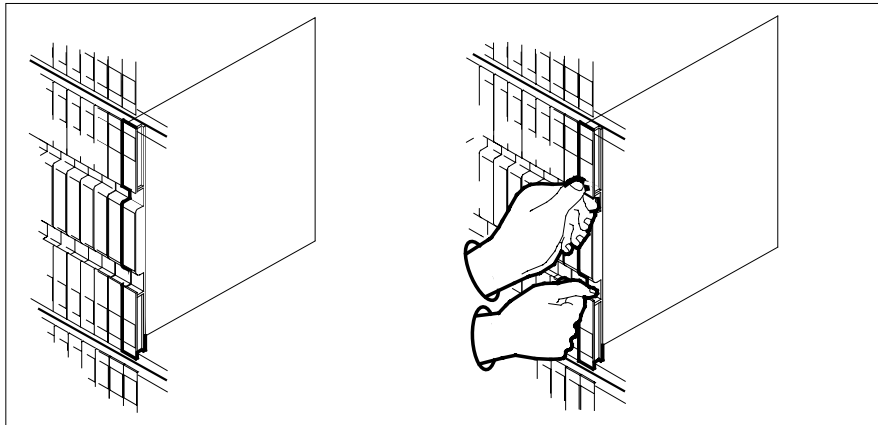
- 11 Remove the NT6X69 card as shown in the following figures.
- a** Locate the card to be removed on the appropriate shelf.

---

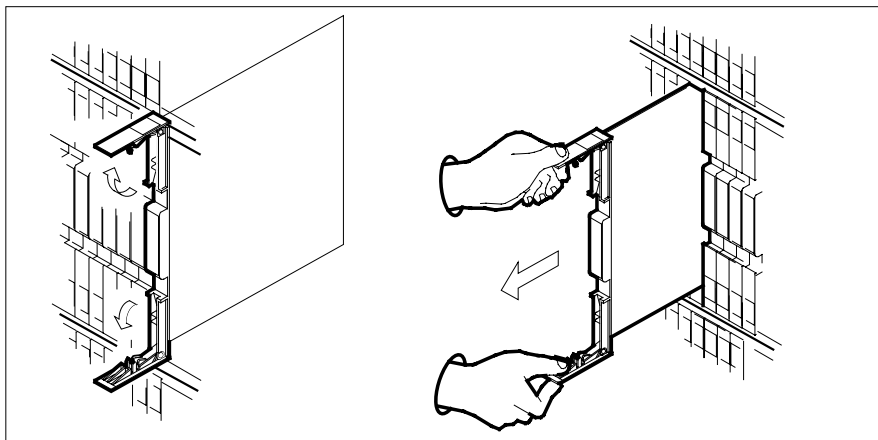
**NT6X69**

**in an RSC-S (PCM-30) Model A RCO2 (continued)**

---



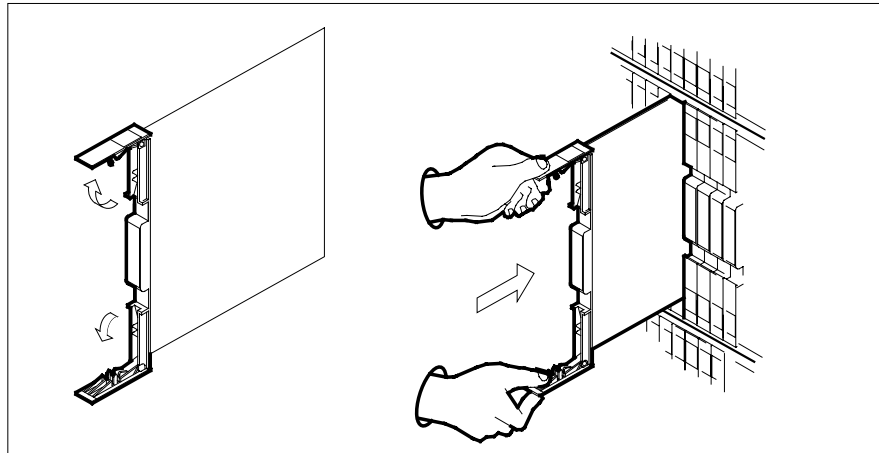
- b** Open the locking levers on the card to be replaced and gently pull the card toward you until it clears the shelf.



- 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

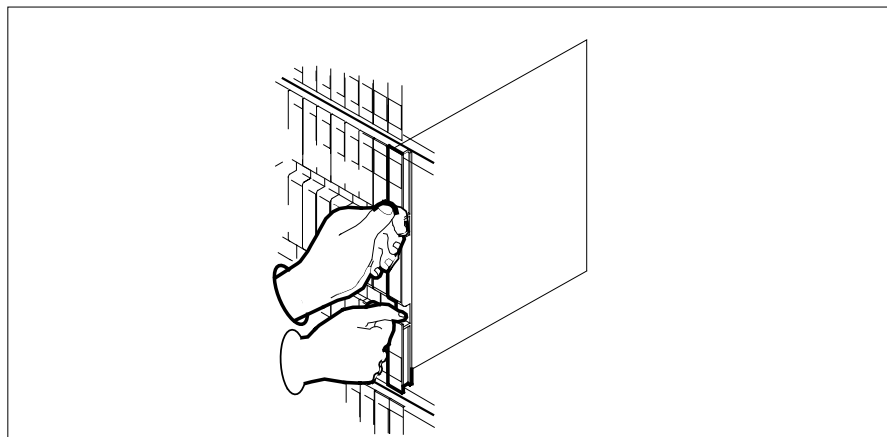
#### Loss of subscriber service

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)

|           | <b>If RTS</b>                                                                                                                                                                                                                                 | <b>Do</b> |
|-----------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|
|           | passed                                                                                                                                                                                                                                        | step 18   |
|           | failed                                                                                                                                                                                                                                        | step 21   |
| <b>18</b> | Send any faulty cards for repair according to local procedure.                                                                                                                                                                                |           |
| <b>19</b> | 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.                                                                                                  |           |
| <b>20</b> | 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. |           |
| <b>21</b> | Obtain further assistance in replacing this card by contacting the personnel responsible for higher level of support.                                                                                                                         |           |
| <b>22</b> | 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,<br>QA | Message and Tone Card |

**Common procedures**

None

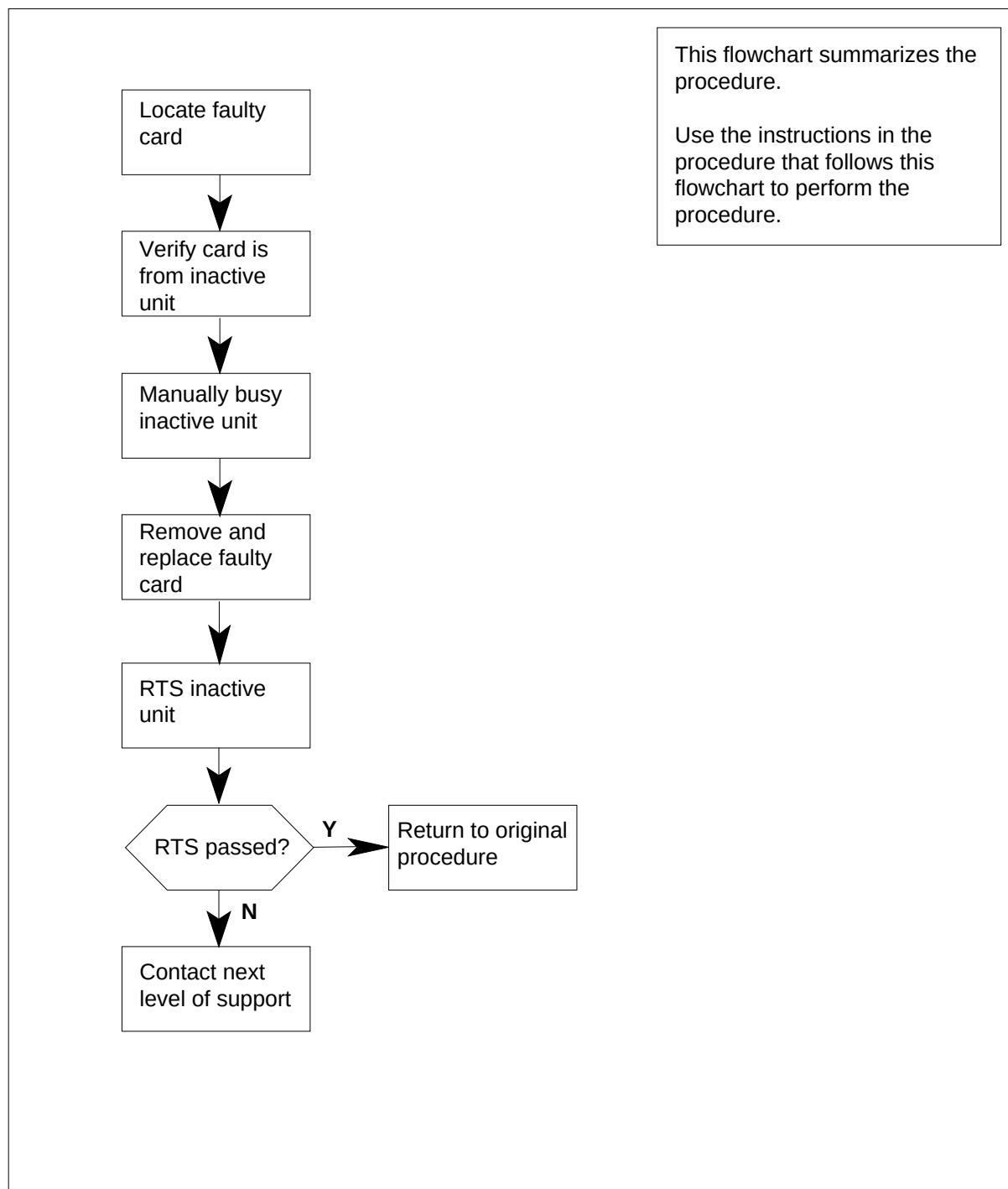
**Action**

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:

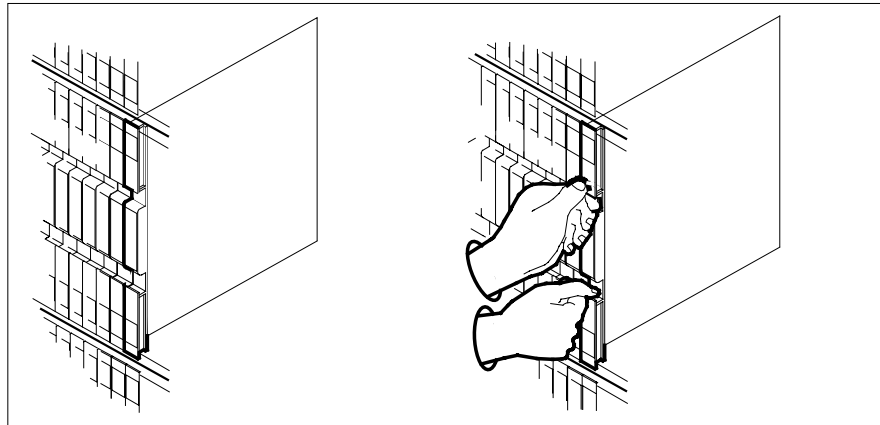
1. Do not apply direct pressure to the components.
2. Do not force the card into its slot.

Put on a wrist strap.

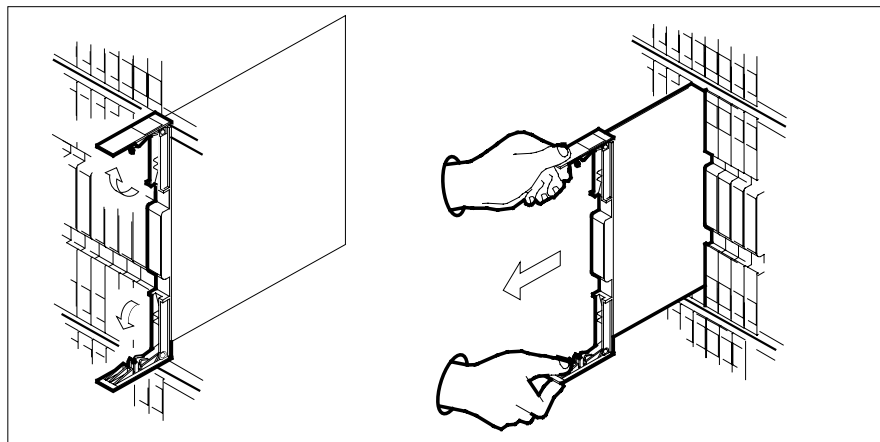
- 12 Remove the NT6X69 card as shown in the following figures.
- a** Locate the card to be removed on the appropriate shelf.

**NT6X69**  
**in an RSC-S (PCM-30) Model B RCO2 (continued)**

---



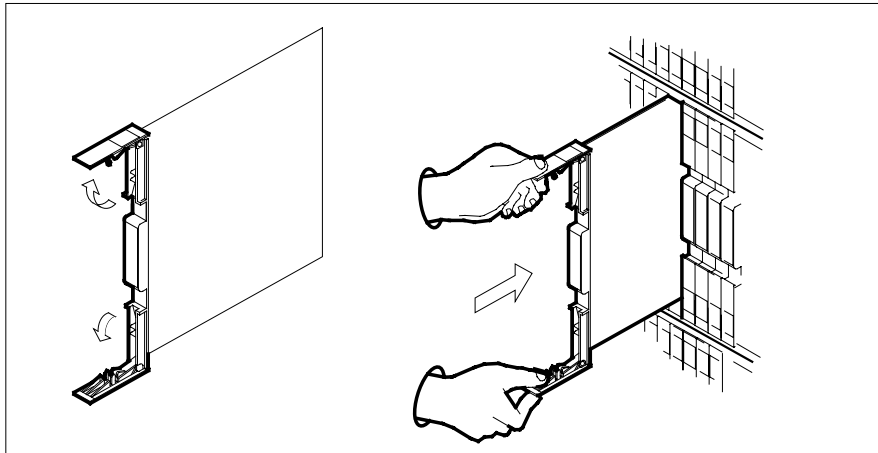
- b** Open the locking levers on the card to be replaced and gently pull the card toward you until it clears the shelf.



- 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

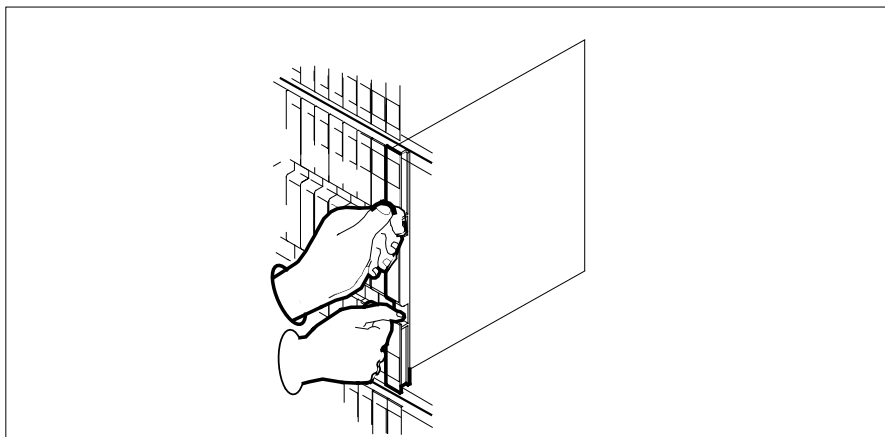
#### Loss of subscriber service

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)

| <b>If PMRESET</b>              | <b>Do</b> |
|--------------------------------|-----------|
| 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)

| <b>If LOADPM</b>       | <b>Do</b> |
|------------------------|-----------|
| 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.

| <b>If you entered this procedure from</b> | <b>Do</b> |
|-------------------------------------------|-----------|
| 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)

| <b>If RTS</b> | <b>Do</b> |
|---------------|-----------|
| 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,<br>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

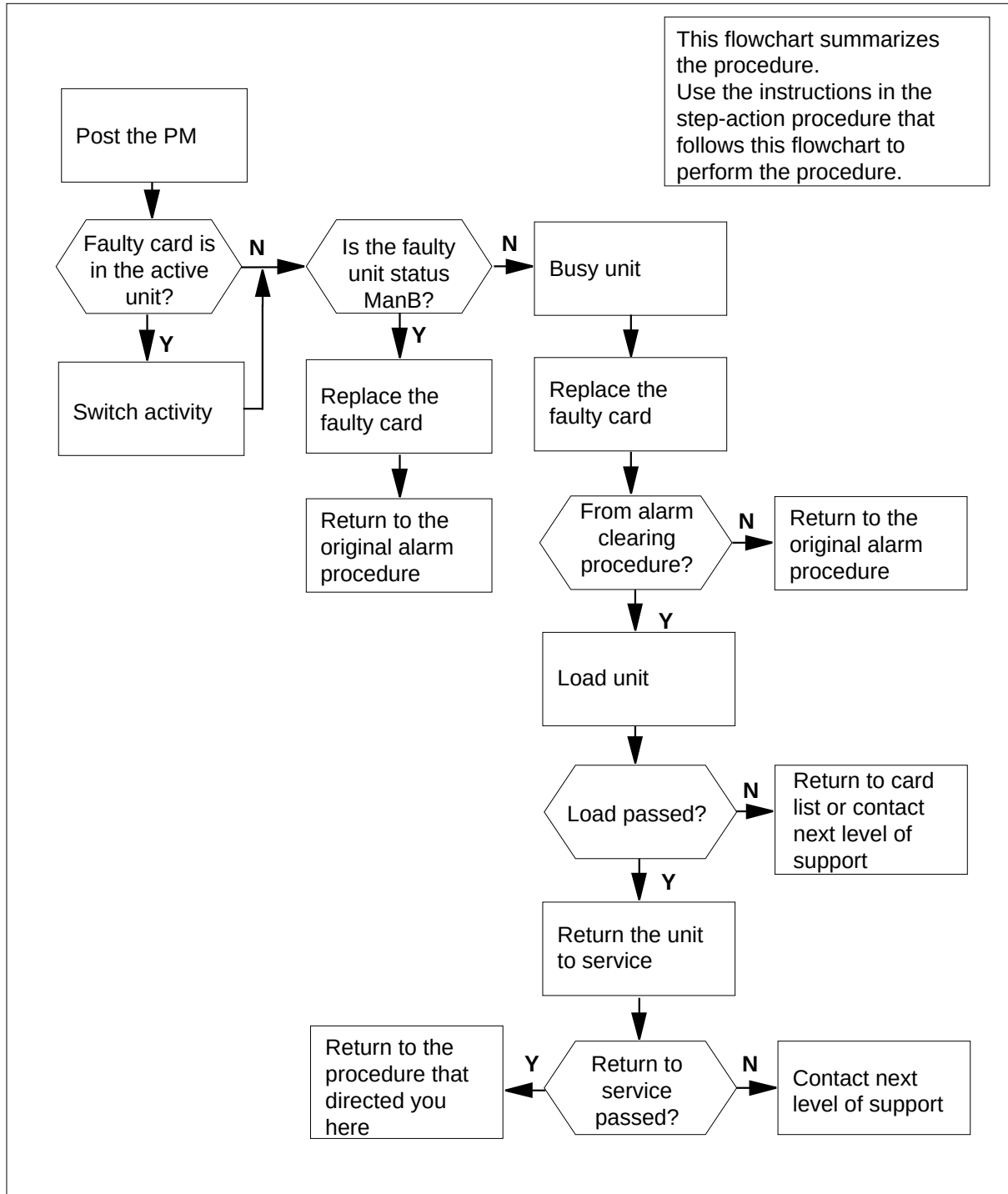
Do not go to the common procedures unless directed to do so in the step-action procedure.

### **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<br>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,<br>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

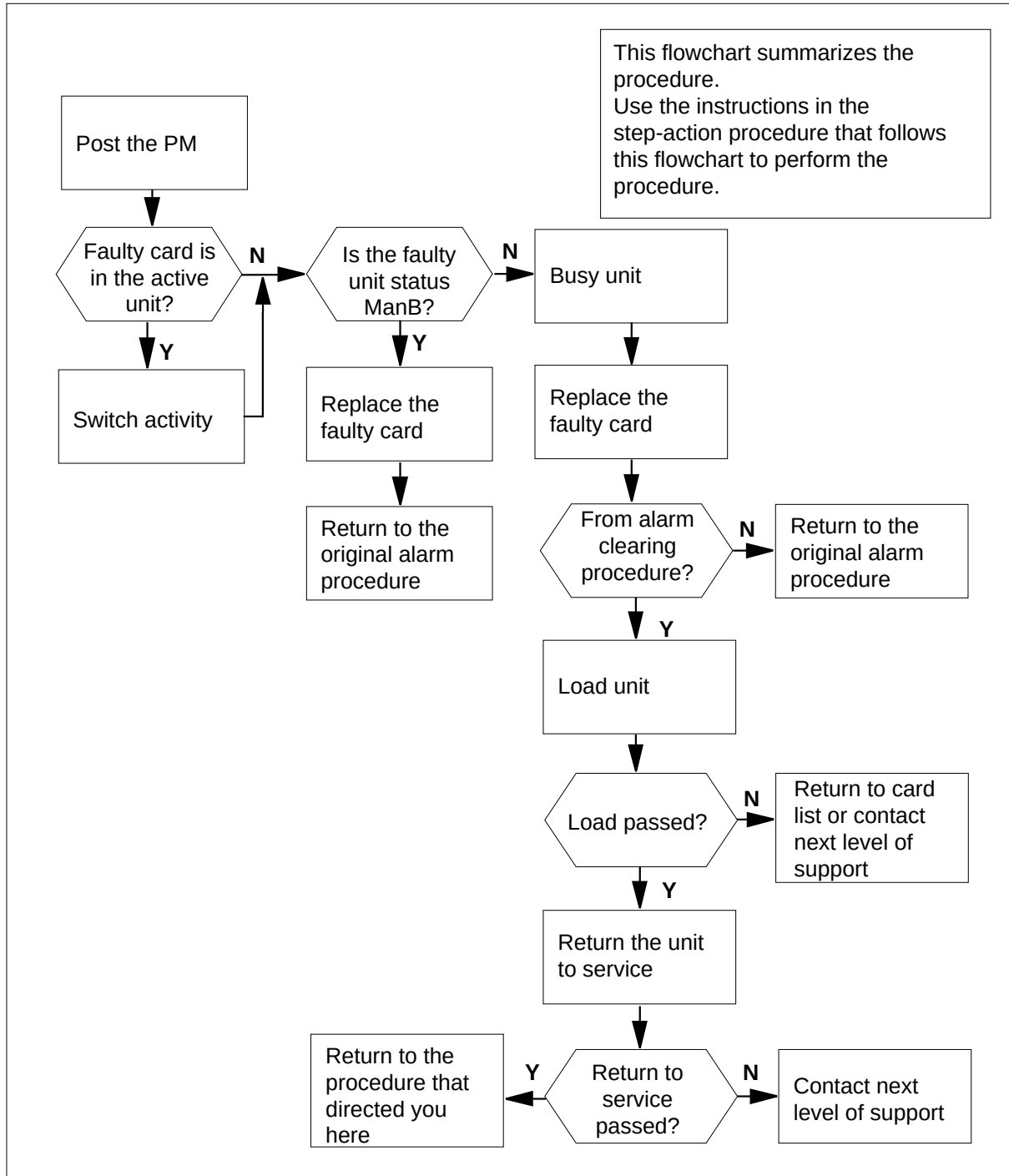
Do not go to the common procedures unless directed to do so in the step-action procedure.

### **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<br>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**

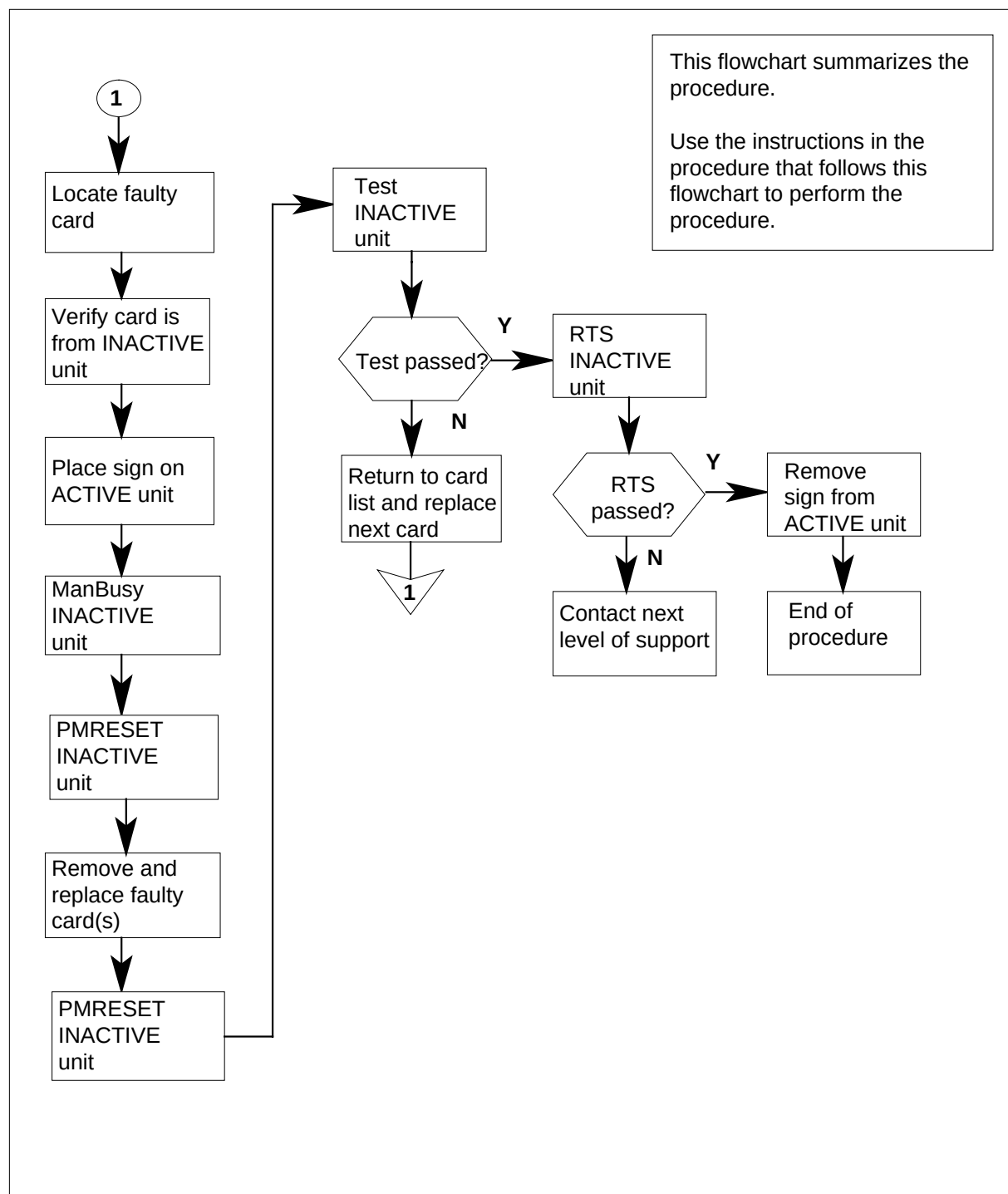
None

**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<br>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**

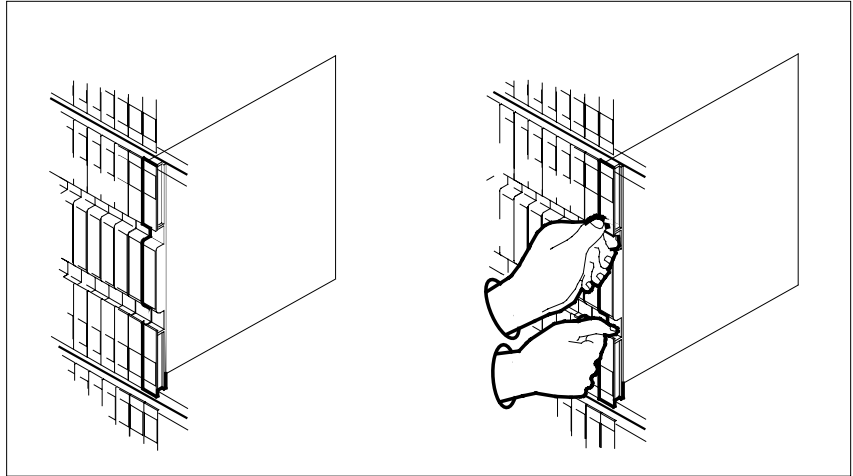
When removing or inserting a card, do not apply direct pressure to the components and do not force the cards into the slots.

Remove the NT6X69 card as shown in the following figures.

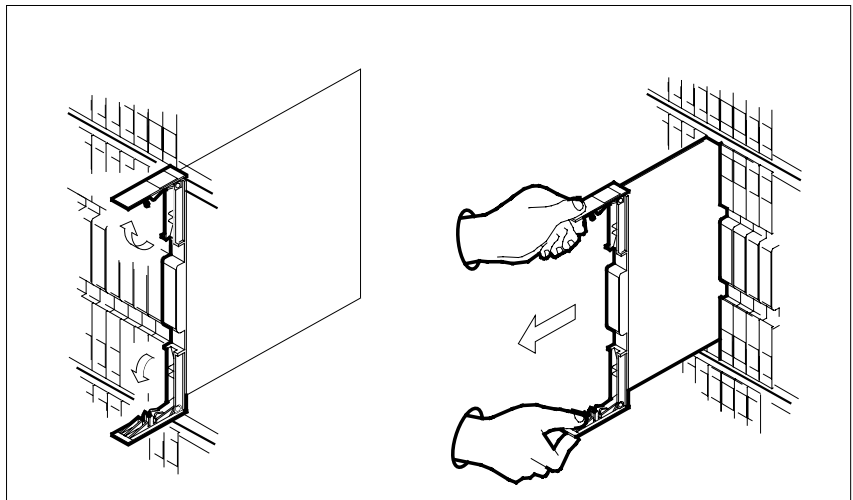
- a** Locate the card to be removed on the appropriate shelf.

## NT6X69 in an SMS (continued)

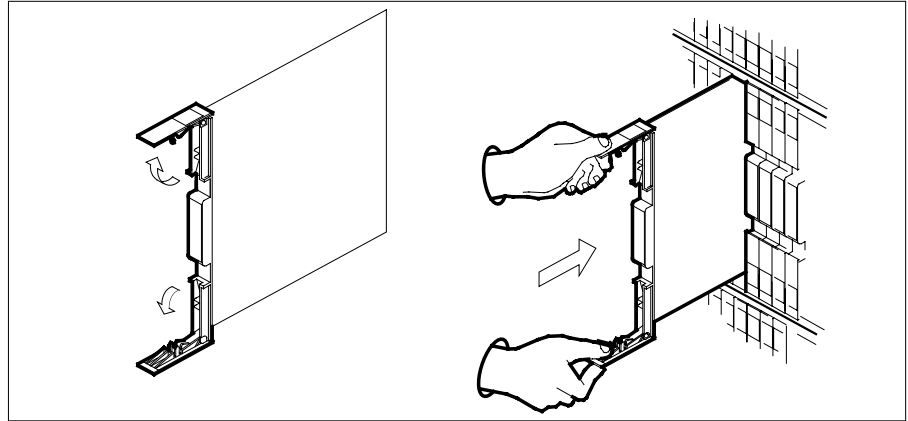
---



- 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)**

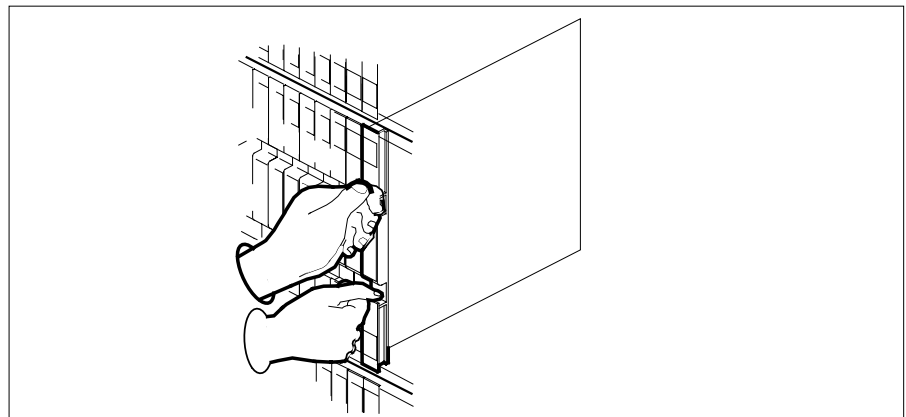
14

**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.

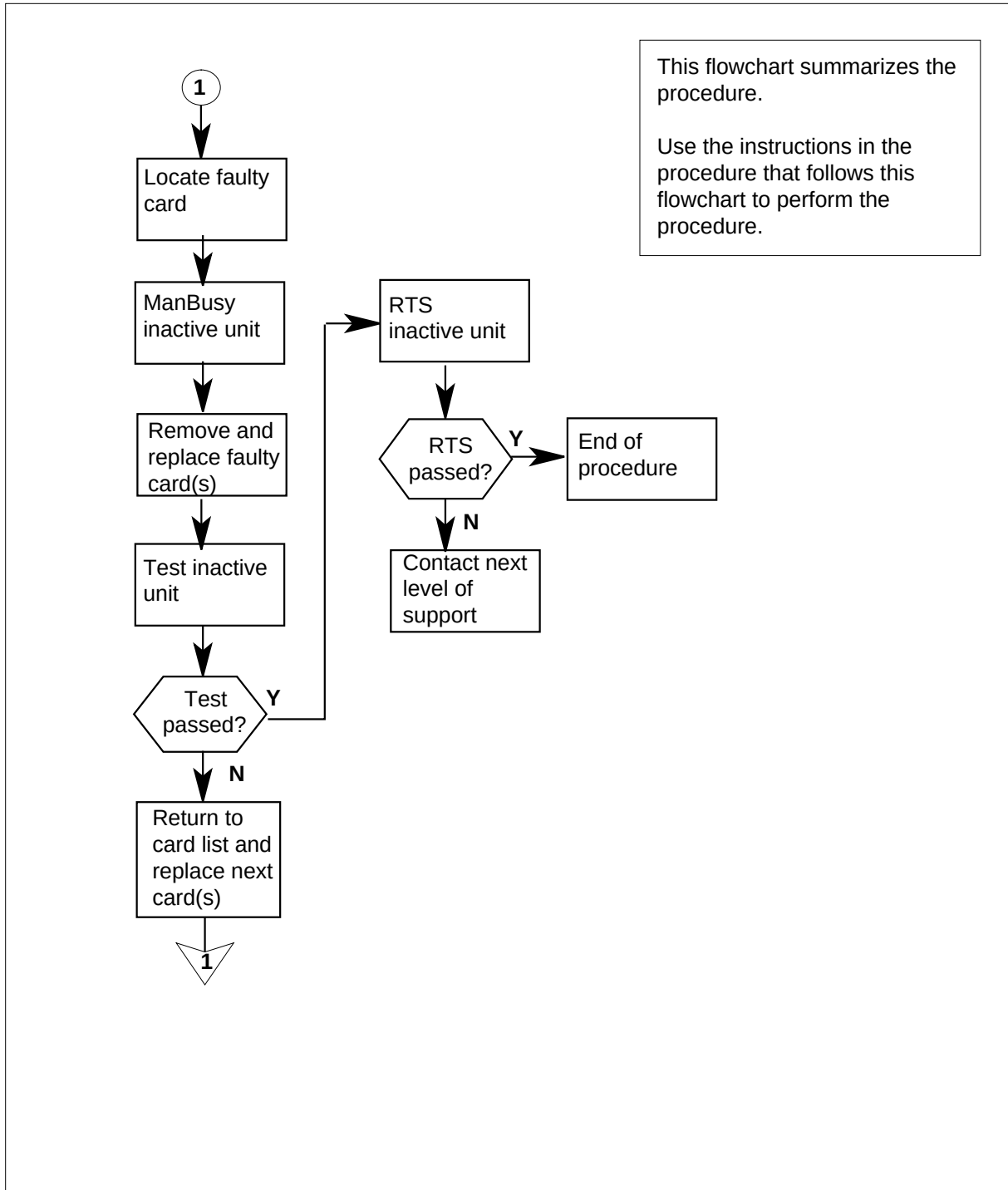
| <b>PEC</b> | <b>Suffixes</b> | <b>Name</b>                             |
|------------|-----------------|-----------------------------------------|
| NT6X69     | AC, AD,<br>QA   | CPP Message Protocol and Tone Generator |

### **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.

---

| <b>If faulty card is on</b> | <b>Do</b> |
|-----------------------------|-----------|
| 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<br>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

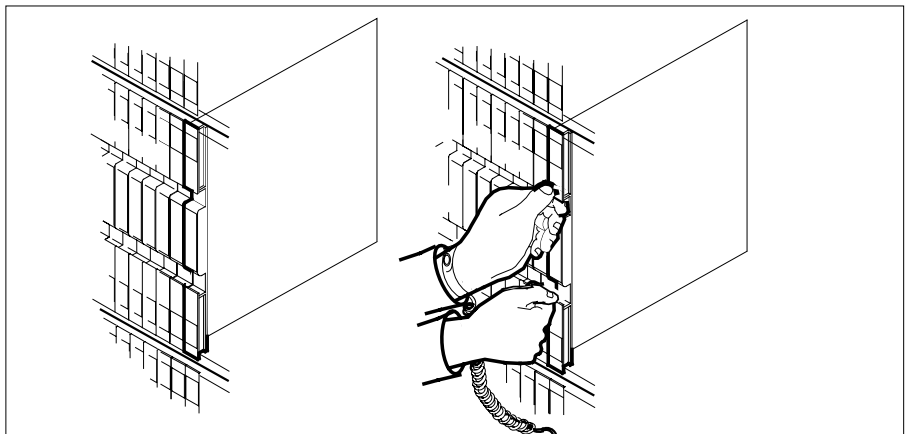
#### Equipment damage

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.

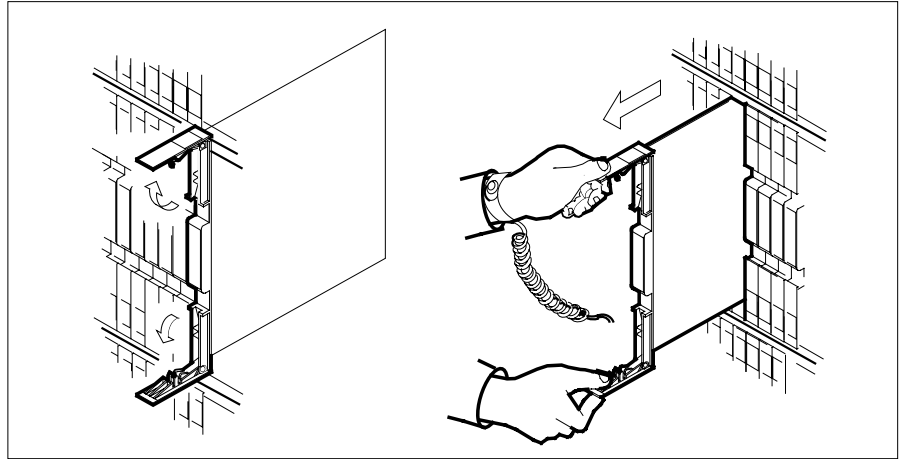
Remove the NT6X69 card as shown in the following figures.

**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.

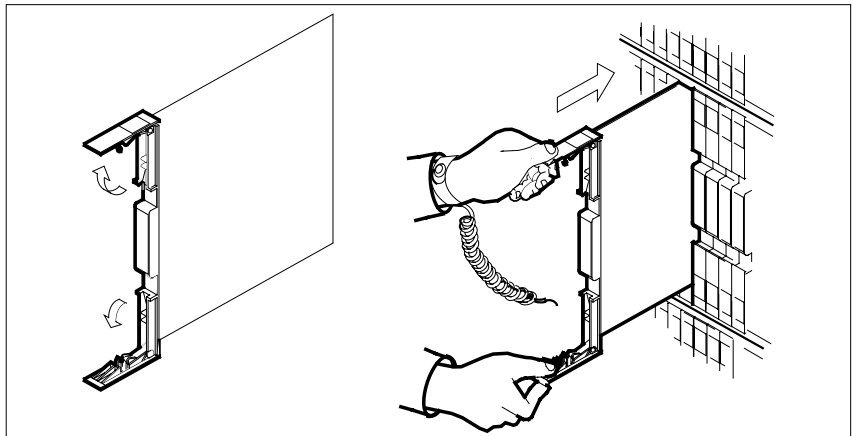
13

**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.

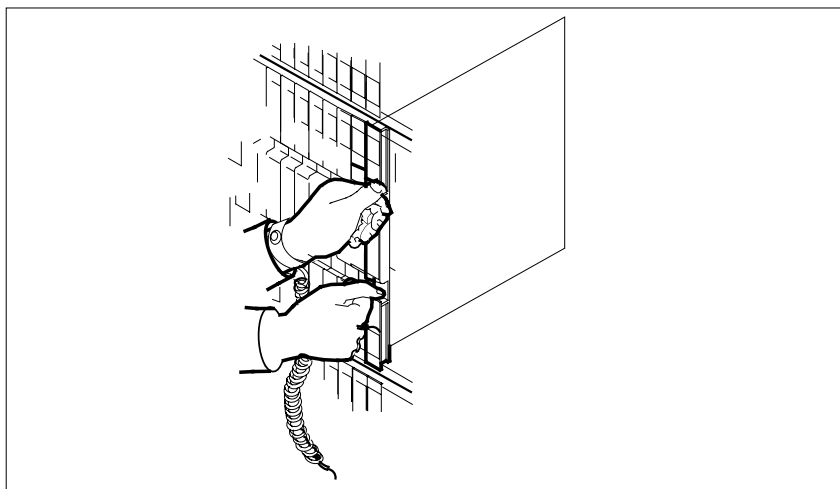


## NT6X69

### in an SMS-R (continued)

---

- 14 Seat and lock the card.
- 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.
  - 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.

| <b>PEC</b> | <b>Suffixes</b>   | <b>Name</b>                    |
|------------|-------------------|--------------------------------|
| NT6X69     | AB, AC, AD,<br>QA | Message protocol and tone card |

### **Common procedures**

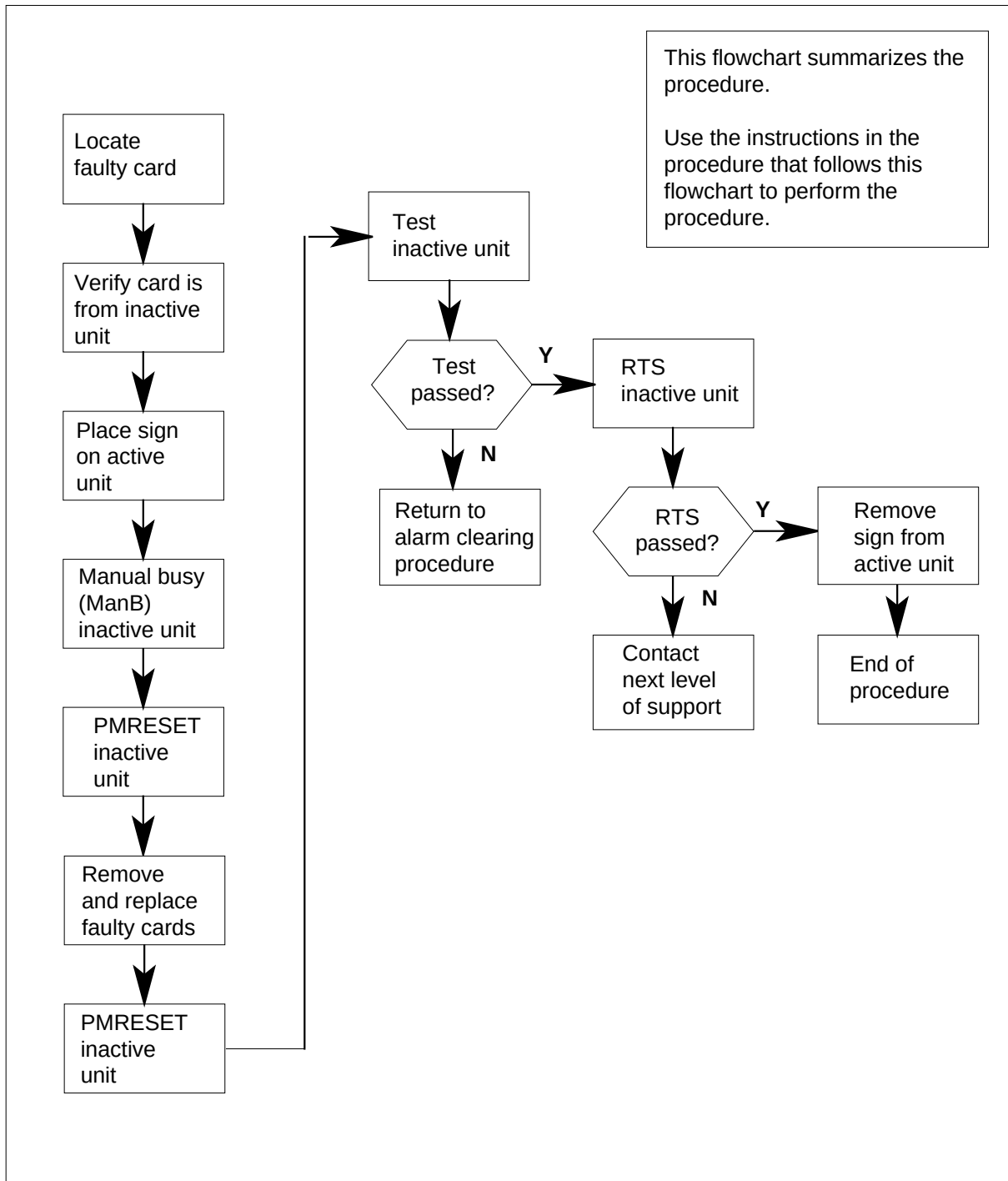
The common replacing a card procedure is referenced in this procedure.

### **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:<br>XPM SwActback | step 7 |
| SwAct refused by SwAct<br>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

|           | <b>If RTS</b>                                                                                                                                                                                                                                                                               | <b>Do</b> |
|-----------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|
|           | passed                                                                                                                                                                                                                                                                                      | step 18   |
|           | failed                                                                                                                                                                                                                                                                                      | step 17   |
| <b>16</b> | Return to the <i>Alarm Clearing Procedures</i> .<br>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.                                                      |           |
| <b>17</b> | Contact personnel responsible for higher level support and get further help to replace this card.                                                                                                                                                                                           |           |
| <b>18</b> | Send any faulty cards for repair according to local procedure.                                                                                                                                                                                                                              |           |
| <b>19</b> | Record the following items in the office records: <ul style="list-style-type: none"> <li>• date the card was replaced</li> <li>• serial number of the card</li> <li>• symptoms that prompted replacement of the card</li> </ul>                                                             |           |
| <b>20</b> | 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.                                                                                    |           |
| <b>21</b> | For further assistance with switch of activity, contact the personnel responsible for the next level of support.<br><br><b>Note:</b> 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).

| <b>PEC</b> | <b>Suffixes</b> | <b>Name</b>    |
|------------|-----------------|----------------|
| NT6X71     | AA              | Data line card |

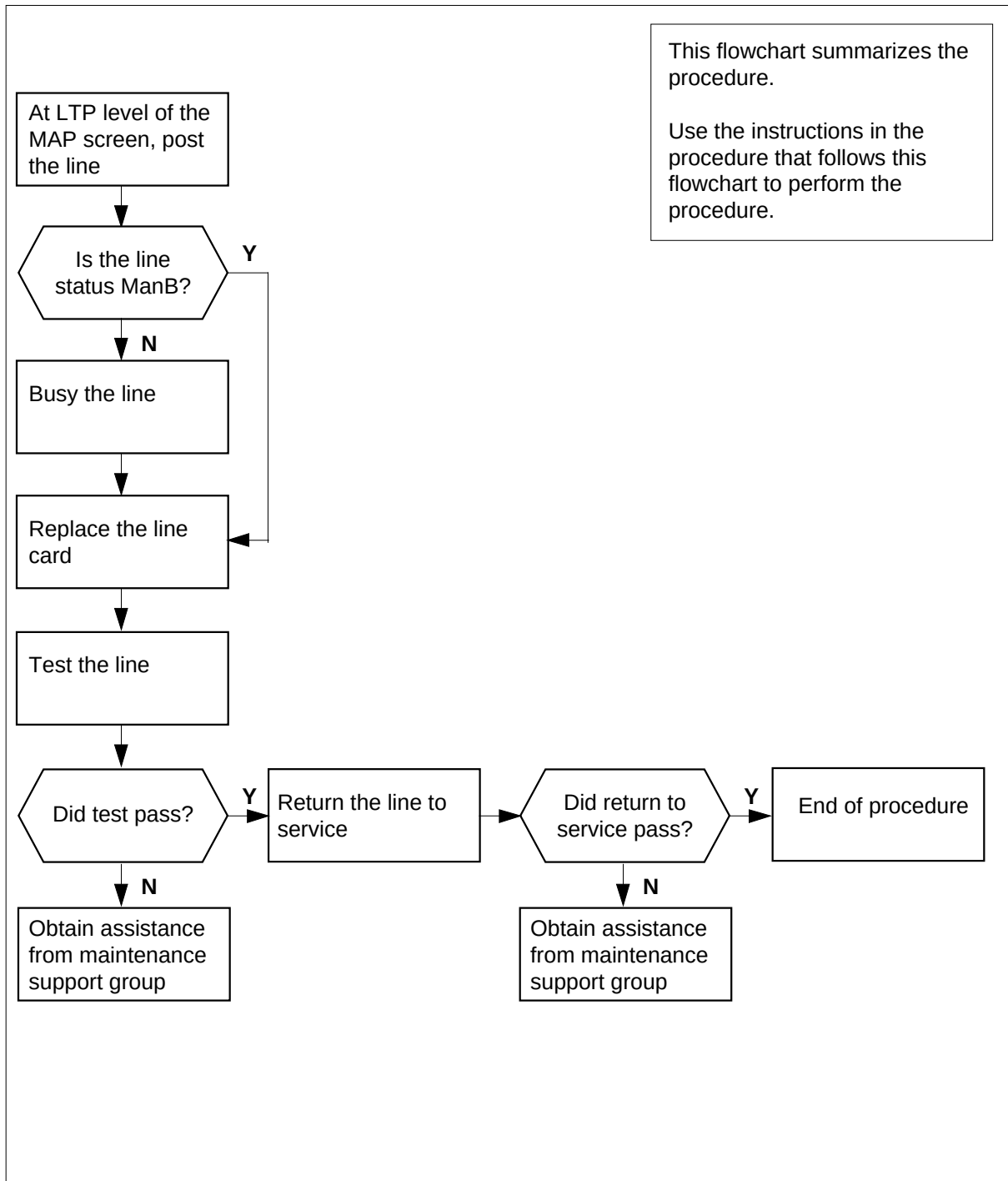
### **Common procedures**

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)**

---

|           | <b>If the DIAG</b>                                                                                                                                                                                                                         | <b>Do</b> |
|-----------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|
|           | failed                                                                                                                                                                                                                                     | step 10   |
| <b>7</b>  | Return the line card to service by typing<br><b>&gt;RTS</b><br>and pressing the Enter key.                                                                                                                                                 |           |
|           | <b>If RTS</b>                                                                                                                                                                                                                              | <b>Do</b> |
|           | passed                                                                                                                                                                                                                                     | step 8    |
|           | failed                                                                                                                                                                                                                                     | step 10   |
| <b>8</b>  | Send any faulty cards for repair according to local procedure.                                                                                                                                                                             |           |
| <b>9</b>  | Record the following items in office records: <ul style="list-style-type: none"> <li>• date the card was replaced</li> <li>• serial number of the card</li> <li>• symptoms that prompted replacement of the card</li> </ul> Go to step 11. |           |
| <b>10</b> | Obtain further assistance in replacing this card by contacting the personnel responsible for higher level of support.                                                                                                                      |           |
| <b>11</b> | You have successfully completed this procedure.                                                                                                                                                                                            |           |

## **NT6X71 in an OPM**

---

### **Application**

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

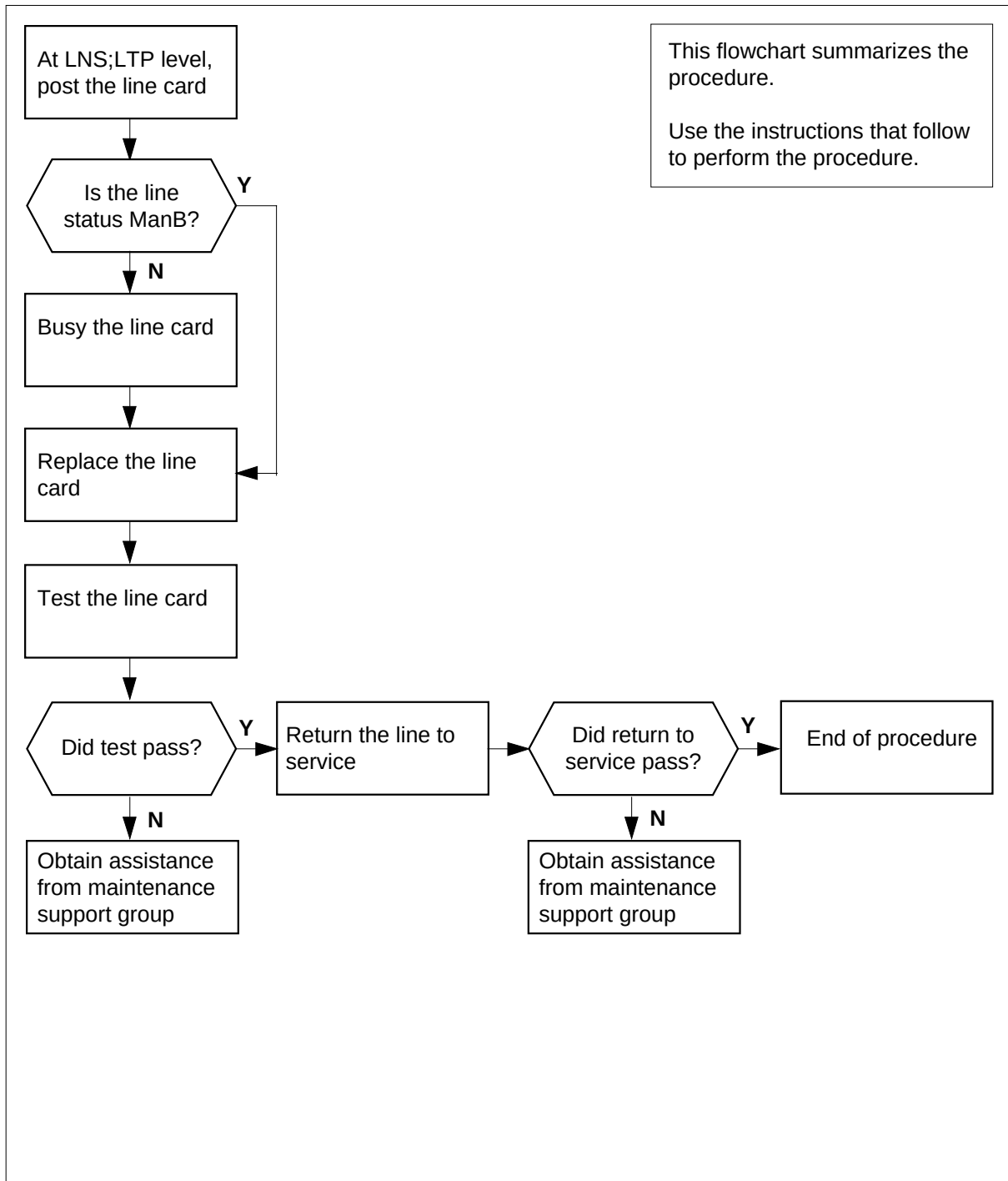
| <b>PEC</b> | <b>Suffixes</b> | <b>Name</b>                   |
|------------|-----------------|-------------------------------|
| NT6X71     | AA              | Data line card DMS-100/SL-100 |

### **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.

| <b>If the DIAG</b> | <b>Do</b> |
|--------------------|-----------|
| passed             | step 7    |
| failed             | step 10   |

- 7** Return the line card to service by typing

**>RTS**

and pressing the Enter key.

| <b>If RTS</b> | <b>Do</b> |
|---------------|-----------|
| 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.

| <b>PEC</b> | <b>Suffixes</b> | <b>Name</b>    |
|------------|-----------------|----------------|
| NT6X71     | AA              | Data line card |

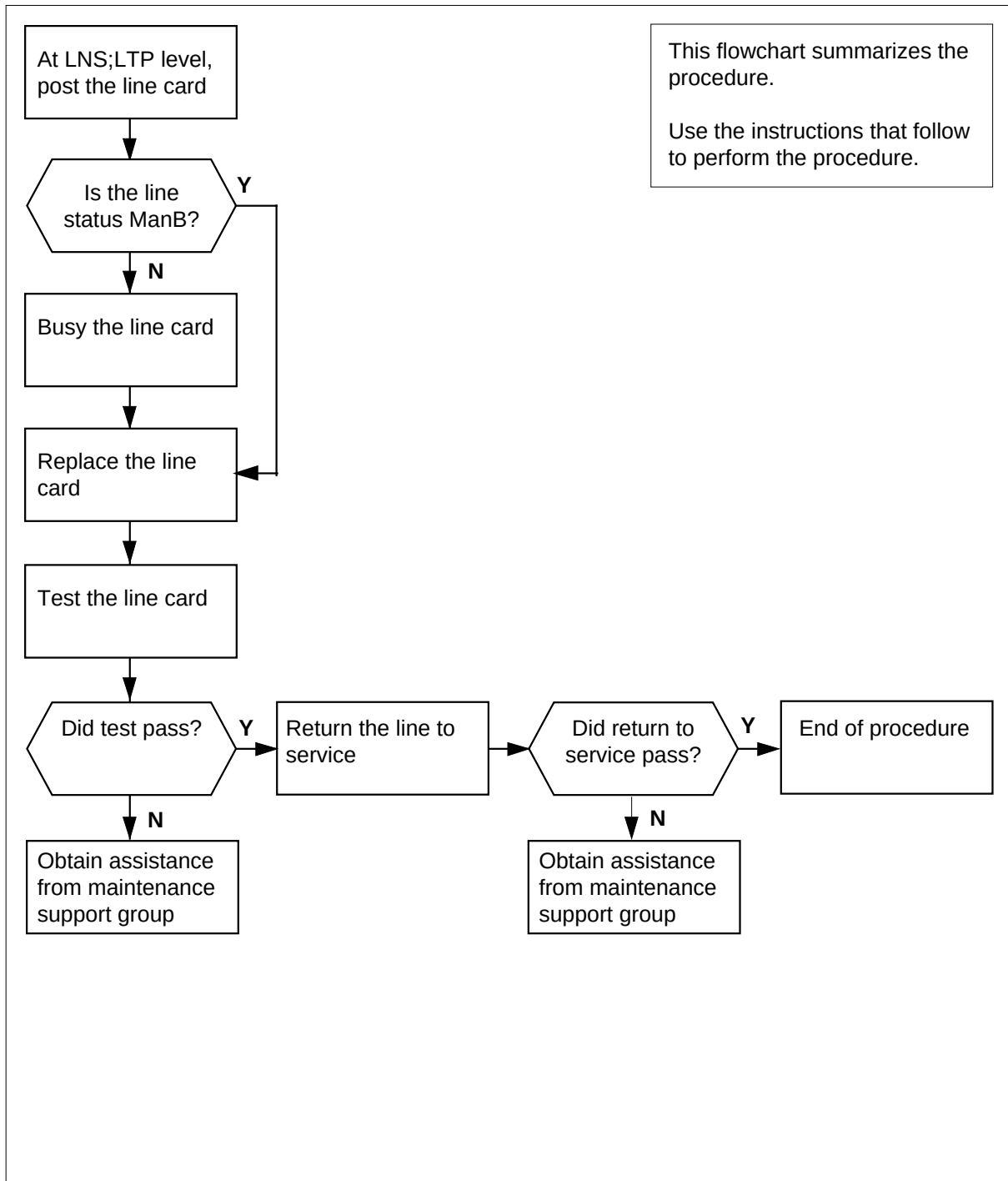
### **Common procedures**

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.

| <b>If the DIAG</b> | <b>Do</b> |
|--------------------|-----------|
| passed             | step 7    |
| failed             | step 10   |

- 7** Return the line card to service by typing

**>RTS**

and pressing the Enter key.

| <b>If RTS</b> | <b>Do</b> |
|---------------|-----------|
| 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.

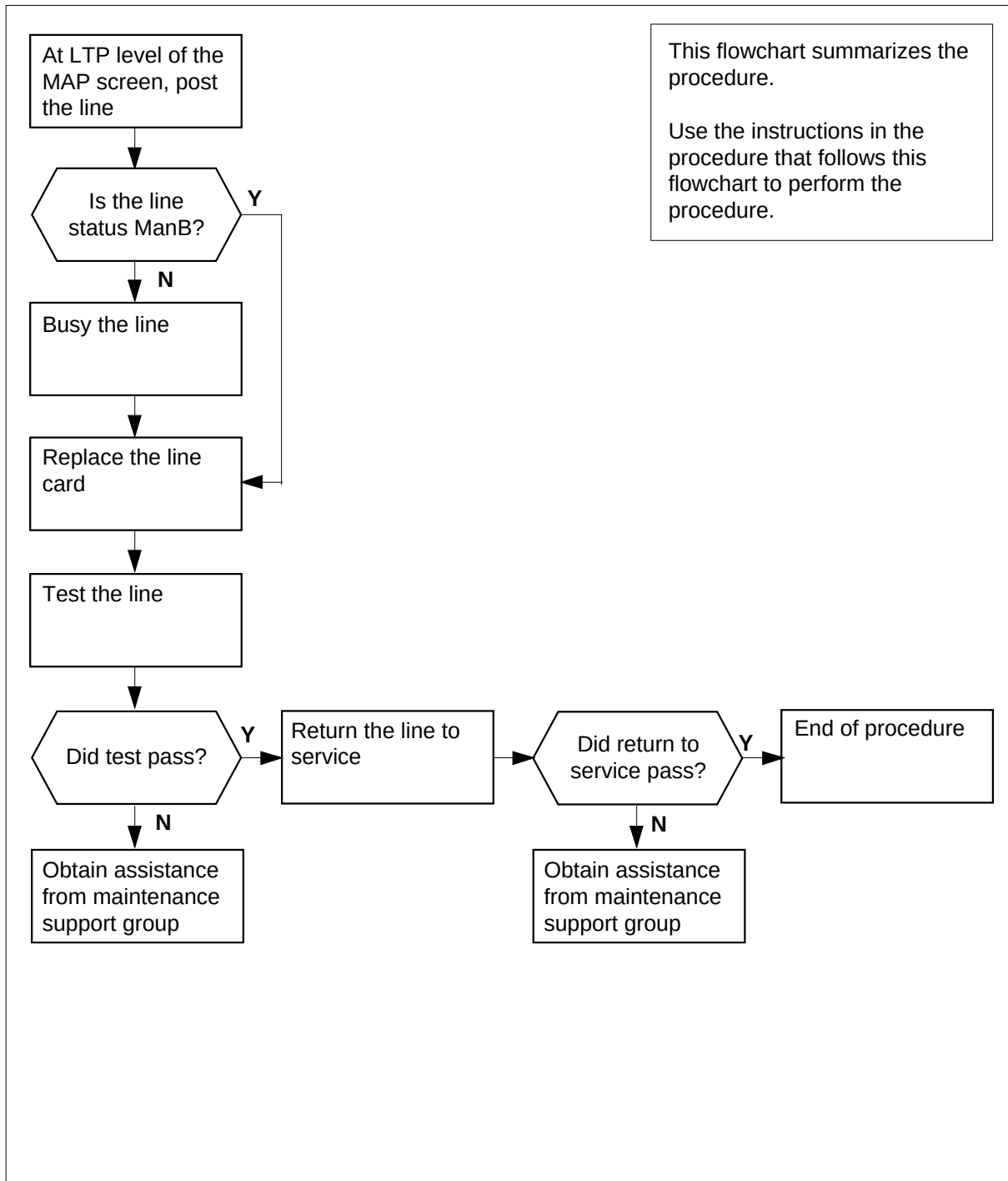
| <b>PEC</b> | <b>Suffixes</b> | <b>Name</b>                 |
|------------|-----------------|-----------------------------|
| NT6X71     | AA              | Data line card (DLC) type D |

### **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.

| <b>PEC</b> | <b>Suffixes</b> | <b>Name</b>          |
|------------|-----------------|----------------------|
| NT6X71     | AA, AB          | Data Line card (DLC) |

### **Common procedures**

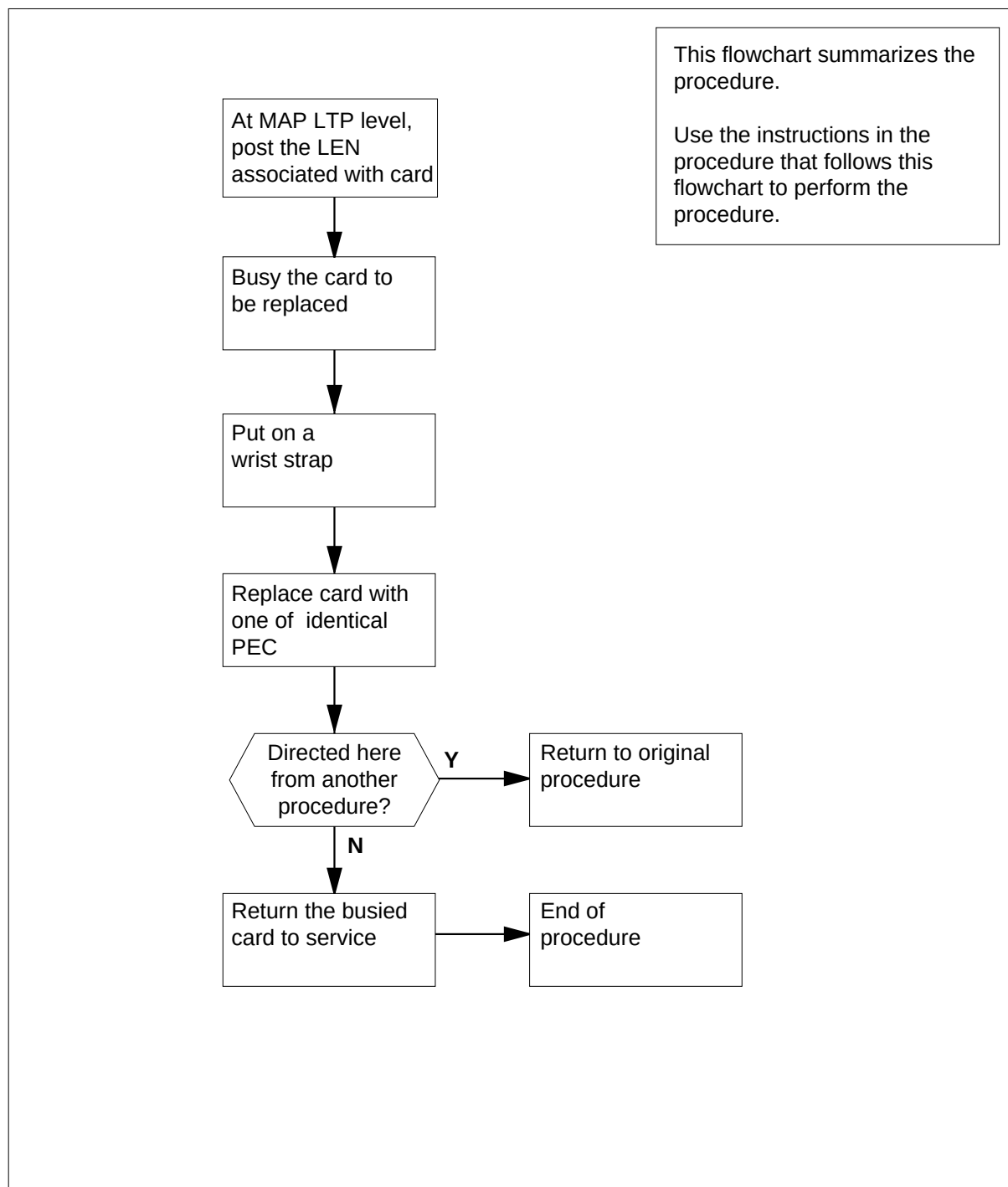
None

### **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<br>insertion /<br>withdrawal<br>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<br>tool for                                                  | Apparatus code | Common product code |
|---------------------------------------------------------------------------|----------------|---------------------|
| 3-4 inch cards                                                            | QTH57A         | A0298292            |
| <b>Note:</b> 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)**

---

|           | <b>If RTS</b>                                                                                                                                                                                                                                                                                           | <b>Do</b> |
|-----------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|
|           | failed                                                                                                                                                                                                                                                                                                  | step 15   |
| <b>12</b> | Send any faulty cards for repair according to local procedure.                                                                                                                                                                                                                                          |           |
| <b>13</b> | 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.                                                                                                                                                            |           |
| <b>14</b> | 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. |           |
| <b>15</b> | Obtain further assistance in replacing this card by contacting operating company maintenance personnel.                                                                                                                                                                                                 |           |
| <b>16</b> | 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**

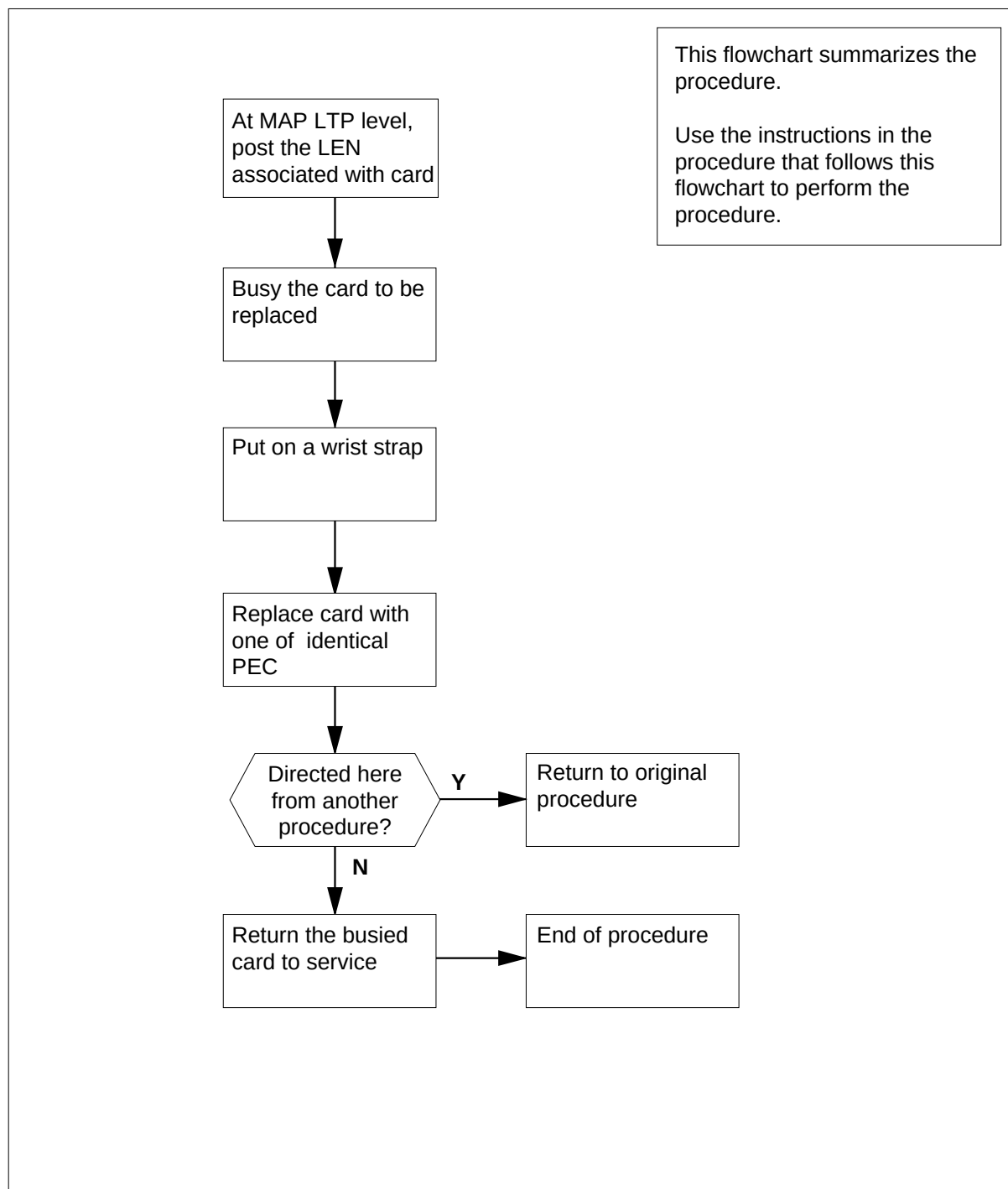
None

**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   |      |      |                 |                 |         |      |     |               |



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**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            |
| <b>Note:</b> 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,<br>AC | Standard line card type D |
| NT6X71 | BA            | Data line card            |

**Common procedures**

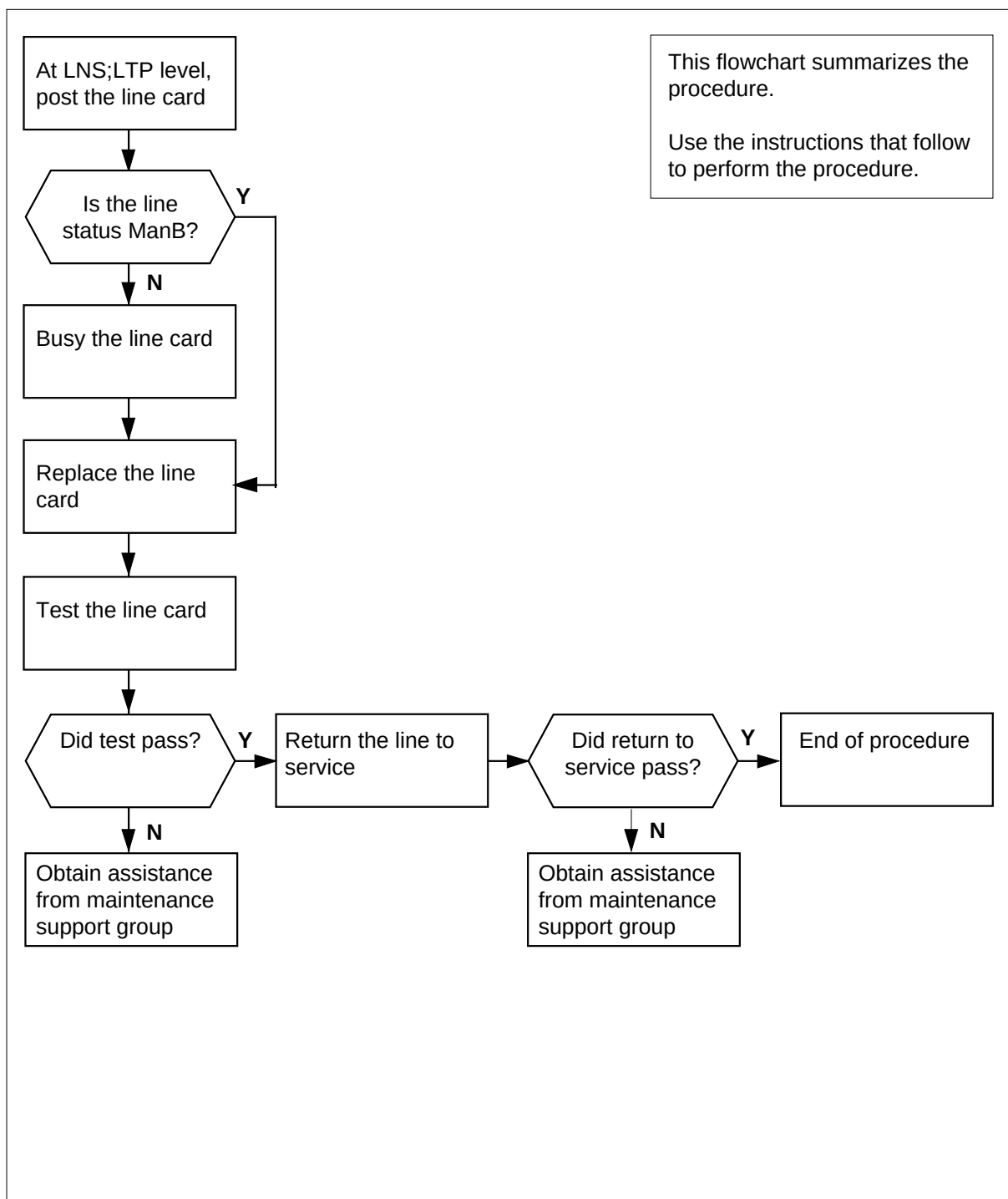
The common replacing a line card procedure is referenced in this procedure.

**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.

---

| <b>If the DIAG</b> | <b>Do</b> |
|--------------------|-----------|
| passes             | step 7    |
| fails              | step 10   |

---

- 7** To return the line card to service, type  
**>RTS**  
and press the Enter key.

---

| <b>If RTS</b> | <b>Do</b> |
|---------------|-----------|
| 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**

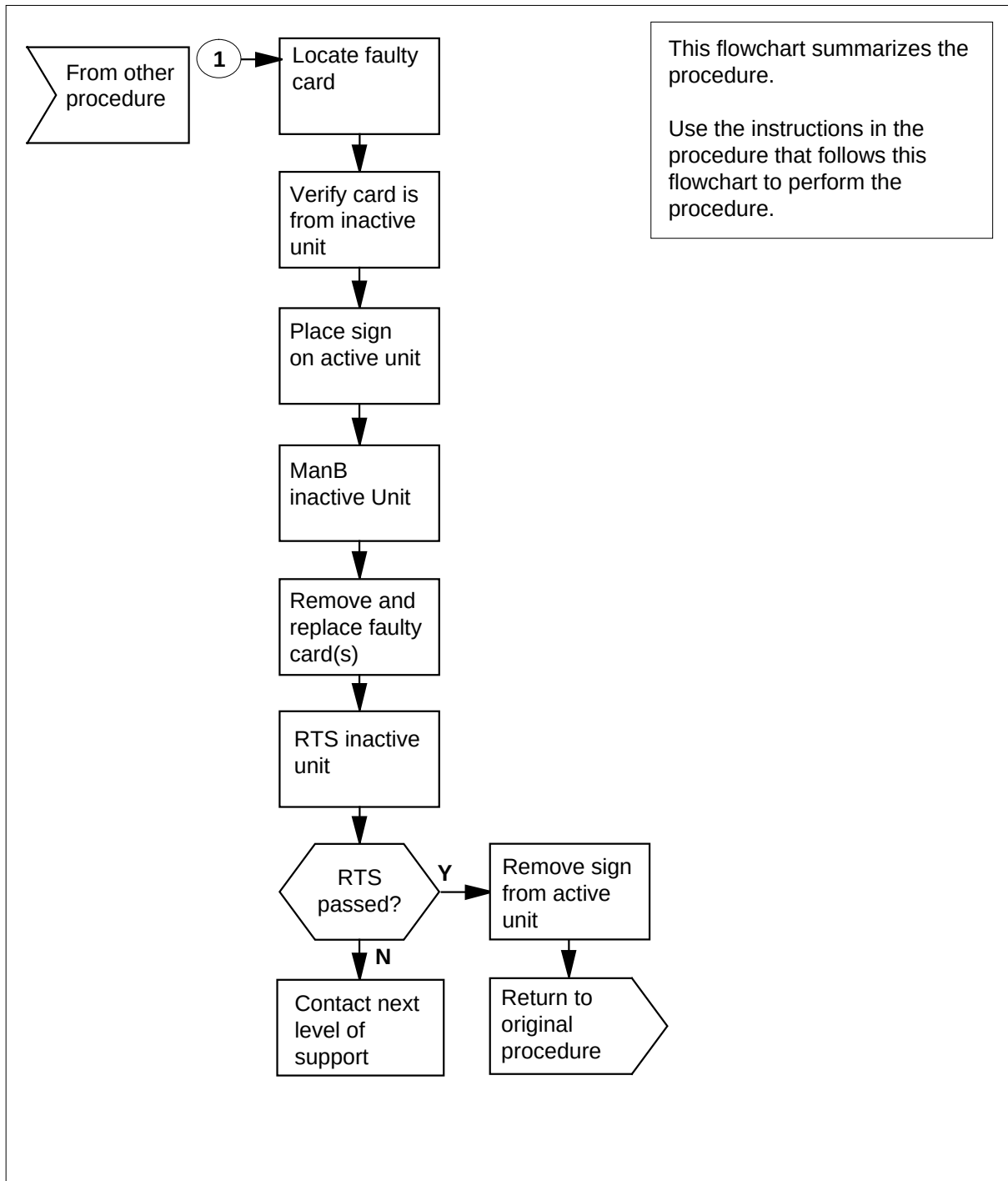
None

**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**

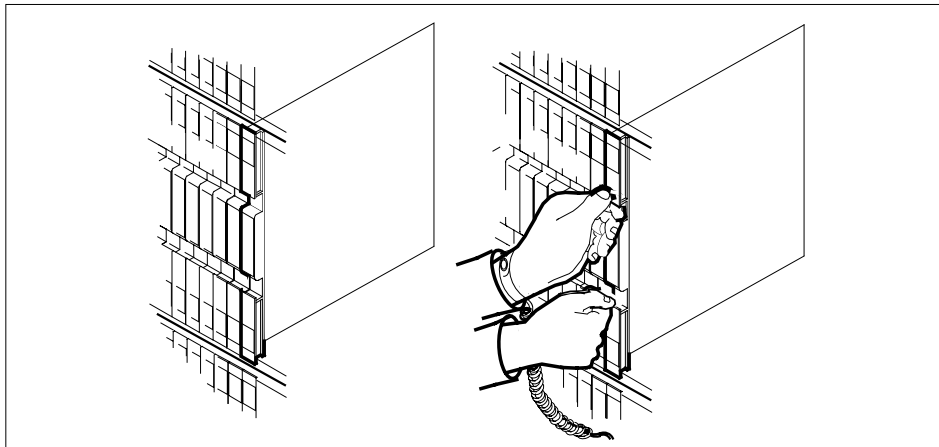
Take the following precautions when removing or inserting a card:

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.

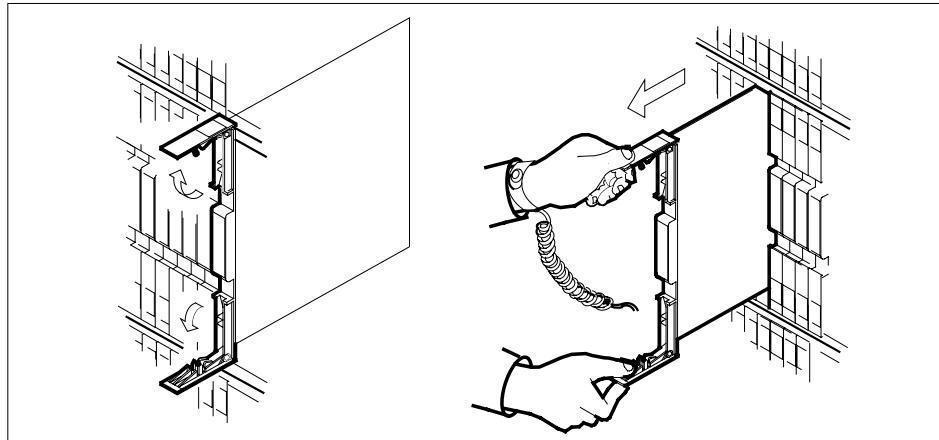
**a** Locate the card to be removed on the appropriate shelf.



**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)

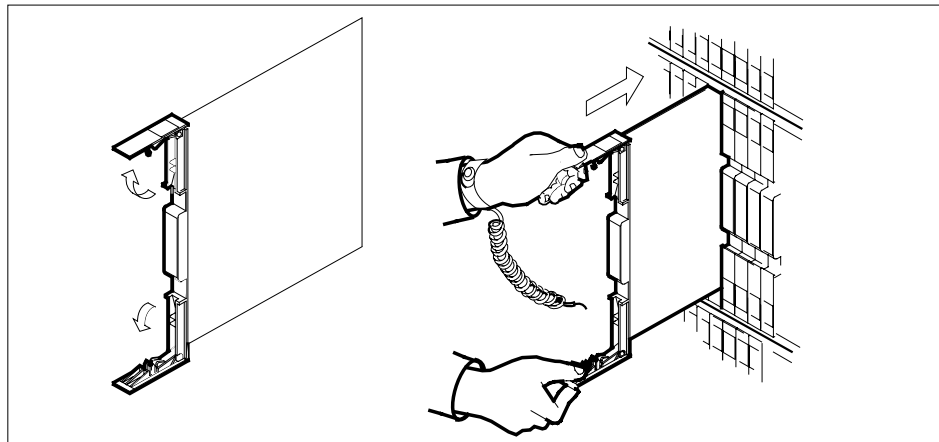
---



- 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.



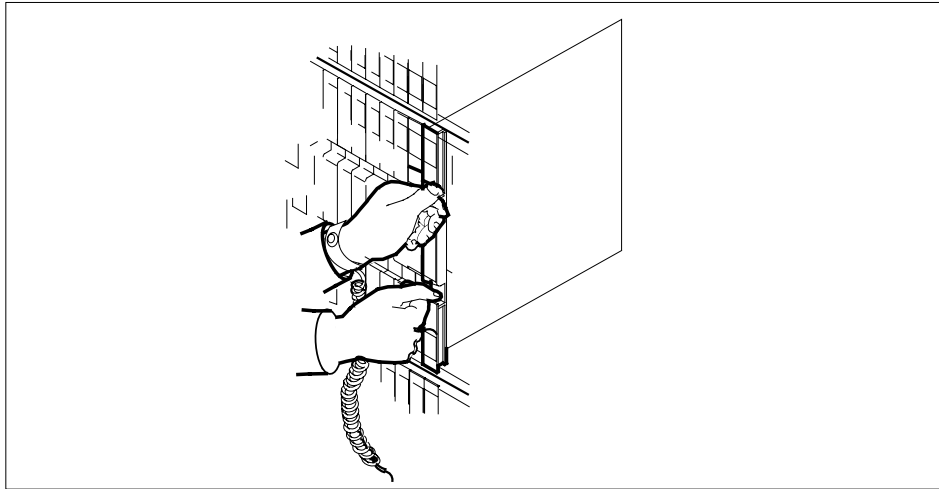
**11** Seat and lock the card.

- 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.

| <b>If you entered this procedure from</b> | <b>Do</b> |
|-------------------------------------------|-----------|
| 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

| <b>If RTS</b> | <b>Do</b> |
|---------------|-----------|
| passed        | step 16   |

## NT6X72

### in an RSC (continued)

|           | If RTS                                                                                                                                                                                                                                                                                  | Do      |
|-----------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|
|           | failed                                                                                                                                                                                                                                                                                  | step 14 |
| <b>14</b> | Load the inactive RCC unit by typing<br><b>&gt;LOADPM UNIT rcc_unit_no</b><br>and pressing the Enter key.<br><i>where</i><br><b>rcc_unit_no</b><br>is the number of the inactive RCC unit                                                                                               |         |
|           | If load                                                                                                                                                                                                                                                                                 | Do      |
|           | passed                                                                                                                                                                                                                                                                                  | step 15 |
|           | failed                                                                                                                                                                                                                                                                                  | step 19 |
| <b>15</b> | Return the inactive RCC unit to service by typing<br><b>&gt;RTS UNIT rcc_unit_no</b><br>and pressing the Enter key.<br><i>where</i><br><b>rcc_unit_no</b><br>is the number of the inactive RCC unit                                                                                     |         |
|           | If the RTS                                                                                                                                                                                                                                                                              | Do      |
|           | passed                                                                                                                                                                                                                                                                                  | step 16 |
|           | failed                                                                                                                                                                                                                                                                                  | step 19 |
| <b>16</b> | Send any faulty cards for repair according to local procedure. Remove sign from active unit.                                                                                                                                                                                            |         |
| <b>17</b> | Record the following items in office records: <ul style="list-style-type: none"> <li>• date the card was replaced</li> <li>• serial number of the card</li> <li>• symptoms that prompted replacement of the card</li> </ul> Go to step 20.                                              |         |
| <b>18</b> | 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. |         |
| <b>19</b> | 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.

| <b>PEC</b> | <b>Suffixes</b> | <b>Name</b>       |
|------------|-----------------|-------------------|
| NT6X73     | AA              | Link control card |

### **Common procedures**

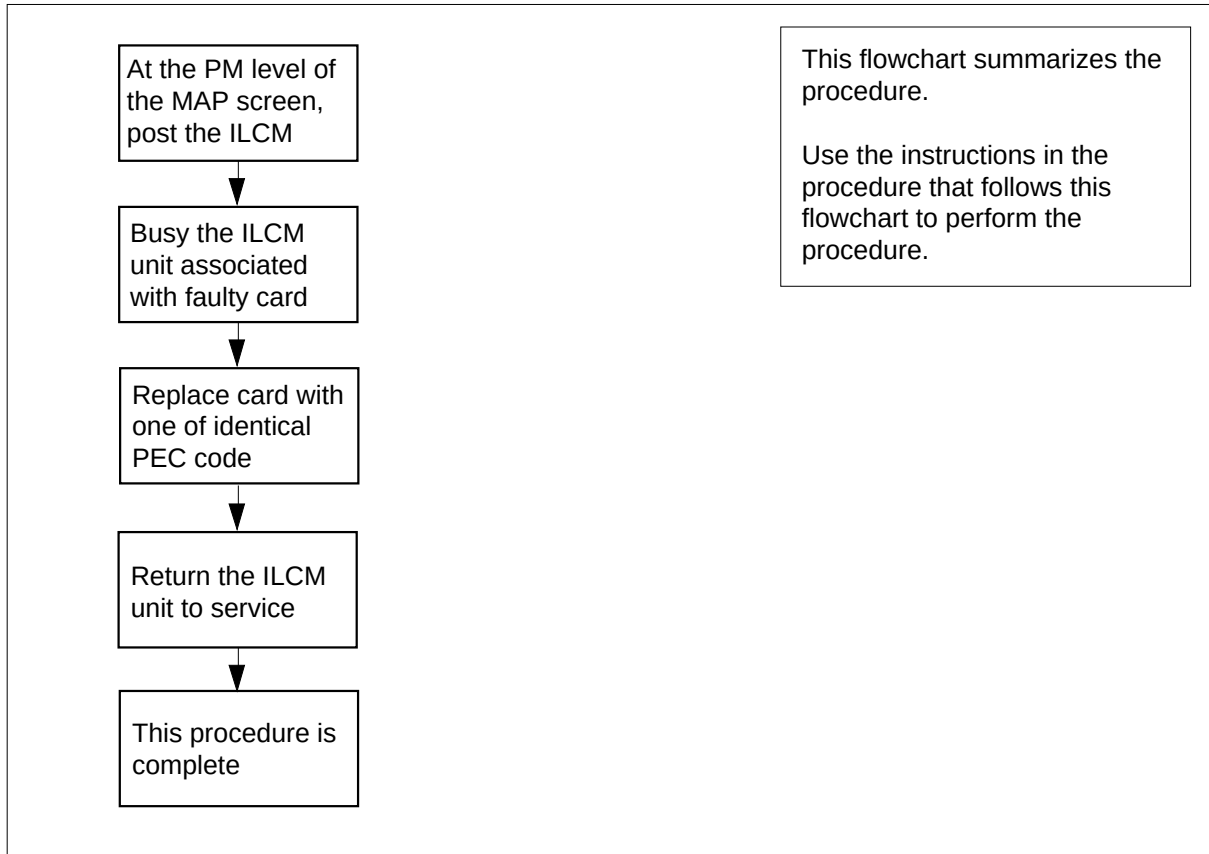
The common replacing a card procedure is referenced in this procedure.

### **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)

---

| <b>If RTS</b> | <b>Do</b> |
|---------------|-----------|
| 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.

| <b>PEC</b> | <b>Suffixes</b> | <b>Name</b>       |
|------------|-----------------|-------------------|
| NT6X73     | AA              | Link control card |

### **Common procedures**

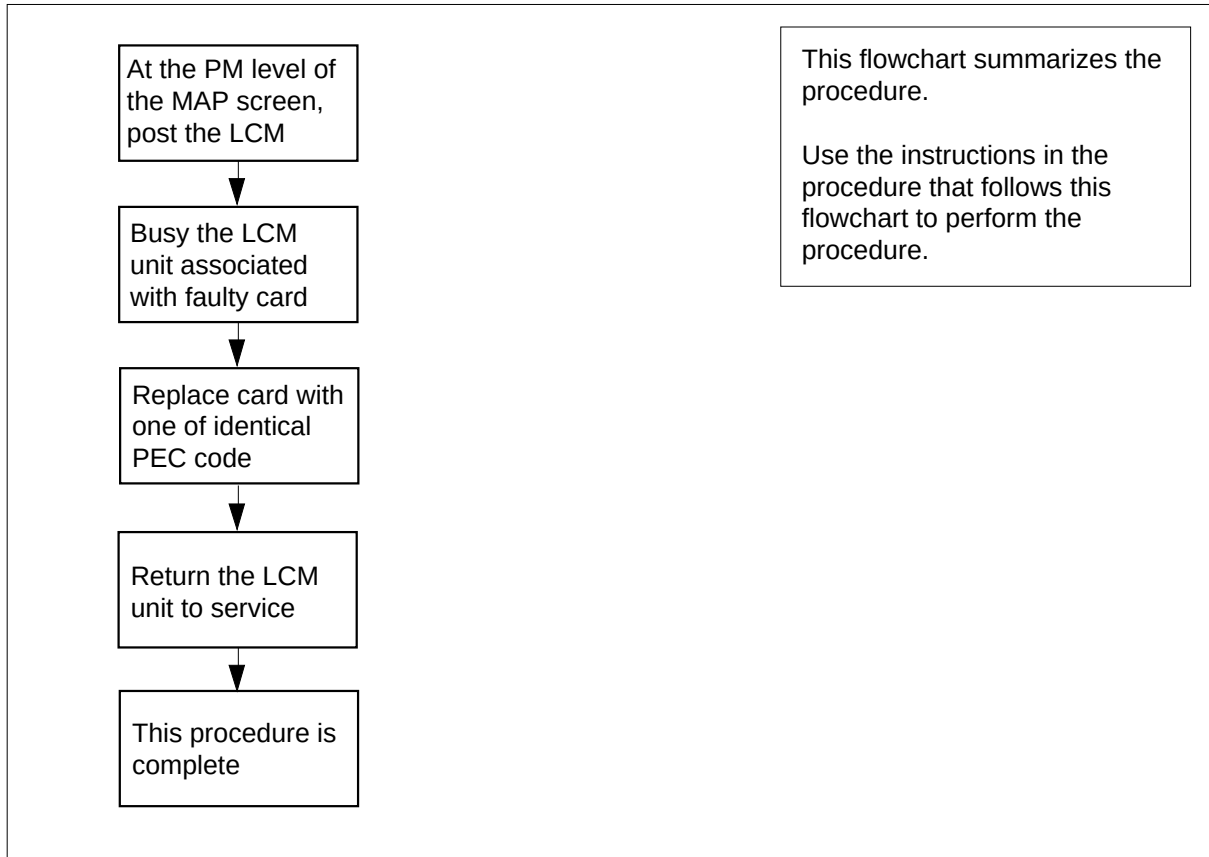
The common replacing a card procedure is referenced in this procedure.

### **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)

---

| <b>If RTS</b> | <b>Do</b> |
|---------------|-----------|
| 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.

| <b>PEC</b> | <b>Suffixes</b> | <b>Name</b>             |
|------------|-----------------|-------------------------|
| NT6X73     | AA              | Link Control Card (LCC) |

### **Common procedures**

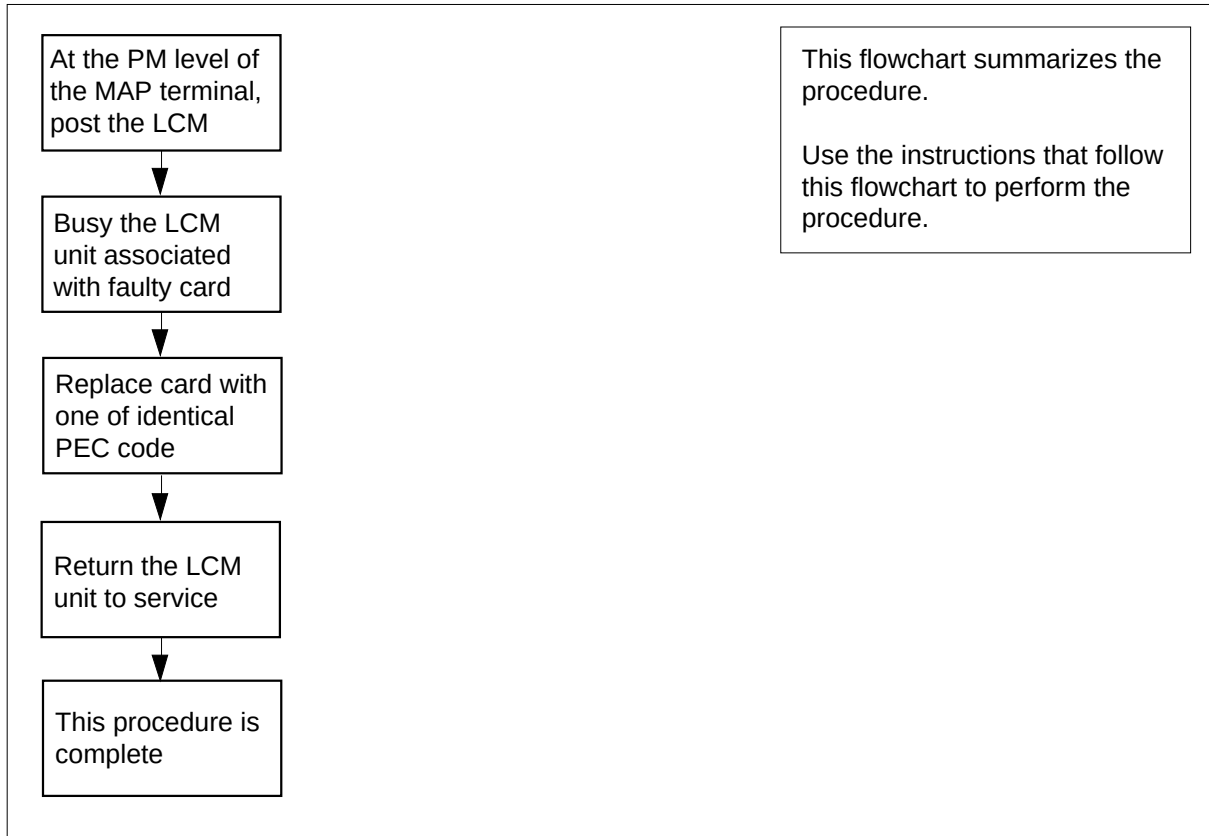
The common replacing a card procedure is referenced in this procedure.

### **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

---

| <b>If RTS</b> | <b>Do</b> |
|---------------|-----------|
| 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:

| <b>PEC</b> | <b>Suffixes</b> | <b>Cardname</b>         | <b>Shelf/frame name</b> |
|------------|-----------------|-------------------------|-------------------------|
| 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**

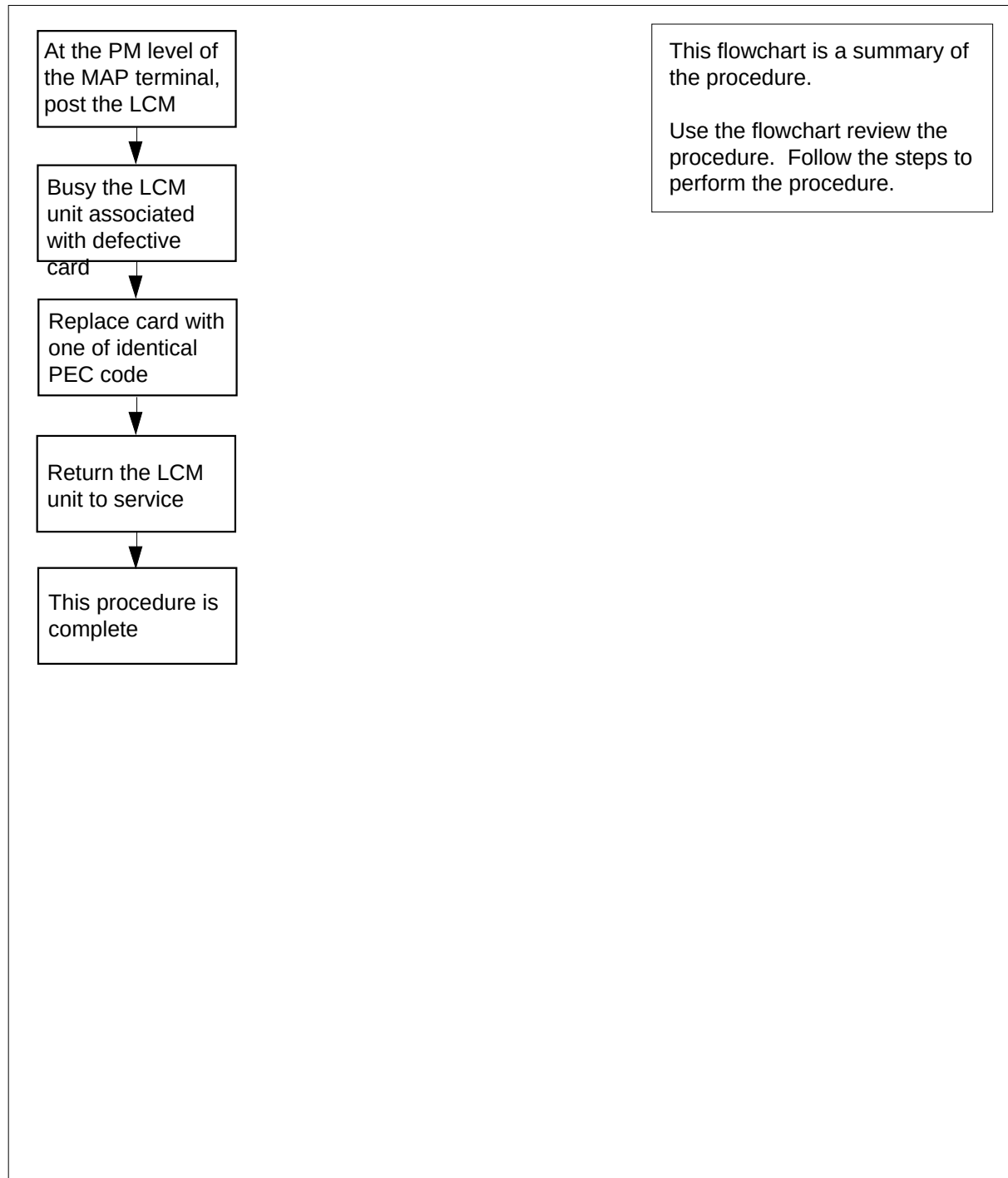
The common replacing a card procedure is referenced in this procedure.

### **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.

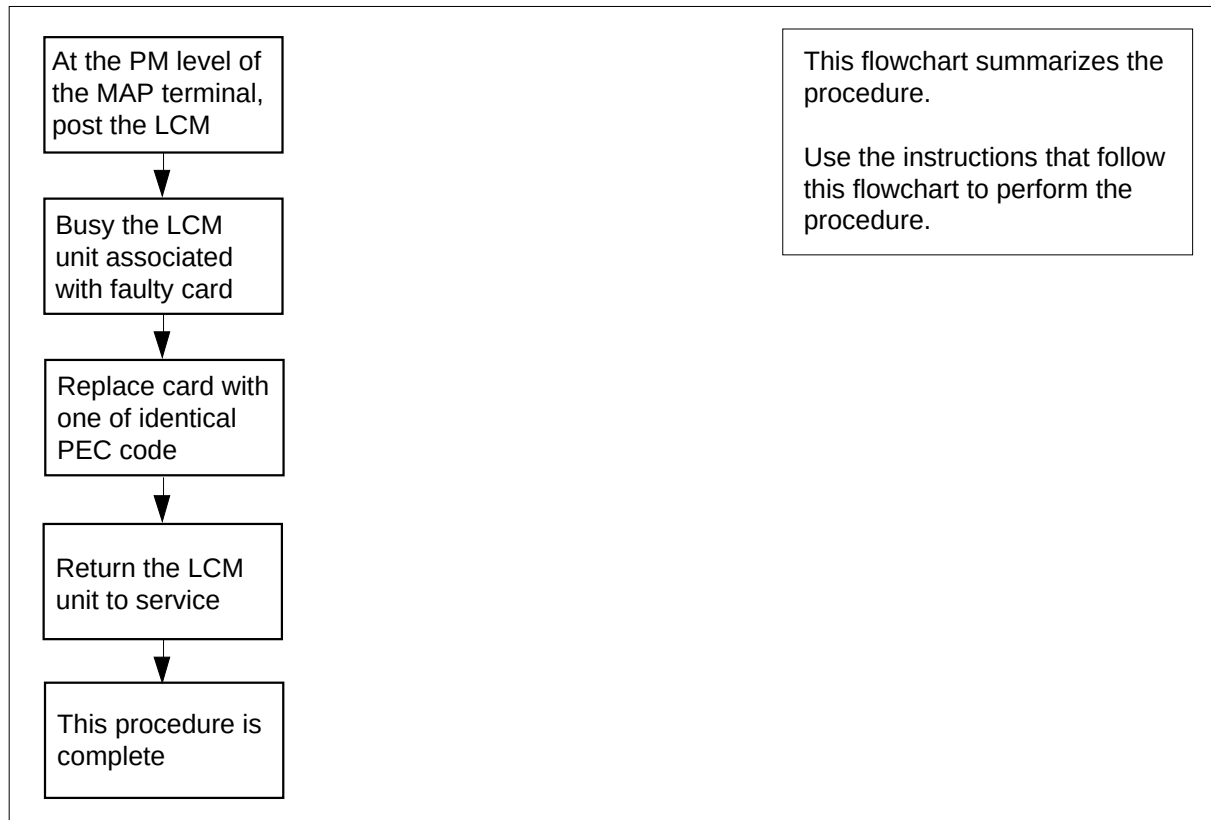
**Action**

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

---

| <b>If RTS</b> | <b>Do</b> |
|---------------|-----------|
| 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**

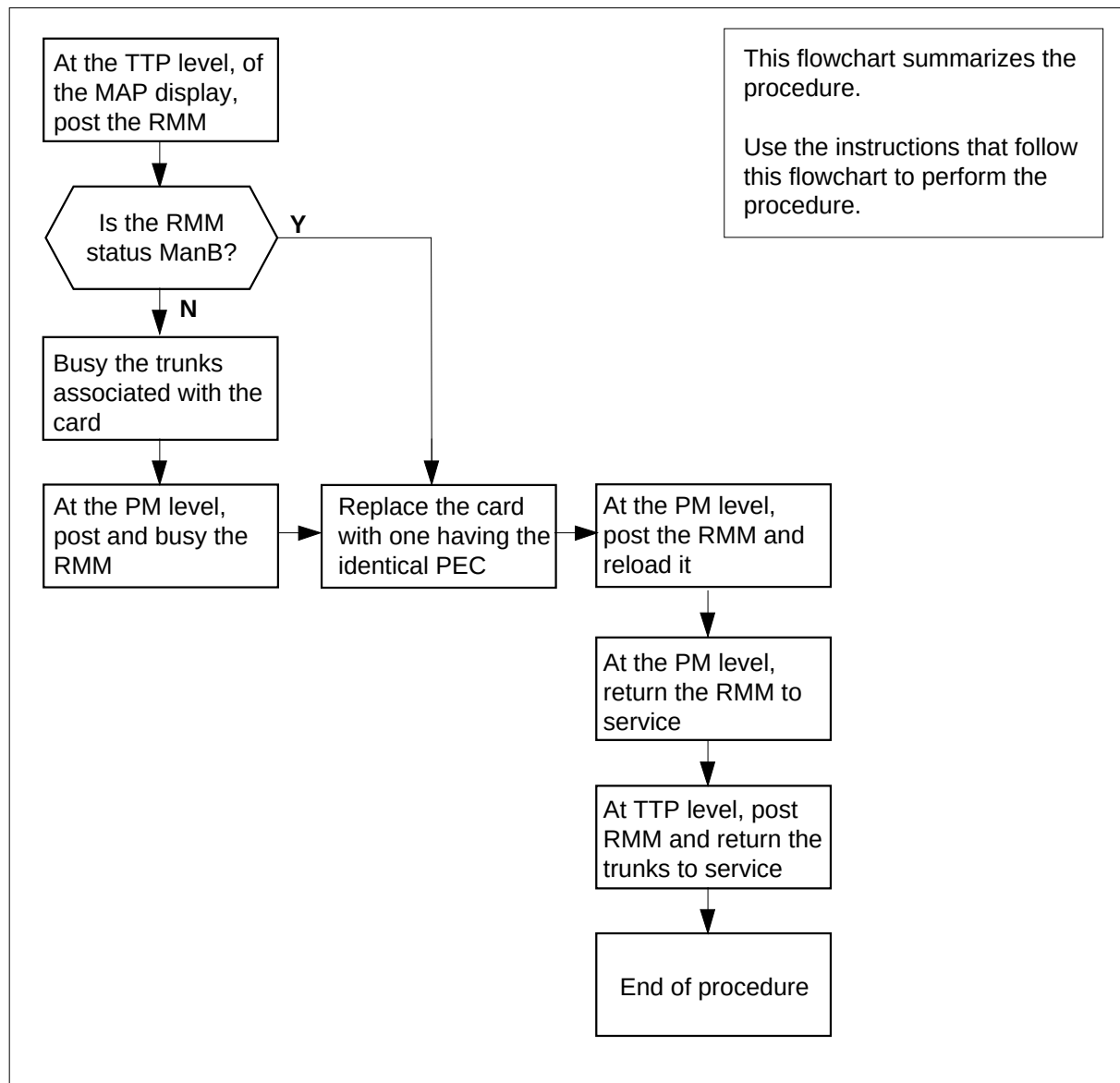
The common replacing a card procedure is referenced in this procedure.

**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.
- | <b>If RTS</b> | <b>Do</b> |
|---------------|-----------|
| 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**

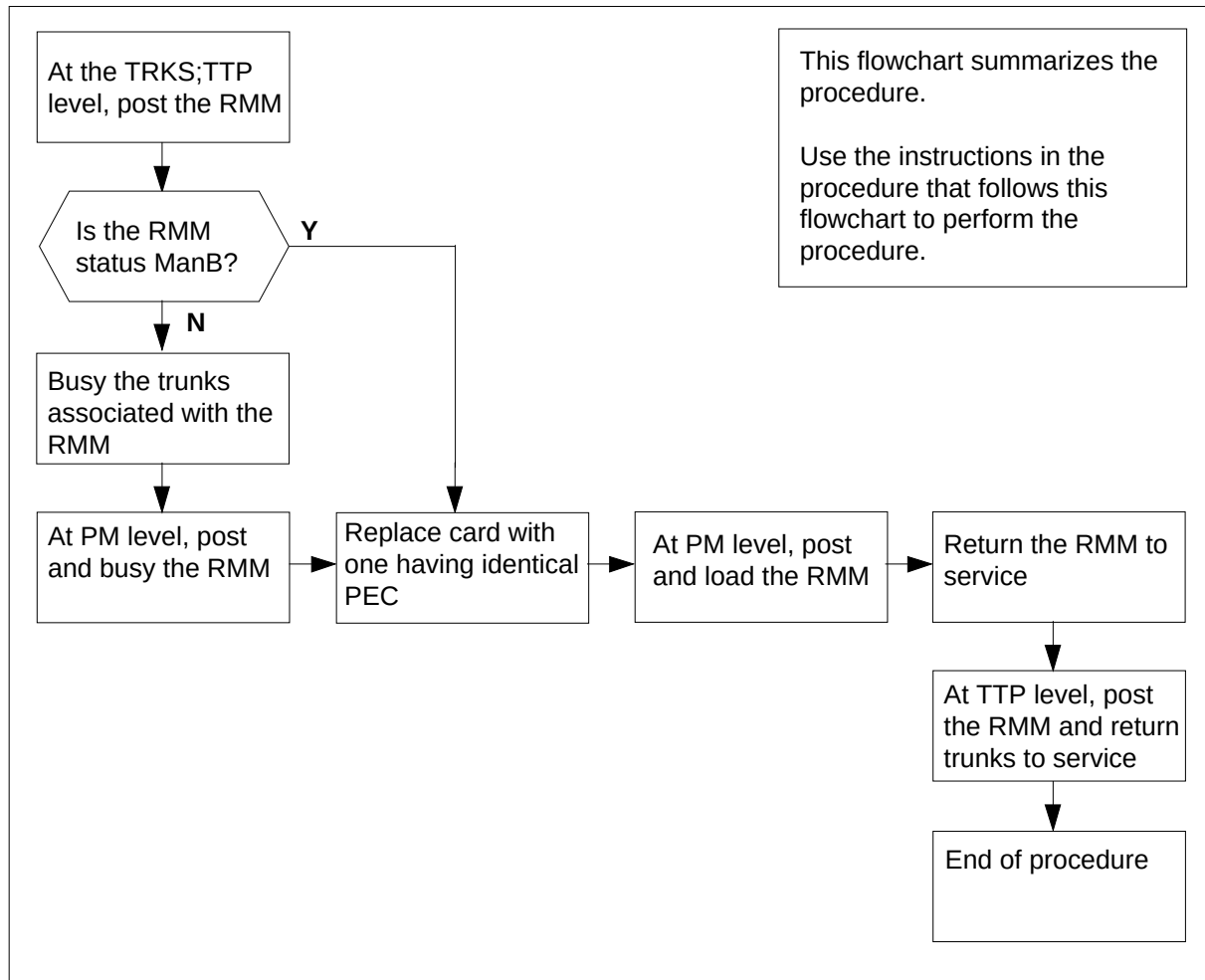
The common replacing a card procedure is referenced in this procedure.

**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.

---

| <b>If RTS</b> | <b>Do</b> |
|---------------|-----------|
| 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.

| <b>PEC</b> | <b>Suffixes</b> | <b>Card name</b> | <b>Shelf/frame name</b> |
|------------|-----------------|------------------|-------------------------|
| NT6X74     | AB              | RMM Control Card | RMM/RLCC                |

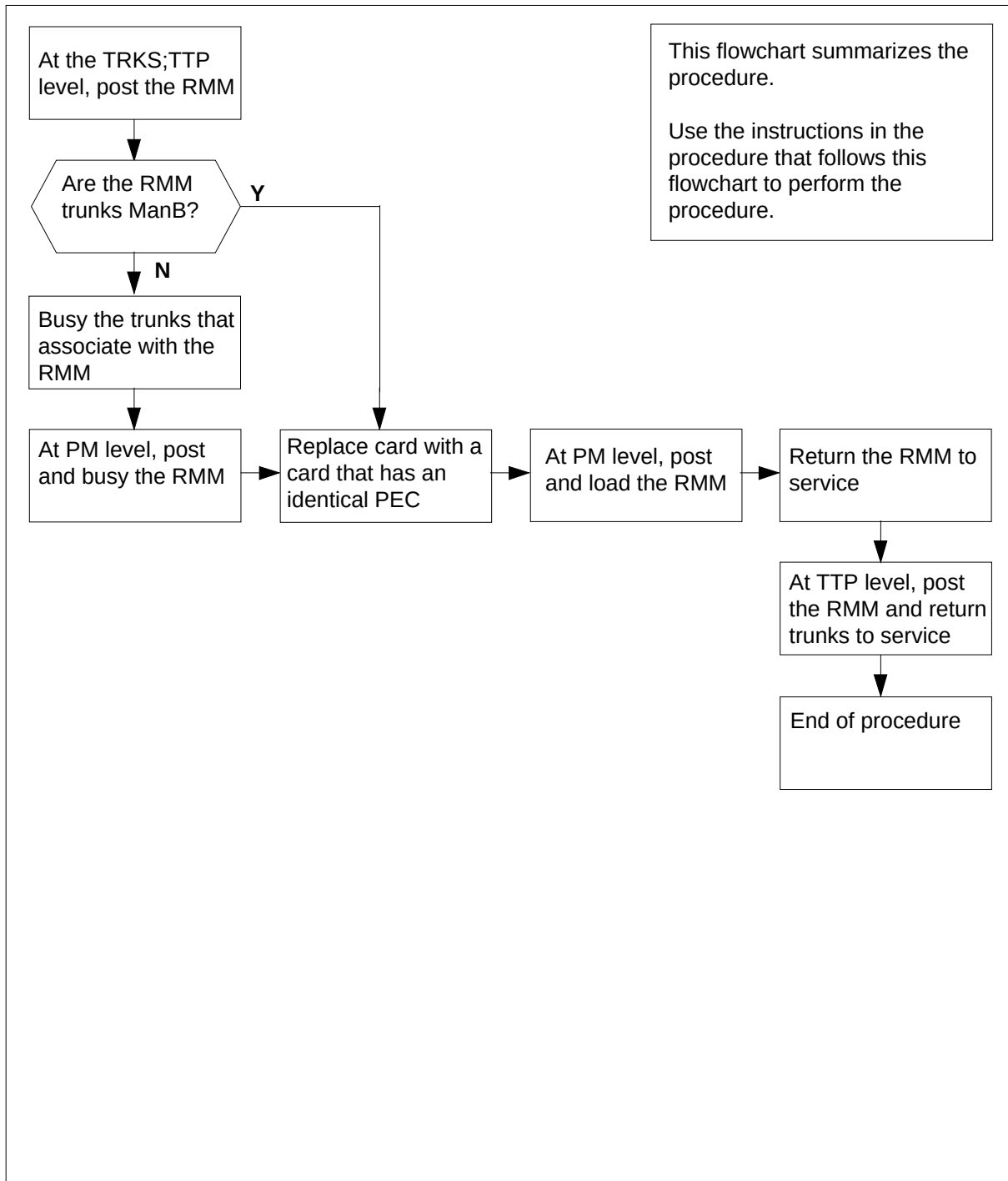
If you cannot identify the PEC, suffix, and shelf or frame for the card you want to replace, refer to the index. The index contains a list of cards, shelves, and frames that this maintenance manual documents.

### **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)

---

- 11** Determine the type of device that holds the PM load files.
- | If load files   | Do      |
|-----------------|---------|
| 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.  
*where*  
**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.  
*where*  
**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.  
*where*  
**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.  
*where*
-



## 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**

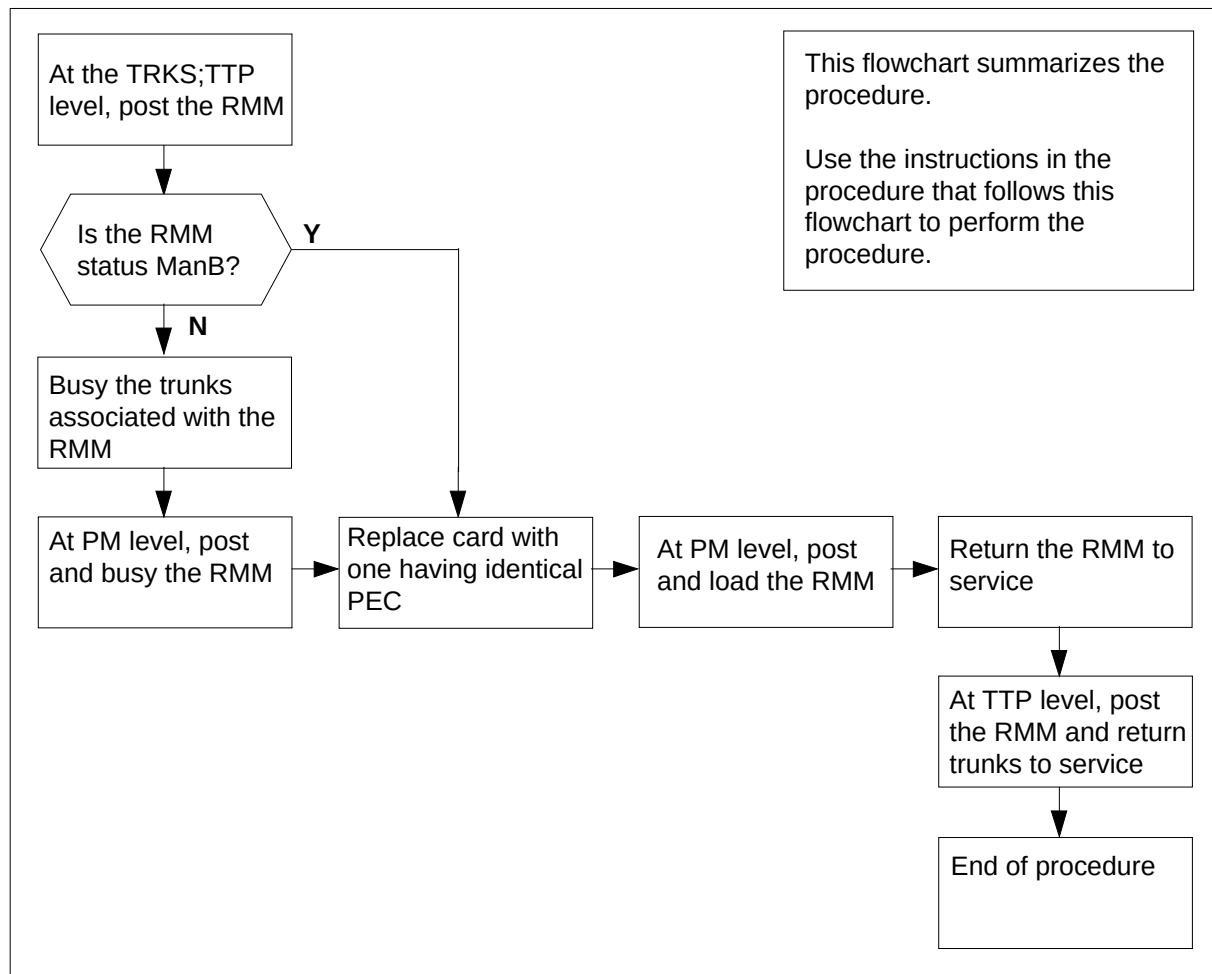
The common replacing a card procedure is referenced in this procedure.

**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 |
| <b>11</b> 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 |
| <b>12</b> Locate the tape that contains the PM load files.                     |  |         |
| <b>13</b> 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.

---

| <b>If RTS</b> | <b>Do</b> |
|---------------|-----------|
| 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.

| <b>PEC</b> | <b>Suffixes</b> | <b>Name</b>      |
|------------|-----------------|------------------|
| NT6X74     | AB              | RMM control card |

### **Common procedures**

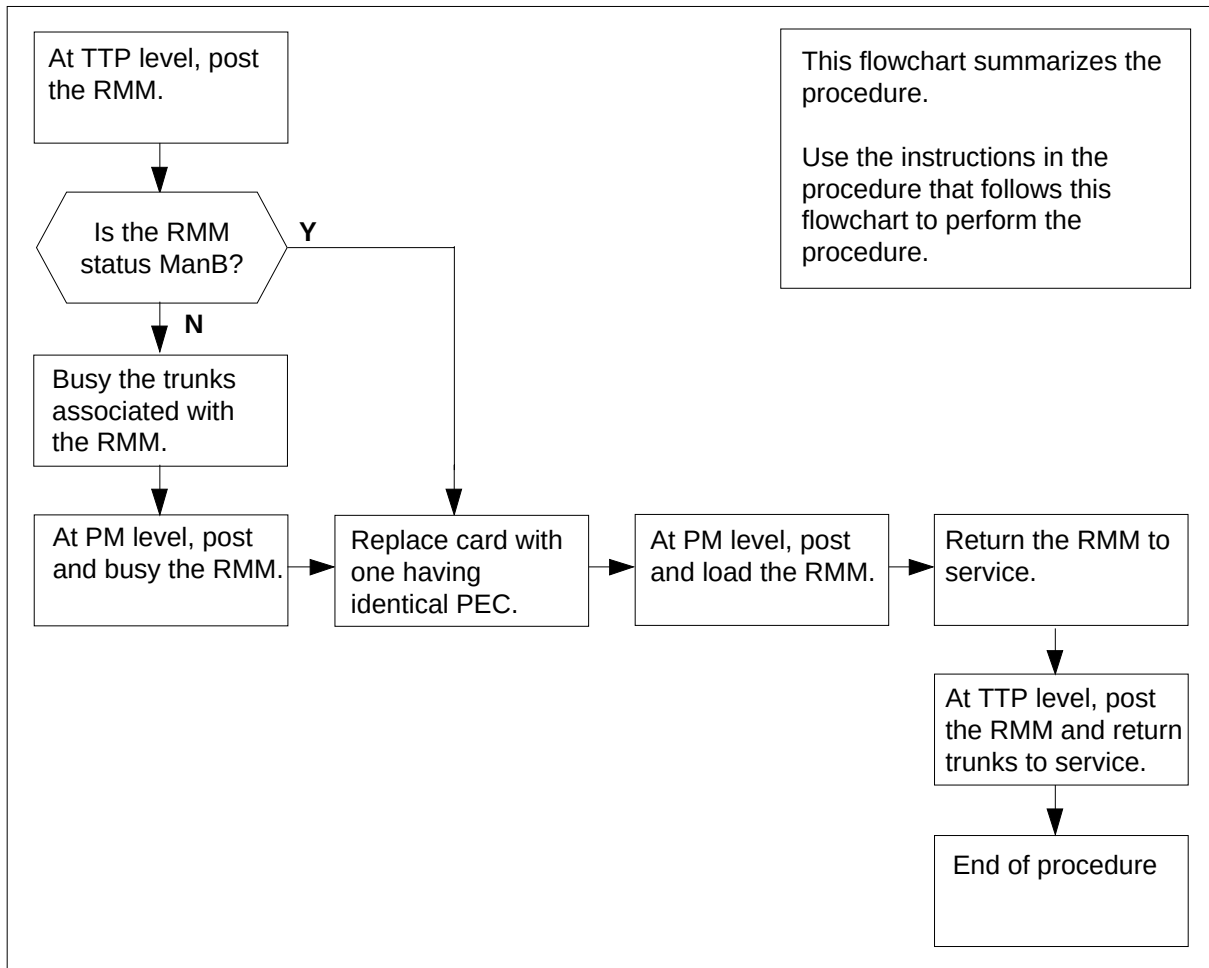
None

### **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**



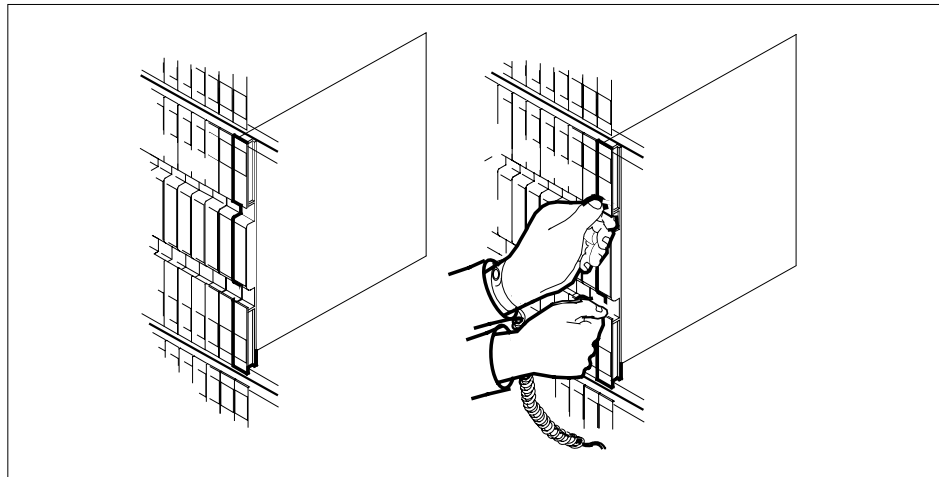
**CAUTION**  
Static discharge may cause damage to circuit packs  
Put on a wrist strap and connect it to the frame of the RMM before removing any cards. This protects the RMM against service degradation caused by static electricity.

Put on a wrist strap.

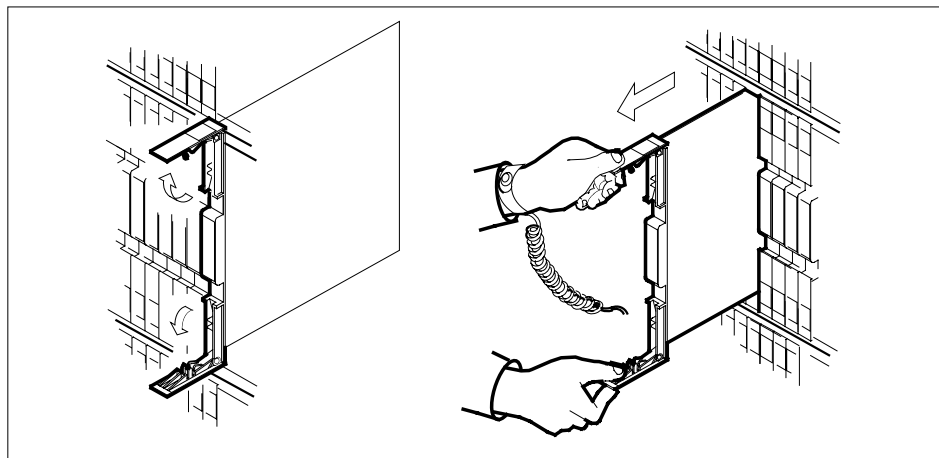
- 8** Remove the NT6X74 card as shown in the following figures.
- a** Locate the card to be removed on the appropriate shelf.

## NT6X74 in an RSC RMM (continued)

---

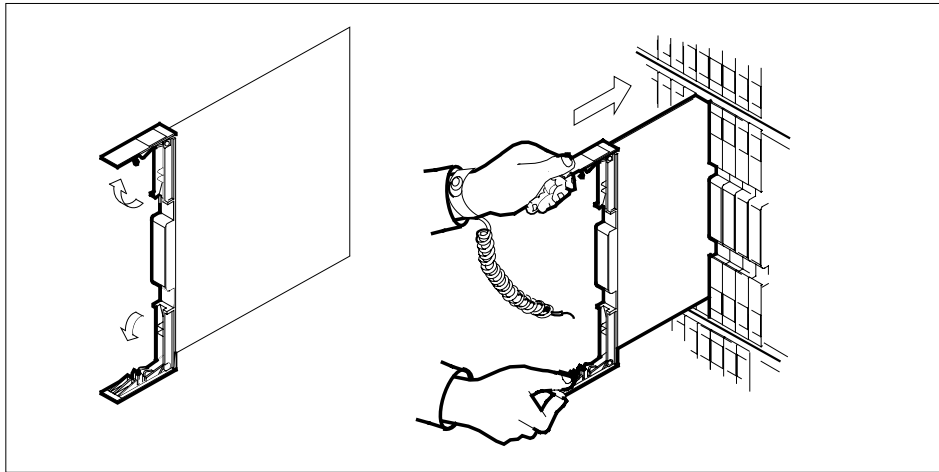


- b** Open the locking levers on the card to be replaced and gently pull the card towards you until it clears the shelf.



- 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:

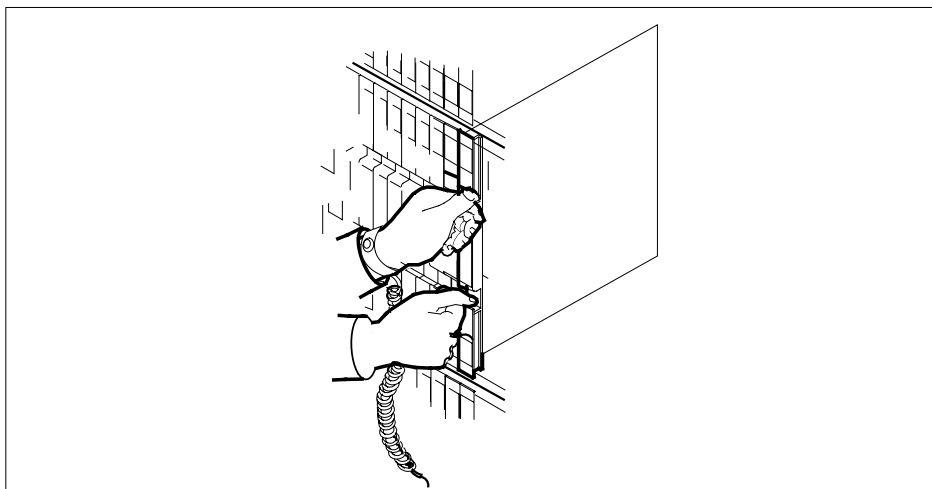
1. Do not apply direct pressure to the components.
2. Do not force the cards into the slots.

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.

| <b>PEC</b> | <b>Suffixes</b> | <b>Name</b>             |
|------------|-----------------|-------------------------|
| NT6X74     | AB              | RMM Control Card (RMMC) |

### **Common procedures**

None

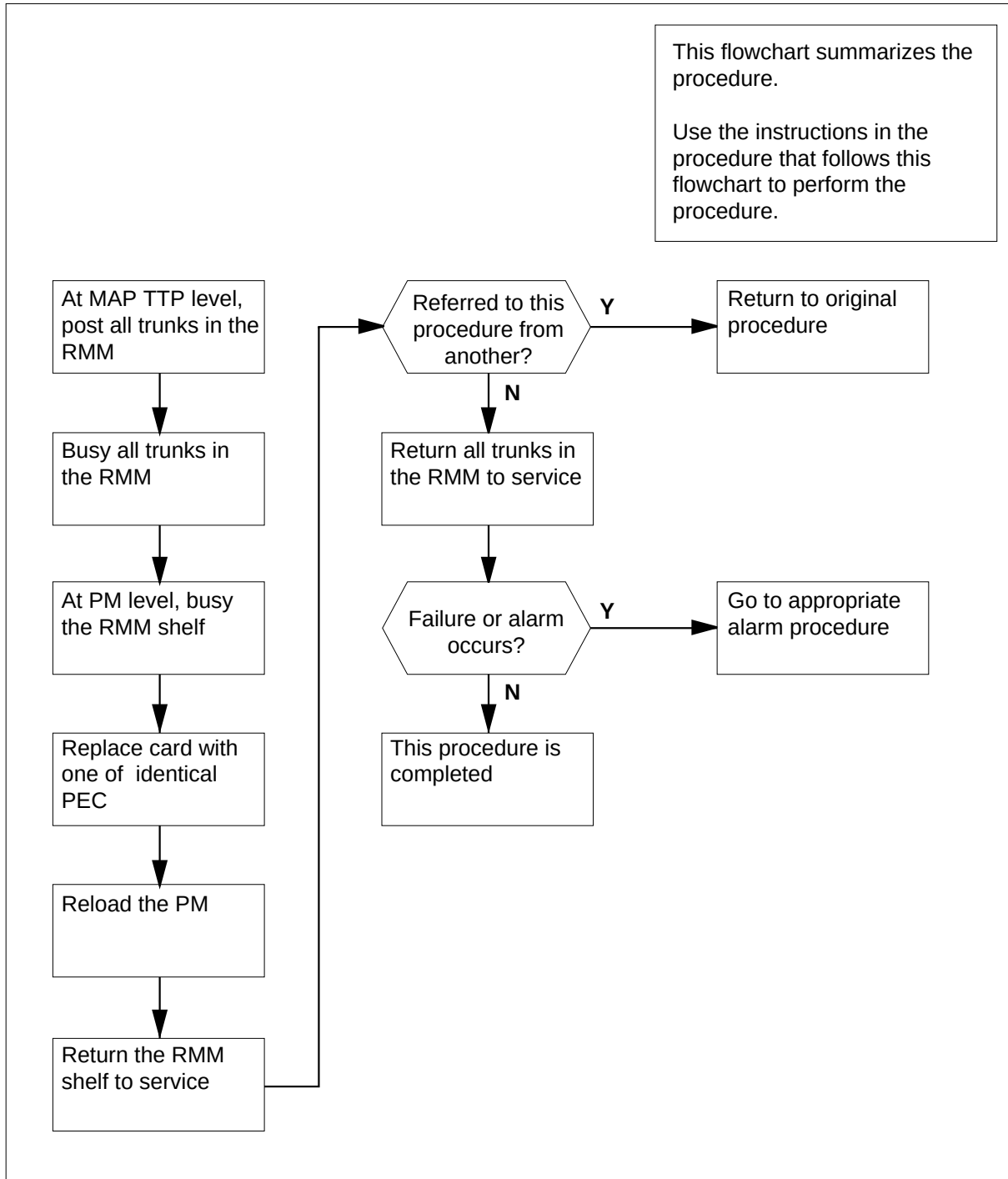
### **Action**

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.

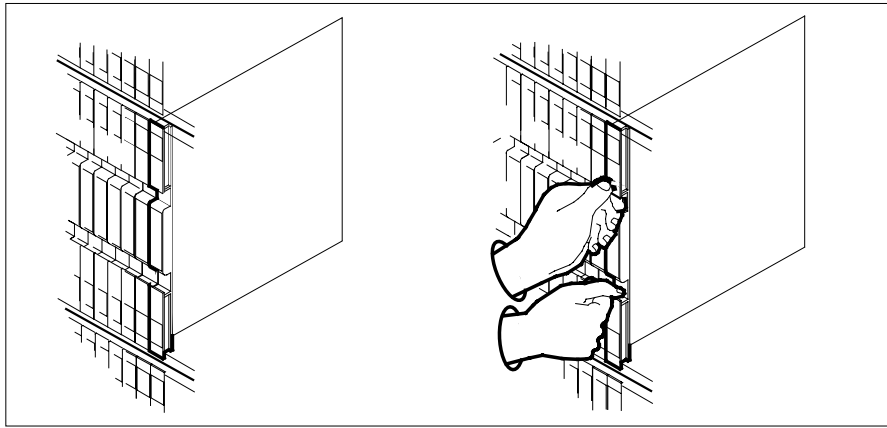
Put on a wrist strap.

6

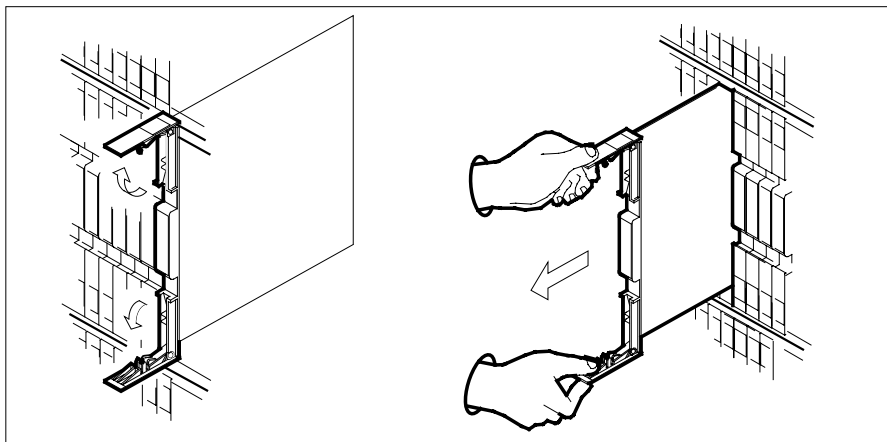
- Remove the NT6X74 card as shown in the following figures.
- a Locate the card to be removed on the appropriate shelf.

**NT6X74**  
**in an RSC-S (DS-1) Model A RMM (continued)**

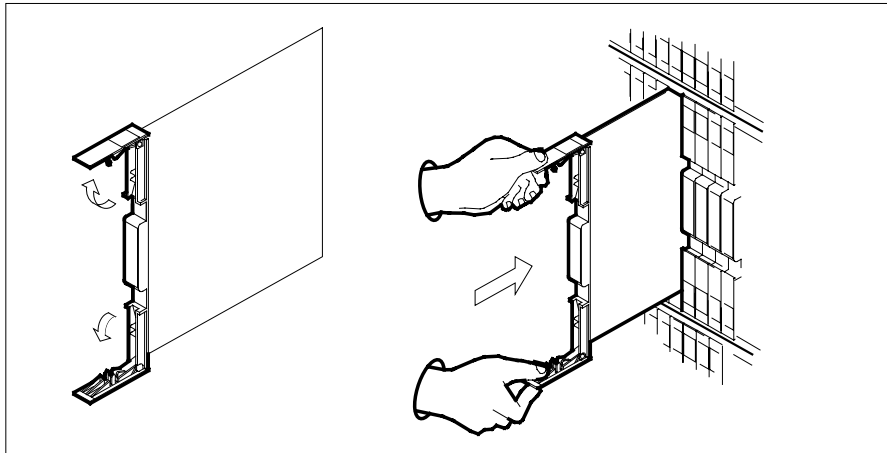
---



- 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

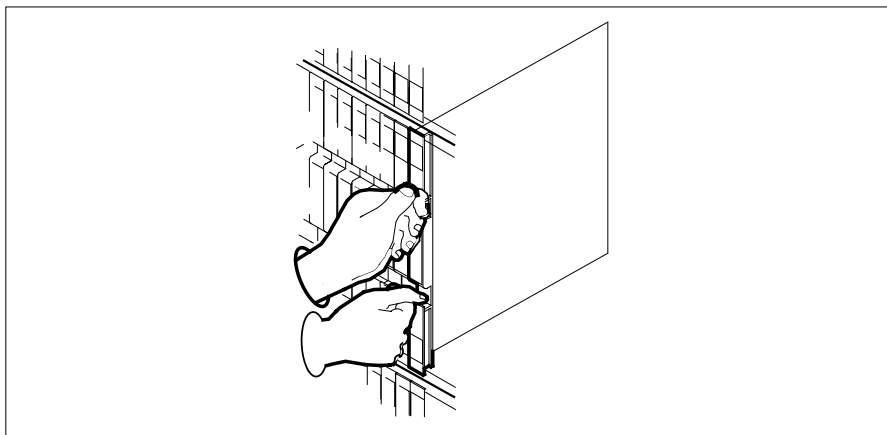
**DANGER****Equipment damage**

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**

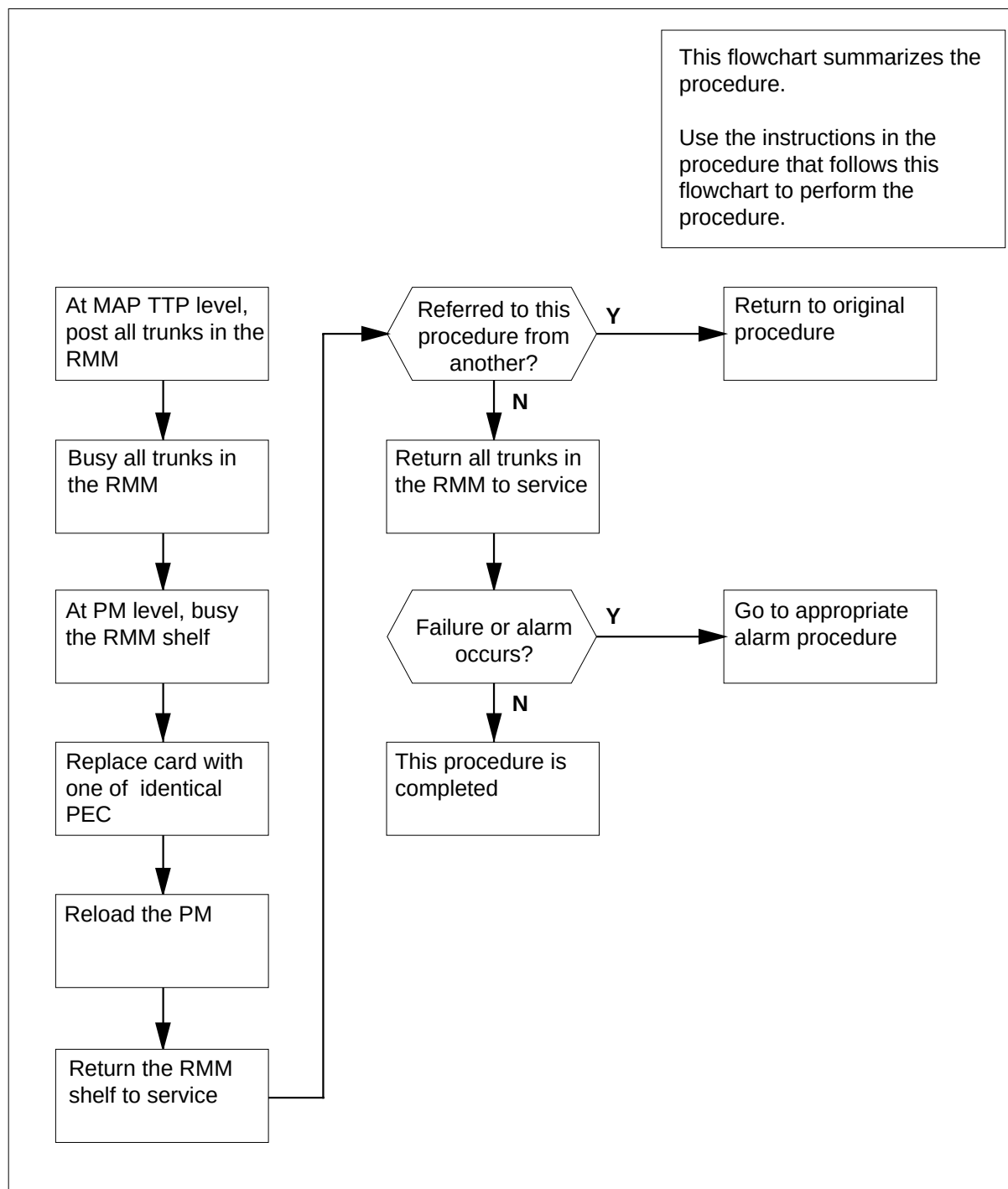
None

**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.

Put on a wrist strap.

**6**

Remove the NT6X74 card as shown in the following figures.

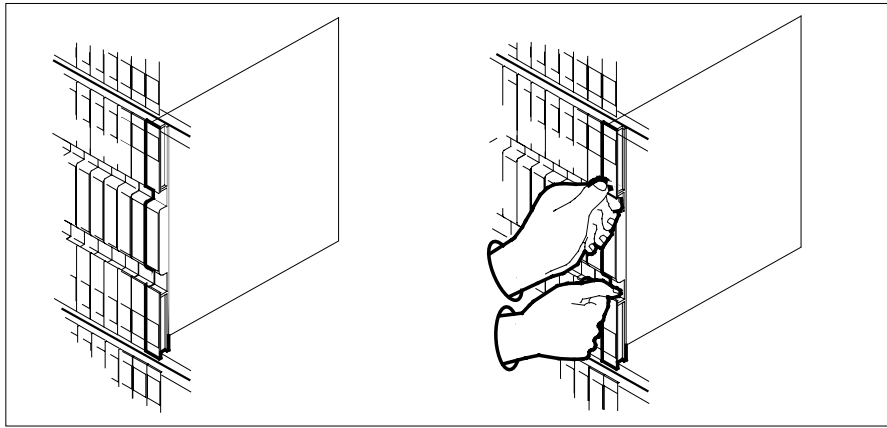
- a Locate the card to be removed on the appropriate shelf.

---

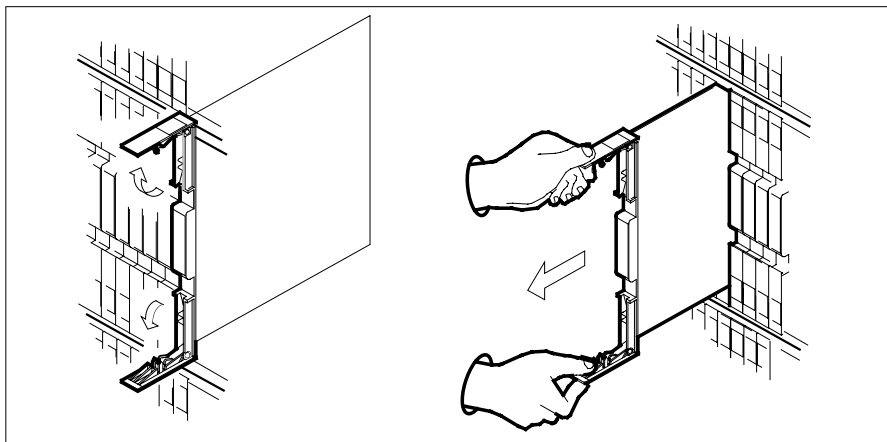
**NT6X74**

**in an RSC-S (DS-1) Model B RMM (continued)**

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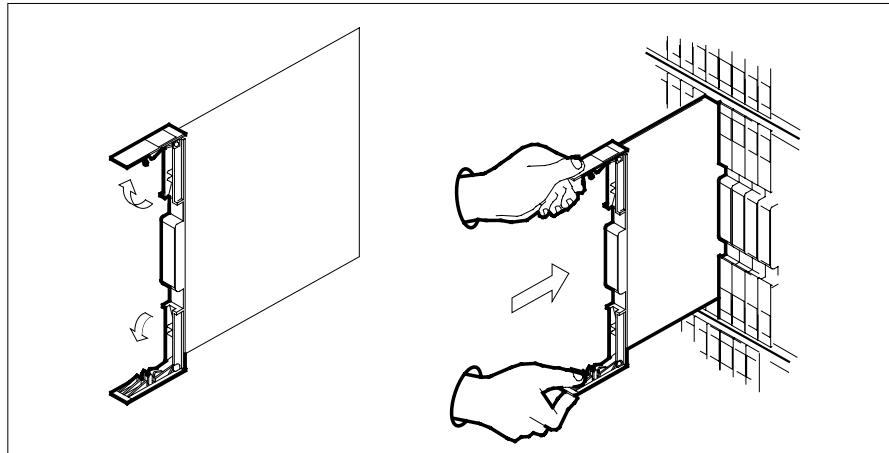
- b** Open the locking levers on the card to be replaced and gently pull the card toward you until it clears the shelf.



- 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**

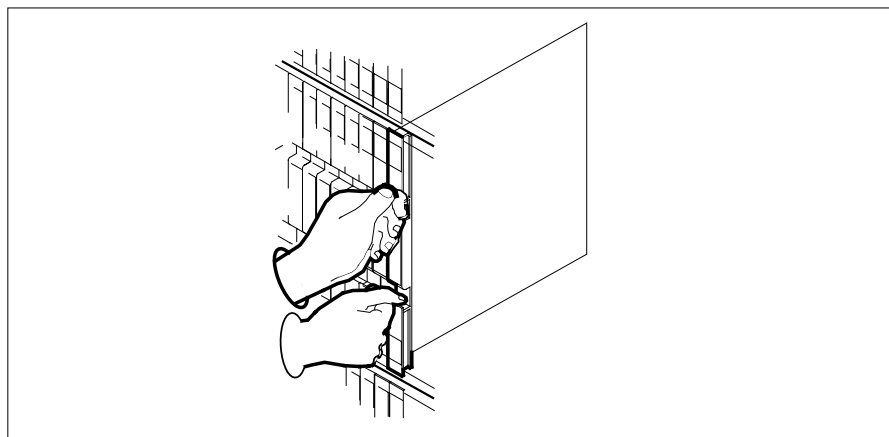
#### **Equipment damage**

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.

| <b>PEC</b> | <b>Suffixes</b> | <b>Name</b>             |
|------------|-----------------|-------------------------|
| NT6X74     | AB              | RMM Control Card (RMMC) |

### **Common procedures**

None

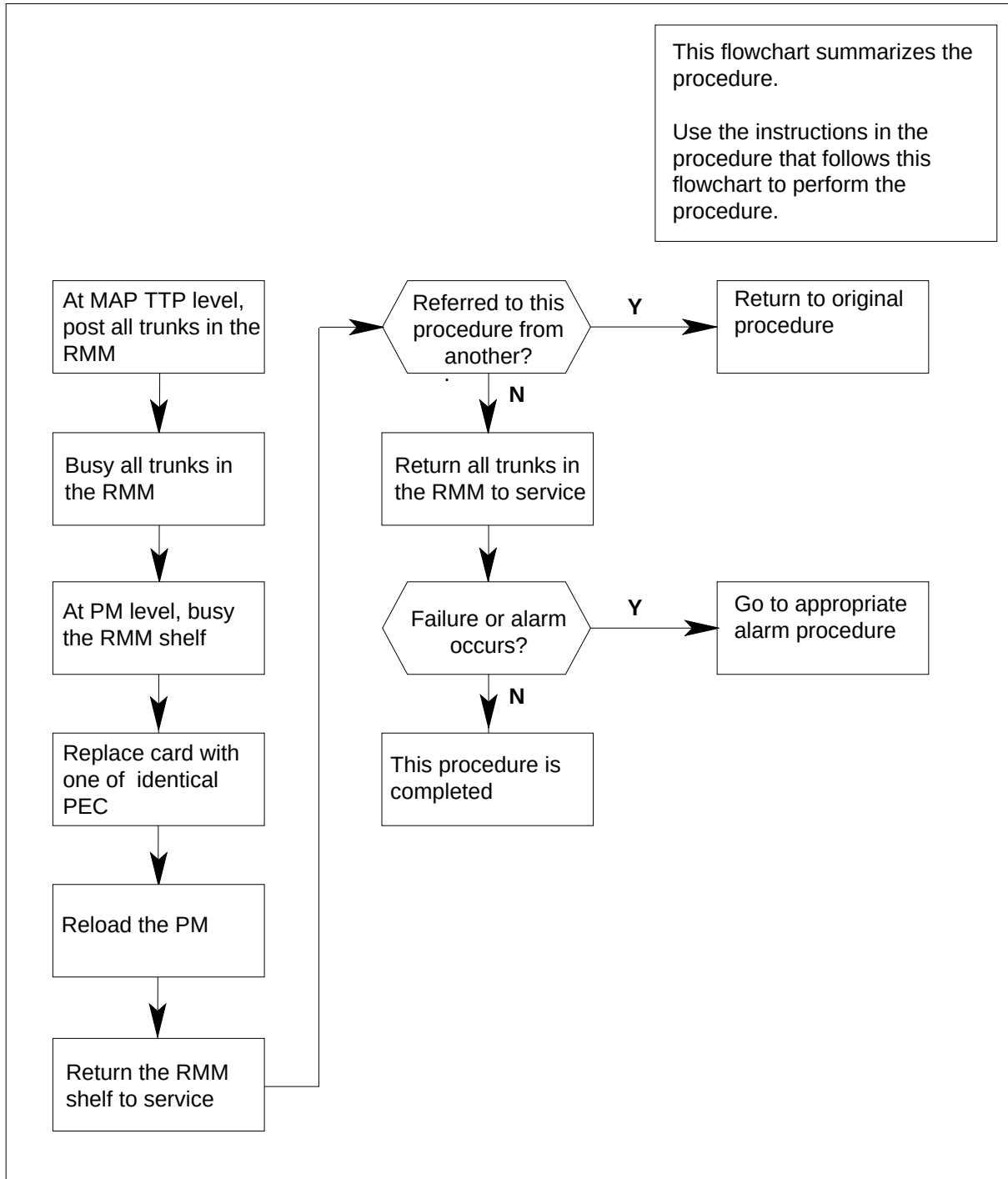
### **Action**

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.

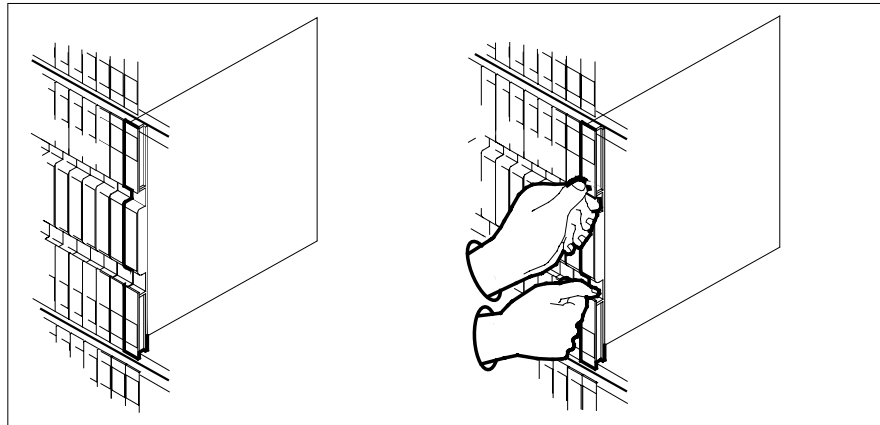
6

- Remove the NT6X74 card as shown in the following figures.
- a Locate the card to be removed on the appropriate shelf.

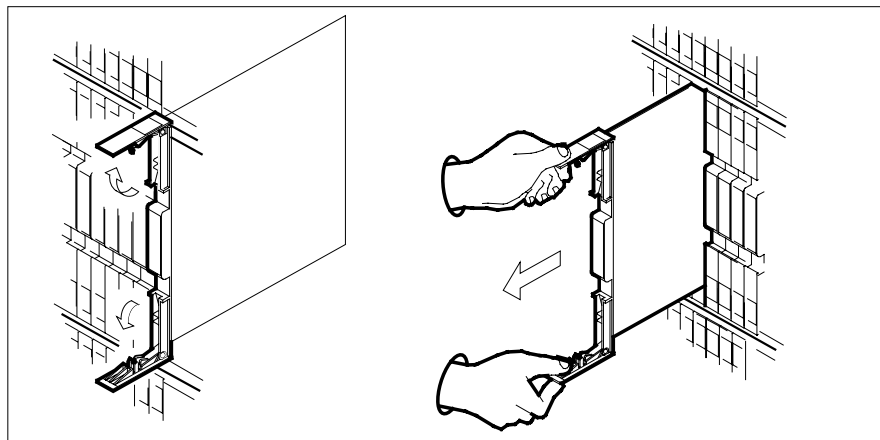
## NT6X74

### in an RSC-S (PCM-30) Model A RMM (continued)

---



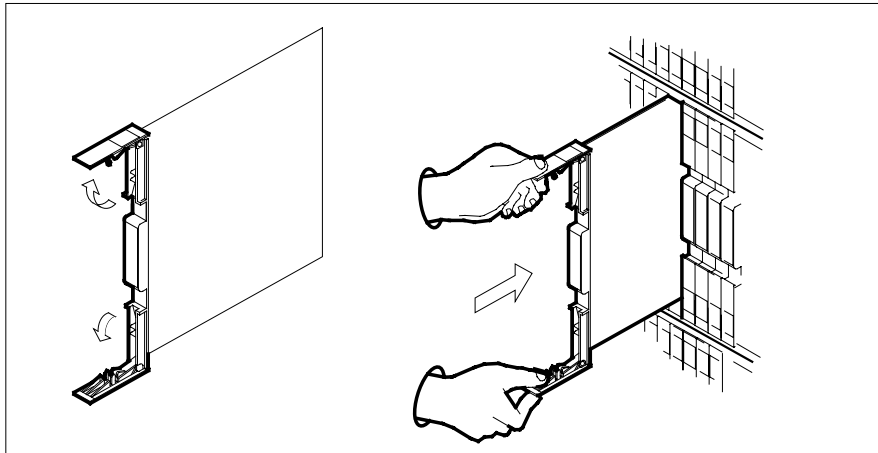
- b** Open the locking levers on the card to be replaced and gently pull the card toward you until it clears the shelf.



- 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**

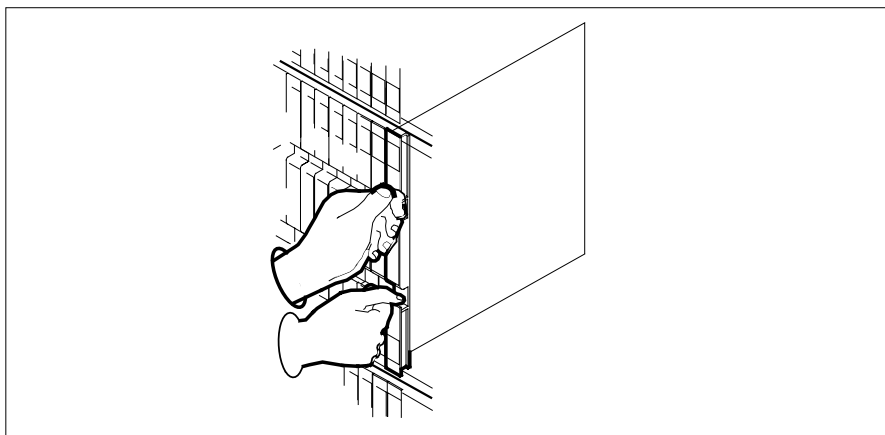
#### **Equipment damage**

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**

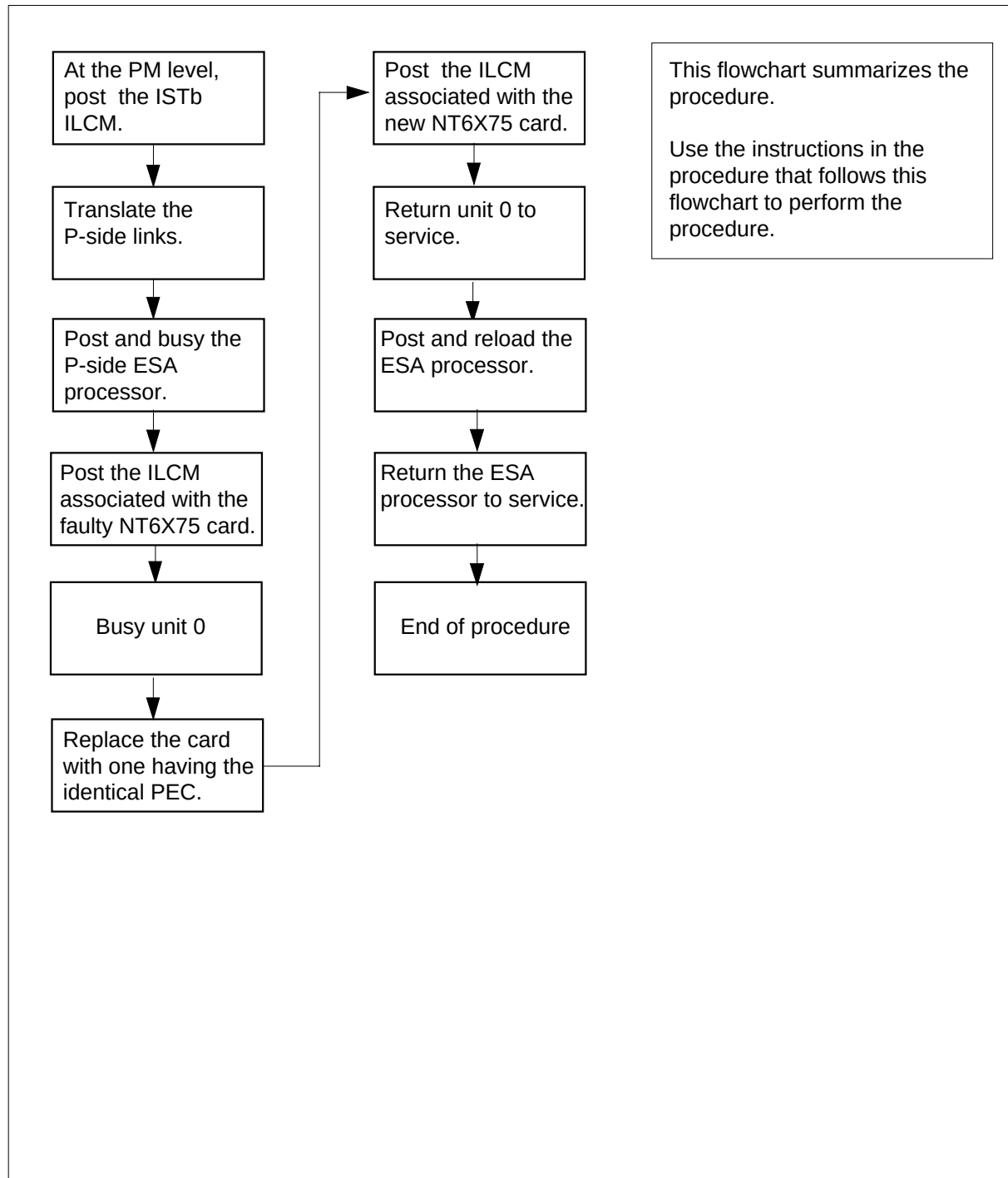
The common replacing a card procedure is referenced in this procedure.

**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 |
| <b>15</b> | 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 |
| <b>16</b> | 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**

---

passed

failed

---

**Do**

---

step 32

step 35

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

---

**If RTS**

---

passed

failed

---

**Do**

---

step 33

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.

| <b>PEC</b> | <b>Suffix</b> | <b>Name</b>             |
|------------|---------------|-------------------------|
| NT6X75     | AA            | ESA tone and clock card |

### **Common procedures**

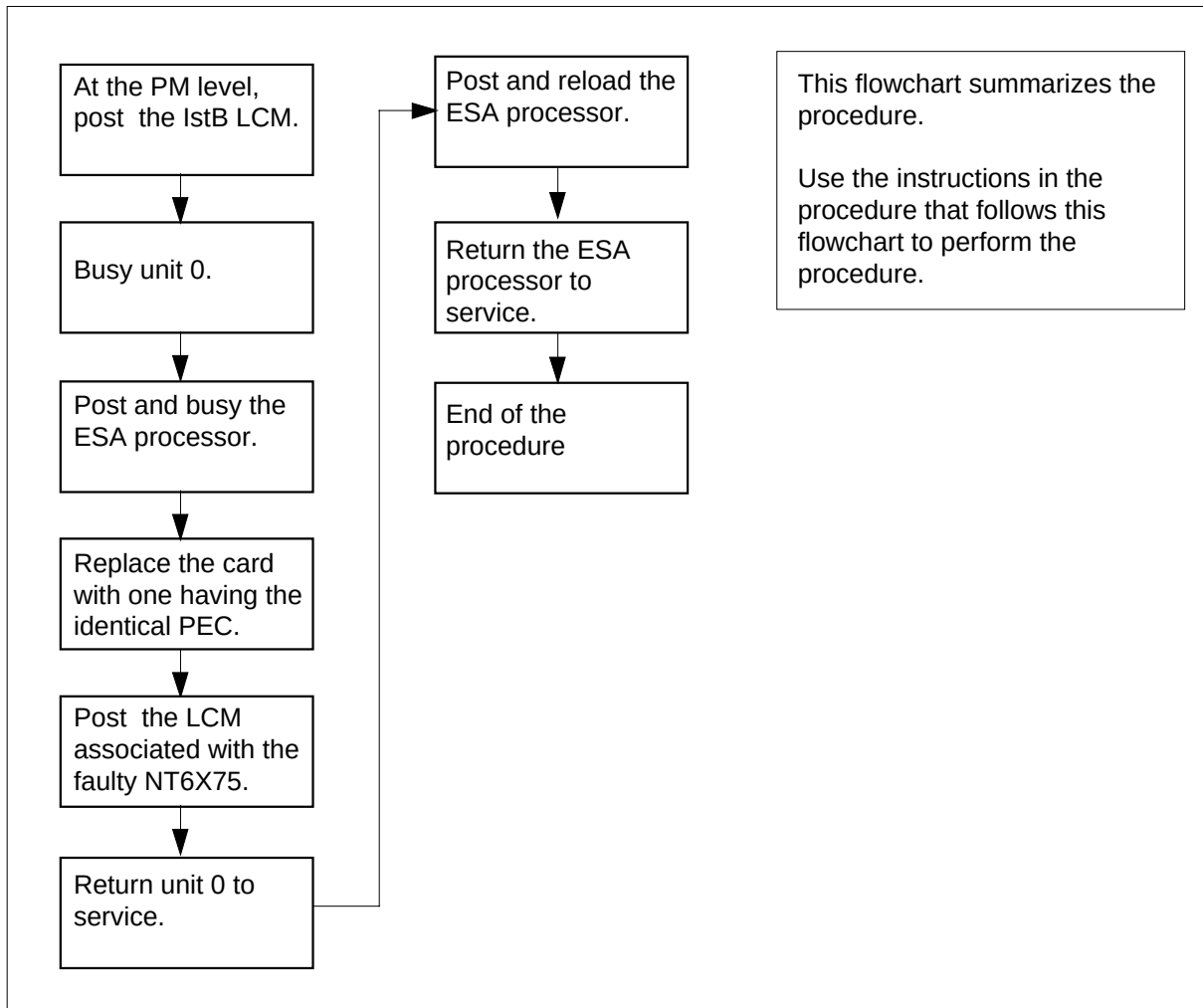
The common replacing a card procedure is referenced in this procedure.

### **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.

| <b>If RTS</b> | <b>Do</b> |
|---------------|-----------|
| 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.

| <b>If</b>                                                             | <b>Do</b> |
|-----------------------------------------------------------------------|-----------|
| 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**

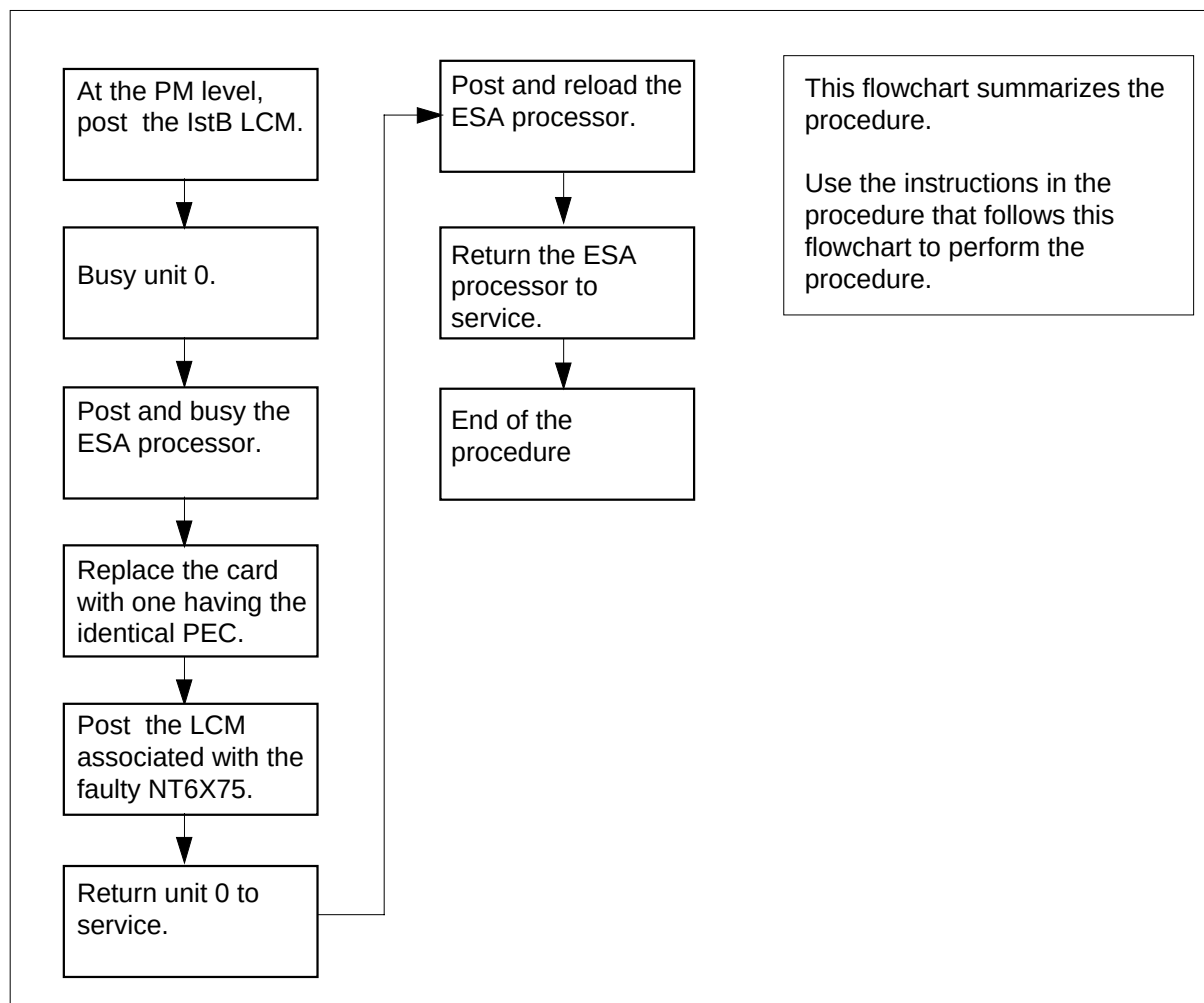
The common replacing a card procedure is referenced in this procedure.

**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 |

---



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**NT6X75**  
**in an OPM HIE (end)**

---

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

---

| <b>If RTS</b> | <b>Do</b> |
|---------------|-----------|
| 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.

| <b>PEC</b> | <b>Suffixes</b> | <b>Name</b>                  |
|------------|-----------------|------------------------------|
| NT6X75     | AA              | RLCM ESA Tone and Clock Card |

### **Common procedures**

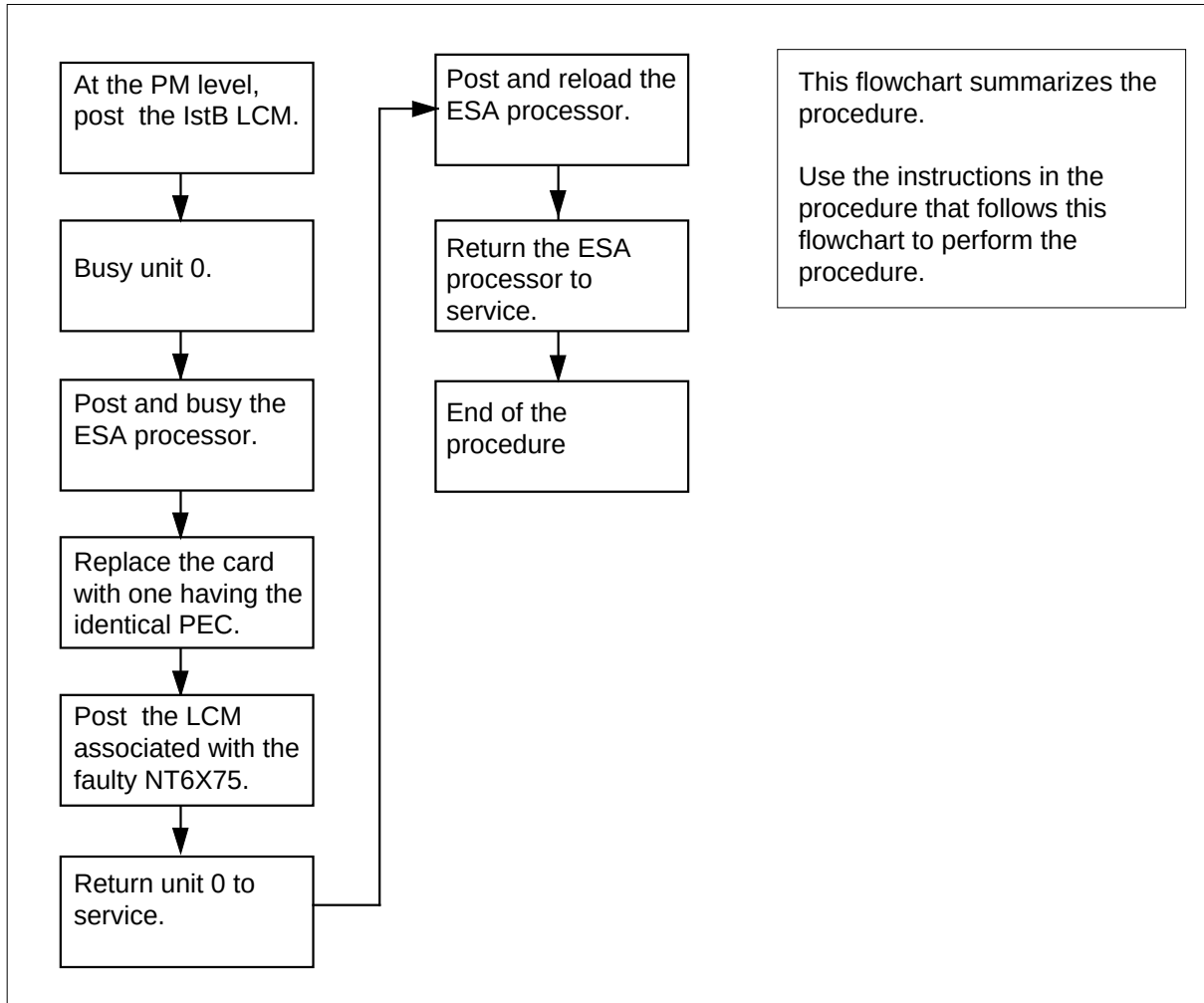
The common replacing a card procedure is referenced in this procedure.

### **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.

| <b>If RTS</b> | <b>Do</b> |
|---------------|-----------|
| 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.

| <b>If</b>                                             | <b>Do</b> |
|-------------------------------------------------------|-----------|
| 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**

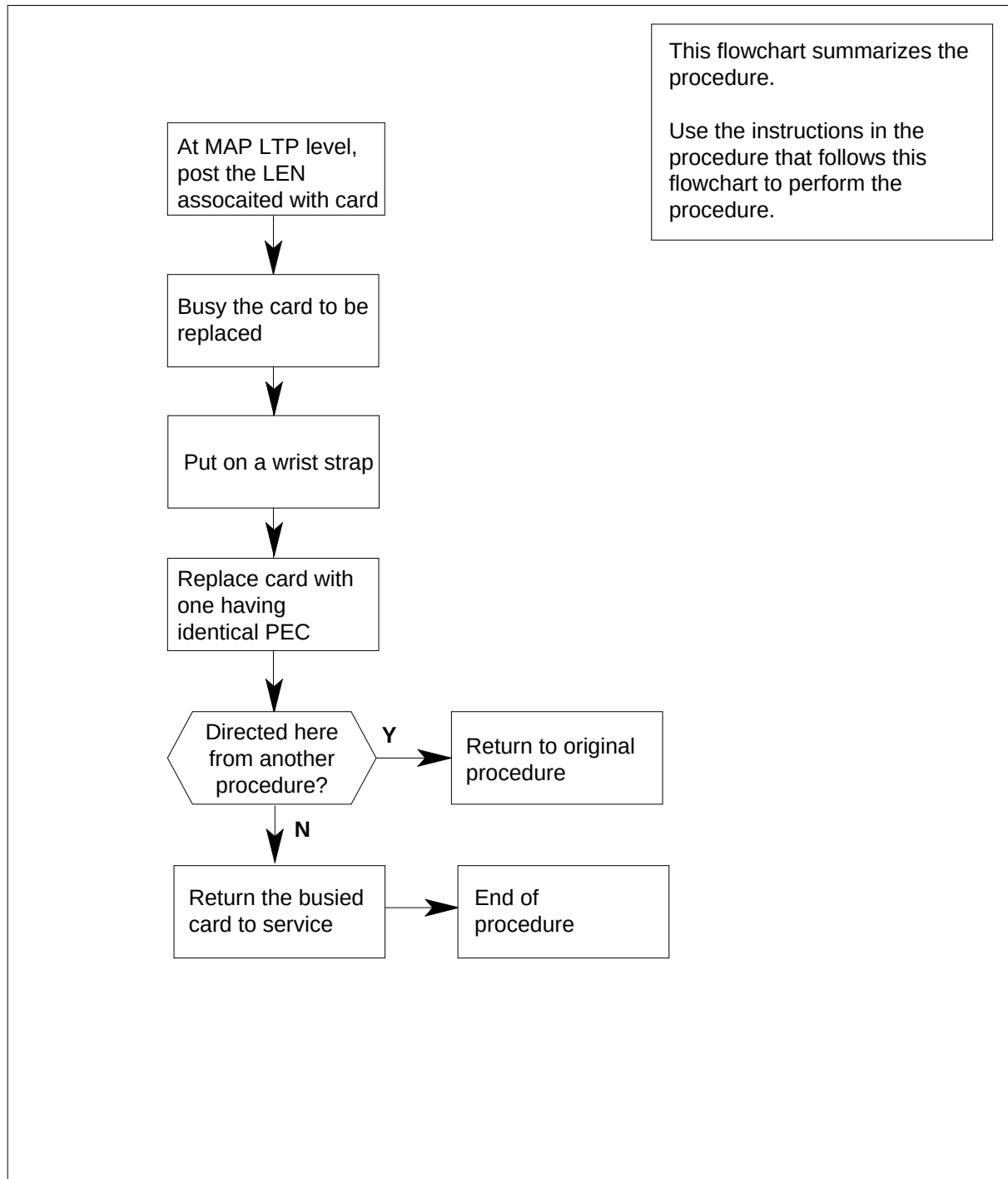
None

**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            |
| <b>Note:</b> 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**

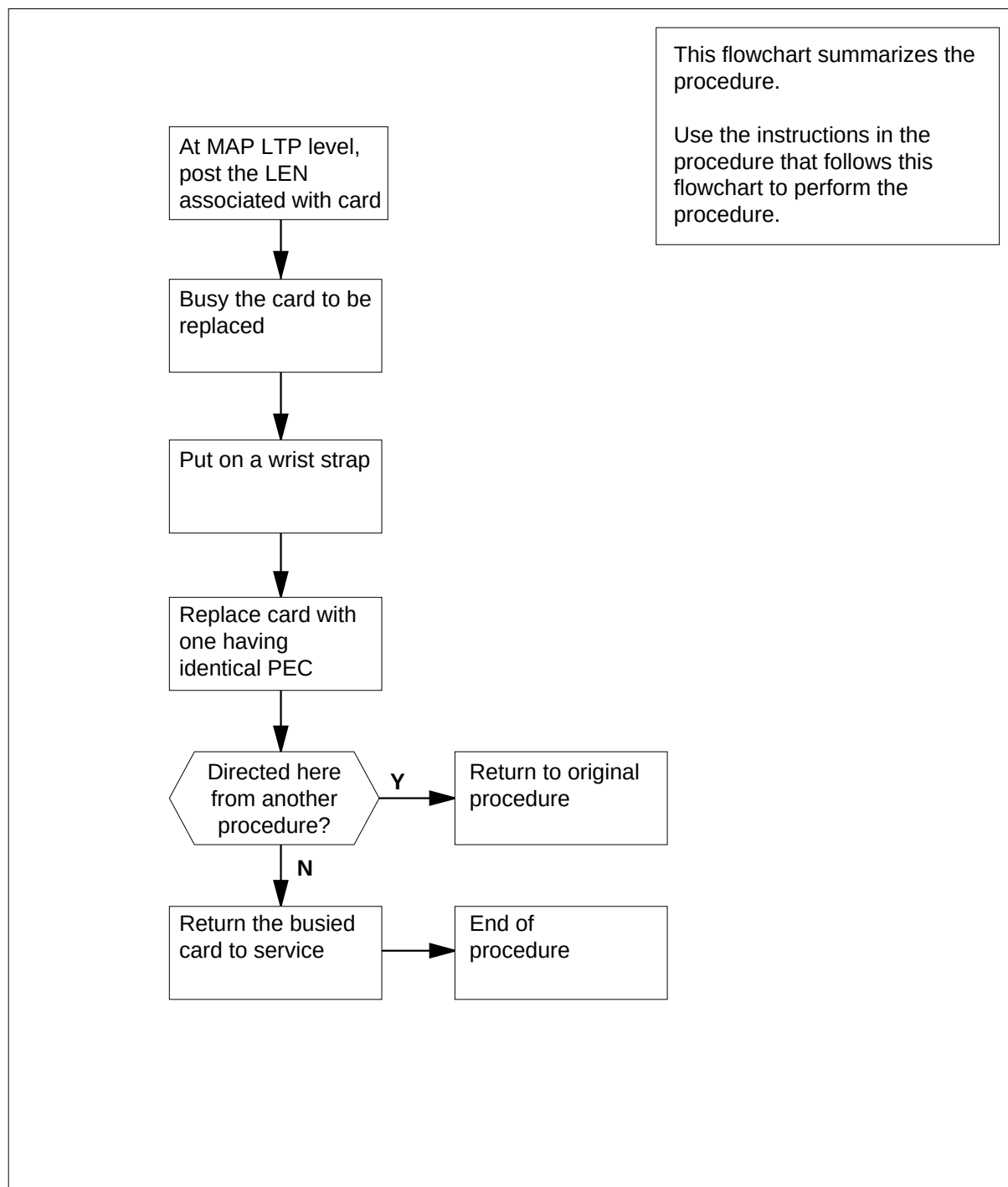
None

**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<br>insertion /<br>withdrawal tool<br>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<br>for                                                  | Apparatus code | Common product code |
|---------------------------------------------------------------------------|----------------|---------------------|
| 3—4 inch cards                                                            | QTH57A         | A0298292            |
| <b>Note:</b> 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.
- | <b>If RTS</b> | <b>Do</b> |
|---------------|-----------|
| 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**

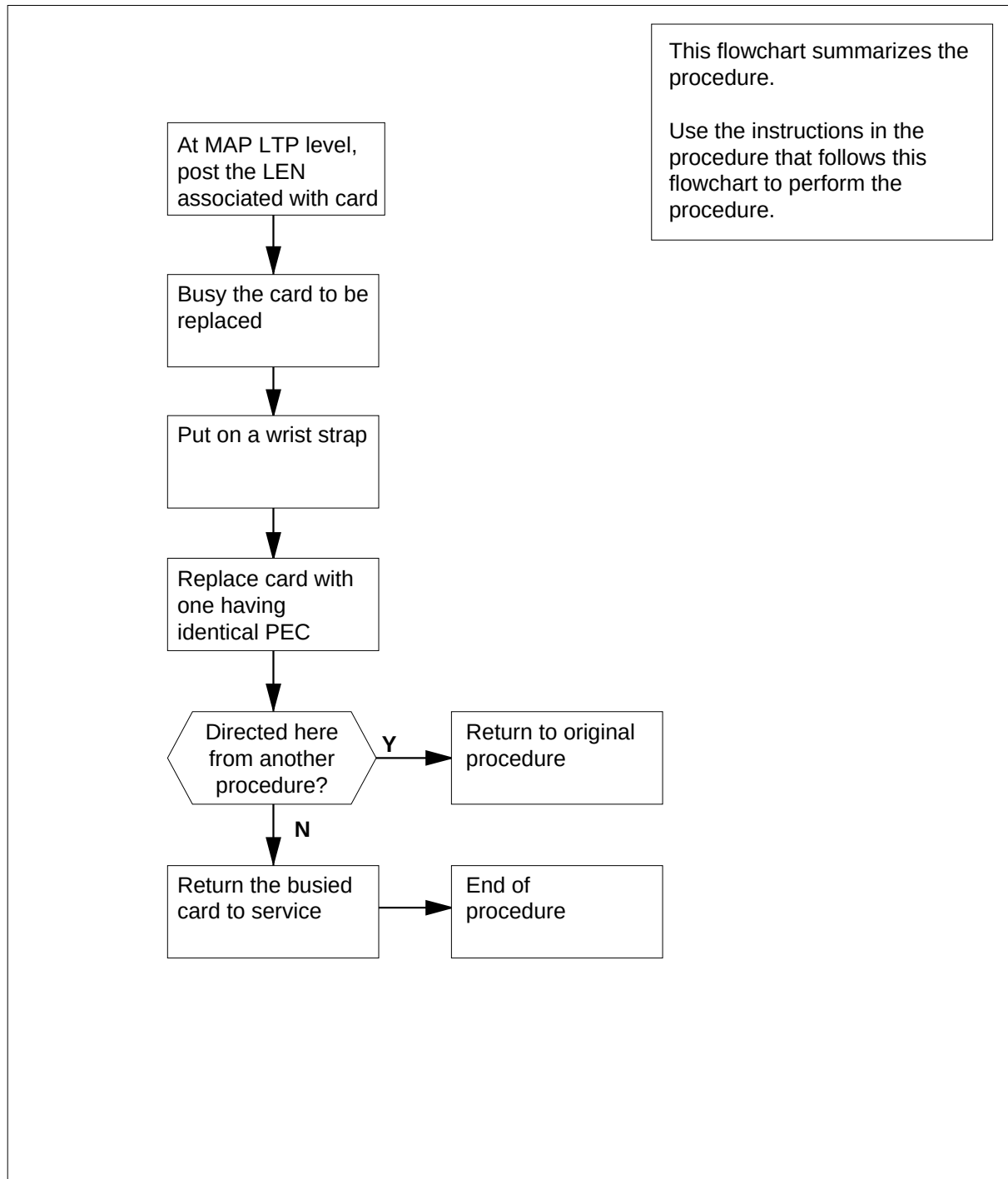
None

**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)**

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*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<br>insertion /<br>withdrawal tool<br>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<br>for                                                  | Apparatus code | Common product code |
|---------------------------------------------------------------------------|----------------|---------------------|
| 3—4 inch cards                                                            | QTH57A         | A0298292            |
| <b>Note:</b> 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,<br>AD | Asynchronous interface line card |

**Common procedures**

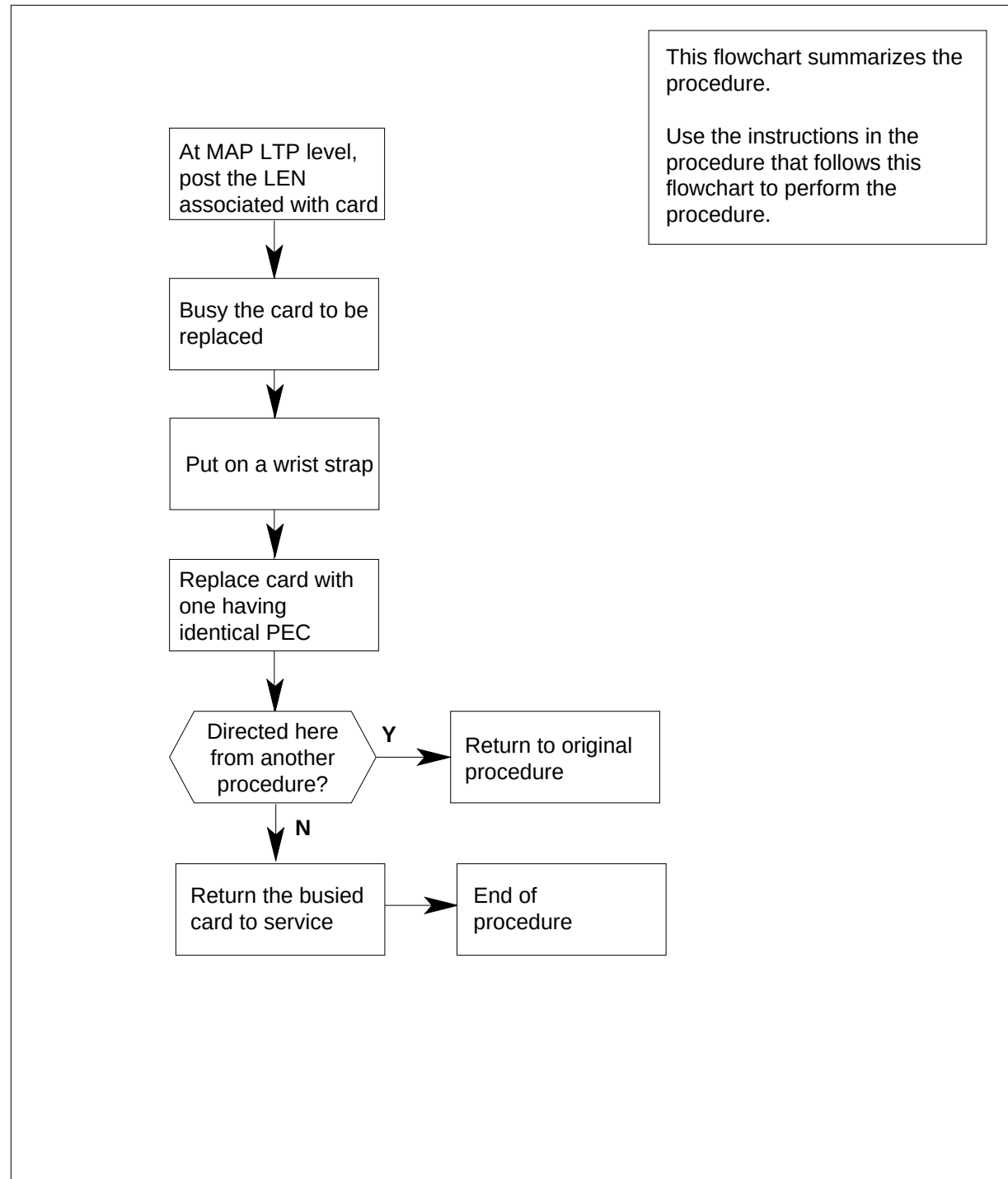
None

**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            |
| <b>Note:</b> 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

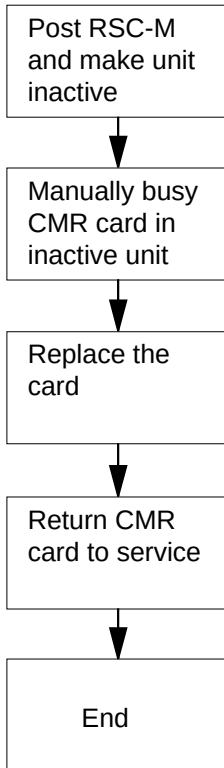
This section refers to the following procedures:

- 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**

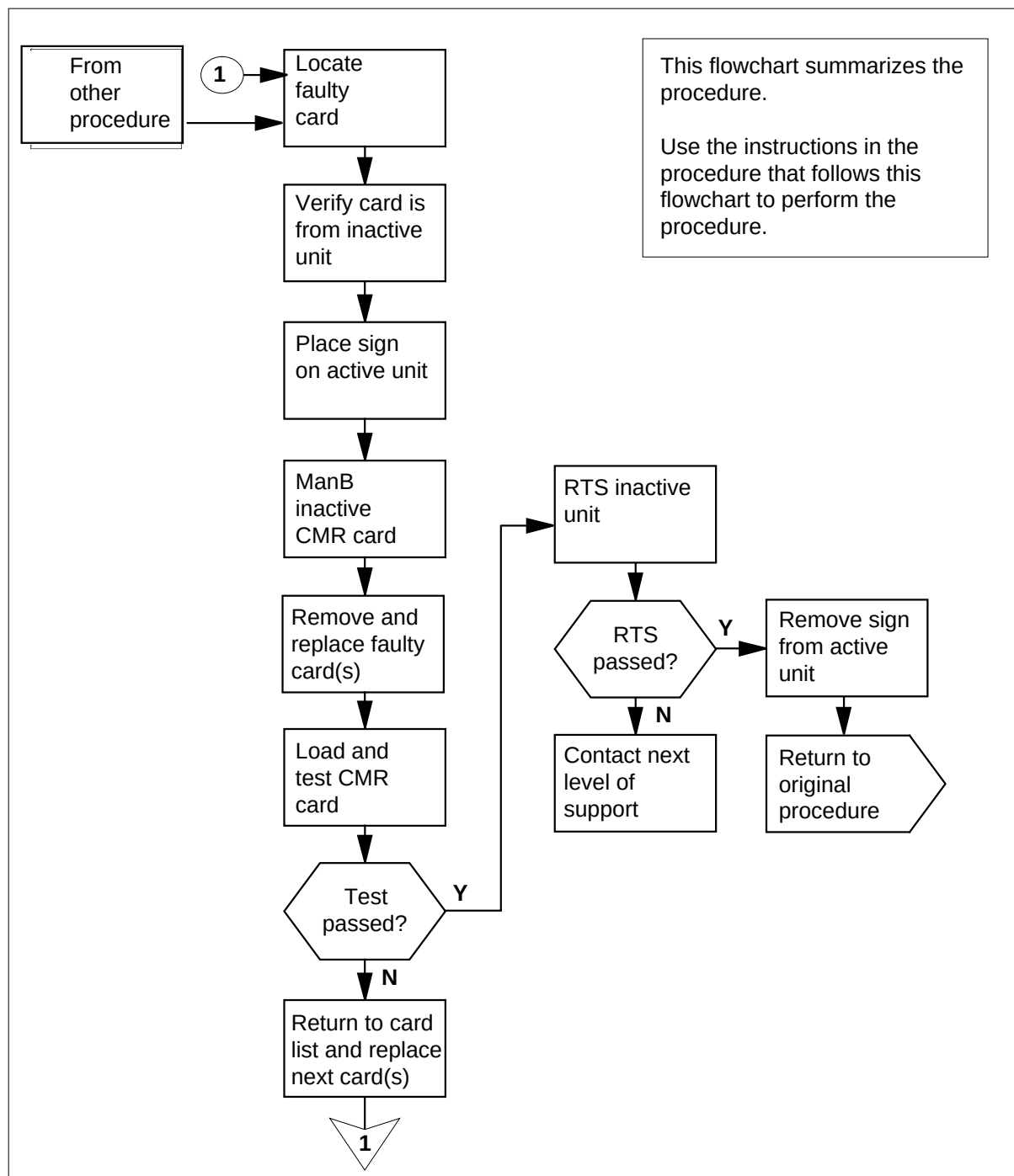
None

**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**

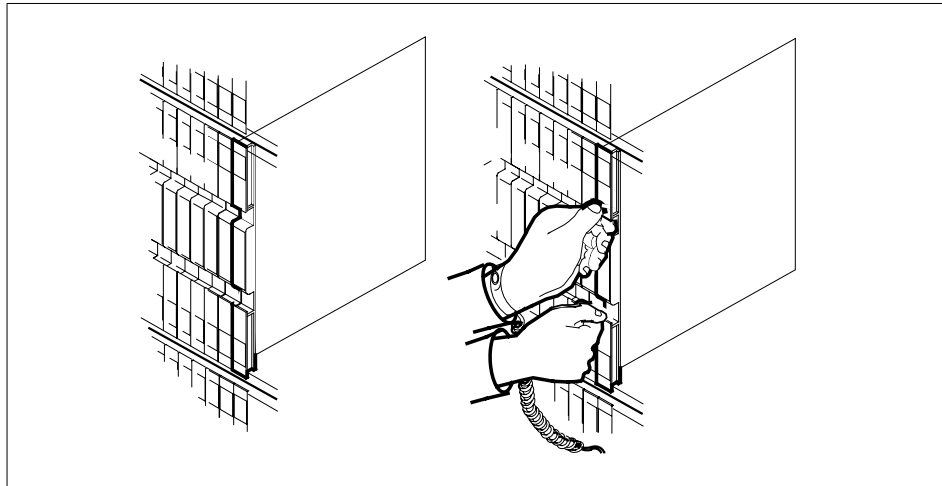
Take the following precautions when removing or inserting a card:

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.

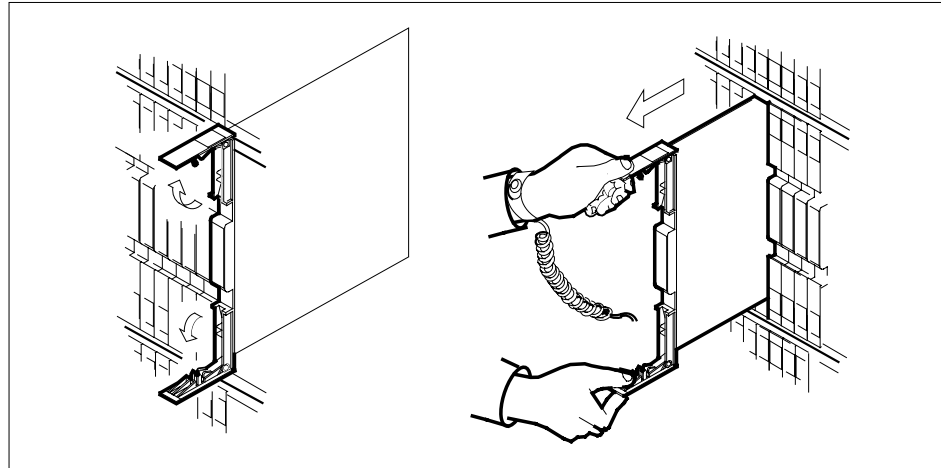
a Locate the card to be removed on the appropriate shelf.



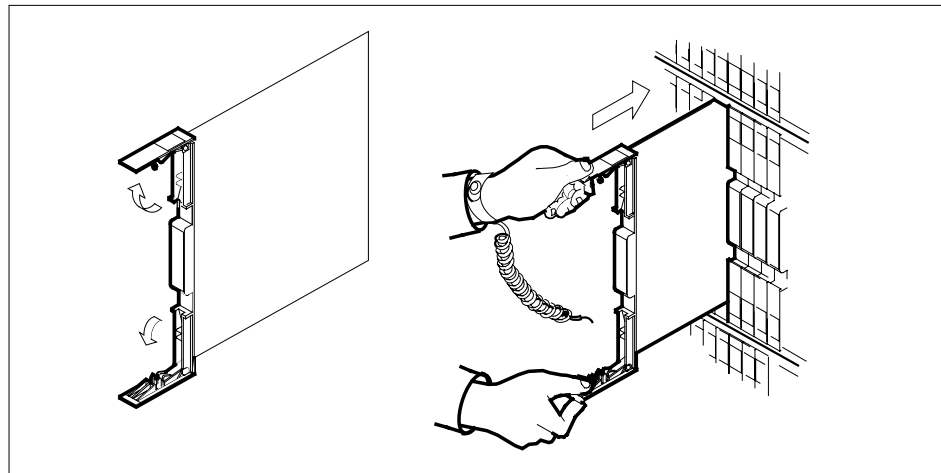
b Open the locking levers on the card to be replaced and gently pull the card towards you until it clears the shelf.

## NT6X78 in an RSC RCC/RCC2 (continued)

---

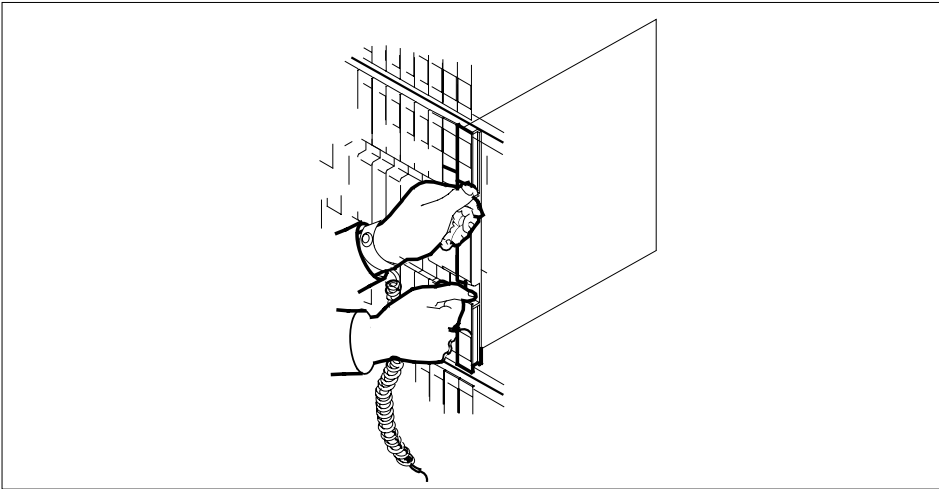


- c Ensure the replacement card has the same PEC, including suffix, as the card you just removed.
- 9 Open the locking levers on the replacement card.
  - a Align the card with the slots in the shelf and gently slide the card into the shelf.



- 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.

| <b>PEC</b> | <b>Suffixes</b> | <b>Name</b>                |
|------------|-----------------|----------------------------|
| NT6X78     | AA, AB,<br>BA   | CLASS Modem Resource (CMR) |

### **Common procedures**

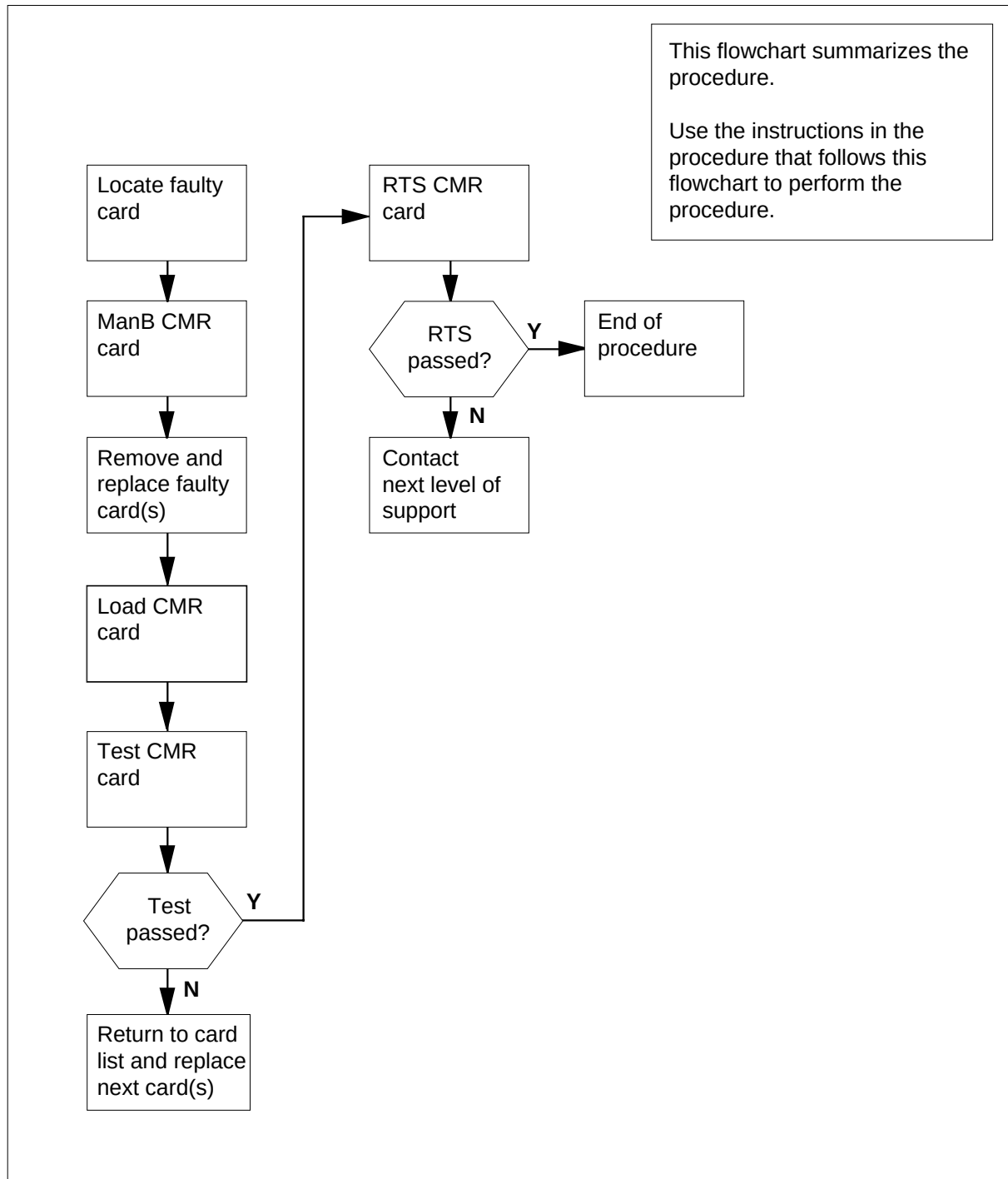
None

### **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**

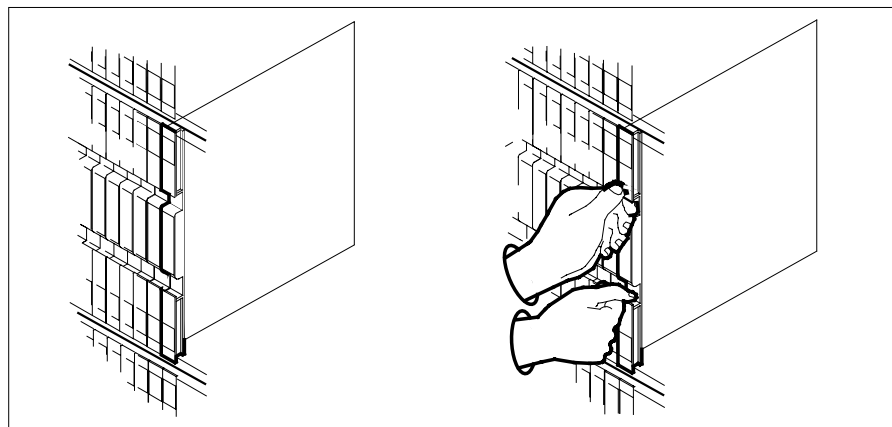
Take the following precautions when removing or inserting a card:

1. Do not apply direct pressure to the components.
2. Do not force the card into its slot.

Put on a wrist strap.

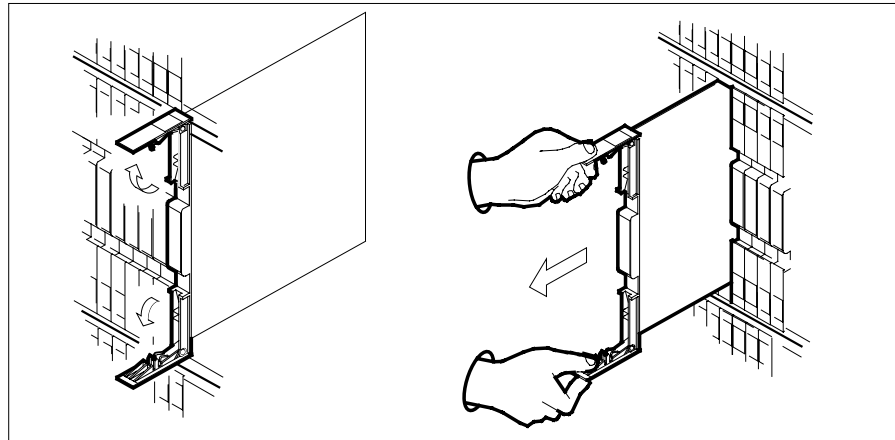
7 Remove the NT6X78 card as shown in the following figures.

**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)**

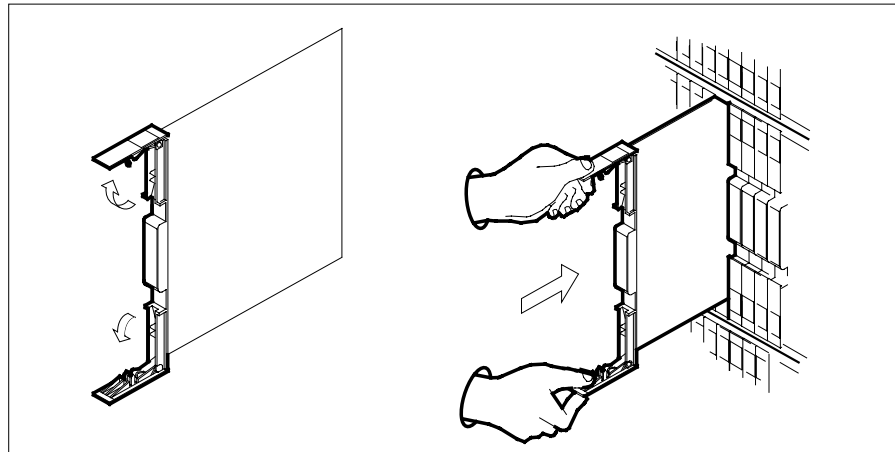


**c** Ensure the replacement card has the same PEC, including suffix, as the card you just removed.

**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.

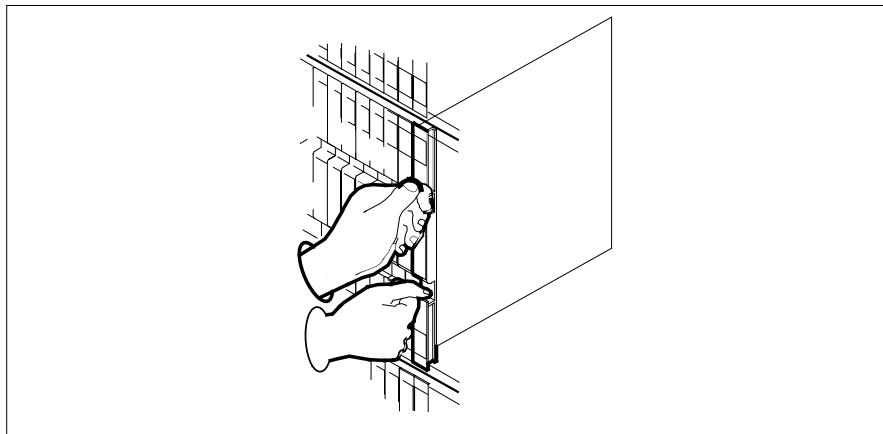
**a** Using your fingers or thumbs, push on the upper and lower edges of the faceplate to ensure the card is fully seated in the shelf.

**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

| <b>If TST</b> | <b>Do</b> |
|---------------|-----------|
| 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

| <b>If RTS</b> | <b>Do</b> |
|---------------|-----------|
| 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.

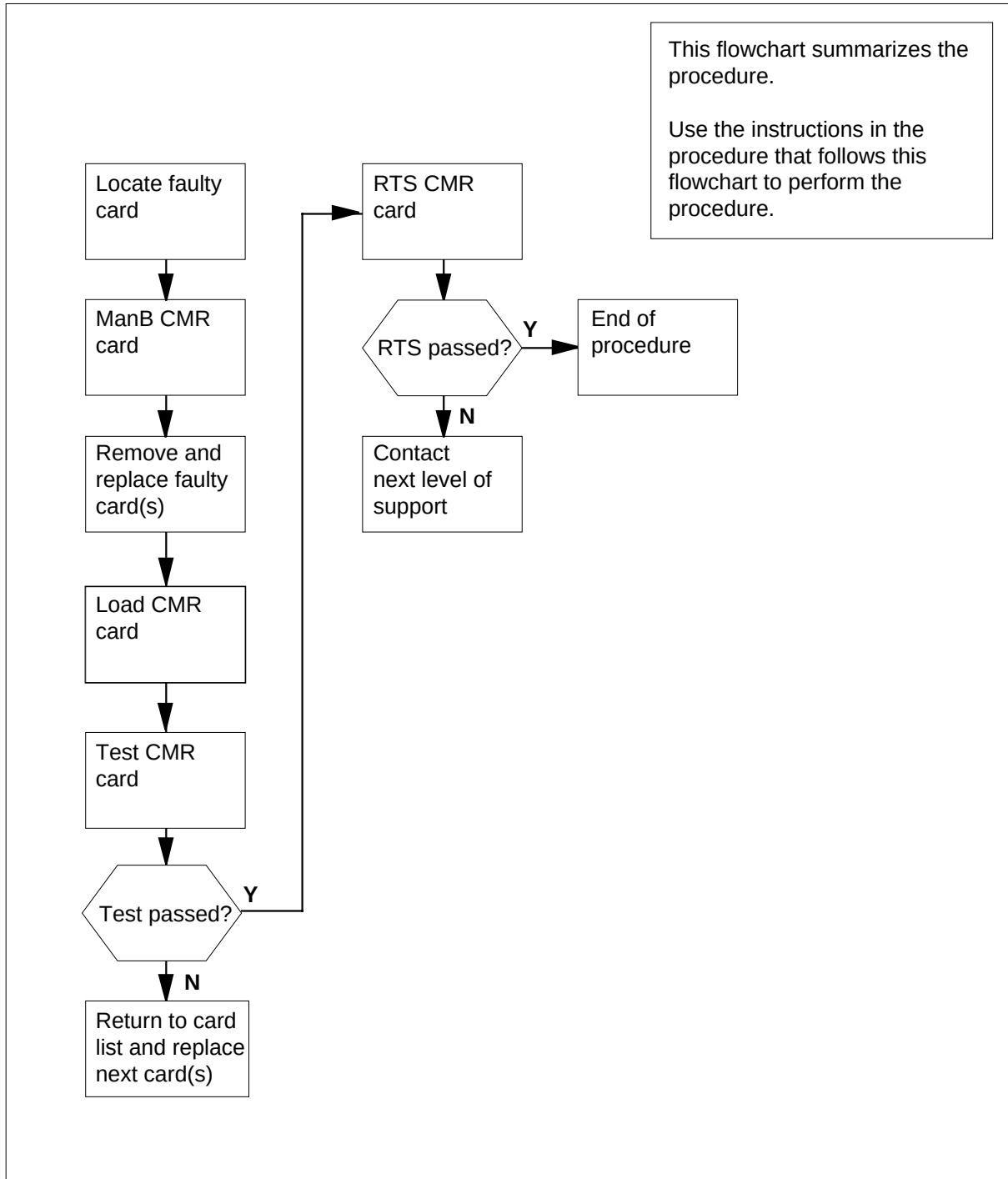
| <b>PEC</b> | <b>Suffixes</b> | <b>Name</b>                |
|------------|-----------------|----------------------------|
| NT6X78     | AA, AB,<br>BA   | CLASS Modem Resource (CMR) |

### **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**

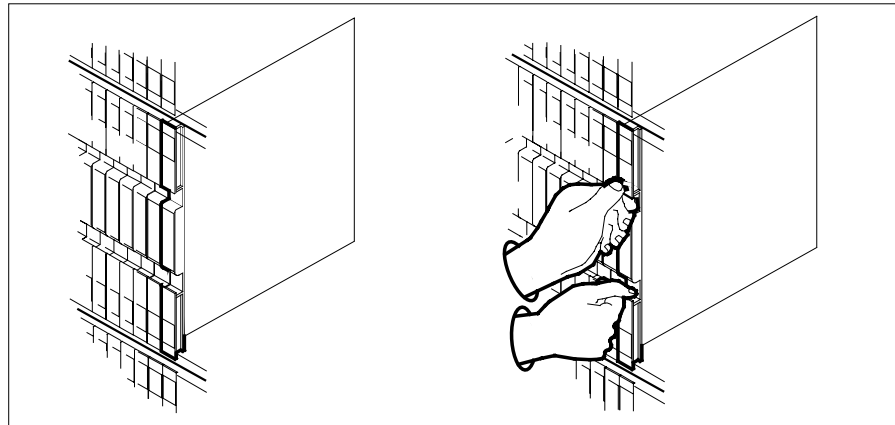
Take the following precautions when removing or inserting a card:

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.

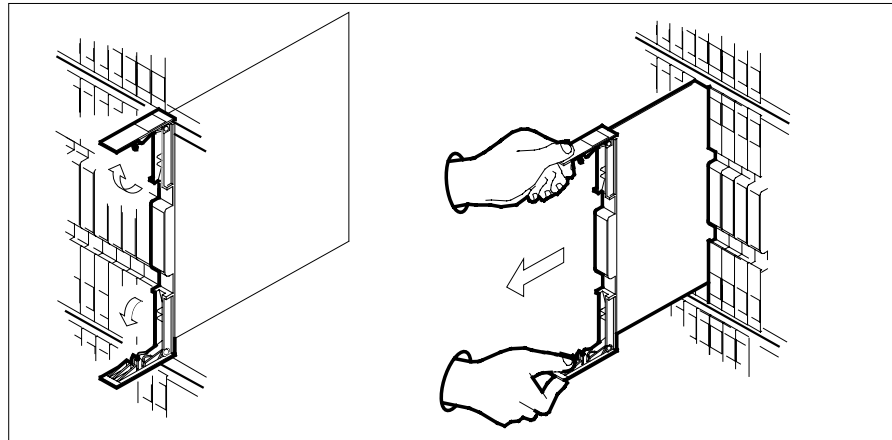


**b** Open the locking levers on the card to be replaced and gently pull the card toward you until it clears the shelf.

## NT6X78

### in an RSC-S (DS-1) Model B RCC2 (continued)

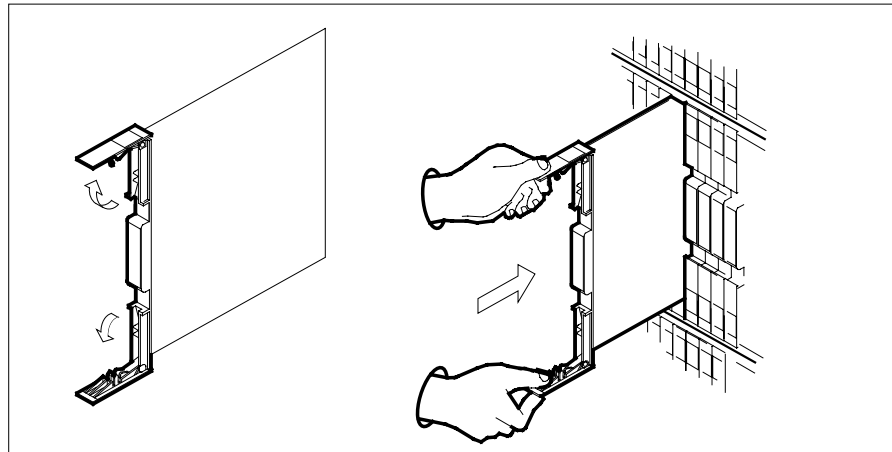
---



- 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.

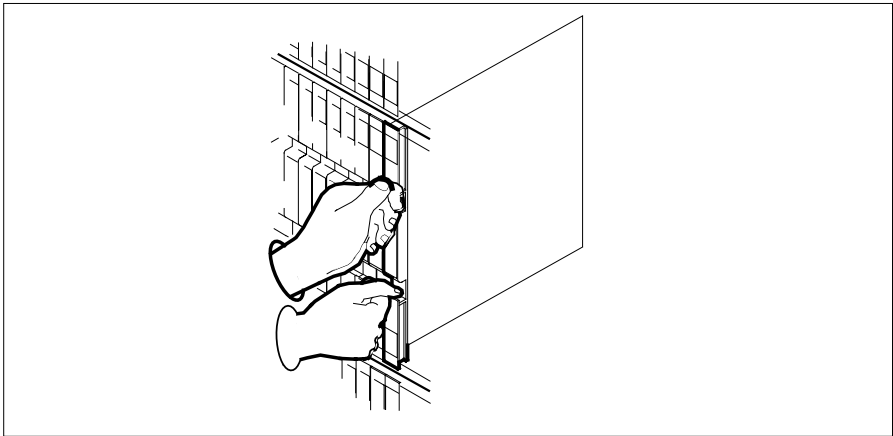
- a** Align the card with the slots in the shelf.
- b** Gently slide the card into the shelf.



**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,<br>BA | CLASS Modem Resource (CMR) |

**Common procedures**

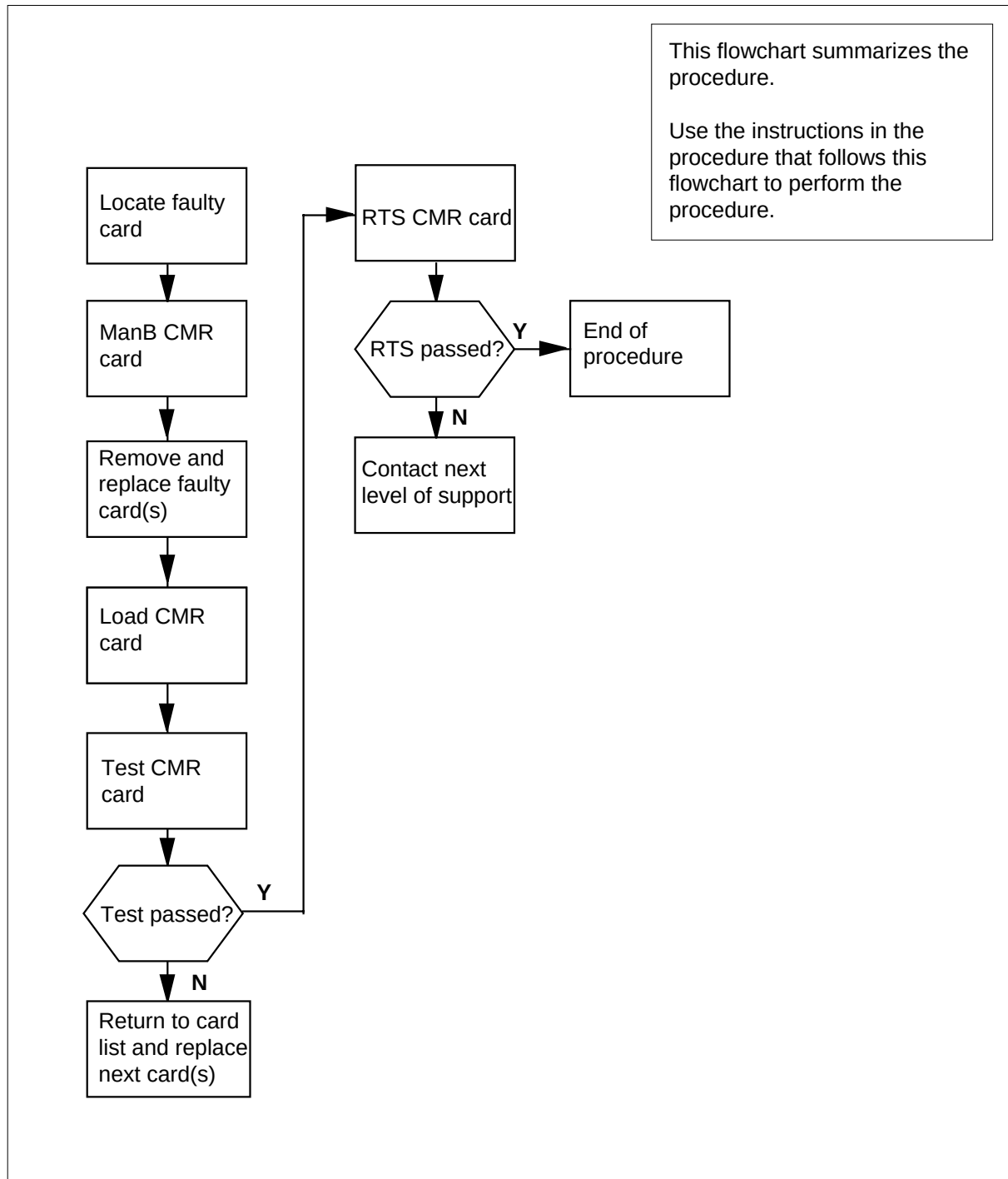
None

**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:

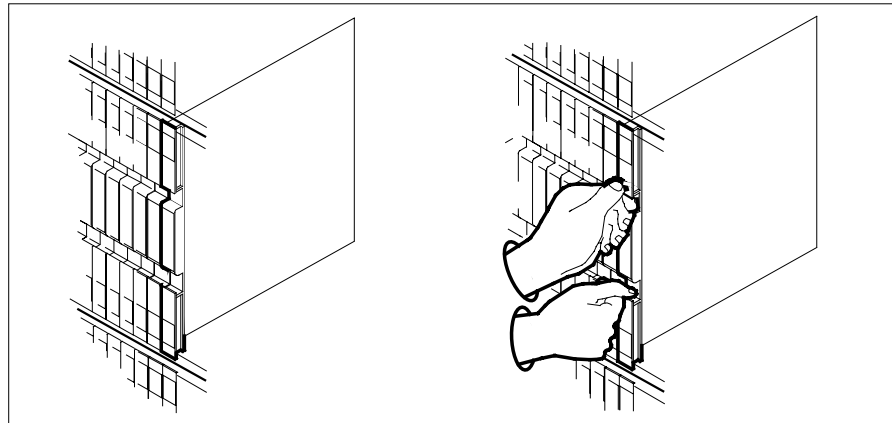
1. Do not apply direct pressure to the components.
2. Do not force the card into its slot.

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.

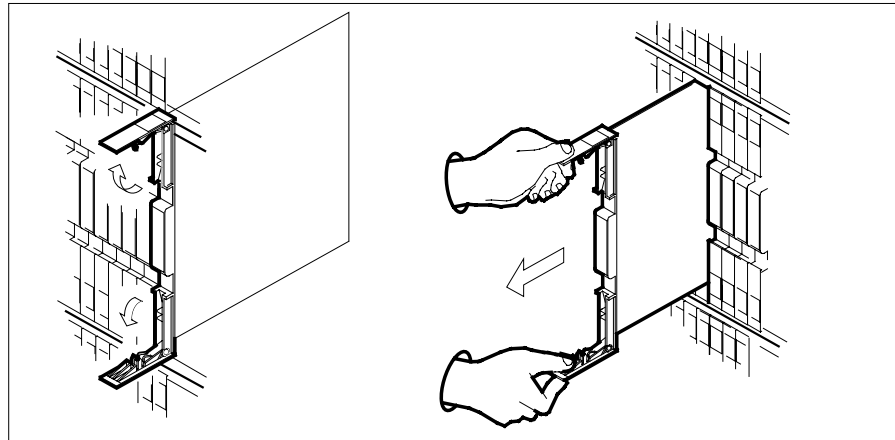


---

**NT6X78**

**in an RSC-S (PCM-30) Model A RCO2 (continued)**

---

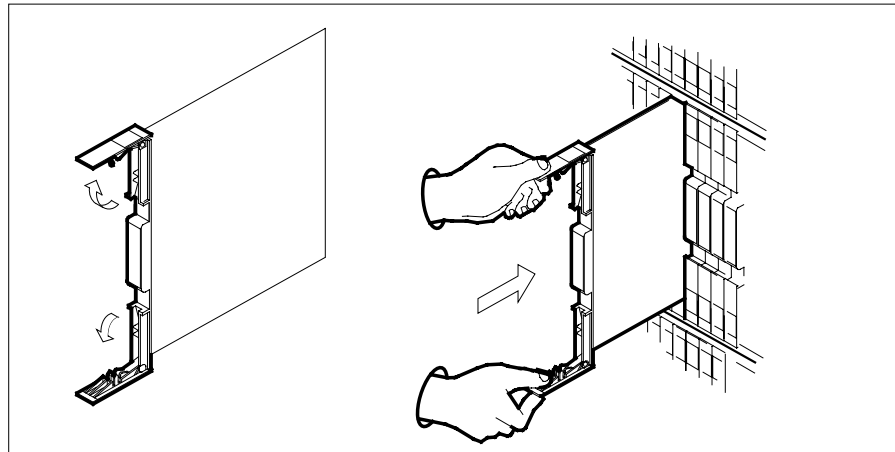


**c** Ensure the replacement card has the same PEC, including suffix, as the card you just removed.

**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.

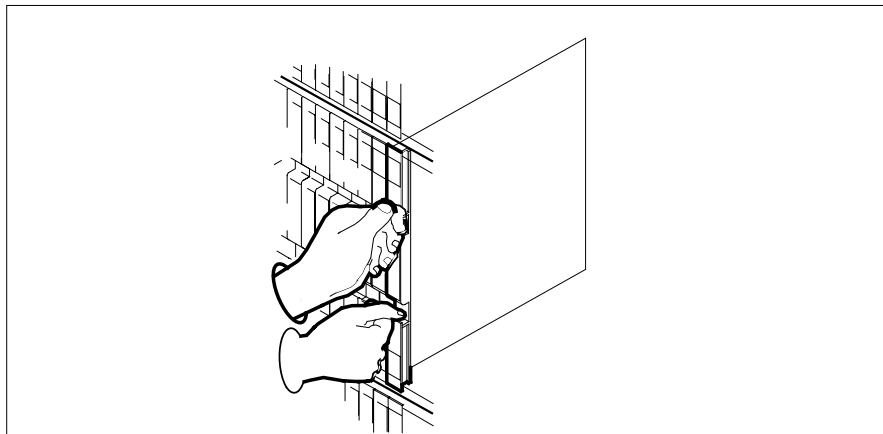
**a** Using your fingers or thumbs, push on the upper and lower edges of the faceplate to ensure the card is fully seated in the shelf.

**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.

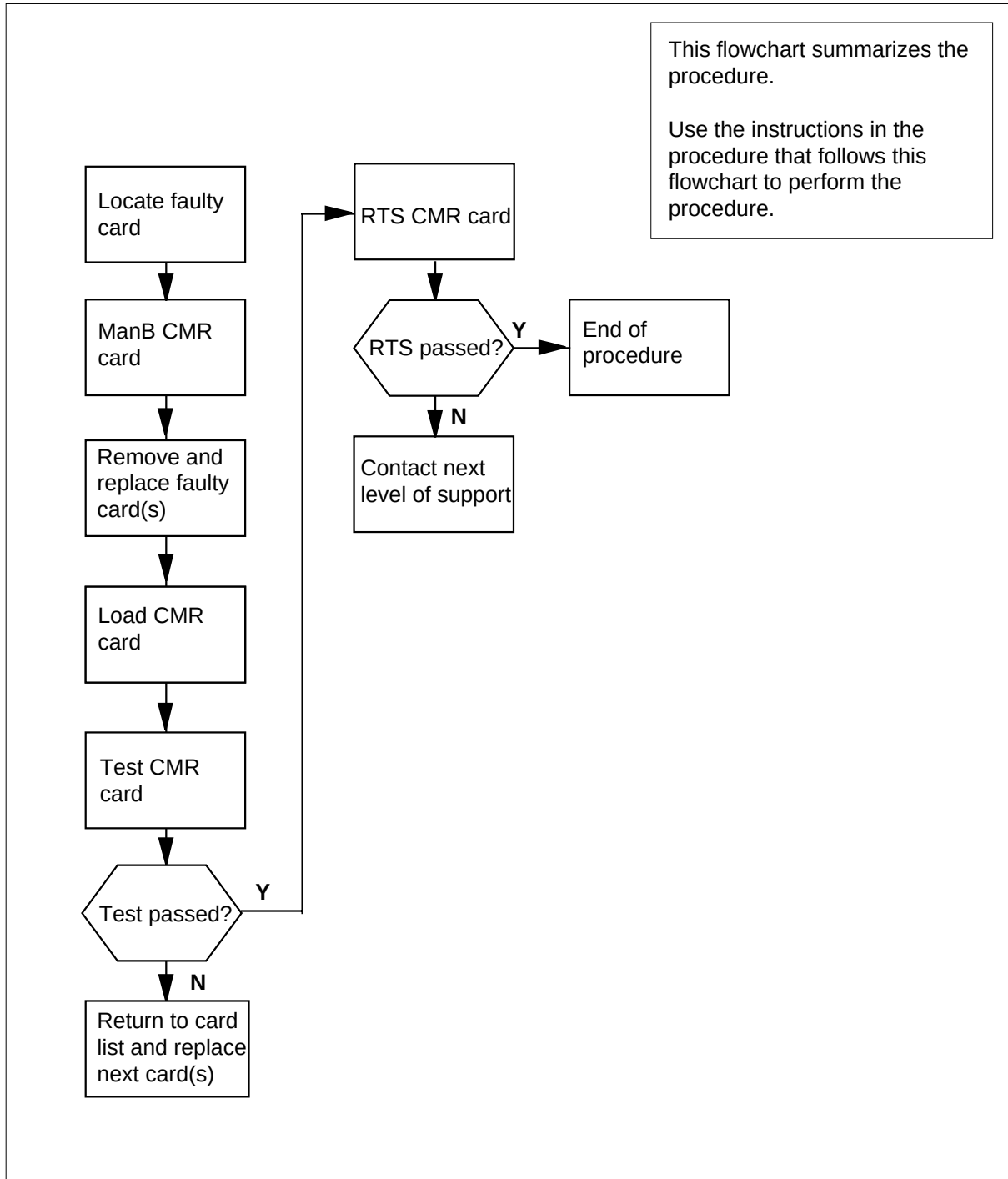
| <b>PEC</b> | <b>Suffixes</b> | <b>Name</b>                |
|------------|-----------------|----------------------------|
| NT6X78     | AA, AB,<br>BA   | CLASS Modem Resource (CMR) |

### **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**

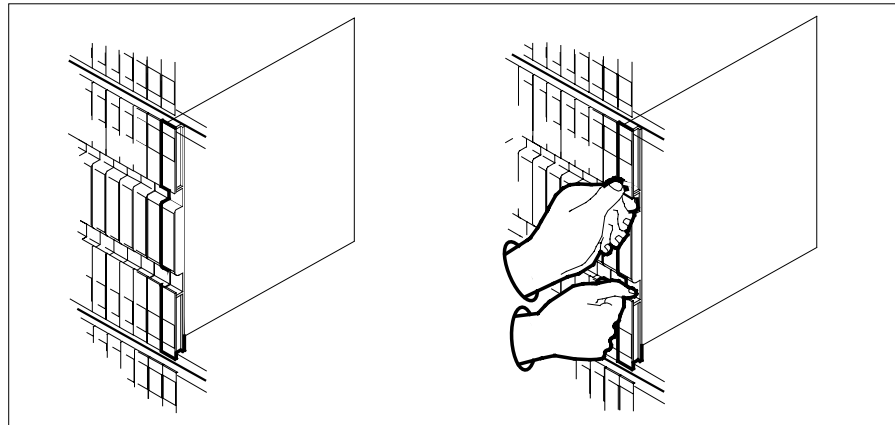
Take the following precautions when removing or inserting a card:

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.

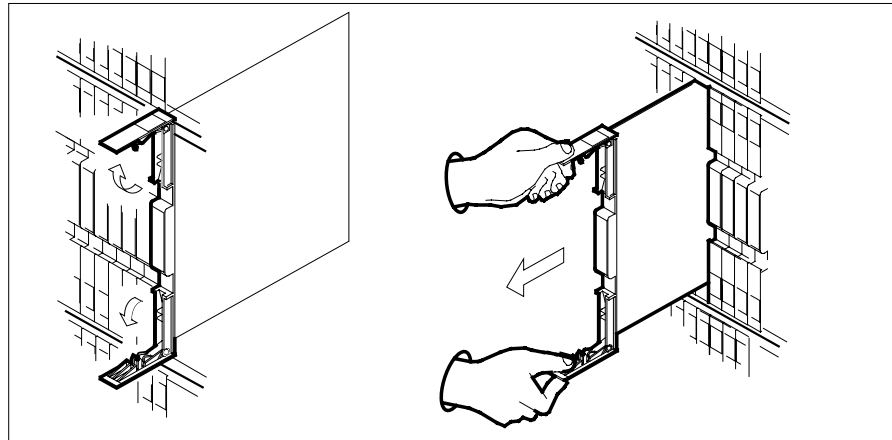
**a** Locate the card to be removed on the appropriate shelf.



**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)

---

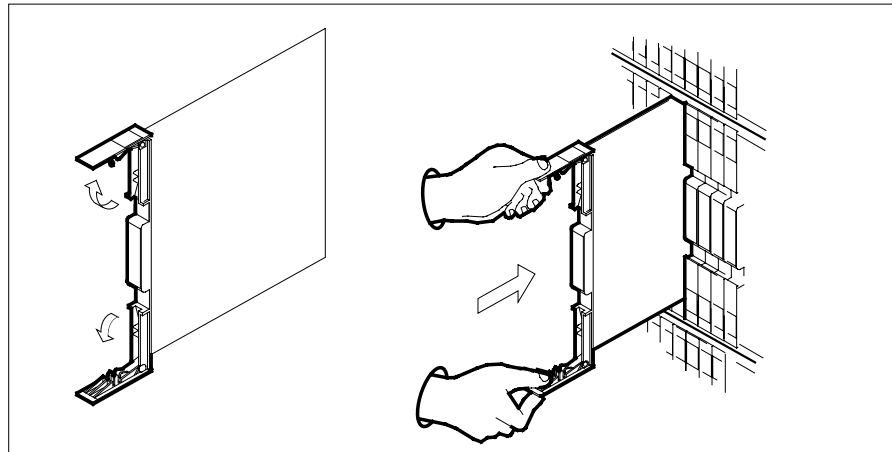


**c** Ensure the replacement card has the same PEC, including suffix, as the card you just removed.

**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.



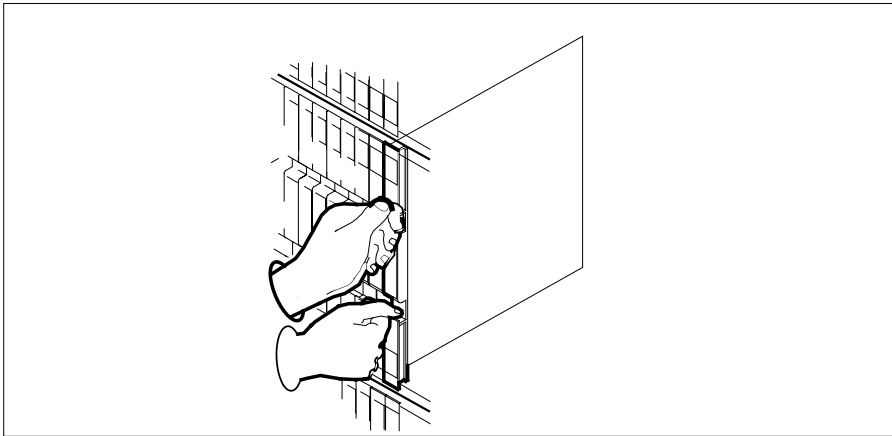
**9** Seat and lock the card.

**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

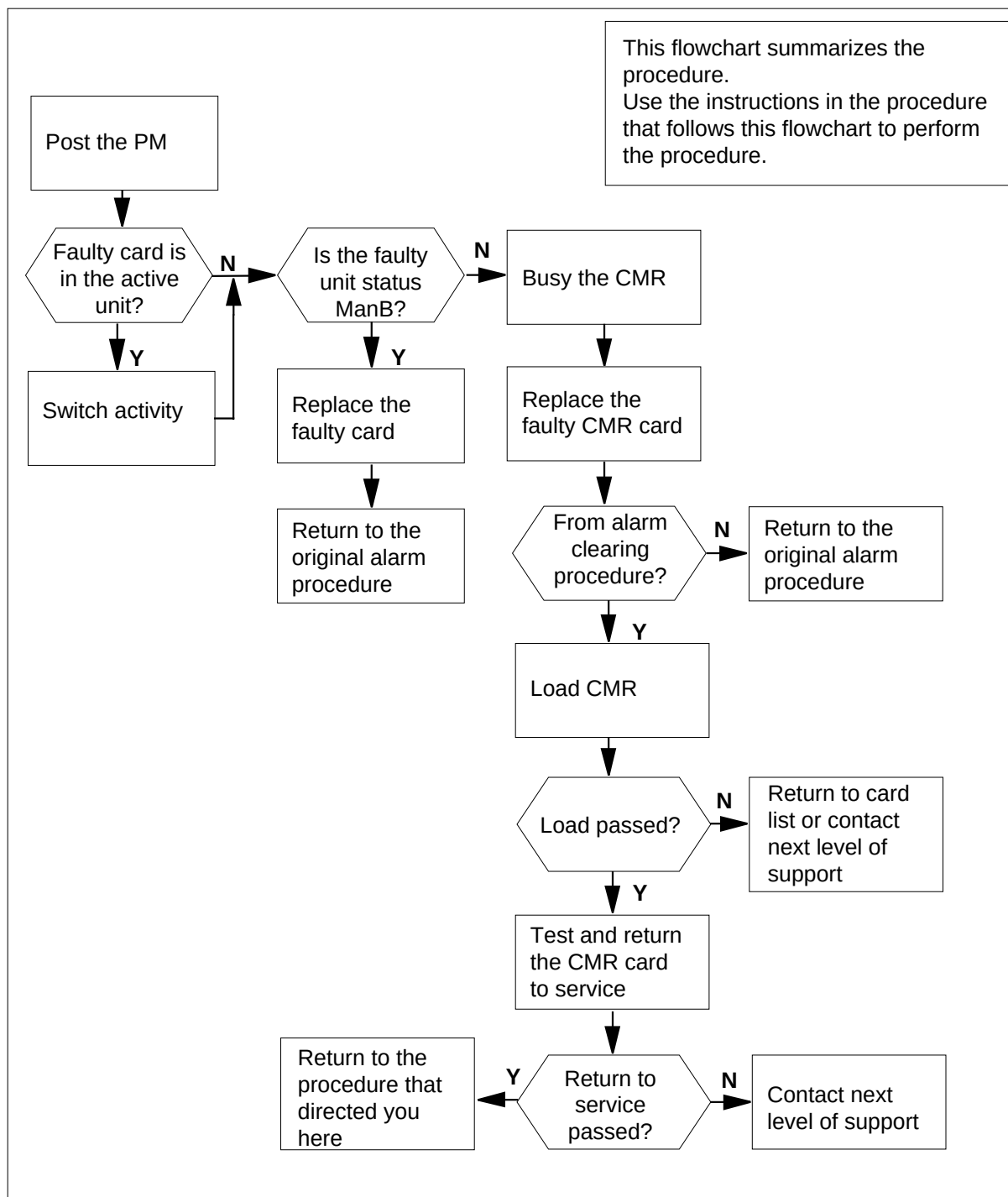
Do not go to the common procedures unless directed to do so in the step-action procedure.

**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:<br>XPM SWACT back | step 9  |
| SWACT refused by swact<br>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

---

| <b>If LOAD</b> | <b>Do</b> |
|----------------|-----------|
| 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

---

| <b>If RTS</b> | <b>Do</b> |
|---------------|-----------|
| 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

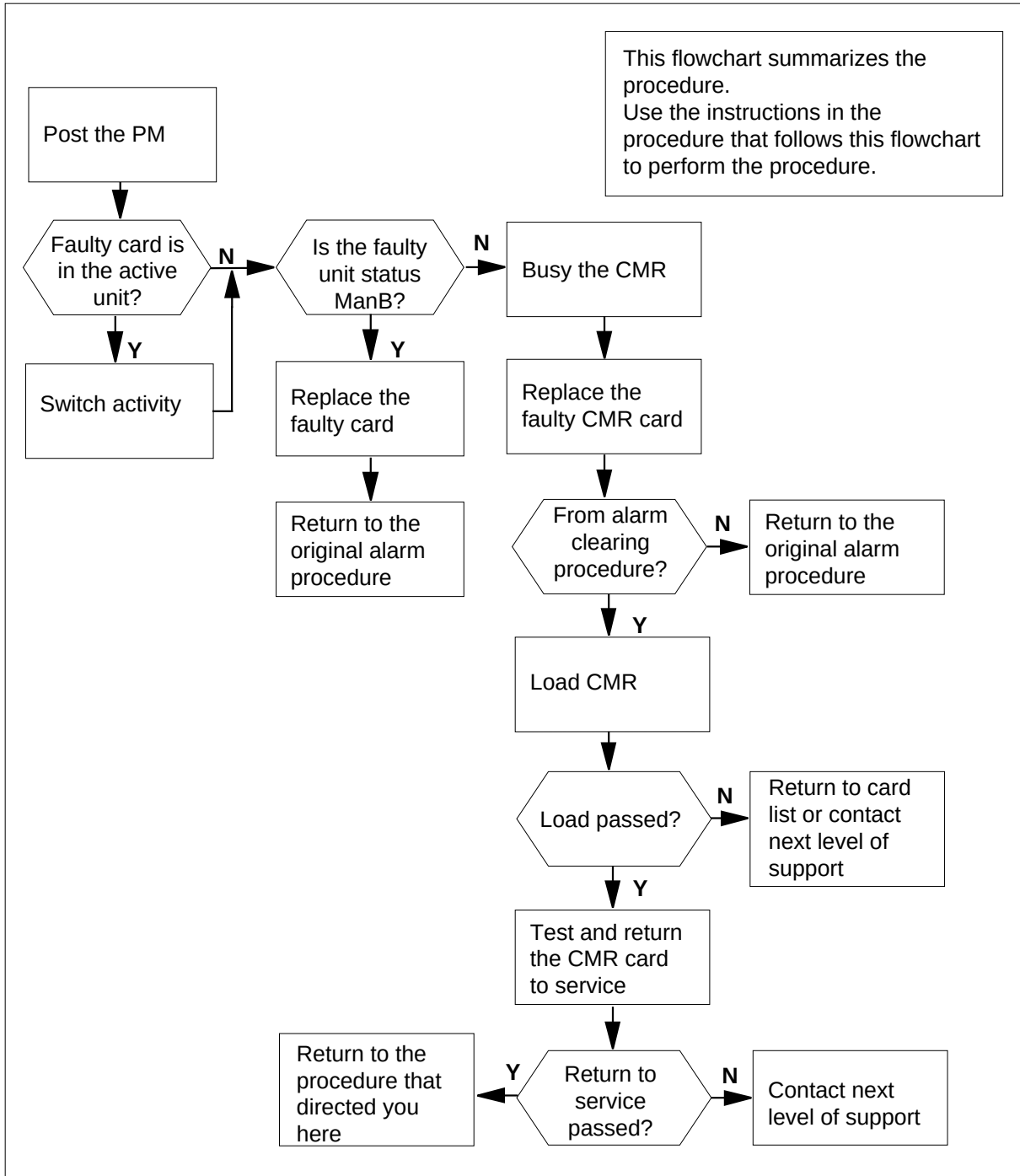
Do not go to the common procedures unless directed to do so in the step-action procedure.

**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:<br>XPM Swactback                                                                                                                                                                                                                                     | step 10 |
|           | SWACT refused by SWACT<br>Controller                                                                                                                                                                                                                                      | step 10 |
| <b>10</b> | 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.<br><br>Go to step 22. |         |
| <b>11</b> | 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<br>InSv                                                                                                                                                                            | step 13 |
| <b>13</b> | Busy the CMR card in the inactive unit by typing<br><b>&gt;BSY UNIT unit_no CMR</b><br>and pressing the Enter key.<br><i>where</i><br><b>unit_no</b><br>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)**

---

| <b>If RTS</b> | <b>Do</b> |
|---------------|-----------|
| 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.

## **NT6X78 in an SMA2**

---

### **Application**

Use this procedure to replace an NT6X78 card in a Subscriber Module AccessNode 2 (SMA2).

| <b>PEC</b> | <b>Suffixes</b> | <b>Name</b>                |
|------------|-----------------|----------------------------|
| 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”

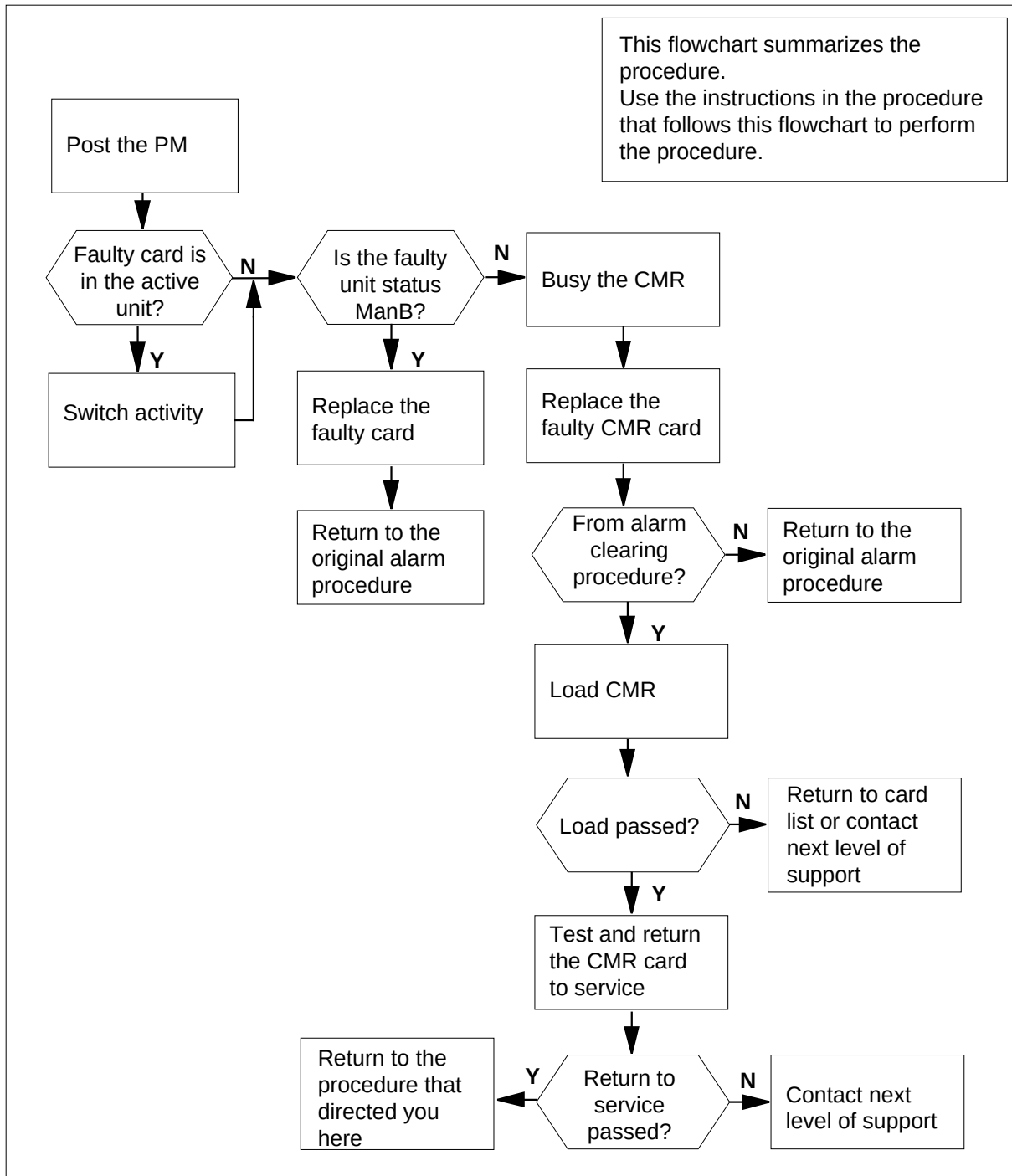
### **Action**

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.<br>Go to step 21. |               |
| <b>At the frame or cabinet</b> |                                                                                                                                                                                                                                                                                             |               |
| 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.                                                                                                                                                    |               |
| <b>At the MAP terminal</b>     |                                                                                                                                                                                                                                                                                             |               |
| 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<br><b>&gt;BSY UNIT unit_no CMR</b><br>and pressing the Enter key.<br><i>where</i><br><b>unit_no</b><br>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.

| <b>If your were directed here from</b> | <b>Do</b> |
|----------------------------------------|-----------|
| 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

| <b>If LOAD</b> | <b>Do</b> |
|----------------|-----------|
| 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

| <b>If RTS</b> | <b>Do</b> |
|---------------|-----------|
| 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,<br>BA | CLASS modem resource (CMR) |

**Common procedures**

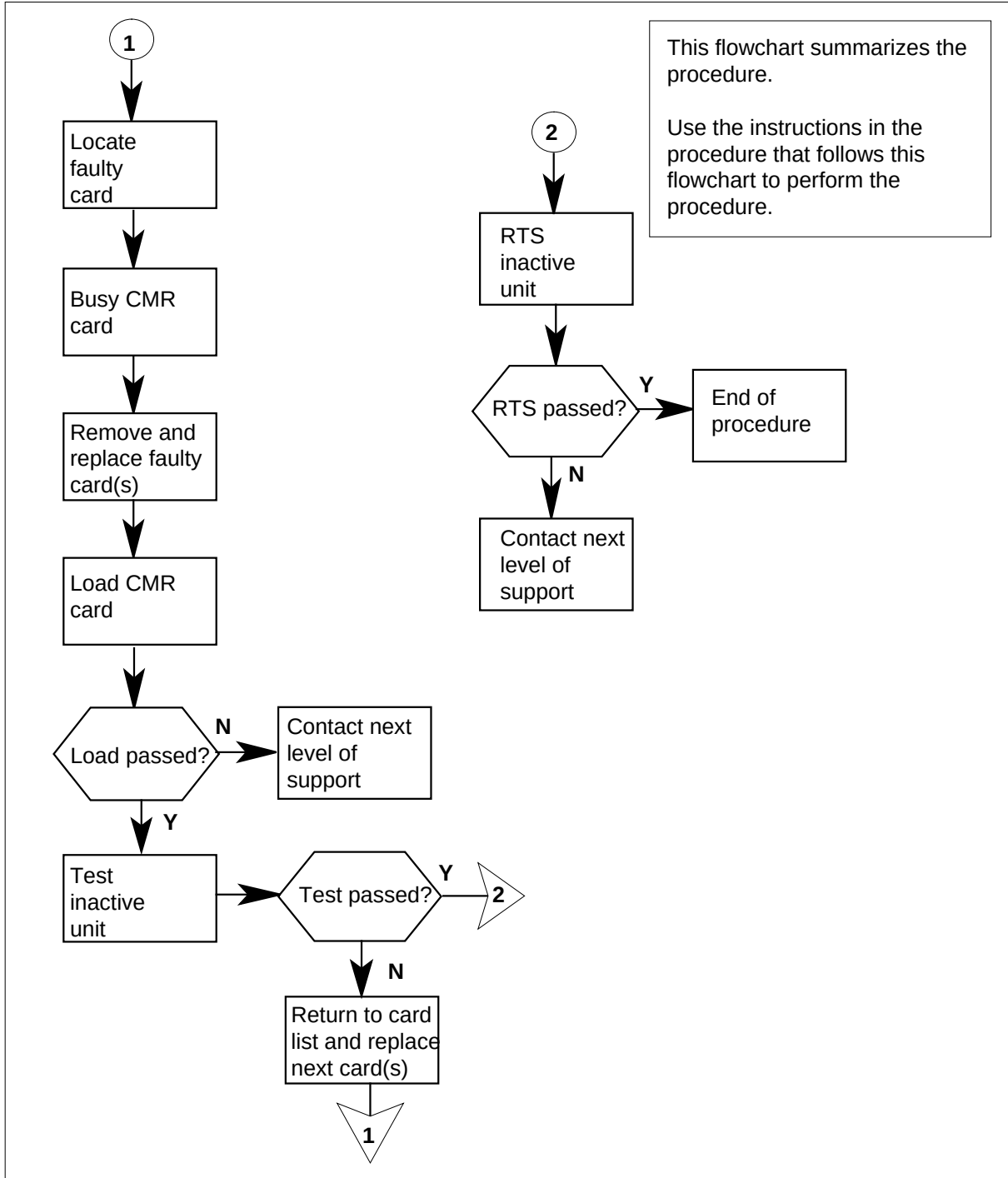
None

**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**



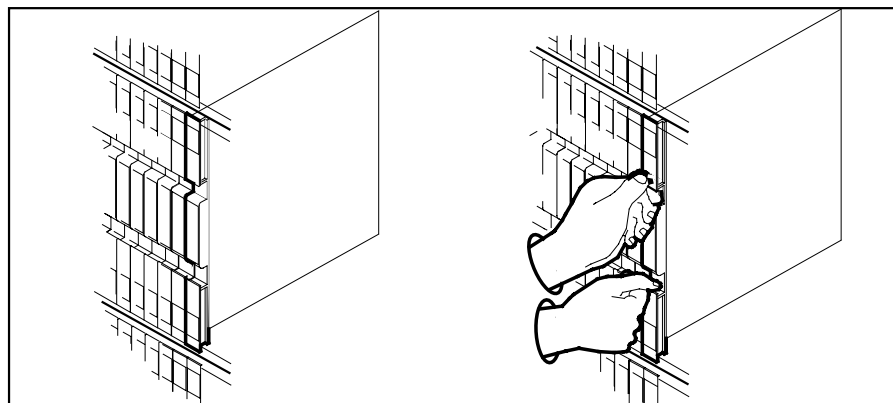
### **DANGER**

#### **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.

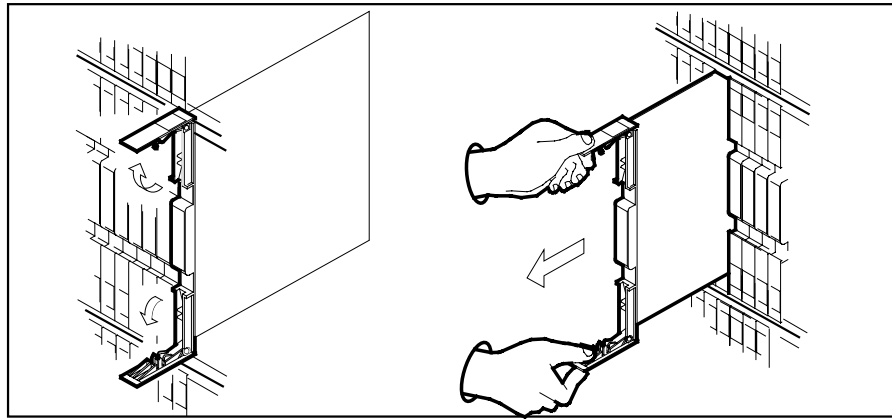
Remove the NT6X78 card as shown in the following figures.

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



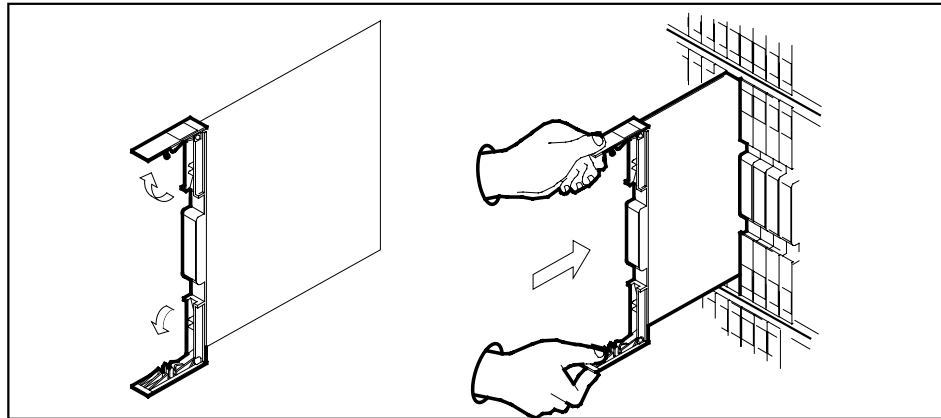
- b** Open the locking levers on the card to be replaced and gently pull the card toward you until it clears the shelf.

**NT6X78**  
**in an SMS (continued)**



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

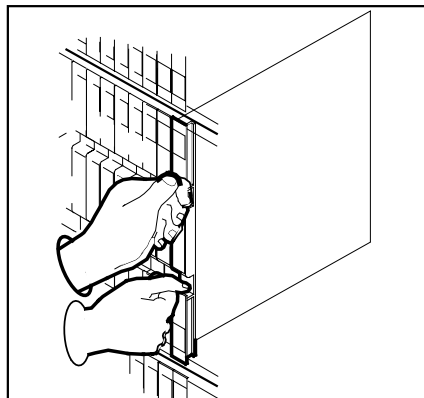
- 8** Open the locking levers on the replacement card. Align the card with the slots in the shelf and gently slide the card into the shelf.



- 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

| <b>If RTS</b> | <b>Do</b> |
|---------------|-----------|
| 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).

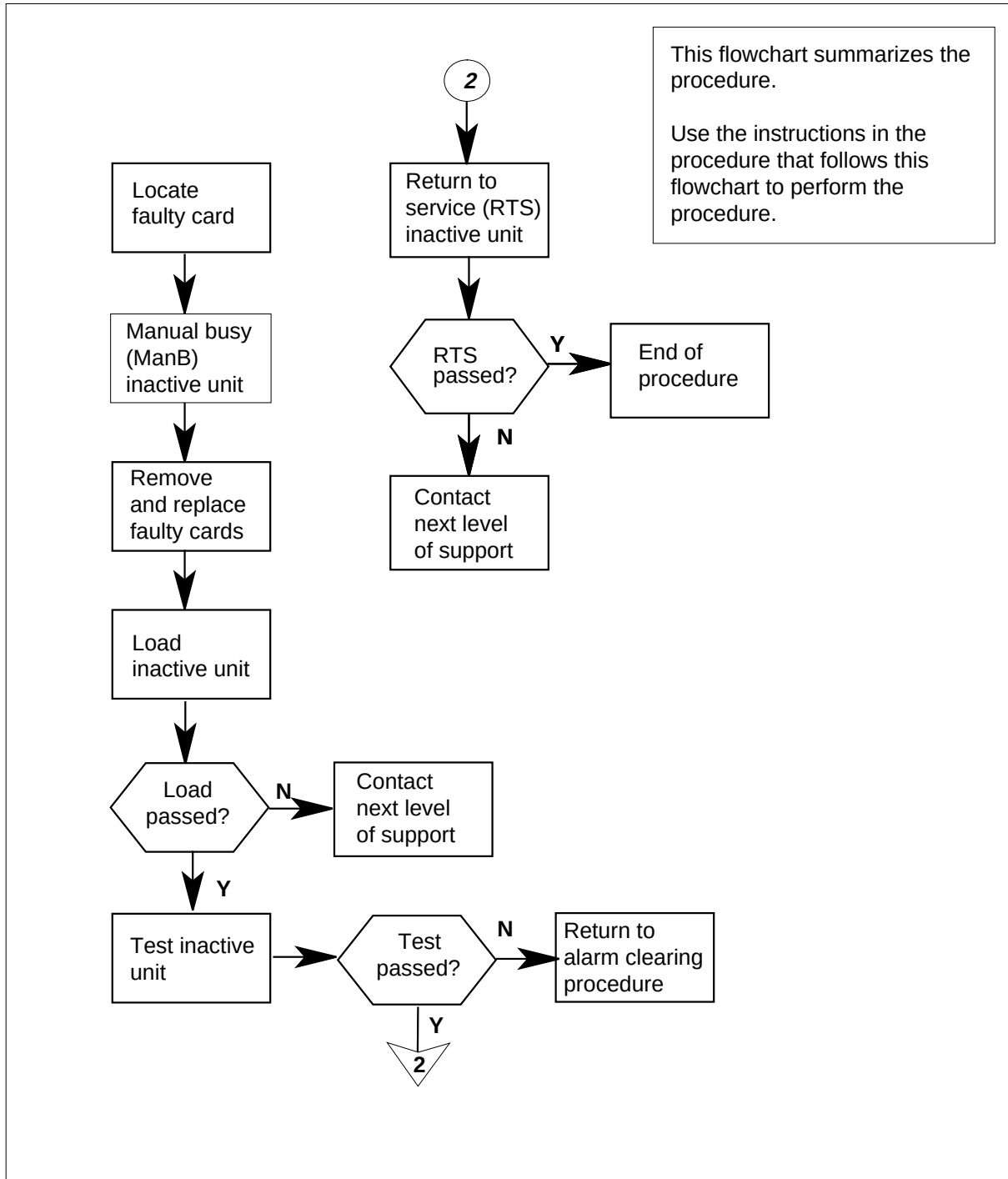
| <b>PEC</b> | <b>Suffixes</b> | <b>Name</b>                |
|------------|-----------------|----------------------------|
| NT6X78     | AA, AB,<br>BA   | CLASS modem resource (CMR) |

### **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.

| <b>If you entered this procedure from</b> | <b>Do</b> |
|-------------------------------------------|-----------|
| 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

| <b>If LOADPM</b> | <b>Do</b> |
|------------------|-----------|
| 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

| <b>If TST</b> | <b>Do</b> |
|---------------|-----------|
| 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

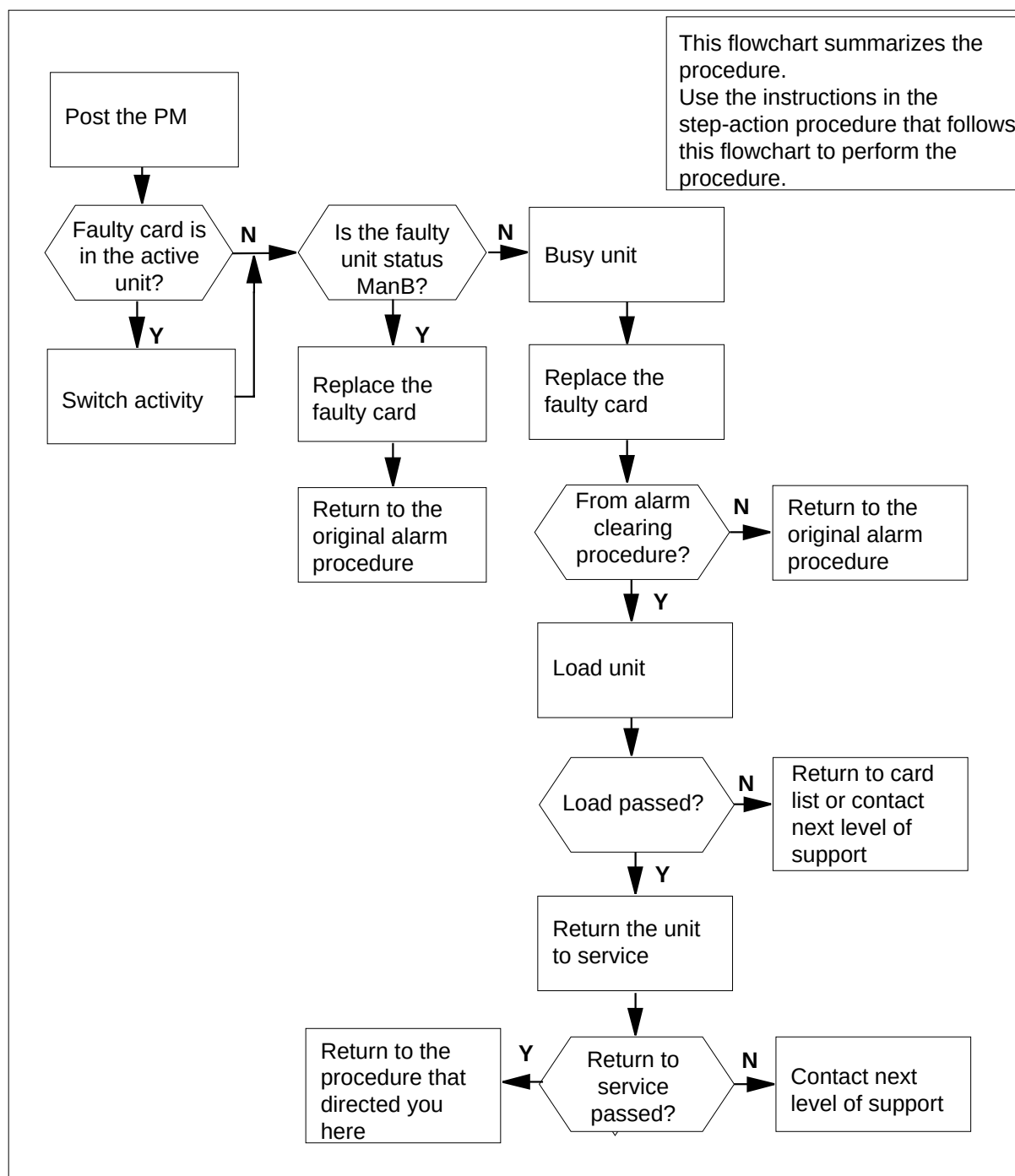
Do not go to the common procedures unless directed to do so in the step-action procedure.

**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

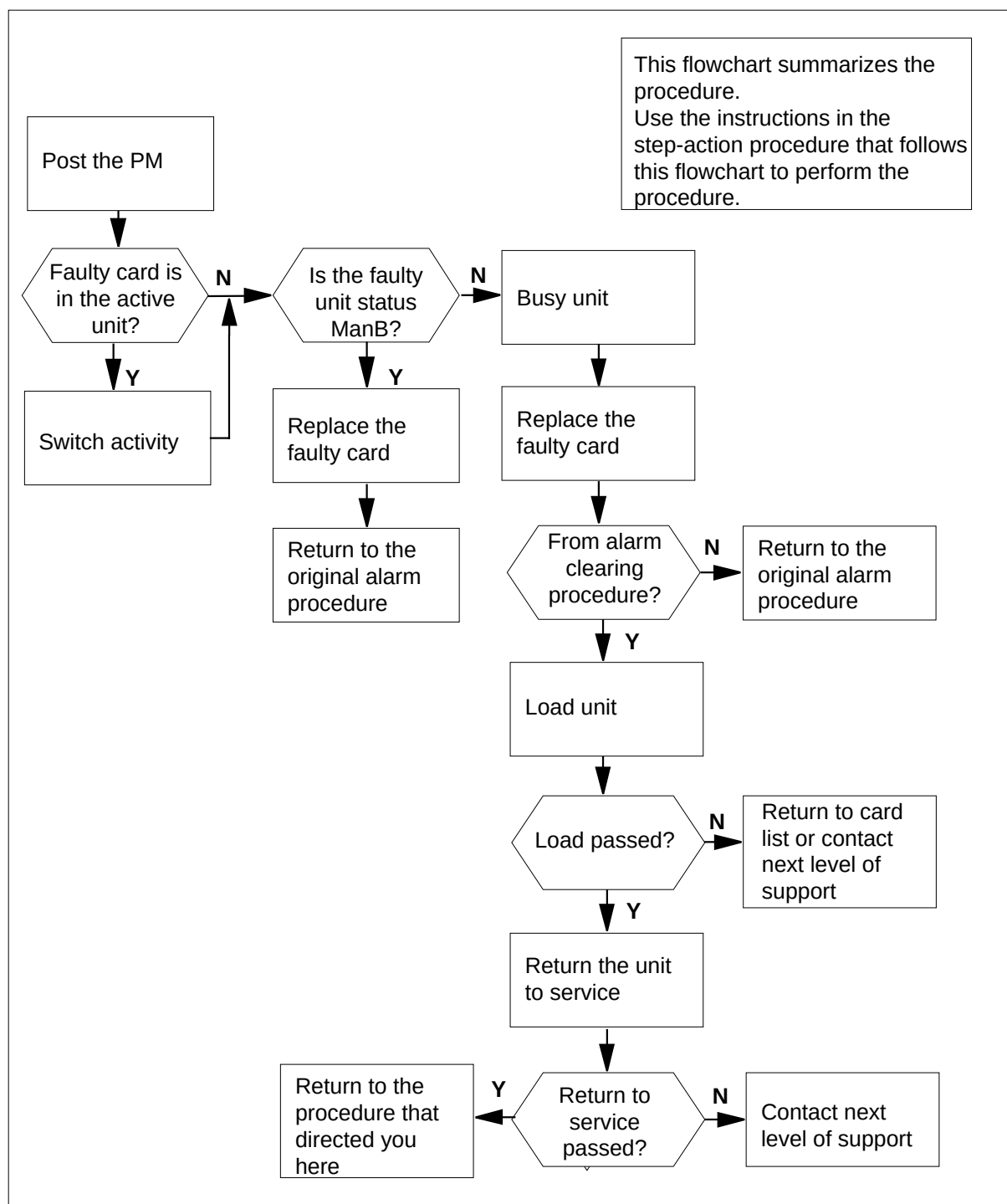
Do not go to the common procedures unless directed to do so in the step-action procedure.

**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-<br>son: XPM SWACTback                                                                                                                                                                                                                                   | step 10 |
|           | SWACT refused by SWACT<br>Controller                                                                                                                                                                                                                                      | step 10 |
| <b>10</b> | 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.<br><br>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<br>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

| <b>If RTS</b> | <b>Do</b> |
|---------------|-----------|
| 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.

| <b>PEC</b> | <b>Suffixes</b> | <b>Name</b>  |
|------------|-----------------|--------------|
| NT6X80     | AA, BB          | SCM pad/ring |

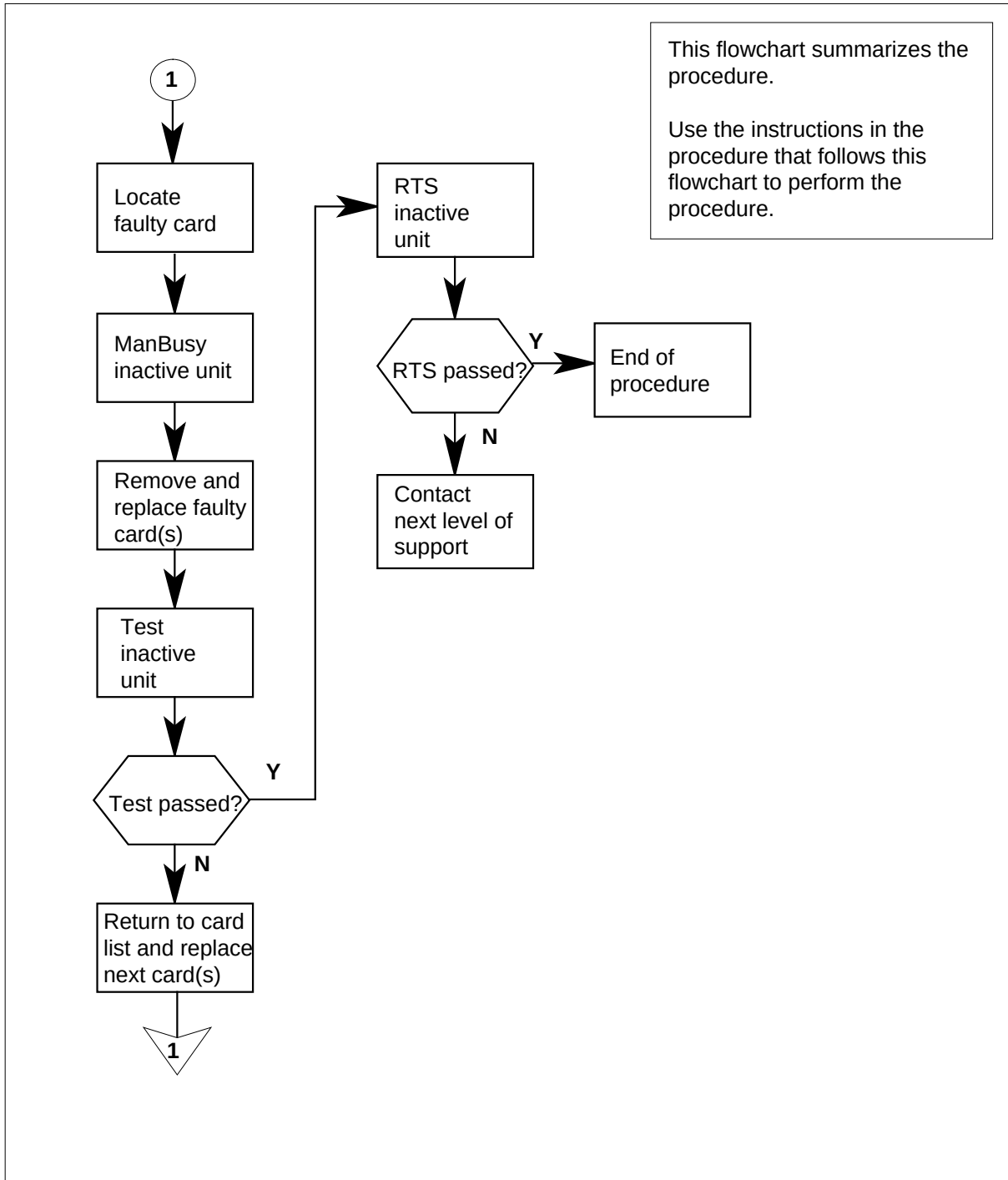
### **Common procedures**

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:<br>XPM SwActback | step 7 |
| SwAct refused by SwAct<br>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



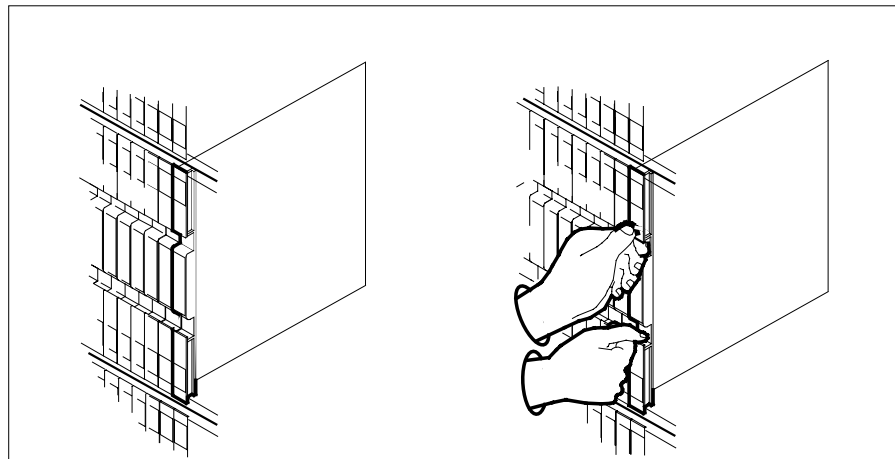
**DANGER**

**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.

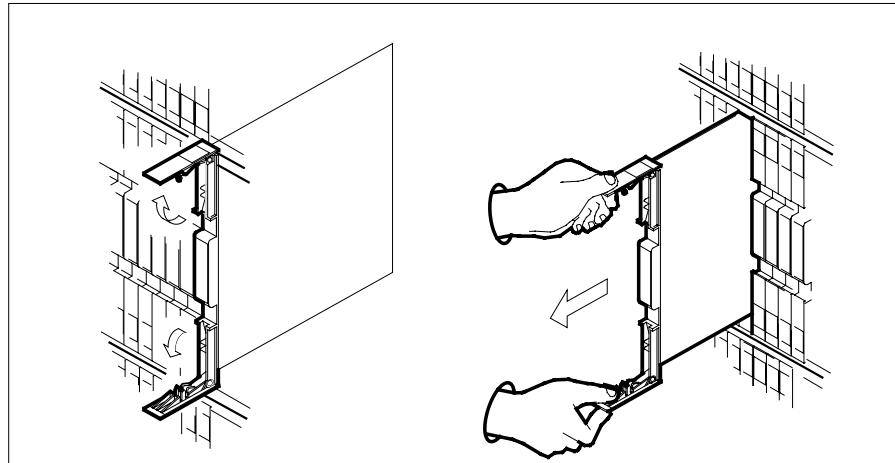
Remove the NT6X80 card as shown in the following figures.

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



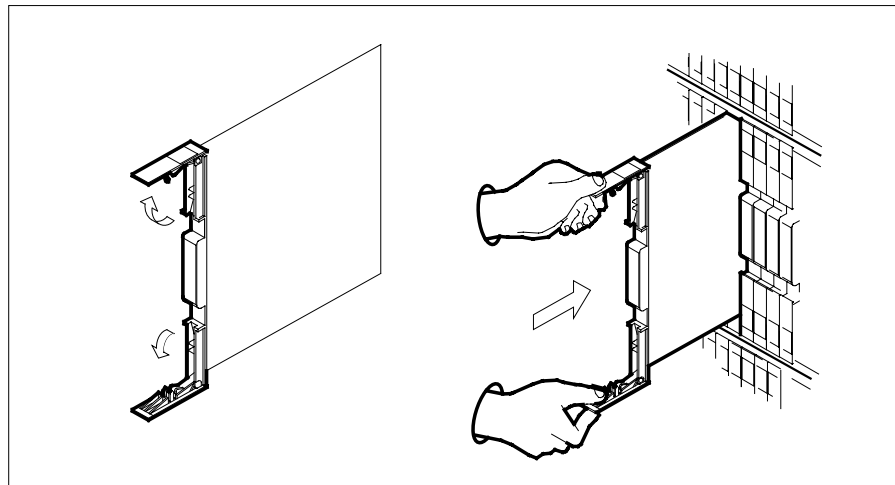
- b** Open the locking levers on the card to be replaced and gently pull the card toward you until it clears the shelf.

## 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.

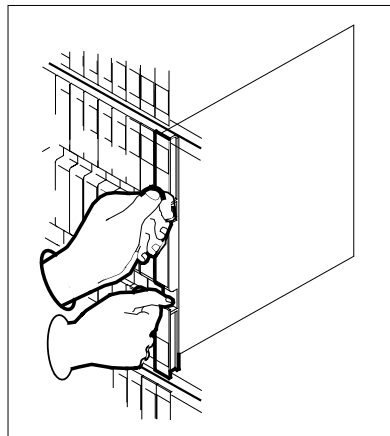


- 13** Seat and lock the card.

- 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.

| <b>PEC</b> | <b>Suffixes</b> | <b>Name</b>  |
|------------|-----------------|--------------|
| NT6X80     | BA, BB          | SCM Pad/Ring |

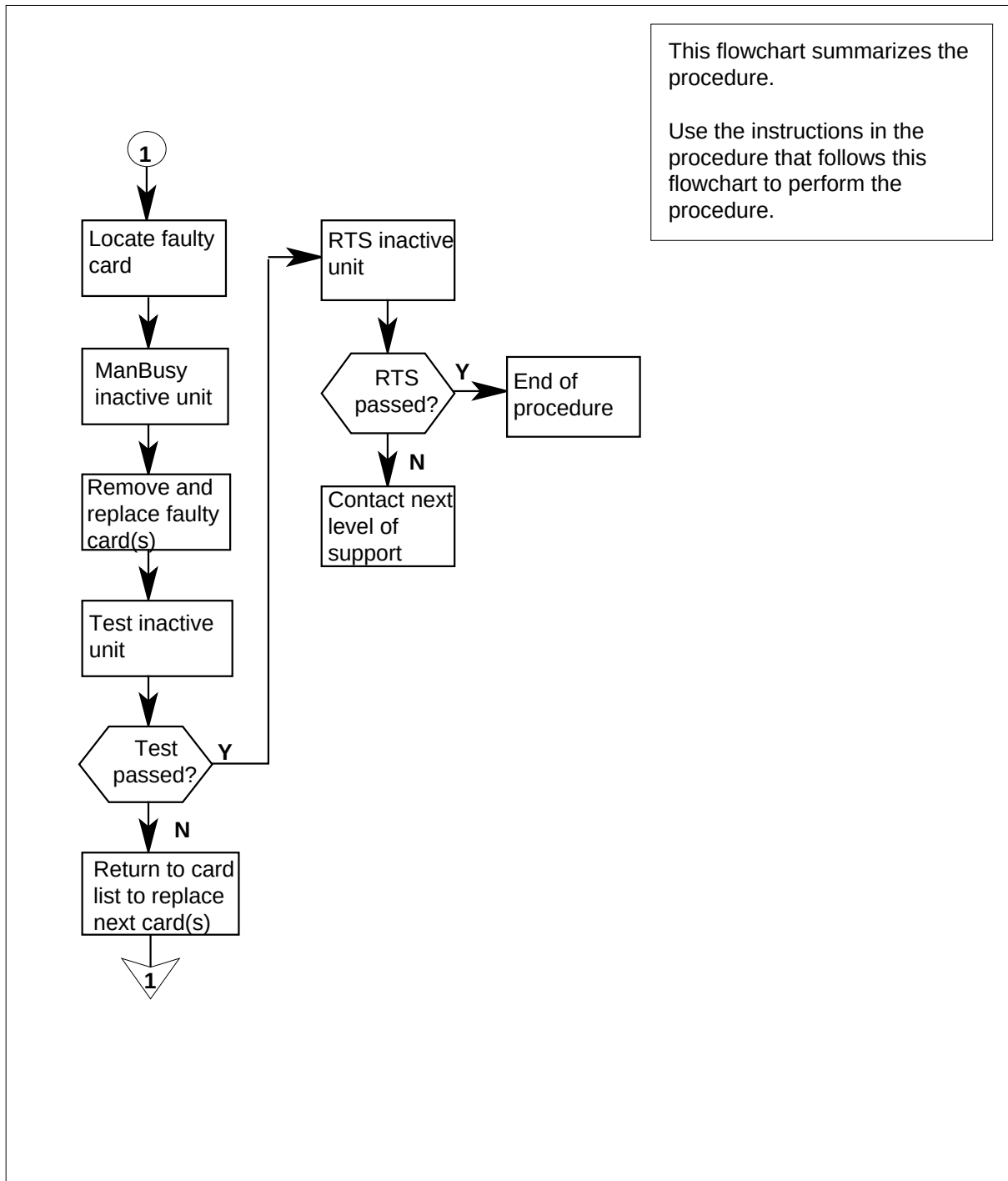
### **Common procedures**

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.

---

| <b>If faulty card is on</b> | <b>Do</b> |
|-----------------------------|-----------|
| 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:<br>XPM SwActback | step 7 |
| SwAct refused by SwAct<br>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**

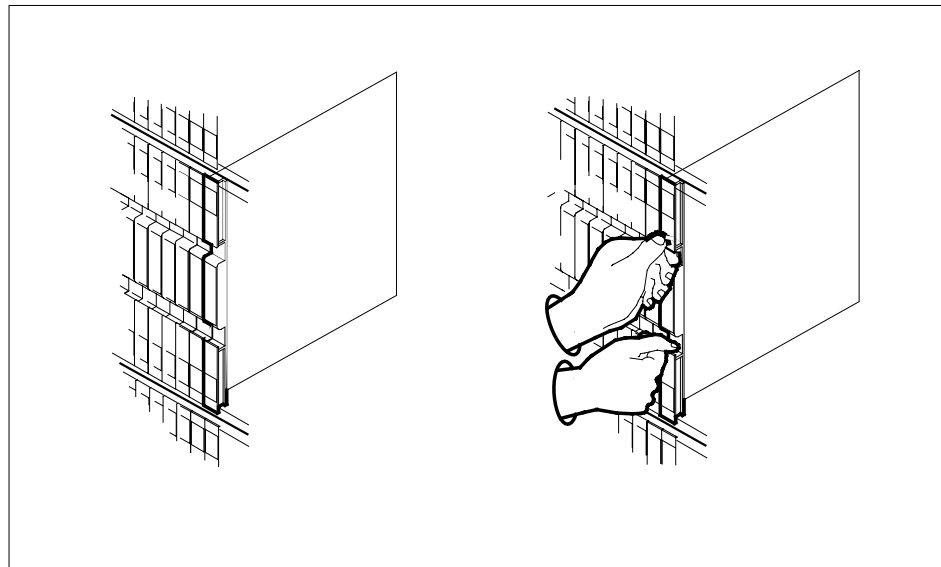
Take the following precautions when removing or inserting a card:

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.

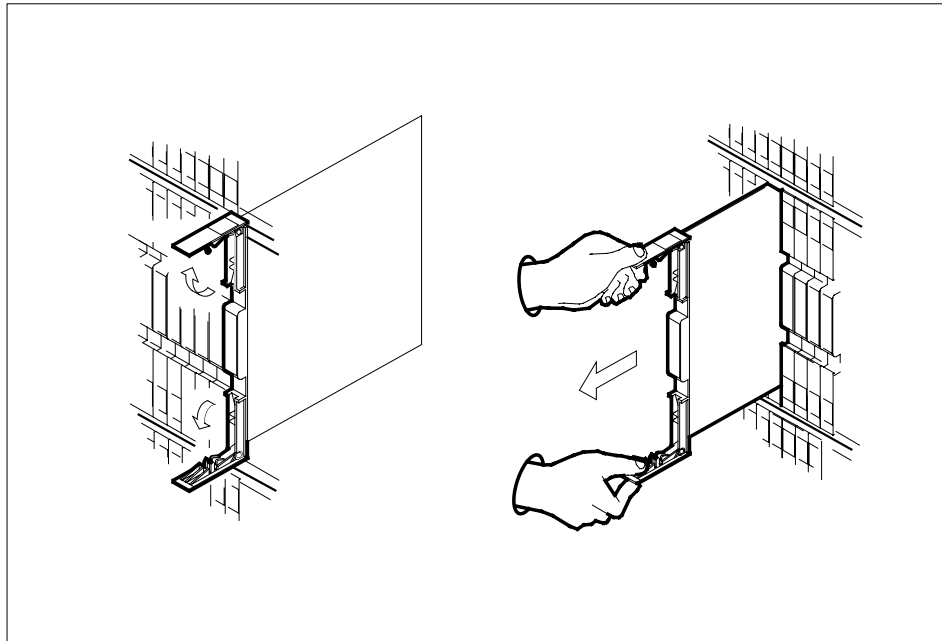
a Locate the card to be removed on the appropriate shelf.



**NT6X80**  
**in an SMS-R (continued)**

---

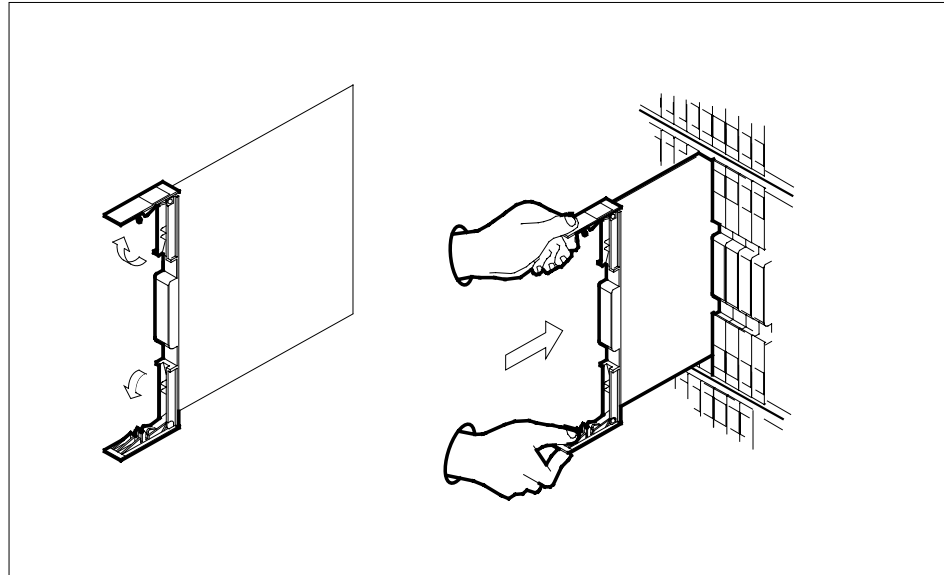
- b** Open the locking levers on the card to be replaced and gently pull the card toward you until it clears the shelf.



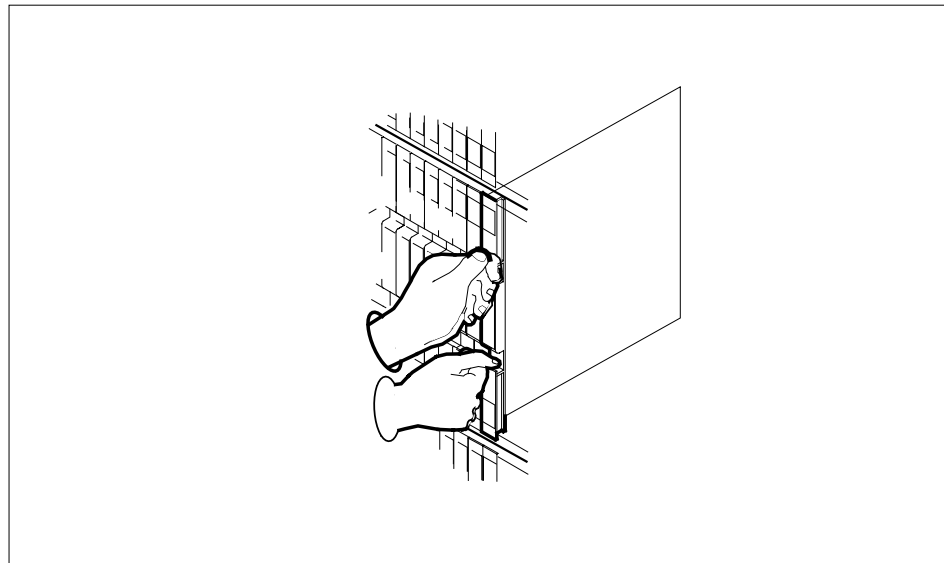
- c** Verify that the replacement card has the same PEC, including suffix, as the card you just removed.
- 12** Open the locking levers on the replacement card.
- a** Align the card with the slots in the shelf and gently slide the card into the shelf.

## 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.

| <b>If you entered this procedure from</b> | <b>Do</b> |
|-------------------------------------------|-----------|
| 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

| <b>If TST</b> | <b>Do</b> |
|---------------|-----------|
| 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

| <b>If RTS</b> | <b>Do</b> |
|---------------|-----------|
| 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**

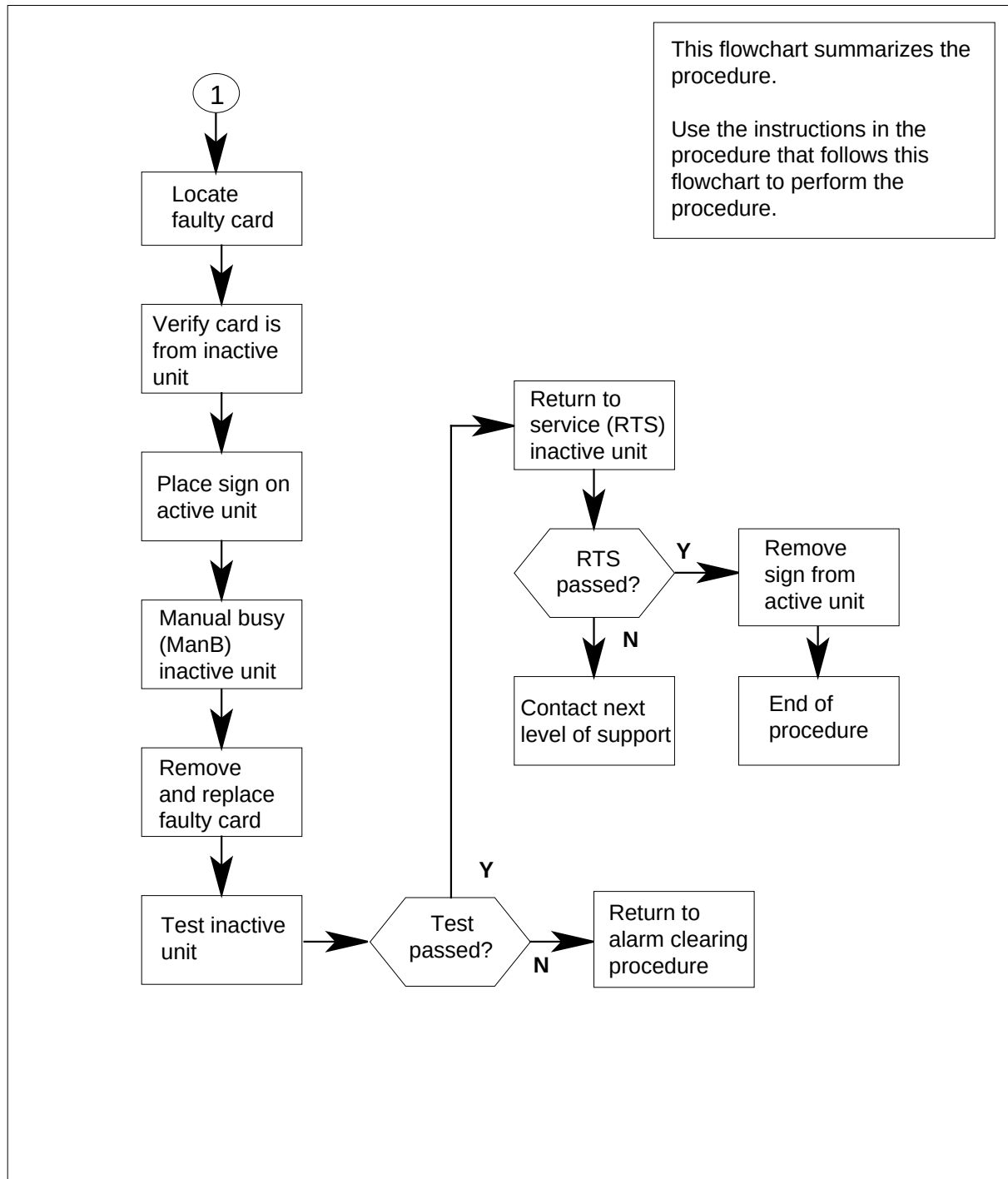
The common replacing a card procedure is referenced in this procedure.

**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:<br>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.                   |           |
| <b>At the SME frame:</b>    |                                                                                                                                                                                     |           |
| 9                           | Put a sign on the active unit bearing the following words: "Active unit—Do not touch."                                                                                              |           |
| <b>At the MAP terminal:</b> |                                                                                                                                                                                     |           |
| 10                          | Busy the inactive PM unit by typing<br><b>&gt;bsy UNIT unit_no</b><br>and pressing the Enter key.<br><i>where</i><br><b>unit_no</b><br>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.                                                                                               |           |
|                             | <b>If you entered this procedure from</b>                                                                                                                                           | <b>Do</b> |
|                             | alarm clearing procedures                                                                                                                                                           | step 15   |
|                             | other                                                                                                                                                                               | step 13   |
| 13                          | Test the inactive unit by typing<br><b>&gt;TST UNIT unit_no</b><br>and pressing the Enter key.<br><i>where</i><br><b>unit_no</b><br>is the number of the SMU unit busied in step 10 |           |
|                             | <b>If TST</b>                                                                                                                                                                       | <b>Do</b> |
|                             | passed                                                                                                                                                                              | step 14   |

## NT6X80 in an SMU (end)

|           | If TST                                                                                                                                                                                                          | Do      |
|-----------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|
|           | failed                                                                                                                                                                                                          | step 16 |
| <b>14</b> | Return the inactive SMU unit to service by typing<br><b>&gt;RTS UNIT unit_no</b><br>and pressing the Enter key.<br><i>where</i><br><b>unit_no</b><br>is the number of the SMU unit tested in step 13            |         |
|           | If RTS                                                                                                                                                                                                          | Do      |
|           | passed                                                                                                                                                                                                          | step 18 |
|           | failed                                                                                                                                                                                                          | step 16 |
| <b>15</b> | 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. |         |
| <b>16</b> | Contact personnel responsible for higher level support and get further help to replace this card.                                                                                                               |         |
| <b>17</b> | Remove the sign from the active SMU unit.                                                                                                                                                                       |         |
| <b>18</b> | Send any faulty cards for repair according to local procedure.                                                                                                                                                  |         |
| <b>19</b> | Note the following in the office records:                                                                                                                                                                       |         |
|           | <ul style="list-style-type: none"> <li>• date the card was replaced</li> <li>• serial number of the card</li> <li>• symptoms that prompted replacement of the card</li> </ul>                                   |         |
| <b>20</b> | 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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