Critical Release Notice

Publication number: 297-8021-547
Publication release: Standard 17.07

The content of this customer NTP supports the SN08 (DMS) software release.

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

Bookmark Color Legend

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

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

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

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

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

Pink: Applies to new or modified content for SN08 (DMS) that is valid through the current release.

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

Publication History

March 2005

Standard release 17.07 for software release SN08 (DMS). No changes have been made for SN08 (DMS) features.

Volume 7

New procedure – Backplane replacement, "NTRX4002 in NTRX40AA" due to CR Q01166307.

March 2005

Standard release 17.06 for software release SN08 (DMS). This release is current for the SN08 (DMS) software release, although no changes have been made for SN08 (DMS) features.

Volume 3

Modified procedure – Replacing processor and memory cards in an XPM (step 26). This change corrects the re-direction from step 26, and is due to CR Q01047311.

December 2004

Standard release 17.05 for software release SN07 (DMS).

Volume 7

New procedure for CR Q00840334 – NTMX82 in a DTCO2

September 2004

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

Volume 2

Modified procedure - Bus interface cards in an LCD
Modified procedure - NTBX71 in an LCME
Modified procedure - NT9X30 in an LPP LIS

Volume 3

Modified procedure - NT2X70 in an XPM

Volumes 5

All of the changes below are due to CR Q00855532:

Modified procedure - NT6X40 in an SMA
Modified procedure - NT6X40 in an SMA-MVI-20
Modified procedure - NT6X40 in an SMA2

Modified procedure - NT6X40 in an SMS
Modified procedure - NT6X40 in an SMU

March 2004

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

Volume 1

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

Volume 2

No changes

Volume 3

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

Volumes 4 - 7

No changes

September 2003

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

Volume 1

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

Volume 2

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

Volumes 3 - 7

No changes

June 2003

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

Volume 1

No changes

Volume 2

No changes

Volume 3
Added new card replacement procedure: SPM NTLX99BA STM-1 for DMS Spectrum Peripheral Module.

Volumes 4 - 7
No changes

297-8021-547

DMS-100 Family

North American DMS-100

Card Replacement Procedures

Volume 6 of 7

LET0015 and up Standard 14.02 May 2001

NORTEL NETWORKS™

DMS-100 Family

North American DMS-100

Card Replacement Procedures

Volume 6 of 7

Publication number: 297-8021-547
Product release: LET0015 and up
Document release: Standard 14.02
Date: May 2001

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1 XPM card replacement procedures (continued)

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

NT6X85 in an SMS

Application

Use this procedure to replace an NT6X85 card in an SMS.

PEC	Suffixes	Name
NT6X85	AA, AB, AC	DS-1 interface for SLC-96

Common procedures

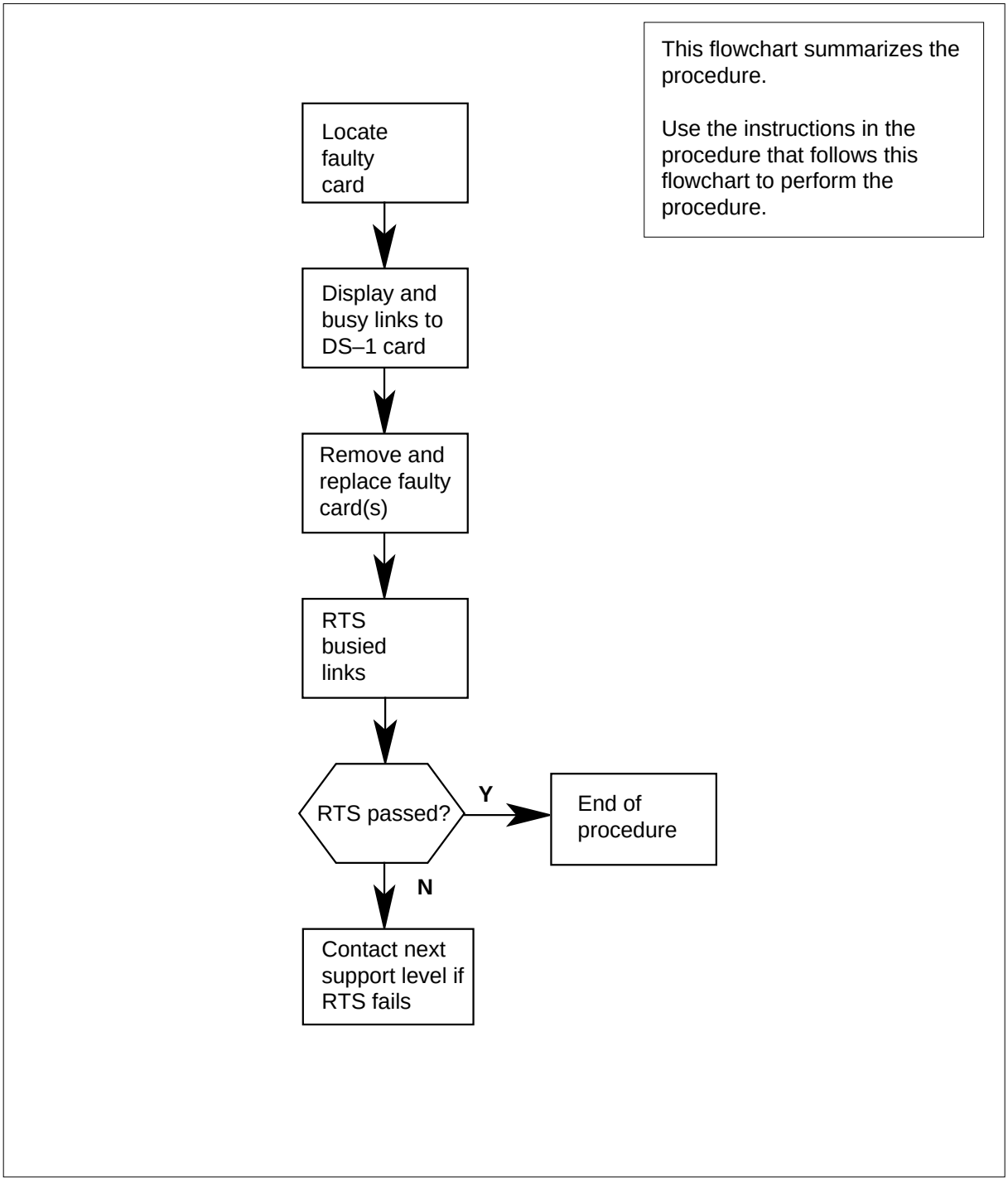
None

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.

NT6X85
in an SMS (continued)

Summary of card replacement procedure for an NT6X85 card in an SMS



NT6X85
in an SMS (continued)

Replacing an NT6X85 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 Obtain a replacement card. Verify the replacement card has the same product engineering code (PEC), including suffix, as the card to be removed and the dual in-line package (DIP) switch settings are the same as the card being replaced.

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_OOS    CSIDE 0     PSIDE 1
Unit0      Act       InSv
Unit1     Inact      ISTb
```

4 Display the DS-1 links associated with the faulty DS-1 interface card by typing

`>TRNSL  P`

and pressing the Enter key.

Record all link numbers, information on faulty links, and any protection line information. Each 6X85 card has 2 ports; for instance, ports 0 and 1 are on one 6X85 card. Look at the link, RCS location, and port numbers in the MAP display. The first line indicates that link 0 is routed to RCS location BRCS 00 0. Link 0 is a protection line.

Example of a MAP response

```
LINK 0: RCS    BRCS 00 0   ;Protline;
LINK 1: RCS    BRCS 00 1   ;Protline;
LINK 2: RCS    BRCS 00 2   0;CAP MS;STATUS:OK   ;MSGCOND:OPN
LINK 3: RCS    BRCS 00 2   1;CAP MS;STATUS:SysB  ;MSGCOND:CLS
```

If	Do
0 protection lines recorded in step 4	step 9
1 protection line recorded in step 4	step 5
2 or more protection lines recorded in step 4	step 7

5 Access the carrier level of the MAP display by typing

`>TRKS;CARRIER;POST SMS mod_no link_no`

and pressing the Enter key.

where

mod_no
is 0-127 with an NT40 and 0-255 with DMS SuperNode

link_no
is the number of a protection line connected to the faulty card

This command ensures a protection line will be displayed.

Example of a MAP response

```
CLASS     ML   OS   ALARM     SYSB MANB      UNEQ OFFL CBSY PBSY INSV
TRUNKS    0    0    0         0    0         0    0    0  0 0
REMOTE    0    0    0         5    1         0    0    1  0 10

NO  CLASS SITE SMS  CKT  D    ALARM SLIP FRAME    BER  SES  STATE
0   REMOTE BRSC 0   3    C          0    0        <-.7 0    SysB
```

6 Proceed to step 8.

7 Access the carrier level of the MAP display by typing

`>TRKS;CARRIER;POST SMS mod_no link_no SMS mod_no link_no ...`

and pressing the Enter key.

where

mod_no
is 0-127 with an NT40 and 0-255 with DMS SuperNode

link_no
is the number of a protection line connected to the faulty card

NT6X85
in an SMS (continued)

Note: As many as five SMS mod_no link_no commands can be executed in a string command, with spacing as shown in the command string here. This command ensures a protection line will be displayed.

Example of a MAP response

```
CLASS  ML OS   ALARM     SYSB MANB UNEQ  OFFL CBSY PBSY INSV
TRUNKS 0  0    0         0    0    0     0    0  0 0
REMOTE 0  0    0         5    1    0     0    1  0 10

NO   CLASS     SITE SMS  CKT  D    ALARM     SLIP FRAME BER SES  STATE
0    REMOTE    BRSC 0    2    C              0    0    <-.7 0    SysB
1    REMOTE    BRSC 0    3    C              0    0    <-.7 0    SysB
```

8 Busy the protection line or lines connected to the faulty NT6X85 card by typing

>BSY line_no

and pressing the Enter key.

where

line_no
is the number of the protection line connected to the faulty NT6X85 card

Note 1: Protection line numbers are listed in the NO column in the MAP display response in step 7.

Note 2: Repeat this busy command for each protection line connected to the faulty card.

If	Do
both protection lines busied on same NT6X85 card	step 11
one protection line on NT6X85 card busied and other line on same card is unprotected	step 9

9 Access the PM level of the MAP display by typing

>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_OOS    CSIDE 0     PSIDE 2
 Unit0      Act       InSv
 Unit1     Inact      ISTb
```

10 Busy all links connected to the faulty NT6X85 card by typing

>BSY LINK link_no

and pressing the Enter key.

where

link no
is the number of the link connected to the faulty NT6X85 card

Repeat this command for each link to the faulty card.

At the 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 left side of the frame supervisory panel of the SMS. This protects the equipment against damage caused by static electricity. Do not replace more than one NT6X85 card at a time.

Put on a wrist strap.

12

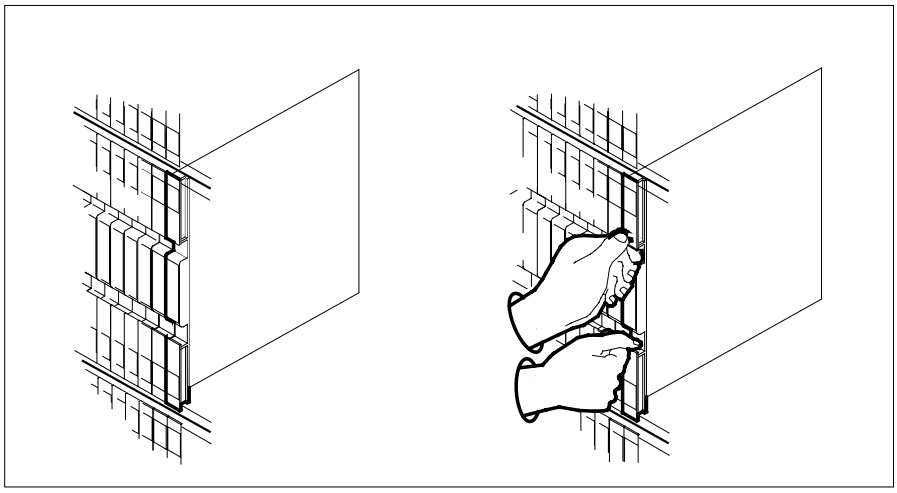


DANGER
Equipment damage
When removing or inserting a card, do not apply direct pressure to the components and do not force the cards into the slots.

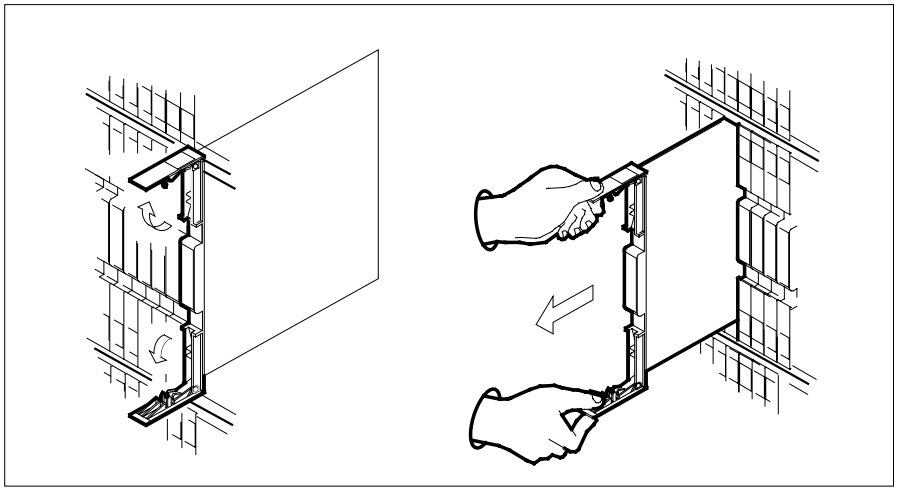
Remove the NT6X85 card as shown in the following figures.

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

NT6X85
in an SMS (continued)

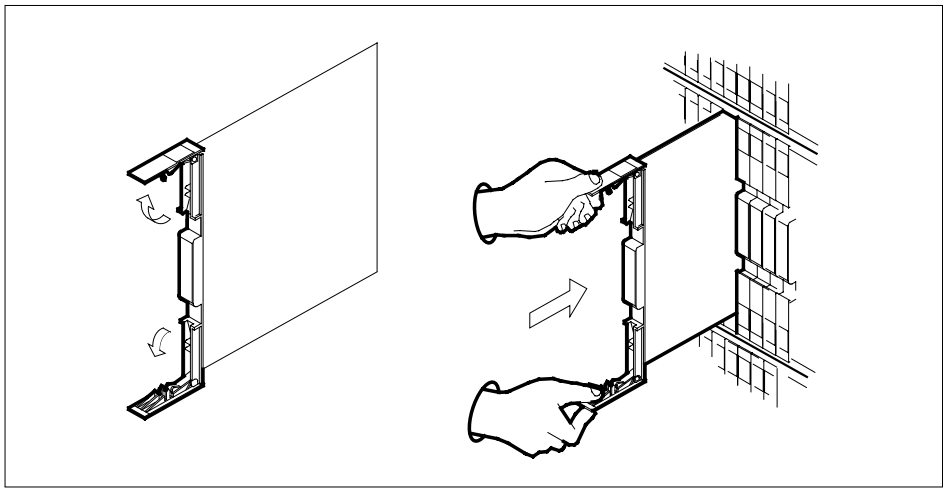


b Open the locking levers on the card to be replaced and gently pull the card toward you until it clears the shelf.



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

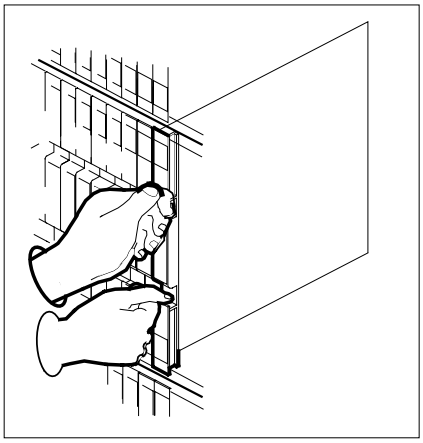
13 Open the locking levers on the replacement card. Align the card with the slots in the shelf and gently slide the card into the shelf.



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

If	Do
one protection line busied in step 8 and you are at the PM level	step 5, then step 16
two protection lines busied in step 8 and you are at carrier level	step 16

NT6X85
in an SMS (continued)

If	Do
no protection lines were busied	step 17

At the MAP terminal

16 Return all busied protection lines to service by typing

`>RTS line_no`

and pressing the Enter key.

where

line_no
is the number of the protection line connected to the new NT6X85 card

Repeat this command for each busied protection line.

If	Do
no protection line returned to service	step 21
one protection line returned to service and another link was busied at the PM level	step 9, then step 17
two protection lines returned to service	step 17

17 Return all busied links to service by typing

`>RTS LINK link_no`

and pressing the Enter key

where

link_no
is the number of the link connected to the faulty NT6X85 card

Repeat this command for each busied link.

If RTS	Do
passed	step 18
failed	step 21

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

19 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

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 Contact the appropriate support personnel if busied links do not return to service.

The following tables describe the dip switch settings for the NT6X85AB and NT6X85AC cards.

Switch settings for NT6X85AB and NT6X85AC with 8 dip switches

Distance	Leave the switch contacts ON and leave all others OFF
0 m to 91 m (0 ft to 300 ft)	SW2 SSW4
92 m to 137 m (301 ft to 452 ft)	SW3 SW6 SW8
138 m to 200 m (453 ft to 655 ft)	SW1 SW5 SW7

Switch settings for NT6X85AC with 3 dip switches for 24 AWG DS-1 cable

Card release and length of cables	Leave the switch contacts ON and leave all others OFF
NT6X85AC, release 4 version 1	
0 m to 27 m (0 ft to 86 ft)	SW1
27 m to 55 m (86 ft to 180 ft)	SW2 SW3
55 m to 82 m (180 ft to 269 ft)	SW2
82 m to 110 m (269 ft to 361 ft)	SW3
110 m to 116 m (361 ft to 380 ft)	None, all contacts are to be open

NT6X85 in an SMS (end)

Switch settings for NT6X85AC with 3 dip switches for 22 AWG DS-1 cable

Card release and length of cables	Leave the switch contacts ON and leave all others OFF
NT6X85AC, release 4 version 1	
0 m to 41 m (0 ft to 133 ft)	SW1
41 m to 81 m (133 ft to 266 ft)	SW2 SW3

NT6X85 in an SMS-R

Application

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

PEC	Suffixes	Name
NT6X85	AA, AB, AC	DS-1 Interface for SLC-96

Common procedures

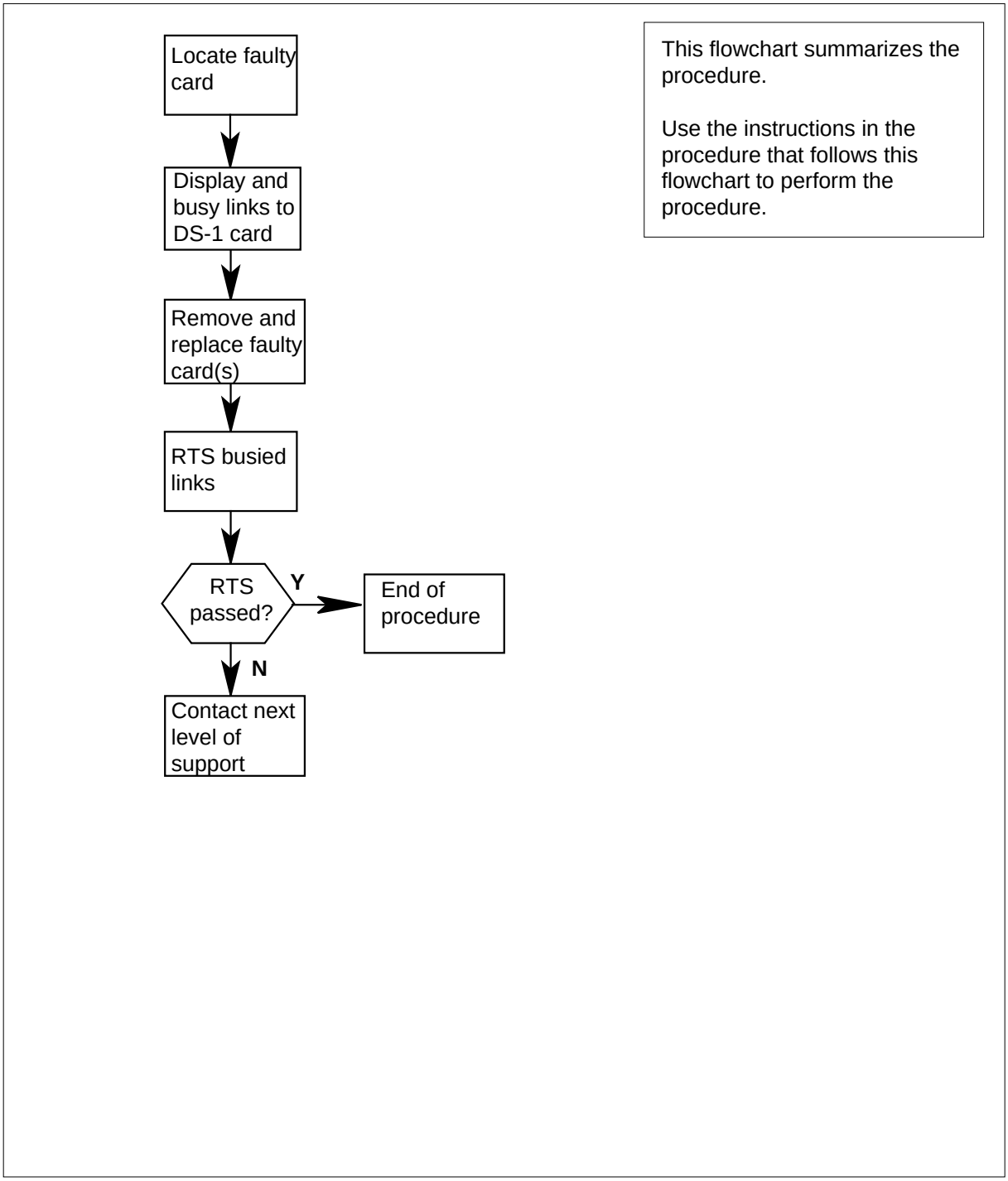
None

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.

NT6X85
in an SMS-R (continued)

Summary of card replacement procedure for an NT6X85 card in an SMS-R



Replacing an NT6X85 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 Obtain a replacement card. Ensure that the replacement card has the same product engineering code (PEC) including suffix, as the card to be removed and the dual in-line package (DIP) switch settings are set the same as the card being replaced.

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_OOS    CSIDE 0     PSIDE 1
   Unit0      Act      InSv
   Unit1     InAct     ISTb
```

4 Display the DS-1 links associated with the faulty DS-1 interface card by typing

`>TRNSL P`

and pressing the Enter key.

Record all link numbers, information on faulty links, and any protection line information. Each 6X85 card has two ports; for instance, ports 0 and 1 are on one 6X85 card. Look at the link, RCS location, and port numbers in the following MAP display. The first line indicates that link 0 is routed to RCS location BRCS 00 0. Link 0 is a protection line.

Example of a MAP response:

NT6X85
in an SMS-R (continued)

```
LINK 0: RCS    BRCS 00 0   ;Protline;
LINK 1: RCS    BRCS 00 1   ;Protline;
LINK 2: RCS    BRCS 00 2   0;CAP MS;STATUS:OK   ;MSGCOND:OPN
LINK 3: RCS    BRCS 00 2   1;CAP MS;STATUS:SysB  ;MSGCOND:CLS
```

If	Do
no protection lines recorded in step 4	step 9
one protection line recorded in step 4	step 5
two or more protection lines recorded in step 4	step 7

5 Access the carrier level of the MAP display by typing

`>TRKS;CARRIER;POST SMSR smsr_no link_no`

and pressing the Enter key.

where

smsr_no
is 0-127 range for NT40 and 0-255 range for DMS SuperNode.

link_no
is the number of a protection line connected to the faulty card.

Note: This command ensures that a protection line will be displayed.

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  SMS  CK  D ALARM  SLIP FRME   BER  ES  SES  STATE
0   REMOTE BRSC  0    2   C          0    0  <-7    0     0  SysB
```

6 Proceed to step 8.

7 Access the carrier level of the MAP display by typing

`>TRKS;CARRIER;POST SMSR smsr_no link_no SMSR smsr_no link_no ...`

and pressing the Enter key.

where

smsr_no
is 0-127 for NT40 and 0-255 for DMS SuperNode.

link_no
is the number of a protection line connected to the faulty card.

NT6X85
in an SMS-R (continued)

Note 1: As many as five SMS-R smsr_no link_no commands can be executed in a string command, with spacing as shown in the command string above.

Note 2: This command ensures that a protection line will be displayed.

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  SMS  CK  D ALARM  SLIP FRME   BER  ES  SES  STATE
0   REMOTE BRSC  0    2   C          0    0  <-7    0     0  SysB
1   REMOTE BRSC  0    3   C          0    0  <-7    0     0  SysB
```

8 Busy the protection line or lines connected to the faulty NT6X85 card by typing

>BSY n

and pressing the Enter key.

where

n
is the number of the protection line connected to the faulty NT6X85 card

Protection line numbers are listed in the *NO* column in the MAP display in step 7 above. Repeat this busy command for each protection line connected to the faulty card.

If	Do
both protection lines busied on same NT6X85 card	step 11
one protection line on NT6X85 card busied and other line on same card is unprotected	step 9

9 Access the PM level of the MAP display by typing

>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_OOS    CSIDE 0     PSIDE 2
   Unit0      Act      InSv
   Unit1     InAct     ISTb
```

10 Busy all links connected to the faulty NT6X85 card by typing

>BSY LINK n

NT6X85
in an SMS-R (continued)

and pressing the Enter key.

where

n
is the number of the link connected to the faulty NT6X85 card.

Note: Repeat this command for each link to the faulty card.

At the 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 left side of the frame supervisory panel of the SMS-R. This protects the equipment against damage caused by static electricity. Do not replace more than one NT6X85 card at a time.



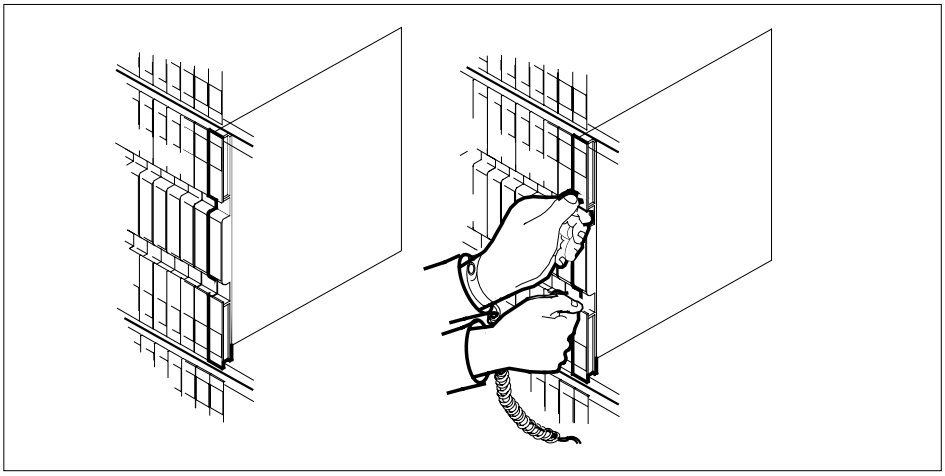
DANGER
Equipment damage
Take the following precautions when removing or inserting a card:

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

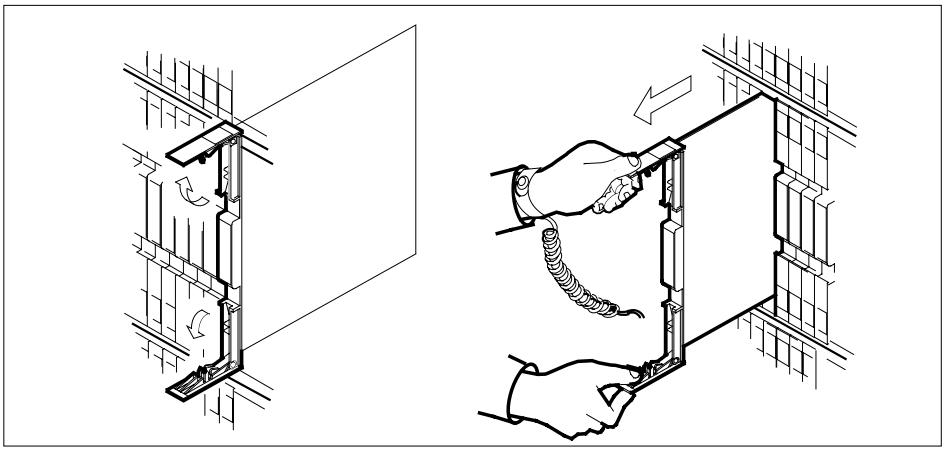
Put on a wrist strap.

12 Remove the NT6X85 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.

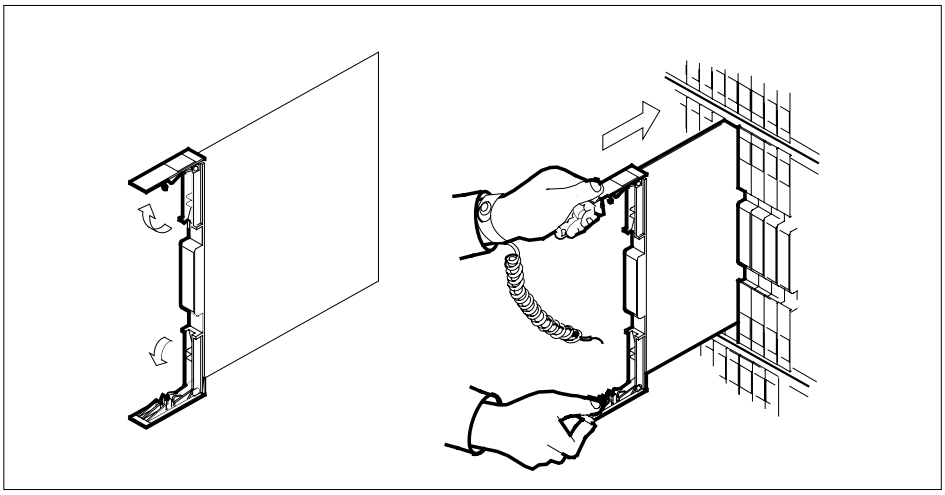


c Verify that the replacement card has the same PEC including suffix, as the card you just removed.

13 Open the locking levers on the replacement card.

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

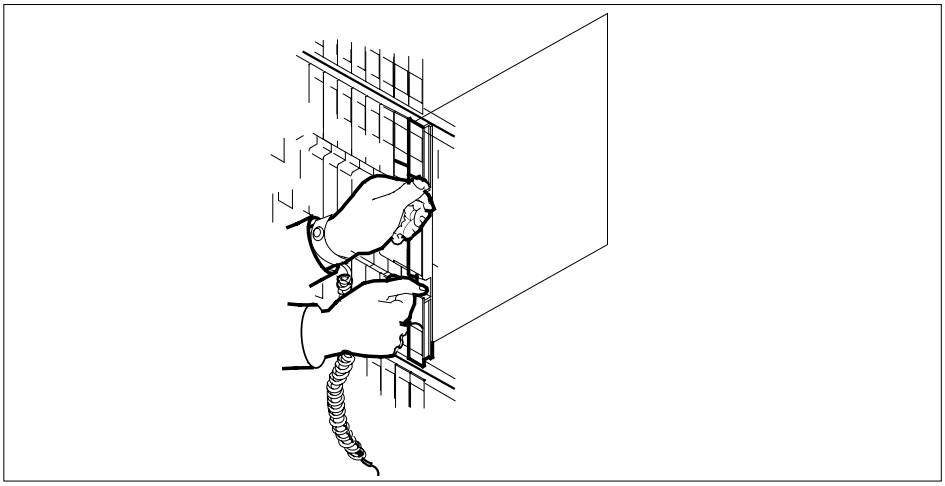
NT6X85
in an SMS-R (continued)



14 Seat and lock the card.

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

b Close the locking levers.



At the MAP display

15 Return all busied protection lines to service by typing

>RTS n

and pressing the key.

where

n
is the number of the link connected to the new NT6X85 card

If	Do
one protection line busied in step 8 and you're at PM level	step 5, then step 15
two protection lines busied in step 8 and you're at carrier level	step 15

16 Repeat this command for each busied protection line.

If	Do
no protection line returned to service	step 18
one protection line returned to service and another link was busied at the PM level	step 9, then step 17
two protection lines returned to service	step 19

17 Return all busied links to service by typing

>RTS LINK n

and pressing the Enter key.

where

n
is the number of the link connected to the new NT6X85 card

Note: Repeat this command for each busied protection line.

If RTS	Do
passes	step 19
fails	step 18

18 Contact the appropriate support personnel if busied links do not return to service.

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

20 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

NT6X85
in an SMS-R (continued)

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

The following tables describe the dip switch settings for the NT6X85AB and NT6X85AC cards.

Switch settings for NT6X85AB and NT6X85AC with 8 dip switches

Distance	Leave the switch contacts ON and leave all others OFF
0 m to 91 m (0 ft to 300 ft)	SW2 SSW4
92 m to 137 m (301 ft to 452 ft)	SW3 SW6 SW8
138 m to 200 m (453 ft to 655 ft)	SW1 SW5 SW7

Switch settings for NT6X85AC with 3 dip switches for 24 AWG DS-1 cable

Card release and length of cables	Leave the switch contacts ON and leave all others OFF
NT6X85AC, release 4 version 1	
0 m to 27 m (0 ft to 86 ft)	SW1
27 m to 55 m (86 ft to 180 ft)	SW2 SW3
55 m to 82 m (180 ft to 269 ft)	SW2
82 m to 110 m (269 ft to 361 ft)	SW3
110 m to 116 m (361 ft to 380 ft)	None, all contacts are to be open

Switch settings for NT6X85AC with 3 dip switches for 22 AWG DS-1 cable (Sheet 1 of 2)

Card release and length of cables	Leave the switch contacts ON and leave all others OFF
NT6X85AC, release 4 version 1	
0 m to 41 m (0 ft to 133 ft)	SW1
41 m to 81 m (133 ft to 266 ft)	SW2 SW3
81 m to 122 m (266 ft to 399 ft)	SW2

Switch settings for NT6X85AC with 3 dip switches for 22 AWG DS-1 cable (Sheet 2 of 2)

Card release and length of cables	Leave the switch contacts ON and leave all others OFF
122 m to 163 m (339 ft to 533 ft)	SW3
163 m to 200 m (533 ft to 655 ft)	None, all contacts are to be open

NT6X85 in an SMU

Application

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

PEC	Suffixes	Name
NT6X85	AA, AB, AC	DS-1 interface for SMU

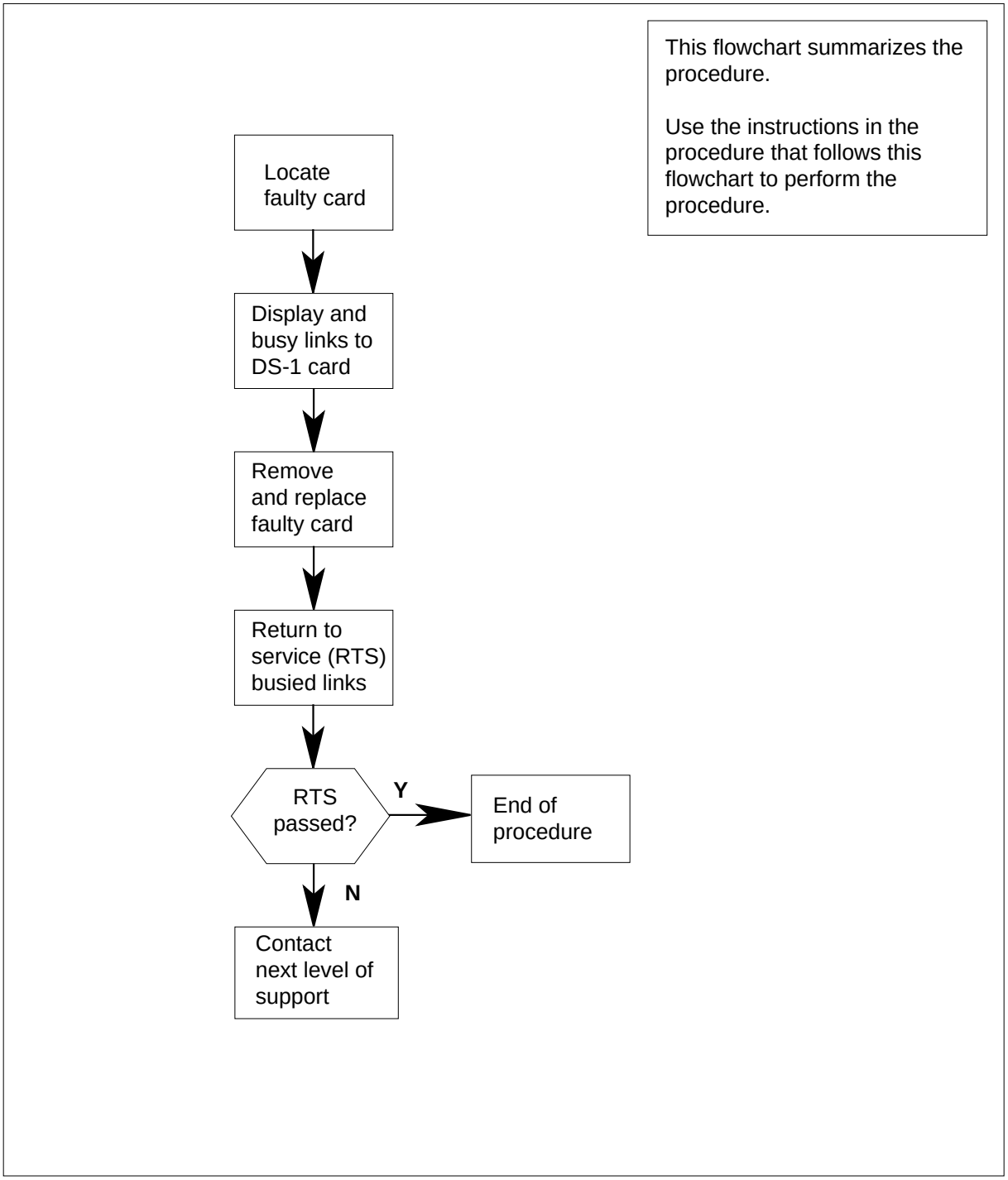
Common procedures

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.

NT6X85
in an SMU (continued)



NT6X85
in an SMU (continued)

Replacing an NT6X85 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, 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. Ensure the replacement card has the same product engineering code (PEC), including suffix, as the card to be removed and dual in-line pakage (DIP) switch setting are set to match the card being replced.

At the MAP terminal:

3 Access the PM level of the MAP terminal 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 0, PSide 1
Unit0:  Act   ISTb
Unit1:  Inact InSv
```

4 Display the DS-1 links associated with the faulty DS-1 interface card by typing

`>TRNSL P`

and pressing the Enter key.

Example of a MAP response:

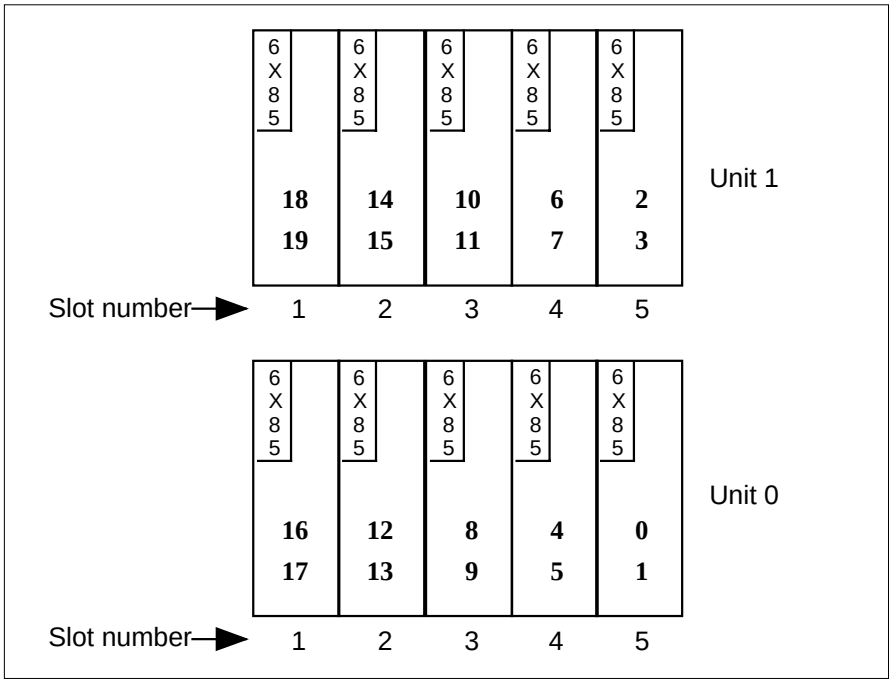
```
LINK 0  RCU RCU0 01 0  1;CAP S;STATUS:  OK
LINK 1  RCU RCU0 01 0  2;CAP S;STATUS:  OK
LINK 2  RCU RCU0 01 0  3;CAP MS;STATUS:  OK  MSGCOND: OPN
LINK 3  RCU RCU0 01 0  4;CAP MS;STATUS:  OK  MSGCOND: OPN
LINK 4  RCU RCU0 01 0  5;CAP S;STATUS:  OK
LINK 5  RCU RCU0 01 0  6;CAP S;STATUS:  OK
LINK 6  RCU RCU0 01 0  7;CAP S;STATUS:  SBsy
```

Record the link number for each faulty link. For example, link 6 in this example is faulty.

NT6X85
in an SMU (continued)

5 Use the following diagram to determine which DS-1 interface card or cards correspond to the link or links identified as faulty in step 4. Note that each NT6X85 card is associated with two links (link numbers are shown in bold).

For example, the faulty link displayed in step 4 is link 6. Link 6 corresponds to the NT6X85 card in slot 4 of unit 1.



6 Busy both links connected to the faulty NT6X85 card by typing

>BSY LINK link_no

and pressing the Enter key.

where

link_no
is the number of one of the two links associated with the faulty NT6X85 card

Note: Repeat this command for the other link connected to the new card.

7 Go to the common replacing a card procedure in this document, then return to step 8 of this procedure.

8 Return all busied links to service by typing

>RTS LINK link_no

and pressing the Enter key.

where

link_no
is the number of one of the links associated with the new NT6X85 card

NT6X85
in an SMU (continued)

Note: Repeat this command for the other link connected to the new card.

If RTS	Do
passed	step 10
failed	step 9

9 Contact personnel responsible for higher level support and get further help to replace this card.

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

11 Note the following in the office records:

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

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

The following tables describe the dip switch settings for the NT6X85AB and NT6X85AC cards.

Switch settings for NT6X85AB and NT6X85AC with 8 dip switches

Distance	Leave the switch contacts ON and leave all others OFF
0 m to 91 m (0 ft to 300 ft)	SW2 SSW4
92 m to 137 m (301 ft to 452 ft)	SW3 SW6 SW8
138 m to 200 m (453 ft to 655 ft)	SW1 SW5 SW7

Switch settings for NT6X85AC with 3 dip switches for 24 AWG DS-1 cable (Sheet 1 of 2)

Card release and length of cables	Leave the switch contacts ON and leave all others OFF
NT6X85AC, release 4 version 1	
0 m to 27 m (0 ft to 86 ft)	SW1
27 m to 55 m (86 ft to 180 ft)	SW2 SW3
55 m to 82 m (180 ft to 269 ft)	SW2

Switch settings for NT6X85AC with 3 dip switches for 24 AWG DS-1 cable (Sheet 2 of 2)

Card release and length of cables	Leave the switch contacts ON and leave all others OFF
82 m to 110 m (269 ft to 361 ft)	SW3
110 m to 116 m (361 ft to 380 ft)	None, all contacts are to be open

Switch settings for NT6X85AC with 3 dip switches for 22 AWG DS-1 cable

Card release and length of cables	Leave the switch contacts ON and leave all others OFF
NT6X85AC, release 4 version 1	
0 m to 41 m (0 ft to 133 ft)	SW1
41 m to 81 m (133 ft to 266 ft)	SW2 SW3
81 m to 122 m (266 ft to 399 ft)	SW2
122 m to 163 m (339 ft to 533 ft)	SW3
163 m to 200 m (533 ft to 655 ft)	None, all contacts are to be open

NT6X86 in an SMS

Application

Use this procedure to replace an NT6X86 card in an SMS.

PEC	Suffixes	Name
NT6X86	AB	A-bit message card

Common procedures

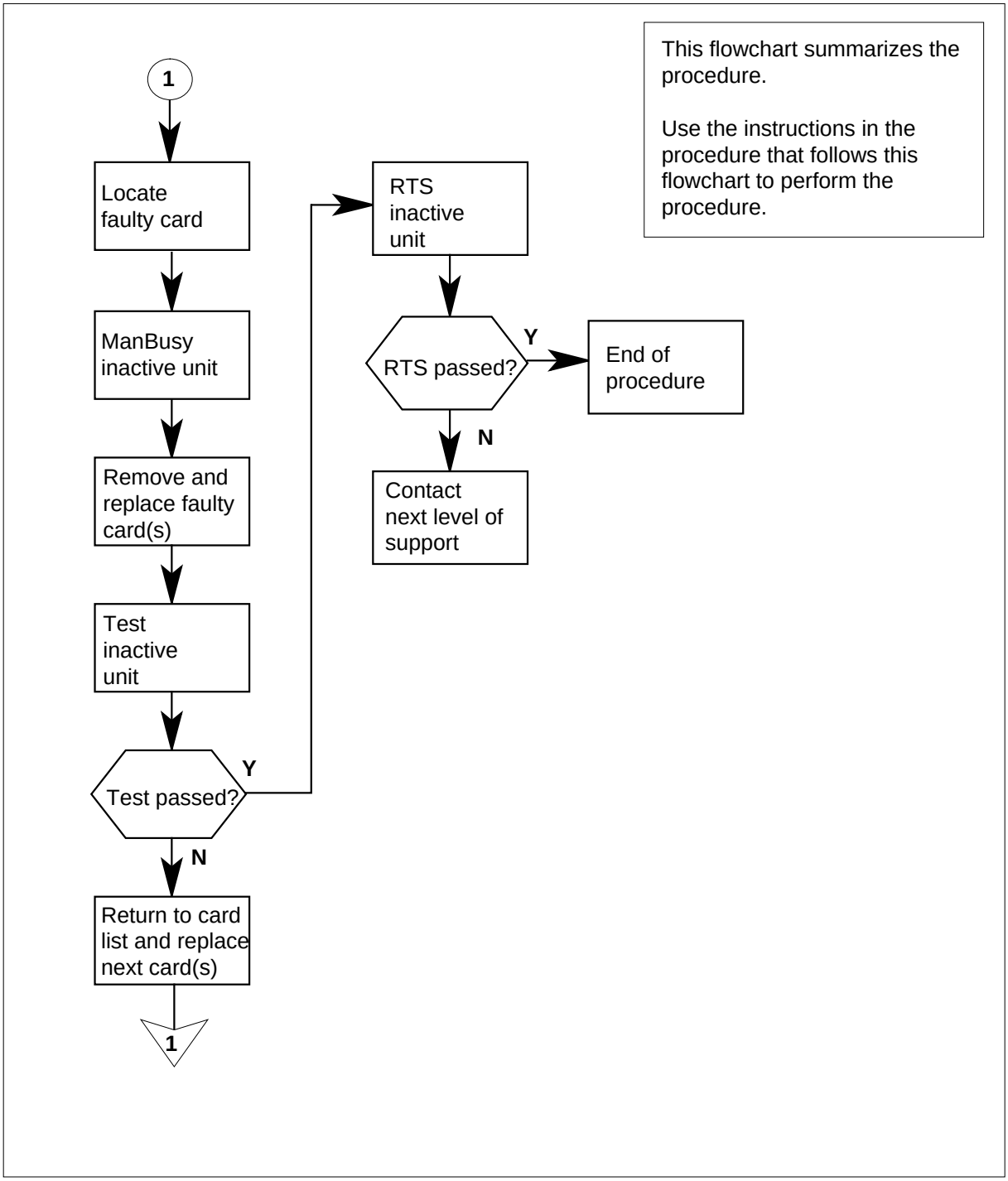
None

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.

NT6X86 in an SMS (continued)

Summary of card replacement procedure for an NT6X86 card in an SMS



NT6X86
in an SMS (continued)

Replacing an NT6X86 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.

Note: When the SMS peripheral is equipped with XPM PLUS (NTMX77AA Unified Processor), the NT6X86AB card is required. The 6X86AB is backward compatible and can be used with the Master Processor/Signal Processor (MP/SP) complex (NT6X45, 6X46, 6X47). The 6X86AA version can be used only in MP/SP SMSs and *cannot* be used in XPM PLUS equipped SMSs. When replacing the NT6X86 card, ensure the correct card is replaced with the appropriate AA or AB version.

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_OOS    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.

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

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

6 Switch the activity of the unit by typing

>YES

and pressing the Enter key.

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

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

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

7 Return to the “SMS alarm clearing procedures" section in this document to clear the alarm condition on the inactive unit. When the alarm is cleared, return to step 6 of this procedure.

NT6X86
in an SMS (continued)

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

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.

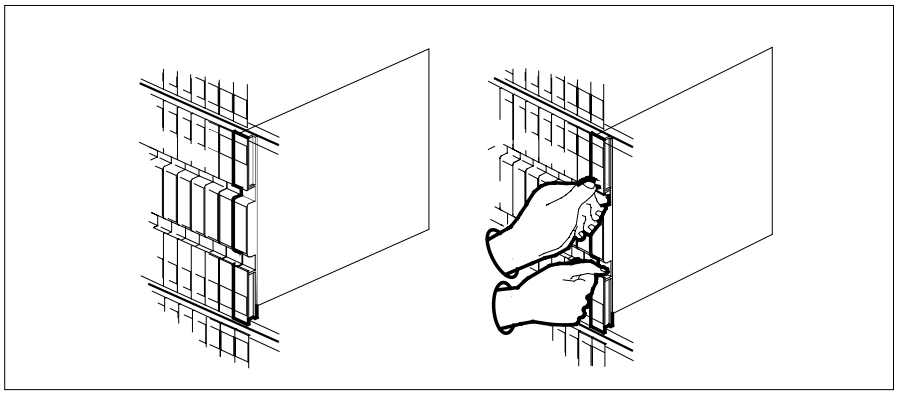
11



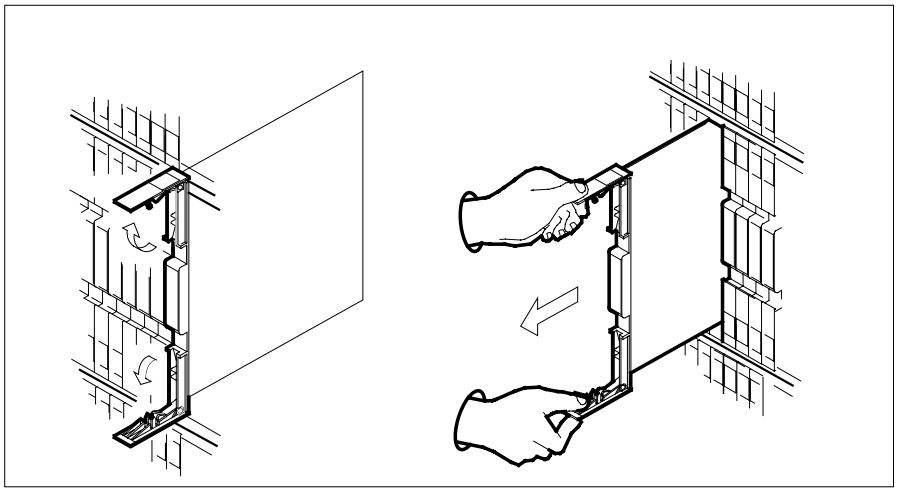
DANGER
Equipment damage
When removing or inserting a card, do not apply pressure to the components and do not force the cards into the slots.

Remove the NT6X86 card as shown in the following figures.

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



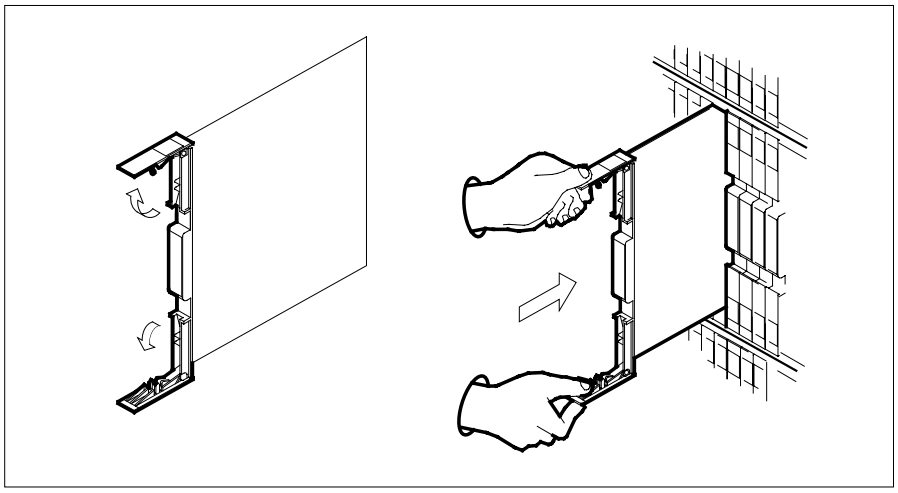
b Open the locking levers on the card to be replaced and gently pull the card toward you until it clears the shelf.



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

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.

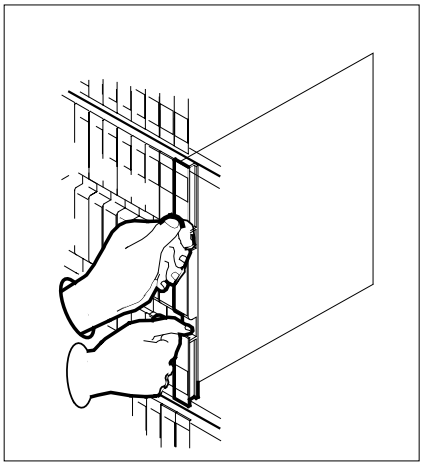
NT6X86
in an SMS (continued)



13 Seat and lock the card.

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

b Close the locking levers.



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

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.

NT6X86
in an SMS (end)

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.

NT6X86 in an SMS-R

Application

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

PEC	Suffixes	Name
NT6X86	AA, AB	A-Bit Message Card

Common procedures

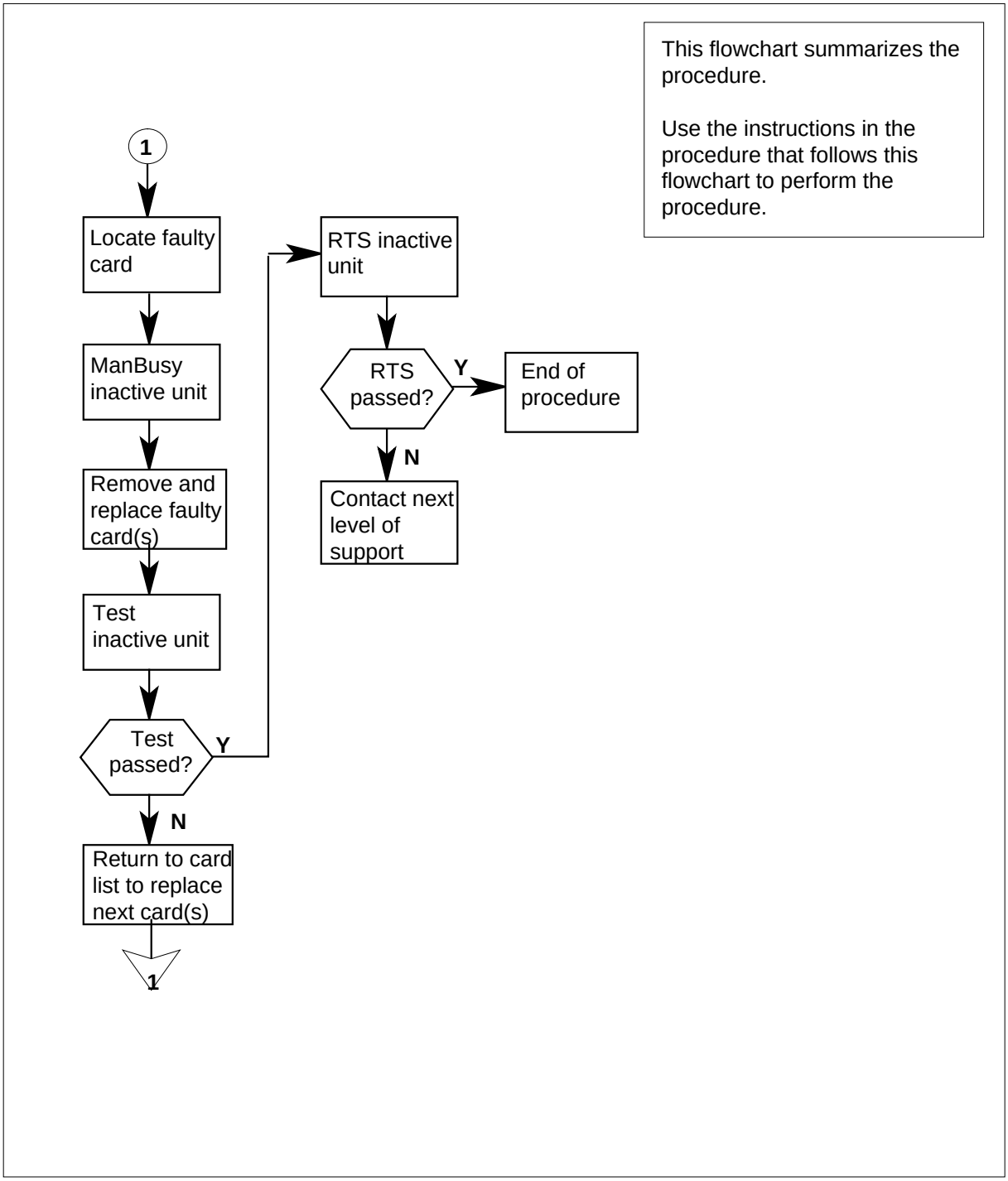
None

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.

NT6X86
in an SMS-R (continued)

Summary of card replacement procedure for an NT6X86 card in an SMS-R



Replacing an NT6X86 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.

Note: When the SMS peripheral is equipped with XPM PLUS (NTMX77AA Unified Processor), the NT6X86AB card is required. The 6X86AB is backward compatible and can be used with the Master Processor/Signal Processor (MP/SP) complex (NT6X45, 6X46, 6X47). The 6X86AA version can be used only in MP/SP SMSs and *cannot* be used in XPM PLUS equipped SMSs. When replacing the NT6X86 card, ensure the correct card is replaced with the appropriate AA or AB version.

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_OOS    CSIDE 0     PSIDE 0
   Unit0      Act      InSv
   Unit1     InAct     ISTb
```

NT6X86
in an SMS-R (continued)

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.

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

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

6 Switch the activity of the unit by typing

>YES

and pressing the Enter key.

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

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

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

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

At the frame

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

NT6X86
in an SMS-R (continued)

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

At the frame location

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.

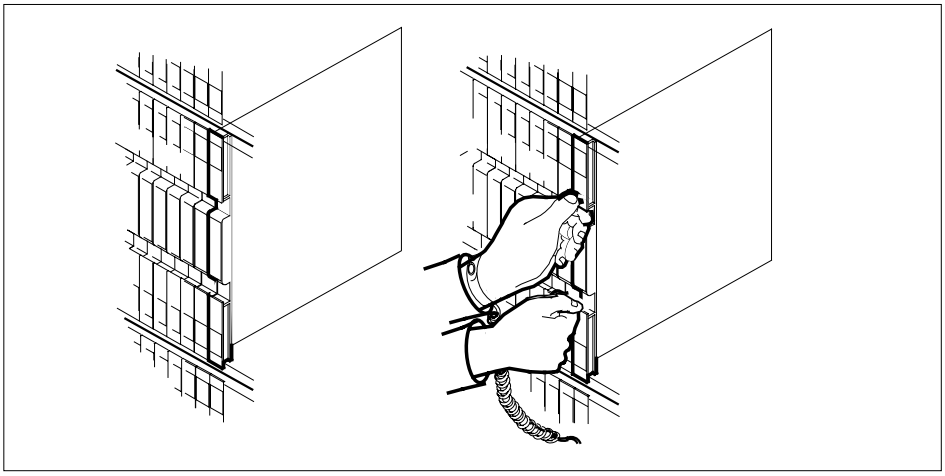
2 Do not force the cards into the slots.

Put on a wrist strap.

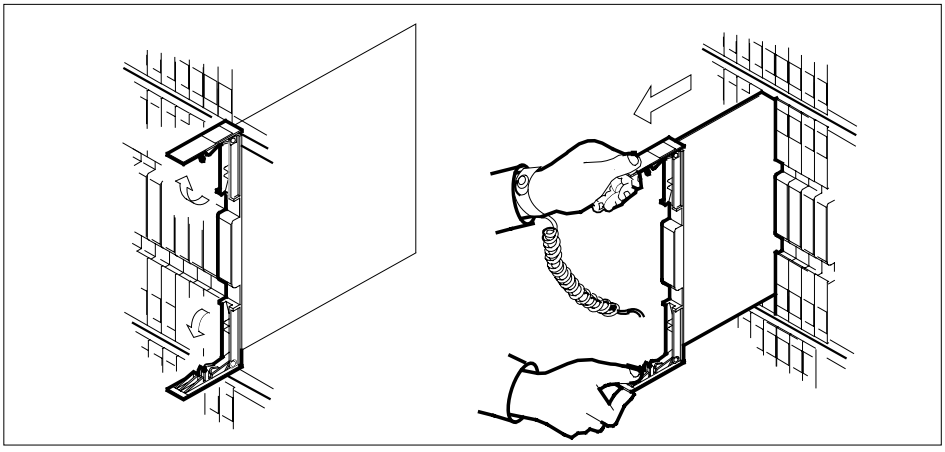
11 Remove the NT6X86 card as shown in the following figures.

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

NT6X86
in an SMS-R (continued)



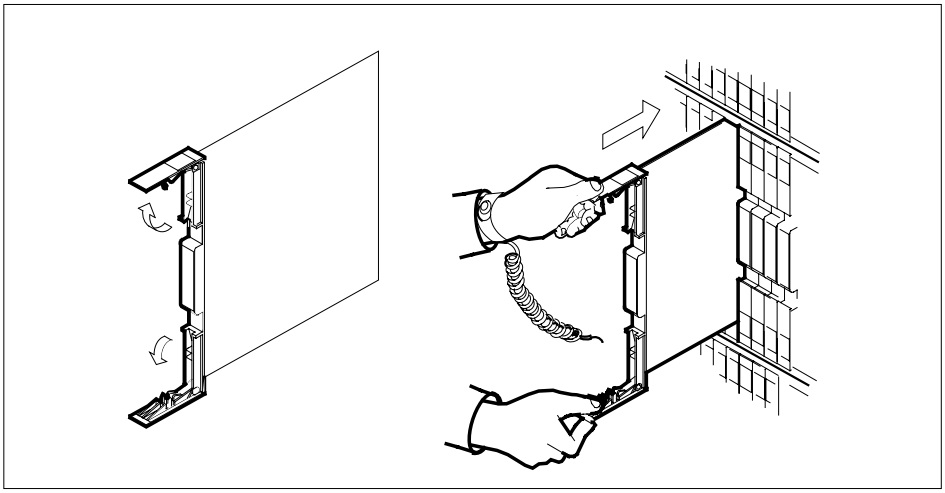
b Open the locking levers on the card to be replaced and gently pull the card toward you until it clears the shelf.



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.

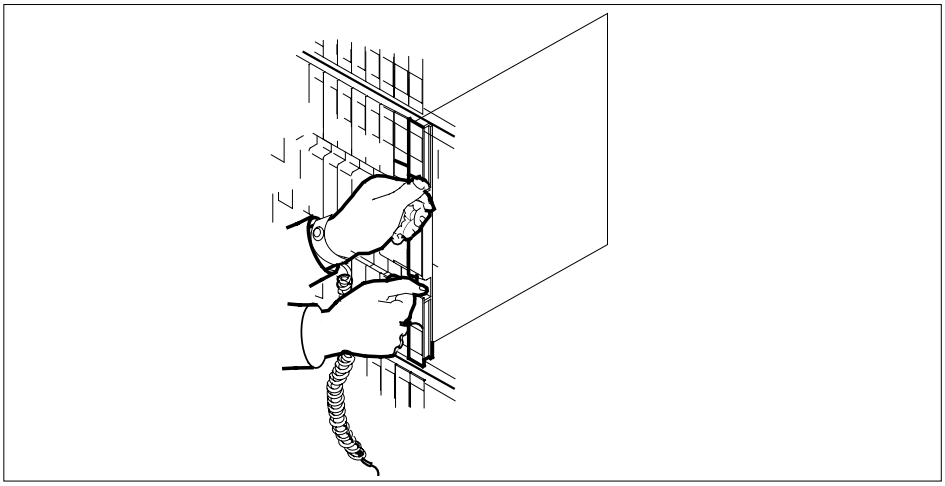
a Align the card with the slots in the shelf and gently slide the card into the shelf.



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.



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

NT6X86
in an SMS-R (continued)

If you entered this procedure from	Do
other	step 15

15 Test the inactive unit by typing

>TST UNIT **unit_no**

and pressing the Enter key.

where

unit_no
is the number of the faulty SMS-R unit

If TST	Do
passes	step 16
fails	step 17

16 Return the inactive SMS-R unit to service by typing

>RTS UNIT unit_no

and pressing the Enter key.

where

unit_no
is the number of the faulty SMS-R unit

If RTS	Do
passes	step 19
fails	step 18

17 Return to *Alarm Clearing Procedures* section of this manual or to the procedure that directed you to this procedure. At the point where a faulty card list was produced, identify the next faulty card on the list and go to the appropriate card replacement procedure for that card in this manual.

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

At the frame

19 Remove the sign from the active SMS-R unit.

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

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

NT6X86
in an SMS-R (end)

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.

NT6X87 in an RSC LCME

Application

Use this procedure to replace an NT6X87 card in an RSCE LCME.

PEC	Suffixes	Name
NT6X87	AA	Data Voice Line card

Common procedures

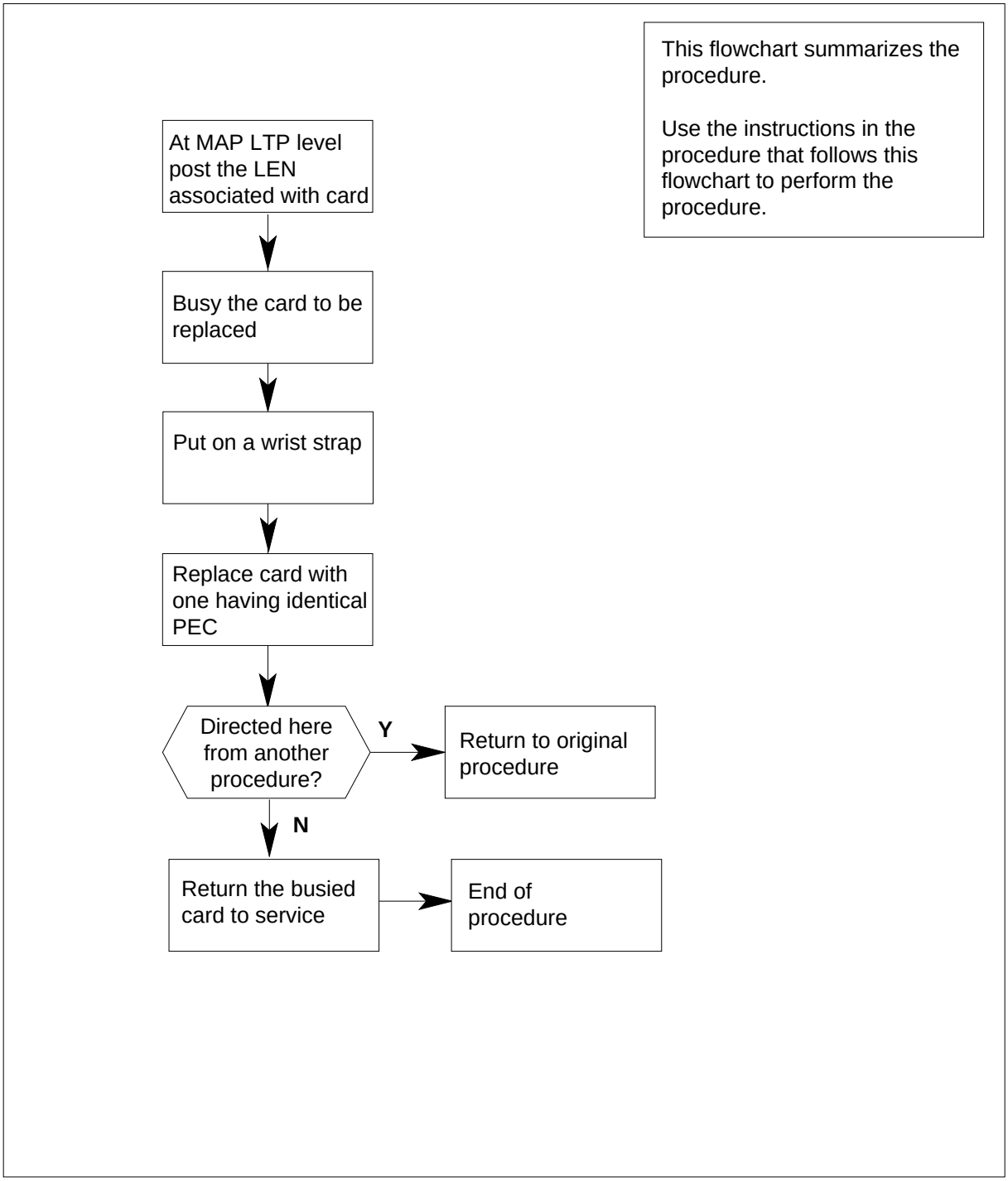
None

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.

NT6X87 in an RSC LCME (continued)

Summary of card replacement procedure for an NT6X87 card in in RSC LCME



NT6X87
in an RSC LCME (continued)

Replacing an NT6X87 card in an 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 line equipment number (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 response:

```
 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 NT6X87 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
```

NT6X87
in an RSC LCME (continued)

At the LCE frame

5



WARNING
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.

Put on a wrist strap.

Line card insertion / withdrawal tool for	Apparatus code	Common product code
3-inch cards	QTH56A	A0298291
6-inch cards	QTH58A	A0313317

Note 1: Card shrouds are required for inserting or removing cards in line drawers. Two sizes are available for use with 3-inch and 6-inch cards. Descriptions of these shrouds follow.

Note 2: Card removal tools are required for removing cards from line drawers. Two sizes are available. Descriptions of these tools follow.

Card removal tool for	Apparatus code	Common product code
3-4 inch cards	QTH57A	A0298292
Note: For 4-inch or larger cards, use the large grip tool ITA9953.		

6 Prepare to remove the faulty card by opening the line drawer and following these substeps:

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

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

c Maintain a slight pull on the handle and lift the faceplate of the drawer approximately 2.5 cm (1 in).

d While holding the drawer in this position, push the bottom of the drawer, nearest the shelf with your left hand, to a position about 1 cm (.5 in) to the right.

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

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

7 Remove the line card to be replaced by following these substeps:

a Slide a card shroud over the card to be removed and an adjacent card. If there is not an adjacent card on either side, do not use the card shroud.

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

NT6X87
in an RSC 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 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 NT6X87 line card by typing

`>DIAG`

and pressing the Enter key.

If DIAG	Do
passed	step 11
failed	step 15

11 Return the NT6X87 card to service by typing

`>RTS`

and pressing the Enter key.

If RTS	Do
passed	step 12

NT6X87
in an RSC LCME (end)

If RTS	Do
failed	step 15

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

13 Record the date the card was replaced, the serial number of the card, and the symptoms that prompted replacement of the card. Go to step 16.

14 Return to 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.

NT6X87
in an RSC-S (DS-1) Model B LCME

Application

Use this procedure to replace an NT6X87 card in an RSC-S LCME.

PEC	Suffixes	Name
NT6X87	AA	Data Voice Line card

Common procedures

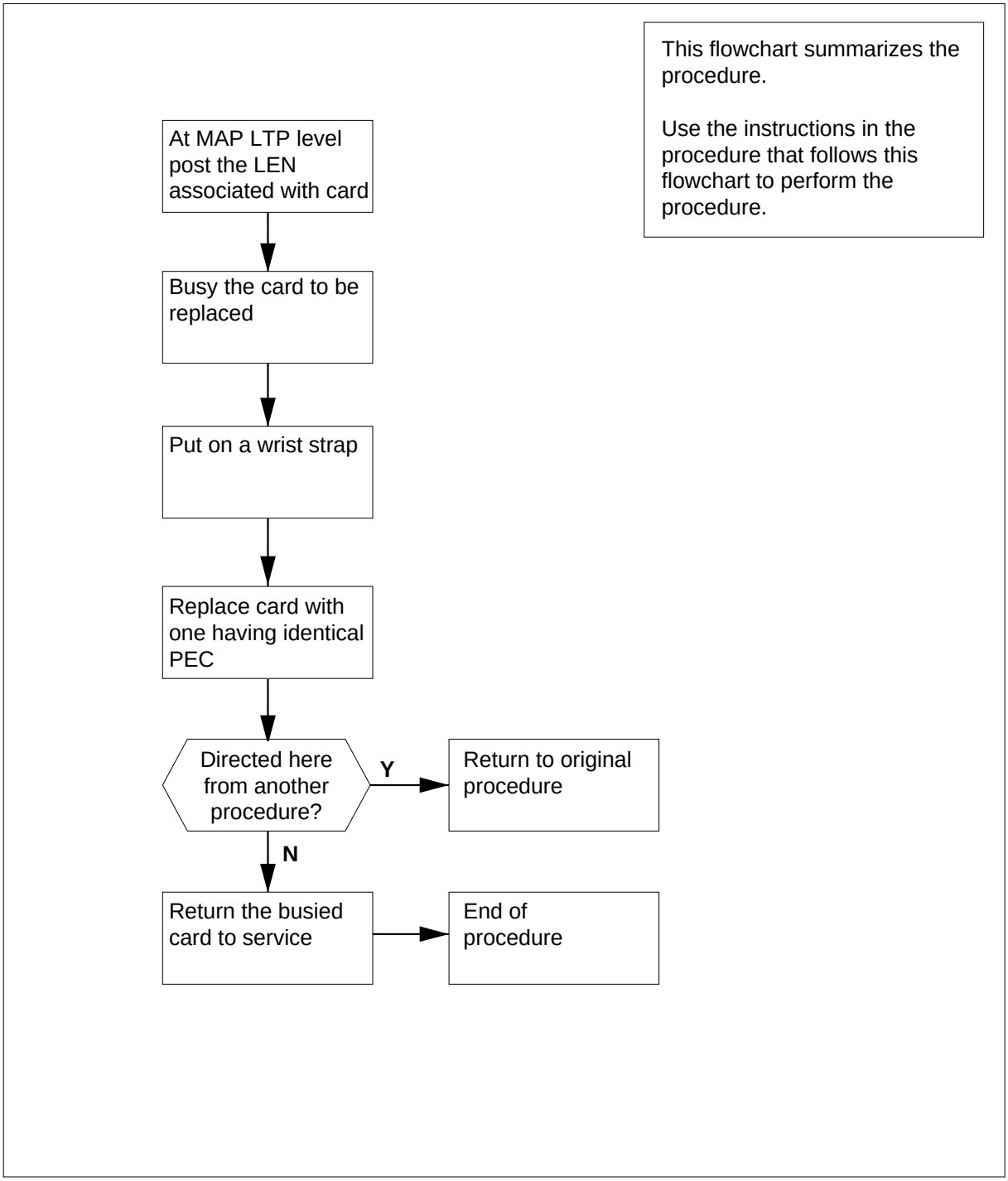
None

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.

NT6X87
in an RSC-S (DS-1) Model B LCME (continued)

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



NT6X87
in an RSC-S (DS-1) Model B LCME (continued)

Replacing an NT6X87 card in an 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 line equipment number (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 response:

NT6X87
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 NT6X87 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
```

NT6X87
in an RSC-S (DS-1) Model B LCME (continued)

At the LCE frame

5



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 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.



WARNING
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.

NT6X87
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 wriststrap.

Note: Card shrouds are required for inserting or removing cards in line drawers. Two sizes are available for use with 3-inch and 6-inch cards, as shown in the following table.

Line card insertion / withdrawal tool for	Apparatus code	Common product code
3-inch cards	QTH56A	A0298291
6-inch cards	QTH58A	A0313317

Note: Card removal tools are required for removing cards from line drawers. Two sizes are available, as shown in the following table.

Card removal tool for	Apparatus code	Common product code
3—4 inch cards	QTH57A	A0298292
Note: For 4-inch or larger cards, use the large grip tool ITA9953.		

6 Prepare to remove the faulty card by opening the line drawer and following these substeps:

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

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

c Maintain a slight pull on the handle and lift the faceplate of the drawer approximately 2.5 cm (1.0 in).

d While holding the drawer in this position, push the bottom of the drawer, nearest the shelf with your left hand, to a position about 1.0 cm (0.5 in) to the right.

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.

NT6X87
in an RSC-S (DS-1) Model B LCME (continued)

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 NT6X87 line card by typing

`>DIAG`

and pressing the Enter key.

If DIAG	Do
passed	step 11
failed	step 15

NT6X87
in an RSC-S (DS-1) Model B LCME (end)

11 Return the NT6X87 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 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.

NT6X92 in an RSC-M

Application

Use this procedure to replace an NT6X92 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.

ATTENTION

For maximum performance, do not install the UTR and GTR on the same RSC-M RC02. Currently there is no way to determine which receiver is used to interpret tones. Some call processing tones can be degraded if the tones are designed for use with a GTR.

PEC	Suffixes	Name
NT6X92	CA	Universal tone receiver card (UTR)
NT6X92	EA	Global tone receiver card (GTR)

Common procedures

This section refers to the following procedures:

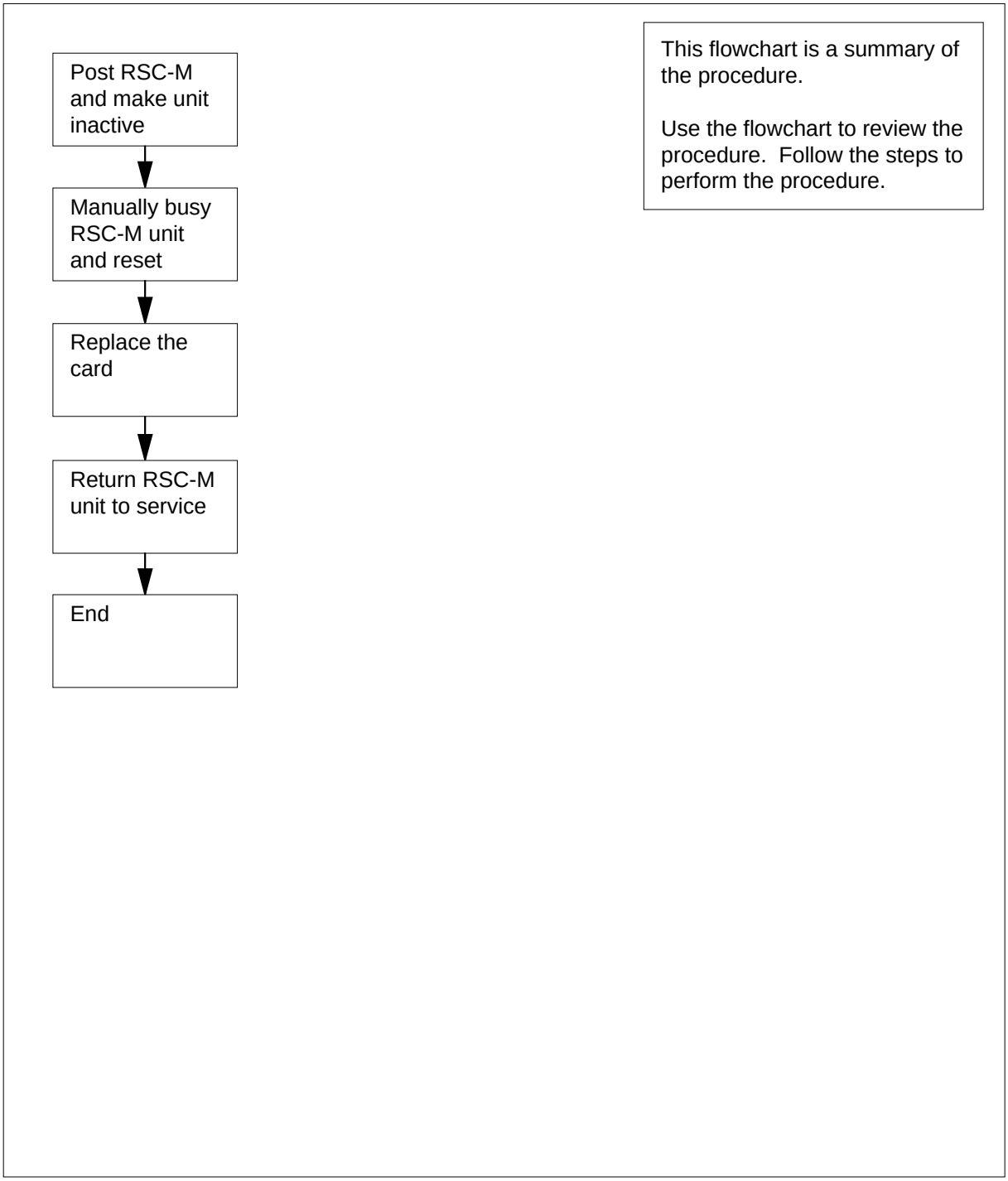
- replacing a card
- returning a card

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.

NT6X92
in an RSC-M (continued)

Summary of Replacing an NT6X92 in an RSC-M



NT6X92
in an RSC-M (continued)

To replace an NT6X92 in an RSC-M

At the MAP display

1 Proceed if one of the following conditions apply:

- a step in a maintenance procedure directed you to this card replacement procedure
- you use this procedure to verify or accept cards
- the maintenance support group directed 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 NT6X92 replacement circuit card. Make sure the replacement circuit card 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:

```
RCO2              SysB     ManB     OffL     CBsy     ISTb      InSv
 0 Quit    PM      0        0        2        0        2         25
 2 Post_   RCO2     0       0        0        0        1          1
 3 ListSet
 4         RCO2   0 ISTb  Links_OOS:  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 To determine the location of the RCO2 that contains the NT6X92 circuit card you are to replace, type:

>QUERYPM

and press the Enter key.

Example of a MAP response:

```
PM Type: RCO2 PM No.: 0 PM Int. No.: 9 Node_No: 24
PMs Equipped: 53 Loadname: UK00ADU6 EEPRom Load:
BNK0N205
WARM SWACT is supported and available
RCO2 0 is included in the REX schedule.
REX on RCO2 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 00  C02  RSC-M 00  05  RCO2: 000        MX85AA
HOST 00  C02  RSC-M 00  47  EXT:LEFT  01:13 MX86AA
```

5 Determine the state of the RCO2 unit for the circuit card you are to replace.

If the state of the RCO2 unit	Do
is active	step 6
is inactive	step 8

6 To switch activity (SWACT) of the units, type:

>SWACT

and press the Enter key.

Example of a MAP response:

NT6X92
in an RSC-M (continued)

```
RCO2 0     A Warm SwAct will be performed after
          data sync of active terminals.
Please confirm ("YES", "Y", "NO", or "N"):
```

If the system	Do
prompts you to confirm a warm SWACT	step 7
rejects the SWACT	step 20

7 To confirm the command, type:

>YES

and press the Enter key.

Example of a MAP response:

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

RCO2 0     SwAct Passed
```

If the MAP response	Do
is SWACT passed	step 8
is other than listed here	step 19

8 A maintenance flag (Mtce) can appear. A maintenance flag indicates system-initiated maintenance tasks are in progress. Wait until the flag disappears from the status lines for both RCO2 units before you proceed to the next step.

At the cabinet

9 Place a sign with the words *Active unit-Do not touch* on the active unit. Do not attach this sign with magnets or tape.

10 To manually busy (ManB) the inactive unit, type:

>BSY INACTIVE

and press the Enter key.

Example of a MAP response:

```
RCO2     0 ISTb  Links_OOS: CSide  0 , PSide  1
Unit0:   Inact ManB
Unit1:   Act   ISTb
Bsy INACTIVE
RCO2 0 Unit 0    Bsy Passed
```

If the BSY command	Do
passes	step 11
fails	step 19

At the shelf

11



WARNING
Static electricity damage
Wear a wrist strap that connects to the wrist-strap grounding point of the modular supervisory panel (MSP) to handle circuit cards. The wrist strap protects the cards against static electricity damage.

Locate the circuit card to replace.

Note: The NT6X92 circuit cards, are in slots 6 and 7 of unit 0, and slots 21 and 22 of unit 1.

12 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 card you replace has switches, make sure the switches on the replacement circuit card have the same settings.

13 The next action depends on the reason you performed this procedure.

If a maintenance procedure	Do
directs you to this procedure	step 14
does not direct you to this procedure	step 15

14 Remove the sign from the active unit. Return to the maintenance procedure that sent you to this procedure. Continue as directed.

NT6X92
in an RSC-M (end)

At the MAP terminal

15 To return the inactive unit to service, type:

`>RTS INACTIVE`

and press the Enter key.

If the RTS command	Do
passes	step 16
fails	step 19

16 Remove the sign from the active unit.

17 Go to the common returning a card procedure in this document.

18 This procedure is complete.

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

20 For additional help with a SWACT, contact 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 the use of the FORCE option is acceptable.

NT6X92 in an RSC RCC/RCC2

Application

Use this procedure to replace the following card 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.

ATTENTION

To ensure peak performance, do not install the UTR and GTR on the same RCC/RCC2. Presently, there is no way of knowing which receiver is used to interpret tones. Some call processing tones may be degraded if designed for use with a GTR.

PEC	Suffixes	Name
NT6X92	BB, BC	Universal tone receiver (UTR)
NT6X92	EA	Global tone receiver (GTR)

Common procedures

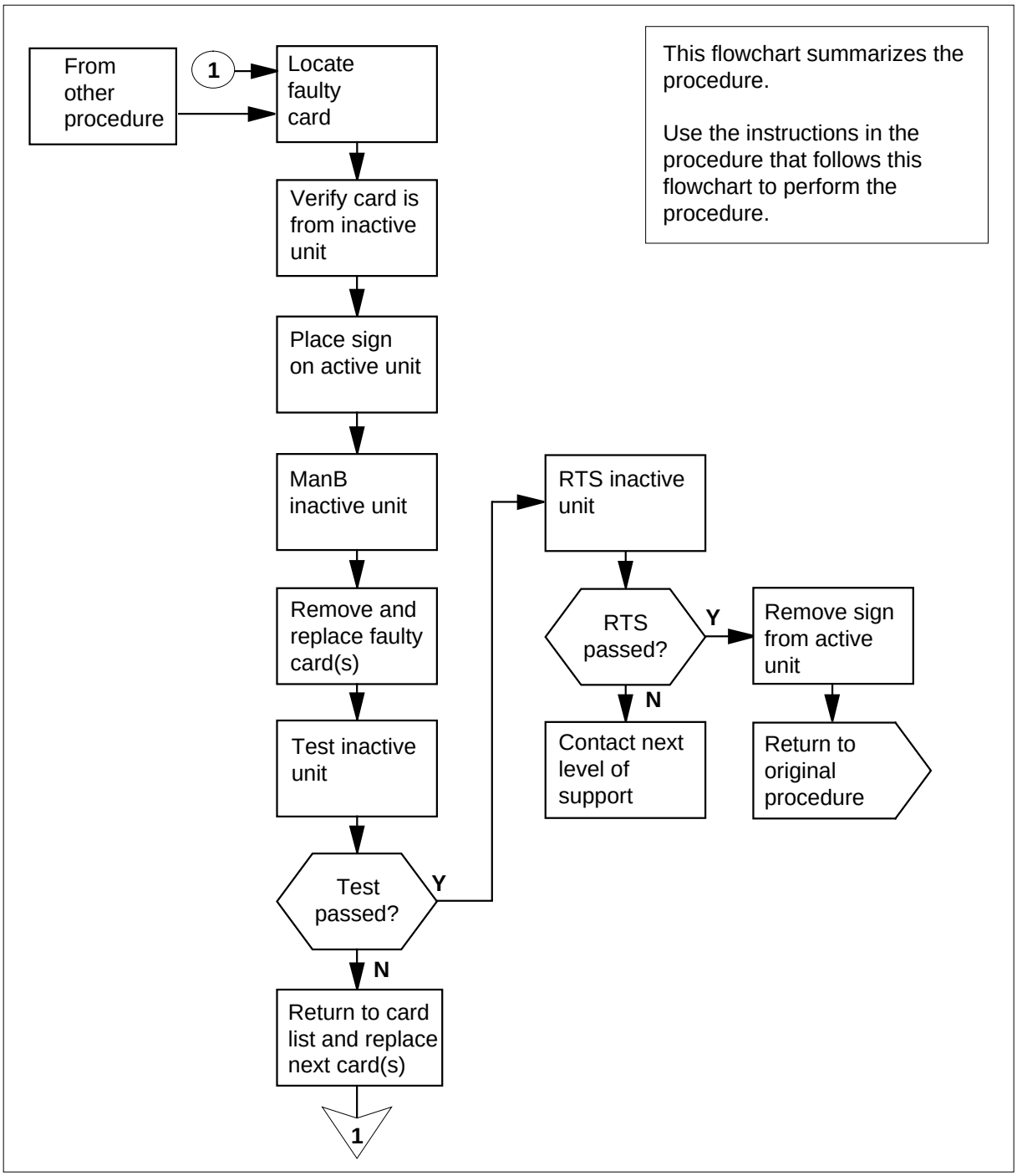
None

Action

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

NT6X92
in an RSC RCC/RCC2 (continued)

Summary of card replacement procedure for an NT6X92 card in an RSC RCC



NT6X92 in an RSC RCC/RCC2 (continued)

Replacing an NT6X92 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 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:

NT6X92
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_OOS:  CSide  0, PSide   0
 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)

NT6X92
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:

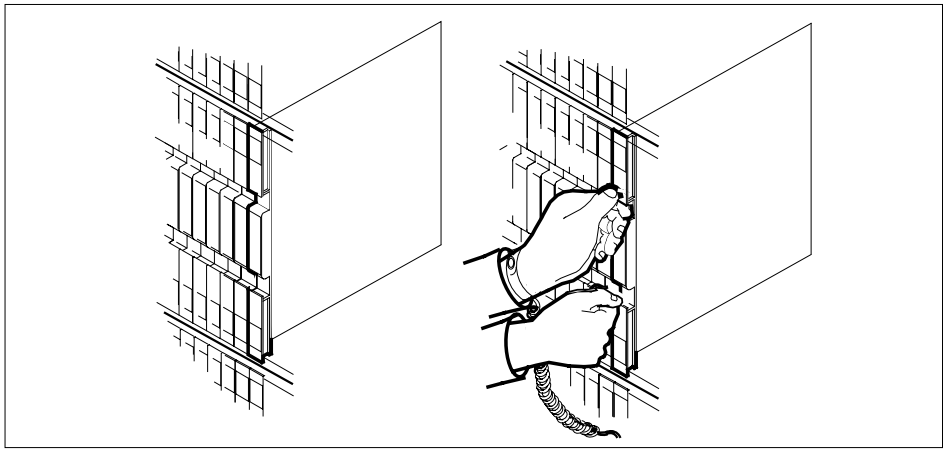
1. Do not apply direct pressure to the components.

2. Do not force the cards into the slots.

Put on a wrist strap.

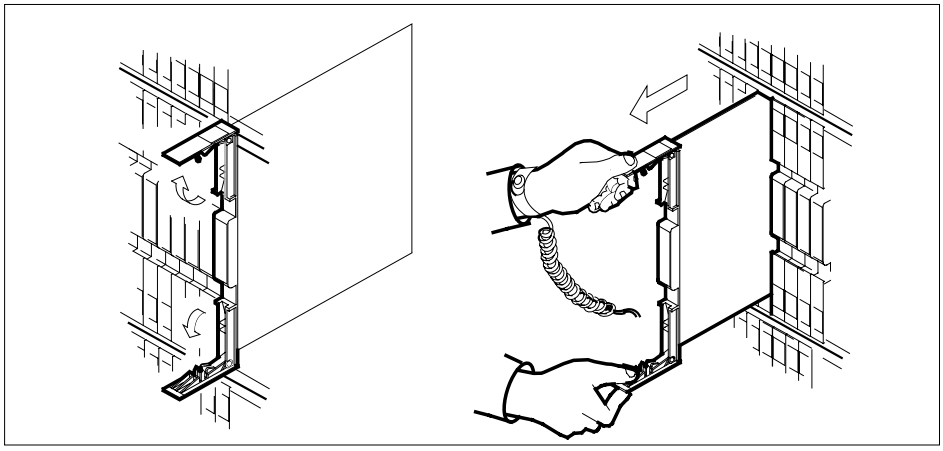
8 Remove the NT6X92 card as shown in the following figures.

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.

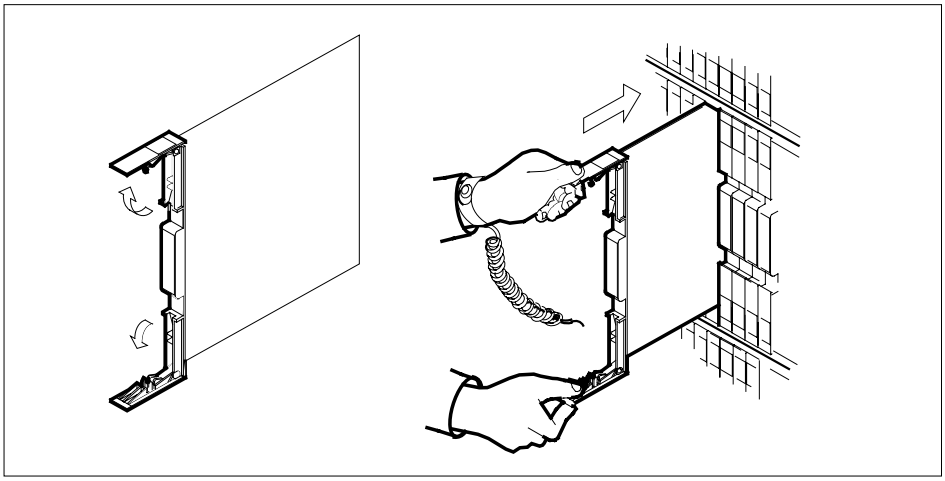
NT6X92
in an RSC RCC/RCC2 (continued)



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.

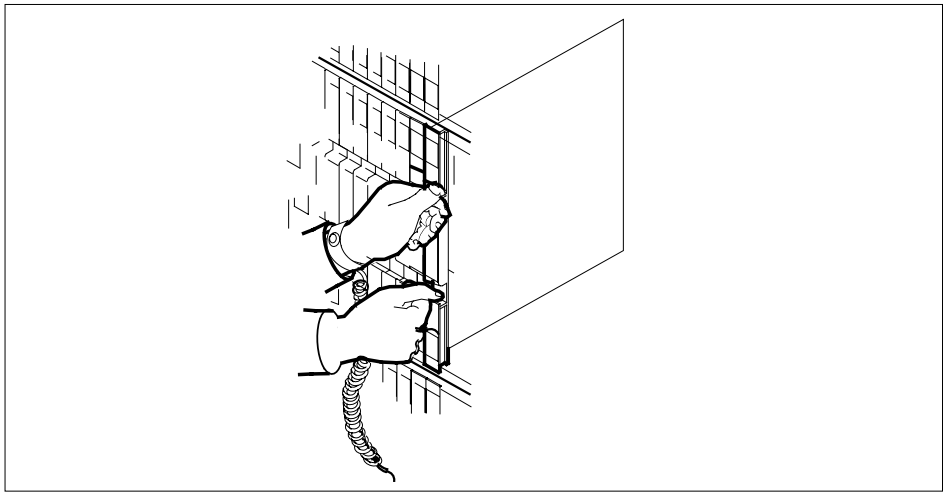


10 Seat and lock the card.

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.

NT6X92
in an RSC RCC/RCC2 (continued)



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

If you entered this procedure from	Do
an alarm clearing procedure	step 15
other	step12

At the MAP display

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 in step 6

If the RTS	Do
passed	step 13
failed	step 16

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

14 Record the following items in office records:

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

NT6X92
in an RSC RCC/RCC2 (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.

NT6X92 in an RSC-S (DS-1) Model A RCC2

Application

Use this procedure to replace an NT6X92 card in an RSC-S RCC2.

ATTENTION

To ensure peak performance, do not install the UTR and GTR on the same RSC-S RCC2. Presently, there is no way of knowing which receiver is used to interpret tones. Some call processing tones may be degraded if designed for use with a GTR.

PEC	Suffixes	Name
NT6X92	BB, BC	Universal Tone Receiver (UTR)
NT6X92	EA	Global Tone Receiver (GTR)

Common procedures

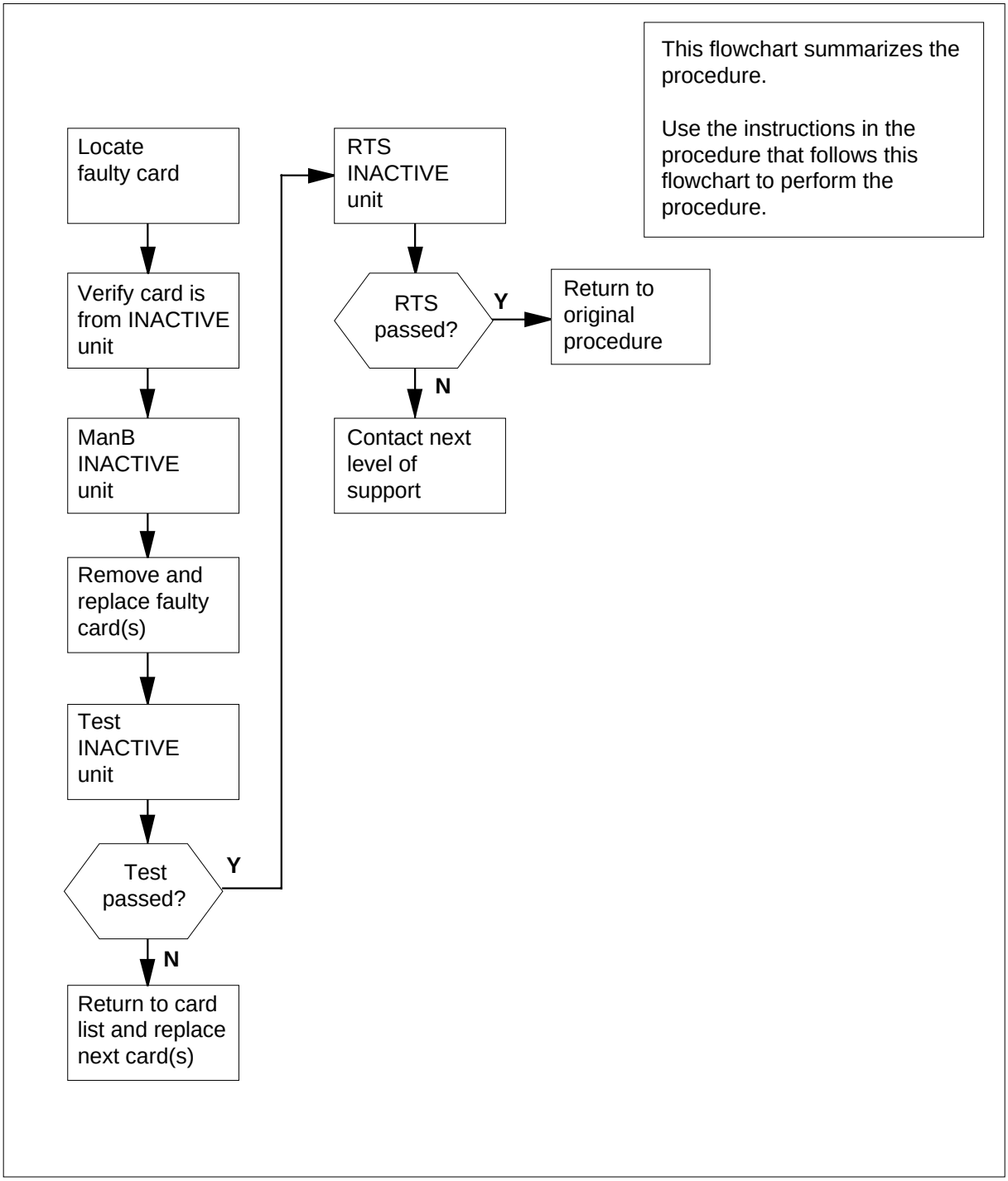
None

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.

NT6X92
in an RSC-S (DS-1) Model A RCC2 (continued)

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



NT6X92
in an RSC-S (DS-1) Model A RCC2 (continued)

Replacing an NT6X92 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 NT6X92 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 Ensure that the PM level of the MAP display is currently displayed and that the RCC2 is posted by typing

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

and pressing the Enter key.

where

rcc2_unit_no
is the number of the RCC2 with the faulty card

Example of a MAP display:

NT6X92
in an RSC-S (DS-1) Model A RCC2 (continued)

```
CM    MS    IOD    Net     PM     CCS    LNS    Trks    Ext    Appl
 .     .     .       .    1RCC2    .      .       .      .      .

RCC2              SysB     ManB     OffL     CBsy     ISTb      InSv
 0 Quit    PM        0        0        2        0        2        25
 2 Post_   RCC2      0        0        0        0        1         1
 3 ListSet
 4         RCC2    0 ISTb  Links_OOS:  CSide  1, PSide   1
 5 TRNSL   Unit0:   Inact InSv
 6 TST     Unit1:   Act InSv
 7 BSY
 8 RTS
 9 OffL
10 LoadPM_
11 Disp_
12 Next_
13
14 QueryPM
15
16
17
18
```

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

If faulty card is on	Do
active unit	step 7
inactive unit	step 5

5 Switch the processing activity (SWACT) to the inactive unit by typing

>SWACT

and pressing the Enter key.

6 Answer the prompt by typing

>YES

and pressing the Enter key.

At the RCE frame

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.

NT6X92
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)

At the RCE frame

9



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 these precautions when removing or inserting a card:

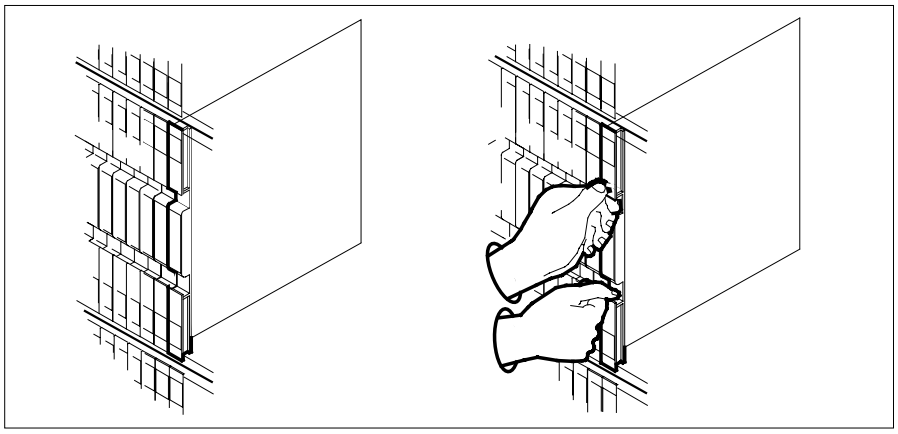
1. Do not apply direct pressure to the components.2. Do not force the card into its slot.

Put on a wrist strap.

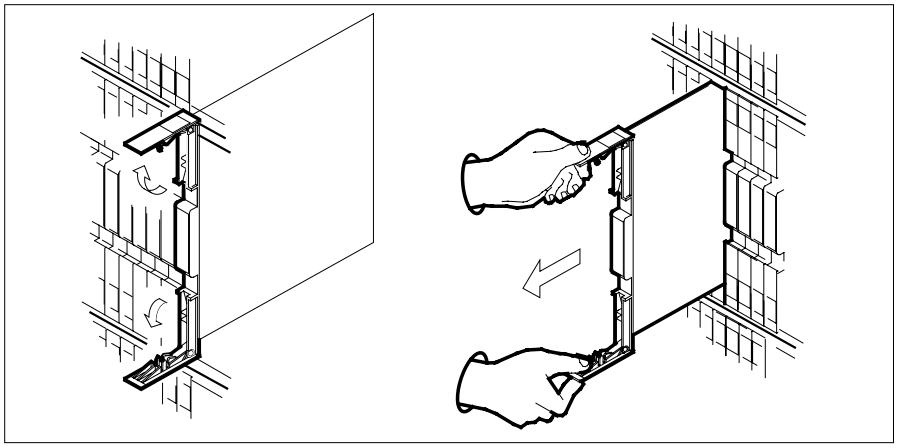
10 Remove the NT6X92 card as shown in the following figures.

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

NT6X92
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.

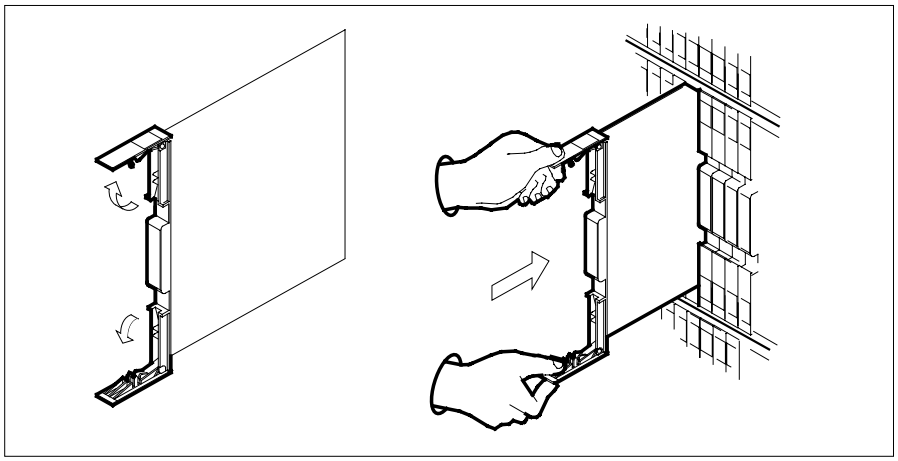


c Ensure the replacement card has the same PEC, including suffix, as the card you just removed.

11 Open the locking levers on the replacement card.

a Align the card with the slots in the shelf.

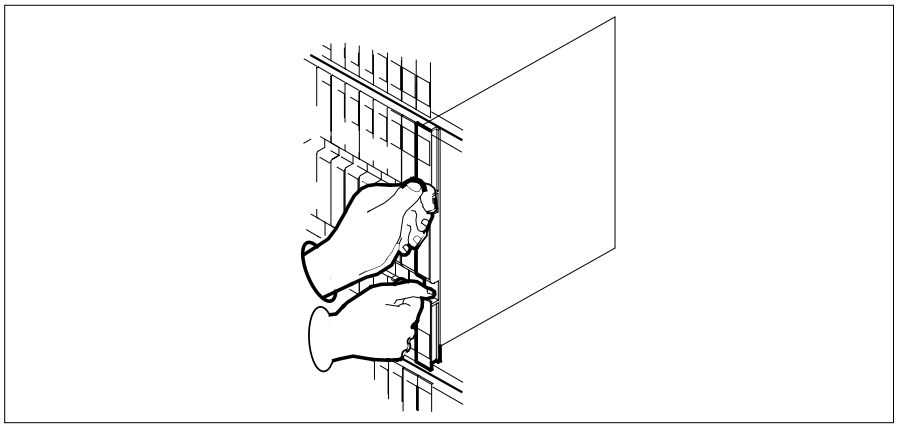
b Gently slide the card into the shelf.



12 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.



13 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 14

NT6X92 in an RSC-S (DS-1) Model A RCC2 (end)

At the MAP terminal

14 Return the inactive RCC2 unit to service by typing

`>RTS UNIT rcc2_unit_no`

and pressing the Enter key.

where

rcc2_unit_no
is the number of the inactive RCC2 unit

If RTS	Do
passed	step 15
failed	step 18

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

16 Record the date the card was replaced, the serial number of the card, and the symptoms that prompted replacement of the card. Go to step 19.

17 Return to 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 operating company maintenance personnel.

19 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.

NT6X92 in an RSC-S (DS-1) Model B RCC2

Application

Use this procedure to replace an NT6X92 card in an RSC-S RCC2.

ATTENTION

To ensure peak performance, do not install the UTR and GTR on the same RSC-S RCC2. Presently, there is no way of knowing which receiver is used to interpret tones. Some call processing tones may be degraded if designed for use with a GTR.

PEC	Suffixes	Name
NT6X92	BB,BC	Universal Tone Receiver (UTR)
NT6X92	EA	Global Tone Receiver (GTR)

Common procedures

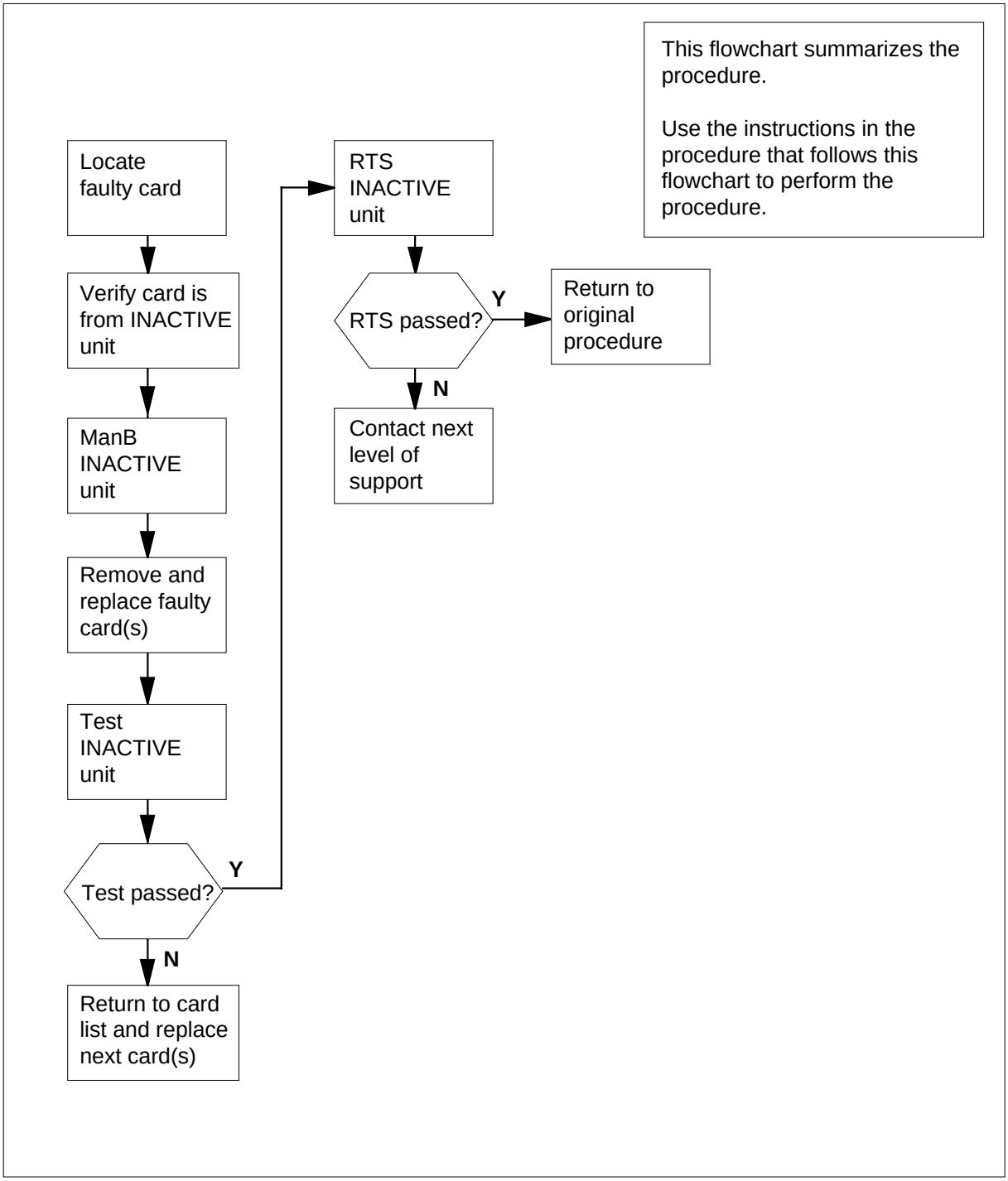
None

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.

NT6X92
in an RSC-S (DS-1) Model B RCC2 (continued)

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



NT6X92
in an RSC-S (DS-1) Model B RCC2 (continued)

Replacing an NT6X92 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 NT6X92 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 Ensure that the PM level of the MAP display is currently displayed and that the RCC2 is posted by typing

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

and pressing the Enter key.

where

rcc2_unit_no
is the number of the RCC2 with the faulty card

Example of a MAP display:

NT6X92
in an RSC-S (DS-1) Model B RCC2 (continued)

```
CM     MS     IOD    Net     PM     CCS    LNS    Trks    Ext   Appl
 .      .      .      .    1RCC2    .      .       .      .     .

RCC2              SysB     ManB     OffL     CBsy     ISTb      InSv
 0 Quit    PM        0        0        2        0        2        25
 2 Post_   RCC2      0        0        0        0        1         1
 3 ListSet
 4         RCC2    0 ISTb  Links_OOS:  CSide  1, PSide   1
 5 TRNSL   Unit0:   Inact InSv
 6 TST     Unit1:   Act InSv
 7 BSY
 8 RTS
 9 OffL
10 LoadPM_
11 Disp_
12 Next_
13
14 QueryPM
15
16
17
18
```

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

If faulty card is on	Do
active unit	step 7
inactive unit	step 5

5 Switch the processing activity (SWACT) to the inactive unit by typing

>SWACT

and pressing the Enter key.

6 Answer the prompt by typing

>YES

and pressing the Enter key.

At the RCE frame

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.

NT6X92
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)

At the RCE frame

9



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 these precautions when removing or inserting a card:

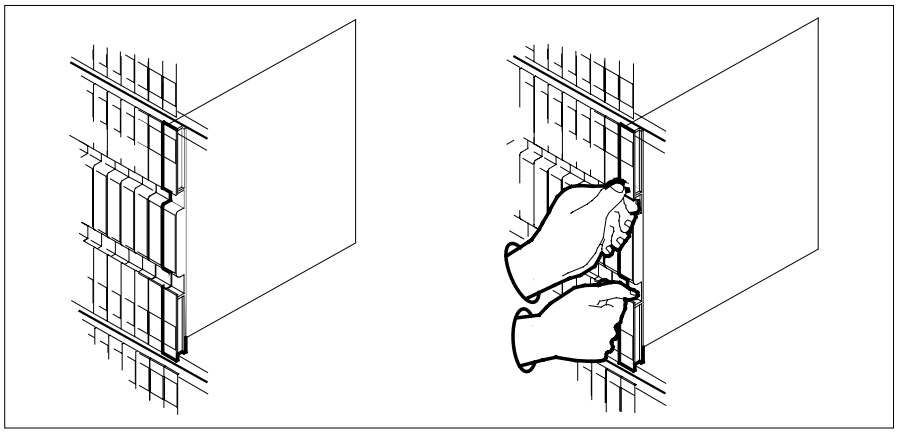
1. Do not apply direct pressure to the components.2. Do not force the card into its slot.

Put on a wrist strap.

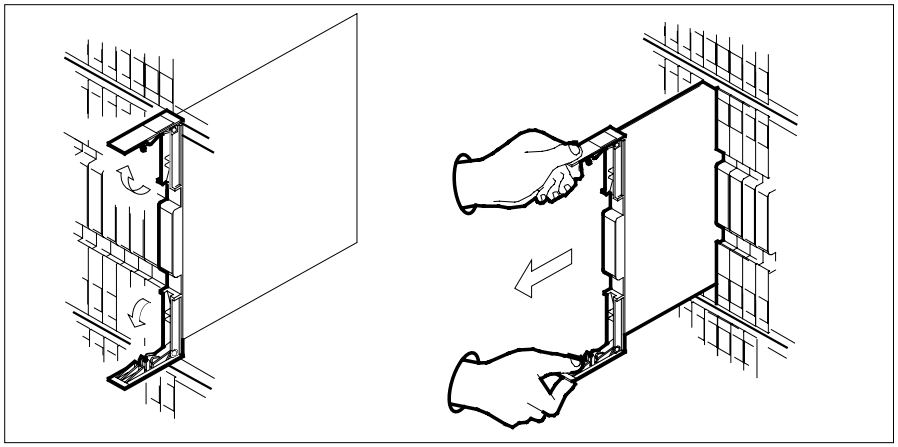
10 Remove the NT6X92 card as shown in the following figures.

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

NT6X92
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.



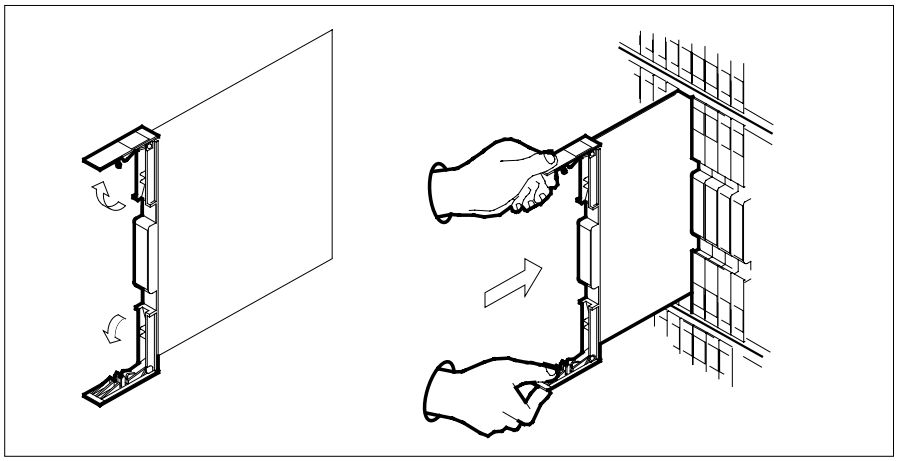
c Ensure the replacement card has the same PEC, including suffix, as the card you just removed.

11 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.

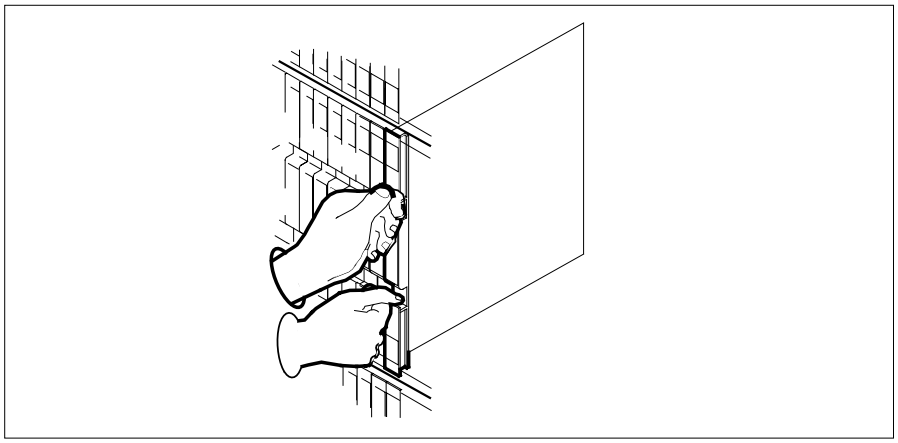
NT6X92
in an RSC-S (DS-1) Model B RCC2 (continued)



12 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.



13 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 14

NT6X92
in an RSC-S (DS-1) Model B RCC2 (end)

At the MAP terminal

14 Return the inactive RCC2 unit to service by typing

`>RTS UNIT rcc2_unit_no`

and pressing the Enter key.

where

rcc2_unit_no
is the number of the inactive RCC2 unit

If RTS	Do
passed	step 15
failed	step 18

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

16 Record the date the card was replaced, the serial number of the card, and the symptoms that prompted replacement of the card. Go to step 19.

17 Return to 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 operating company maintenance personnel.

19 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.

NT6X92
in an RSC-S (PCM-30) Model A RCO2

Application

Use this procedure to replace an NT6X92 card in an RSC-S RCO2.

ATTENTION

To ensure peak performance, do not install the UTR and GTR on the same RSC-S RC02. Presently, there is no way of knowing which receiver is used to interpret tones. Some call processing tones may be degraded if designed for use with a GTR.

PEC	Suffixes	Name
NT6X92	CA	Universal Tone Receiver (UTR)
NT6X92	EA	Global Tone Receiver (GTR)

Common procedures

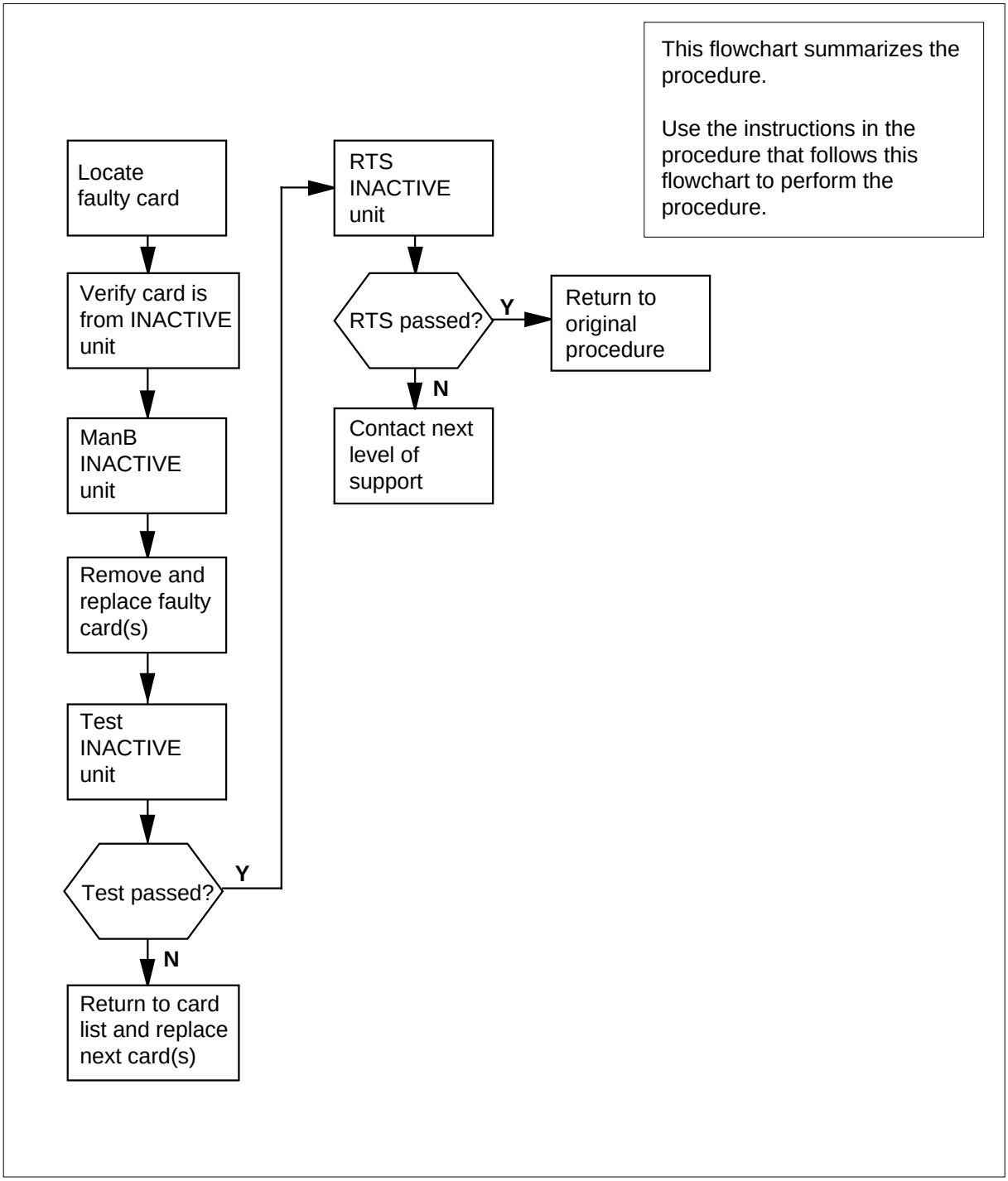
None

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.

NT6X92
in an RSC-S (PCM-30) Model A RCO2 (continued)

Summary of card replacement procedure for an NT6X92 card in RSC-S RCO2



NT6X92
in an RSC-S (PCM-30) Model A RCO2 (continued)

Replacing an NT6X92 card 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 an NT6X92 replacement card. Ensure the replacement card has the same product equipment code (PEC), including suffix, as the card that is to be removed.

3 Ensure the PM level of the MAP display is currently displayed and the RCO2 is posted by typing

```
>MAPCI;MTC;PM;POST RCO2 rco2_unit_no
```

and pressing the Enter key.

where

rco2_unit_no
is the number of the RCO2 with the faulty card

Example of a MAP display:

NT6X92
in an RSC-S (PCM-30) Model A RCO2 (continued)

```
CM     MS     IOD    Net     PM     CCS    LNS    Trks    Ext   Appl
 .      .      .      .    1RCO2    .      .       .      .      .

RCO2              SysB     ManB     OffL     CBsy     ISTb      InSv
 0 Quit    PM        0        0        2        0        2        25
 2 Post_   RCO2      0        0        0        0        1         1
 3 ListSet
 4         RCO2    0 ISTb  Links_OOS:  CSide  1, PSide   1
 5 TRNSL   Unit0:   Inact InSv
 6 TST     Unit1:   Act InSv
 7 BSY
 8 RTS
 9 OffL
10 LoadPM_
11 Disp_
12 Next_
13
14 QueryPM
15
16
17
18
```

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

If faulty card is on	Do
active unit	step 7
inactive unit	step 5

5 Switch the processing activity (SWACT) to the inactive unit by typing

>SWACT

and pressing the Enter key.

If prompt indicates a	Do
warm SWACT will be performed	step 7
cold SWACT will be performed	step 6

NT6X92
in an RSC-S (PCM-30) Model A RCO2 (continued)

6



CAUTION
Loss of service
All calls being handled by this PM will be lost, including data calls. Perform this step during a period of low traffic only.

Answer the prompt by typing

>YES

and pressing the Enter key.

At the RCE frame

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.

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)

NT6X92
in an RSC-S (PCM-30) Model A RCO2 (continued)

At the RCE frame

9



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 of the RCO2. This protects the equipment against damage caused by static electricity.



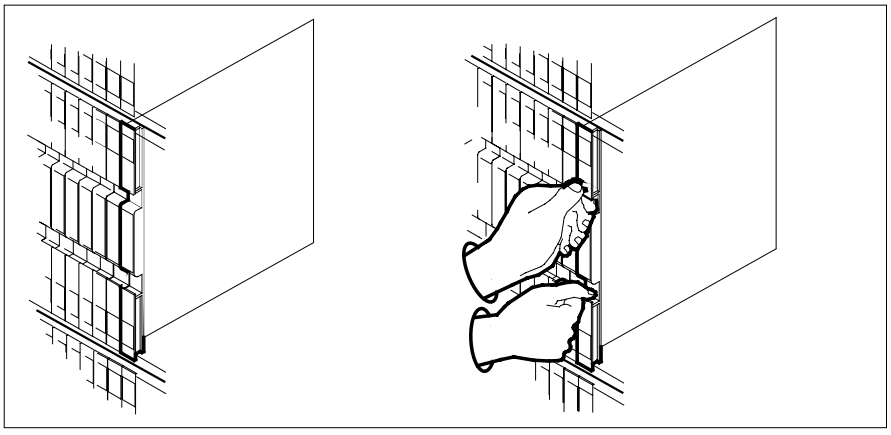
DANGER
Equipment damage
Take these precautions when removing or inserting a card:

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

Put on a wrist strap.

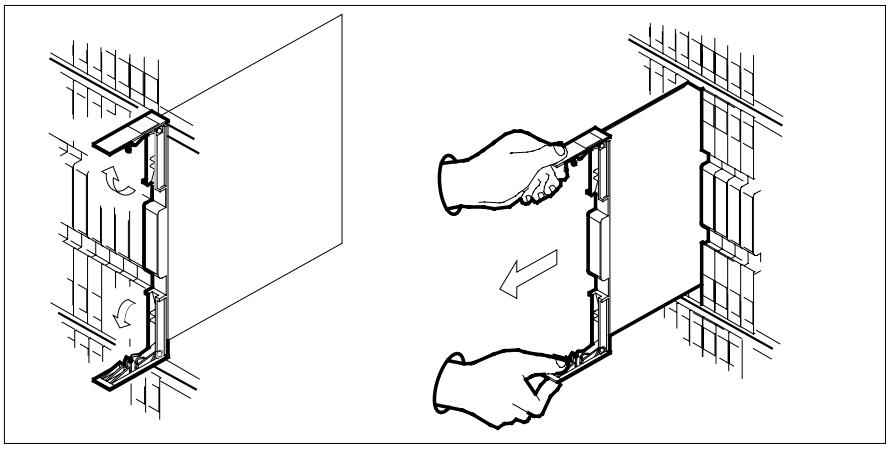
10 Remove the NT6X92 card as shown in the following figures.

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.

NT6X92
in an RSC-S (PCM-30) Model A RCO2 (continued)

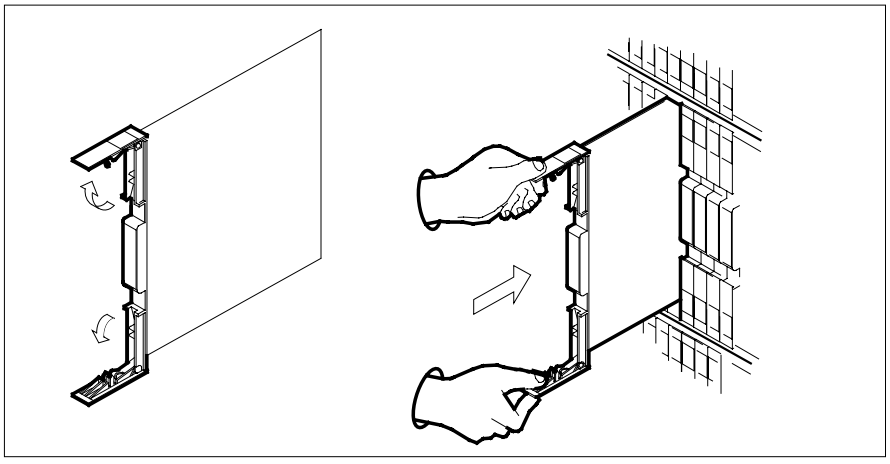


c Ensure the replacement card has the same PEC, including suffix, as the card you just removed.

11 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.

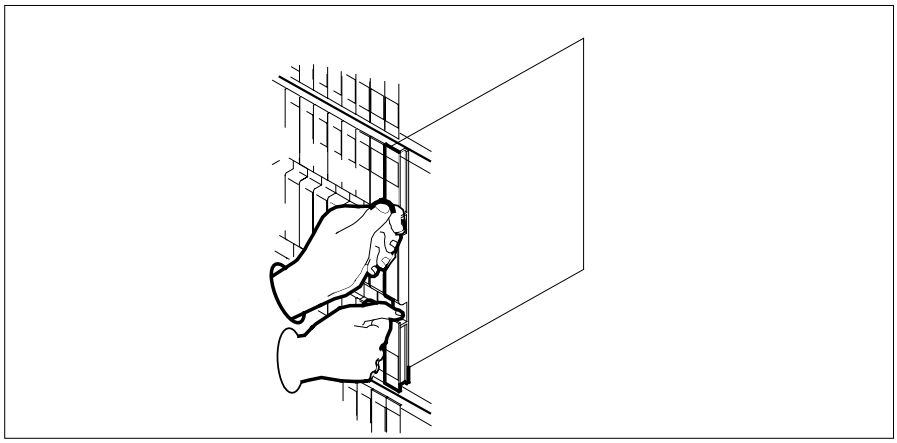


12 Seat and lock the card.

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.

NT6X92
in an RSC-S (PCM-30) Model A RCO2 (continued)



13 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 14

At the MAP terminal

14 Return the inactive RCO2 unit to service by typing

`>RTS UNIT rco2_unit_no`

and pressing the Enter key.

where

rco2_unit_no
is the number of the inactive RCO2 unit

If RTS	Do
passed	step 15
failed	step 18

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

16 Record the date the card was replaced, the serial number of the card, and the symptoms that prompted replacement of the card. Go to step 19.

17 Return to 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.

NT6X92
in an RSC-S (PCM-30) Model A RCO2 (end)

18 Obtain further assistance in replacing this card by contacting operating company maintenance personnel.

19 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.

NT6X92
in an RSC-S (PCM-30) Model B RCO2

Application

Use this procedure to replace an NT6X92 card in an RSC-S RCO2.

ATTENTION

To ensure peak performance, do not install the UTR and GTR on the same RSC-S RC02. Presently, there is no way of knowing which receiver is used to interpret tones. Some call processing tones may be degraded if designed for use with a GTR.

PEC	Suffixes	Name
NT6X92	CA	Universal Tone Receiver (UTR)
NT6X92	EA	Global Tone Receiver (GTR)

Common procedures

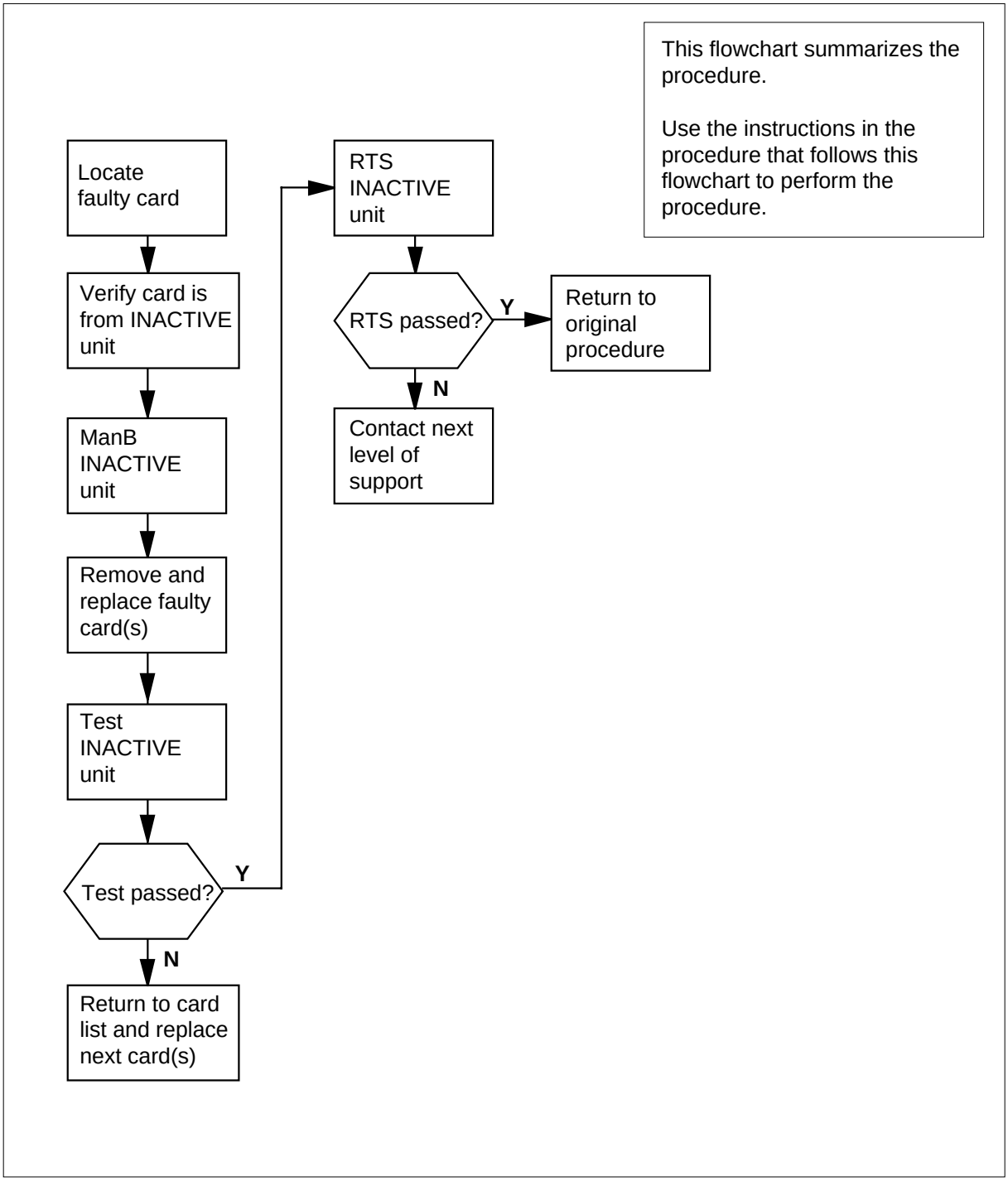
None

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.

NT6X92
in an RSC-S (PCM-30) Model B RCO2 (continued)

Summary of card replacement procedure for an NT6X92 card in RSC-S RCO2



NT6X92
in an RSC-S (PCM-30) Model B RCO2 (continued)

Replacing an NT6X92 card 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 an NT6X92 replacement card. Ensure the replacement card has the same product equipment code (PEC), including suffix, as the card that is to be removed.

3 Ensure the PM level of the MAP display is currently displayed and the RCO2 is posted by typing

```
>MAPCI;MTC;PM;POST RCO2 rco2_unit_no
```

and pressing the Enter key.

where

rco2_unit_no
is the number of the RCO2 with the faulty card

Example of a MAP display:

NT6X92
in an RSC-S (PCM-30) Model B RCO2 (continued)

```
CM     MS     IOD    Net     PM     CCS    LNS    Trks    Ext   Appl
 .      .      .      .    1RCO2    .      .       .      .      .

RCO2              SysB     ManB     OffL     CBsy     ISTb      InSv
 0 Quit    PM        0        0        2        0        2        25
 2 Post_   RCO2      0        0        0        0        1         1
 3 ListSet
 4         RCO2    0 ISTb  Links_OOS:  CSide  1, PSide   1
 5 TRNSL   Unit0:   Inact InSv
 6 TST     Unit1:   Act InSv
 7 BSY
 8 RTS
 9 OffL
10 LoadPM_
11 Disp_
12 Next_
13
14 QueryPM
15
16
17
18
```

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

If faulty card is on	Do
active unit	step 7
inactive unit	step 5

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 Answer the prompt by typing

>YES

and pressing the Enter key.

At the RCE frame

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.

NT6X92
in an RSC-S (PCM-30) Model B 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)

At the RCE frame

9



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 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:

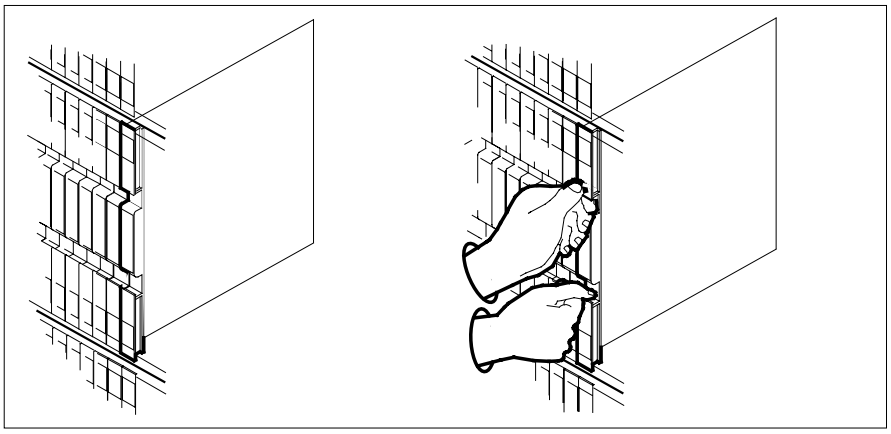
1. Do not apply direct pressure to the components.2. Do not force the card into its slot.

Put on a wrist strap.

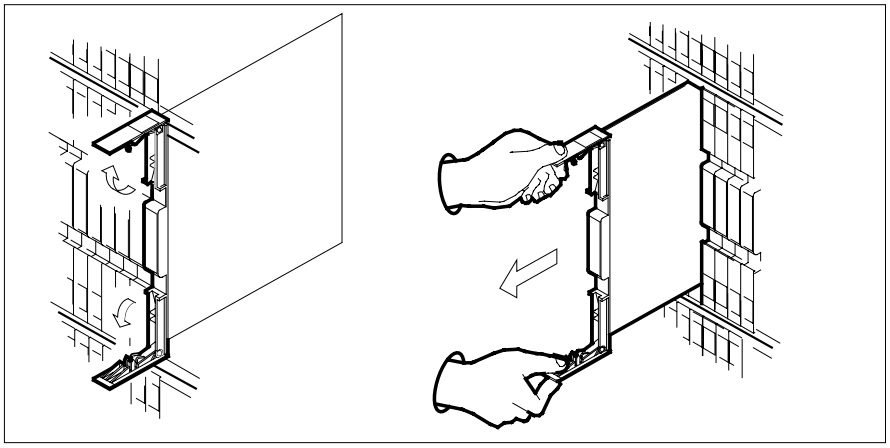
10 Remove the NT6X92 card as shown in the following figures.

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

NT6X92
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.



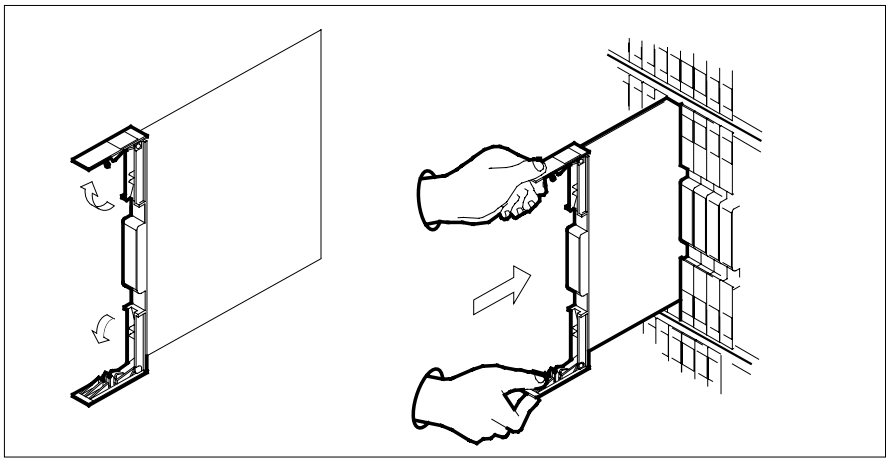
c Ensure the replacement card has the same PEC, including suffix, as the card you just removed.

11 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.

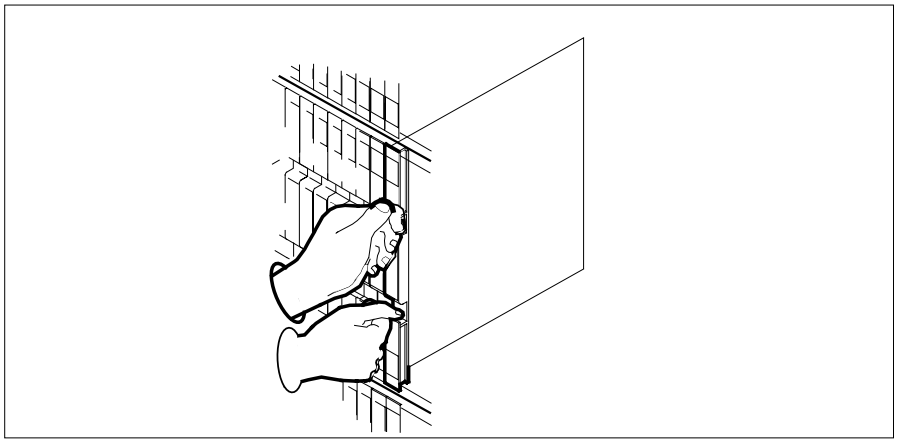
NT6X92
in an RSC-S (PCM-30) Model B RCO2 (continued)



12 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.



13 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 14

NT6X92 in an RSC-S (PCM-30) Model B RCO2 (end)

At the MAP terminal

14 Return the inactive RCO2 unit to service by typing

`>RTS UNIT rco2_unit_no`

and pressing the Enter key.

where

rco2_unit_no
is the number of the inactive RCO2 unit

If RTS	Do
passed	step 15
failed	step 18

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

16 Record the date the card was replaced, the serial number of the card, and the symptoms that prompted replacement of the card. Go to step 19.

17 Return to 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 operating company maintenance personnel.

19 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.

NT6X92 in an SMA

Application

Use this procedure to replace an NT6X92 card in an SMA.

ATTENTION

To ensure peak performance, do not install the UTR and GTR on the same SMA. Presently, there is no way of knowing which receiver is used to interpret tones. Some call processing tones may be degraded if designed for use with a GTR.

PEC	Suffixes	Name
NT6X92	BB	Universal Tone Receiver (UTR)
NT6X92	EA	Global Tone Receiver (GTR)

Common procedures

The following procedures are referenced in this procedure:

- "Locating a faulty card in an SMA"
- replacing a card
- returning a card

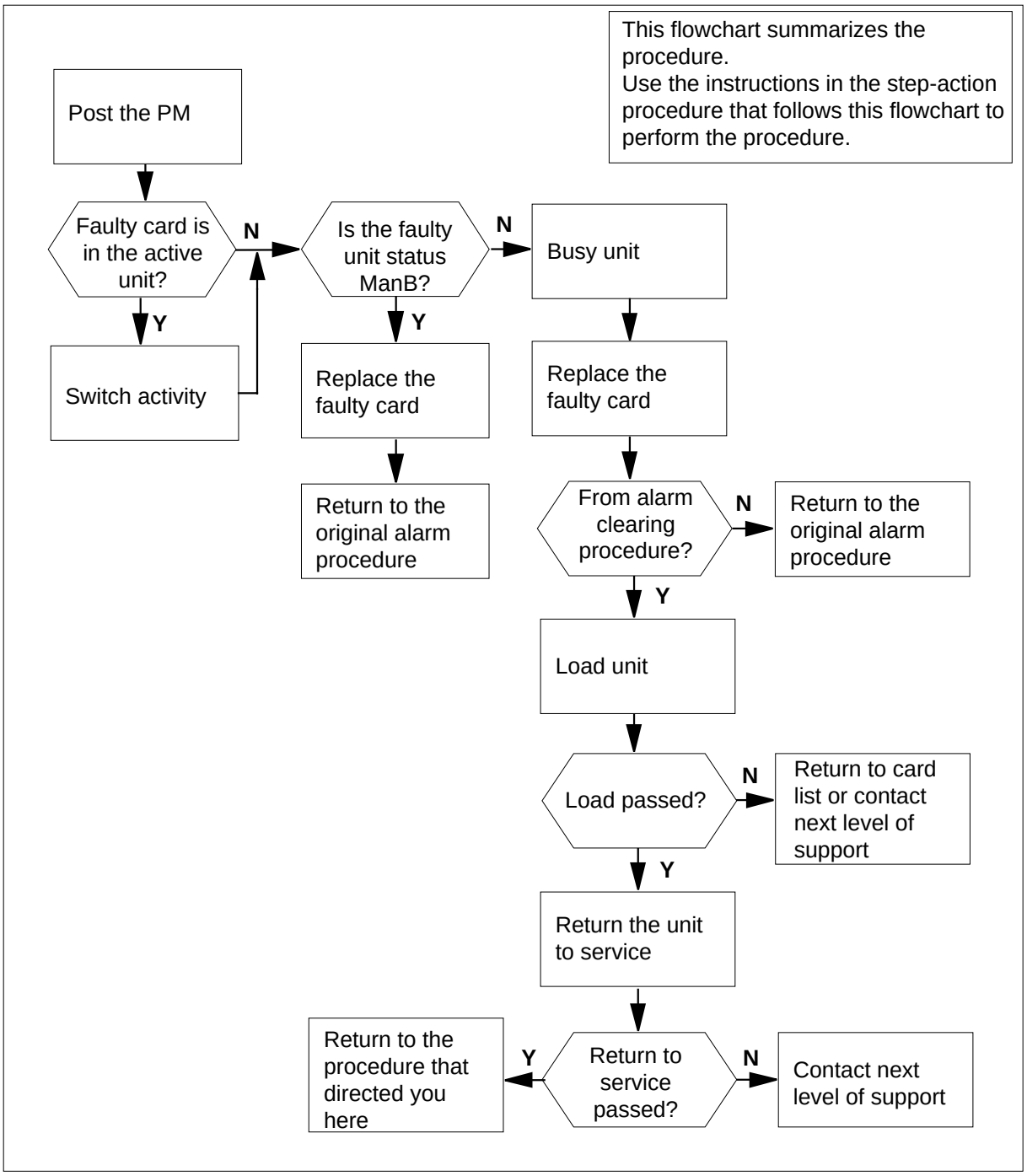
Do not go to the common procedures unless directed to do so in the step-action procedure.

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.

NT6X92
in an SMA (continued)

Summary of card replacement procedure for an NT6X92 card in an SMA



NT6X92
in an SMA (continued)

Replacing an NT6X92 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

NT6X92
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_OOS:  CSide 0, PSide 0
Unit0:  Act   InSv
Unit1:  Inact SysB
```

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

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

7 Switch the activity of the units by typing

>SWACT

and pressing the Enter key.

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

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

8 Confirm the system prompt by typing

>YES

and pressing the Enter key.

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

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

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

NT6X92
in an SMA (continued)

9 The inactive unit could not establish two-way communication with the central control 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 Busy the inactive PM unit by typing

>BSY INACTIVE

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

At the MAP terminal

15 Load the inactive SMA unit by typing

`>LOADPM INACTIVE`

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 INACTIVE`

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.

NT6X92 in an SMA-MVI-20

Application

Use this procedure to replace an NT6X92 card in an SMA.

ATTENTION

To ensure peak performance, do not install the UTR and GTR on the same SMA. Presently, there is no way of knowing which receiver is used to interpret tones. Some call processing tones may be degraded if designed for use with a GTR.

PEC	Suffixes	Name
NT6X92	BB	Universal Tone Receiver (UTR)
NT6X92	EA	Global Tone Receiver (GTR)

Common procedures

The following procedures are referenced in this procedure:

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

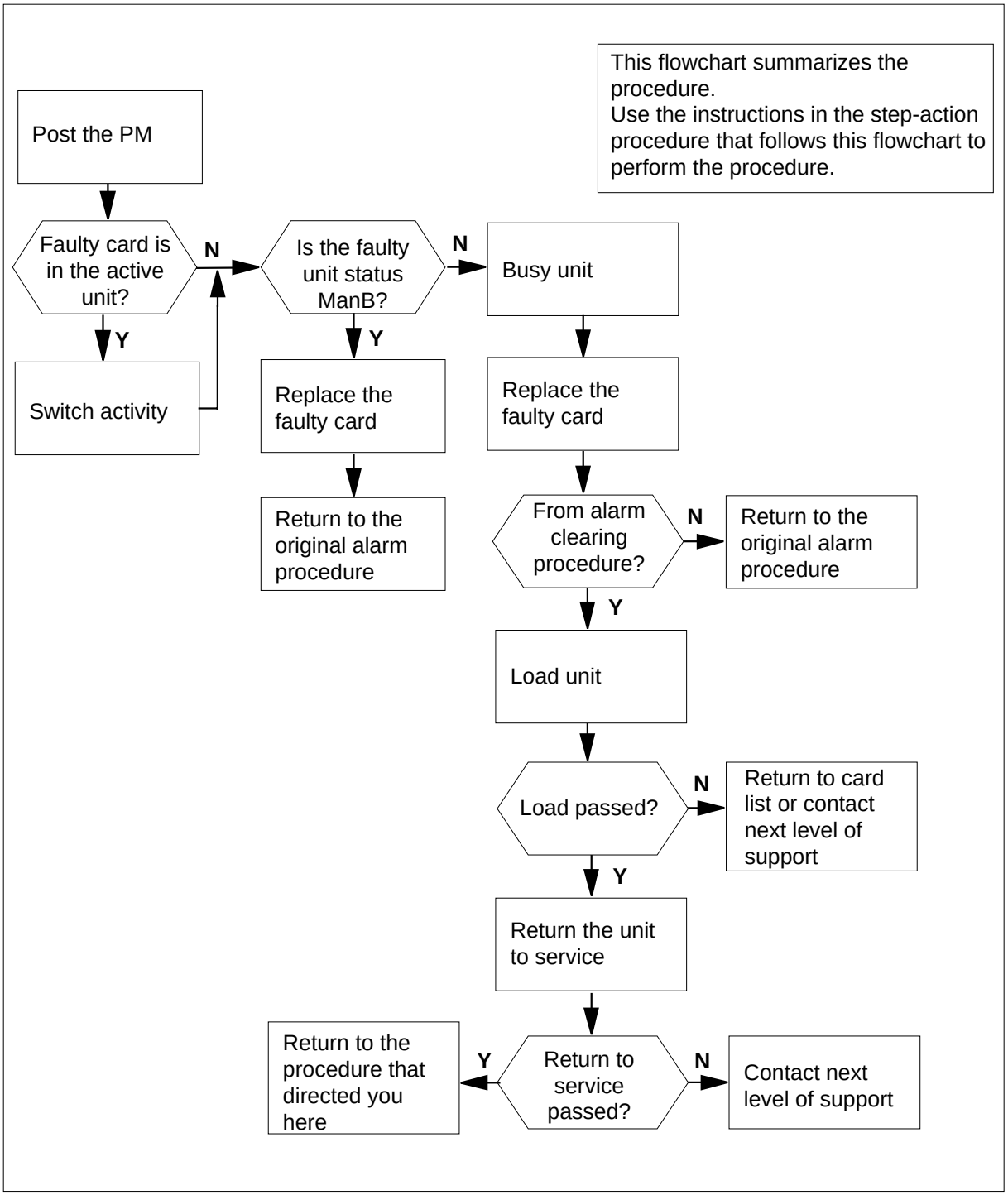
Do not go to the common procedures unless directed to do so in the step-action procedure.

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.

NT6X92
in an SMA-MVI-20 (continued)

Summary of card replacement procedure for an NT6X92 card in an SMA



NT6X92
in an SMA-MVI-20 (continued)

Replacing an NT6X92 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

NT6X92
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_OOS:  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

NT6X92
in an SMA-MVI-20 (continued)

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

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

Go to step 22.

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)

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 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 TST	Do
passed	step 18

NT6X92
in an SMA-MVI-20 (end)

If TST	Do
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
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.

NT6X92 in an SMA2

Application

Use this procedure to replace an NT6X92 card in an SMA2.

PEC	Suffixes	Name
6X92	BB	Universal Tone Receiver

Common procedures

The following procedures are referenced in this procedure:

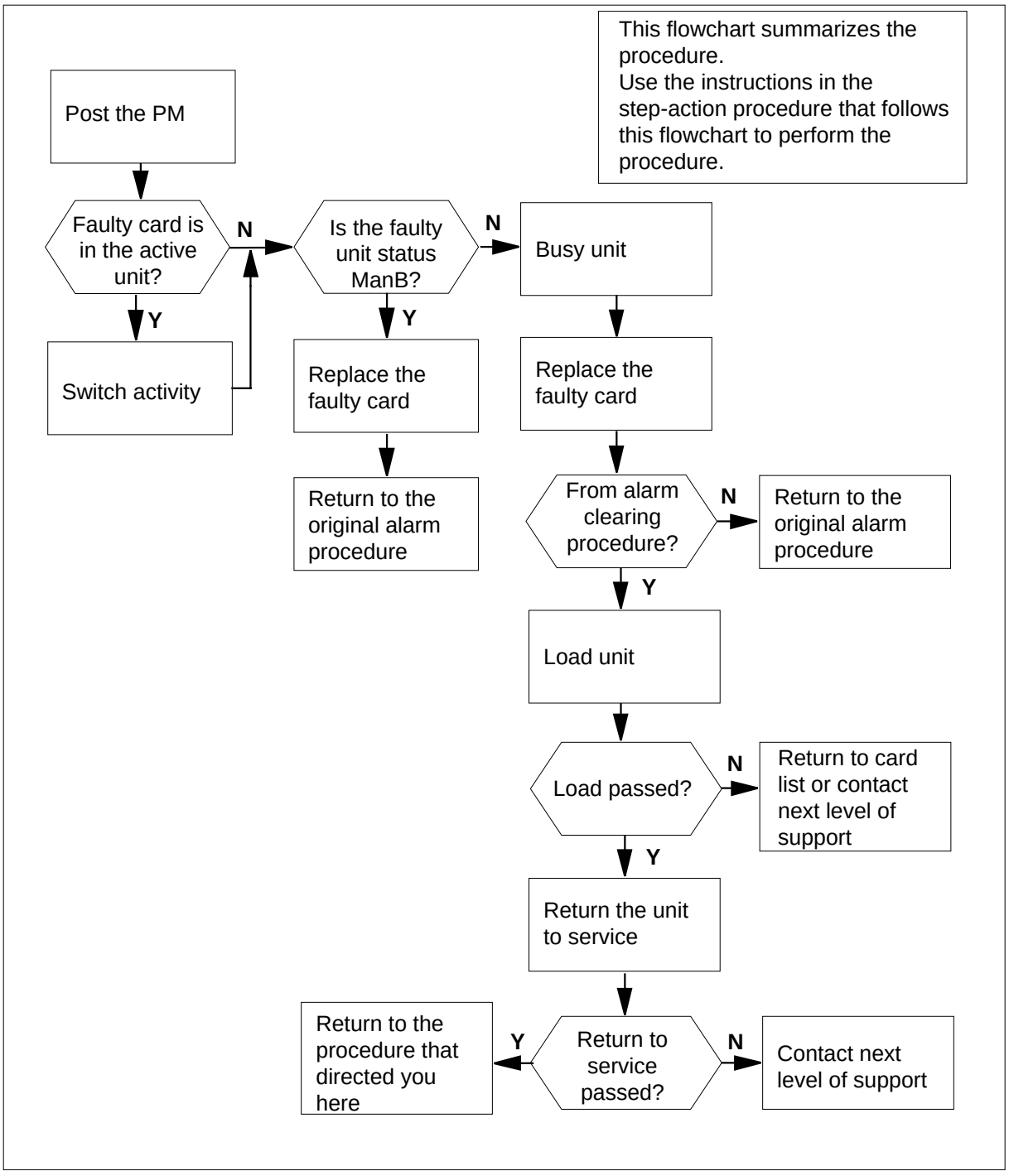
- “Locating a faulty card in an SMA2"
- replacing a card
- returning a card

Action

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

NT6X92 in an SMA2 (continued)

Summary of card replacement procedure for an NT6X92 card in an SMA2



NT6X92
in an SMA2 (continued)

Replacing an NT6X92 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

NT6X92
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_OOS:  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 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

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

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

Go to step 21.

At the frame or cabinet

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 SMA2 unit (0 or 1)

NT6X92
in an SMA2 (continued)

At the frame or cabinet

14



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

Perform the common replacing a card procedure in this document.

15 Use the following information to determine the next step.

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

At the MAP terminal

16 Load the inactive SMA2 unit by typing

`>LOADPM UNIT unit_no`

and pressing the Enter key.

where

unit_no
is the number of the busied SMA2 unit

If load	Do
passed	step 17
failed	step 21

17 Return the inactive SMA2 unit to service by typing

`>RTS UNIT unit_no`

and pressing the Enter key.

where

unit_no
is the number of the SMA2 unit loaded in step 17

If RTS	Do
passed	step 18

NT6X92
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 the common returning a card procedure in this document.

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.

NT6X92 in an SMS

Application

Use this procedure to replace an NT6X92 card in an SMS.

ATTENTION

To ensure peak performance, do not install the UTR and GTR on the same SMS. Presently, there is no way of knowing which receiver is used to interpret tones. Some call processing tones may be degraded if designed for use with a GTR.

PEC	Suffixes	Name
NT6X92	BB, BC	Universal tone receiver (UTR)
NT6X92	EA	Global tone receiver (GTR)

Common procedures

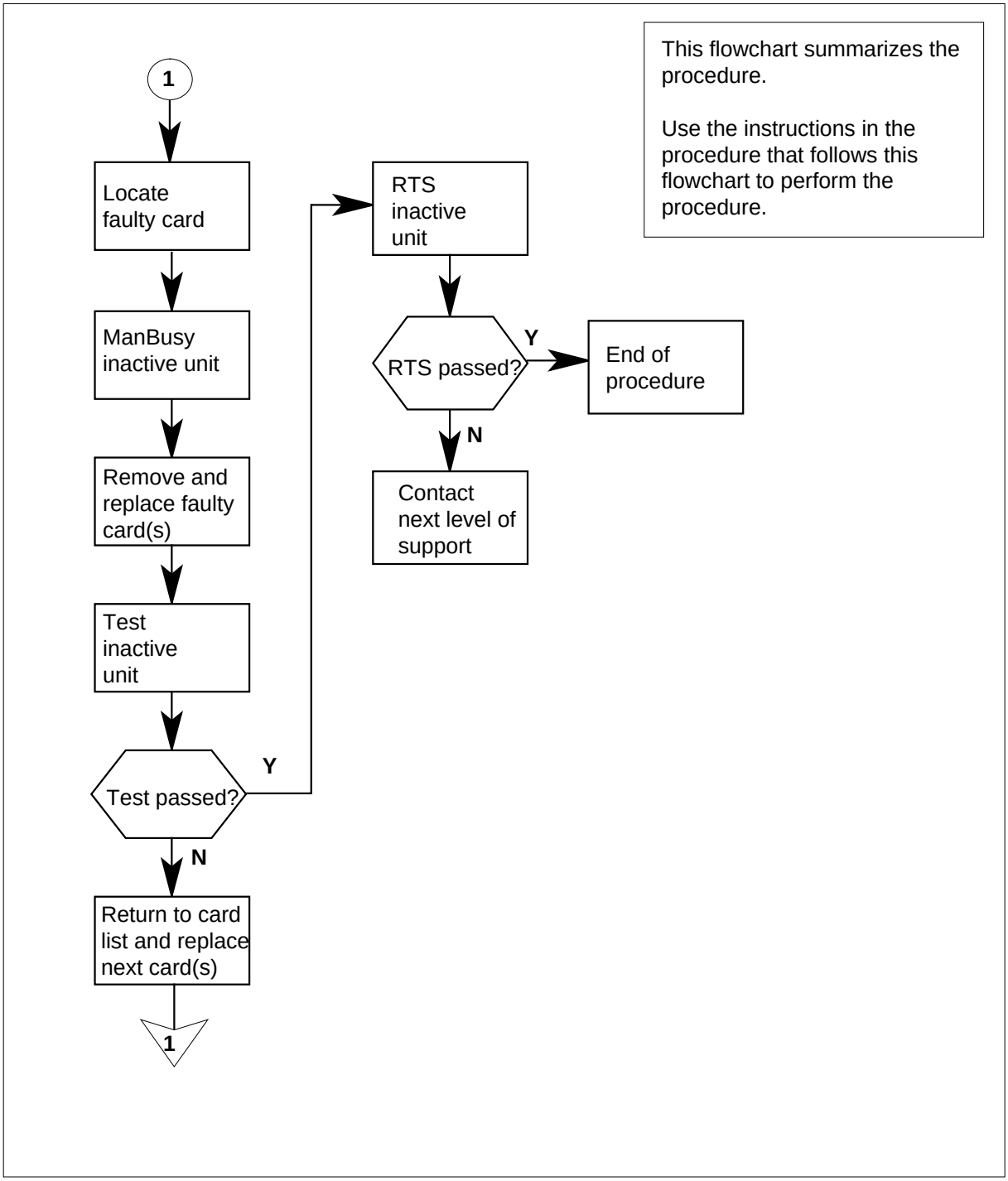
None

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.

NT6X92
in an SMS (continued)

Summary of card replacement procedure for an NT6X92 card in an SMS



NT6X92 in an SMS (continued)

Replacing an NT6X92 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 and post the faulty SMS 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_OOS    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.

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

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

6 Switch the activity of the unit by typing

>YES

and pressing the Enter key.

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

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

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

7 Return to the *Alarm Clearing Procedures.* 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 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

NT6X92
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 at the left side of the frame supervisory panel of the SMS. This protects the equipment against damage caused by static electricity.

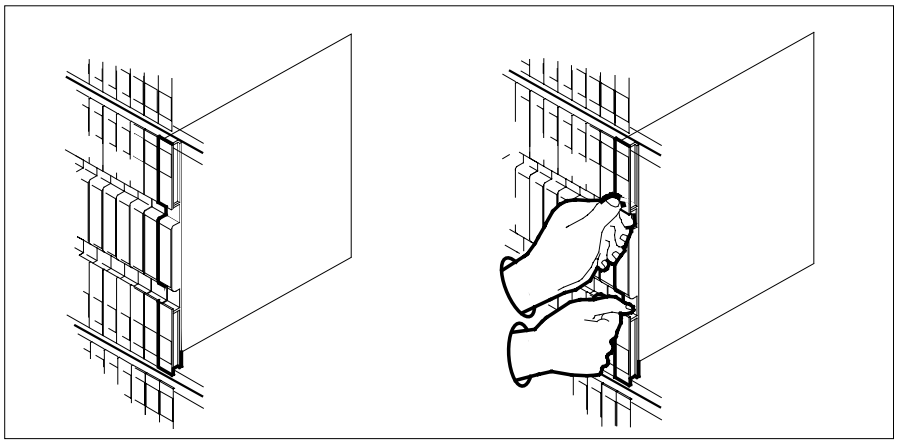
Put on a wrist strap.

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 NT6X92 card from slot 17 as shown in the following figures.

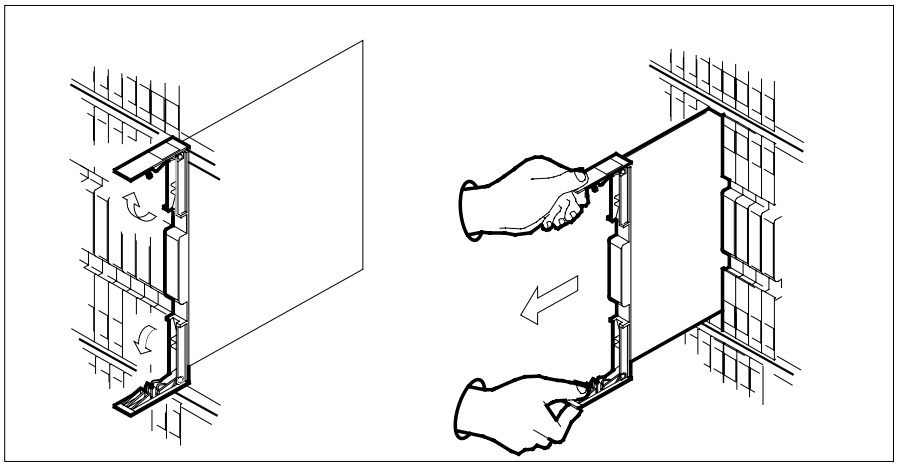
a Locate the card to be removed on the appropriate shelf.



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.

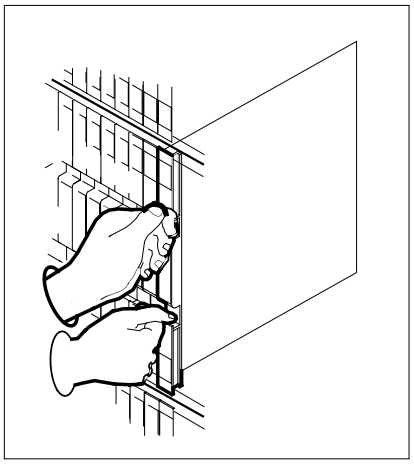
12 Open the locking levers on the replacement card. Align the card with the slots in the shelf and gently slide the card into the shelf.



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.



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**

NT6X92
in an SMS (continued)

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

unit_no
is the number of the faulty SMS unit

If RTS	Do
passed	step 19
failed	step 18

17 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.

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.

NT6X92
in an SMS (end)

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.

NT6X92 in an SMU

Application

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

ATTENTION

To ensure peak performance, do not install the UTR and GTR on the same SMU. Presently, there is no way of knowing which receiver is used to interpret tones. Some call processing tones may be degraded if designed for use with a GTR.

PEC	Suffix	Name
NT6X92	BB, BC	Universal tone receiver (UTR)
NT6X92	EA	Global tone receiver (GTR)

Common procedures

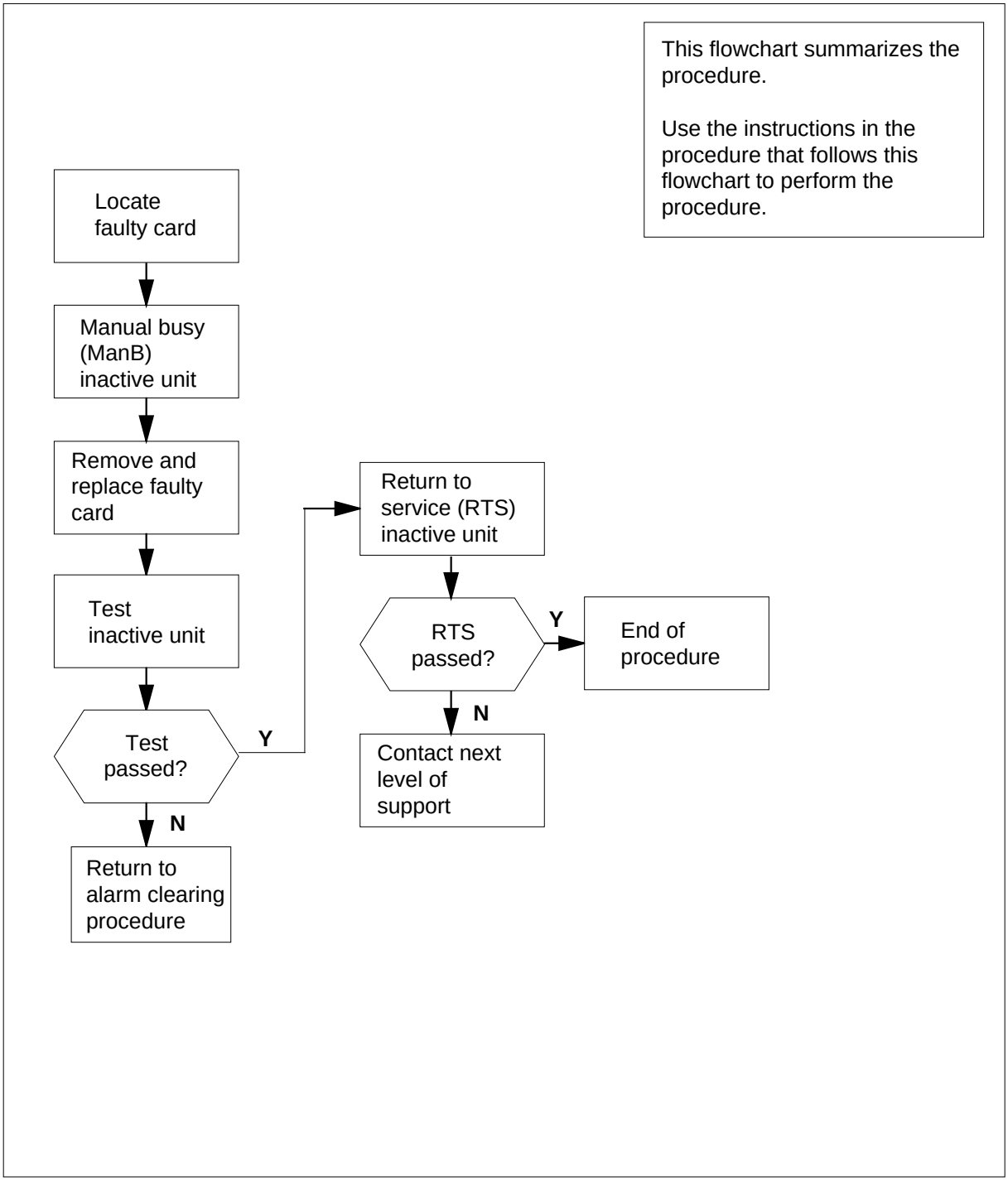
The common replacing a card procedure is referenced in this procedure.

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.

NT6X92
in an SMU (continued)

Summary of card replacement procedure for an NT6X92 card in an SMU



NT6X92
in an SMU (continued)

Replacing an NT6X92 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, 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 possible
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 engineering code (PEC), including suffix, as the card to be removed.

At the MAP terminal:

3 Access the PM level of the MAP terminal and post the faulty SMU by typing

`>MAPCI;MTC;PM;POST SMU smu_no`

and pressing the Enter key.

where

smu_no
is the number of the SMU

Example of a MAP display response:

```
SMU 3     INSV    LINKS_OOS    CSIDE     PSIDE 0
Unit0      Act     InSv
Unit1     Inact    SysB
```

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`

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 20

6 Switch the activity of the unit by typing

>YES

and pressing the Enter key.

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

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

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

7 Return to the *Alarm Clearing Procedures* to clear the alarm condition on the inactive unit. After the alarm is cleared, return to step 1 of this procedure.

At the 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 faulty SMU unit

NT6X92
in an SMU (continued)

10 Go to the common replacing a card procedure in this document, then return to step 11 of this procedure.

11 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 14
other	step 12

12 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
passed	step 13
failed	step 15

13 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 12

If RTS	Do
passed	step 16
failed	step 15

14 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.

15 Contact personnel responsible for higher level support and get further help to replace this card.

16 Remove the sign from the active SMU unit.

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

NT6X92
in an SMU (end)

18 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

19 You have successfully completed this procedure. Remove the sign from the active unit, return to the maintenance procedure that directed you to this card replacement procedure, and continue as directed.

20 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.

NT6X99 in an IOPAC ILCM

Application

Use this procedure to replace the following card in an International line concentrating module (ILCM).

PEC	Suffix	Name
NT6X99	AA	Datapath bit error rate tester line card (2 slot)

Common procedures

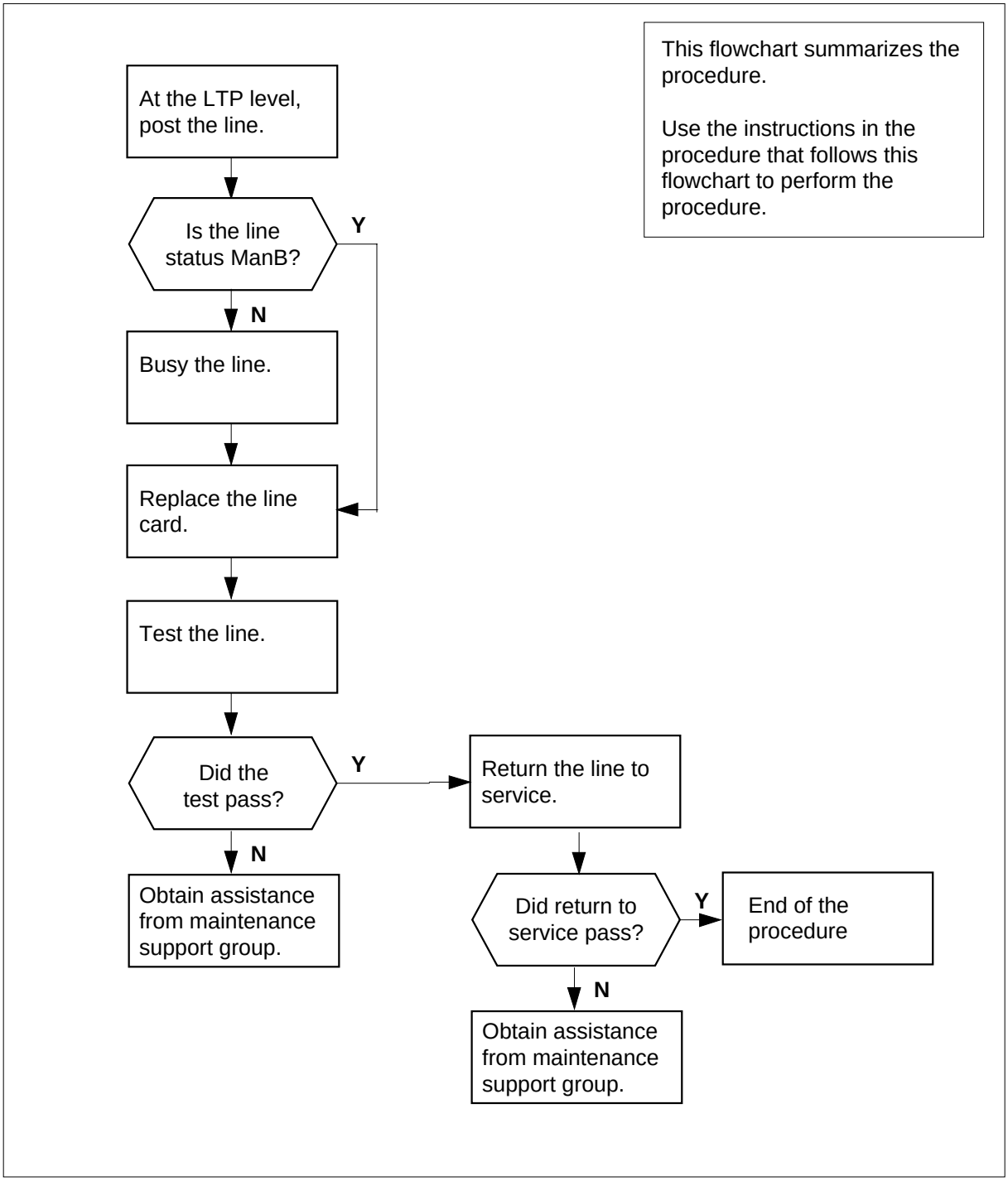
The common replacing a line card procedure is referenced in this procedure.

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.

NT6X99
in an IOPAC ILCM (continued)

Summary of card replacement procedure for NT6X99 card in an ILCM



NT6X99 in an IOPAC ILCM (continued)

Replacing an NT6X99 in an ILCM

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 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     IBERT
```

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 here.

6 Test the line card just replaced by typing

`>DIAG`

and pressing the Enter key.

If the DIAG	Do
passed	step 7
failed	step 10

7 Return the line card to service by typing

>RTS

and pressing the Enter key.

If RTS	Do
passed	step 8
failed	step 10

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

9 Record the following items in office records:

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

Go to step 11.

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

11 You have successfully completed this procedure.

NT6X99 in an OPAC LCM

Application

Use this procedure to replace the following card in a line concentrating module (LCM).

PEC	Suffix	Name
NT6X99	AA	Datapath bit error rate tester line card (2 slot)

Common procedures

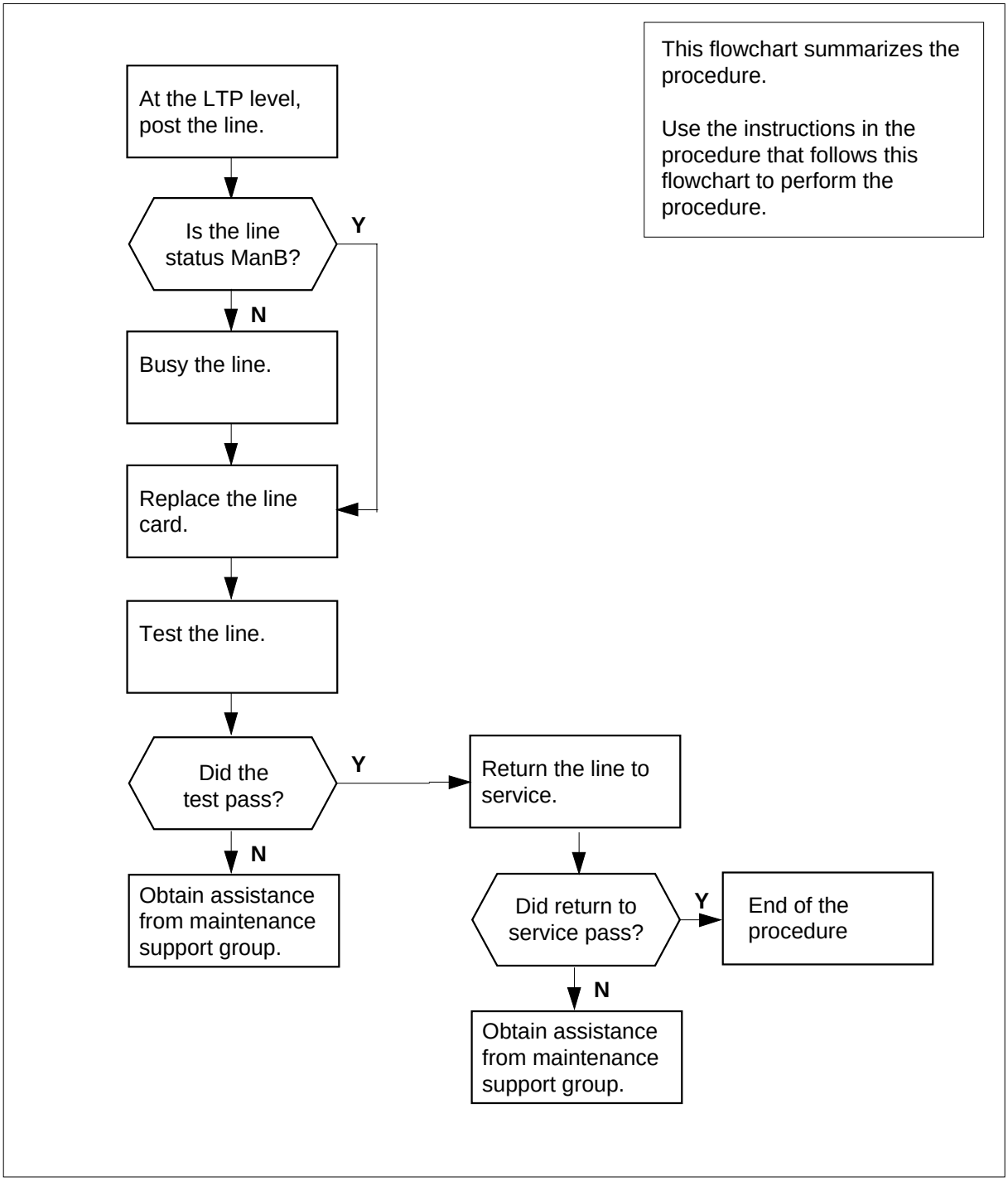
The common replacing a line card procedure is referenced in this procedure.

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.

NT6X99
in an OPAC LCM (continued)

Summary of card replacement procedure for NT6X99 card in an LCM



NT6X99
in an OPAC LCM (continued)

Replacing an NT6X99 in an LCM

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 rlcm lsg ckt`

and pressing the Enter key.

where

site
is the name of the site where the OPAC is located

rlcm
is the number of the OPAC 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     IBERT
```

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 here.

6 Test the line card just replaced by typing

`>DIAG`

and pressing the Enter key.

If the DIAG	Do
passed	step 7
failed	step 10

7 Return the line card to service by typing

>RTS

and pressing the Enter key.

If RTS	Do
passed	step 8
failed	step 10

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

9 Record the following items in office records:

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

Go to step 11.

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

11 You have successfully completed this procedure.

NT6X99 in an OPM

Application

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

PEC	Suffixes	Name
NT6X99	AA	

Common procedures

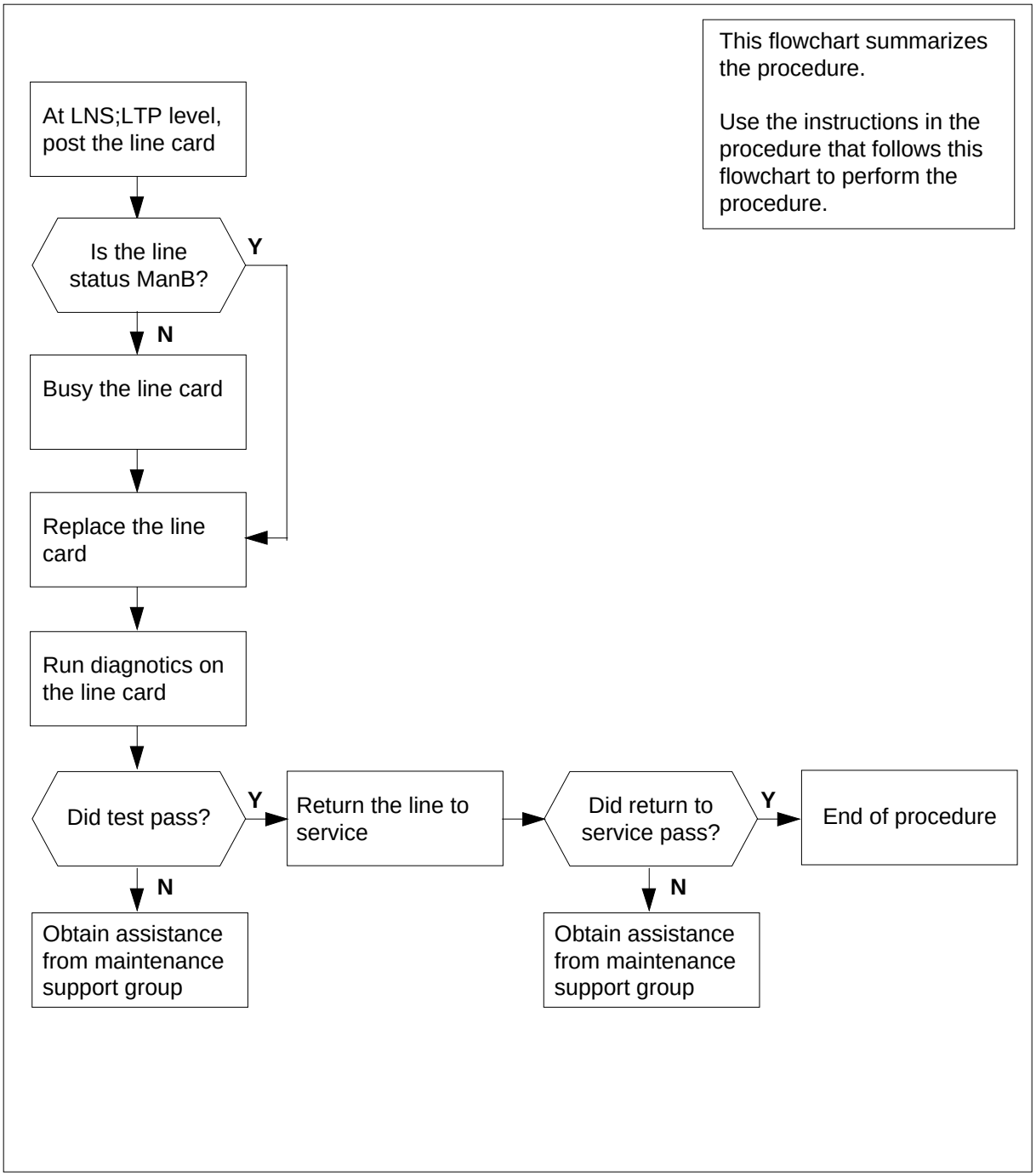
The common replacing a line card procedure is referenced in this procedure.

Action

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

NT6X99
in an OPM (continued)

Summary of card replacement procedure for an NT6X99 card in an OPM



NT6X99
in an OPM (continued)

Replacing an NT6X99 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.

At the MAP display

2 Access the LTP level of the MAP 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 Response:

```
LCC PTY RNG .....LEN.........DN   STA F S LTA TE RESULT
1FR         REM1 00 0 03 03  IBERT
```

3 Check the status of the posted line.

If the line status is	Do
manual busy (MB)	step 5
not MB	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.

At the MAP display

6 Test the line card just replaced by typing

>DIAG

and pressing the Enter key.

If the DIAG	Do
passed	step 7
failed	step 10

7 Return the line card to service by typing

>RTS

and pressing the Enter key.

If the RTS	Do
passed	step 8
failed	step 10

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

9 Record the following items in office records:

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

Go to step 11.

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

11 You have successfully completed this procedure.

NT6X99 in an RLCM

Application

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

PEC	Suffixes	Name
NT6X99	AA	

Common procedures

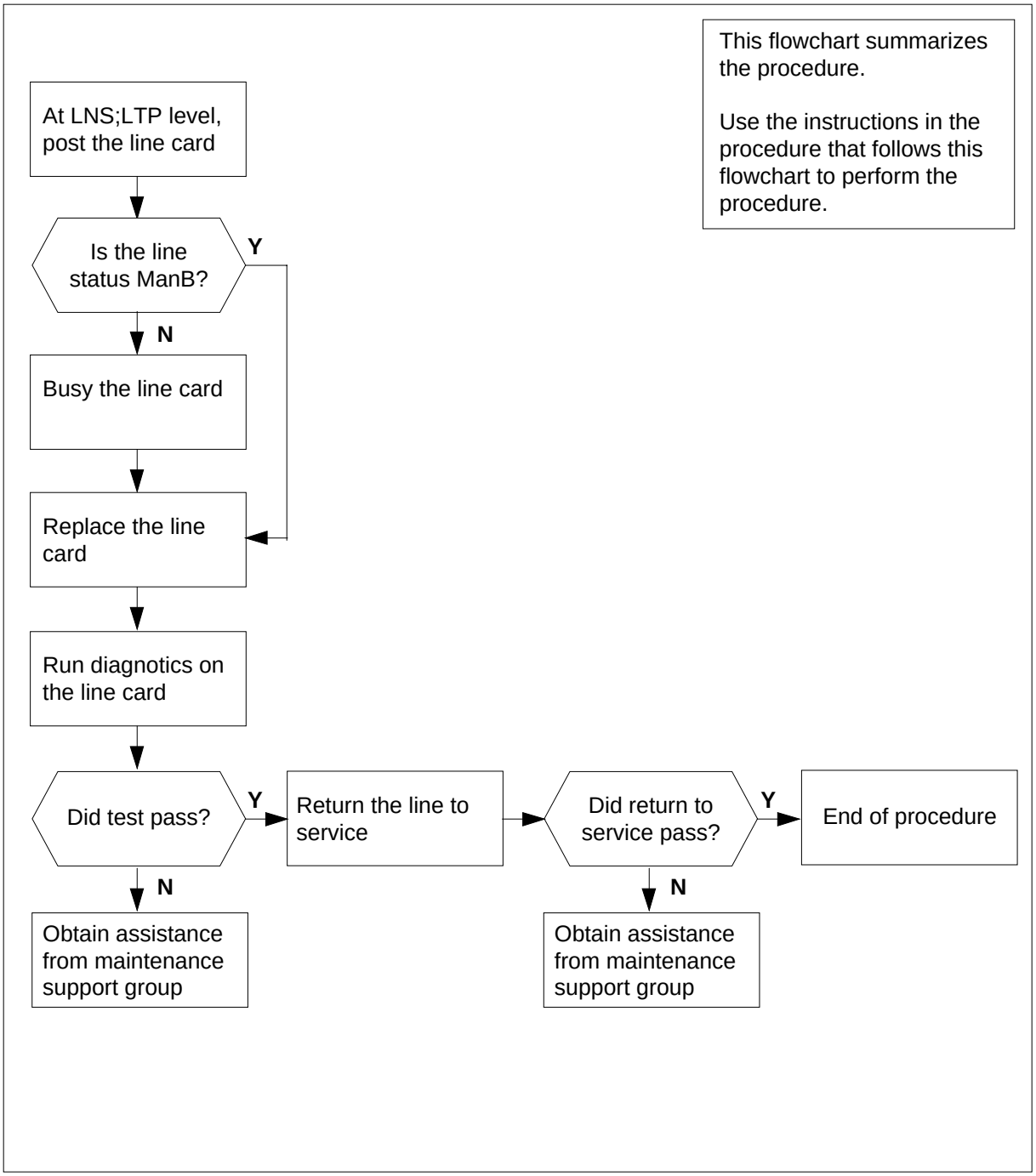
The common replacing a line card procedure is referenced in this procedure.

Action

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

NT6X99
in an RLCM (continued)

Summary of card replacement procedure for an NT6X99 card in an RLCM



NT6X99 in an RLCM (continued)

Replacing an NT6X99 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.

At the MAP display

2 Access the LTP level of the MAP 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  IBERT MB
```

3 Check the status of the posted line.

If the line status is	Do
manual busy (MB)	step 5
not MB	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 point.

At the MAP display

6 Test the line card just replaced by typing

>DIAG

and pressing the Enter key.

If the DIAG	Do
passed	step 7
failed	step 10

7 Return the line card to service by typing

>RTS

and pressing the Enter key.

If the RTS	Do
passed	step 8
failed	step 10

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

9 Record the following items in office records:

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

Go to step 11.

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

11 You have successfully completed this procedure.

NT6X99 in an RSC LCM

Application

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

PEC	Suffix	Name
NT6X99	AA	Datapath bit error rate tester line card (2 slot)

Common procedures

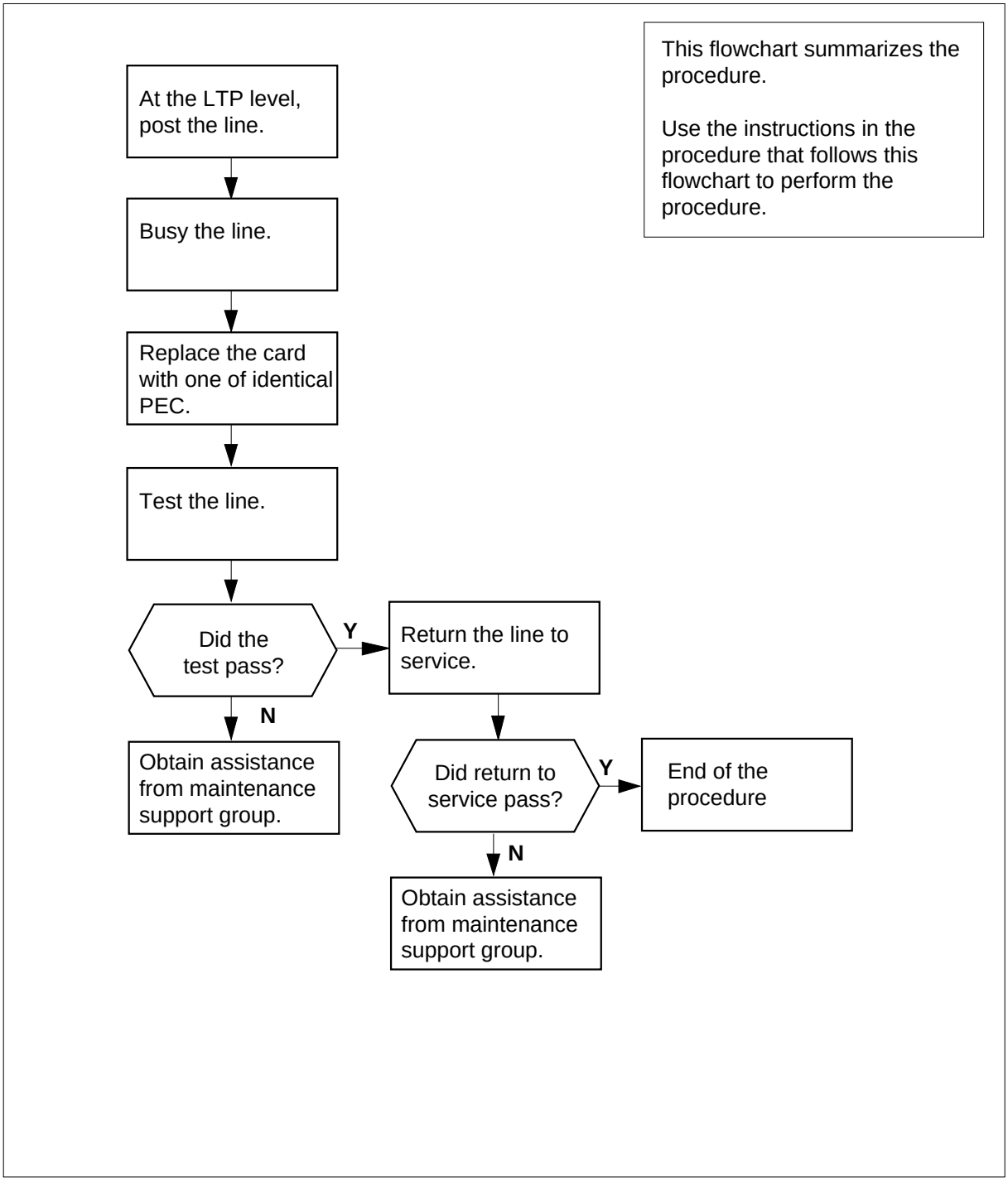
None

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.

NT6X99
in an RSC LCM (continued)

Summary of card replacement procedure for NT6X99 card in an RSC LCM



NT6X99 in an RSC LCM (continued)

Replacing an NT6X99 in an LCM

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_no lsg_no ckt_no`

and pressing the Enter key.

where

site
is the name of the site where the RSC LCM is located

lcm_no
is the number of the RSC LCM with the faulty card

lsg_no
is the number of the line subgroup with the faulty card

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

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 REM1 00 0 03 03  IBERT   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
```

NT6X99
in an RSC LCM (continued)

3 Busy the NT6X99 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 REM1 00 0 03 03  IBERT   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
```

NT6X99
in an RSC LCM (continued)

At the LCE frame

4



WARNING
Card damage—transport
Take these 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 wrist strap connected through a 1-megohm resistor, to a suitable 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.



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 RSC LCM. This protects 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.



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.

NT6X99
in an RSC LCM (continued)

5



DANGER
Hot materials
Exercise care when handling a line card. The line feed resistor may be hot.

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 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.

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

6 Remove the line card to be replaced by using the following steps:

NT6X99
in an RSC LCM (continued)

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 with your left hand.

e Pull the extractor away from the drawer and the card will come 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 ESD container and store per local procedures.

7 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.

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 14
other	step 9

9 Test the NT6X99 card by typing

>DIAG

and pressing the Enter key.

If DIAG	Do
passed	step 10
failed	step 15

10 Return the NT6X99 card to service by typing

>RTS

and pressing the Enter key.

If RTS	Do
passed	step 11
failed	step 15

At the MAP display

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

12 Record the following items in office records:

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

13 Go to step 16.

14 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.

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

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

NT6X99
in an RSC-S (DS-1) Model A LCME

Application

Use this procedure to replace an NT6X99 card in an RSC-S LCME.

PEC	Suffixes	Name
NT6X99	AA	Datapath Bit Error Rate Tester Line Card

Common procedures

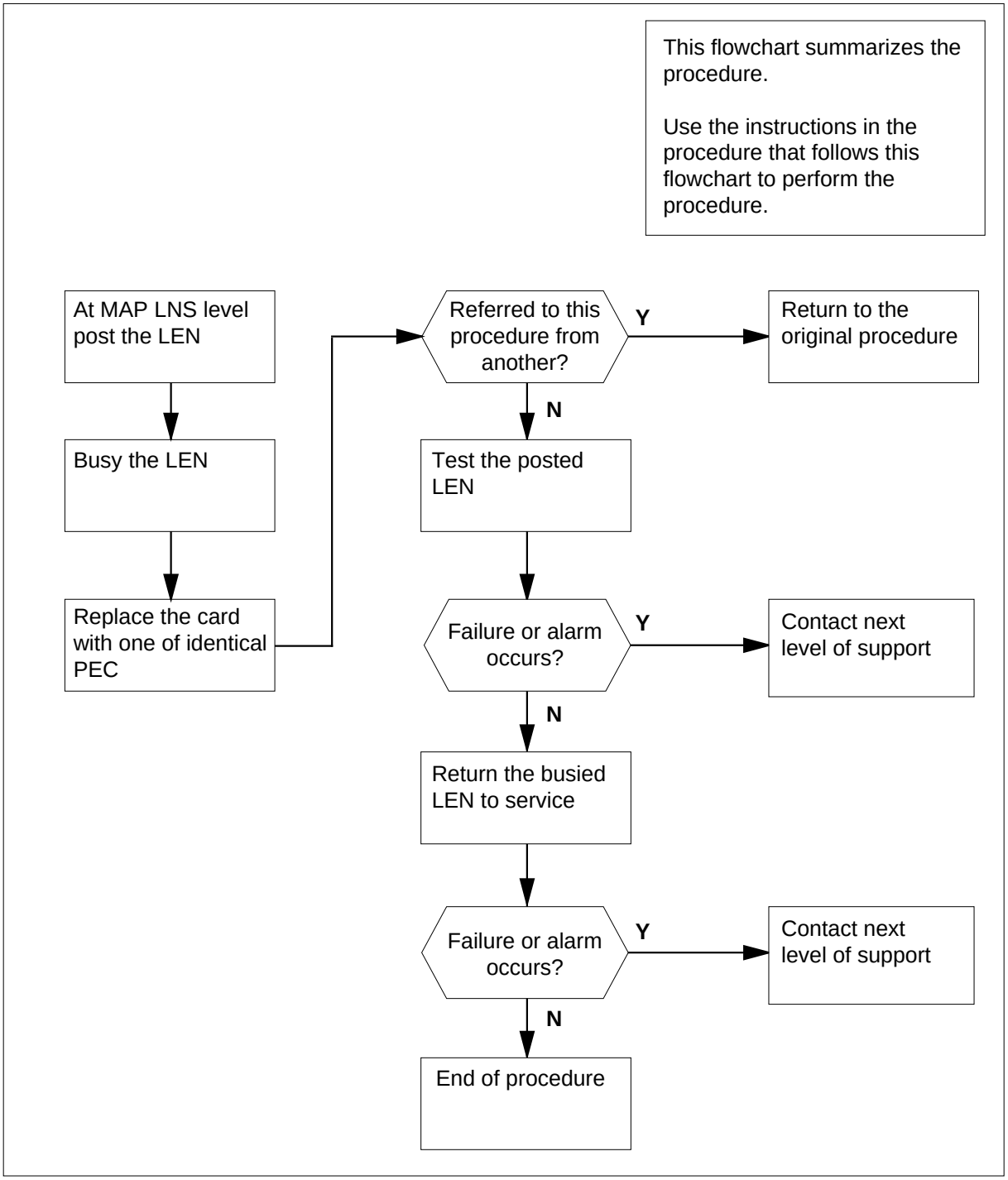
None

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.

NT6X99
in an RSC-S (DS-1) Model A LCME (continued)

Summary of card replacement procedure for an NT6X99 card in RSC-S LCME



NT6X99 in an RSC-S (DS-1) Model A LCME (continued)

Replacing an NT6X99 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 an NT6X99 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 line equipment number (LEN) from the line test position 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 site name assigned to the remote location

lcme_no
is the number of the LCME

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

lsg_no
is the number of line subgroup (00-19)

ckt_no
is the circuit number (00-31)

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 FS LTA TE RESULT
 4           CKT TYPE FL Host 00 0 03 03 No DIRN Idl
 5 Bsy_
 6 RTS_
 7 Diag_
 8
 9 Almstat
10 CKTLOC
11 Hold
12 Next_
13
14
15
16 Prefix_
17 LCO_
18 Level_
```

4 Busy the LEN posted 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 FS LTA TE RESULT
 4           CKT TYPE FL Host 00 0 03 03 No DIRN MB
 5 Bsy_
 6 RTS_
 7 Diag_
 8
 9 Almstat
10 CKTLOC
11 Hold
12 Next_
13
14
15
16 Prefix_
17 LCO_
18 Level_
```

NT6X99
in an RSC-S (DS-1) Model A LCME (continued)

At the LCE frame

5



WARNING
Card damage—transport
Take the following precautions to protect the 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.



WARNING
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
Possible injury from hot materials
Exercise care when handling the line card. The line feed resistor may be hot.

NT6X99
in an RSC-S (DS-1) Model A LCME (continued)

CAUTION
Special tools required
Card shrouds and removal tools are required for removing cards from the line drawers. For descriptions of these tools, refer to the following notes.

Put on a wriststrap.

Note: Card shrouds are required for inserting or removing cards in line drawers. Two sizes are available for use with 3-inch and 6-inch cards, as shown in the following table.

Line card insertion / withdrawal tool for	Apparatus code	Common product code
3-inch cards	QTH56A	A0298291
6-inch cards	QTH58A	A0313317

Note: Card removal tools are required for removing cards from line drawers. Two sizes are available, as shown in the following table.

Card removal tool for	Apparatus code	Common product code
3—4 inch cards	QTH57A	A0298292
Note: For 4-inch or larger cards, use the large grip tool ITA9953.		

6 Open the line drawer and prepare to remove the faulty card by 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.

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.

NT6X99
in an RSC-S (DS-1) Model A LCME (continued)

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 Continue this procedure depending on where you were when you were directed to this procedure.

If you entered this procedure from	Do
alarm clearing procedures	step 14
other	step 10

10 Test the line card just replaced by typing

>DIAG

and pressing the Enter key.

If DIAG	Do
passes	step 11
fails	step 15

11 Return the line card to service by typing

>RTS

NT6X99
in an RSC-S (DS-1) Model A LCME (end)

and pressing the Enter key.

If RTS	Do
passes	step 12
fails	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. 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.

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

NT6X99 in an RSC-S (DS-1) Model B LCME

Application

Use this procedure to replace an NT6X99 card in an RSC-S LCME.

PEC	Suffixes	Name
NT6X99	AA	Datapath Bit Error Rate Tester Line Card

Common procedures

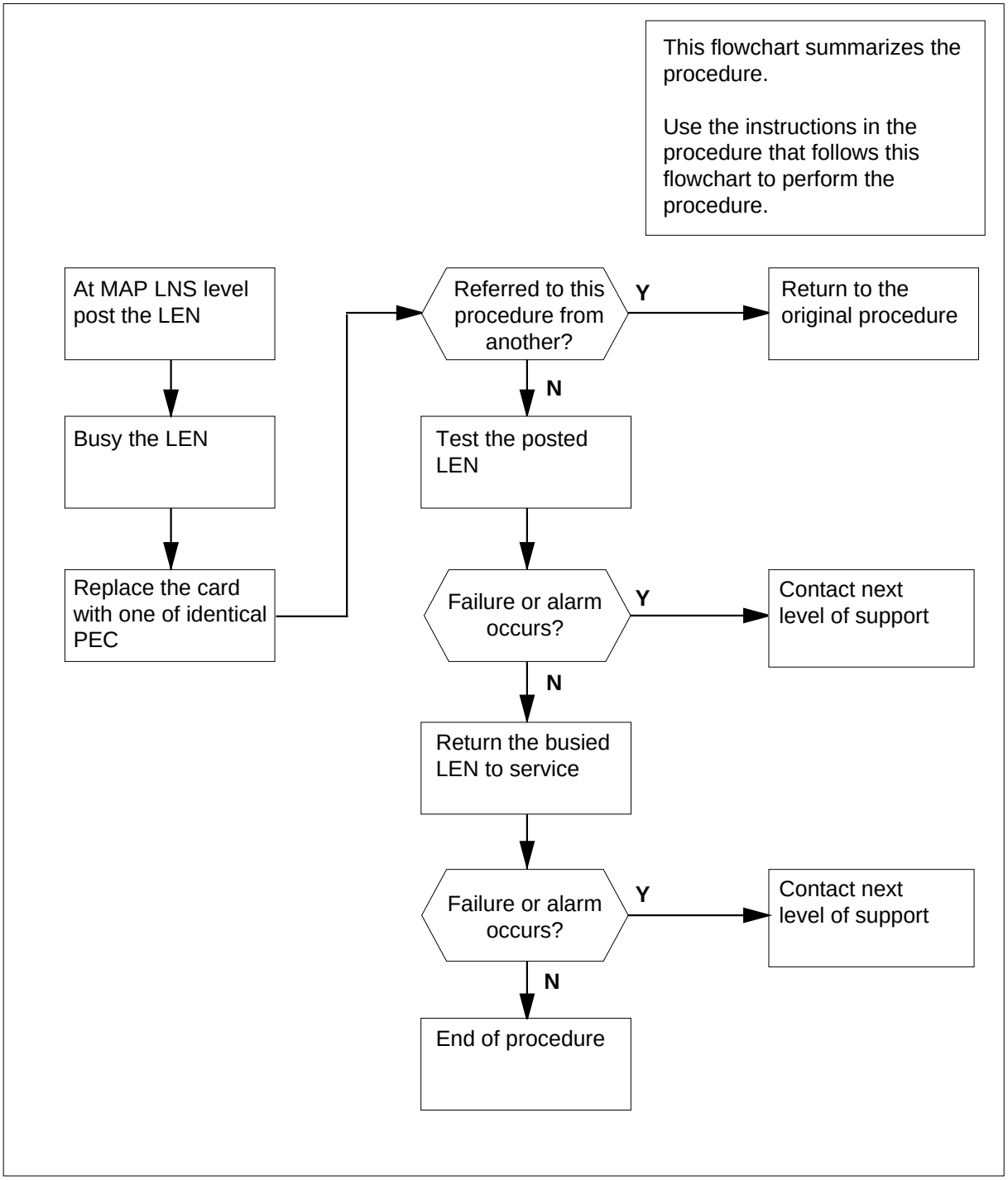
None

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.

NT6X99
in an RSC-S (DS-1) Model B LCME (continued)

Summary of card replacement procedure for an NT6X99 card in RSC-S LCME



NT6X99
in an RSC-S (DS-1) Model B LCME (continued)

Replacing an NT6X99 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 an NT6X99 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 line equipment number (LEN) from the line test position 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 site name assigned to the remote location

lcme_no
is the number of the LCME

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

lsg_no
is the number of line subgroup (00—19)

ckt_no
is the circuit number (00—31)

```
 CM     MS    IOD    Net     PM    CCS    LNS    Trks    EXT   Appl
  .     .      .      .       .     .      .      .       .     .

LTP
 0 Quit
 2 Post_
 3          POST     DELQ    BusyQ    PREFIX
 4
 5 Bsy_     LCC     PTY RNG    LEN       DN   STA FS LTA TE RESULT
 6 RTS_     CKT TYPE FL Host 00 0 03 03 No DIRN Idl
 7 Diag_
 8
 9 Almstat
10 CKTLOC
11 Hold
12 Next_
13
14
15
16 Prefix_
17 LCO_
18 Level_
```

4 Busy the LEN posted 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
 2 Post_    POST     DELQ    BusyQ    PREFIX
 3
 4          LCC     PTY RNG    LEN      DN    STA FS LTA TE RESULT
 5 Bsy_     CKT TYPE FL Host 00 0 03 03 No DIRN MB
 6 RTS_
 7 Diag_
 8
 9 Almstat
10 CKTLOC
11 Hold
12 Next_
13
14
15
16 Prefix_
17 LCO_
18 Level_
```

NT6X99
in an RSC-S (DS-1) Model B LCME (continued)

At the LCE frame

5



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 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.



WARNING
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
Possible injury from hot materials
Exercise care when handling the line card. The line feed resistor may be hot.

NT6X99
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. The following table describes card shrouds.

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. The following table describes these tools.

Card removal tool for	Apparatus code	Common product code
3—4 inch cards	QTH57A	A0298292
Note: For 4-inch or larger cards, use the large grip tool ITA9953.		

6 Open the line drawer and prepare to remove the faulty card by 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.

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.

NT6X99
in an RSC-S (DS-1) Model B LCME (continued)

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 Continue this procedure depending on where you were when you were directed to this procedure.

If you entered this procedure from	Do
alarm clearing procedures	step 14
other	step 10

10 Test the line card just replaced by typing

>DIAG

and pressing the Enter key.

If DIAG	Do
passes	step 11
fails	step 15

11 Return the line card to service by typing

>RTS

NT6X99
in an RSC-S (DS-1) Model B LCME (end)

and pressing the Enter key.

If RTS	Do
passes	step 12
fails	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. 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.

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

NT6X99 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
NT6X99	AA	Datapath Bit Error Rate Tester Line Card

Common procedures

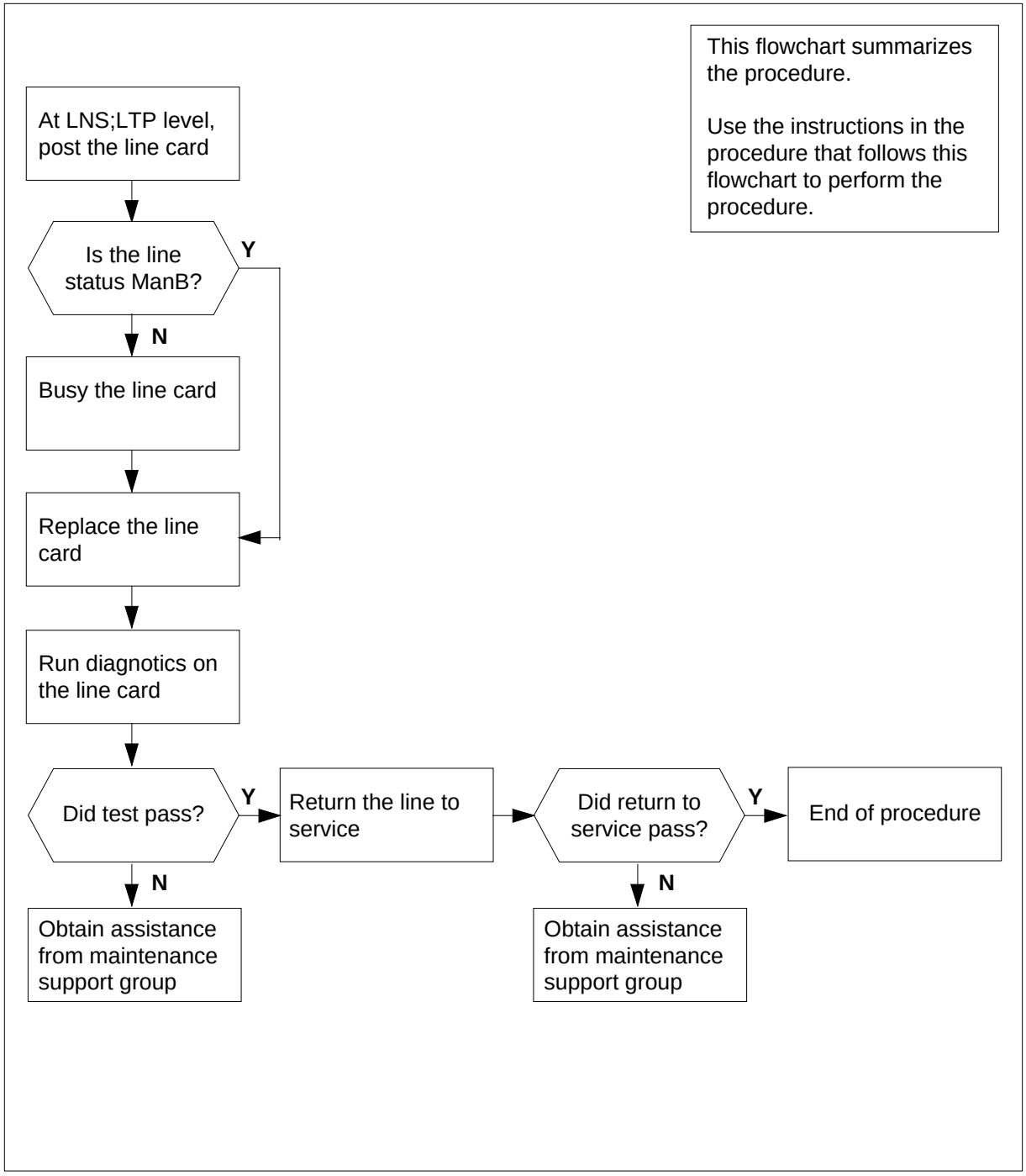
The common replacing a line card procedure is referenced in this procedure.

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.

NT6X99
in a STAR or RLD (continued)

Summary of card replacement procedure for an NT6X99 card in a STAR or RLD



NT6X99 in a STAR or RLD (continued)

Replacing an NT6X99 card in a STAR or RLD

At your current location

1 Get a replacement card. Make sure that replacement card has the same product equipment code (PEC), including suffix, as the card that is to be removed.

At the MAP display

2 To access the LTP level of the MAP 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  IBERT MB
```

3 Check the status of the posted line.

If the line status is	Do
manual busy (MB)	step 5
not MB	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 to this point.

At the MAP display

6 To test the line card just replaced, type

`>DIAG`

and press the Enter key.

If the DIAG	Do
passes	step 7
fails	step 10

7 To return the line card to service, type

`>RTS`

and press the Enter key.

If the RTS	Do
passes	step 8
fails	step 10

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

9 Record the following items in office records:

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

Go to step 11.

10 Get additional help replacing this card by contacting the personnel responsible for a higher level of support.

11 You have correctly completed this procedure.

NT7X05 in an RSC RCC/RCC2

Application

Use this procedure to replace the following card 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
NT7X05	AA	Peripheral/Remote Loader-16 (PRL)

Common procedures

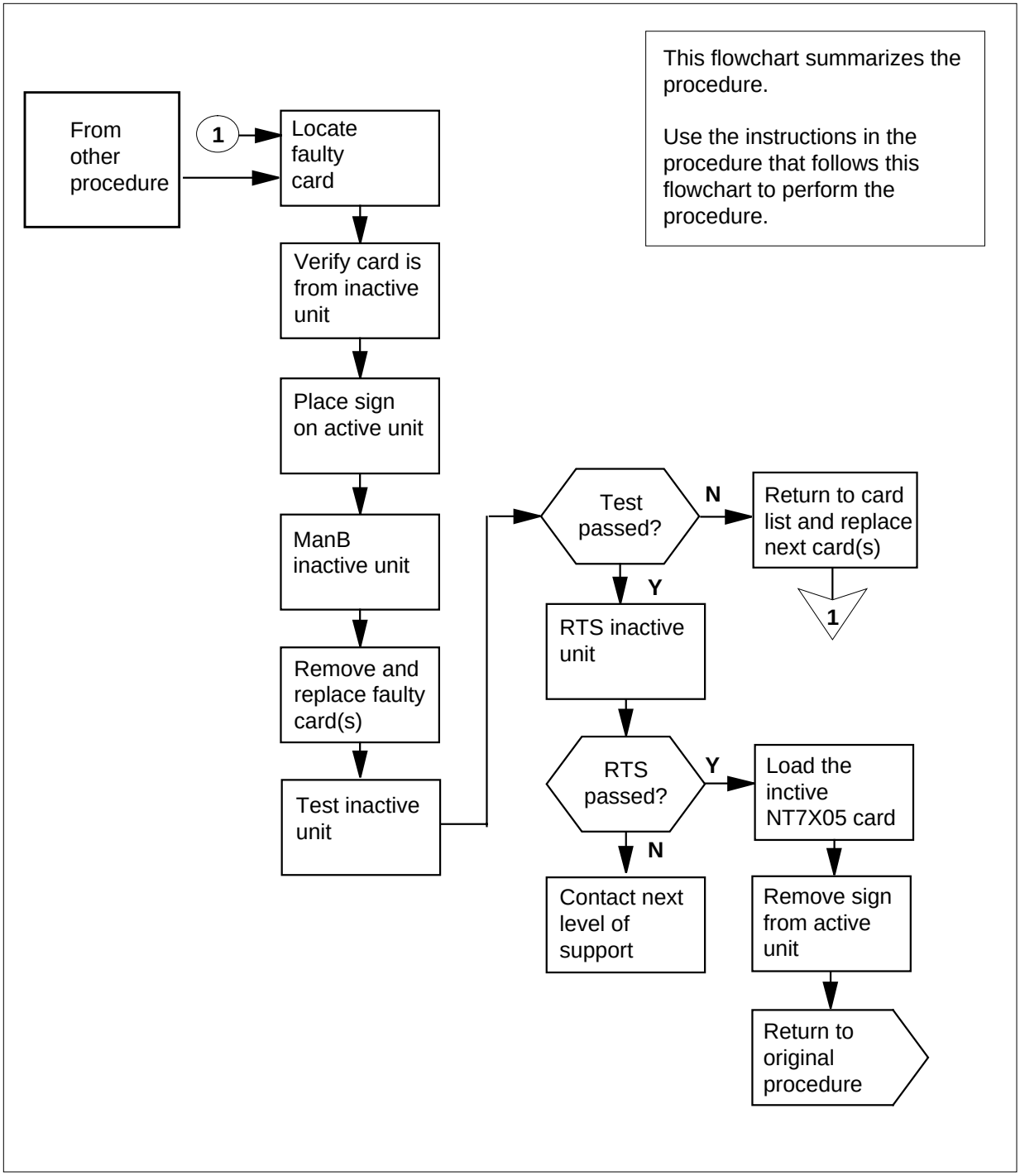
None

Action

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

NT7X05 in an RSC RCC/RCC2 (continued)

Summary of card replacement procedure for an NT7X05 card in an RSC RCC



NT7X05 in an RSC RCC/RCC2 (continued)

Replacing an NT7X05 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 by observing the INSV and ACTIVE LEDs on each NTMX77 card.

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_no
```

and pressing the Enter key.

where

rcc_no
is the number of the RCC to be busied

Example of a MAP display:

NT7X05 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_OOS:  CSide  0, PSide   0
 5 TRNSL_   Unit0:   Inact ISTb
 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.

NT7X05 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:

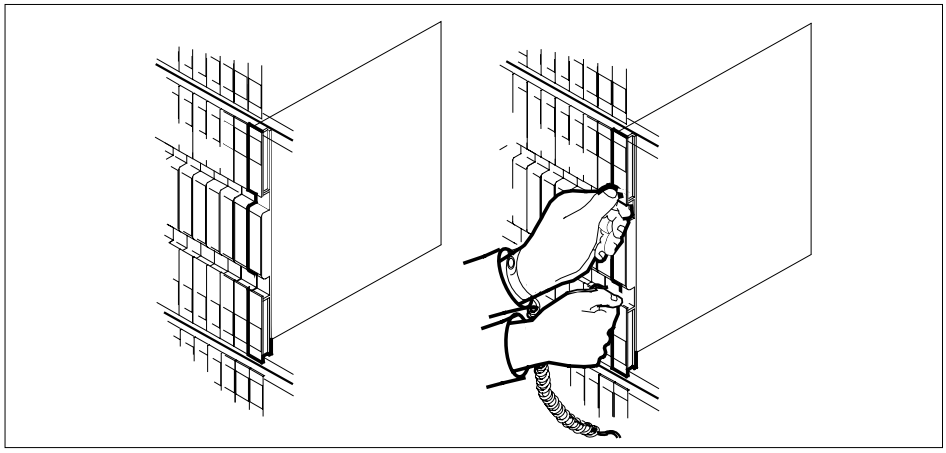
1. Do not apply direct pressure to the components.

2. Do not force the cards into the slots.

Put on a wrist strap.

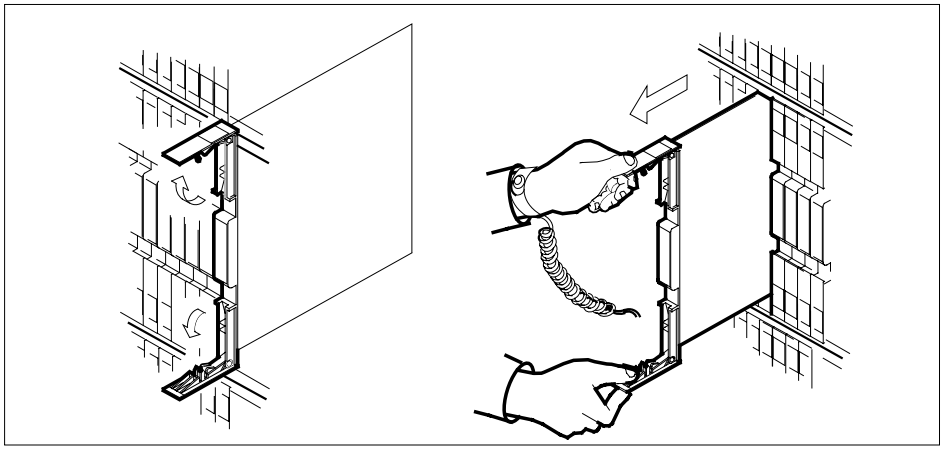
8 Remove the NT7X05 card as shown in the following figures.

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.

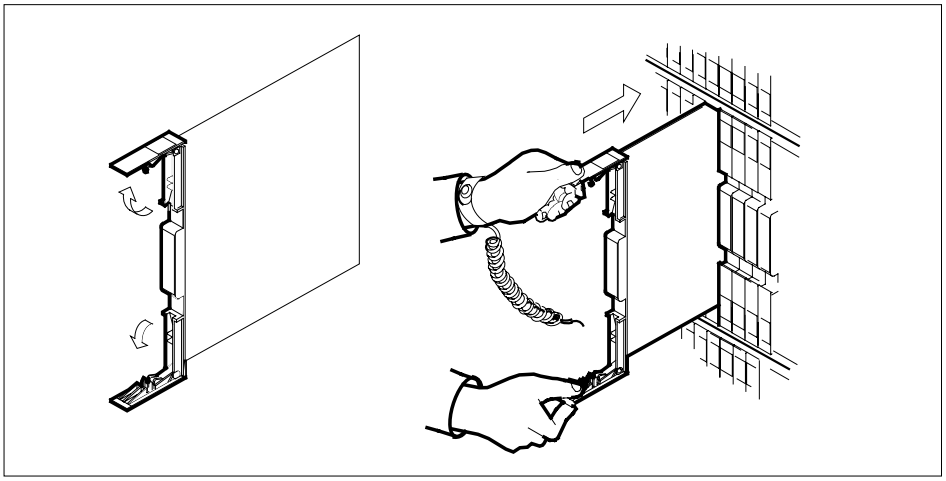
NT7X05
in an RSC RCC/RCC2 (continued)



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.

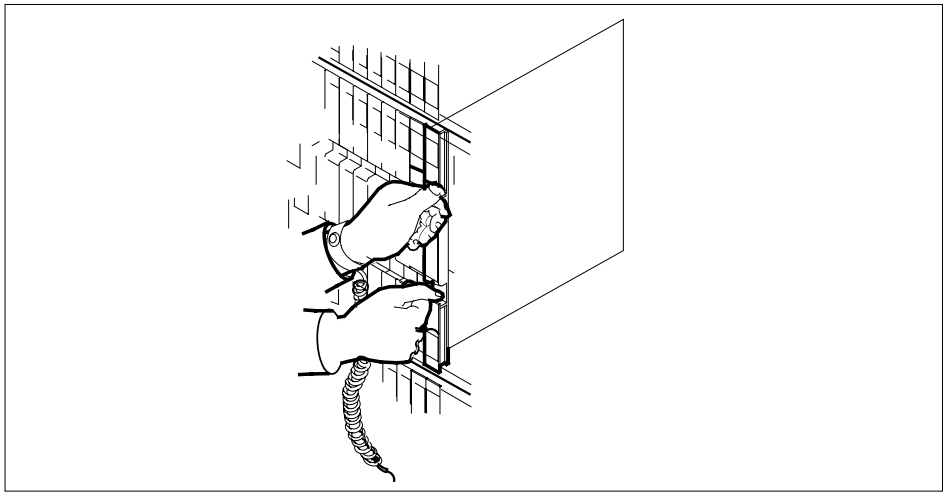


10 Seat and lock the card.

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.

NT7X05 in an RSC RCC/RCC2 (continued)



At the MAP display

11 Return the inactive RCC unit to service by typing

`>RTS UNIT unit_no`

and pressing the Enter key.

where

unit_no
is the number of the RCC unit (0 or 1) busied in step 6

If the RTS	Do
passed	step 12
failed	step 15

12 Load the inactive NT7X05 card by typing

`>LOADPM INACTIVE CC XPMSTOR [file_name]`

and pressing the Enter key.

where

file_name
is the name of the file datafilled in field, LOAD, of the inventory table.

If load	Do
passed	step 13
failed	step 15

NT7X05 in an RSC RCC/RCC2 (end)

13 Send any faulty cards for repair according to local procedure. Remove the sign from the active unit.

14 Record the following items in office records:

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

Go to Step 16

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

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

NT7X05 in an RSC-S (DS-1) Model A RCC2

Application

Use this procedure to replace the following cards in an RSC-RCC2.

PEC	Suffixes	Name
NT7X05	AA	Peripheral/Remote Loader-16

Note: NT7X05 functionality is supported only when the RCC2 is provisioned with the NTMX77 Unified Processor (UP). NT7X05 functionality is *not* supported when the RCC2 is provisioned with the optional NTAX74 Cellular Access Processor (CAP) instead of the NTMX77 UP.

Common procedures

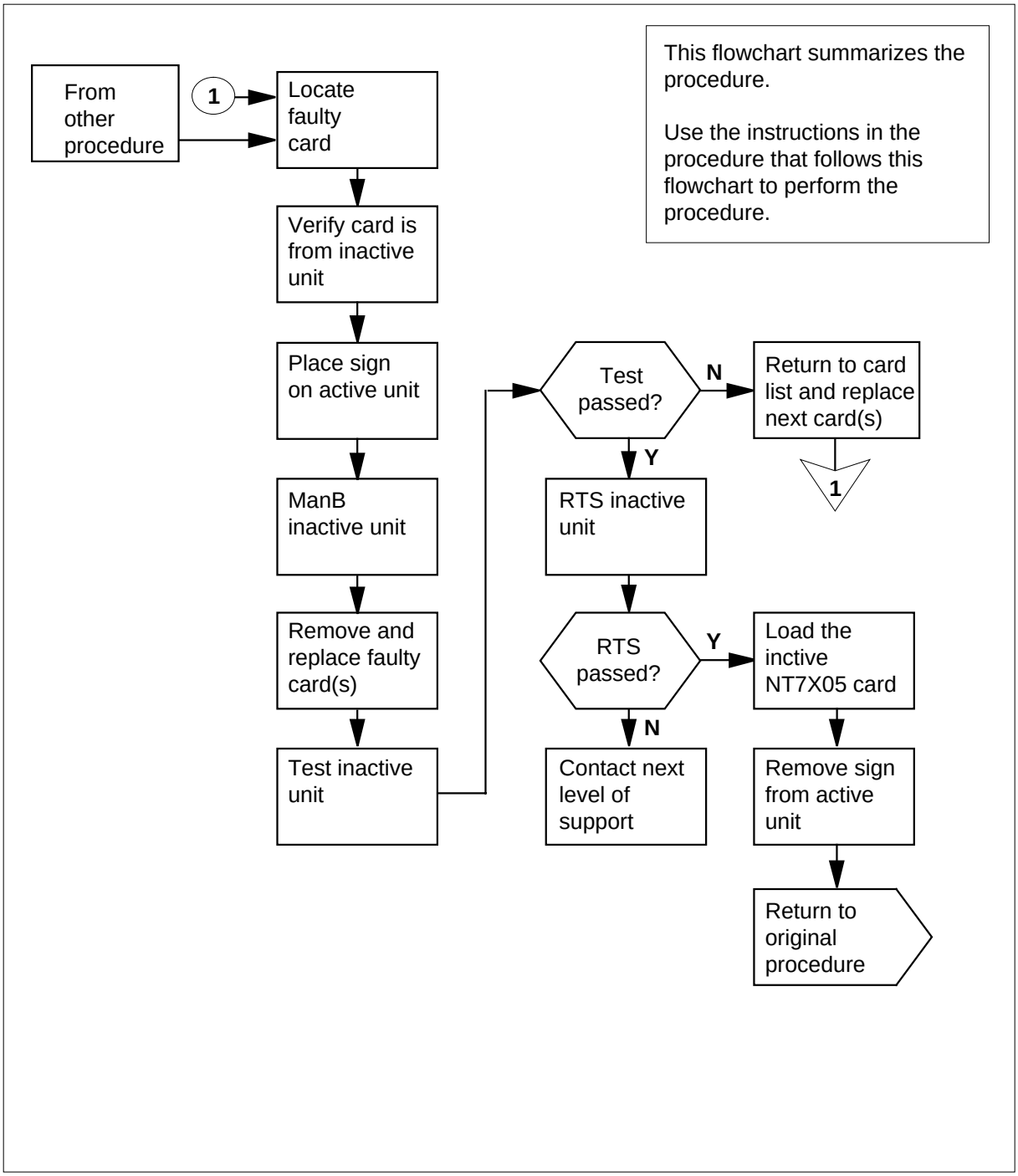
None

Action

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

NT7X05 in an RSC-S (DS-1) Model A RCC2 (continued)

Summary of card replacement procedure for an NT7X05 card in an RSC-S RCC2



NT7X05 in an RSC-S (DS-1) Model A RCC2 (continued)

Replacing a/an NT7X05 in RSC-S RCC2

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 RCC2 ensure the unit where you are replacing the card is INACTIVE and the mate unit is ACTIVE by observing the INSV and ACTIVE LEDs on each NTMX77 card.

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 RCC2 by typing

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

and pressing the Enter key.

where

rcc2_no
is the number of the RCC2 to be busied

Example of a MAP display:

NT7X05 in an RSC-S (DS-1) Model A RCC2 (continued)

```
   CM    MS    IOD    Net    PM    CCS    LNS    Trks    Ext    APPL
   .     .      .      .    1RCC2    .      .       .      .      .

RCC2              SysB     ManB     OffL     CBsy     ISTb      InSv
 0 Quit    PM        0        0        2        0        2        25
 2 Post_   RCC2      0        0        0        0        1         1
 3 ListSet
 4          RCC2     0 ISTb  Links_OOS:  CSide  0, PSide   0
 5 TRNSL_   Unit0:   Inact ISTb
 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.

If the faulty card is on an	Do
ACTIVE unit	step 5
INACTIVE unit	step 9

5 Switch the processing activity to the inactive unit by typing

>SWACT

and pressing the Enter key.

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.

NT7X05
in an RSC-S (DS-1) Model A RCC2 (continued)

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 refused by SwAct controller	step 8

8 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 RCE frame

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

At the MAP display

10 Busy the inactive RCC2 unit by typing

>BSY INACTIVE

and pressing the Enter key.

NT7X05 in an RSC-S (DS-1) Model A RCC2 (continued)

At the RCE 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 left side of the frame supervisory panel 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:

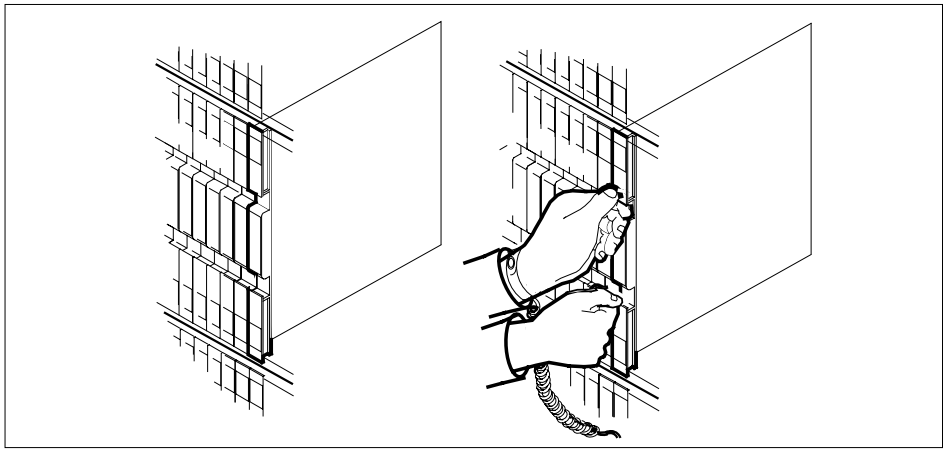
1. Do not apply direct pressure to the components.

2. Do not force the cards into the slots.

Put on a wrist strap.

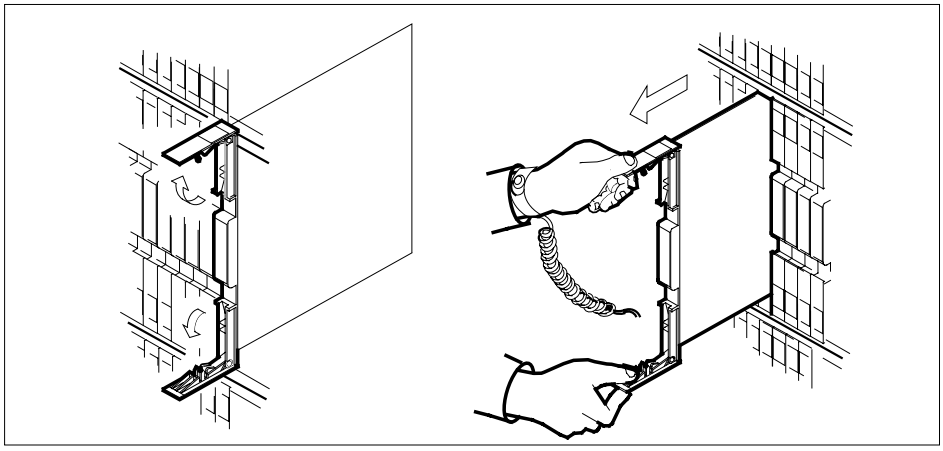
12 Remove the NT7X05 card as shown in the following figures.

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.

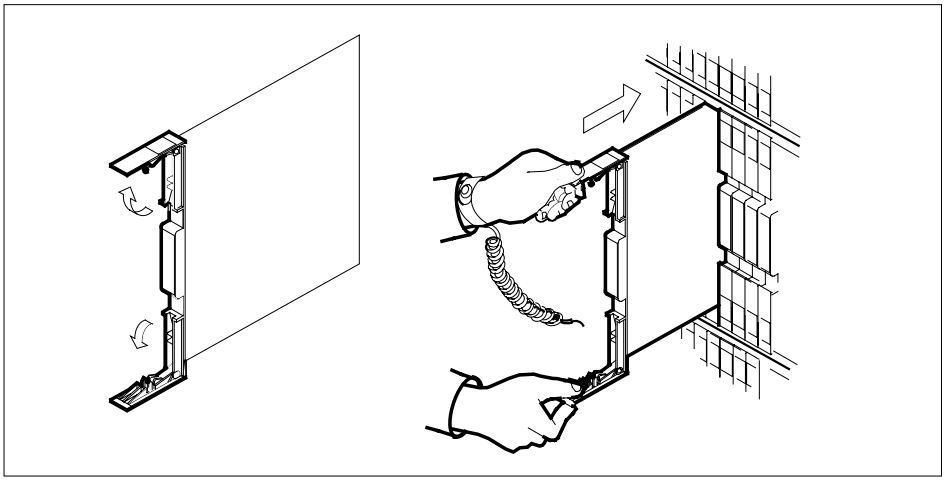
NT7X05
in an RSC-S (DS-1) Model A RCC2 (continued)



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

13 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.

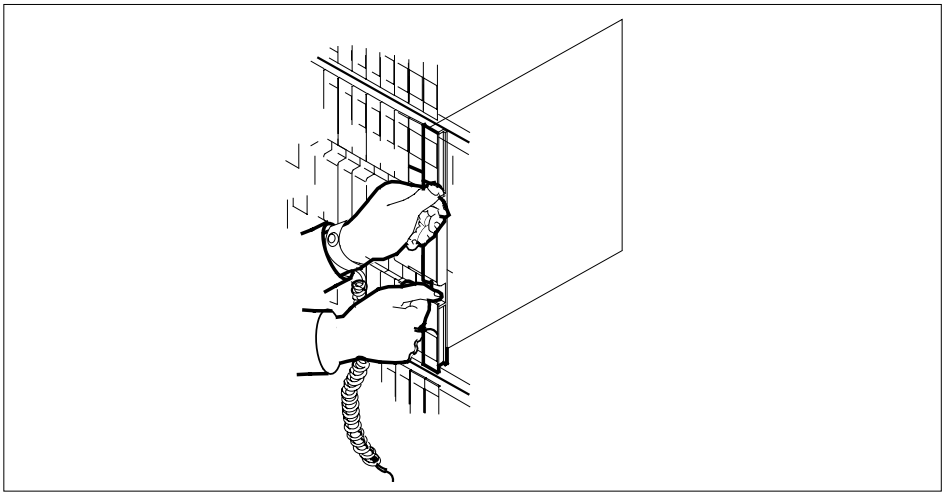


14 Seat and lock the card.

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.

NT7X05
in an RSC-S (DS-1) Model A RCC2 (continued)



At the MAP display

15 Test the inactive RCC2 unit by typing

`>TST UNIT unit_no`

and pressing the Enter key.

where

rcc2_unit_no
is the number of the inactive RCC2 unit

Example of a MAP response:
Test Passed

or
Test Failed

If TST	Do
passed	step 16
failed	step 20

16 Return the inactive RCC2 unit to service by typing

`>RTS UNIT unit_no`

and pressing the Enter key.

where

NT7X05 in an RSC-S (DS-1) Model A RCC2 (end)

unit_no
is the number of the RCC2 unit (0 or 1) tested in step 15

If the RTS	Do
passed	step 17
failed	step 20

17 Load the inactive NT7X05 card by typing

```
>XPMSTOR INACTIVE CC load_file _name
```

and pressing the Enter key.

where

load_file_name
is the name of the file datafilled in field LOAD of the inventory table. The default load_file_name is the file currently datafilled.

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

If load	Do
passed	step 18
failed	step 20

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

19 Record the following items in office records:

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

Go to step 21.

20 Obtain further assistance in replacing this card by contacting 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.

NT7X05 in an RSC-S (DS-1) Model B RCC2

Application

Use this procedure to replace the following cards in an RSC-RCC2.

PEC	Suffixes	Name
NT7X05	AA	Peripheral/Remote Loader-16

Common procedures

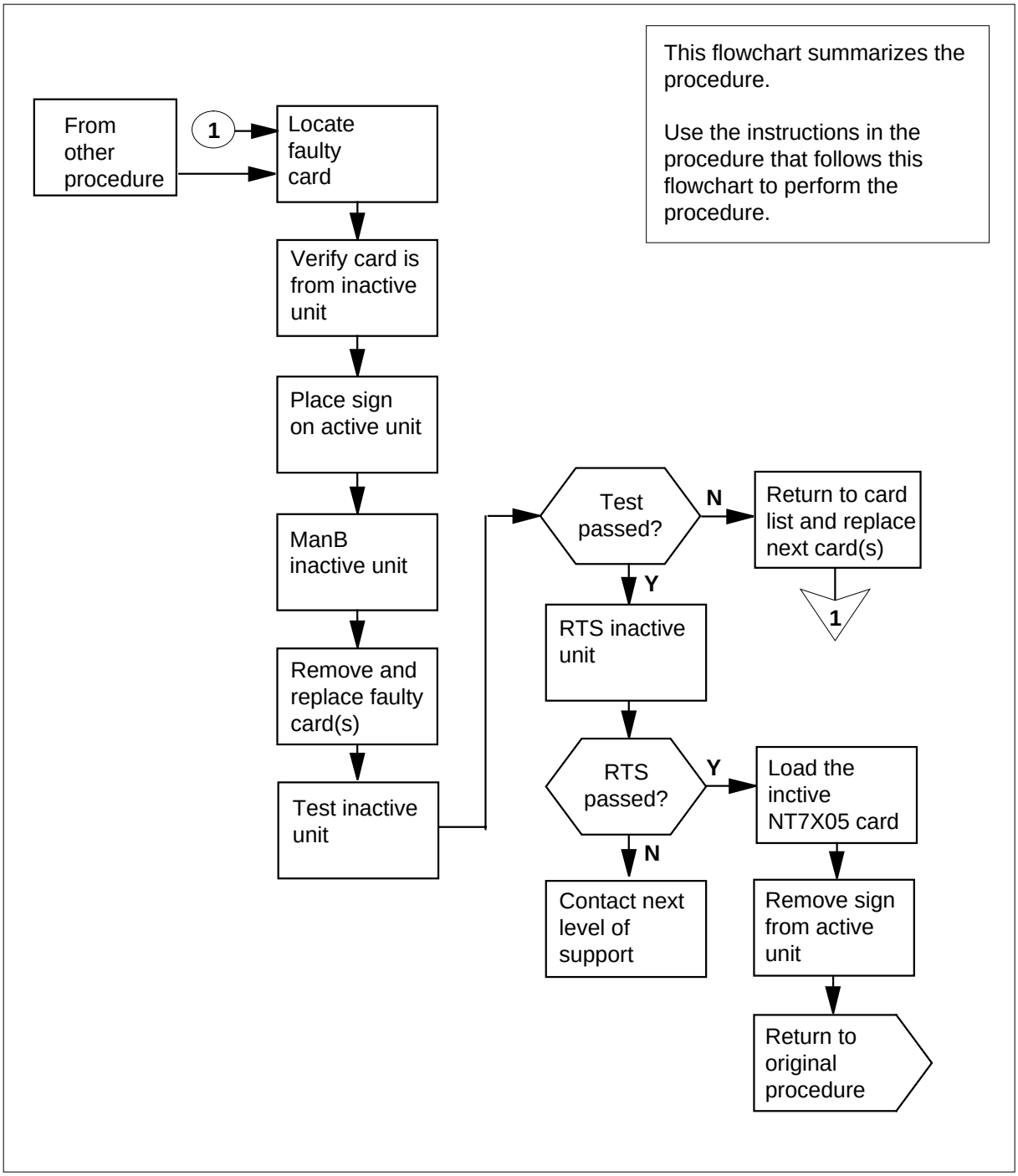
None

Action

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

NT7X05 in an RSC-S (DS-1) Model B RCC2 (continued)

Summary of card replacement procedure for an NT7X05 card in an RSC-S RCC2



NT7X05 in an RSC-S (DS-1) Model B RCC2 (continued)

Replacing an NT7X05 in an RSC-S RCC2

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 RCC2 ensure the unit where you are replacing the card is INACTIVE and the mate unit is ACTIVE by observing the INSV and ACTIVE LEDs on each NTMX77 card.

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 RCC2 by typing

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

and pressing the Enter key.

where

rcc2_no
is the number of the RCC2 to be busied

Example of a MAP display:

NT7X05
in an RSC-S (DS-1) Model B RCC2 (continued)

```
   CM    MS    IOD    Net    PM    CCS    LNS    Trks    Ext    APPL
   .     .      .      .    1RCC2    .      .       .      .      .

RCC2              SysB     ManB     OffL     CBsy     ISTb      InSv
 0 Quit    PM        0        0        2        0        2        25
 2 Post_   RCC2      0        0        0        0        1         1
 3 ListSet
 4          RCC2     0 ISTb  Links_OOS:  CSide  0, PSide   0
 5 TRNSL_   Unit0:   Inact ISTb
 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.

If the faulty card is on an	Do
ACTIVE unit	step 5
INACTIVE unit	step 9

5 Switch the processing activity to the inactive unit by typing

>SWACT

and pressing the Enter key.

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.

NT7X05 in an RSC-S (DS-1) Model B RCC2 (continued)

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 refused by SwAct controller	step 8

8 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 RCE frame

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

At the MAP display

10 Busy the inactive RCC2 unit by typing

>BSY INACTIVE

and pressing the Enter key.

NT7X05
in an RSC-S (DS-1) Model B RCC2 (continued)

At the RCE 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 left side of the frame supervisory panel 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:

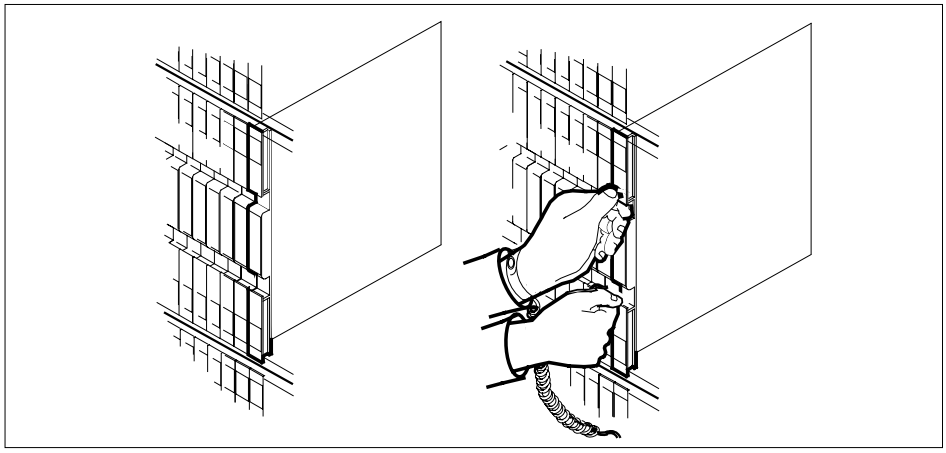
1. Do not apply direct pressure to the components.

2. Do not force the cards into the slots.

Put on a wrist strap.

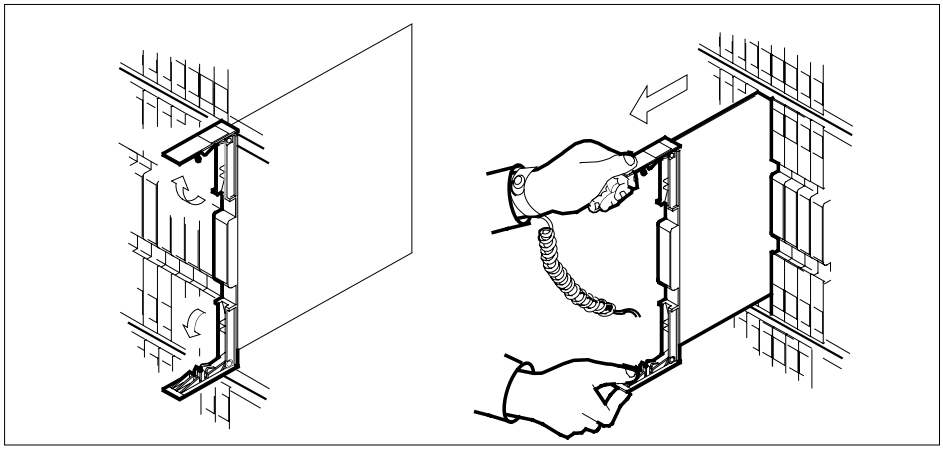
12 Remove the NT7X05 card as shown in the following figures.

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.

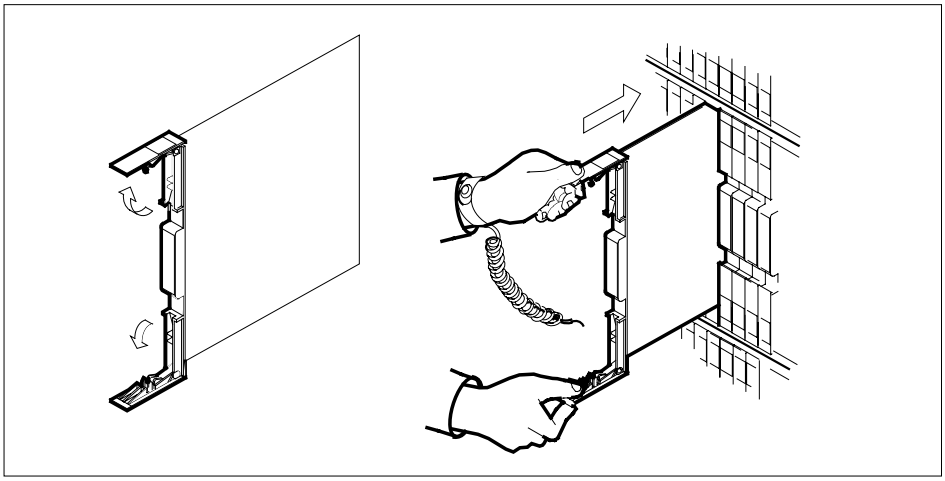
NT7X05
in an RSC-S (DS-1) Model B RCC2 (continued)



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

13 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.

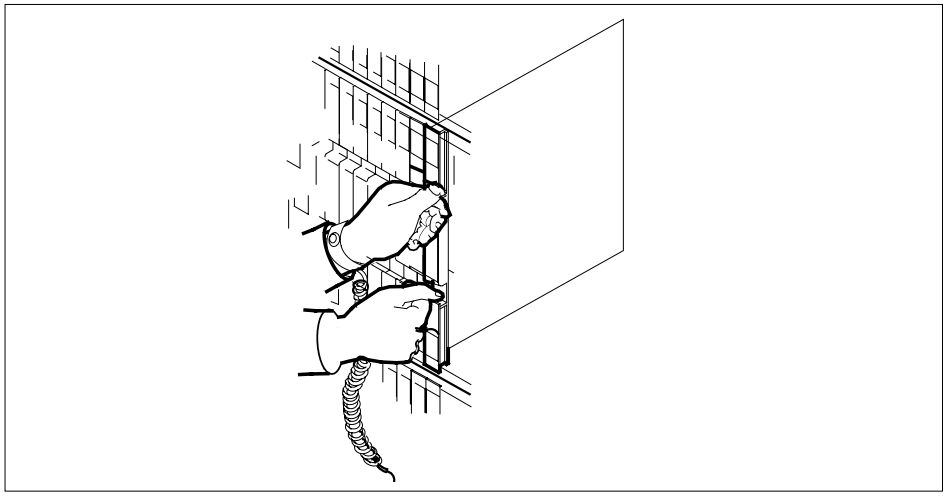


14 Seat and lock the card.

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.

NT7X05
in an RSC-S (DS-1) Model B RCC2 (continued)



At the MAP display

15 Test the inactive RCC2 unit by typing

`>TST UNIT unit_no`

and pressing the Enter key.

where

rcc2_unit_no
is the number of the inactive RCC2 unit

Example of a MAP response:
Test Passed

or
Test Failed

If TST	Do
passed	step 16
failed	step 20

16 Return the inactive RCC2 unit to service by typing

`>RTS UNIT unit_no`

and pressing the Enter key.

where

NT7X05 in an RSC-S (DS-1) Model B RCC2 (end)

unit_no
is the number of the RCC2 unit (0 or 1) tested in step 15

If the RTS	Do
passed	step 17
failed	step 20

17 Load the inactive NT7X05 card by typing

```
>XPMSTOR INACTIVE CC load_file _name
```

and pressing the Enter key.

where

load_file_name
is the name of the file datafilled in field LOAD of the inventory table. The default load_file_name is the file currently datafilled.

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

If load	Do
passed	step 18
failed	step 20

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

19 Record the following items in office records:

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

Go to step 21.

20 Obtain further assistance in replacing this card by contacting 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.

NT7X05
in an RSC-S (PCM-30) Model A RCO2

Application

Use this procedure to replace the following card in an RCO2.

PEC	Suffixes	Name
NT7X05	AA	Peripheral/Remote Loader-16
Note: NT7X05 functionality is supported only when the RCO2 is provisioned with the NTMX77 Unified Processor (UP). NT7X05 functionality is *not* supported when the RCO2 is provisioned with the optional NTAX74 Cellular Access Processor (CAP) instead of the NTMX77 UP.		

Common procedures

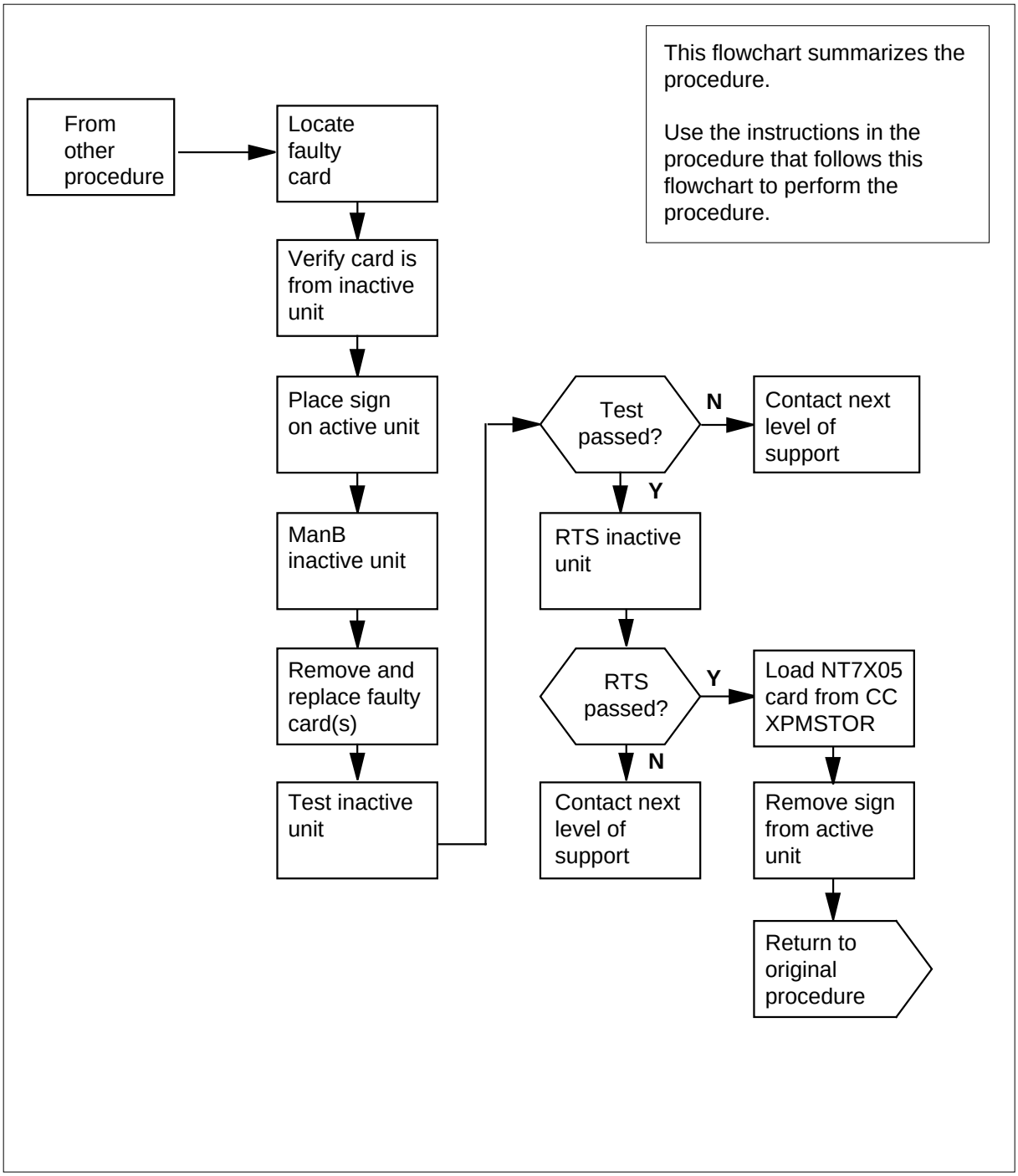
None

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.

NT7X05 in an RSC-S (PCM-30) Model A RCO2 (continued)

Summary of card replacement procedure for an NT7X05 card in an RCO2



NT7X05 in an RSC-S (PCM-30) Model A RCO2 (continued)

Replacing a/an NT7X05 in RSC-S RCO2

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 RCO2 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 display

3 Access the PM level and post the RCO2 by typing

```
>MAPCI;MTC;PM;POST RCO2 rco2_no
```

and pressing the Enter key.

where

rco2_no
is the number of the RCO2 to be busied

Example of a MAP display:

NT7X05
in an RSC-S (PCM-30) Model A RCO2 (continued)

```
   CM    MS    IOD    Net    PM    CCS    LNS    Trks    Ext    APPL
   .     .      .      .    1RCO2   .      .       .      .      .

RCO2               SysB     ManB     OffL     CBsy     ISTb      InSv
 0 Quit    PM         0        0        2        0        2        25
 2 Post_   RCO2       0        0        0        0        1         1
 3 ListSet
 4          RCO2      0 ISTb  Links_OOS:  CSide  0, PSide   0
 5 TRNSL_   Unit0:   Inact ISTb
 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.

If the faulty card is on an	Do
ACTIVE unit	step 5
INACTIVE unit	step 8

5 Switch the processing activity 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 Switch the activity of the unit by typing

>YES

and pressing the Enter key.

NT7X05
in an RSC-S (PCM-30) Model A RCO2 (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 8
SWACT failed	step 7
SWACT failed Reason: XPM SWACTback	step 7
SWACT refused by SWACT controller	step 7

7 Return to the *Alarm Clearing Procedure*, to clear the alarm condition on the inactive unit. When the alarm is cleared, return to step 1 of this procedure.

At the frame

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

At the MAP display

9 Busy the inactive RCO2 unit by typing

```
>BSY INACTIVE
```

and pressing the Enter key.

NT7X05 in an RSC-S (PCM-30) Model A RCO2 (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 RCO2. This protects the equipment against damage caused by static electricity.

DANGER
Equipment damage
Take the following precautions when removing or inserting a card:

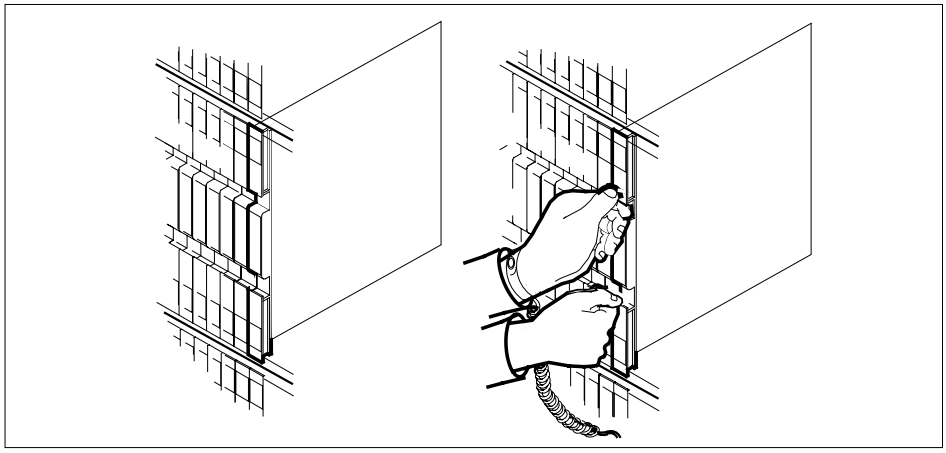
1. Do not apply direct pressure to the components.

2. Do not force the cards into the slots.

Put on a wrist strap.

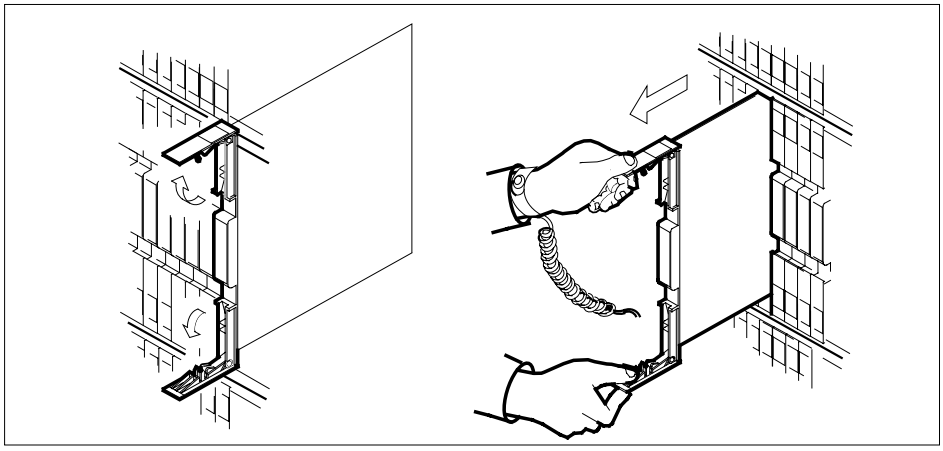
11 Remove the NT7X05 card as shown in the following figures.

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.

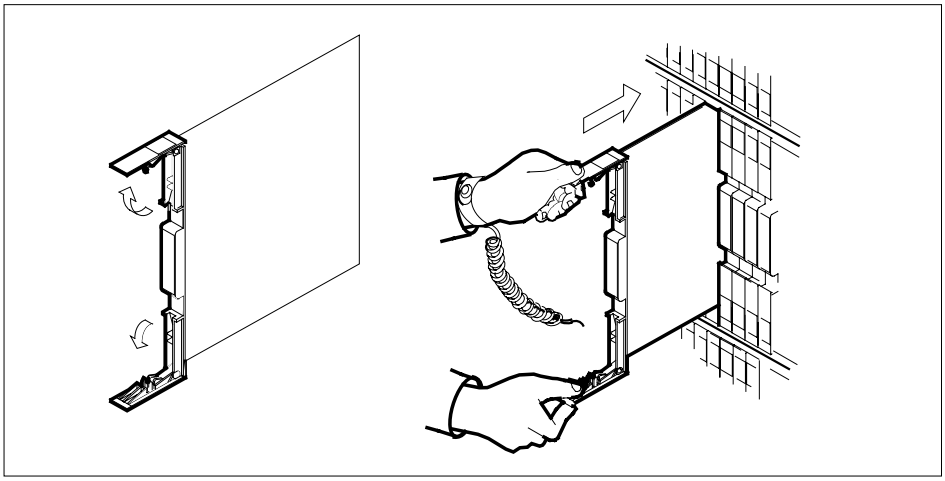
NT7X05
in an RSC-S (PCM-30) Model A RCO2 (continued)



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

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.

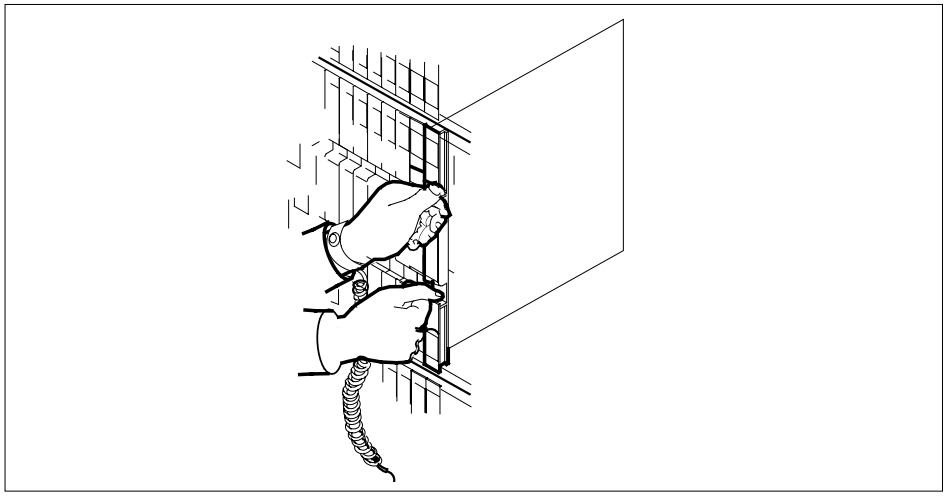


13 Seat and lock the card.

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.

NT7X05
in an RSC-S (PCM-30) Model A RCO2 (continued)



At the MAP display

14 Test the inactive RCO2 unit by typing

`>TST UNIT RCO2_unit_no`

and pressing the Enter key.

where

rco2_unit_no
is the number of the inactive RCO2 unit

Example of a MAP response:
Test Passed

or
Test Failed

If TST	Do
passed	step 15
failed	step 19

15 Return the inactive RCO2 unit to service by typing

`>RTS UNIT unit_no`

and pressing the Enter key.

where

NT7X05 in an RSC-S (PCM-30) Model A RCO2 (end)

unit_no
is the number of the RCO2 unit (0 or 1) tested in step 14

If TST	Do
passed	step 16
failed	step 19

16 Load the inactive RCO2 unit by typing

`>XPMSTOR INACTIVE CC [load_file_name]`

and pressing the Enter key.

where

load_file_name
is the name of the file datafilled in field, LOAD, of the inventory table.

If load	Do
passed	step 17
failed	step 19

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

18 Record the following items in office records:

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

Go to step 20.

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.

NT7X05 in an RSC-S (PCM-30) Model B RCO2

Application

Use this procedure to replace the following card in an RCO2.

PEC	Suffixes	Name
NT7X05	AA	Peripheral/Remote Loader-16
Note: NT7X05 functionality is supported only when the RCO2 is provisioned with the NTMX77 Unified Processor (UP). NT7X05 functionality is *not* supported when the RCO2 is provisioned with the optional NTAX74 Cellular Access Processor (CAP) instead of the NTMX77 UP.		

Common procedures

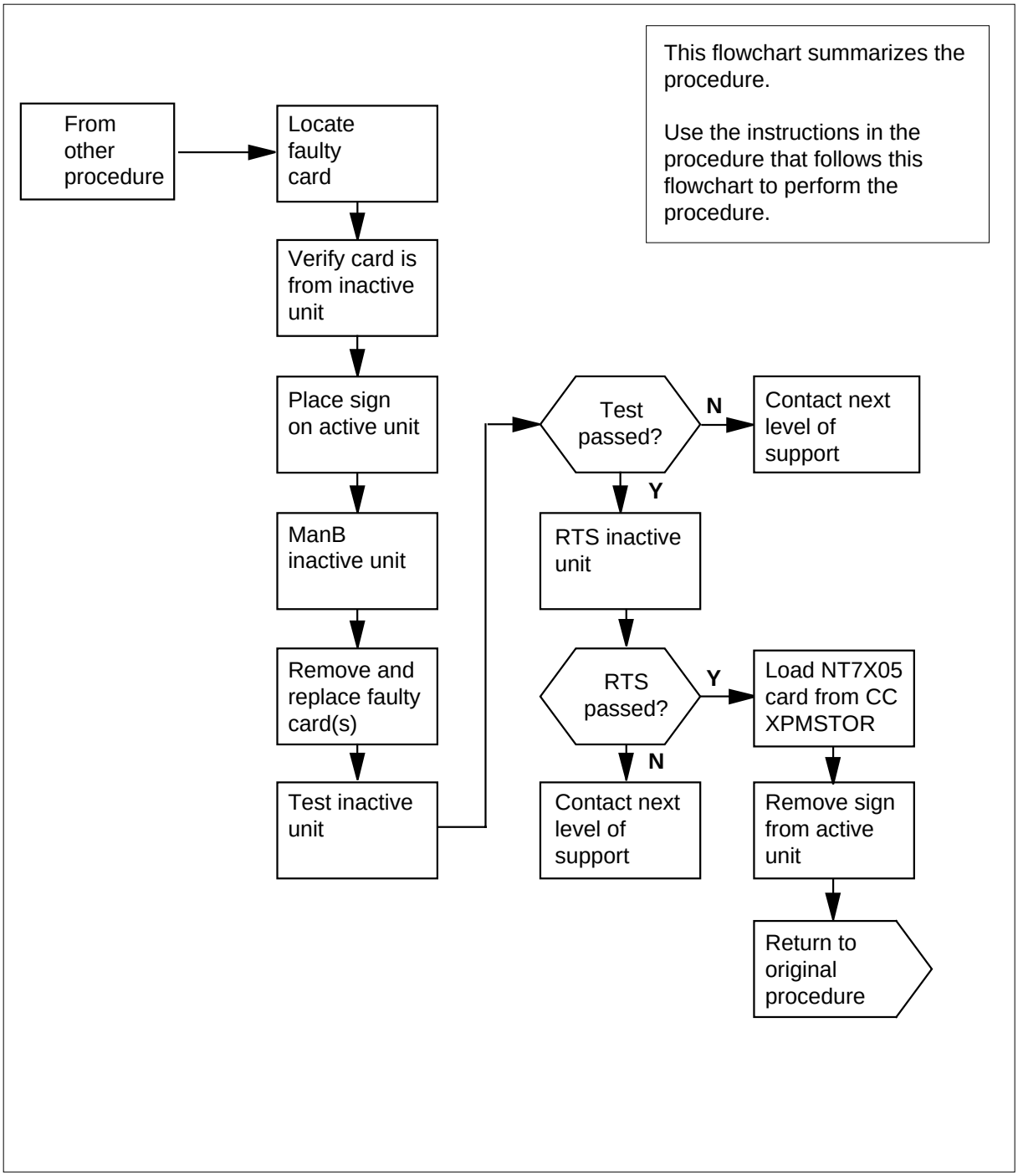
None

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.

NT7X05 in an RSC-S (PCM-30) Model B RCO2 (continued)

Summary of card replacement procedure for an NT7X05 card in an RCO2



NT7X05 in an RSC-S (PCM-30) Model B RCO2 (continued)

Replacing a/an NT7X05 in RSC-S RCO2

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 RCO2 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 display

3 Access the PM level and post the RCO2 by typing

```
>MAPCI;MTC;PM;POST RCO2 rco2_no
```

and pressing the Enter key.

where

rc2_no
is the number of the RCO2 to be busied

Example of a MAP display:

NT7X05
in an RSC-S (PCM-30) Model B RCO2 (continued)

```
   CM    MS    IOD    Net    PM    CCS    LNS    Trks    Ext    APPL
   .     .      .      .    1RCO2   .      .       .      .      .

RCO2               SysB     ManB     OffL     CBsy     ISTb      InSv
 0 Quit    PM         0        0        2        0        2        25
 2 Post_   RCO2       0        0        0        0        1         1
 3 ListSet
 4          RCO2      0 ISTb  Links_OOS:  CSide  0, PSide   0
 5 TRNSL_   Unit0:   Inact ISTb
 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.

If the faulty card is on an	Do
ACTIVE unit	step 5
INACTIVE unit	step 8

5 Switch the processing activity to the inactive unit by typing

>SWACT

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 21

6 Switch the activity of the unit by typing

>YES

and pressing the Enter key.

NT7X05
in an RSC-S (PCM-30) Model B RCO2 (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 8
SWACT failed	step 7
SWACT failed Reason: XPM SWACTback	step 7
SWACT refused by SWACT controller	step 7

7 Return to the *Alarm Clearing Procedure*, to clear the alarm condition on the inactive unit. When the alarm is cleared, return to step 1 of this procedure.

At the frame

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

At the MAP display

9 Busy the inactive RCO2 unit by typing

```
>BSY INACTIVE
```

and pressing the Enter key.

NT7X05 in an RSC-S (PCM-30) Model B RCO2 (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 RCO2. This protects the equipment against damage caused by static electricity.

DANGER
Equipment damage
Take the following precautions when removing or inserting a card:

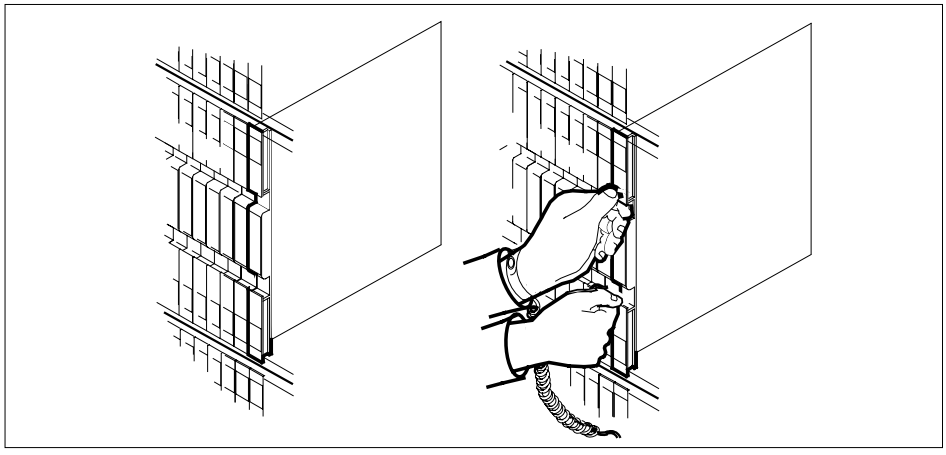
1. Do not apply direct pressure to the components.

2. Do not force the cards into the slots.

Put on a wrist strap.

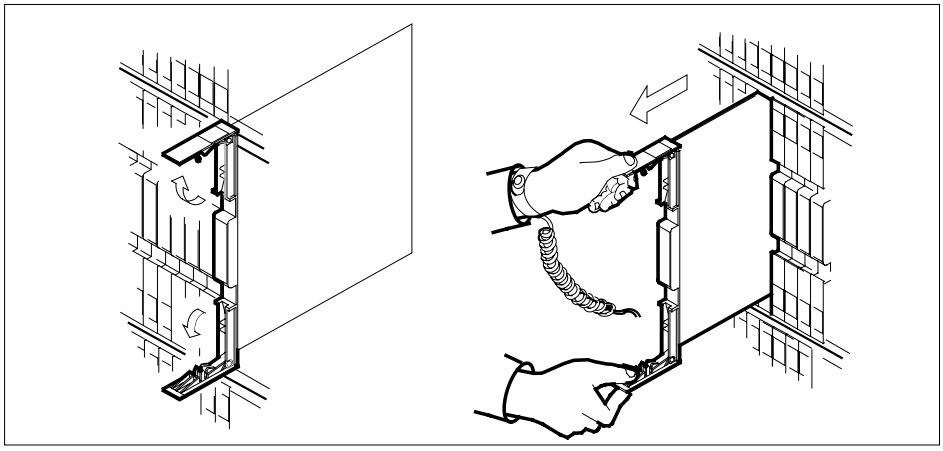
11 Remove the NT7X05 card as shown in the following figures.

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.

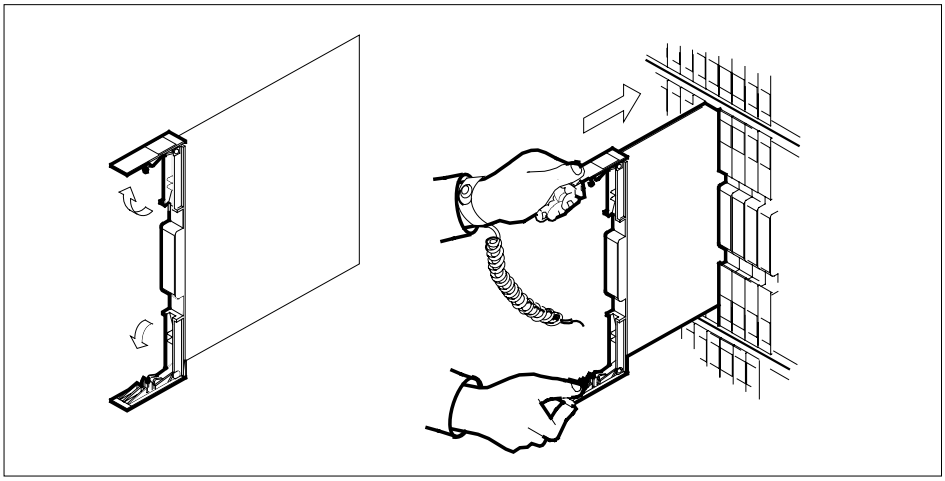
NT7X05
in an RSC-S (PCM-30) Model B RCO2 (continued)



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

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.

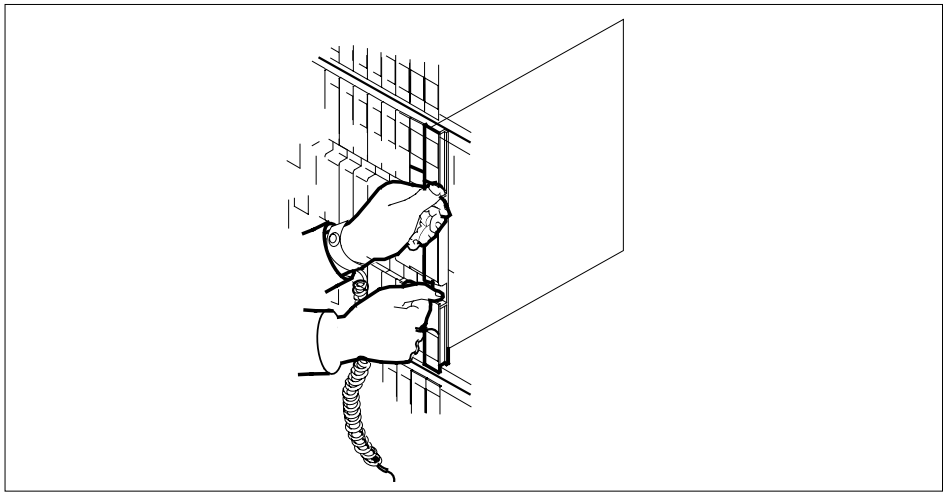


13 Seat and lock the card.

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.

NT7X05
in an RSC-S (PCM-30) Model B RCO2 (continued)



At the MAP display

14 Test the inactive RCO2 unit by typing

`>TST UNIT RCO2_unit_no`

and pressing the Enter key.

where

rc02_unit_no
is the number of the inactive RCO2 unit

Example of a MAP response:
Test Passed

or
Test Failed

If TST	Do
passed	step 15
failed	step 19

15 Return the inactive RCO2 unit to service by typing

`>RTS UNIT unit_no`

and pressing the Enter key.

where

unit_no
is the number of the RCO2 unit (0 or 1) tested in step 14

If TST	Do
passed	step 16
failed	step 19

16 Load the inactive RCO2 unit by typing

`>XPMSTOR INACTIVE CC [load_file_name]`

and pressing the Enter key.

where

load_file_name
is the name of the file datafilled in field, LOAD, of the inventory table.

If load	Do
passed	step 17
failed	step 19

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

18 Record the following items in office records:

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

Go to step 20.

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.

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.

NT7X05 in an SMS

Application

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

PEC	Suffixes	Name
NT7X05	AA	Peripheral loader

Common procedures

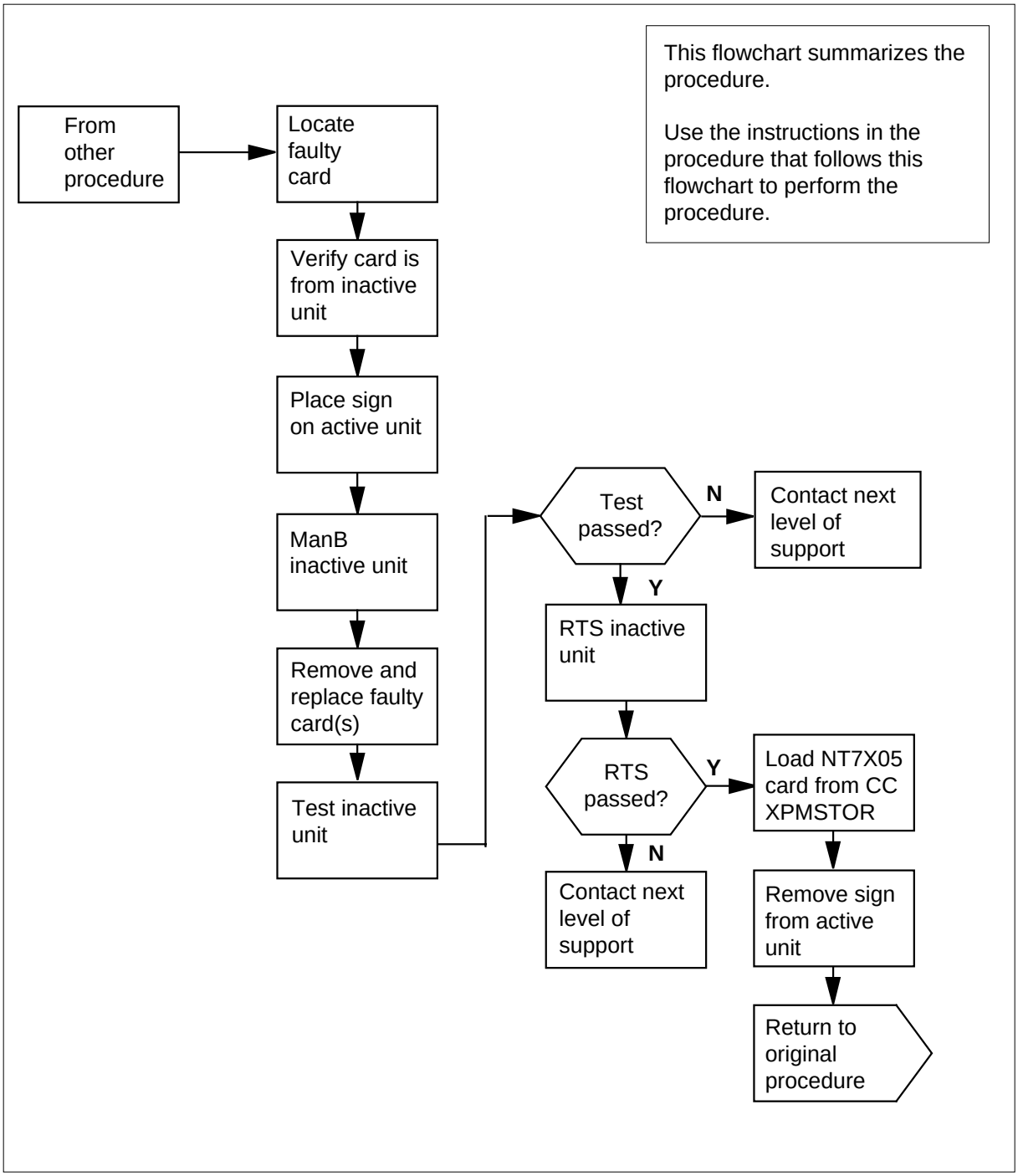
None

Action

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

NT7X05 in an SMS (continued)

Summary of card replacement procedure for an NT7X05 card in an RSC SMS



NT7X05 in an SMS (continued)

Replacing an NT7X05 card in an SMS

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 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 display

3 Access the PM level and post the SMS by typing

`>MAPCI;MTC;PM;POST SMS sms_no`

and pressing the Enter key.

where

sms_no
is the number of the SMS to be busied

Example of a MAP display:

```
   CM    MS    IOD    Net    PM    CCS    LNS    Trks    Ext    APPL
   .     .      .      .    1SMS    .      .       .      .      .

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_OOS:  CSide  0, PSide   0
 5 TRNSL_   Unit0:   Inact ISTb
 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.

If the faulty card is on an	Do
ACTIVE unit	step 5
INACTIVE unit	step 8

5 Switch the processing activity to the inactive unit by typing

>SWACT

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 21

6 Switch the activity of the unit by typing

>YES

and pressing the Enter key.

NT7X05
in an SMS (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 8
SWACT failed	step 7
SWACT failed Reason: XPM SWACTback	step 7
SWACT refused by SWACT controller	step 7

7 Return to the "SMS alarm clearing procedures section of 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.*

At the MAP display

9 Busy the inactive SMS unit by typing

```
>BSY INACTIVE
```

and pressing the Enter key.

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.

DANGER
Equipment damage
Take the following precautions when removing or inserting a card:

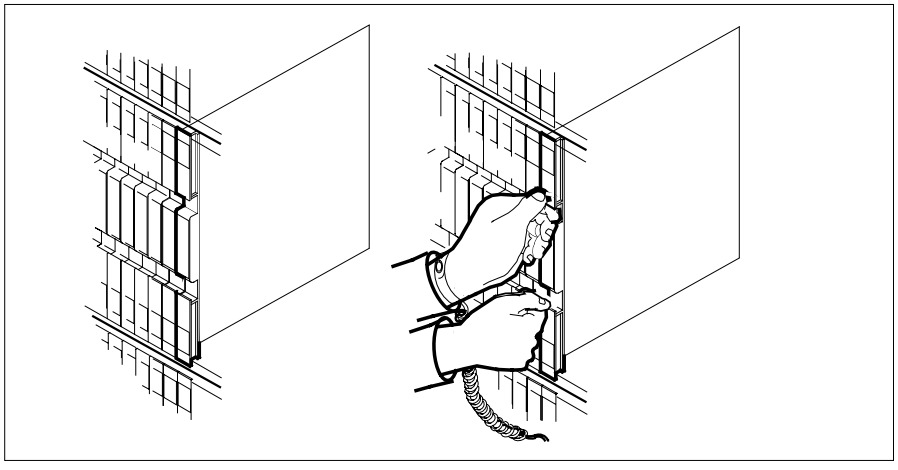
1. Do not apply direct pressure to the components.

2. Do not force the cards into the slots.

Put on a wrist strap.

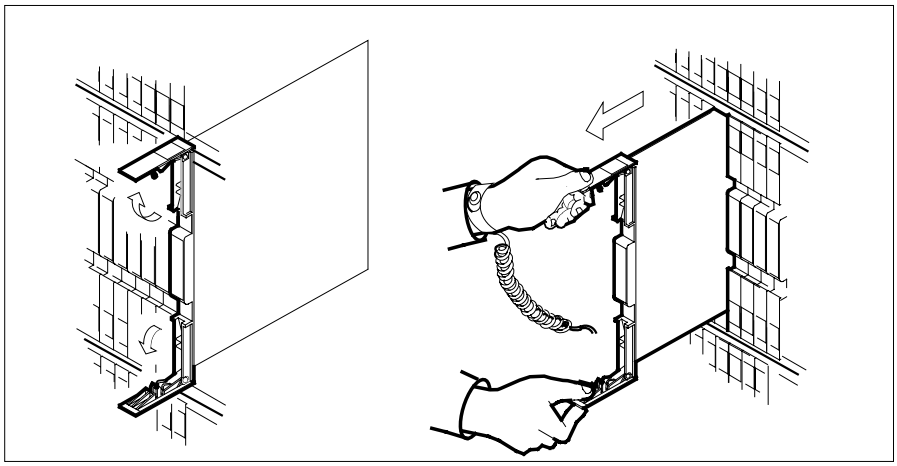
11 Remove the NT7X05 card as shown in the following figures.

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.

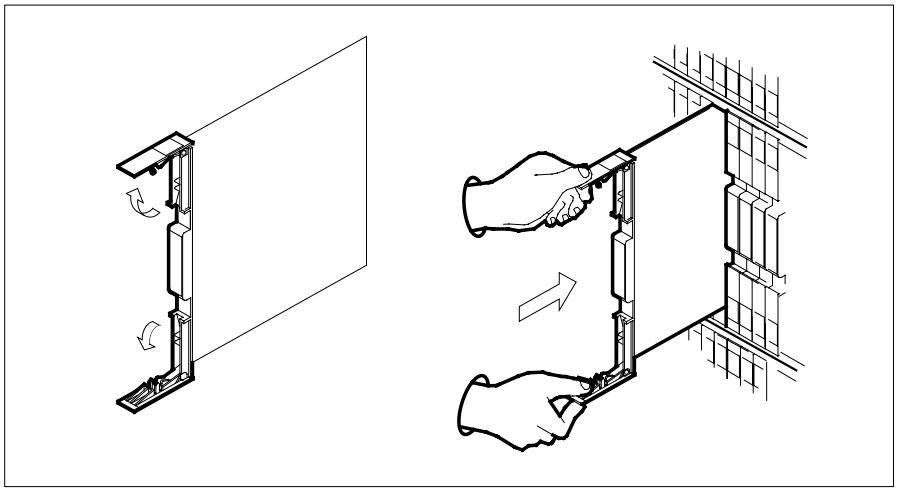
NT7X05
in an SMS (continued)



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.

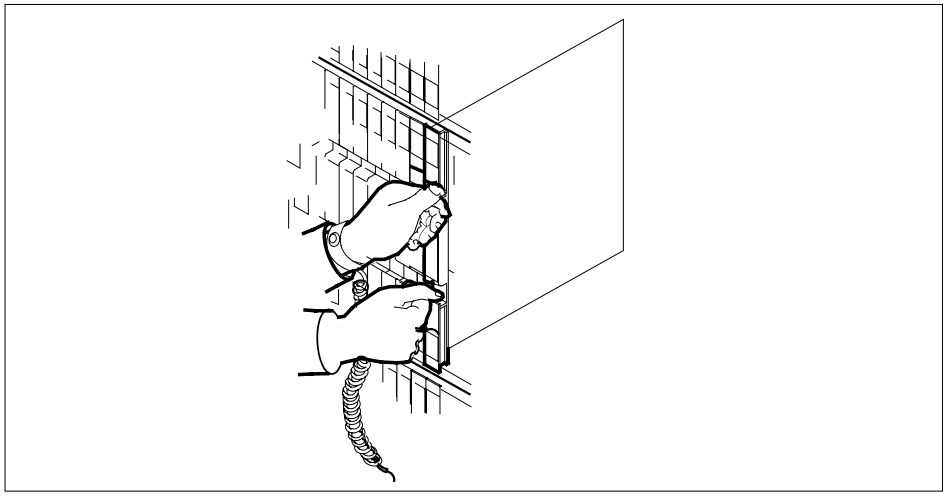
a Align the card with the slots in the shelf and gently slide the card into the shelf.



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.



At the MAP display

14 Test the inactive SMS unit by typing

`>TST UNIT sms_unit_no`

and pressing the Enter key.

where

sms_unit_no
is the number of the inactive SMS unit

Example of a MAP response:
Test Passed

or
Test Failed

If TST	Do
passed	step 15
failed	step 19

15 Return the inactive SMS unit to service by typing

`>RTS UNIT unit_no`

and pressing the Enter key.

where

NT7X05 in an SMS (end)

unit_no
is the number of the SMS unit (0 or 1) tested in step 14

If TST	Do
passed	step 16
failed	step 19

16 Load the 7X05 card in the inactive SMS unit by typing

```
>XPMSTOR INACTIVE CC [loadfile_name]
```

and pressing the Enter key.

where

file_name
is an optional source file name, if not included the file name in the field LOAD in table LTCINV will be used.

If load	Do
passed	step 17
failed	step 19

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

18 Record the following items in office records:

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

Go to step 20.

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.

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.

NT7X05 in an SMS-R

Application

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

PEC	Suffixes	Name
NT7X05	AA	Peripheral remote loader

Common procedures

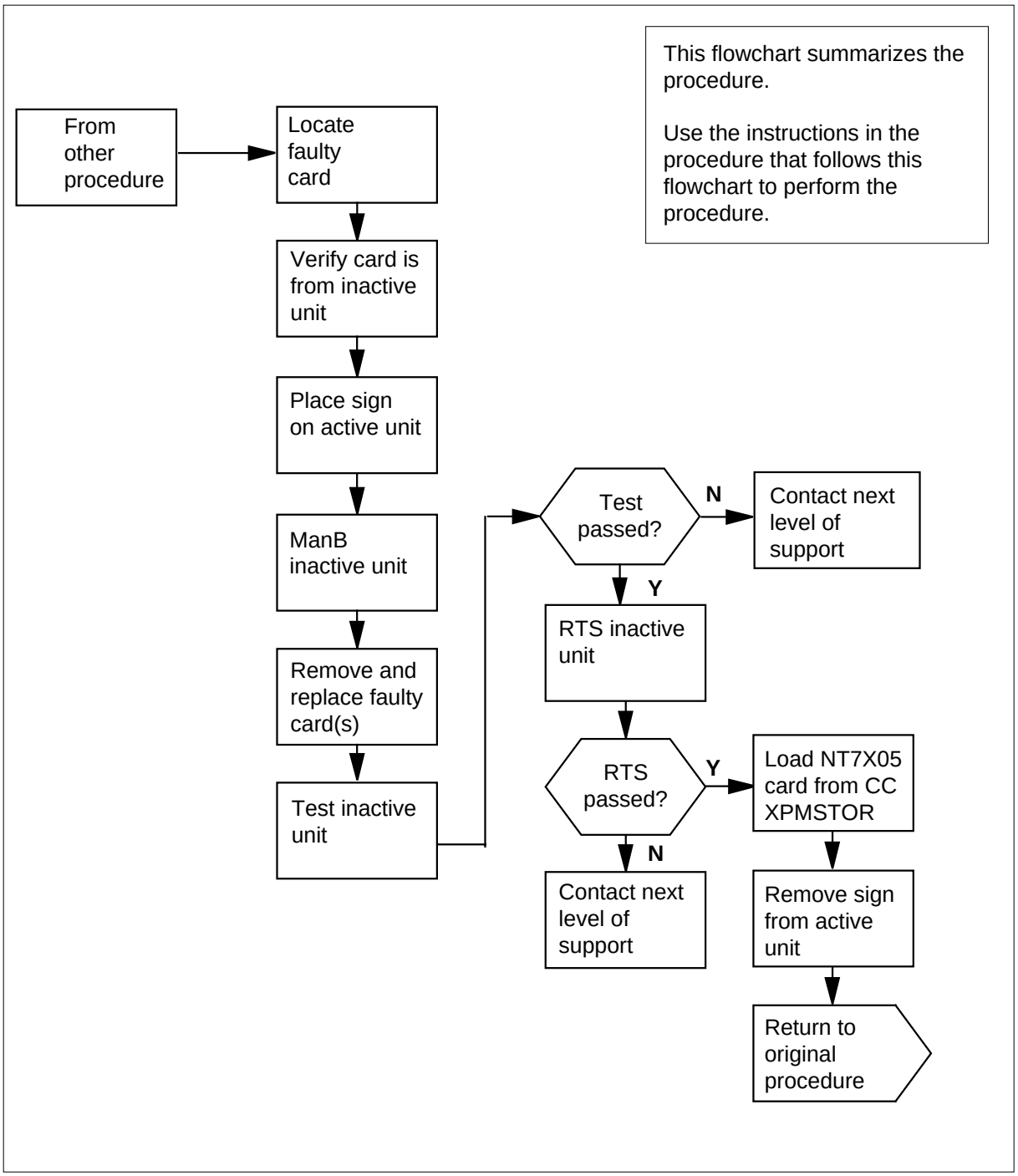
None

Action

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

NT7X05
in an SMS-R (continued)

Summary of card replacement procedure for an NT7X05 card in an RSC SMS-R



Replacing an NT7X05 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 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 display

3 Access the PM level and post the SMS-R by typing

`>MAPCI;MTC;PM;POST SMS-R sms-r_no`

and pressing the Enter key.

where

sms-r_no
is the number of the SMS-R to be busied

Example of a MAP display:

NT7X05
in an SMS-R (continued)

```
   CM    MS    IOD    Net    PM    CCS    LNS    Trks    Ext    APPL
   .     .      .      .    1SMS-R    .      .       .      .      .

SMS-R               SysB     ManB     OffL     CBsy     ISTb      InSv
 0 Quit    PM        0        0        2        0        2         25
 2 Post_   SMS-R       0        0        0        0        1          1
 3 ListSet
 4          SMS-R      0 ISTb  Links_OOS:  CSide  0, PSide   0
 5 TRNSL_   Unit0:   Inact ISTb
 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.

If the faulty card is on an	Do
ACTIVE unit	step 5
INACTIVE unit	step 8

5 Switch the processing activity to the inactive unit by typing

>SWACT

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 21

6 Switch the activity of the unit by typing

>YES

and pressing the Enter key.

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

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

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

7 Return to the *Alarm Clearing 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 words *Active unit—Do not touch.*

At the MAP display

9 Busy the inactive SMS-R unit by typing

```
>BSY INACTIVE
```

and pressing the Enter key.

NT7X05
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:

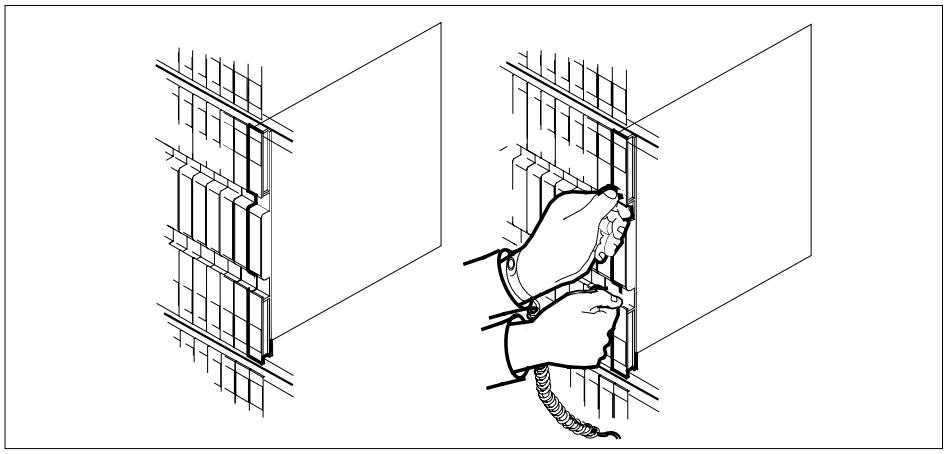
1. Do not apply direct pressure to the components.

2. Do not force the cards into the slots.

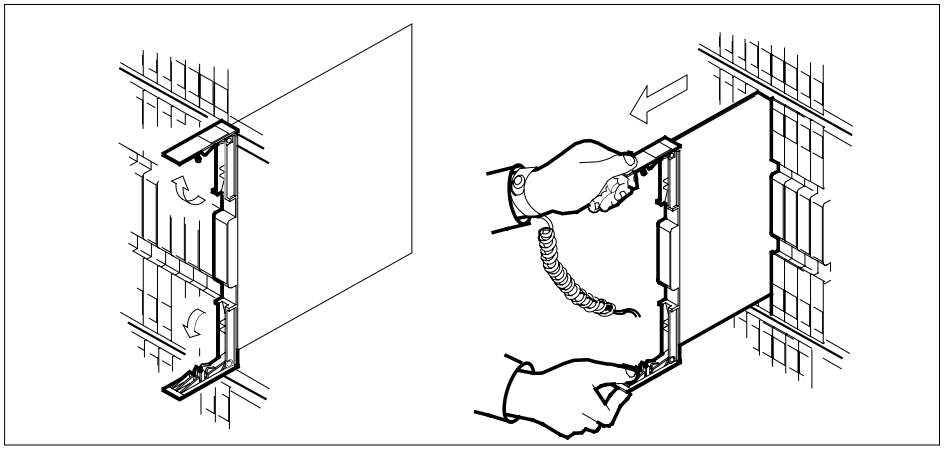
Put on a wrist strap.

11 Remove the NT7X05 card as shown in the following figures.

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



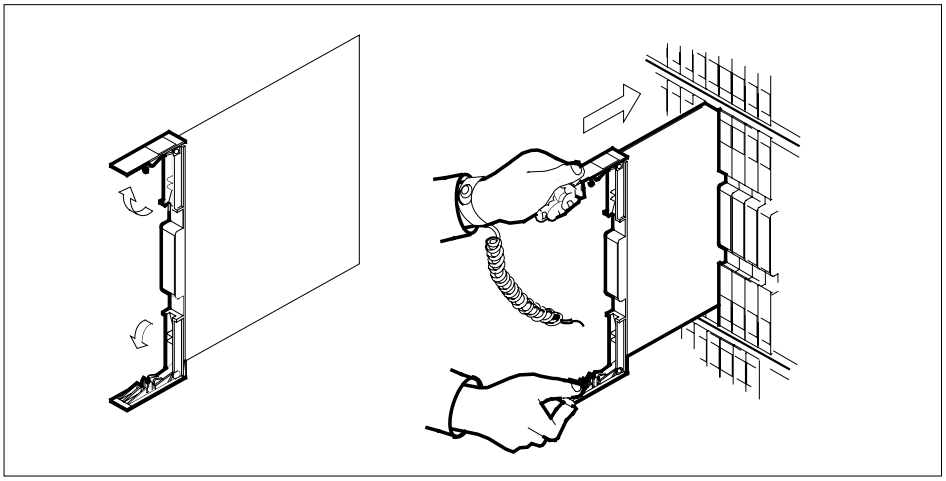
b Open the locking levers on the card to be replaced and gently pull the card towards you until it clears the shelf.



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 and gently slide the card into the shelf.

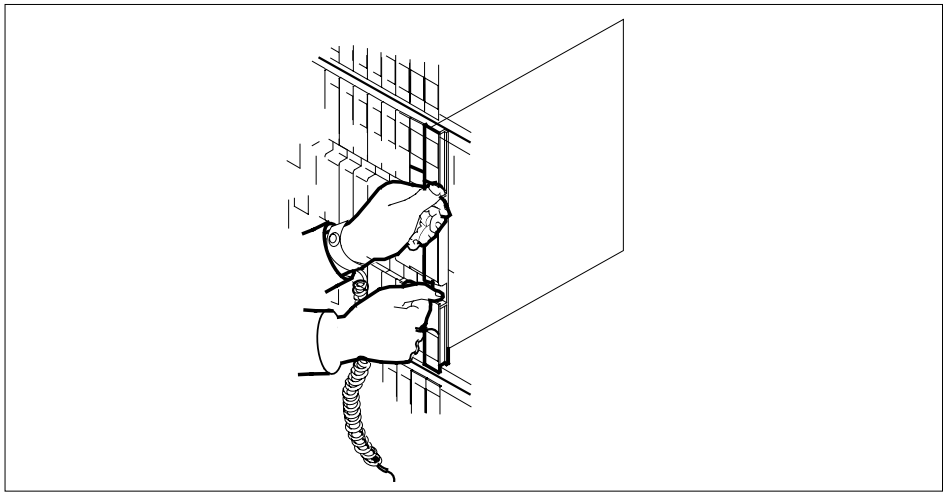


13 Seat and lock the card.

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.

NT7X05
in an SMS-R (continued)



At the MAP display

14 Test the inactive SMS-R unit by typing

`>TST UNIT sms-r_unit_no`

and pressing the Enter key.

where

sms-r_unit_no
is the number of the inactive SMS-R unit

Example of a MAP response:
Test Passed

or
Test Failed

If TST	Do
passed	step 15
failed	step 19

15 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 SMS-R unit (0 or 1) tested in step 14

16 Load the inactive SMS-R unit by typing

`>LOADPM INACTIVE CC  [load_file_name]`

and pressing the Enter key.

If load	Do
passed	step 17
failed	step 19

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

18 Record the following items in office records:

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

Go to step 20.

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.

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.

NT7X05 in an SMU

Application

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

PEC	Suffixes	Name
NT7X05	AA	Peripheral/Remote Loader-16

Common procedures

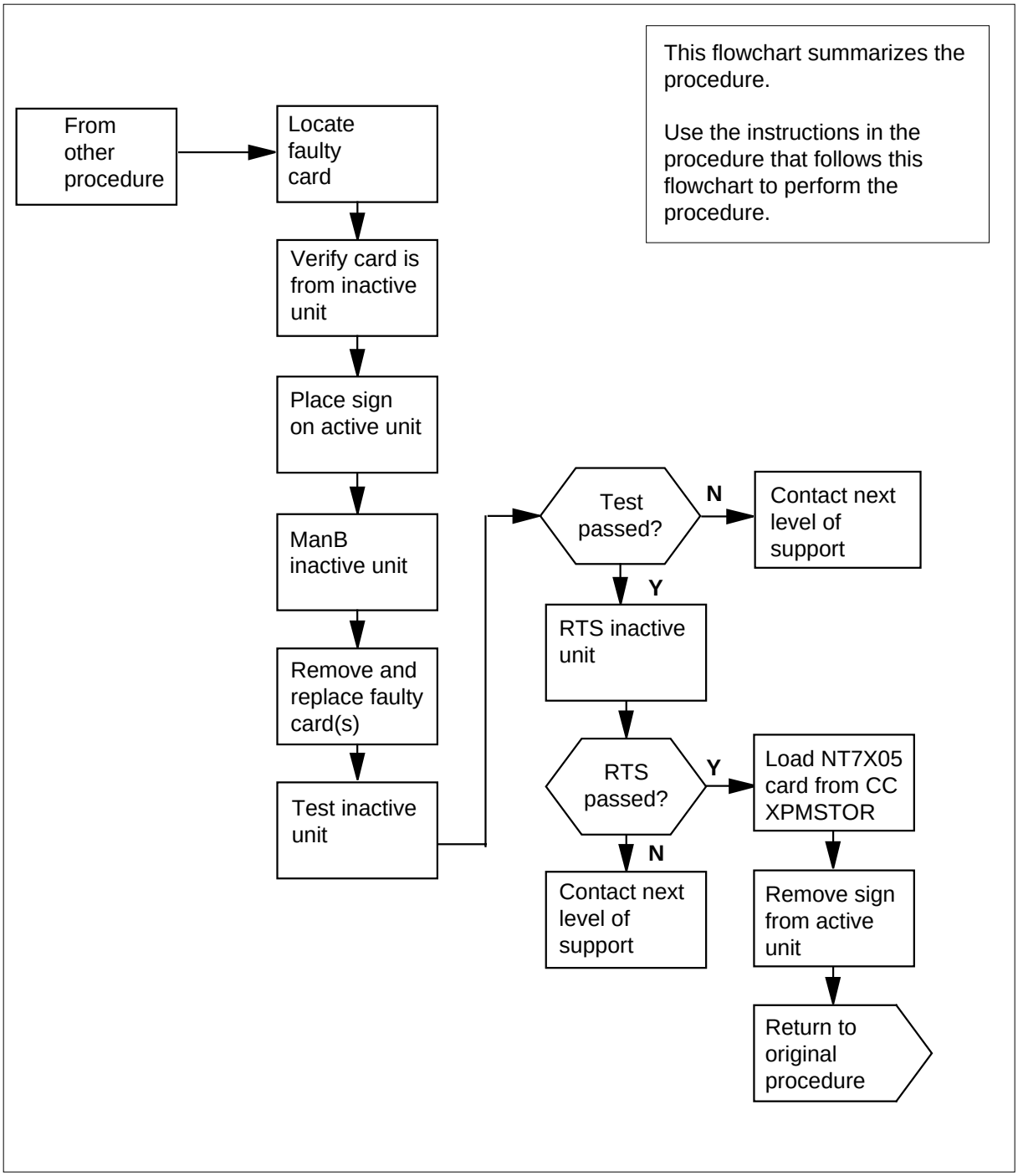
None

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.

NT7X05 in an SMU (continued)

Summary of replacing an NT7X05 card in an SMU



NT7X05 in an SMU (continued)

Replacing an NT7X05 in an SMU

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 SMU 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 display

3 Access the PM level 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 busied

Example of a MAP display:

```
   CM    MS    IOD    Net    PM    CCS    LNS    Trks    Ext    APPL
   .     .      .      .    1SMU    .      .       .      .      .

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_OOS:  CSide  0, PSide   0
 5 TRNSL_   Unit0:   Inact ISTb
 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.

If the faulty card is on an	Do
ACTIVE unit	step 5
INACTIVE unit	step 8

5 Switch the processing activity to the inactive unit by typing

>SWACT

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 21

6 Switch the activity of the unit by typing

>YES

and pressing the Enter key.

NT7X05
in an SMU (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 8
SWACT failed	step 7
SWACT failed Reason: XPM SWACTback	step 7
SWACT refused by SWACT controller	step 7

7 Return to the *Alarm Clearing Procedure*, to clear the alarm condition on the inactive unit. When the alarm is cleared, return to step 1 of this procedure.

At the frame

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

At the MAP display

9 Busy the inactive SMU unit by typing

`>BSY INACTIVE`

and pressing the Enter key.

NT7X05
in an SMU (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 SMU. This protects the equipment against damage caused by static electricity.

DANGER
Equipment damage
Take the following precautions when removing or inserting a card:

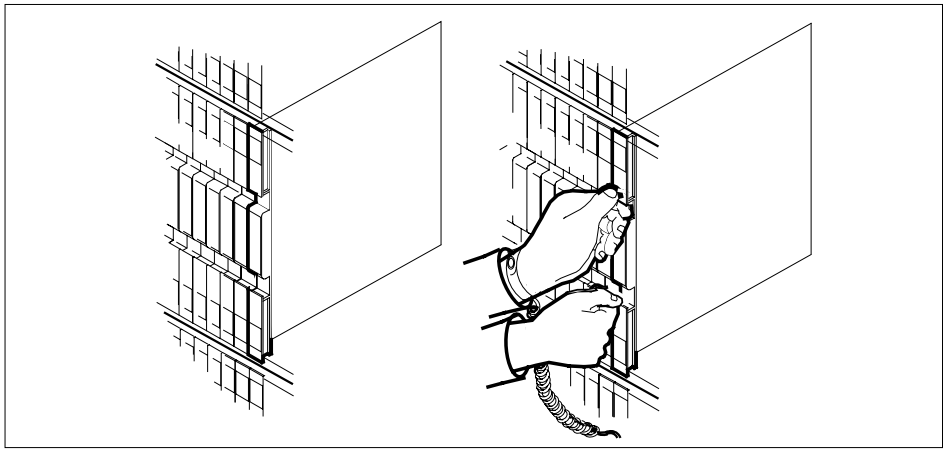
1. Do not apply direct pressure to the components.

2. Do not force the cards into the slots.

Put on a wrist strap.

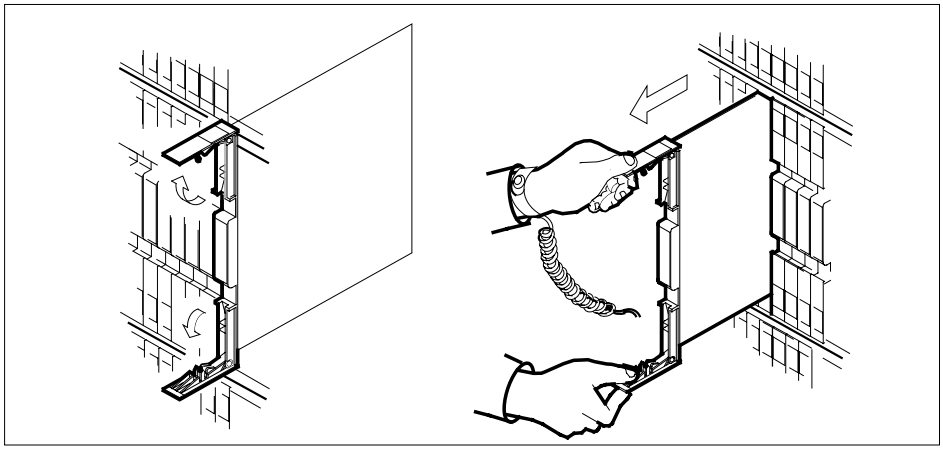
11 Remove the NT7X05 card as shown in the following figures.

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.

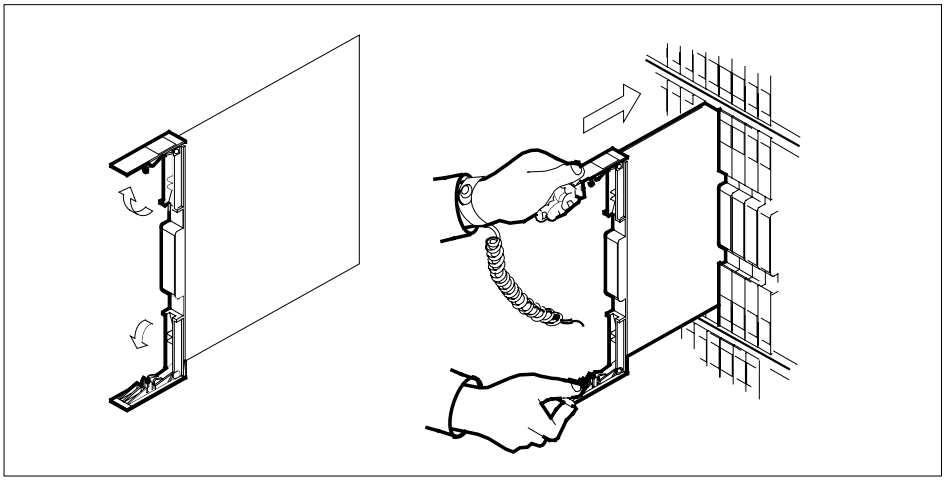
NT7X05
in an SMU (continued)



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.

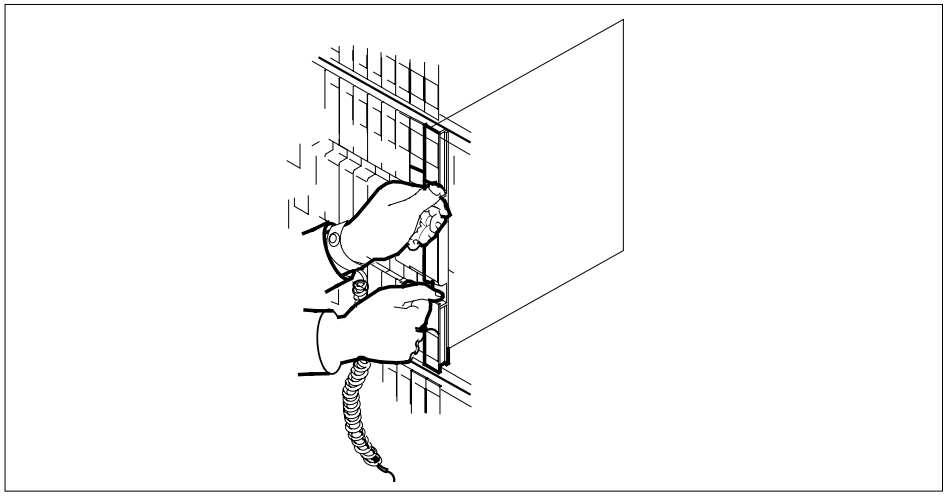
a Align the card with the slots in the shelf and gently slide the card into the shelf.



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.



At the MAP display

14 Test the inactive SMU unit by typing

`>TST UNIT SMU_unit_no`

and pressing the Enter key.

where

SMU_unit_no
is the number of the inactive SMU unit

Example of a MAP response:
Test Passed

or
Test Failed

If TST	Do
passed	step 15
failed	step 19

15 Return the inactive SMU unit to service by typing

`>RTS UNIT unit_no`

and pressing the Enter key.

where

NT7X05 in an SMU (end)

unit_no
is the number of the SMU unit (0 or 1) tested in step 14

If load	Do
passed	step 16
failed	step 19

16 Load the inactive SMU unit by typing

`>LOADPM INACTIVE CC XPMSTOR [file_name]`

and pressing the Enter key.

where

file_name
is the name of the file datafilled in field, LOAD, of the inventory table.

If load	Do
passed	step 17
failed	step 19

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

18 Record the following items in office records:

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

Go to step 20.

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.

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.

NT8X02 in an OPAC BCU

Application

Use this procedure to replace the following card in a battery control unit (BCU).

PEC	Suffix	Name
NT8X02	AB	Battery charger controller card

Common procedures

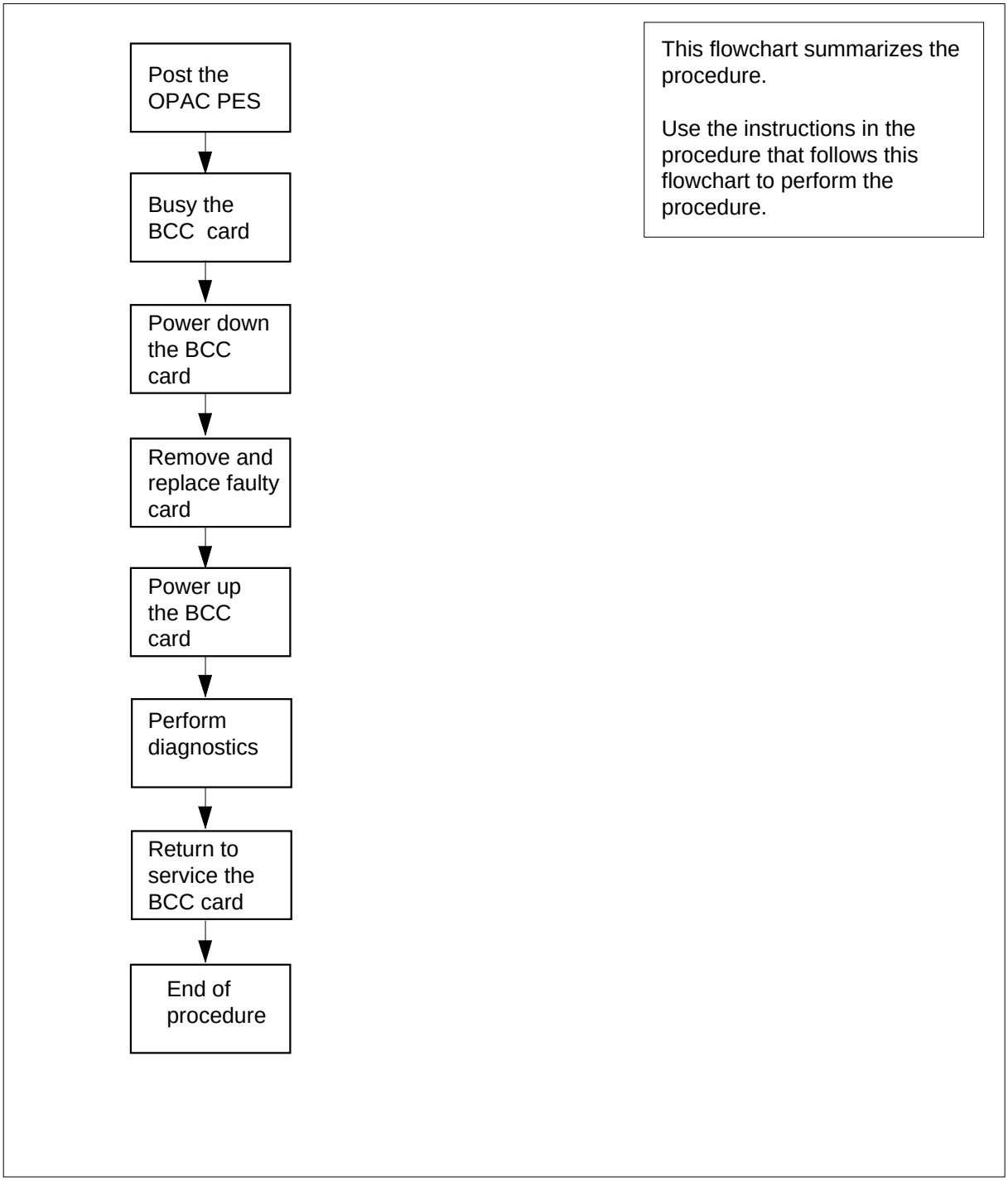
The common replacing a card procedure is referenced in this procedure.

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.

NT8X02
in an OPAC BCU (continued)

Summary of card replacement procedure for NT8X02 card in a BCU



Replacing an NT8X02 card in a BCU

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 Post the OPAC PES with the BCU containing the battery charger controller (BCC) card to be replaced by typing

`>MAPCI;MTC;PM;PES;POST opmpes`

and pressing the Enter key.

where

opmpes
is the OPAC PES duscrimination number (0-253)

Example of a MAP response:

```
                RED     AMBER     GREEN     OFFL
     OPMPES      0         0         3        0

     OPMPES  2 Cond: GREEN   REM2    2  1   RMM  2
                                  Audit Week  HBT
  Common    Rectifiers              .    2    .
  AC    FL0 FL1 CL0 CL1   BCCDVR  PESALRM  ECU FSP
    .     .   .   .   .       .       .       .   .
BCC   0   1   2   3   Temp     Door     BCCFUSES
0=.   .   .   .   . EHT ELT  FRNT SIDE     0  1
1=.   .   .   .   .  .   .     .    .      .  .
```

5 Busy the BCC driver (BCCDVR) card by typing

`>BSY BCCDVR`

At bay 1 of the OPAC

6 Turn switch on front of the BCC (NT8X02) card to the OFF position.

7 Replace the NT8X02 card by using the common replacing a card procedure in this document. When the card is replaced, return to this step.

8 Turn the switch on the BCC (NT8X02) card to the ON position.

NT8X02
in an OPAC BCU (end)

9 If you were directed to this procedure from the *Alarm Clearing Procedures*, return now to the alarm clearing procedure that directed you here. Otherwise, go to step 10.

At the MAP terminal

10 Perform diagnostics by typing

>TST

and pressing the Enter key

If test	Do
passed	step 11
failed	step 14

11 Return the BCCDVR card to service by typing

>RTS BCCDVR

If RTS	Do
passed	step 12
failed	step 14

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 15.

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

15 You have successfully completed this procedure.

NT8X02 in an OPM BCU

Application

Use this procedure to replace the following card in an OPM BCU battery control unit (BCU).

PEC	Suffixes	Name
NT8X02	AA, AB	Battery Charger Controller card (BCC)

Common procedures

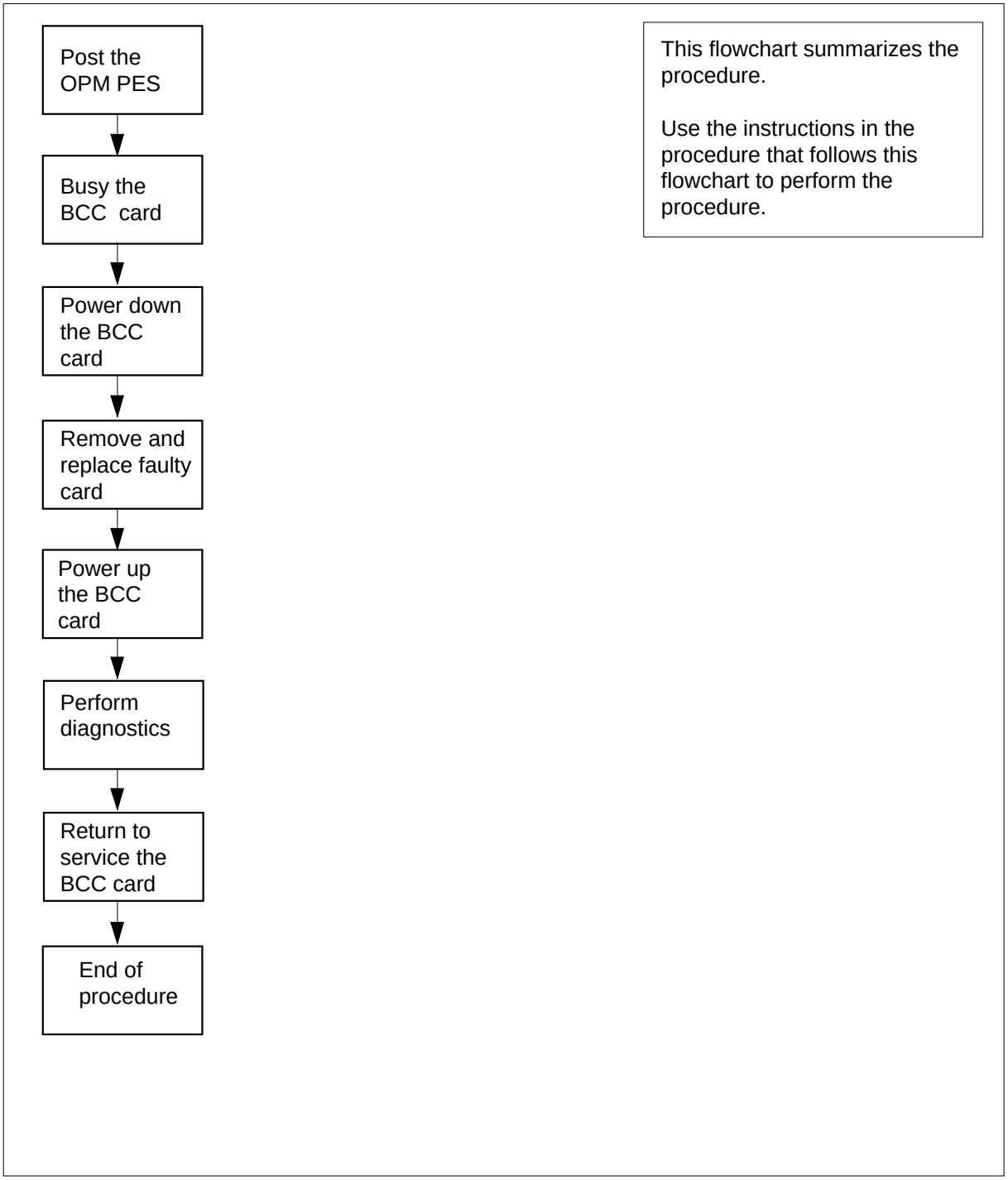
The common replacing a card procedure is referenced in this procedure.

Action

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

NT8X02
in an OPM BCU (continued)

Summary of card replacement procedure for an NT8X02 card in an BCU



Replacing an NT8X02 card in an BCU

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 Post the OPM PES with the BCU containing the battery charger controller (BCC) card to be replaced by typing

`>MAPCI;MTC;PM;PES;POST opmpes`

and pressing the Enter key.

where

opmpes
is the PES discrimination number (0 to 199)

Example of a MAP response:

```
                RED     AMBER     GREEN     OFFL
      OPMPES     1         2         3        4

      OPMPES  2 Cond: GREEN   REM2    2  1   RMM  2
                                   Audit Week  HBT
   Common    Rectifiers              .    2    .
   AC    FL0 FL1 CL0 CL1   BCCDVR  PESALRM  ECU FSP
    .      .   .   .   .       s      .       .   .
BCC   0   1   2   3   Temp     Door     BCCFUSES
0=W  BSY BSY BSY BSY EHT ELT  FRNT SIDE     0  1
1=W  BSY BSY BSY BSY  .   .     .    .      .  .
```

5 Busy the BCC driver (BCCDVR) card by typing

`>BSY BCCDVR`

and pressing the Enter key.

NT8X02 in an OPM BCU (continued)

At the OPM cabinet

6



DANGER
Possible loss of service during BCC (NT8X02) replacement
Do not turn off more than one BCC NT8X02 at a time or service is lost if AC power is interrupted. Turn off BCC0 when working on battery strings 0, 1, 2, or 3. Turn off BCC1 when working on battery strings 4, 5, 6, or 7.

Turn switch on front of the BCC (NT8X02) card to the OFF position.

7 Replace the NT8X02 card by using the common replacing a card procedure in this document. When the card is replaced, return to this step.

8 Turn the switch on the BCC (NT8X02) card to the ON position.

9 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 10.

At the MAP terminal

10 Perform diagnostics by typing

>TST

and pressing the Enter key.

If test	Do
passed	step 11
failed	step 14

11 Return the BCCDVR card to service by typing

>RTS BCCDVR

and pressing the Enter key.

If RTS	Do
passes	step 12
fails	step 14

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

NT8X02 in an OPM BCU (end)

Go to step 15.

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

15 You have successfully completed this procedure.

NT8X18 in an SMS-R

Application

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

PEC	Suffixes	Name
NT8X18	BA	SCM DS30A Interface

Common procedures

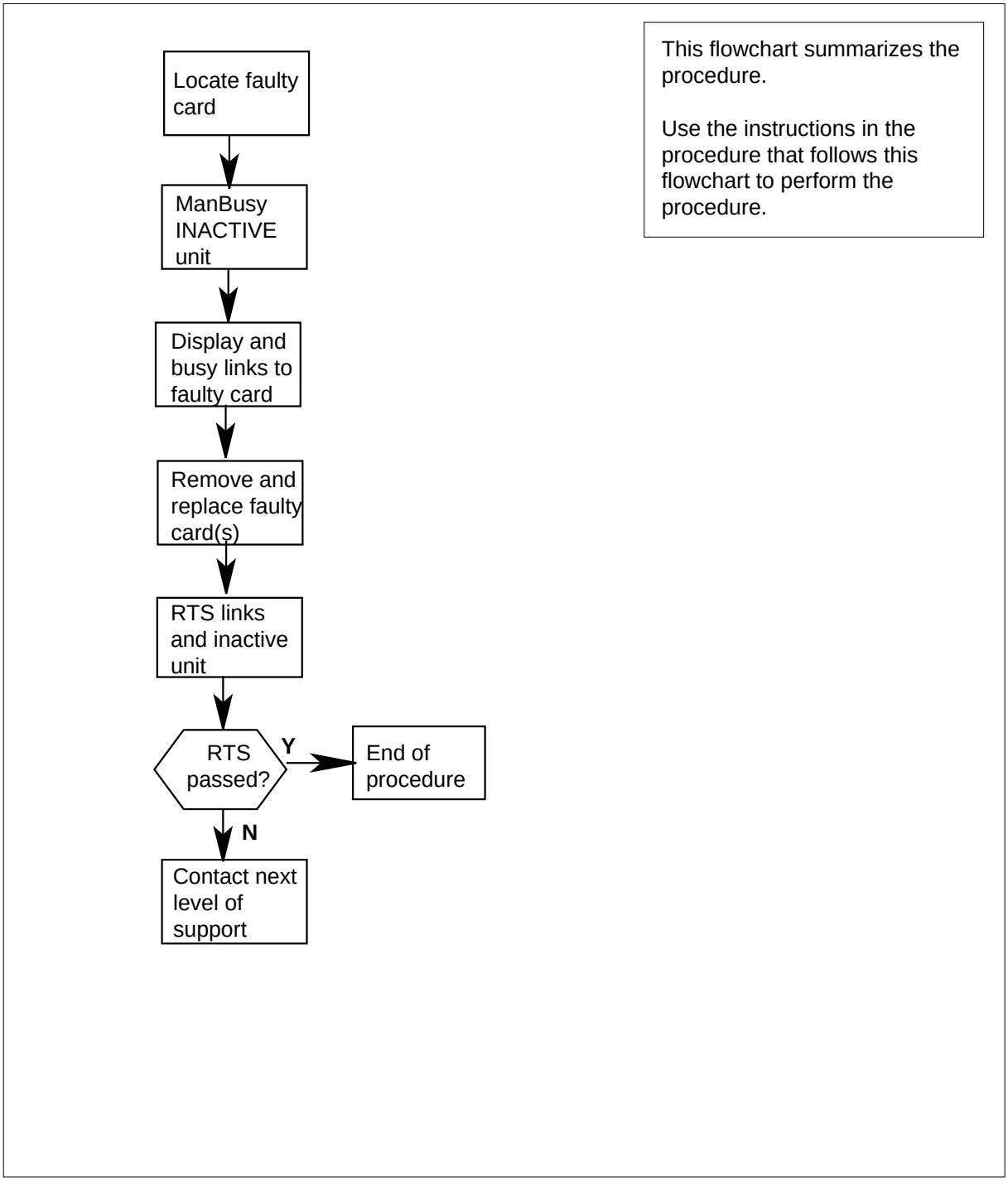
None

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.

NT8X18 in an SMS-R (continued)

Summary of card replacement procedure for an NT8X18 card in an SMS-R



NT8X18 in an SMS-R (continued)

Replacing an NT8X18 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 that is 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_OOS    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

NT8X18
in an SMS-R (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 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 29

6 Switch the activity of the unit by typing

>YES

and pressing the Enter key.

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

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

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

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

At the frame

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

At the MAP display

9 Busy the inactive SMS-R unit by typing

>bsy UNIT **unit_no**

and pressing the Enter key.

where

unit_no
is the number of the faulty SMS-R unit

NT8X18
in an SMS-R (continued)

10 Identify the RCC associated with the inactive SMS-R unit by typing

>TRNSL C

and pressing the Enter key.

Example of a MAP response

```
LINK 0:RCC 1   6;Cap MS;Status:OK   ;MsgCond:SPC,Restricted
LINK 1:RCC 1   7;Cap  S;Status:OK
LINK 2:RCC 1   8;Cap MS;Status:OK   ;MsgCond:OPN,Unrestricted
LINK 3:RCC 1   9;Cap  S;Status:OK
```

Record the number of the RCC associated with the inactive SMS-R unit. In this example, RCC 1 is associated with the inactive SMS-R unit.

11 Access the RCC you just identified by typing

>Post Rcc **unit_no**

and pressing the Enter key.

where

unit_no
is the number of the RCC unit

Example of a MAP response

```
RCC 1   INSV    LINKS_OOS    CSIDE 0     PSIDE 0
  Unit0      Act       InSv
  Unit1     InAct      InSv
```

12 Display the RCC's P-side links connected to the inactive SMS-R unit by typing

>trnsl P

and pressing the Enter key.

Example of a MAP response

```
 LINK     0:   RMM  4         0;Cap     MS;Status:OK   MsgCond:OPN
LINK 2:   Carrier of Class–Trunk;Status:OK
LINK 3:   Carrier of Class–Trunk;Status:OK
LINK 6:   SMSR 0    0;Cap     MS:Status:OK   MsgCond:SPC,Restricted
LINK 7:   SMSR 0         1;Cap     S:Status:OK
LINK 8:   SMSR 0    2;Cap     MS:Status:OK   MsgCond:OPN,Unrestricted
LINK 9:   SMSR 0              3;Cap     S:Status:OK
```

Record the link numbers of the links connected to the inactive SMS-R unit. SMS-R links 0 and 1 always correspond to SMS-R unit 0. SMS-R links 2 and 3 always correspond to SMS-R unit 1. Since SMS-R unit 0 was busied earlier in this procedure, the RCC's P-side links 6 and 7 should be busied in this example.

13



CAUTION
Loss of subscriber service
If the DMS-100 switch displays a message at the MAP terminal indicating the number of active calls on the SMS-R's C-side link to be busied, determine by local policy if these calls should be disconnected and respond accordingly to the confirmation request.

Busy the RCC's P-side links associated with the NT8X18 by typing

>BSY LINK **link_no**

and pressing the Enter key.

where

link_no
is the number of the link connected to the faulty NT8X18 card

See the note below, then repeat this command for each link to the faulty card.

Note: When the user enters the command string BSY LINK link_no, the system checks for active calls on the link. If there are active calls on the link, the first MAP display response identified below is displayed (where ## is the number of active calls). After the first MAP display response indicating the number of active calls, the user is prompted whether to continue. The response (Yes or No) must be based on operating company policy. If the user responds *Yes*, then the active calls will be disconnected. However, if there are no calls active on the link (as indicated by the second response), then the link is busied.

Example of a MAP response

```
## active calls may be lost
            or
There are no calls active on the link
```

NT8X18
in an SMS-R (continued)

At the 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 left side of the frame supervisory panel of the SMS-R. This protects the equipment against damage caused by static electricity. Do not replace more than one 8X18 card at a time.

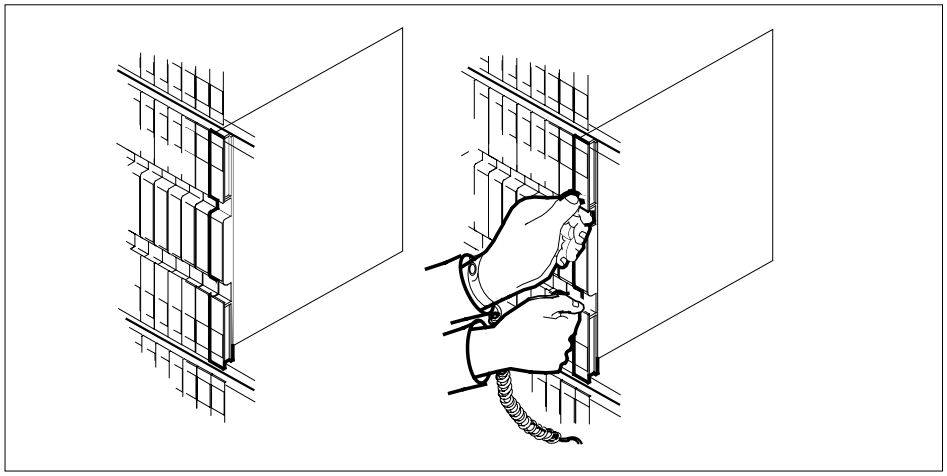
DANGER
Equipment damage
Take the following precautions when removing or inserting a card:

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

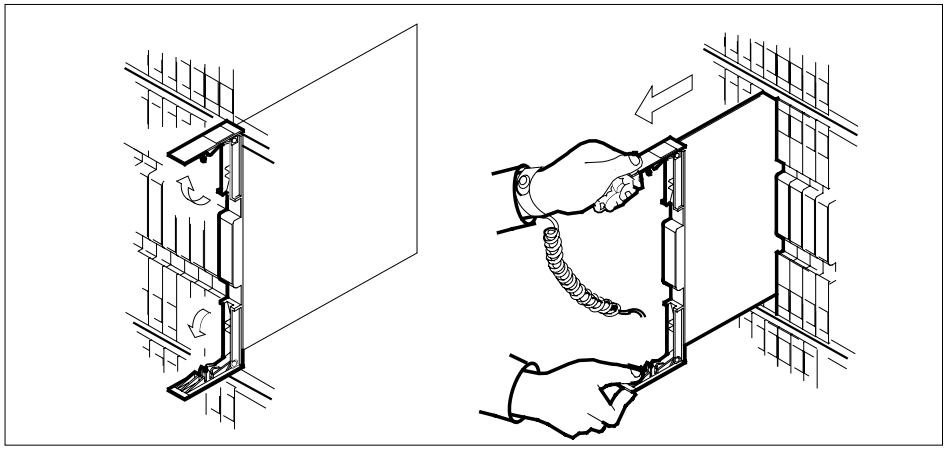
Put on a wrist strap.

15 Remove the NT8X18 card as shown in the following figures.

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



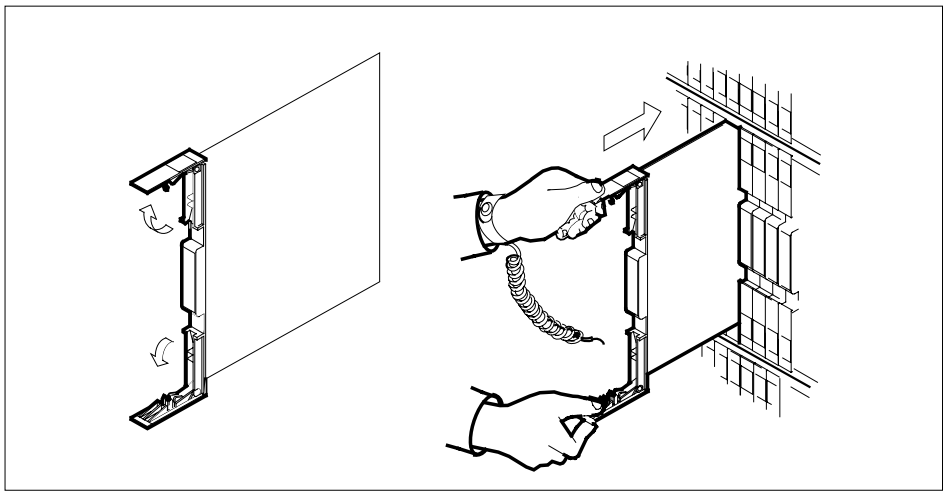
b Open the locking levers on the card to be replaced and gently pull the card toward you until it clears the shelf.



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

16 Open the locking levers on the replacement card.

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

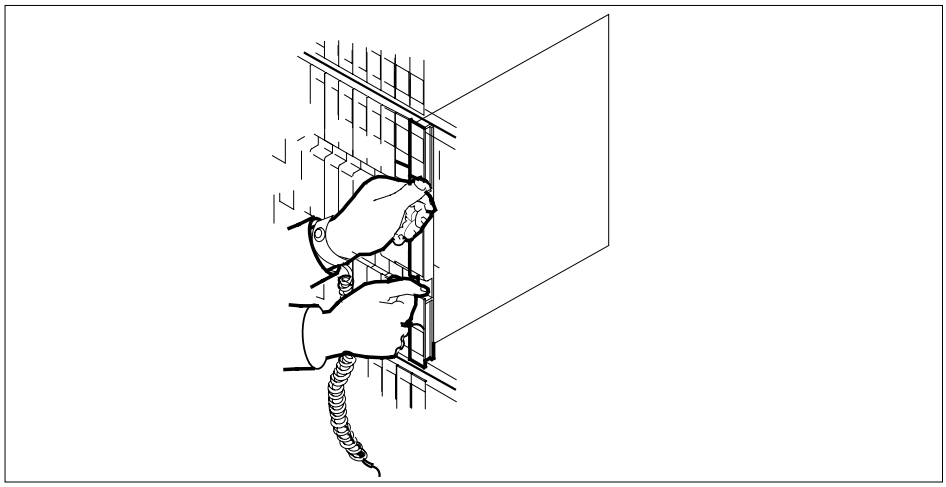


17 Seat and lock the card.

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.

NT8X18
in an SMS-R (continued)



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

If you entered this procedure from	Do
alarm clearing procedures	step 26
other	step 19

At the MAP display

19 Test the busied P-side links by typing

`>TST link_no`

and pressing the Enter key.

where

link_no
is the number of the busied link connected to the faulty NT8X18 card

Repeat this command for each busied link to the faulty card.

If TST	Do
passes	step 20
fails	step 27

20 Return the busied P-side links to service by typing

`>RTS link_no`

and pressing the Enter key.

where

link_no
is the number of the busied link connected to the faulty NT8X18 card

Repeat this command for each busied link to the faulty card.

If RTS	Do
passes	step 21
fails	step 27

21 Access the inactive SMS-R unit by typing

>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_OOS    CSIDE 0     PSIDE 0
   Unit0    InAct   ManB
   Unit1     Act    InSv
```

22 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 23
fails	step 27

At the frame

23 Remove the sign from the active SMS-R unit.

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

25 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

Proceed to step 28.

NT8X18 in an SMS-R (end)

26 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.

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

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

29 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.

NTAX74
in an RSC-S (DS-1) Model A RCC2

Application

Use this procedure to replace an NTAX74 card in an RCC2.

PEC	Suffixes	Name
NTAX74	AA	Cellular Access Processor with 16Mb Memory

Common procedures

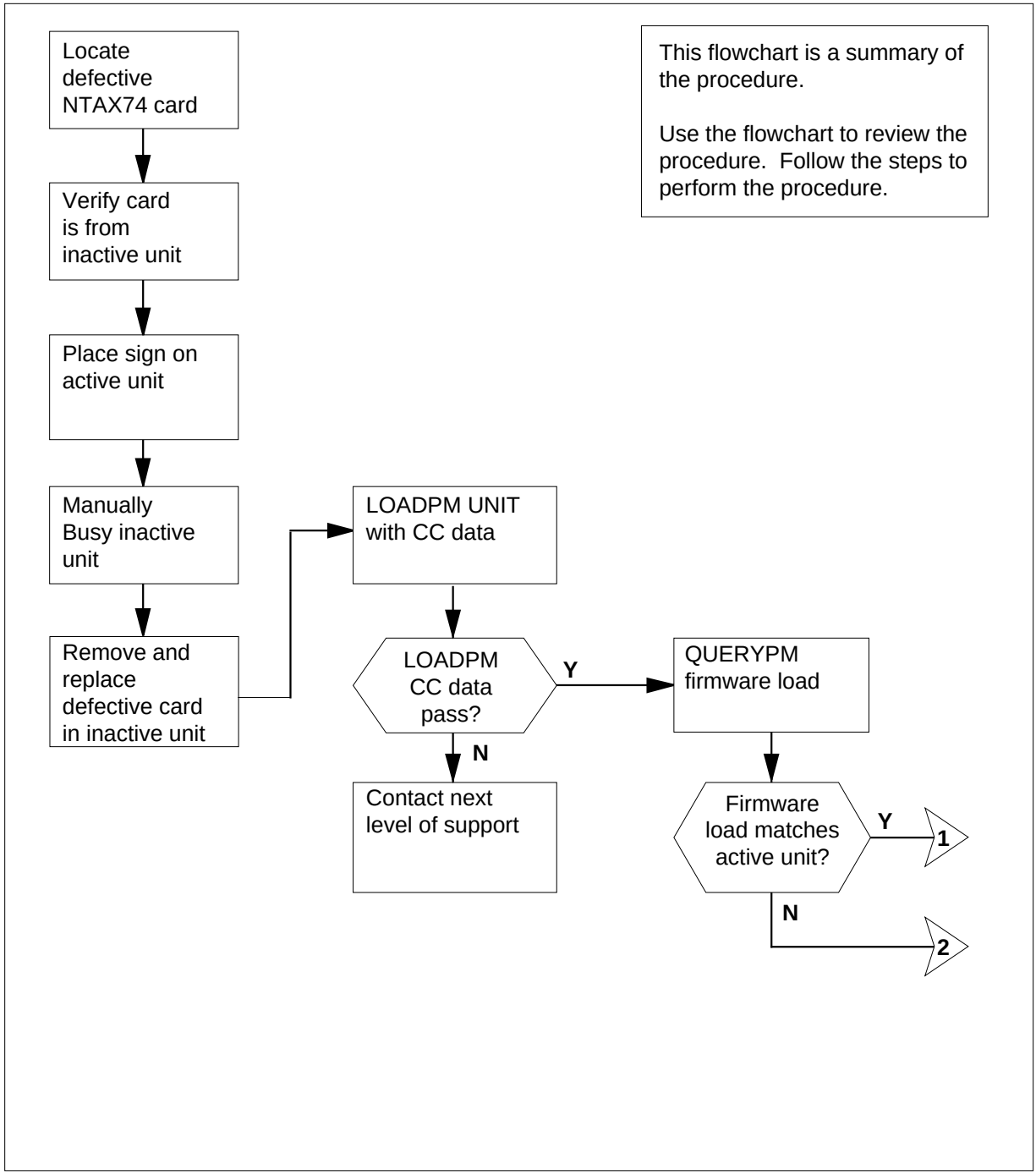
Does not apply

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.

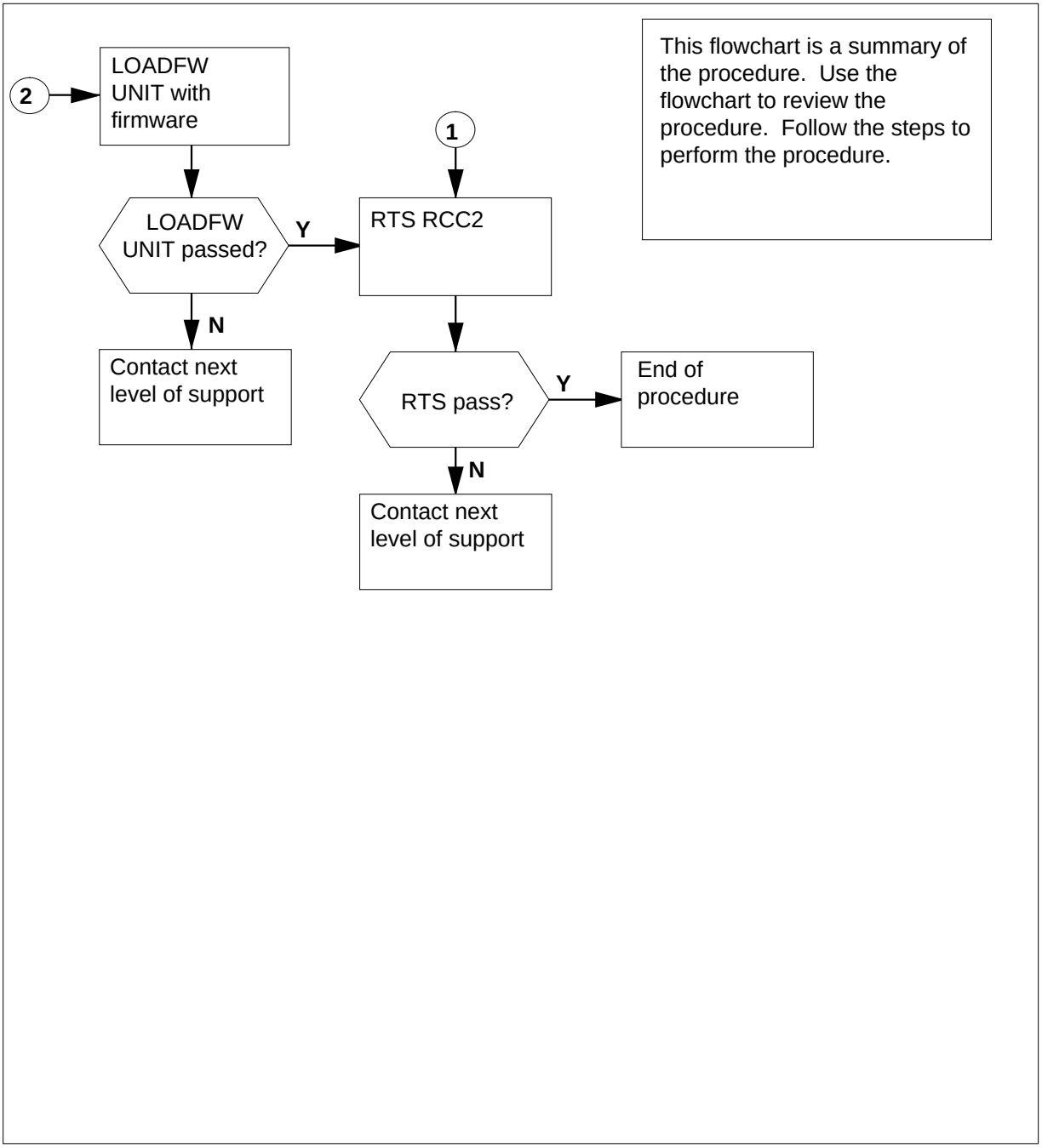
NTAX74
in an RSC-S (DS-1) Model A RCC2 (continued)

Summary of card replacement procedure for an NTAX74 card in RSC-S RCC2



NTAX74
in an RSC-S (DS-1) Model A RCC2 (continued)

Summary of card replacement procedure for an NTAX74 card in RSC-S RCC2 (continued)



NTAX74 in an RSC-S (DS-1) Model A RCC2 (continued)

To replace an NTAX74 in RSC-S RCC2

At your current location

1 Proceed if one of the following conditions apply:

- a step in a maintenance procedure directed you to this card replacement procedure
- you use this procedure to verify or accept cards
- the maintenance support group directed you to this procedure

2



WARNING
Loss of service
When you replace a card in an RCC2, make sure the unit in which you replace the card is *inactive* and the mate unit is *active*.

Obtain an NTAX74 replacement card. Make sure the replacement card has the same product engineering code (PEC) and PEC suffix, as the card to be removed.

At the MAP terminal

3 To make sure that the current MAP display is at the PM level and to post the RCC2, type:

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

and press the Enter key.

where

rcc2_no
is the number of the RCC2 to be busied

Example of a MAP display:

NTAX74
in an RSC-S (DS-1) Model A RCC2 (continued)

```
CM     MS    IOD    Net    PM    CCS    LNS    Trks    Ext    APPL
.      .      .      .    1RCC2   .      .       .      .      .

RCC2             SysB     ManB     OffL     CBsy     ISTb      InSv
0 Quit    PM        0        0        2        0        2        25
2 Post_   RCC2      0        0        0        0        1         1
3 ListSet
4         RCC2   0 ISTb  Links_OOS:  CSide  0, PSide   0
5 TRNSL_  Unit0:   Inact SysB
6 TST_    Unit1:     Act InSv
7 BSY_
8 RTS_
9 OffL
10 LoadPM_
11 Disp_
12 Next_
13 SwAct
14 QueryPM
15
16 IRLINK
17 Perform
18
```

4 To verify the defective NTAX74 card is in the inactive unit, make sure the light-emitting diode (LED) labled ACTIVE is OFF or check the MAP display.

If the defective card	Do
is in the active unit	step 5
is in the inactive unit	step 9

5 To cause the processing activity to perform a Switch of Activity (SWACT) to the inactive unit, type:

>SWACT

and press the Enter key.

A confirmation prompt for the SWACT command appears at the MAP terminal.

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

6 To reject the prompt to SWACT the units, type:

>NO

and press the Enter key.

The system stops the SWACT.

NTAX74
in an RSC-S (DS-1) Model A RCC2 (continued)

Return to step 5 during periods of low traffic.

7 To confirm the system prompt, type:

>YES

and press the Enter key.

The system runs a pre-SWACT audit to determine if the inactive unit can accept activity accurately.

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

If the message	Do
is SWACT passed	step 9
is SWACT failed Reason: XPM SWACTback	step 8
is SWACT refused by SWACT Controller	step 8

8 To clear the alarm condition on the inactive unit. Return to the *Alarm Clearing Procedures* when you clear the alarm, return to step 1 of this procedure.

At the RCE frame

9 Place a sign with the words *Active unit-Do not touch* on the active unit. Do not attach this sign with magnets or tape.

At the MAP terminal

10 Check the MAP display and determine the state of the inactive unit.

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

11 To busy the inactive peripheral module (PM) unit, type

>BSY INACTIVE

and press the Enter key.

12 To prevent the PM from trapping, type:

>PMRESET UNIT rcc2_unit_no NORUN

and press the Enter key.

where

rcc2_unit_no
is the number of the inactive RCC2 unit zero or one

NTAX74
in an RSC-S (DS-1) Model A RCC2 (continued)

At the RCE frame

13



WARNING
Static electricity damage
Before you remove cards, wear a wrist strap that connects to the wrist-strap grounding point on the left side of the frame supervisory panel (FSP) of the RCC2. This wrist strap protects the equipment against static electricity damage.



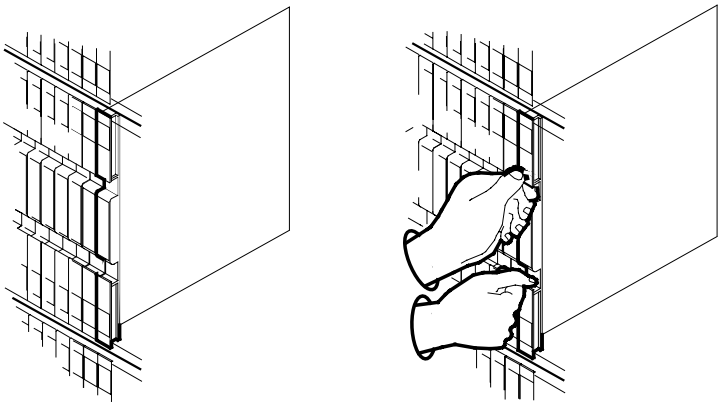
DANGER
Equipment damage
Take the following precautions when you remove or insert a card:

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

Wear a wrist strap.

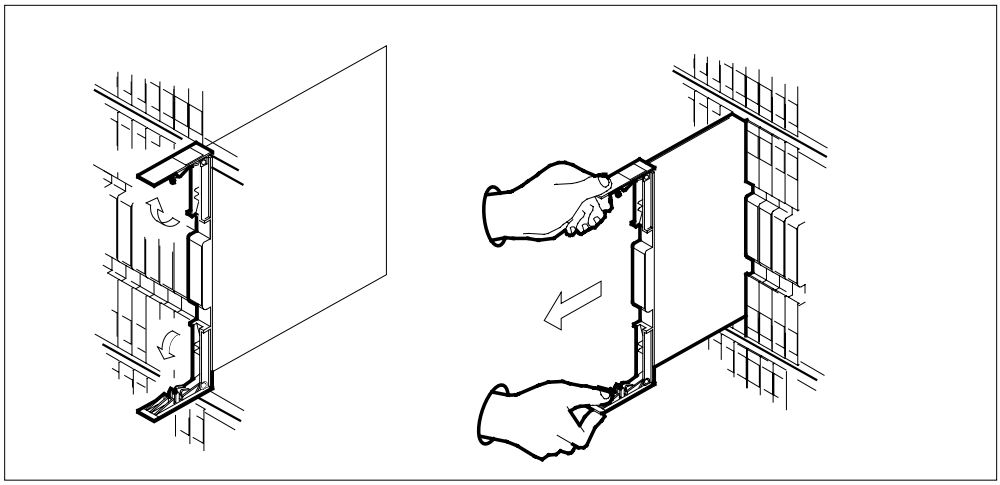
14 The following figures show removing the NTAX74 card:

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.

NTAX74
in an RSC-S (DS-1) Model A RCC2 (continued)



c Make sure the replacement card has the same PEC and PEC suffix, as the card you removed. Make sure all replacement card DIP switch settings match settings of the card you removed.

Note: If the NTAX74 circuit card has a DIP switch, set the DIP switch S1 to the common peripheral module (CPM).

15

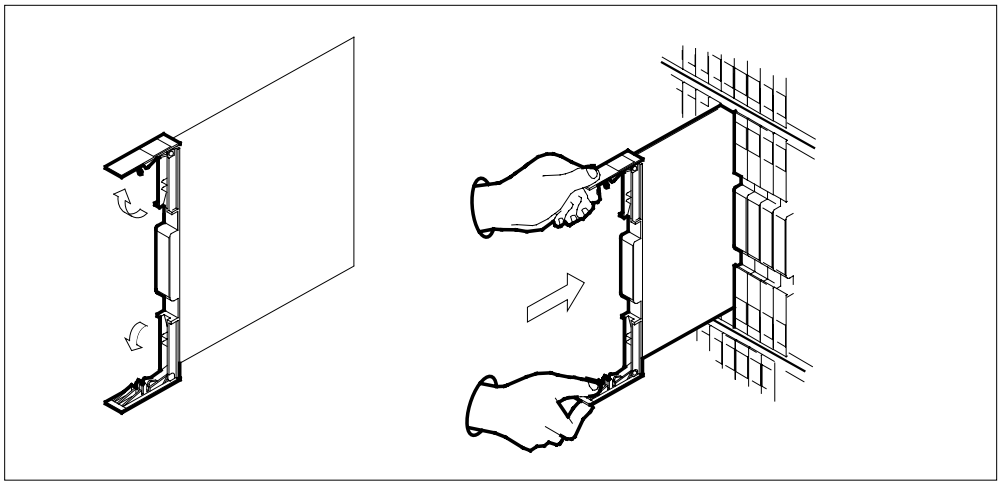
DANGER
Possible loss of P-side nodes
When you install the replacement NTAX74, monitor the LEDs on the faceplate of the NTAX74 for the following indicators:1. The INSV and ESA LEDs come ON and remain ON until loading starts.2. The ACT LED can come ON and light for less than 1 s. If the ACT LED remains ON for more than 1 s, remove the NTAX74 circuit card and return to this step. If the NTAX74 circuit card remains with both units that have an active processor, a condition of dual activity occurs. This condition causes the loss of P-side nodes.

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.

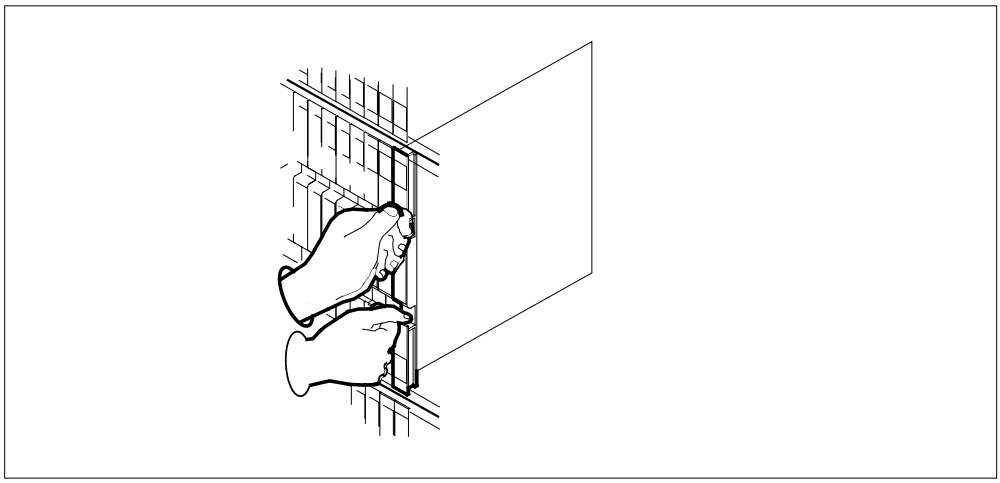
NTAX74
in an RSC-S (DS-1) Model A RCC2 (continued)



16 Seat and lock the card.

a Use your fingers or thumbs to push on the upper and lower edges of the faceplate. Make sure the card sits completely in the shelf.

b Close the locking levers.



17 Use the following information to determine the next step.

If you were directed here from	Do
alarm clearing procedures	step 26
other	step 18

NTAX74
in an RSC-S (DS-1) Model A RCC2 (continued)

At the MAP terminal

18 To load the inactive RCC2 unit, type:

>LOADPM INACTIVE

and press the Enter key.

If load	Do
passed	step 19
failed	step 27

19 To query the XPM counters for the firmware load on the NTAX74, type:

>QUERYPM CNTRS

and press the Enter key.

Example of a MAP response

```
Unsolicitited MSG limit = 250, Unit 0 = 0, Unit 1 = 0
Unit 0:
Ram Load: WRI07BE
EPRom Version: AB02
EEPRom Load: Loadable: AX74XE01, Executable: AX74XE01
CMR Load: CMR03A
CAP:AX74AA
Unit 1:
Ram Load: WRI07BE
EPRom Version: AB02
EEPRom Load: Loadable: AX74XE01 , Executable: AX74XE01
CMR Load: CMR03A
CAP:AX74AA
```

NTAX74 firmware load name

If the firmware	Do
is valid	step 22
is invalid	step 20

20 To load the inactive unit firmware type:

>LOADFW INACTIVE

and press the Enter key.

If the LOADFW	Do
passed	step 21
failed	step 27

NTAX74 in an RSC-S (DS-1) Model A RCC2 (end)

21 To upgrade the inactive unit firmware type;

>LOADFW INACTIVE UPGRADE

and press the Enter key.

If the LOADFW UPGRADE	Do
passed	step 22
failed	step 27

22 To return the inactive RCC2 unit to service, type:

>RTS UNIT unit_no

and press the Enter key.

where

unit_no
is the number of the inactive RCC2 unit (0 or 1)

If RTS	Do
passes	step 23
fails	step 27

At the RCE frame

23 Remove the sign from the active RCC2 unit.

24 Send the defective cards for repair according to local procedure.

25 Note the following in the office records:

- date the card is replaced
- serial number of the card
- problems that prompted replacement of the card.

Go to step 27.

26 Return to the Clearing an *Alarm Procedure* or other procedure that directed you to this procedure. If necessary, go to the point where the system produced the defective card list. Identify the next defective card on the list, and go to the appropriate procedure for that card in this manual.

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

28 This procedure is complete. Return to the maintenance procedure that directed you to this card replacement procedure. Continue as directed.

NTAX74
in an RSC-S (DS-1) Model B RCC2

Application

Use this procedure to replace an NTAX74 card in an RCC2.

PEC	Suffixes	Name
NTAX74	AA	Cellular Access Processor with 16Mb Memory

Common procedures

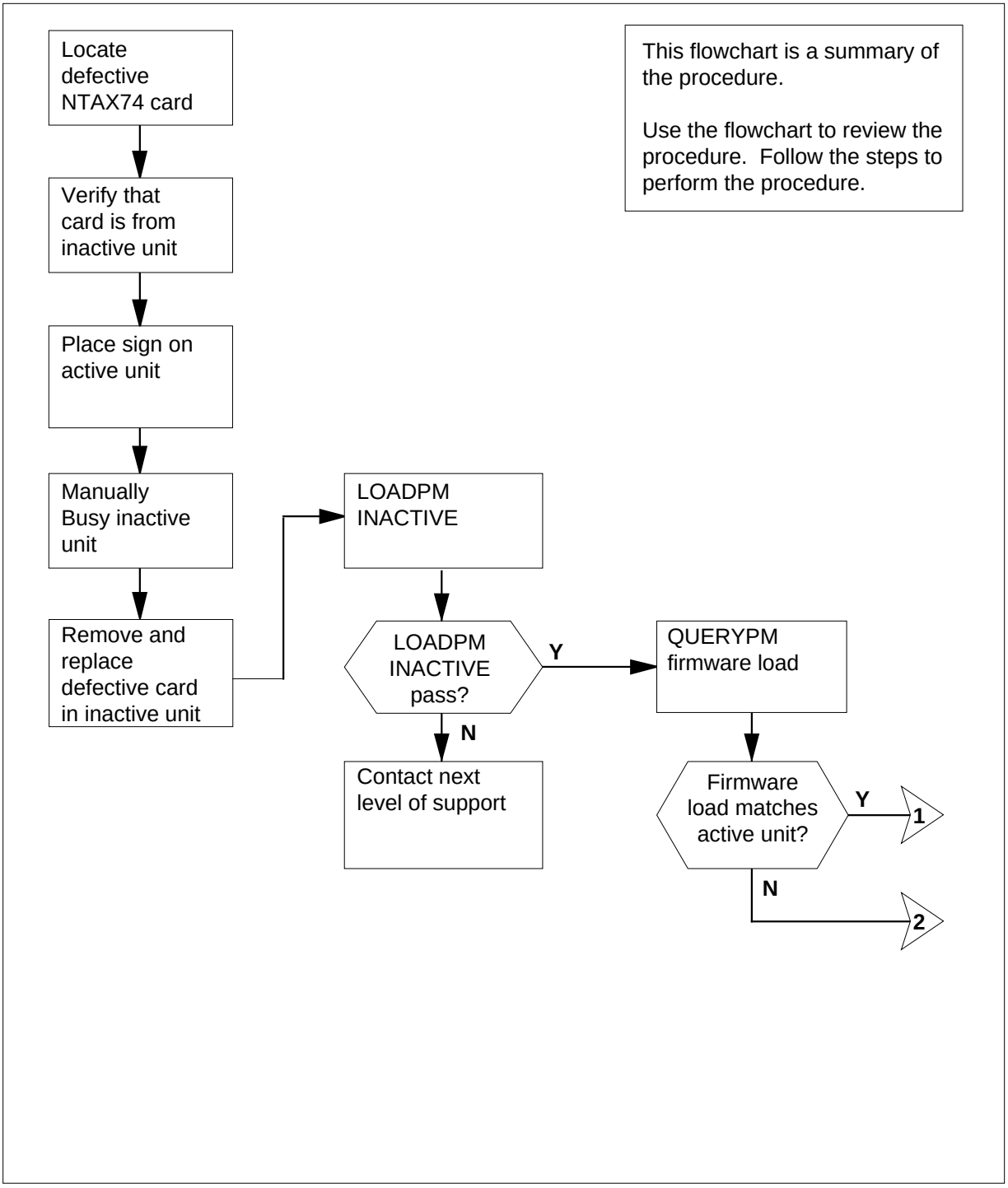
Does not apply

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.

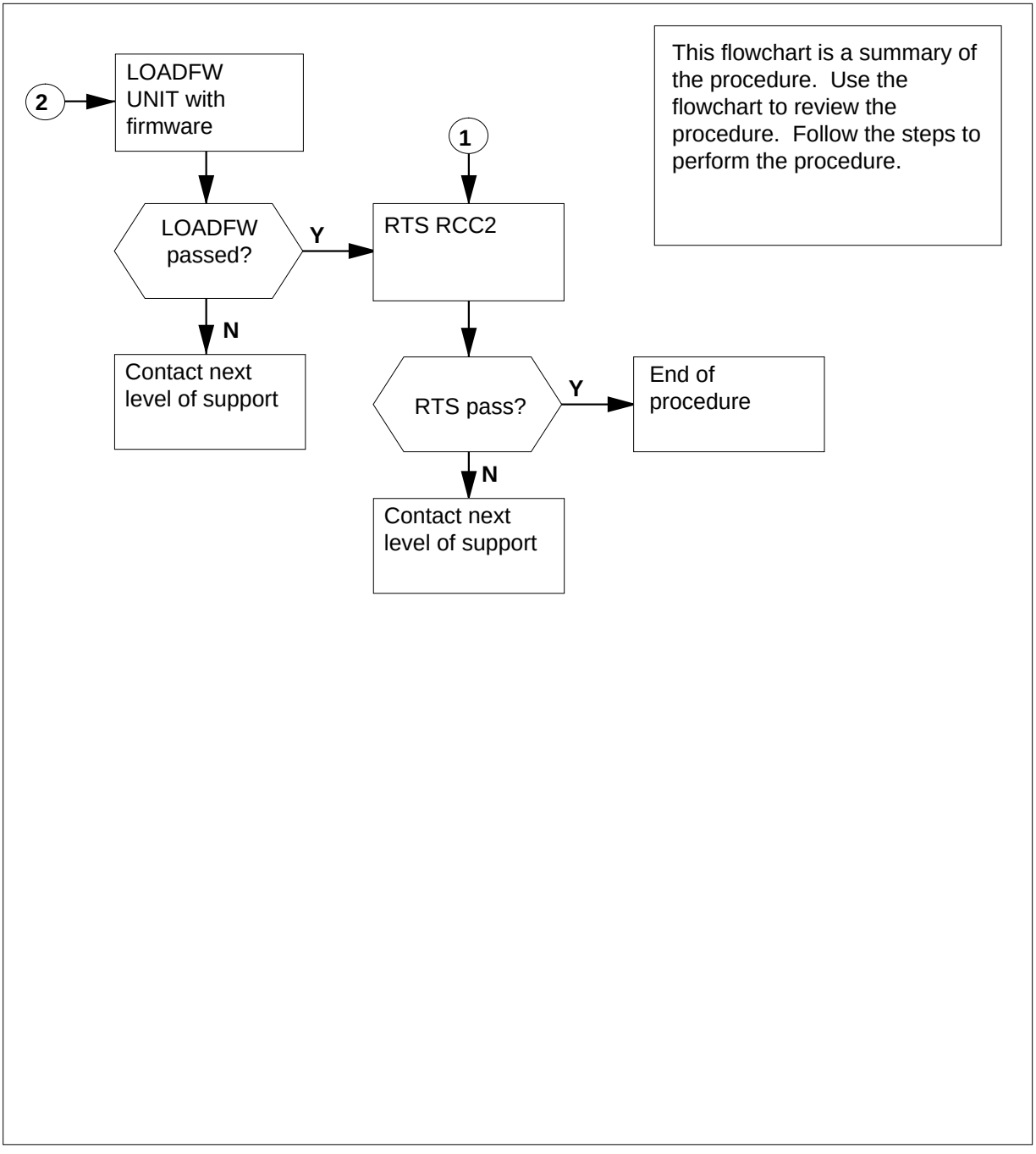
NTAX74
in an RSC-S (DS-1) Model B RCC2 (continued)

Summary of card replacement procedure for an NTAX74 card in RSC-S RCC2



NTAX74
in an RSC-S (DS-1) Model B RCC2 (continued)

Summary of card replacement procedure for an NTAX74 card in RSC-S RCC2 (continued)



NTAX74 in an RSC-S (DS-1) Model B RCC2 (continued)

To replace an NTAX74 in RSC-S RCC2

At your current location

1 Proceed if one of the following conditions apply:

- a step in a maintenance procedure directed you to this card replacement procedure
- you use this procedure to verify or accept cards
- the maintenance support group directed you to this procedure.

2



WARNING
Loss of service
When you replace a card in an RCC2, make sure the unit in which you replace the card is *inactive* and the mate unit is *active*.

Obtain an NTAX74 replacement card. Make sure the replacement card has the same product engineering code (PEC) and PEC suffix, as the card to be removed.

At the MAP terminal

3 To make sure the current MAP display is at the peripheral module (PM) level and to post the RCC2, type:

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

and press the Enter key.

where

rcc2_no
is the number of the RCC2 to be busied

Example of a MAP display:

NTAX74
in an RSC-S (DS-1) Model B RCC2 (continued)

```
CM     MS    IOD    Net    PM    CCS    LNS    Trks    Ext    APPL
.      .      .      .    1RCC2   .      .       .      .      .

RCC2             SysB     ManB     OffL     CBsy     ISTb      InSv
0 Quit    PM        0        0        2        0        2        25
2 Post_   RCC2      0        0        0        0        1         1
3 ListSet
4         RCC2   0 ISTb  Links_OOS:  CSide  0, PSide   0
5 TRNSL_  Unit0:   Inact SysB
6 TST_    Unit1:     Act InSv
7 BSY_
8 RTS_
9 OffL
10 LoadPM_
11 Disp_
12 Next_
13 SwAct
14 QueryPM
15
16 IRLINK
17 Perform
18
```

4 To verify the defective NTAX74 card is in the inactive unit, make sure the light-emitting diode (LED) labled ACTIVE is OFF or check the MAP display.

If the defective card	Do
is in the active unit	step 5
is in the inactive unit	step 9

5 To switch the processing activity (SWACT) to the inactive unit, type:

>SWACT

and press the Enter key.

A confirmation prompt for the SWACT command appears at the MAP terminal.

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

6 To reject the prompt to SWACT the units, type:

>NO

and press the Enter key.

The system stop the SWACT.

Return to step 5 during periods of low traffic.

NTAX74
in an RSC-S (DS-1) Model B RCC2 (continued)

7 To confirm the system prompt, type:

>YES

and press the Enter key.

The system runs a pre-SWACT audit to determine if the inactive unit can accept activity accurately.

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

If the message	Do
is SWACT passed	step 9
is SWACT failed Reason: XPM SWACTback	step 8
is SWACT refused by SWACT Controller	step 8

8 To clear the alarm condition on the inactive unit return to the *Clearing an Alarm Procedures* when you clear the alarm, return to step 1 of this procedure.

At the RCE frame

9 Place a sign with the words *Active unit-Do not touch* on the active unit. Do not attach this sign with magnets or tape.

At the MAP terminal

10 Check the MAP display and determine the state of the inactive unit.

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

11 To busy the inactive PM unit, type:

>BSY INACTIVE

and press the Enter key.

12 To prevent the PM from trapping, type:

>PMRESET UNIT rcc2_unit_no NORUN

and press the Enter key.

where

rcc2_unit_no
is the number of the inactive RCC2 unit zero and one

NTAX74
in an RSC-S (DS-1) Model B RCC2 (continued)

At the RCE frame

13



WARNING
Static electricity damage
Before you remove cards, wear a wrist strap that connects to the wrist-strap grounding point on the left side of the frame supervisory panel (FSP) of the RCC2. This protects the equipment against static electricity damage.



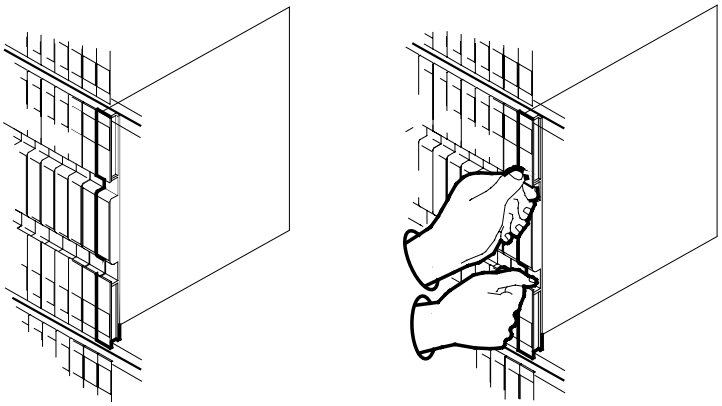
DANGER
Equipment damage
Take the following precautions when you remove or insert a card:

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

Wear a wrist strap.

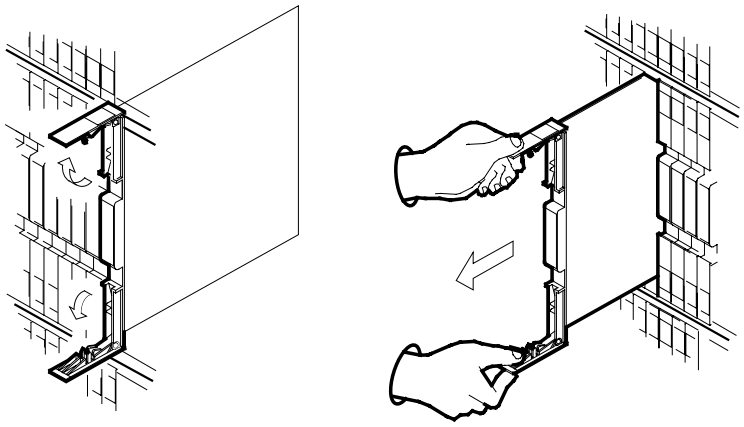
14 The following figures show how to remove the NTAX74 card:

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.

NTAX74
in an RSC-S (DS-1) Model B RCC2 (continued)



c Make sure the replacement card has the same PEC and PEC suffix, as the card you removed. Make sure all replacement card DIP switch settings match settings of the card you removed.

Note: If the NTAX74 circuit card has a DIP switch, set the DIP switch S1 to the common peripheral module (CPM).

15

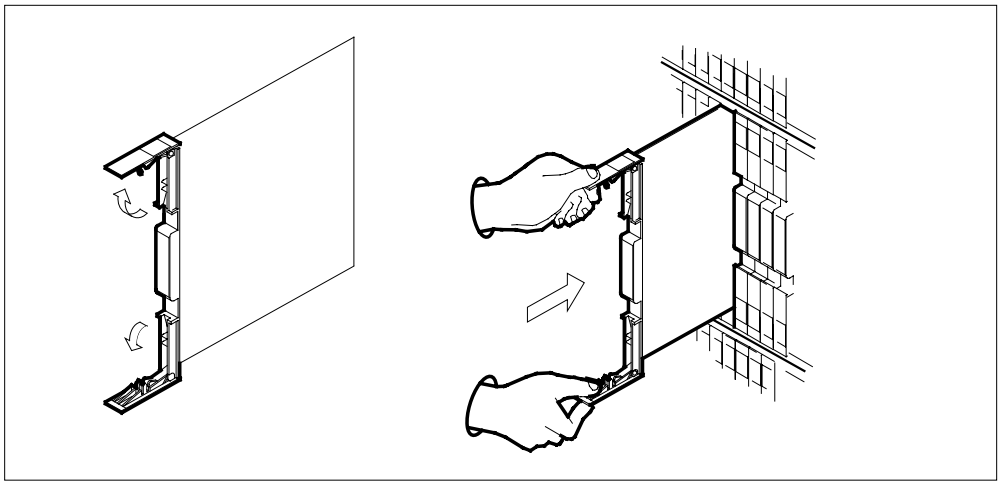
DANGER
Possible loss of P-side nodes
When you install the replacement NTAX74, monitor the LEDs on the faceplate of the NTAX74 for the following indicators:1. The INSV and ESA LEDs come ON and remain ON until loading begins.2. The ACT LED can come ON and light for less than 1 s. If the ACT LED remains ON for more than 1 s, remove the NTAX74 circuit card and return to this step. If the NTAX74 circuit card remains with both units that have an active processor, a condition of dual activity occurs. This condition causes the loss of P-side nodes.

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.

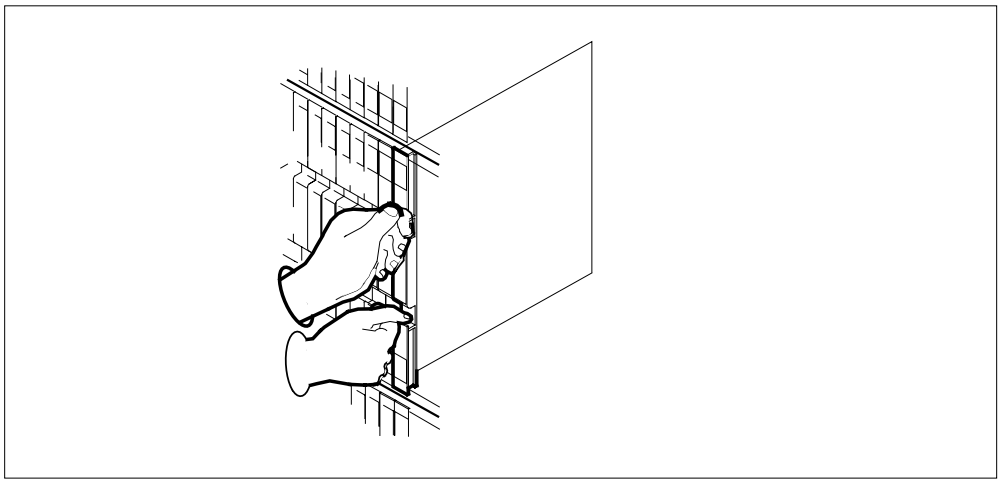
NTAX74
in an RSC-S (DS-1) Model B RCC2 (continued)



16 Seat and lock the card.

a Use your fingers or thumbs to push on the upper and lower edges of the faceplate. Make sure the card sits completely in the shelf.

b Close the locking levers.



17 Use the following information to determine the next step:

If you were directed here from	Do
Clearing an alarm procedures	step 26
other	step 18

NTAX74
in an RSC-S (DS-1) Model B RCC2 (continued)

At the MAP terminal

18 To load the inactive RCC2 unit, type:

>LOADPM INACTIVE

and press the Enter key.

If load	Do
passed	step 19
failed	step 27

19 To query the XMS-based peripheral module (XPM) counters for the firmware load on the NTAX74, type:

>QUERYPM CNTRS

and press the Enter key.

Example of a MAP response

```
Unsolicitited MSG limit = 250, Unit 0 = 0, Unit 1 = 0
Unit 0:
Ram Load: WRI07BE
EPRom Version: AB02
EEPRom Load: Loadable: AX74XE01, Executable: AX74XE01
CMR Load: CMR03A
CAP:AX74AA
Unit 1:
Ram Load: WRI07BE
EPRom Version: AB02
EEPRom Load: Loadable: AX74XE01 , Executable: AX74XE01
CMR Load: CMR03A
CAP:AX74AA
```

NTAX74 firmware load name

If firmware	Do
is valid	step 22
is invalid	step 20

20 To load the inactive unit firmware, type:

>LOADFW INACTIVE

and press the Enter key.

If LOADFW	Do
passed	step 21
failed	step 27

NTAX74
in an RSC-S (DS-1) Model B RCC2 (end)

21 To upgrade the inactive unit firmware, type:

>LOADFW INACTIVE UPGRADE

and press the Enter key.

If LOADFW UPGRADE	Do
passed	step 22
failed	step 27

22 To return the inactive RCC2 unit to service, type:

>RTS UNIT unit_no

and press the Enter key.

where

unit_no
is the number of the inactive RCC2 unit (0 or 1)

If RTS	Do
passes	step 23
fails	step 27

At the RCE frame

23 Remove the sign from the active RCC2 unit.

24 Send the defective cards for repair according to local procedure.

25 Note the following in the office records:

- date the card is replaced
- serial number of the card
- problems that prompted replacement of the card.

Go to step 27.

26 Return to the *Alarm Clearing Procedure* or other procedure that directed you to this procedure. If necessary, go to the point where the system produced the defective card list. Identify the next defective card on the list, and go to the appropriate procedure for that card in this manual.

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

28 This procedure is complete. Return to the maintenance procedure that directed you to this card replacement procedure. Continue as directed.

NTAX74 in an RSC-S (PCM-30) Model A RCO2

Application

Use this procedure to replace an NTAX74 card in an RCO2.

PEC	Suffixes	Name
NTAX74	AA	Cellular Access Processor with 16Mb Memory

Common procedures

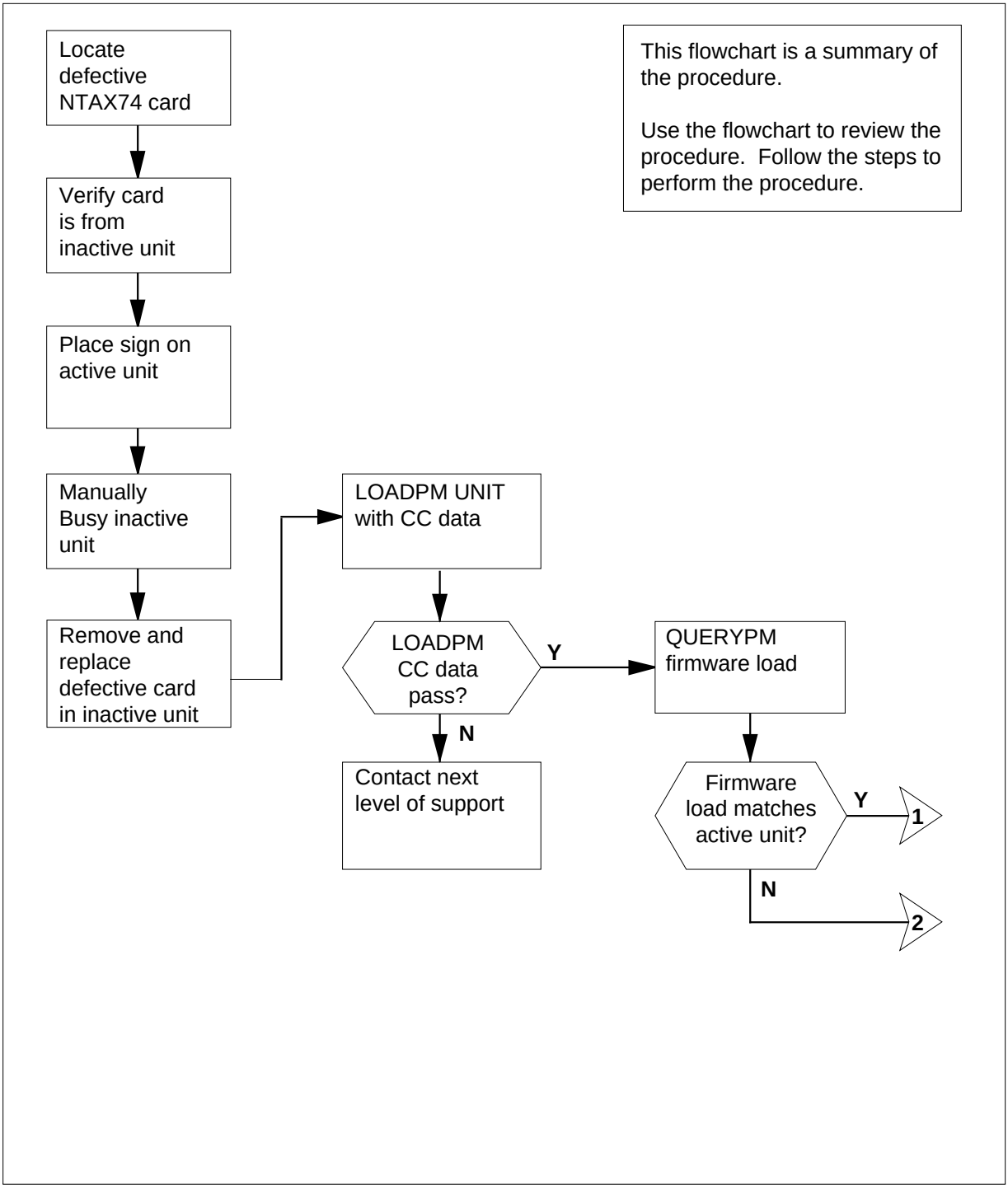
Does not apply

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.

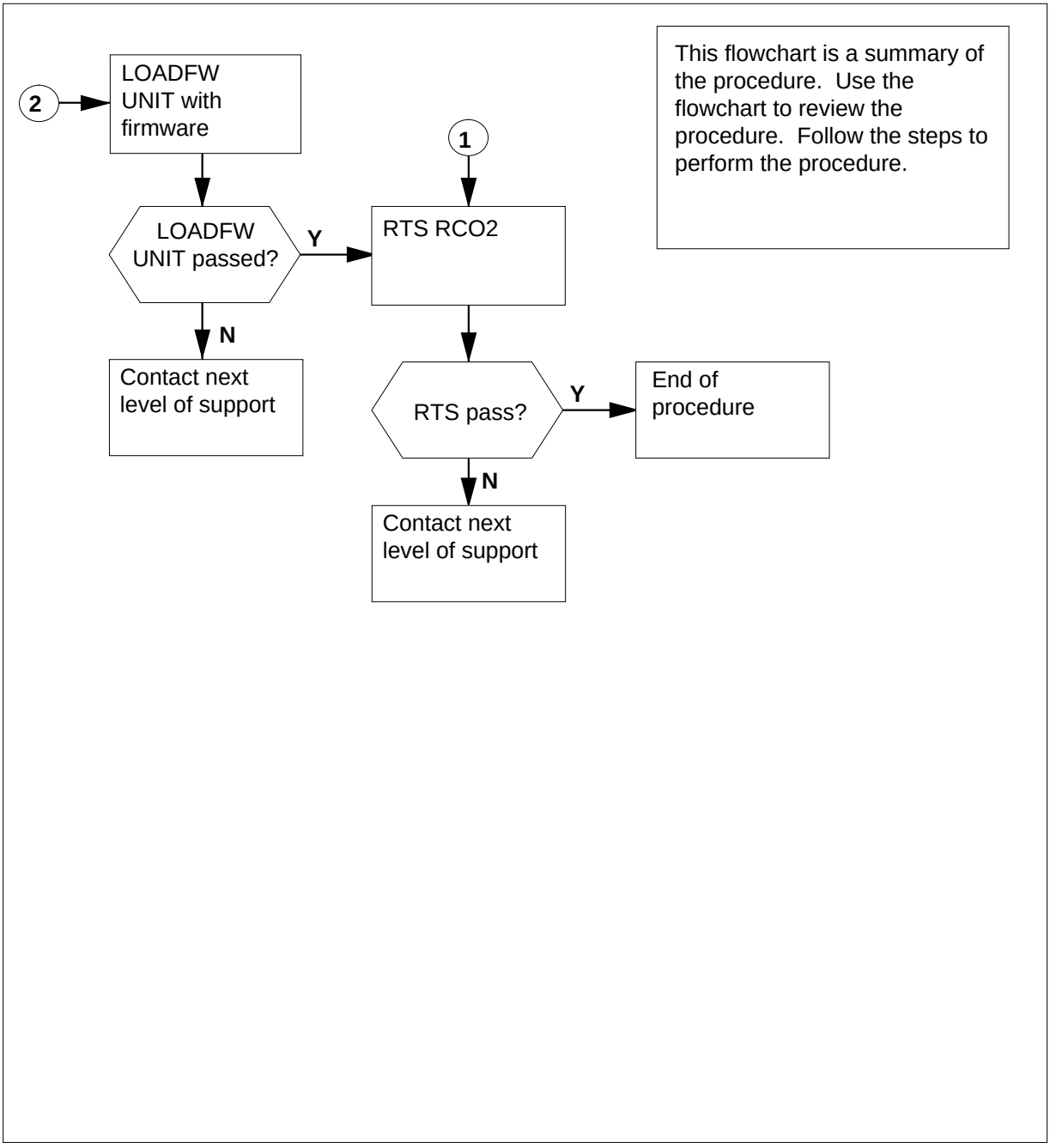
NTAX74
in an RSC-S (PCM-30) Model A RCO2 (continued)

Summary of card replacement procedure for an NTAX74 card in RSC-S RCO2



NTAX74
in an RSC-S (PCM-30) Model A RCO2 (continued)

Summary of card replacement procedure for an NTAX74 card in RSC-S RCO2 (continued)



NTAX74 in an RSC-S (PCM-30) Model A RCO2 (continued)

To replace a/an NTAX74 in RSC-S RCO2

At your current location

1 Proceed if one of the following conditions apply:

- a step in a maintenance procedure directed you to this card replacement procedure
- you use this procedure to verify or accept cards
- the maintenance support group directed you to this procedure.

2



WARNING
Loss of service
When you replace a card in an RCO2, make sure the unit in which you replace the card is *inactive* and the mate unit is *active*.

Obtain an NTAX74 replacement card. Make sure the replacement card has the same product engineering code (PEC) and (PEC) suffix, as the card to be removed.

At the MAP terminal

3 To make sure the current MAP display is at the peripheral module (PM) level and to post the RCO2, type:

```
>MAPCI;MTC;PM;POST RCO2 rco2_no
```

and press the Enter key.

where

rco2_no
is the number of the RCO2 to be busied

Example of a MAP display:

NTAX74
in an RSC-S (PCM-30) Model A RCO2 (continued)

```
CM     MS    IOD    Net    PM    CCS    LNS    Trks    Ext    APPL
.      .      .      .    1RCO2   .      .       .      .      .

RCO2             SysB     ManB     OffL     CBsy     ISTb      InSv
0 Quit    PM        0        0        2        0        2        25
2 Post_   RCO2      0        0        0        0        1         1
3 ListSet
4         RCO2   0 ISTb  Links_OOS:  CSide  0, PSide   0
5 TRNSL_  Unit0:   Inact SysB
6 TST_    Unit1:     Act InSv
7 BSY_
8 RTS_
9 OffL
10 LoadPM_
11 Disp_
12 Next_
13 SwAct
14 QueryPM
15
16 IRLINK
17 Perform
18
```

4 To verify the defective NTAX74 card is in the inactive unit, make sure the light-emitting diode (LED) labled ACTIVE is OFF or check the MAP display.

If the defective card	Do
is in the active unit	step 5
is in the inactive unit	step 9

5 To switch the processing activity (SWACT) to the inactive unit, type:

>SWACT

and press the Enter key.

A confirmation prompt for the SWACT command appears at the MAP terminal.

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

6 To reject the prompt to SWACT the units, type:

>NO

and press the Enter key.

The system stops the SWACT.

Return to step 5 during periods of low traffic.

NTAX74
in an RSC-S (PCM-30) Model A RCO2 (continued)

7 To confirm the system prompt, type:

>YES

and press the Enter key.

The system runs a pre-SWACT audit to determine if the inactive unit can accept activity accurately.

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

If the message	Do
is SWACT passed	step 9
is SWACT failed Reason: XPM SWACTback	step 8
is SWACT refused by SWACT Controller	step 8

8 To clear the alarm condition on the inactive unit return to the *Clearing an Alarm Procedures*. When you clear the alarm, return to step 1 of this procedure.

At the RCE frame

9 Place a sign with the words *Active unit-Do not touch* on the active unit. Do not attach this sign with magnets or tape.

At the MAP terminal

10 Check the MAP display and determine the state of the inactive unit.

If state	Do
is SysB, CBsy, ISTb, or InSv	step 11
is ManB	step 13

11 To busy the inactive PM unit, type:

>BSY UNIT unit_no

and press the Enter key.

where

unit_no
is the number of the inactive RCO2 unit zero or one

12 To prevent the PM from trapping, type:

>PMRESET UNIT rco2_unit_no NORUN

and press the Enter key.

NTAX74
in an RSC-S (PCM-30) Model A RCO2 (continued)

where

rco2_unit_no
is the number of the inactive RCO2 unit zero or one

At the RCE frame

13



WARNING
Static electricity damage
Before you remove cards, wear a wrist strap that connects to the wrist-strap grounding point on the left side of the frame supervisory panel (FSP) of the RCO2. This protects the equipment against static electricity damage



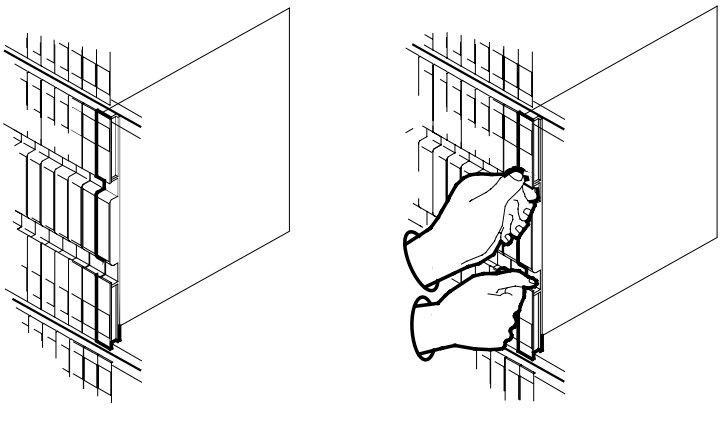
DANGER
Equipment damage
Take the following precautions when you remove or insert a card:

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

Wear a wrist strap.

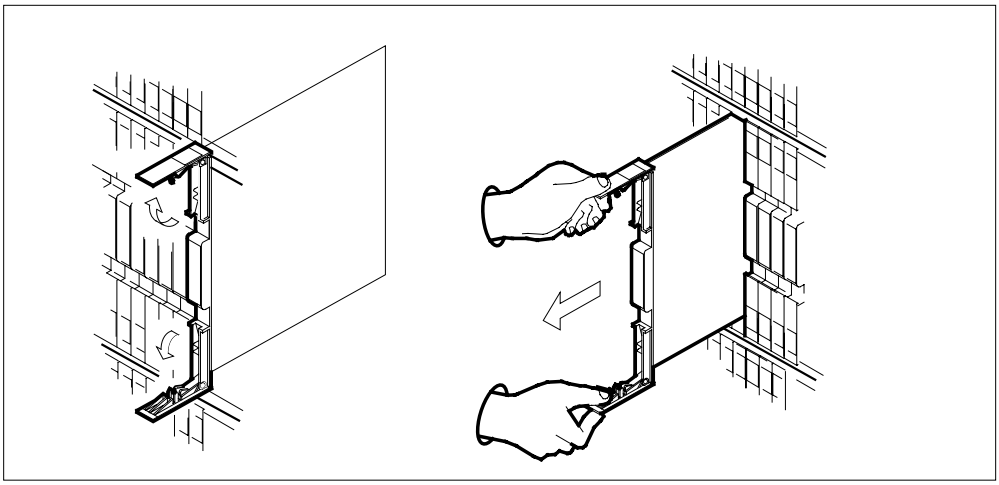
14 The following figures show how to remove the NTAX74 card:

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.

NTAX74
in an RSC-S (PCM-30) Model A RCO2 (continued)



c Make sure the replacement card has the same PEC and PEC suffix, as the card you removed. Make sure all replacement card DIP switch settings match settings of the card you removed.

Note: If the NTAX74 circuit card has a DIP switch, set the DIP switch S1 to the common peripheral module (CPM).

15

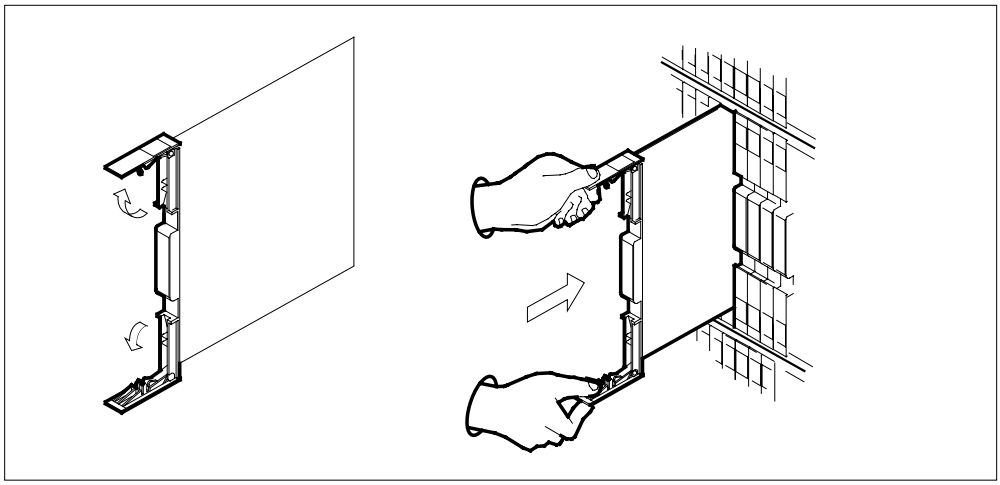
DANGER
Possible loss of P-side nodes
When you install the replacement NTAX74, monitor the LEDs on the faceplate of the NTAX74 for the following indicators:1. The INSV and ESA LEDs come ON and remain ON until loading starts.2. The ACT LED can come ON and light for less than 1 s. If the ACT LED remains ON for more than 1 s, remove the NTAX74 circuit card and return to this step. If the NTAX74 circuit card remains with both units that have an active processor, a condition of dual activity occurs. This condition causes the loss of P-side nodes.

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.

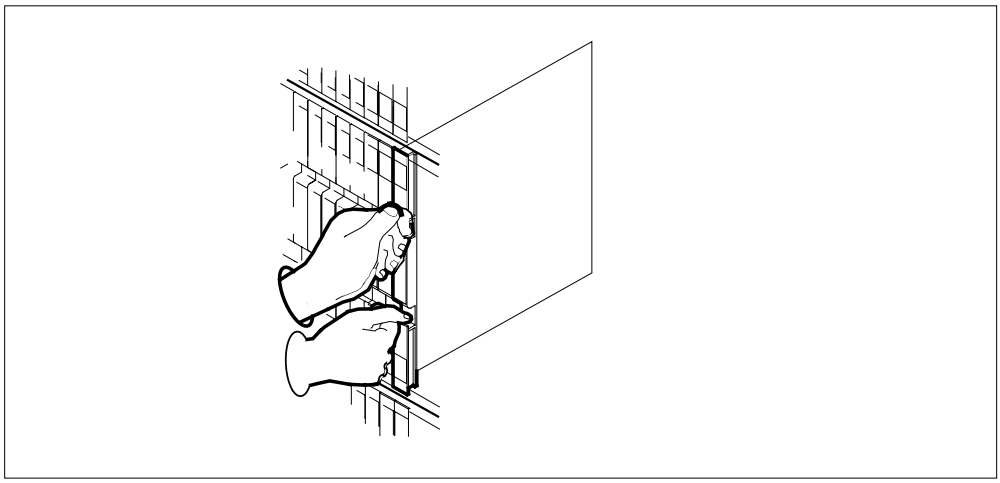
NTAX74
in an RSC-S (PCM-30) Model A RCO2 (continued)



16 Seat and lock the card.

a Use your fingers or thumbs to push on the upper and lower edges of the faceplate. Make sure the card sits completely in the shelf.

b Close the locking levers.



17 Use the following information to determine the next step:

If you were directed here from	Do
alarm clearing procedures	step 26
other	step 18

NTAX74
in an RSC-S (PCM-30) Model A RCO2 (continued)

At the MAP terminal

18 To load the inactive RCO2 unit, type:

`>LOADPM UNIT rco2_unit_no`

and press the Enter key.

where

rco2_unit_no
is the number of the busied RCO2 unit

If load	Do
passed	step 19
failed	step 27

19 To query the XMS-based peripheral module (XPM) counters for the firmware load on the NTAX74, type:

`>QUERYPM CNTRS`

and press the Enter key.

Example of a MAP response

```
Unsolicitited MSG limit = 250, Unit 0 = 0, Unit 1 = 0
Unit 0:
Ram Load: WRI07BE
EPRom Version: AB02
EEPRom Load: Loadable: AX74XE01, Executable: AX74XE01
CMR Load: CMR03A
CAP:AX74AA
Unit 1:
Ram Load: WRI07BE
EPRom Version: AB02
EEPRom Load: Loadable: AX74XE01 , Executable: AX74XE01
CMR Load: CMR03A
CAP:AX74AA
```

NTAX74 firmware load name

If firmware	Do
is valid	step 22
is invalid	step 20

20 To load the firmware on the inactive unit type:

`>LOADFW INACTIVE`

and press the Enter key.

If the LOADFW	Do
passes	step 21
fails	step 27

21 To upgrade the firmware on the inactive unit type:

>LOADFW INACTIVE UPGRADE

and press the Enter key.

If the LOADFW UPGRADE	Do
passes	step 22
fails	step 27

22 To return the inactive RCO2 unit to service, type:

>RTS UNIT unit_no

and press the Enter key.

where

unit_no
is the number of the inactive RCO2 unit

If RTS	Do
passes	step 23
fails	step 27

At the RCE frame

23 Remove the sign from the active RCO2 unit.

24 Send the defective cards for repair according to local procedure.

25 Note the following in the office records:

- date the card is replaced
- serial number of the card
- problems that prompted replacement of the card.

Go to step 28.

26 Return to the *Clearing an Alarm Procedure* or other procedure that directed you to this procedure. If necessary, go to the point where the system produced the defective card list. Identify the next defective card on the list, and go to the appropriate procedure for that card in this manual.

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

NTAX74
in an RSC-S (PCM-30) Model A RCO2 (end)

28 This procedure is complete. Return to the maintenance procedure that directed you to this card replacement procedure. Continue as directed.

NTAX74
in an RSC-S (PCM-30) Model B RCO2

Application

Use this procedure to replace an NTAX74 card in an RCO2.

PEC	Suffixes	Name
NTAX74	AA	Cellular Access Processor with 16Mb Memory

Common procedures

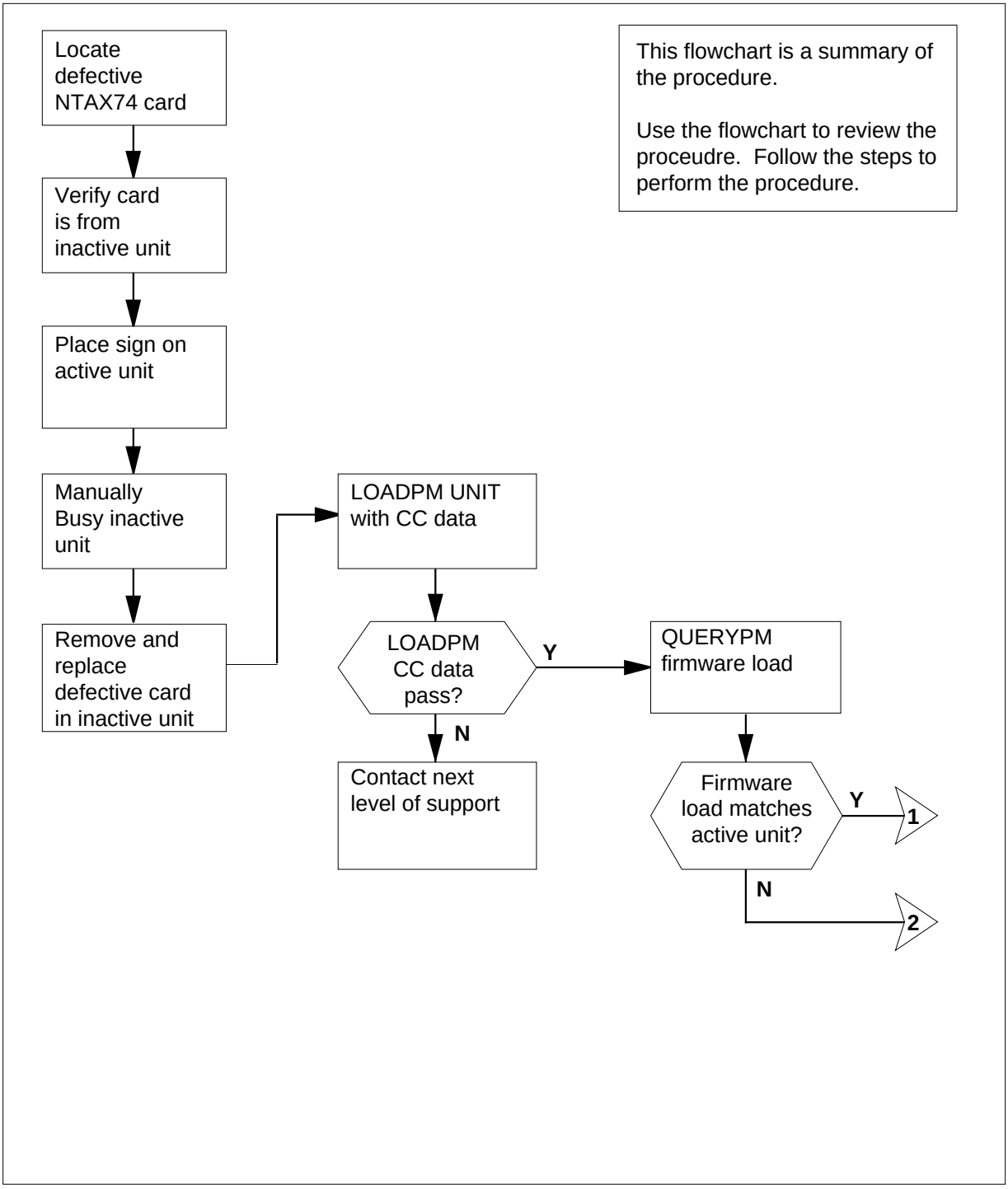
Does not apply

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.

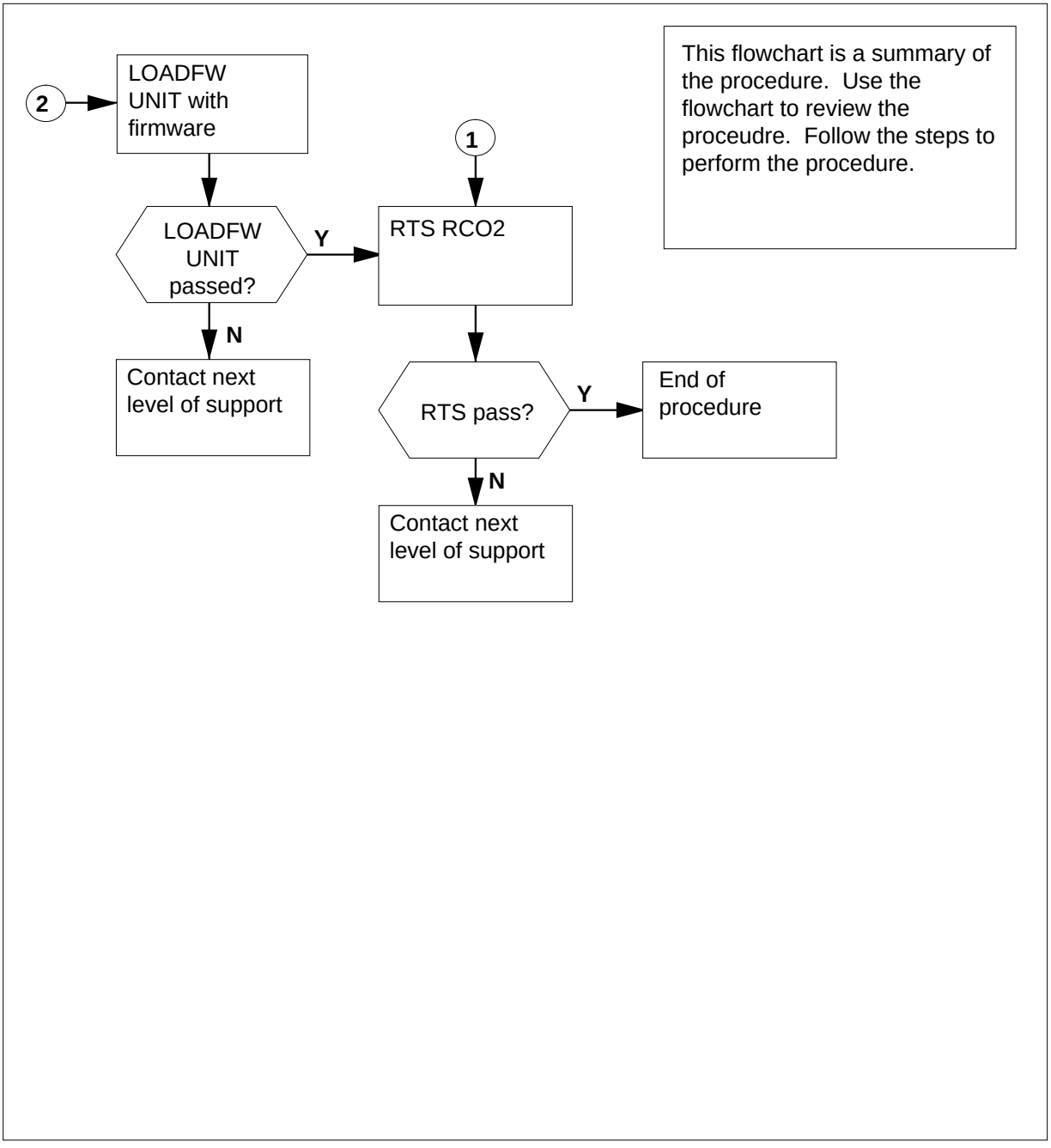
NTAX74
in an RSC-S (PCM-30) Model B RCO2 (continued)

Summary of card replacement procedure for an NTAX74 card in TSC-S RCO2



NTAX74
in an RSC-S (PCM-30) Model B RCO2 (continued)

Summary of card replacement procedure for an NTAX74 card in TSC-S RCO2 (continued)



NTAX74 in an RSC-S (PCM-30) Model B RCO2 (continued)

To replace an NTAX74 in RSC-S RCO2

At your current location

1 Proceed if one of the following conditions apply:

- a step in a maintenance procedure directed you to this card replacement procedure
- you use this procedure to verify or accept cards
- the maintenance support group directed you to this procedure.

2



WARNING
Loss of service
When you replace a card in an RCO2, make sure the unit in which you replace the card is *inactive* and the mate unit is *active*.

Obtain an NTAX74 replacement card. Make sure the replacement card has the same product engineering code (PEC) and PEC suffix, as the card to be removed.

At the MAP terminal

3 To make sure the current MAP display is at the peripheral module (PM) level and to post the RCO2, type:

```
>MAPCI;MTC;PM;POST RCO2 rco2_no
```

and press the Enter key.

where

rco2_no
is the number of the RCO2 to be busied

Example of a MAP display:

NTAX74
in an RSC-S (PCM-30) Model B RCO2 (continued)

```
CM     MS    IOD    Net    PM    CCS    LNS    Trks    Ext    APPL
.      .      .      .    1RCO2   .      .       .      .      .

RCO2             SysB     ManB     OffL     CBsy     ISTb      InSv
0 Quit    PM        0        0        2        0        2        25
2 Post_   RCO2      0        0        0        0        1         1
3 ListSet
4         RCO2   0 ISTb  Links_OOS:  CSide  0, PSide   0
5 TRNSL_  Unit0:   Inact SysB
6 TST_    Unit1:     Act InSv
7 BSY_
8 RTS_
9 OffL
10 LoadPM_
11 Disp_
12 Next_
13 SwAct
14 QueryPM
15
16 IRLINK
17 Perform
18
```

4 To verify that the defective NTAX74 card is in the inactive unit, make sure the light-emitting Diode (LED) labled ACTIVE is OFF or check the MAP display.

If the defective card	Do
is in the active unit	step 5
is in the inactive unit	step 9

5 To switch the processing activity (SWACT) to the inactive unit, type:

>SWACT

and press the Enter key.

A confirmation prompt for the SWACT command appears at the MAP terminal.

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

6 To reject the prompt to SWACT the units, type:

>NO

and press the Enter key.

The system stops the SWACT.

Return to step 5 during periods of low traffic.

NTAX74
in an RSC-S (PCM-30) Model B RCO2 (continued)

7 To confirm the system prompt, type:

>YES

and press the Enter key.

The system runs a pre-SWACT audit to determine if the inactive unit can accept activity accurately.

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

If the message	Do
is SWACT passed	step 9
is SWACT failed Reason: XPM SWACTback	step 8
is SWACT refused by SWACT Controller	step 8

8 Return to the *Alarm Clearing Procedures* to clear the alarm condition on the inactive unit. When you clear the alarm, return to step 1 of this procedure.

At the RCE frame

9 Place a sign with the words *Active unit-Do not touch* on the active unit. Do not attach this sign with magnets or tape.

At the MAP terminal

10 Check the MAP display and determine the state of the inactive unit.

If state	Do
is SysB, CBsy, ISTb, or InSv	step 11
is ManB	step 13

11 To busy the inactive PM unit, type:

>BSY UNIT unit_no

and press the Enter key.

where

unit_no
is the number of the inactive RCO2 unit zero or one

12 To prevent the PM from trapping, type:

>PMRESET UNIT rco2_unit_no NORUN

and press the Enter key.

where

NTAX74
in an RSC-S (PCM-30) Model B RCO2 (continued)

rco2_unit_no
is the number of the inactive RCO2 unit zero or one

At the RCE frame

13



WARNING
Static electricity damage
Before you remove cards, wear a wrist strap that connects to the wrist-strap grounding point on the left side of the frame supervisory panel (FSP) of the RCO2. This protects the equipment against static electricity damage.



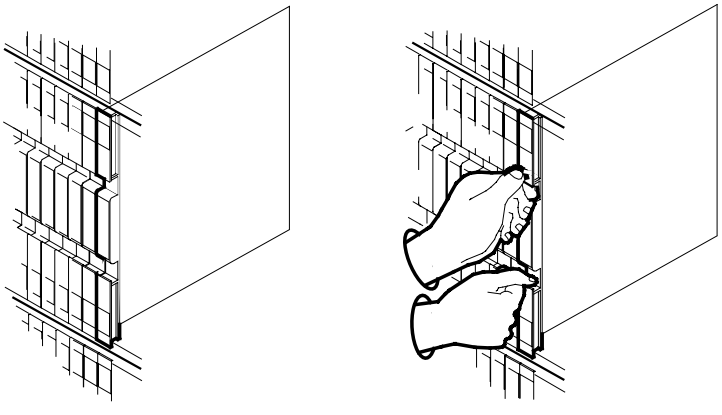
DANGER
Equipment damage
Take the following precautions when you remove or insert a card:

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

Wear a wrist strap.

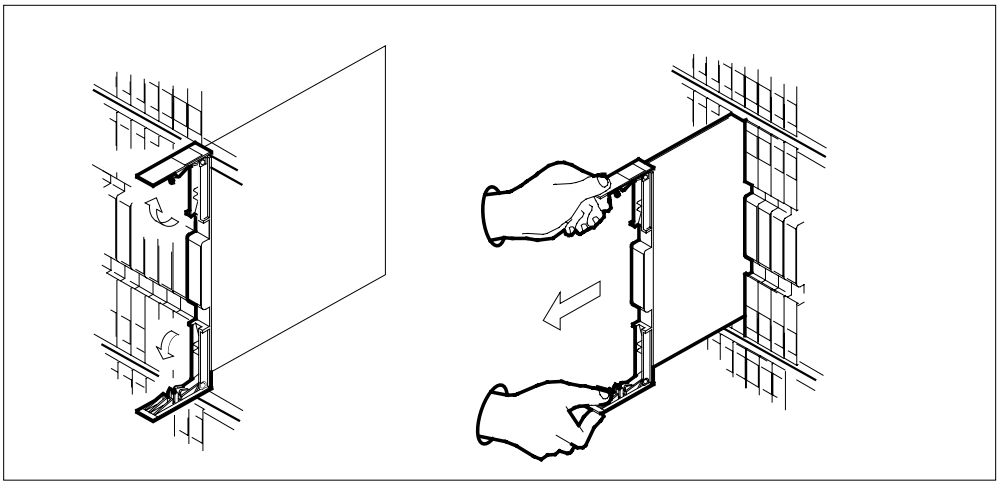
14 The following figures show how to remove the NTAX74 card:

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



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

NTAX74
in an RSC-S (PCM-30) Model B RCO2 (continued)



c Make sure the replacement card has the same PEC and PEC suffix, as the card you removed. Make sure all replacement card DIP switch settings match settings of the card you removed.

Note: If the NTAX74 circuit card has a DIP switch, set the DIP switch S1 to the common peripheral module (CPM).

15



DANGER

Possible loss of P-side nodes

When you install the replacement NTAX74, monitor the LEDs on the faceplate of the NTAX74 for the following indicators:

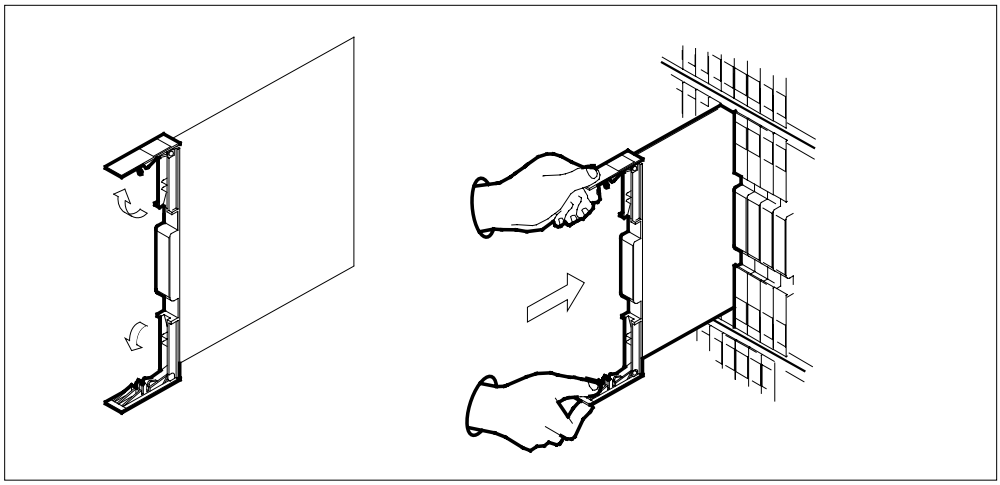
1. The INSV and ESA LEDs come ON and remain ON until loading starts.
2. The ACT LED can come ON and light for less than 1 s. If the ACT LED remains ON for more than 1 s, remove the NTAX74 circuit card and return to this step. If the NTAX74 circuit card remains with both units that have an active processor, a condition of dual activity occurs. This condition causes the loss of P-side nodes.

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.

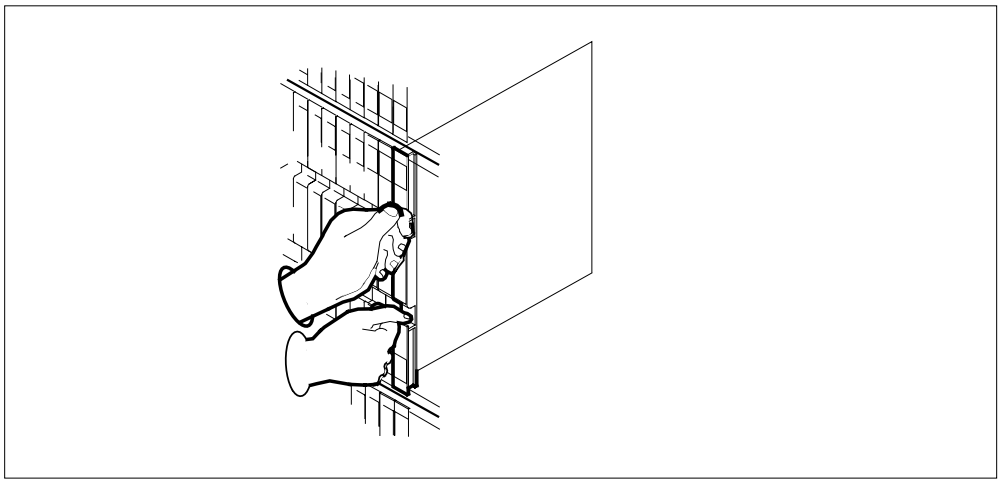
NTAX74
in an RSC-S (PCM-30) Model B RCO2 (continued)



16 Seat and lock the card.

a Use your fingers or thumbs to push on the upper and lower edges of the faceplate. Make sure the card sits completely in the shelf.

b Close the locking levers.



17 Use the following information to determine the next step:

If you were directed here from	Do
alarm clearing procedures	step 26
other	step 18

NTAX74 in an RSC-S (PCM-30) Model B RCO2 (continued)

At the MAP terminal

18 To load the inactive RCO2 unit, type:

>LOADPM UNIT rco2_unit_no

and press the Enter key.

where

rco2_unit_no
is the number of the busied RCO2 unit

If load	Do
passed	step 19
failed	step 27

19 To query the XMS-based peripheral module (XPM) counters for the firmware load on the NTAX74, type:

>QUERYPM CNTRS

and press the Enter key.

Example of a MAP response

```
Unsolicitited MSG limit = 250, Unit 0 = 0, Unit 1 = 0
Unit 0:
Ram Load: WRI07BE
EPRom Version: AB02
EEPRom Load: Loadable: AX74XE01, Executable: AX74XE01
CMR Load: CMR03A
CAP:AX74AA
Unit 1:
Ram Load: WRI07BE
EPRom Version: AB02
EEPRom Load: Loadable: AX74XE01 , Executable: AX74XE01
CMR Load: CMR03A
CAP:AX74AA
```

NTAX74 firmware load name

If firmware	Do
is valid	step 22
is invalid	step 20

20 To load the inactive unit firmware, type:

>LOADFW INACTIVE

and press the Enter key.

Note: If the firmware load is not specified with the LOADFW command, the command applies the firmware file datafilled in the appropriate inventory table.

If LOADFW	Do
passed	step 21
failed	step 27

21 To upgrade the inactive unit firmware, type:

`>LOADFW INACTIVE UPGRADE`

and press the Enter key.

If LOADFW UPGRADE	Do
passed	step 22
failed	step 27

22 To return the inactive RCO2 unit to service, type

`>RTS UNIT unit_no`

and pressing the Enter key.

where

unit_no
is the number of the inactive RCO2 unit

If RTS	Do
passed	step 23
failed	step 27

At the RCE frame

23 Remove the sign from the active RCO2 unit.

24 Send the defective cards for repair according to local procedure.

25 Note the following in the office records:

- date the card is replaced
- serial number of the card
- problems that prompted replacement of the card.

Go to step 28.

26 Return to the *Clearing an Alarm Procedure* or other procedure that directed you to this procedure. If necessary, go to the point where the system

NTAX74
in an RSC-S (PCM-30) Model B RCO2 (end)

produced the defective card list. Identify the next defective card on the list, and go to the appropriate procedure for that card in this manual.

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

28 This procedure is complete. Return to the maintenance procedure that directed you to this card replacement procedure. Continue as directed.

NTAX74 in an SMA

Application

Use this procedure to replace an NTAX74 card in an SMA.

PEC	Suffixes	Name
NTAX74	AA	Cellular Access Processor with 16Mb Memory

Common procedures

The following procedures are referenced in this procedure:

- “Locating a faulty card in an SMA"
- unseating a card
- replacing a card
- reseating a card
- returning a card

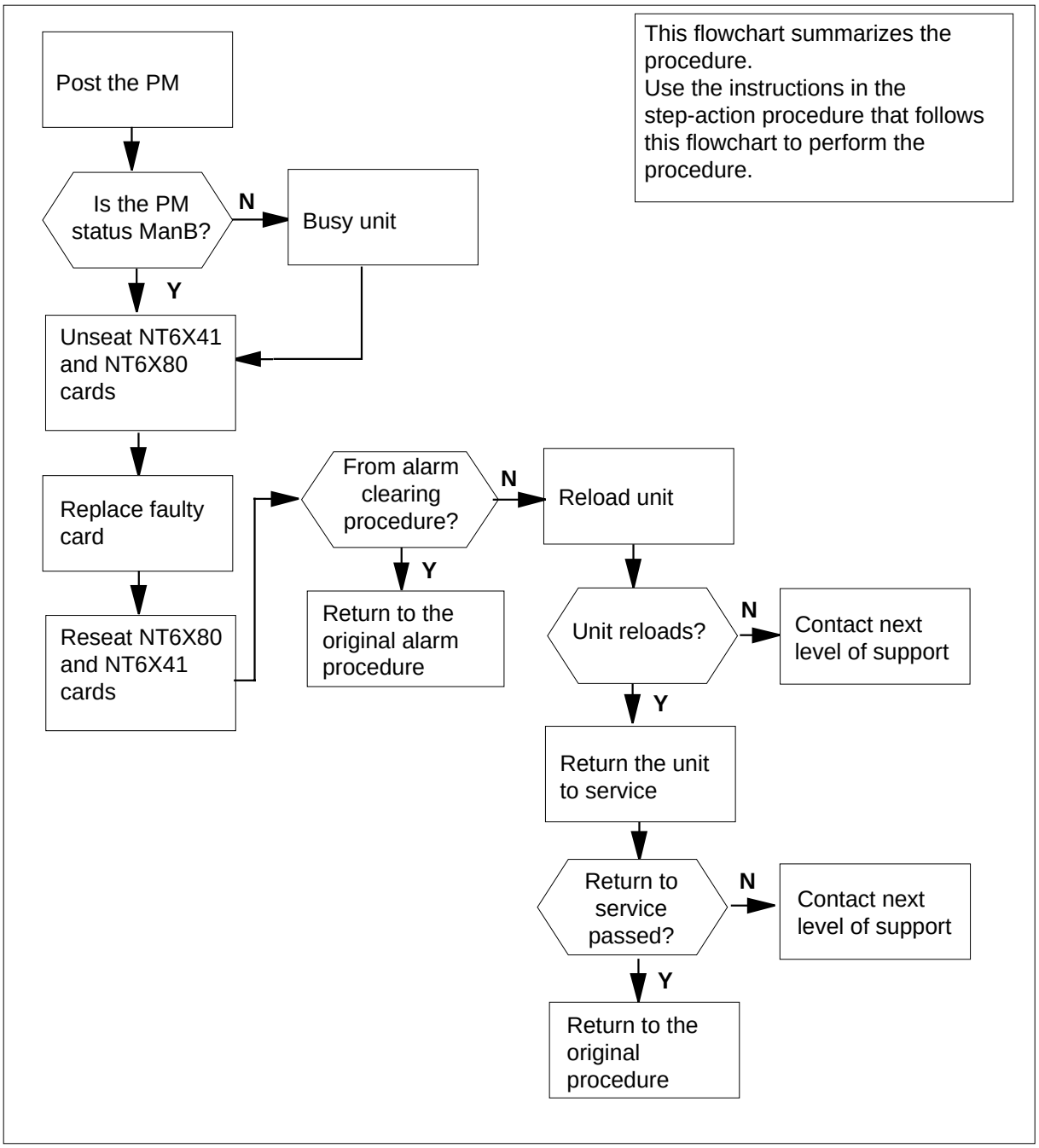
Do not go to the common procedures unless directed to do so in the step-action procedure.

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.

NTAX74
in an SMA (continued)

Summary of card replacement procedure for an NTAX74 card in an SMA



NTAX74
in an SMA (continued)

Replacing an NTAX74 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

```
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 SysB
```

NTAX74
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 46

8 Confirm the system prompt by typing

>YES

and pressing the Enter key.

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

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

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

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

Go to step 44.

NTAX74 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
SysB, CBsy, ISTb, or InSv	step 12
ManB	step 13

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)

At the equipment frame

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

Unseat but do not remove the NT6X41 Host Link Formatter circuit card, and the NT6X80 PCM Loss Addition circuit card using the common unseating a card procedure in this document.

14 Remove the faulty NTAX74 card using the common replacing a card procedure in this document.

NTAX74
in an SMA (continued)

15



DANGER
Possible loss of P-side nodes
Monitor the LEDs on the faceplate of the replacement NTAX74 circuit card.

1. The INSV and ESA LEDs will come ON and remain ON until loading begins.

2. The ACT LED may come ON and light for less than one second. If the ACT LED remains ON for more than 1 second, immediately remove the NTAX74 circuit card, obtain a new NTAX74 circuit card, and return to this step. If the NTAX74 circuit card is allowed to remain with both units having an active processor, a condition of dual activity exists, which results in the loss of P-side nodes.

Insert the new NTAX74 card using the common replacing a card procedure in this document.

16 Reseat the the NT6X80 PCM Loss Addition circuit card, and NT6X41 Host Link Formatter circuit card using the common reseating a card procedure in this document.

17 Use the following information to determine the next step.

If you were directed here from	Do
alarm clearing procedures	step 43
other	step 18

18 After replacing the faulty card, load the inactive unit by typing

`>LOADPM UNIT unit_no`

and pressing the Enter key.

where

unit_no
is the number of the inactive unit

If	Do
message `loadfile not found in directory` is received	step 19
load passes	step 38

If	Do
load fails	step 44

19 Determine the type of device where the PM load files are located.

If load files are located on	Do
tape	step 20
IOC disk	step 26
SLM disk	step 31

20 Locate the tape that contains the PM load files.

21 Mount the tape on a magnetic tape drive.

At the MAP terminal

22 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

23 List the contents of the tape in your user directory by typing

`>LIST Ttape_no`

and pressing the Enter key.

where

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

24 Demount the tape drive by typing

`>DEMOUNT Ttape_no`

and pressing the Enter key.

where

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

25 Go to step 36.

26 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.

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

`>DSKUT`

NTAX74
in an SMA (continued)

and pressing the Enter key.

28 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 26.

29 Leave the disk utility by typing

`>QUIT`

and pressing the Enter key.

30 Go to step 36.

31 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.

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

`>DISKUT`

and pressing the Enter key.

33 List the SLM disk volumes by typing

`>LV CM`

and pressing the Enter key.

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

`>LISTFL 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 31.

35 Leave the disk utility by typing

`>QUIT`

and pressing the Enter key.

36 After listing the PM load files, load the inactive SMA unit by typing

`>LOADPM INACTIVE`

and pressing the Enter key.

If load	Do
passed	step 38

If load	Do
failed	step 44

37 Determine the name of the firmware load file by typing

>QUERYPM CNTRS

and pressing the Enter key.

Cross-reference this name to the disk volume name on the PMLoad File Office Record (or similar list of all PM load files maintained in your office).

If the firmware load file name displayed is	Do
the same	step 40
different	step 38

38 Load the NTAX74 firmware by typing

>LOADFW INACTIVE

and pressing the Enter key.

If load	Do
passed	step 39
failed	step 44

39 To upgrade the firmware on the inactive unit type

>LOADFW INACTIVE UPGRADE

and pressing the Enter key.

If LOADFW UPGRADE	Do
passed	step 40
failed	step 44

40 Return the inactive SMA unit to service by typing

>RTS INACTIVE

and pressing the Enter key.

If RTS	Do
passed	step 41
failed	step 44

NTAX74
in an SMA (end)

At the equipment frame

41 Remove the sign from the active SMA unit.

42 Go to the common returning a card procedure in this document.

Go to step 45.

43 Return to the *Alarm Clearing Procedure* or other 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 procedure for that card in this manual.

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

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

46 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.

NTAX74 in an SMA-MVI-20

Application

Use this procedure to replace an NTAX74 card in an SMA.

PEC	Suffixes	Name
NTAX74	AA	Cellular Access Processor with 16Mb Memory

Common procedures

The following procedures are referenced in this procedure:

- “Locating a faulty card in an SMA"
- unseating a card
- replacing a card
- reseating a card

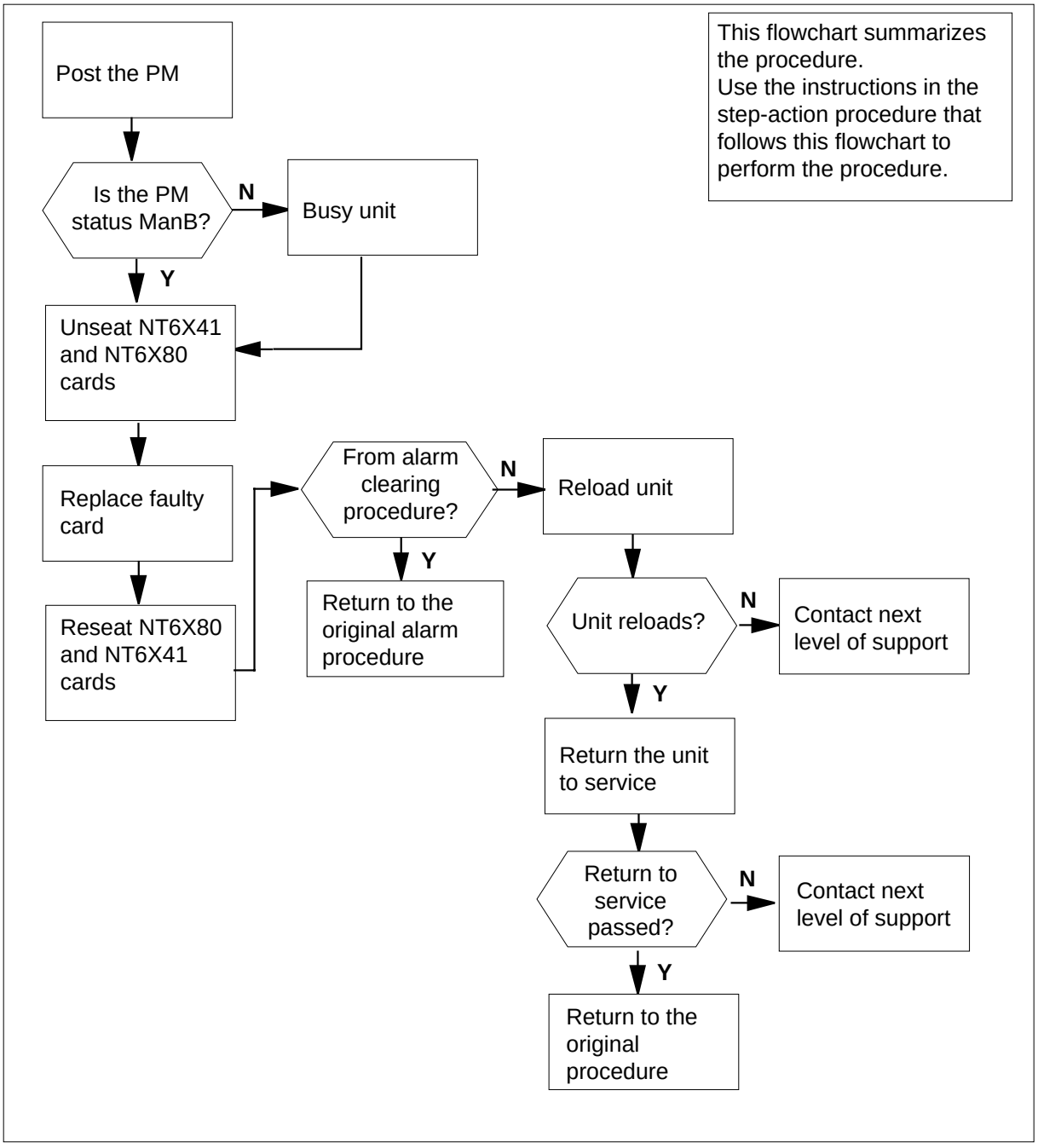
Do not go to the common procedures unless directed to do so in the step-action procedure.

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.

NTAX74
in an SMA-MVI-20 (continued)

Summary of card replacement procedure for an NTAX74 card in an SMA



NTAX74
in an SMA-MVI-20 (continued)

Replacing an NTAX74 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
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 an NTAX74AA 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_OOS:  CSide 0, PSide 0
Unit0:  Act   InSv
Unit1:  Inact SysB
```

NTAX74
in an SMA-MVI-20 (continued)

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

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

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
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.

9 Confirm the system prompt by typing

>YES

and pressing the Enter key.

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

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

If the message is	Do
`SWACT passed`	step 11
`SWACT failed Reason: XPM SWACTback`	step 10
`SWACT refused by SWACT Controller`	step 10

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

the inactive unit before attempting to clear the alarm condition on the active unit.

Go to step 47.

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
SysB, CBsy, ISTb, or InSv	step 13
ManB	step 15

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 Prevent PM traps 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)

NTAX74
in an SMA-MVI-20 (continued)

At the equipment frame

15



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

Unseat but do not remove the NT6X41 Host Link Formatter circuit card, and the NT6X80 PCM Loss Addition circuit card using the common unseating a card procedure in this document.

16 Remove the faulty NTAX74 card using the common replacing a card procedure in this document.

17



DANGER
Possible loss of P-side nodes
Monitor the LEDs on the faceplate of the replacement NTAX74 circuit card.

1. The INSV and ESA LEDs will come ON and remain ON until loading begins.

2. The ACT LED may come ON and light for less than 1 second. If the ACT LED remains ON for more than one second, immediately remove the NTAX74 circuit card, obtain a new NTAX74 circuit card, and return to this step. If the NTAX74 circuit card is allowed to remain with both units having an active processor, a condition of dual activity exists, which results in the loss of P-side nodes.

Insert the new NTAX74 card using the common replacing a card procedure in this document.

18 Reseat the the NT6X80 PCM Loss Addition circuit card, and NT6X41 Host Link Formatter circuit card using the common reseating a card procedure in this document.

19 Use the following information to determine the next step.

If you were directed here from	Do
alarm clearing procedures	step 46

If you were directed here from	Do
other	step 20

20 After replacing the faulty card, load the inactive unit by typing

>LOADPM UNIT unit_no

and pressing the Enter key.

where

unit_no
is the number of the inactive unit

If	Do
message `loadfile not found in directory` is received	step 21
load passes	step 40
load fails	step 47

21 Determine the type of device where the PM load files are located.

If load files are located on	Do
tape	step 22
IOC disk	step 28
SLM disk	step 33

22 Locate the tape that contains the PM load files.

23 Mount the tape on a magnetic tape drive.

At the MAP terminal

24 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

25 List the contents of the tape in your user directory by typing

>LIST Ttape_no

and pressing the Enter key.

where

NTAX74
in an SMA-MVI-20 (continued)

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

26 Demount the tape drive by typing

>DEMOUNT Ttape_no

and pressing the Enter key.

where

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

27 Go to step 38.

28 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.

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

>DSKUT

and pressing the Enter key.

30 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 28.

31 Leave the disk utility by typing

>QUIT

and pressing the Enter key.

32 Go to step 38.

33 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.

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

>DISKUT

and pressing the Enter key.

35 List the SLM disk volumes by typing

>LV CM

and pressing the Enter key.

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

>LISTFL 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 33.

37 Leave the disk utility by typing

```
>QUIT
```

and pressing the Enter key.

38 After listing the PM load files, load the inactive SMA unit by typing

```
>LOADPM INACTIVE
```

and pressing the Enter key.

If load	Do
passed	step 39
failed	step 47

39 Determine the name of the firmware load file by typing

```
>QUERYPM CNTRS
```

and pressing the Enter key.

Cross-reference this name to the disk volume name on the PMLoad File Office Record (or similar list of all PM load files maintained in your office).

If the firmware load file name displayed is	Do
the same	step 42
different	step 40

40 Load the NTAX74 firmware in the inactive unit by typing

```
>LOADFW INACTIVE
```

and pressing the Enter key.

If load	Do
passed	step 41
failed	step 47

41 To upgrade the firmware on the inactive unit type

```
>LOADFW INACTIVE UPGRADE
```

NTAX74
in an SMA-MVI-20 (end)

and pressing the Enter key.

If LOADFW UPGRADE	Do
passed	step 42
failed	step 47

42 Return the inactive SMA unit to service by typing

>RTS INACTIVE

and pressing the Enter key.

If RTS	Do
passed	step 43
failed	step 47

At the equipment frame

43 Remove the sign from the active SMA unit.

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

45 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 48.

46 Return to the *Alarm Clearing Procedure* or other 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 procedure for that card in this manual.

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

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

NTAX74 in an SMA2

Application

Use this procedure to replace an NTAX74 card in an SMA2.

PEC	Suffixes	Name
NTAX74	AA	Cellular Access Processor with 16Mb Memory

Common procedures

The following procedures are referenced in this procedure:

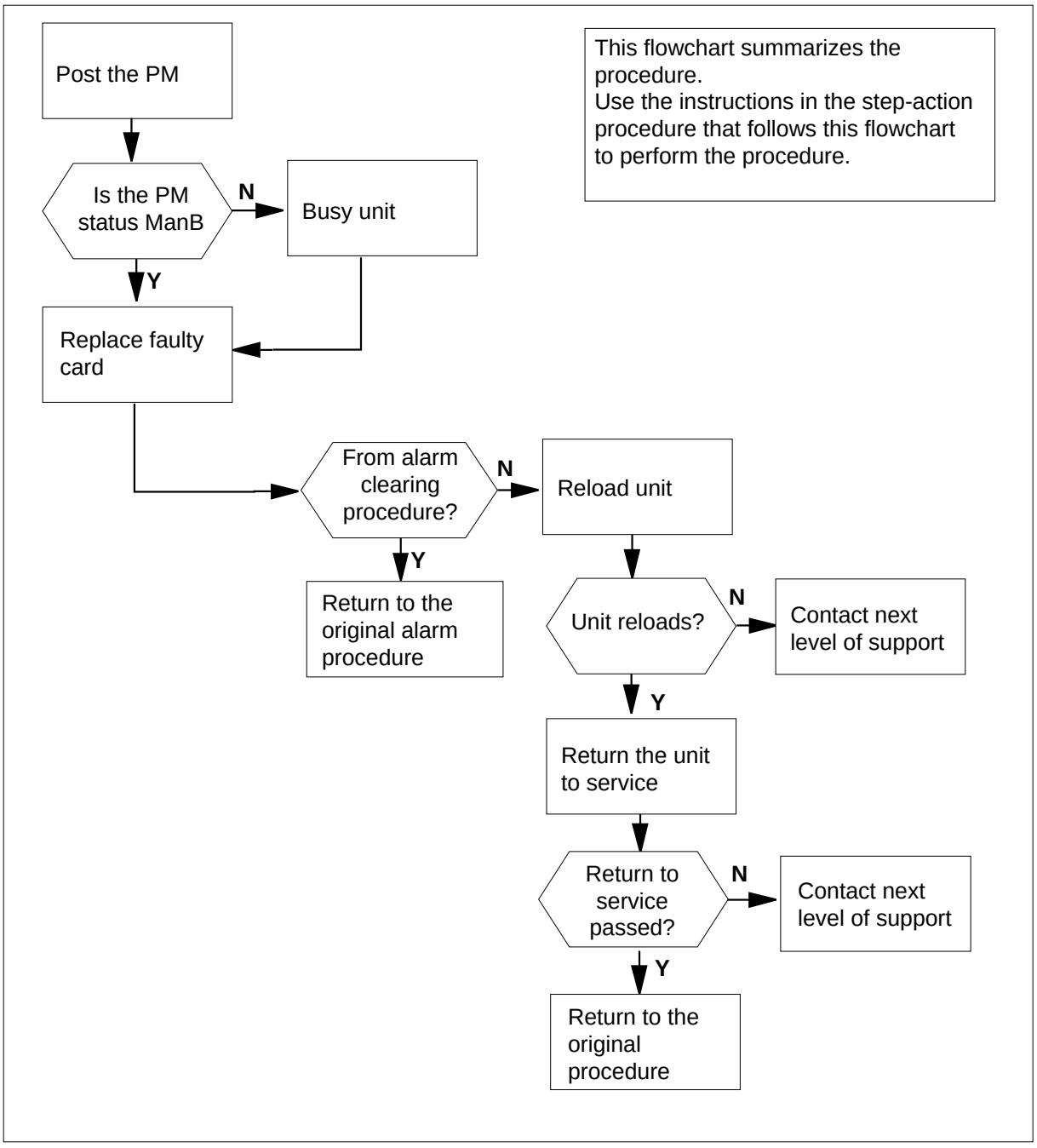
- “Locating a faulty card in an SMA2"
- replacing a card

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.

NTAX74 in an SMA2 (continued)

Summary of card replacement procedure for an NTAX74 card in an SMA2



NTAX74 in an SMA2 (continued)

Replacing an NTAX74 card in an SMA2

At your current location

1 Proceed only if you are directed to this card replacement procedure from a step in a maintenance procedure, are using the procedure for verifying or accepting cards, or are 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*.

Get an NTAX74 replacement card. Ensure the replacement card has the same product engineering code (PEC), including suffix, as the card to be 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

NTAX74
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_OOS:  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

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

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

Go to step 27.

At the frame or cabinet

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
SysB, CBsy, ISTb, or InSv	step 13
ManB	step 15

13 Busy the inactive PM unit by typing

>BSY INACTIVE

and pressing the Enter key.

14 Prevent the PM from trapping by typing

>PMRESET UNIT unit_no NORUN

and pressing the Enter key.

where

unit_no
is the number of the inactive SMA2 unit (0 or 1)

At the frame or cabinet

15 Remove the faulty NTAX74 card using the common replacing a card procedure in this document.

NTAX74
in an SMA2 (continued)

16



DANGER
Possible loss of P-side nodes
When installing the replacement NTAX74, monitor the LEDs on the faceplate of the NTAX74 for the following:

1. The INSV and ESA LEDs will come ON and remain ON until loading begins.

2. The ACT LED may come ON and light for less than 1 second. If the ACT LED remains ON for more than 1 second, immediately remove the NTAX74 circuit card and return to this step. If the NTAX74 circuit card is allowed to remain with both units having an active processor, a condition of dual activity exists, which results in the loss of P-side nodes.

Insert the new NTAX74 card using the common replacing a card procedure in this document.

17 Use the following information to determine the next step.

If you were directed here from	Do
alarm clearing procedures	step 26
other	step 18

At the MAP terminal

18 Load the inactive SMA2 unit by typing

`>LOADPM INACTIVE`

and pressing the Enter key.

If load	Do
passed	step 19
failed	step 27

19 Determine the name of the firmware load file by typing

`>QUERYPM CNTRS`

and pressing the Enter key.

NTAX74
in an SMA2 (continued)

Cross-reference this name to the disk volume name on the PMLoad File Office Record (or similar list of all PM load files maintained in your office).

If the firmware load file name displayed is	Do
the same	step 22
different	step 20

20 Load the NTAX74 firmware In the inactive unit by typing

>LOADFW INACTIVE

and pressing the Enter key.

Note: If the firmware_file is not specified with the LOADFW command, the command applies the firmware_file datafilled in the appropriate inventory table.

If LOADFW	Do
passed	step 21
failed	step 27

21 To upgrade the firmware on the inactive unit type

>LOADFW INACTIVE UPGRADE

and pressing the Enter key.

If LOADFW UPGRADE	Do
passed	step 22
failed	step 27

22 Return the inactive SMA2 unit to service by typing

>RTS INACTIVE

and pressing the Enter key.

If RTS	Do
passed	step 23
failed	step 27

At the frame or cabinet

23 Remove the sign from the active SMA2 unit.

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

NTAX74
in an SMA2 (end)

25 Go to the common procedure “Returning a card for repair or replacement" in this section.

Go to step 28

26 Return to the *Alarm Clearing Procedure* or other 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 procedure for that card in this manual.

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

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

NTAX78 in an SMA

Application

Use this procedure to replace an NTAX78 card in an SMA.

PEC	Suffixes	Name
NTAX78	AB	Enhanced Time Switch

Common procedures

The following procedures are referenced in this procedure:

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

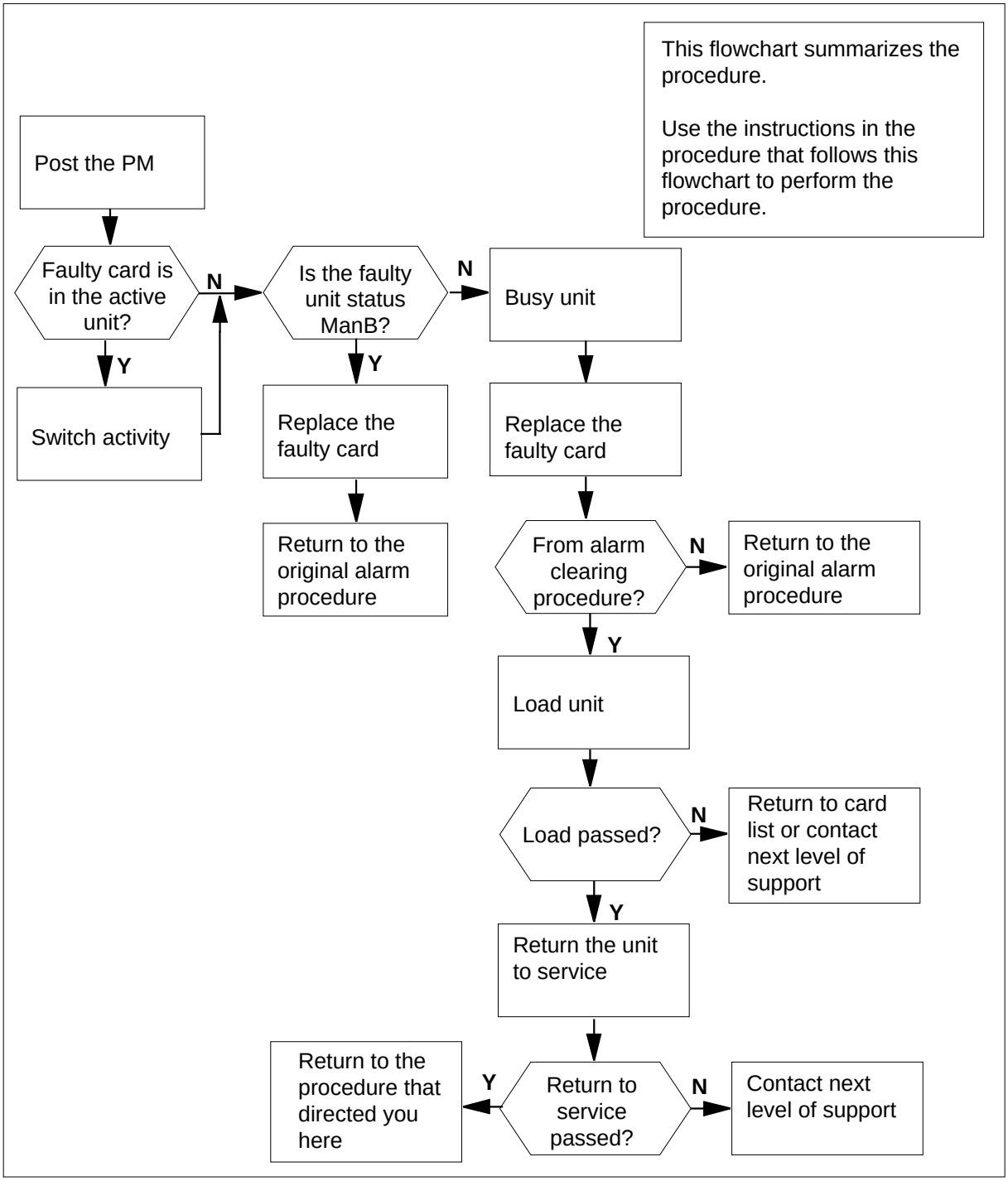
Do not go to the common procedures unless directed to do so in the step-action procedure.

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.

NTAX78
in an SMA (continued)

Summary of card replacement procedure for an NTAX78 card in an SMA



Replacing an NTAX78 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	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 your 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:

NTAX78
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_OOS:  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 faulty card is on	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 23

8 Confirm the system prompt by typing

>YES

and pressing the Enter key.

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

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

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

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

Go to step 21.

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 14
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 unit 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

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.

NTAX78
in an SMA (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

16 Reset the unit by typing

`>PMRESET UNIT unit_no`

and pressing the Enter key.

where

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

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 21

18 Return the inactive SMA unit to service by typing

`>RTS UNIT unit_no`

and pressing the Enter key.

where

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

If RTS	Do
passed	step 19
failed	step 21

At the equipment frame

19 Remove the sign from the active SMA unit.

20 Go to the common returning a card procedure in this document.

NTAX78
in an SMA (end)

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.

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.

NTAX78 in an SMA-MVI-20

Application

Use this procedure to replace an NTAX78 card in an SMA.

PEC	Suffixes	Name
NTAX78	AB	Enhanced Time Switch

Common procedures

The following procedures are referenced in this procedure:

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

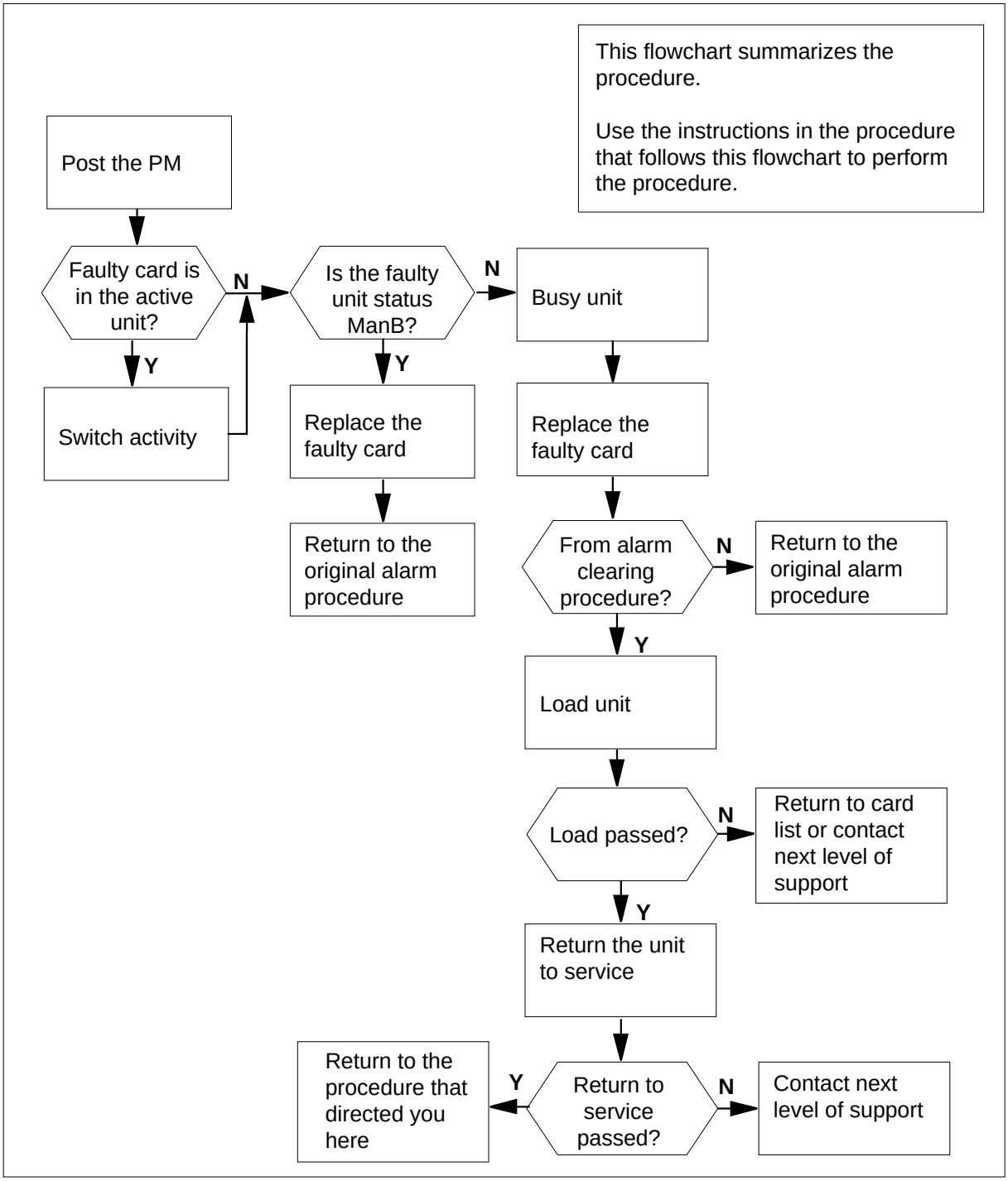
Do not go to the common procedures unless directed to do so in the step-action procedure.

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.

NTAX78
in an SMA-MVI-20 (continued)

Summary of card replacement procedure for an NTAX78 card in an SMA



NTAX78
in an SMA-MVI-20 (continued)

Replacing an NTAX78 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	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:

NTAX78
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_OOS:  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 faulty card is on	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 unit 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

NTAX78
in an SMA-MVI-20 (continued)

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

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

Go to step 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 15
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 unit 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)

NTAX78
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.

If you were directed here from	Do
alarm clearing procedures	step 20
other	step 17

17 Reset the unit by typing

`PMRESET UNIT unit_no`

and pressing the Enter key.

where

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

At the MAP terminal

18 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 19
failed	step 23

19 Return the inactive SMA unit to service by typing

`>RTS UNIT unit_no`

and pressing the Enter key.

NTAX78
in an SMA-MVI-20 (end)

where

unit_no
is the number of the SMA unit loaded in step 18

If RTS	Do
passed	step 20
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.

NTAX78 in an SMU

Application

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

PEC	Suffix	Name
NTAX78	AB	Time switch

Common procedures

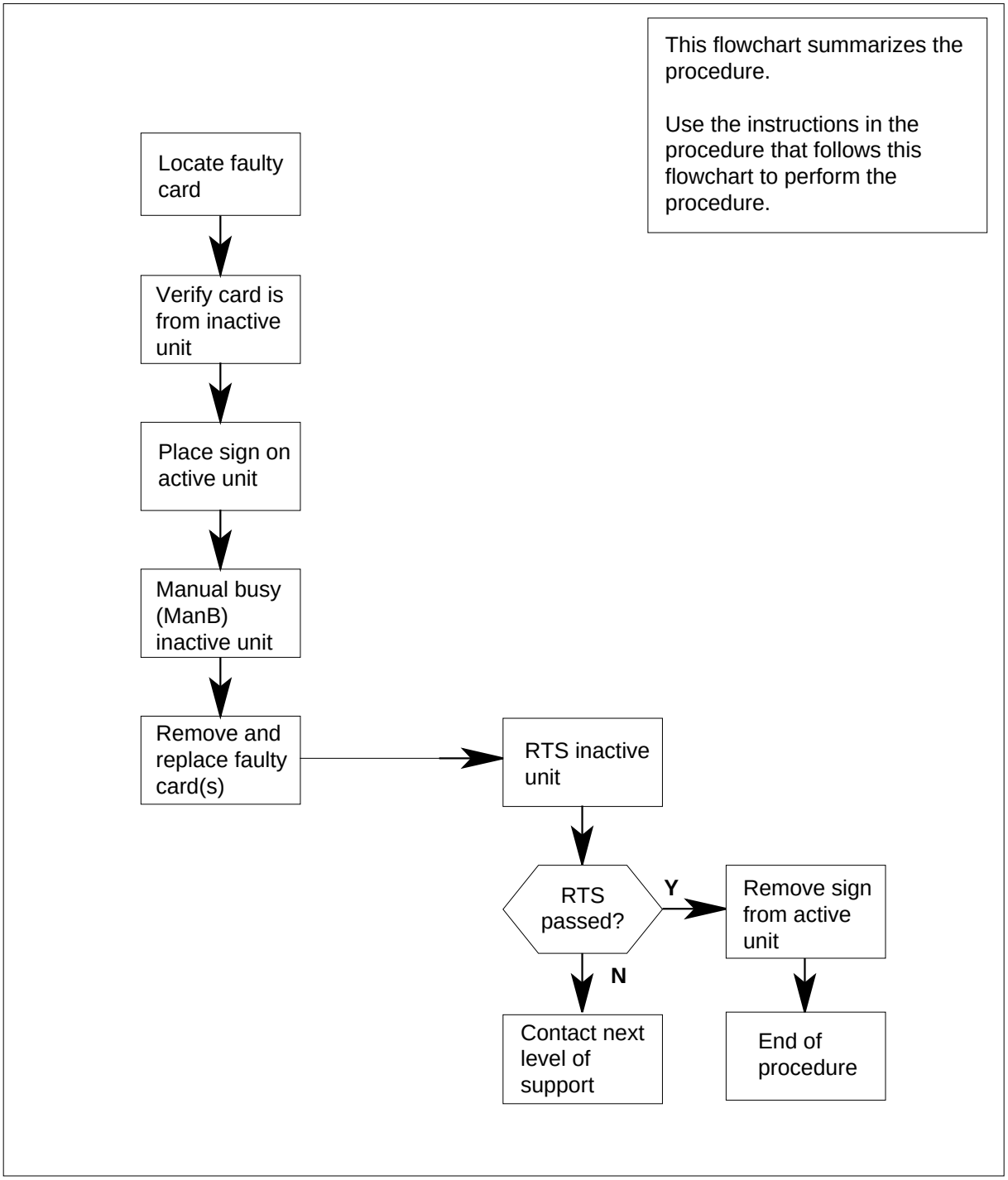
The common replacing a card procedure is referenced in this procedure.

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.

NTAX78
in an SMU (continued)

Summary of card replacement procedure for an NTAX78 card in an SMU



Replacing an NTAX78 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 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 that the PM level of the MAP terminal is currently displayed 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         0     0    0     0     1     0
SMU        1     0    0     0     1     0

SMU 0 ISTb  Links_OOS:  CSide 0, PSide 0
Unit0:  Act   SysB
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

NTAX78
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 18

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
`passed`	step 8
`failed`	step 7
`SwAct failed Reason: XPM SwActback`	step 7
`SwAct refused by SwAct controller`	step 7

7 Return to the *Alarm Clearing Procedures* to clear the alarm condition on the inactive unit. After the alarm is cleared, return to step 1 of this procedure.

At the SME frame:

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

At the MAP terminal:

9 Busy the inactive PM unit by typing

>BSY UNIT unit_no

and pressing the Enter key.

where

unit_no
is the number of the inactive SMU unit (0 or 1)

10 Go to the common replacing a card procedure in this documen, then return to step 11 of this procedure.

11 Use the following information to determine where to go in this procedure.

If you entered this procedure from	Do
alarm clearing procedures	step 13
other	step 12

12 Test the inactive SMU unit by typing

`>TST UNIT unit_no`

and pressing the Enter key.

where

unit_no
is the number of the SMU unit busied in step9

If TST	Do
passes	step 13
fails	step 13

13 Return to *Alarm Clearing Procedures*.

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.

14 Contact personnel responsible for higher level support and get further help to replace this card.

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

16 Record the following items in the office records:

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

17 You have successfully completed this procedure. Remove the sign from the active unit, return to the maintenance procedure that directed you to this card replacement procedure, and continue as directed.

18 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.

NTBX01 in an RSC RCC2

Application

Use this procedure to replace NTBX01 card in RSCE RCC2.

PEC	Suffixes	Name
NTBX01	AB	ISDN Preprocessor

Common procedures

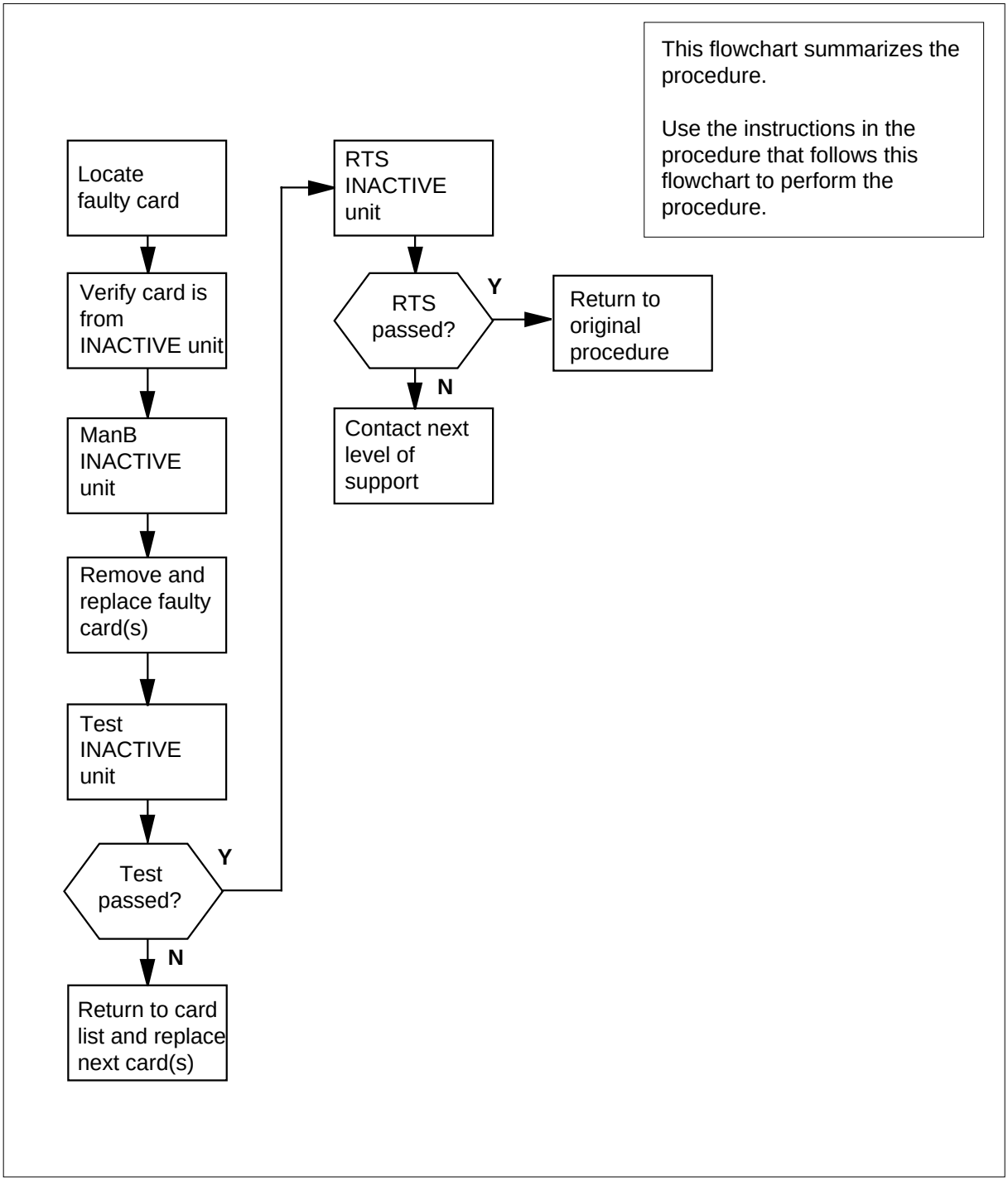
None

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.

NTBX01 in an RSC RCC2 (continued)

Summary of card replacement procedure for an NTBX01 card in RSCE RCC2



NTBX01 in an RSC RCC2 (continued)

Replacing an NTBX01 card in RSCE 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 NTBX01 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 Ensure the PM level of the MAP display is currently displayed and the RCC2 is posted by typing

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

and pressing the Enter key.

where

rcc2_unit_no
is the number of the RCC2 with the faulty card

Example of a MAP display:

```
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 ISTb  Links_OOS:  CSide  0, PSide   0
 5 TRNSL   Unit0:   Inact InSv
 6 TST     Unit1:   Act InSv
 7 BSY
 8 RTS
 9 OffL
10 LoadPM_
11 Disp_
12 Next_
13
14 QueryPM
15
16
17
18
```

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

At the RSCE frame

5 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.

At the MAP terminal

6 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)

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 (FSP) of the RCC2. This protects the equipment against damage caused by static electricity.

NTBX01 in an RSC RCC2 (continued)

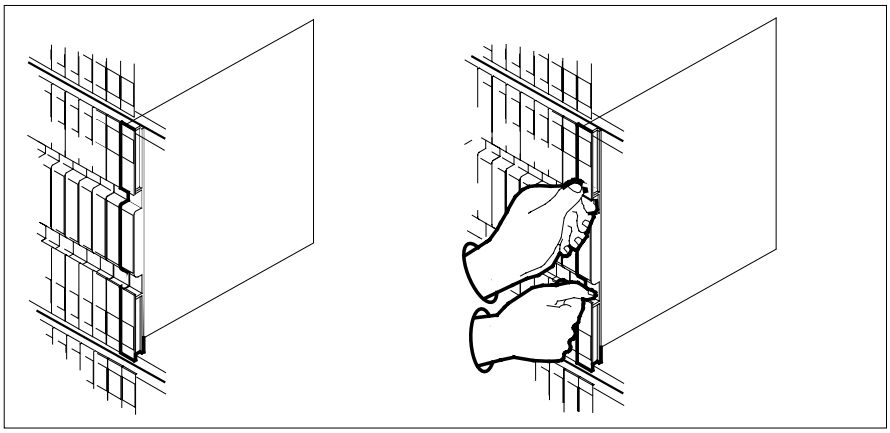
DANGER
Equipment damage
Take these precautions when removing or inserting a card:

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

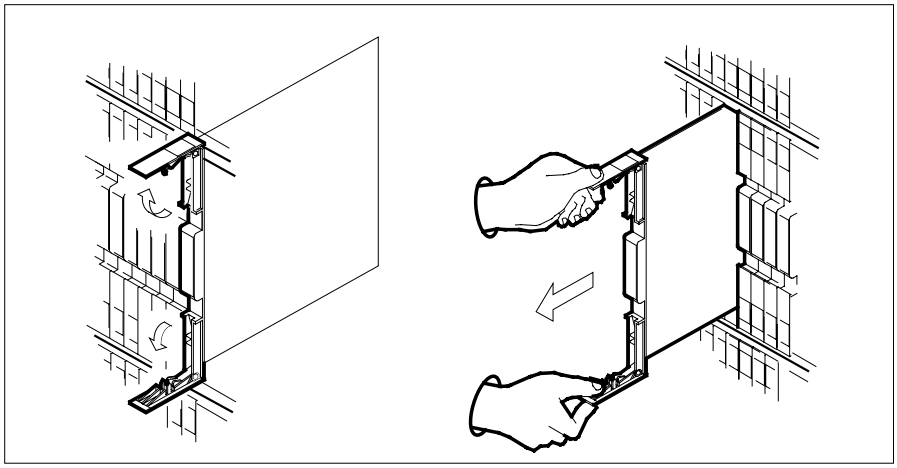
Put on a wrist strap.

8 Remove the NTBX01 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.



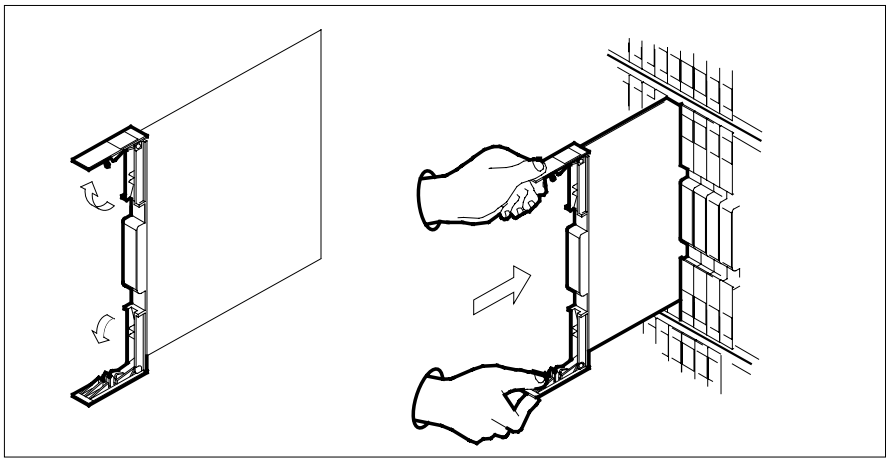
c Ensure the replacement card has the same PEC, including suffix, as the card you just removed.

NTBX01
in an RSC RCC2 (continued)

9 Open the locking levers on the replacement card.

a Align the card with the slots in the shelf.

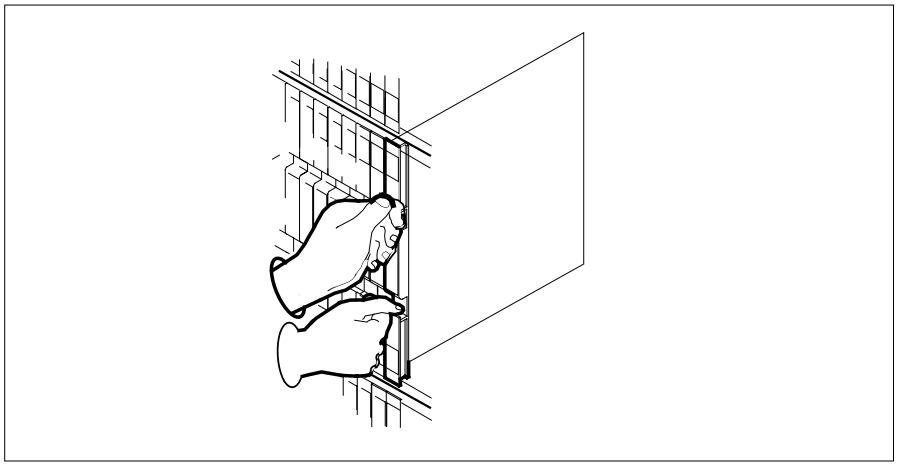
b Gently slide the card into the shelf.



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.



At the MAP terminal

11 After replacing the faulty card, load the inactive RCC2 unit by typing

>LOADPM UNIT **rcc2_unit_no CC**

and pressing the Enter key.

where

NTBX01 in an RSC RCC2 (end)

rcc2_unit_no
is the number of the RCC2 unit busied in step 6

12 Use the following information to determine where to proceed.

If load	Do
passed	step 13
failed	step 19

13 Use the following information to determine where to proceed.

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

14 Return the inactive RCC2 unit to service by typing

`>RTS UNIT rcc2_unit_no`

and pressing the Enter key.

where

rcc2_unit_no
is the number of the RCC2 unit busied in step 6

15 Use the following information to determine where to proceed.

If RTS	Do
passed	step 16
failed	step 19

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

17 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 20.

18 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*.

19 Obtain further assistance in replacing this card by contacting operating company maintenance personnel.

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.

NTBX01 in an RSC-S (DS-1) Model A RCC2

Application

Use this procedure to replace an NTBX01 card in an RSC-S RCC2.

PEC	Suffixes	Name
NTBX01	AB	ISDN Preprocessor
Note: NTBX01AC or NTBX01BA is required when the RCC2 is configured with the optional processor NTAX74AA instead of the NTMX77AA.		

Common procedures

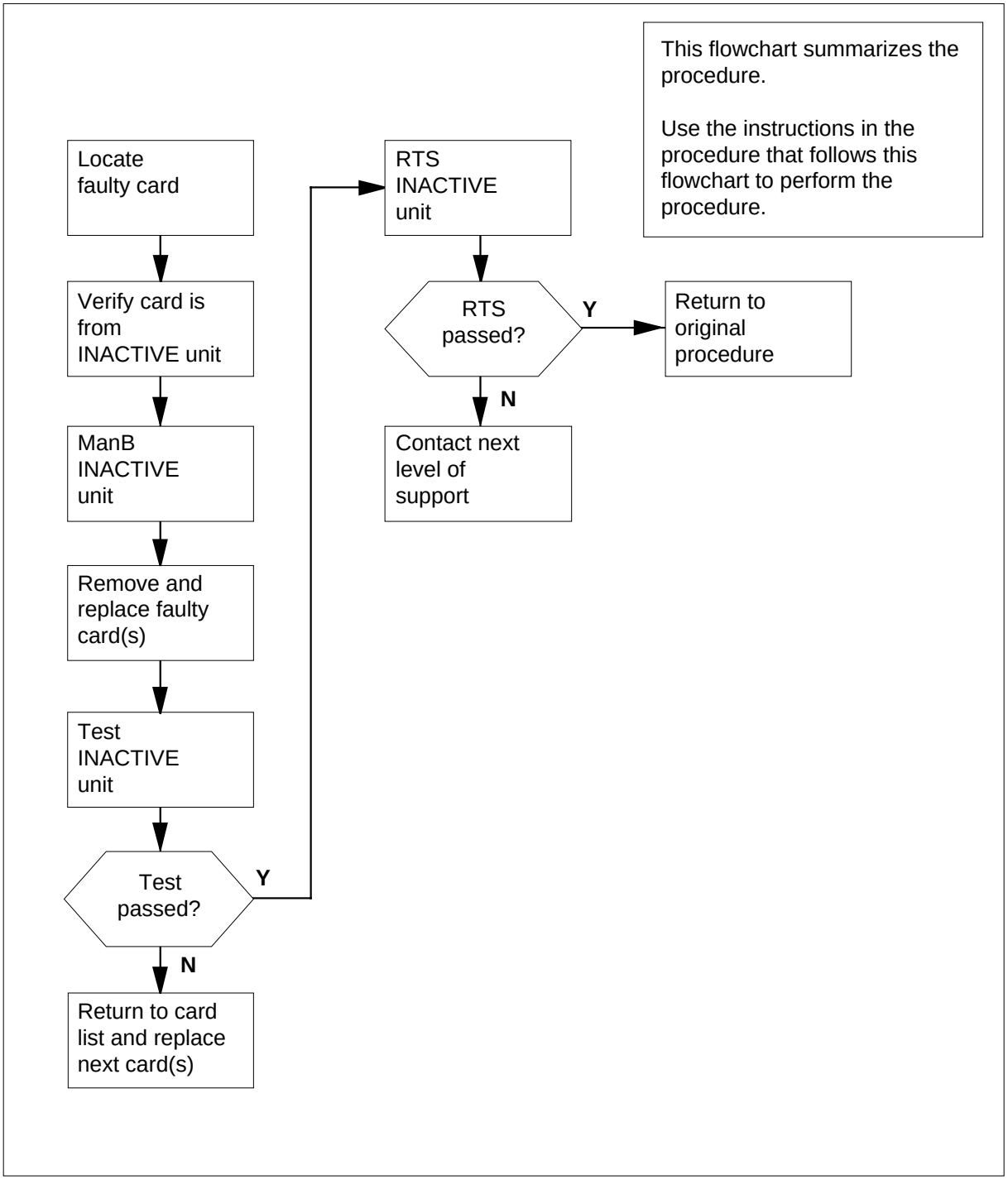
None

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.

NTBX01
in an RSC-S (DS-1) Model A RCC2 (continued)

Summary of card replacement procedure for an NTBX01 card in RSC-S RCC2



NTBX01 in an RSC-S (DS-1) Model A RCC2 (continued)

Replacing an NTBX01 card in 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 NTBX01 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 Ensure the PM level of the MAP display is currently displayed and the RCC2 is posted by typing

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

and pressing the Enter key.

where

rcc2_unit_no
is the number of the RCC2 with the faulty card

Example of a MAP display:

NTBX01
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 ISTb  Links_OOS:  CSide  0, PSide   0
 5 TRNSL   Unit0:   Inact InSv
 6 TST     Unit1:   Act InSv
 7 BSY
 8 RTS
 9 OffL
10 LoadPM_
11 Disp_
12 Next_
13
14 QueryPM
15
16
17
18
```

4 By observing the MAP display, 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 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 frame

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.

NTBX01 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)

At the RCE frame

9



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 these precautions when removing or inserting a card:

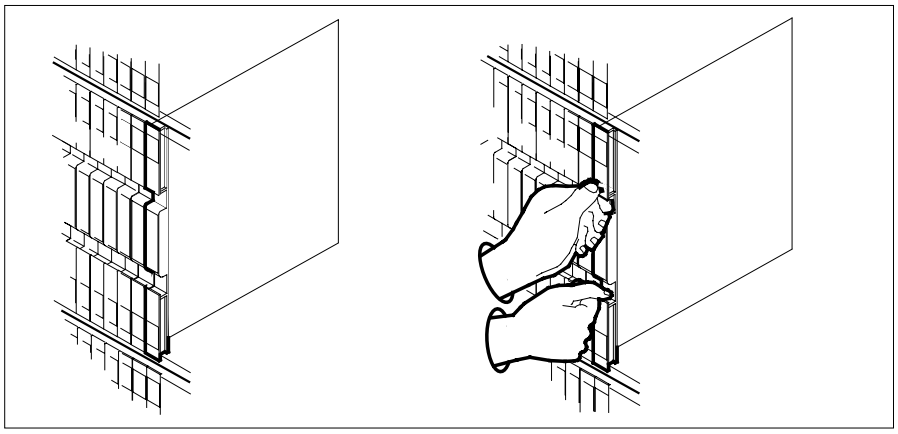
1. Do not apply direct pressure to the components.
2. Do not force the card into its slot.

Put on a wrist strap.

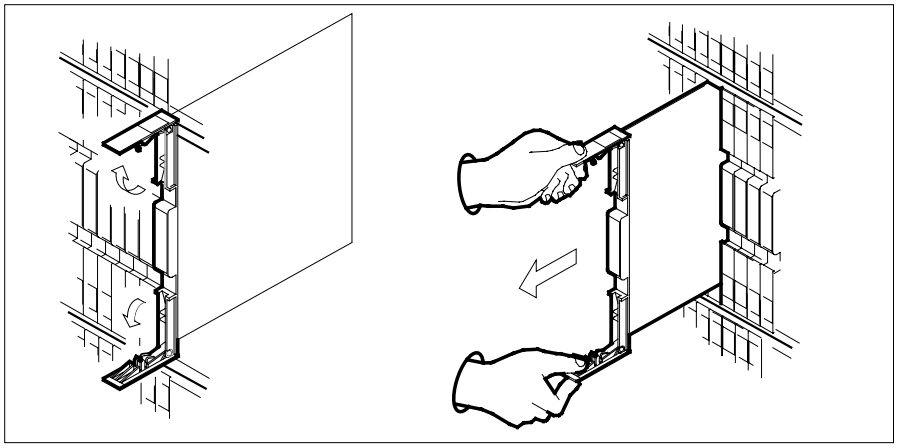
10 Remove the NTBX01 card as shown in the following figures.

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

NTBX01
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.

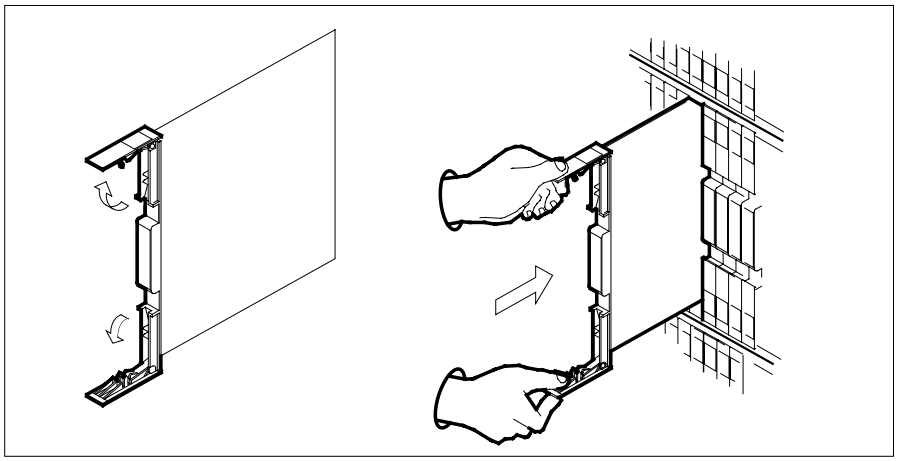


c Ensure the replacement card has the same PEC, including suffix, as the card you just removed.

11 Open the locking levers on the replacement card.

a Align the card with the slots in the shelf.

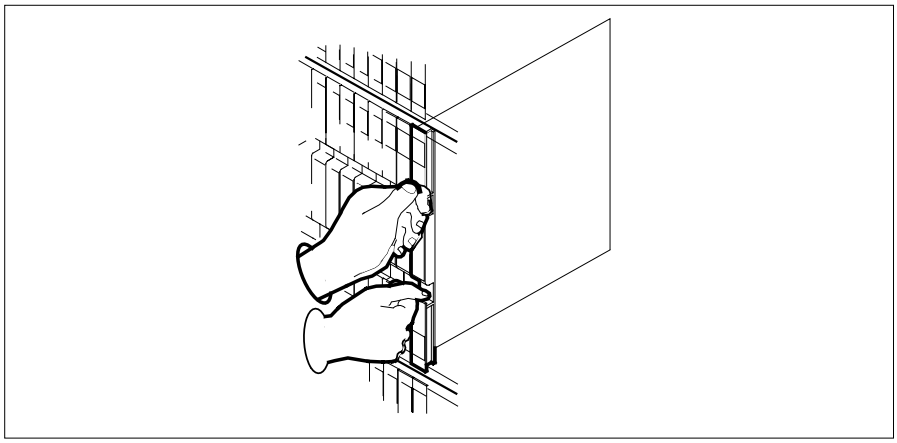
b Gently slide the card into the shelf.



12 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

13 After replacing the faulty card, load the inactive RCC2 unit by typing

>LOADPM UNIT **rcc2_unit_no CC**

and pressing the Enter key.

where

rcc2_unit_no
is the number of the RCC2 unit busied in step 8

NTBX01
in an RSC-S (DS-1) Model A RCC2 (continued)

14 Use the following information to determine where to proceed.

If load	Do
passed	step 15
failed	step 23

15 Test the inactive unit by typing

>TST UNIT **rcc2_unit_no**

and pressing the Enter key.

where

rcc2_unit_no
is the number of the RCC2 unit loaded in step 13

16 Use the following information to determine where to proceed.

If TST	Do
passed	step 17
failed	step 22

17 Use the following information to determine where to proceed.

If you entered this procedure from	Do
alarm clearing procedures	step 22
other	step 18

18 Return the inactive RCC2 unit to service by typing

>RTS UNIT **rcc2_unit_no**

and pressing the Enter key.

where

rcc2_unit_no
is the number of the RCC2 unit tested in step 15

19 Use the following information to determine where to proceed.

If RTS	Do
passed	step 20
failed	step 23

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

NTBX01
in an RSC-S (DS-1) Model A RCC2 (end)

21 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 24.

22 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*.

23 Obtain further assistance in replacing this card by contacting operating company maintenance personnel.

24 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.

NTBX01 in an RSC-S (DS-1) Model B RCC2

Application

Use this procedure to replace an NTBX01 card in an RSC-S RCC2.

PEC	Suffixes	Name
NTBX01	AB	ISDN Preprocessor
Note: NTBX01AC or NTBX01BA is required when the RCC2 is configured with the optional processor NTAX74AA instead of the NTMX77AA.		

Common procedures

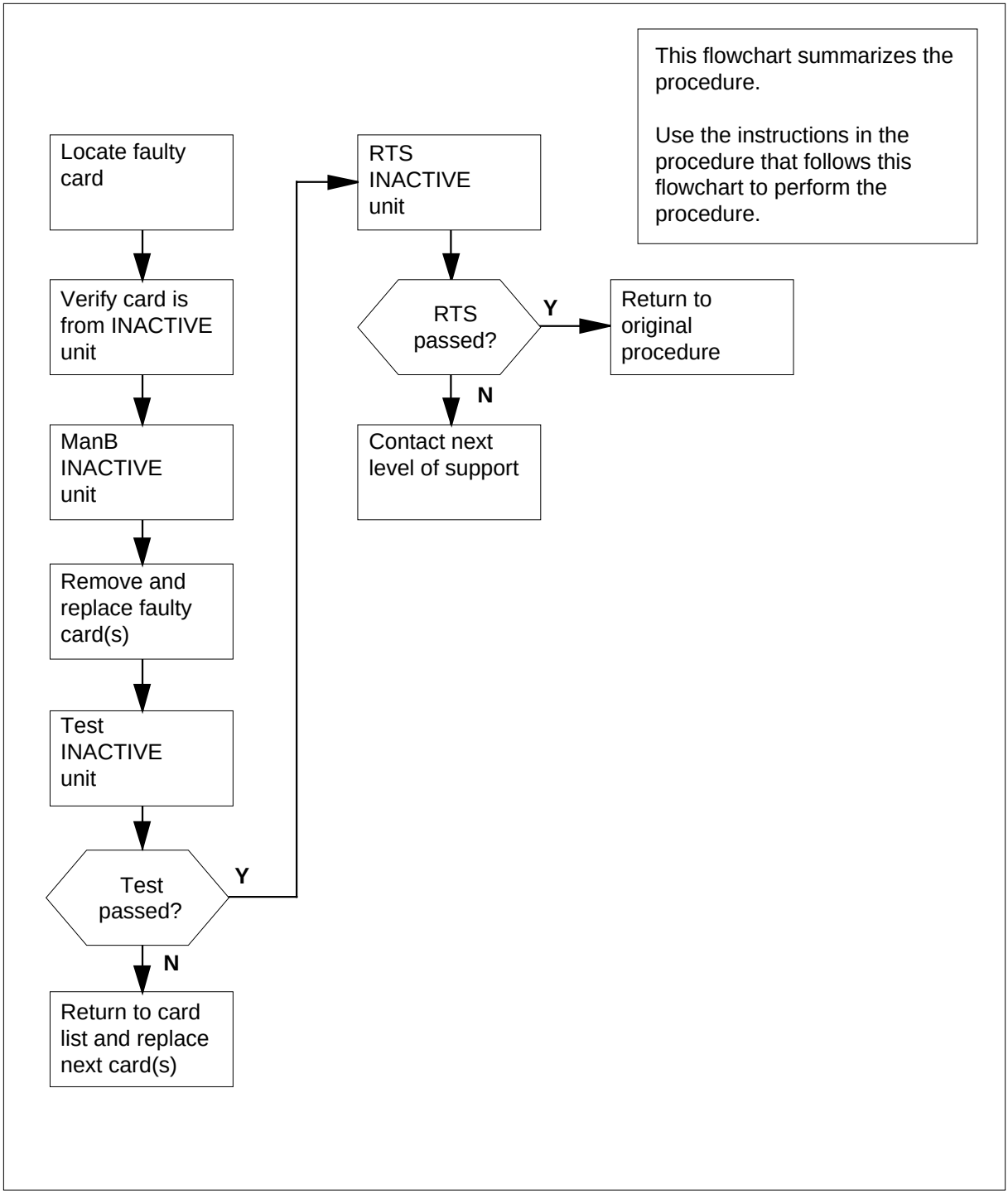
None

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.

NTBX01
in an RSC-S (DS-1) Model B RCC2 (continued)

Summary of card replacement procedure for an NTBX01 card in RSC-S RCC2



NTBX01 in an RSC-S (DS-1) Model B RCC2 (continued)

Replacing an NTBX01 card in 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 NTBX01 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 Ensure the PM level of the MAP display is currently displayed and the RCC2 is posted by typing

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

and pressing the Enter key.

where

rcc2_unit_no
is the number of the RCC2 with the faulty card

Example of a MAP display:

NTBX01
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 ISTb  Links_OOS:  CSide  0, PSide   0
 5 TRNSL   Unit0:   Inact InSv
 6 TST     Unit1:   Act InSv
 7 BSY
 8 RTS
 9 OffL
10 LoadPM_
11 Disp_
12 Next_
13
14 QueryPM
15
16
17
18
```

4 By observing the MAP display, 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 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 frame

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.

NTBX01 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)

At the RCE frame

9



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:

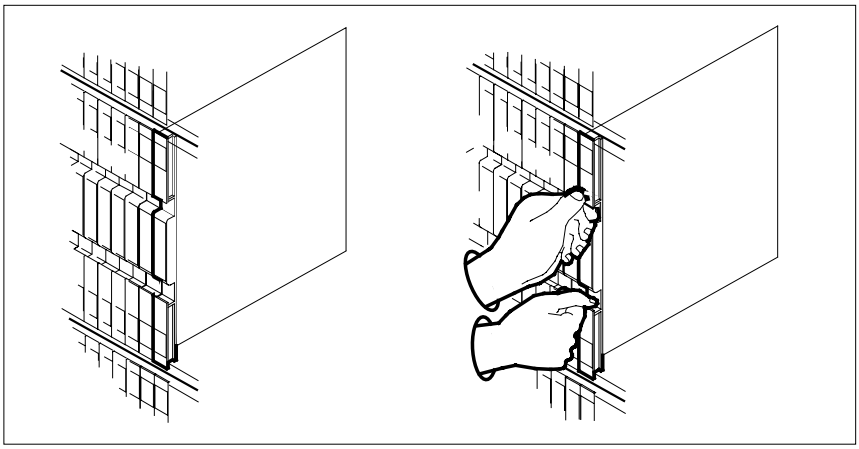
1. Do not apply direct pressure to the components.
2. Do not force the card into its slot.

Put on a wrist strap.

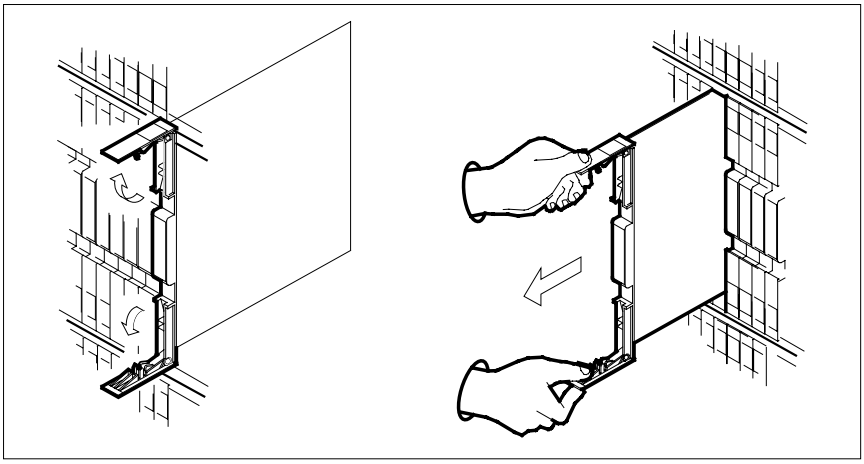
10 Remove the NTBX01 card as shown in the following figures.

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

NTBX01
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.



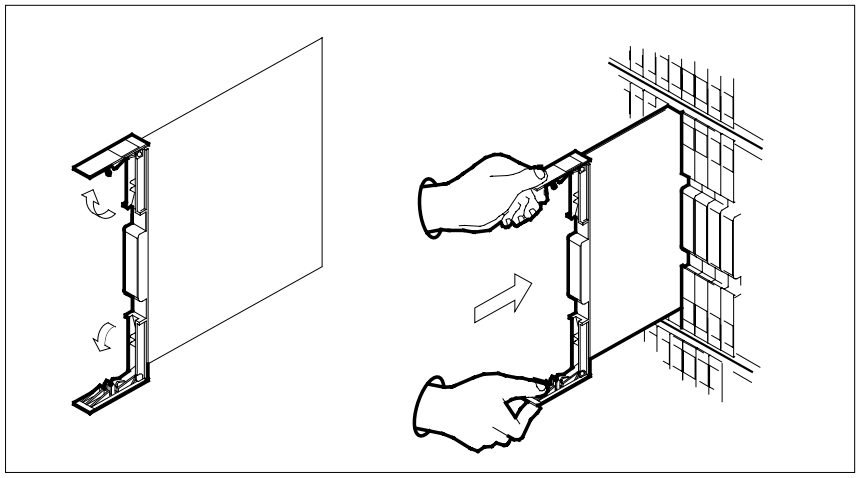
c Ensure the replacement card has the same PEC, including suffix, as the card you just removed.

11 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.

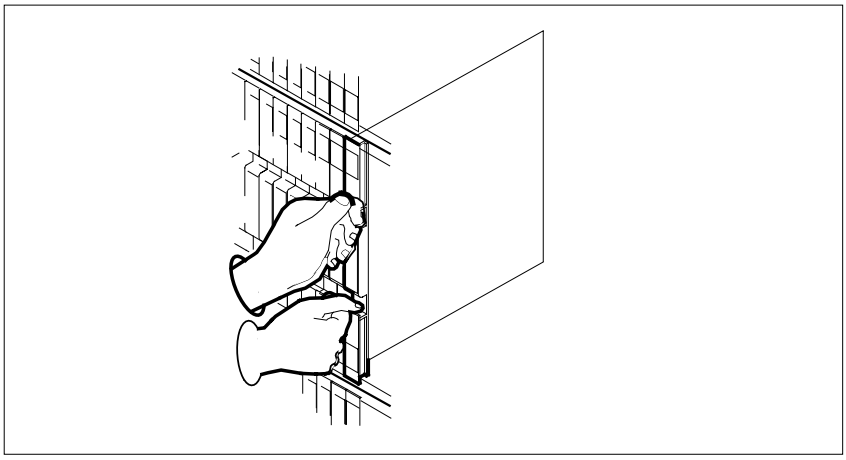
NTBX01
in an RSC-S (DS-1) Model B RCC2 (continued)



12 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

13 After replacing the faulty card, load the inactive RCC2 unit by typing

>LOADPM UNIT **rcc2_unit_no CC**

and pressing the Enter key.

where

rcc2_unit_no
is the number of the RCC2 unit busied in step 8

NTBX01 in an RSC-S (DS-1) Model B RCC2 (continued)

14 Use the following information to determine where to proceed.

If load	Do
passed	step 15
failed	step 23

15 Test the inactive unit by typing

>TST UNIT **rcc2_unit_no**

and pressing the Enter key.

where

rcc2_unit_no
is the number of the RCC2 unit loaded in step 13

16 Use the following information to determine where to proceed.

If TST	Do
passed	step 17
failed	step 22

17 Use the following information to determine where to proceed.

If you entered this procedure from	Do
alarm clearing procedures	step 22
other	step 18

18 Return the inactive RCC2 unit to service by typing

>RTS UNIT **rcc2_unit_no**

and pressing the Enter key.

where

rcc2_unit_no
is the number of the RCC2 unit tested in step 15

19 Use the following information to determine where to proceed.

If RTS	Do
passed	step 20
failed	step 23

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

NTBX01
in an RSC-S (DS-1) Model B RCC2 (end)

21 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 24.

22 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*.

23 Obtain further assistance in replacing this card by contacting operating company maintenance personnel.

24 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.

NTBX01 in an RSC-S (PCM-30) Model A RCO2

Application

Use this procedure to replace an NTBX01 card in an RSC-S RCO2.

PEC	Suffixes	Name
NTBX01	AB, AC, BA	ISDN Signaling Preprocessor
Note: NTBX01AC or NTBX01BA is required when the RC02 is configured with the optional processor NTAX74AA instead of the NTMX77AA.		

Common procedures

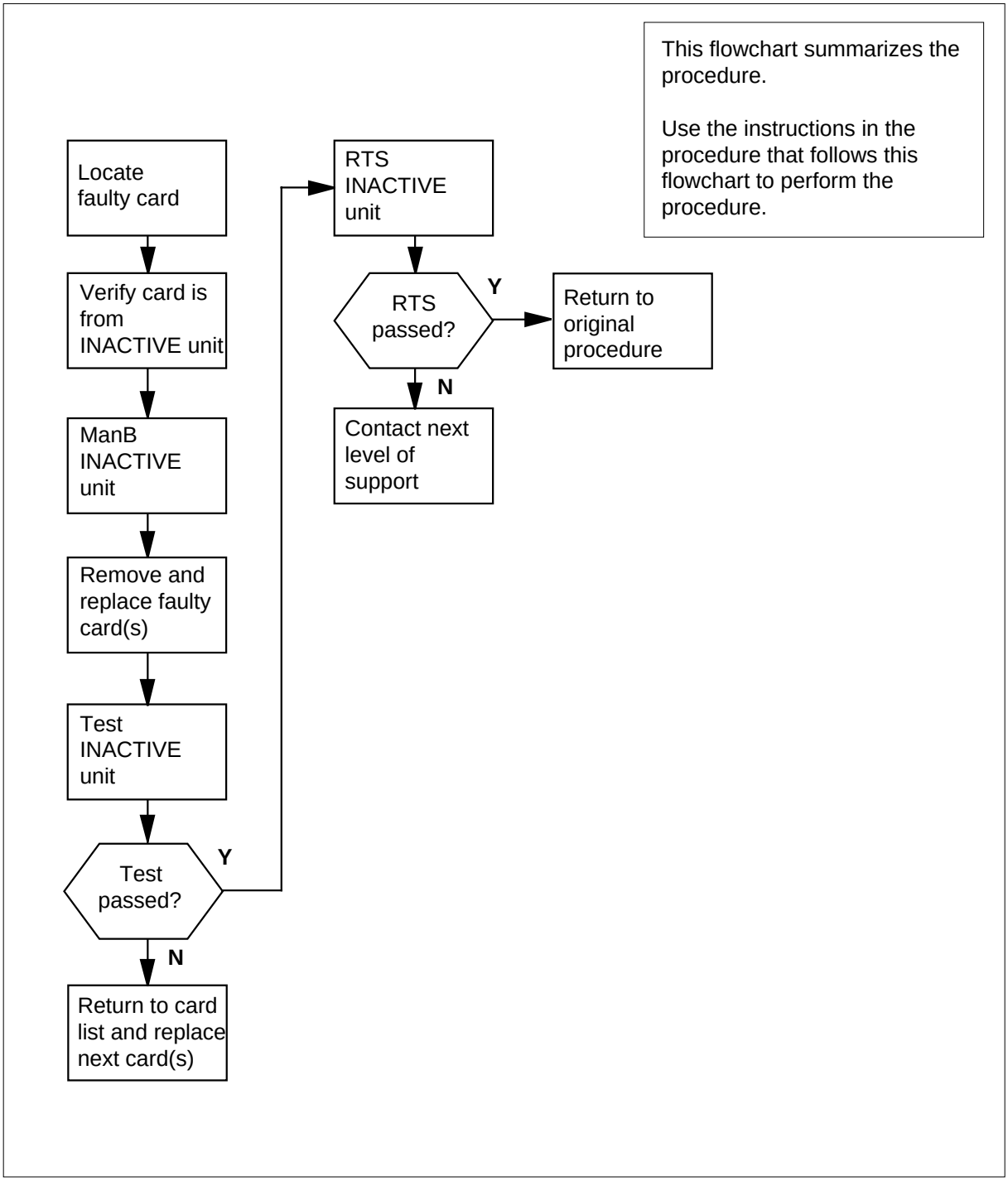
None

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.

NTBX01
in an RSC-S (PCM-30) Model A RCO2 (continued)

Summary of card replacement procedure for an NTBX01 card in RSC-S RCO2



NTBX01 in an RSC-S (PCM-30) Model A RCO2 (continued)

Replacing an NTBX01 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 NTBX01 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 Ensure the PM level of the MAP display is currently displayed and the RCO2 is posted by typing

```
>MAPCI;MTC;PM;POST RCO2 rco2_unit_no
```

and pressing the Enter key.

where

rco2_unit_no
is the number of the RCO2 with the faulty card

Example of a MAP display:

NTBX01
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 ISTb  Links_OOS:  CSide  0, PSide   0
 5 TRNSL   Unit0:   Inact InSv
 6 TST     Unit1:   Act InSv
 7 BSY
 8 RTS
 9 OffL
10 LoadPM_
11 Disp_
12 Next_
13
14 QueryPM
15
16
17
18
```

4 By observing the MAP display, be sure that the card 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 frame

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.

NTBX01 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)

At the RCE frame

9



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 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:

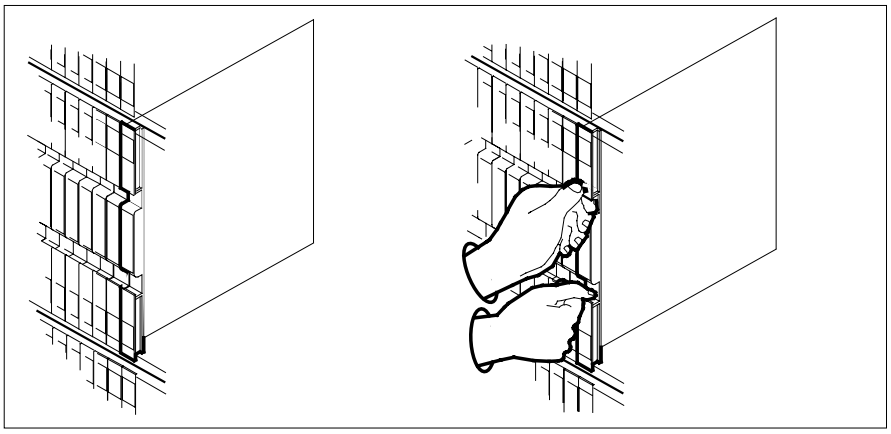
1. Do not apply direct pressure to the components.2. Do not force the card into its slot.

Put on a wrist strap.

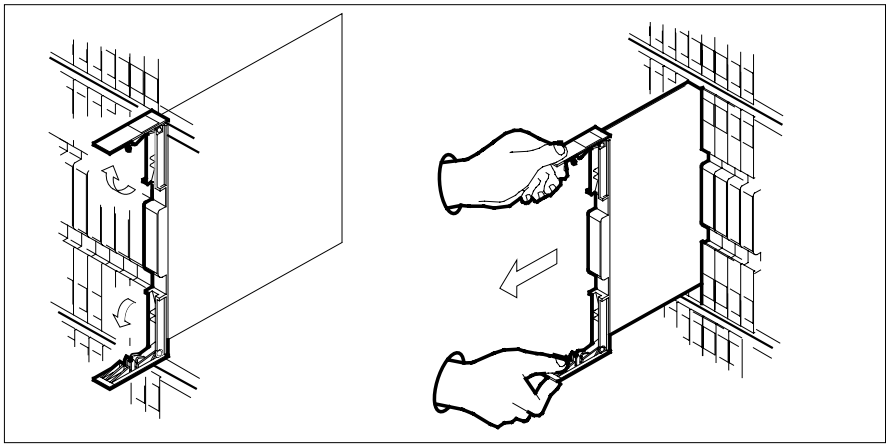
10 Remove the NTBX01 card as shown in the following figures.

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

NTBX01
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.



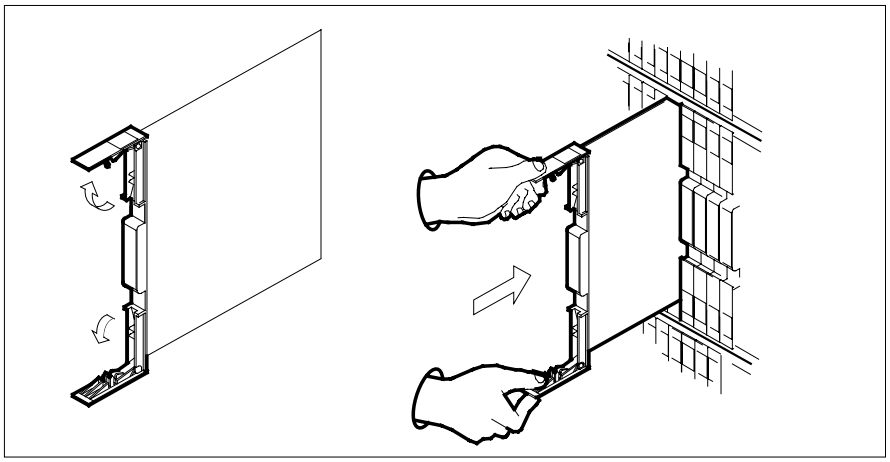
c Ensure the replacement card has the same PEC, including suffix, as the card you just removed.

11 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.

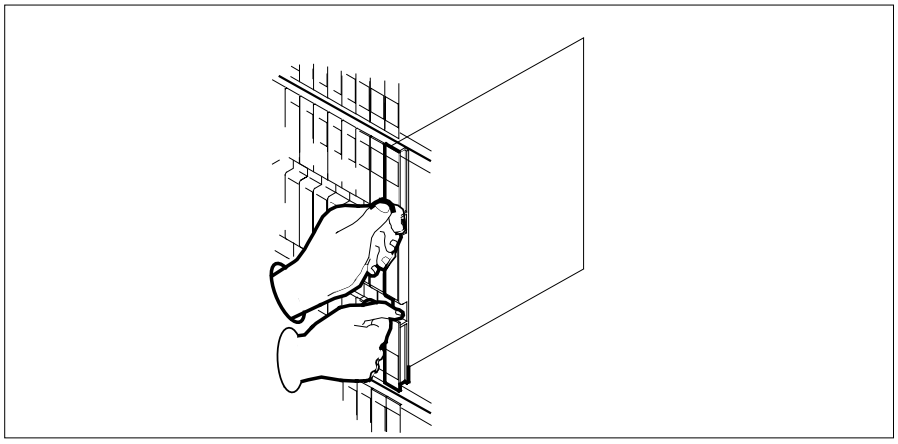
NTBX01
in an RSC-S (PCM-30) Model A RCO2 (continued)



12 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

13 After replacing the faulty card, load the inactive RCO2 unit by typing

`>LOADPM UNIT rco2_unit_no CC`

and pressing the Enter key.

where

rco2_unit_no
is the number of the RCO2 unit busied in step 8

NTBX01
in an RSC-S (PCM-30) Model A RCO2 (continued)

14 Use the following information to determine where to proceed.

If LOADPM	Do
passed	step 15
failed	step 23

15 Test the inactive unit by typing

>TST UNIT **rco2_unit_no**

and pressing the Enter key.

where

rco2_unit_no
is the number of the RCO2 unit loaded in step 13

16 Use the following information to determine where to proceed.

If TST	Do
passed	step 17
failed	step 22

17 Use the following information to determine where to proceed.

If you entered this procedure from	Do
alarm clearing procedures	step 22
other	step 18

18 Return the inactive RCO2 unit to service by typing

>RTS UNIT **rco2_unit_no**

and pressing the Enter key.

where

rco2_unit_no
is the number of the RCO2 unit tested in step 15

19 Use the following information to determine where to proceed.

If RTS	Do
passed	step 20
failed	step 24

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

NTBX01
in an RSC-S (PCM-30) Model A RCO2 (end)

21 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 24.

22 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.

23 Obtain further assistance in replacing this card by contacting operating company maintenance personnel.

24 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.

NTBX01 in an RSC-S (PCM-30) Model B RCO2

Application

Use this procedure to replace an NTBX01 card in an RSC-S RCO2.

PEC	Suffixes	Name
NTBX01	AB, AC, BA	ISDN Signaling Preprocessor
Note: NTBX01AC or NTBX01BA is required when the RC02 is configured with the optional processor NTAX74AA instead of the NTMX77AA.		

Common procedures

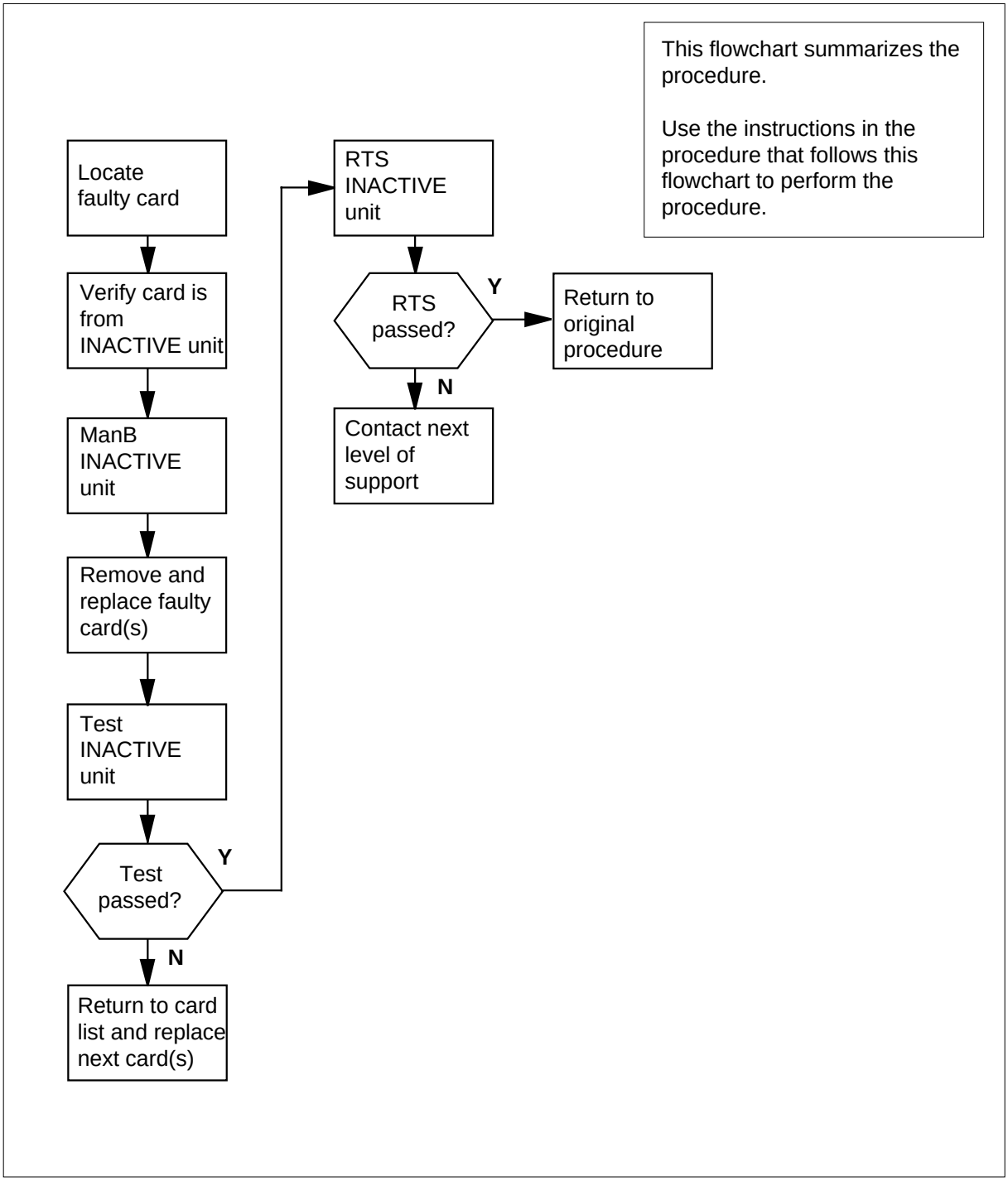
None

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.

NTBX01
in an RSC-S (PCM-30) Model B RCO2 (continued)

Summary of card replacement procedure for an NTBX01 card in RSC-S RCO2



NTBX01 in an RSC-S (PCM-30) Model B RCO2

Replacing an NTBX01 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 NTBX01 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 Ensure the PM level of the MAP display is currently displayed and the RCO2 is posted by typing

```
>MAPCI;MTC;PM;POST RCO2 rco2_unit_no
```

and pressing the Enter key.

where

rco2_unit_no
is the number of the RCO2 with the faulty card

Example of a MAP display:

NTBX01
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 ISTb  Links_OOS:  CSide  0, PSide   0
 5 TRNSL   Unit0:   Inact InSv
 6 TST     Unit1:   Act InSv
 7 BSY
 8 RTS
 9 OffL
10 LoadPM_
11 Disp_
12 Next_
13
14 QueryPM
15
16
17
18
```

4 By observing the MAP display, be sure that the card 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.

At the RCE frame

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.

NTBX01 in an RSC-S (PCM-30) Model B RCO2

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)

At the RCE frame

9



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 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:

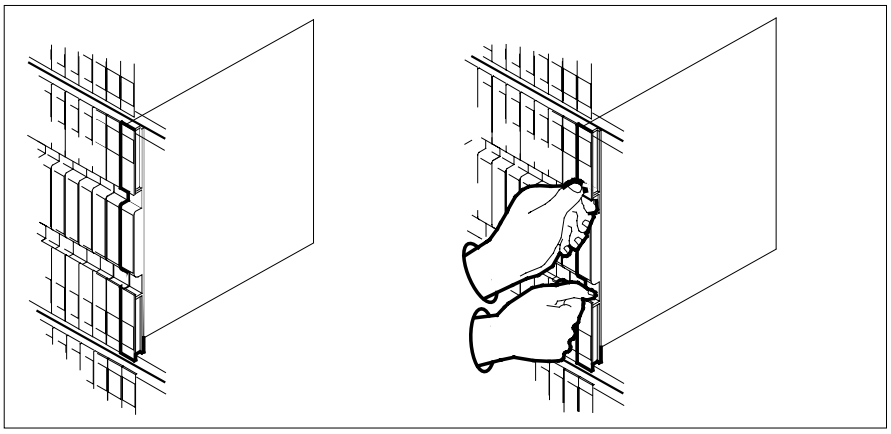
1. Do not apply direct pressure to the components.2. Do not force the card into its slot.

Put on a wrist strap.

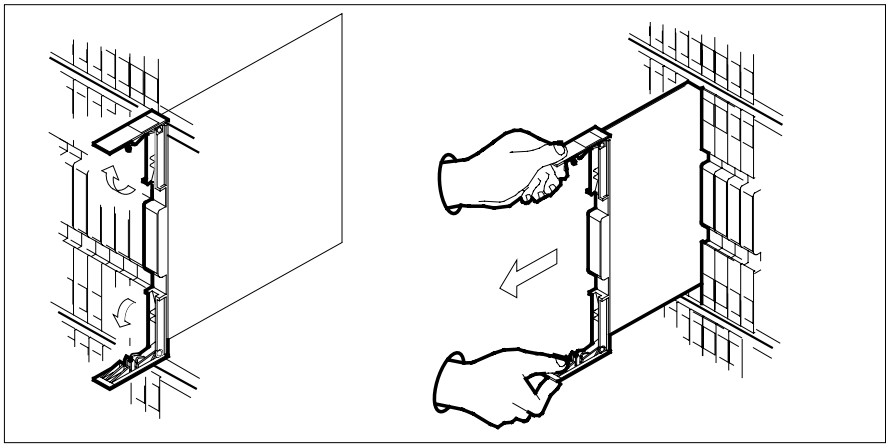
10 Remove the NTBX01 card as shown in the following figures.

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

NTBX01
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.

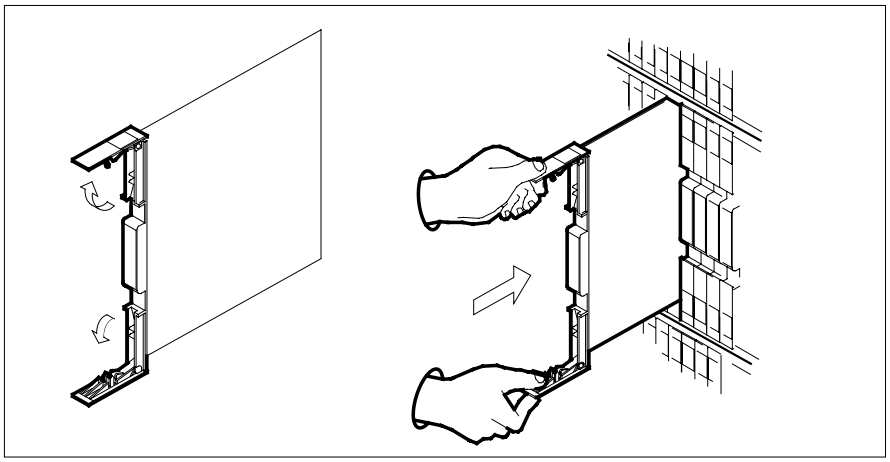


c Ensure the replacement card has the same PEC, including suffix, as the card you just removed.

11 Open the locking levers on the replacement card.

a Align the card with the slots in the shelf.

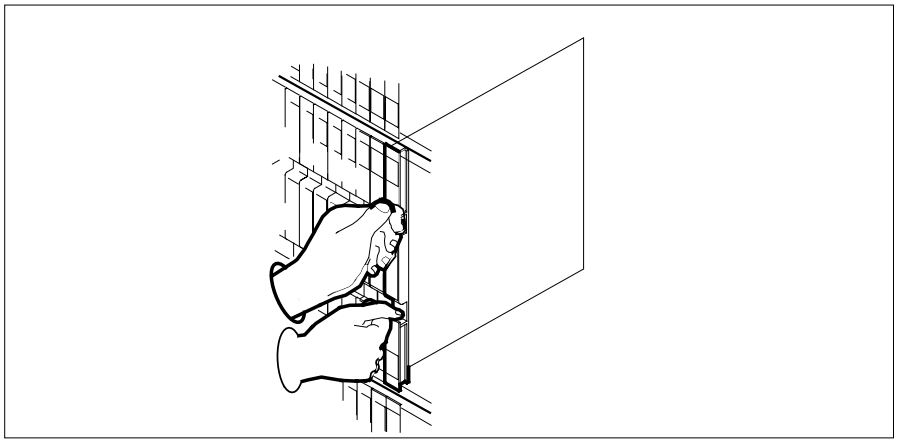
b Gently slide the card into the shelf.



12 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

13 After replacing the faulty card, load the inactive RCO2 unit by typing

>LOADPM UNIT **rco2_unit_no CC**

and pressing the Enter key.

where

rco2_unit_no
is the number of the RCO2 unit busied in step 8

NTBX01
in an RSC-S (PCM-30) Model B RCO2 (continued)

14 Use the following information to determine where to proceed.

If LOADPM	Do
passed	step 15
failed	step 23

15 Test the inactive unit by typing

>TST UNIT **rco2_unit_no**

and pressing the Enter key.

where

rco2_unit_no
is the number of the RCO2 unit loaded in step 13

16 Use the following information to determine where to proceed.

If TST	Do
passed	step 17
failed	step 22

17 Use the following information to determine where to proceed.

If you entered this procedure from	Do
alarm clearing procedures	step 22
other	step 18

18 Return the inactive RCO2 unit to service by typing

>RTS UNIT **rco2_unit_no**

and pressing the Enter key.

where

rco2_unit_no
is the number of the RCO2 unit tested in step 15

19 Use the following information to determine where to proceed.

If RTS	Do
passed	step 20
failed	step 24

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

NTBX01 in an RSC-S (PCM-30) Model B RCO2

21 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 24.

22 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.

23 Obtain further assistance in replacing this card by contacting operating company maintenance personnel.

24 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.

NTBX01 in an SMA

Application

Use this procedure to replace an NTBX01 card in an SMA.

PEC	Suffixes	Name
NTBX01	AB	Enhanced ISDN Signal Pre-processor

Common procedures

The following procedures are referenced in this procedure:

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

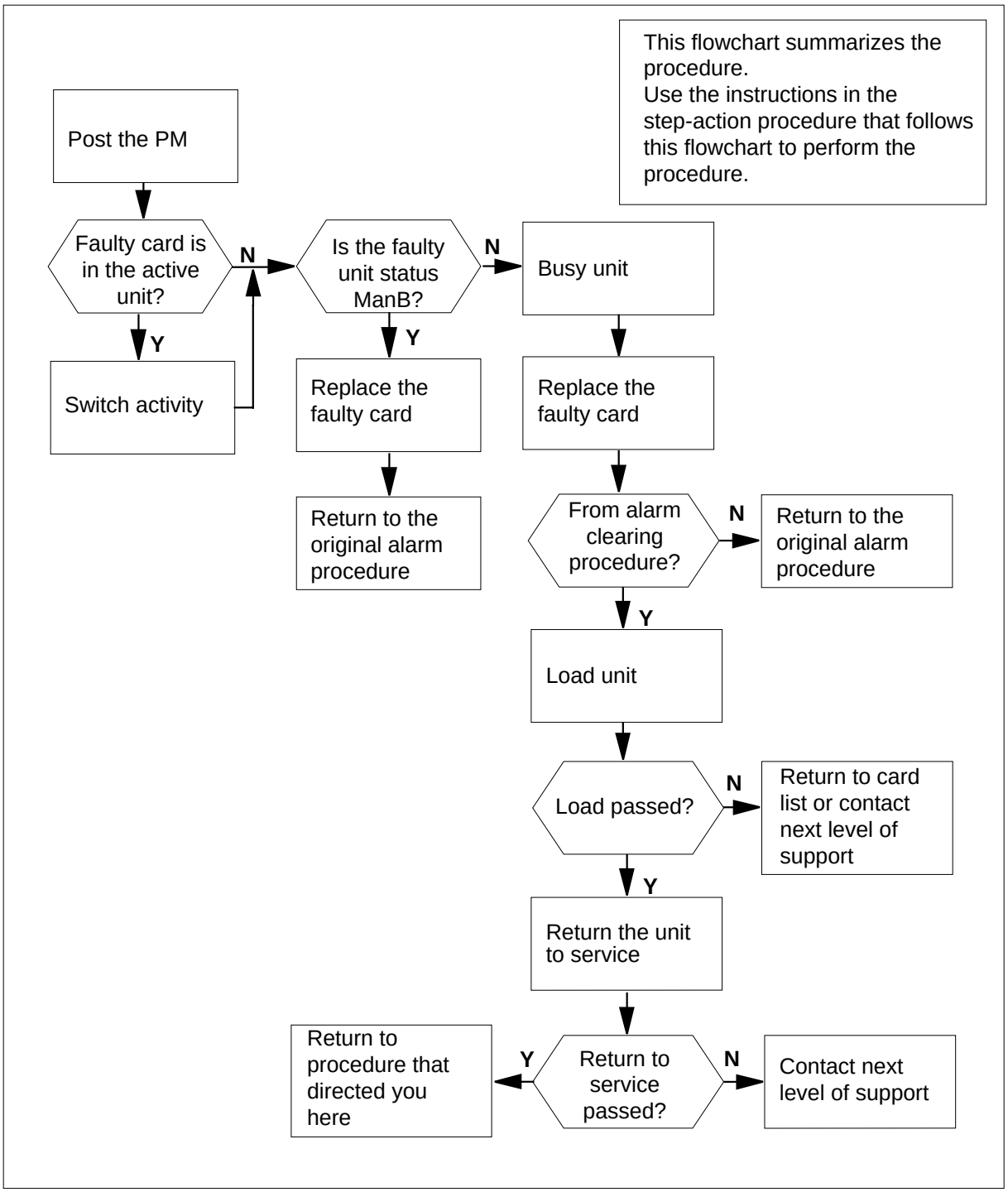
Do not go to the common procedures unless directed to do so in the step-action procedure.

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.

NTBX01 in an SMA (continued)

Summary of card replacement procedure for an NTBX01 card in an SMA



NTBX01 in an SMA (continued)

Replacing an NTBX01 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

NTBX01
in an SMA (continued)

```
        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
```

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

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

7 Switch the activity of the units by typing

>SWACT

and pressing the Enter key.

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

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

8 Confirm the system prompt by typing

>YES

and pressing the Enter key.

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

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

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

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 the 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

NTBX01 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 LOADPM	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.

NTBX01 in an SMA-MVI-20

Application

Use this procedure to replace an NTBX01 card in an SMA.

PEC	Suffixes	Name
NTBX01	AB	Enhanced ISDN Signal Pre-processor

Common procedures

The following procedures are referenced in this procedure:

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

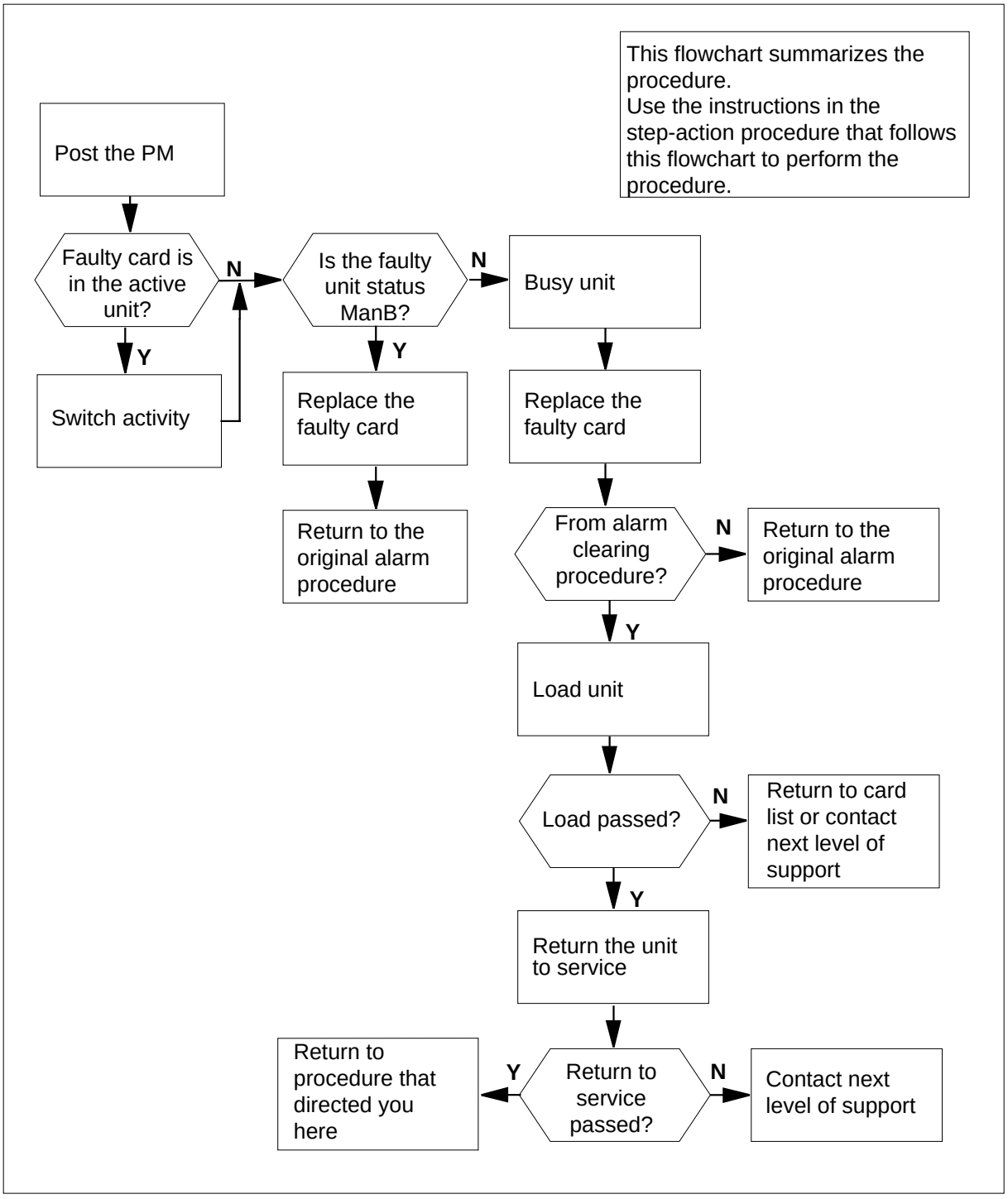
Do not go to the common procedures unless directed to do so in the step-action procedure.

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.

NTBX01
in an SMA-MVI-20 (continued)

Summary of card replacement procedure for an NTBX01 card in an SMA



NTBX01 in an SMA-MVI-20 (continued)

Replacing an NTBX01 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

NTBX01
in an SMA-MVI-20 (continued)

```
          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
```

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
	step 8
	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

NTBX01
in an SMA-MVI-20 (continued)

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

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

Go to step 22.

At the equipment frame

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

At the MAP terminal

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

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

13



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

Busy the inactive PM unit by typing

`>BSY UNIT unit_no`

and pressing the Enter key.

where

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

At the equipment frame

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

NTBX01
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 TST	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

If RTS	Do
failed	step 22

At the equipment frame

19 Remove the sign from the active SMA unit.

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

21 Note the following in the office records:

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

Go to step 23.

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

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

NTBX01 in an SMA2

Application

Use this procedure to replace an NTBX01 card in an SMA2.

PEC	Suffixes	Name
NTBX01	AC	Enhanced ISDN Signal Pre-processor

Common procedures

The following procedures are referenced in this procedure:

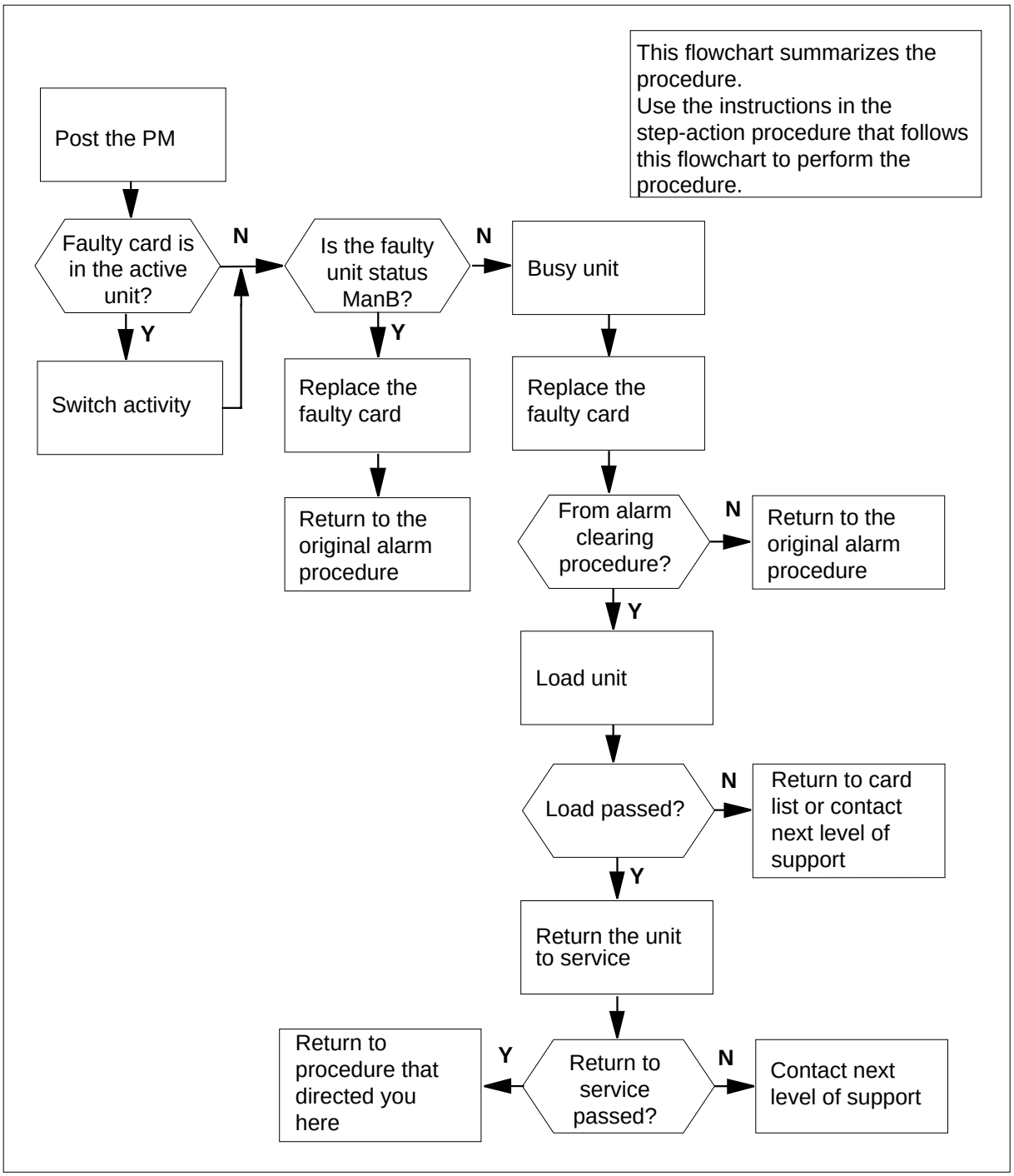
- “Locating a faulty card in an SMA2"
- replacing a card
- returning a card

Action

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

NTBX01
in an SMA2 (continued)

Summary of card replacement procedure for an NTBX01 card in an SMA2



NTBX01 in an SMA2 (continued)

Replacing a NTBX01 card in a 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

NTBX01
in an SMA2 (continued)

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

SMA2 0 ISTb  Links_OOS:  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

NTBX01
in an SMA2 (continued)

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

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

Go to step 21.

At the frame or cabinet

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 the state is	Do
`Manb`	step 14
`SysB, CBsy, ISTb, or InSv`	step 13

13



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.

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 SMA2 unit (0 or 1)

NTBX01 in an SMA2 (continued)

At the frame or cabinet

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 18
other	step 16

At the MAP terminal

16 Load the inactive SMA2 unit by typing

`>LOADPM UNIT unit_no`

and pressing the Enter key.

where

unit_no
is the number of the busied SMA2 unit

If load	Do
passed	step 17
failed	step 21

17 Return the inactive SMA2 unit to service by typing

`>RTS UNIT unit_no`

and pressing the Enter key.

where

unit_no
is the number of the SMA2 unit loaded in step 17

If RTS	Do
passed	step 18
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 the common returning a card procedure in this document.

Go to step 22.

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

NTBX01 in an SMA2 (end)

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

NTBX01 in an SMU

Application

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

PEC	Suffix	Name
NTBX01	AB	Enhanced ISDN pre-processor (EISP)

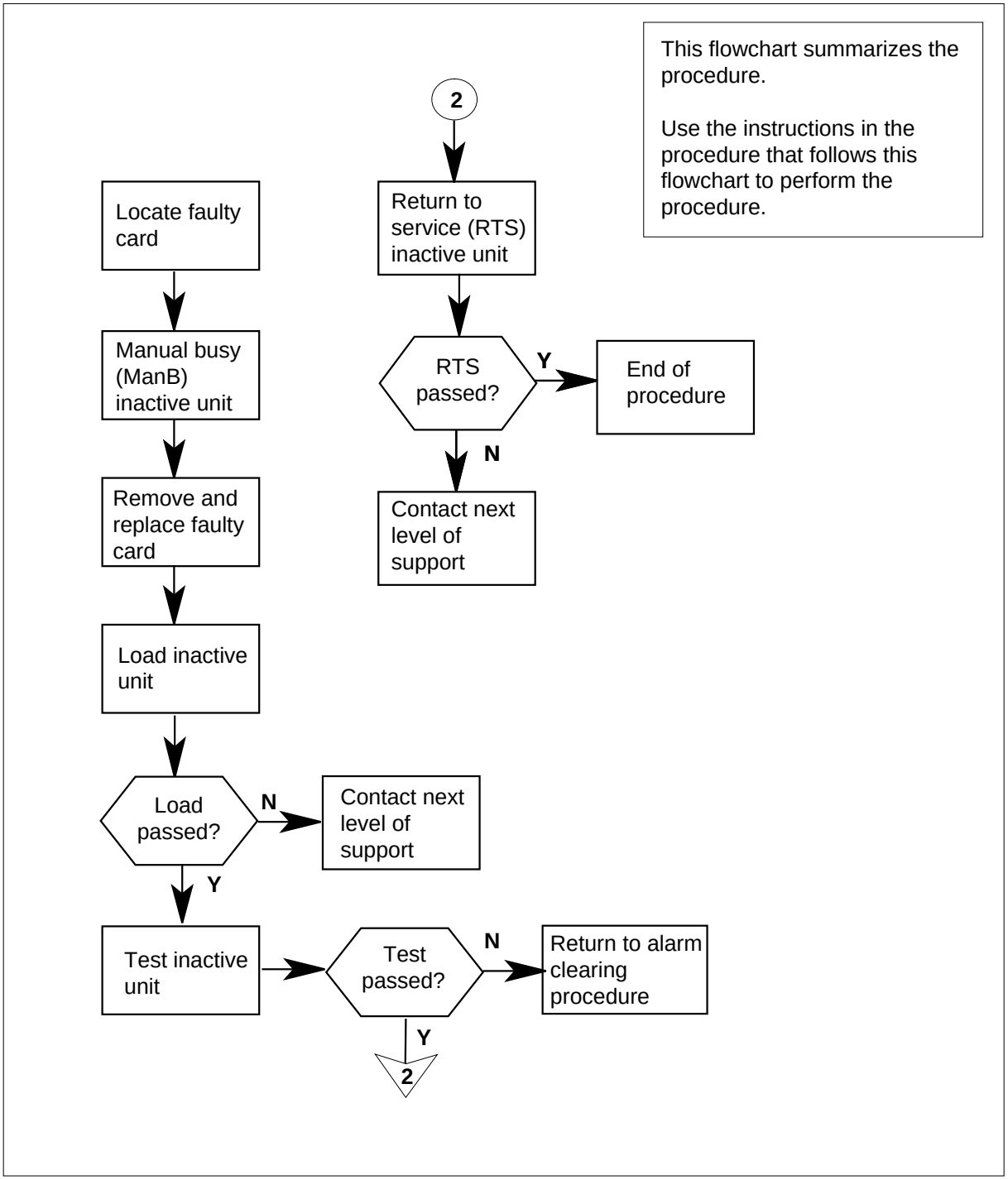
Common procedures

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.

NTBX01
in an SMU (continued)



Replacing an NTBX01 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 Access the PM level of the MAP (maintenance and administration position) terminal 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 (0 or 1)

Example of a MAP response:

```
SMU 3     INSV    LINKS_OOS    CSIDE     PSIDE 0
Unit0      Act     InSv
Unit1     Inact    IsTb
```

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`

and pressing the Enter key.

NTBX01
in an SMU (continued)

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 20

6 Switch the activity of the unit by typing

>YES

and pressing the Enter key.

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

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

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

7 Return to the *Alarm Clearing Procedures* to clear the alarm condition on the inactive unit. When the alarm is cleared, return to step 8 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)

10 Go to the common replacing a card procedure in this document, then return to step 11 of this procedure.

NTBX01 in an SMU (continued)

11 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 12

12 After replacing the faulty card, load the inactive SMU unit by typing

>LOADPM UNIT **unit_no**

and pressing the Enter key.

where

unit_no
is the number of the SMU unit busied in step 9

If LOADPM	Do
passed	step 13
failed	step 18

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 loaded in step 12

If TST	Do
passes	step 14
fails	step 18

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
passed	step 15

NTBX01 in an SMU (end)

If RTS	Do
failed	step 18

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

16 Record the following items in the office records:

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

Go to step 19.

17 Return to *Alarm Clearing Procedures*.

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.

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

19 You have successfully completed this procedure. Remove the sign from the active unit, return to the maintenance procedure that directed you to this card replacement procedure, and continue as directed.

20 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.

NTBX02 in an RSC RCC2

Application

Use this procedure to replace an NTBX02 card in an RSCE RCC2.

PEC	Suffixes	Name
NTBX02	AA, BA	D-Channel Handler

Common procedures

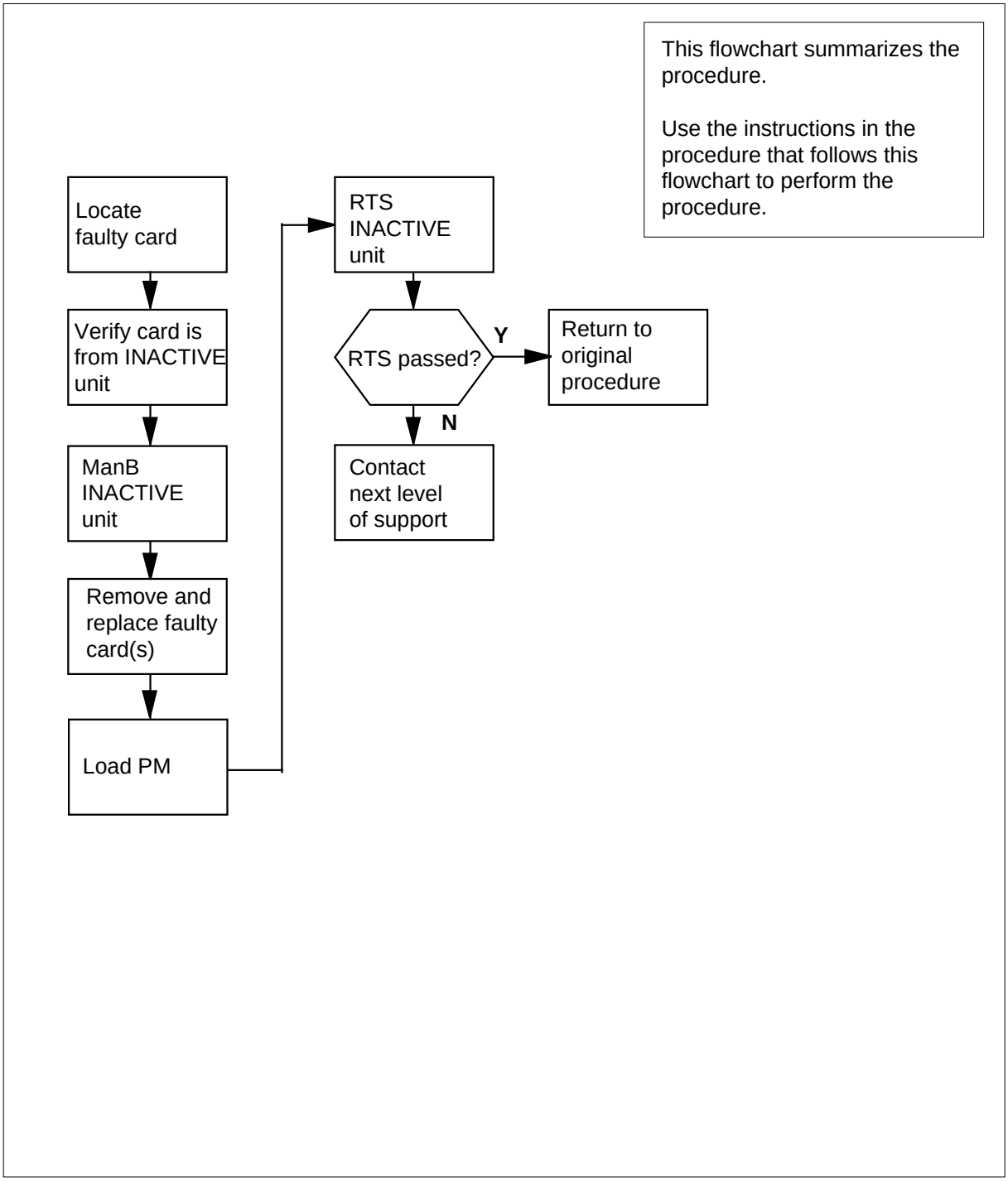
None

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.

NTBX02 in an RSC RCC2 (continued)

Summary of card replacement procedure for an NTBX02 card in an RSC-S RCC2



NTBX02 in an RSC RCC2 (continued)

Replacing an NTBX02 card in an RSC 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.

If the faulty card is	Do
in an extension (EXT) shelf	step 3
not in an EXT shelf	step 4

At the MAP terminal

3 For an extension shelf, refer to the slot positions in the following table to determine which unit contains the faulty NTBX02 card, and proceed to step 4.

IfEXT shelf slot number	DoCPM unit number
3 / 24	0
4 / 23	0
5 / 22	0
6 / 21	0
7 / 20	0
8 / 19	1
9 / 18	1

NTBX02 in an RSC RCC2 (continued)

IfEXT shelf slot number	DoCPM unit number
10 / 17	1
11 / 16	1
12 / 15	1

4 Ensure the PM level of the MAP display is currently displayed and the RCC2 with the faulty DCH card is posted 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:

```
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     Links_OOS:  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 DCH
16
17
18
```

5 Refer to the MAP display posted in step 4 to see if the faulty NTBX02 card is in the active or inactive unit.

If faulty card is in	Do
active unit	step 6
inactive unit	step 10

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

>SWACT

and pressing the Enter key.

If SWACT	Do
cannot continue at this time	step 7
can continue at this time	step 8

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

>NO

and pressing the Enter key.

The system discontinues the SWACT.

Return to step 6 during a period of low traffic.

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 to the next maintenance action.

If the message is	Do
SWACT passed	step 10
SWACT failed	step 9
SWACT refused by SWACT controller	step 9

9 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 RSCE frame

10 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.

At the MAP terminal

11 Busy the inactive PM unit by typing

>bsy unit **unit_no**

and pressing the Enter key.

where

NTBX02 in an RSC RCC2 (continued)

unit_no
is the number of the inactive RCC2 unit (0 or 1) containing the faulty BX02 card

12 Access the DCH level of the MAP display by typing

>DCH

and pressing the Enter key.

Example of a MAP display:

```
CM    MS    IOD    Net    PM    CCS    LNS    Trks    Ext    Appl
 .     .      .      .      .     .      .      .       .      .

 DCH              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
 4         RCC2  0     Links_OOS:  CSide  0, PSide   0
 5 TRNSL   Unit0:   InSv
 6 TST     Unit1:   InSv
 7 BSY
 8 RTS       DCH     0        0        0        1        0         0
 9 OffL
10 LoadPM_
11 Disp_
12 Next_
13 SwAct
14 QueryPM
15 DCH
16
17 Perform
18
```

13 Using the information in the MAP display in step 12, identify and post the faulty DCH card state by typing

>POST dch_card_state

and pressing the Enter key.

where

dch_card_state
is either CBsy, SysB or ISTb. The example in step 12 shows the DCH card as being CBsy.

Example of a MAP display:

```
CM    MS    IOD    Net    PM    CCS    LNS    Trks    Ext    Appl    .
  .     .      .      .      .      .

DCH              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
4         RCC2  0    Links_OOS:  CSide  0, PSide   0
5 TRNSL   Unit0:   InSv
6 TST     Unit1:   InSv
7 BSY
8 RTS        DCH    0        0        0        1        0         0
9 OffL
10 LoadPM_    DCH   0  ISG   1   CBSY   RCC2     2  PORT  15
11 Disp_
12 Next_
13 SwAct
14 QueryPM
15 DCH
16
17 Perform
18
```

14 Identify the DCH load file name by typing

>QUERYPM

and pressing the Enter key.

Example of a MAP response

```
Site  Flr  RPos  Bay_id   Shf  Description    Slot  EqPEC
HOST  01    R09 LTEI 00   32   LTC : 002      02    BX02

Loadnames : DCHINV – DCH32BT  : INTL INDEX : 8
```

The DCH load file name in the example is *DCH32BT*.

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

If system load module is	Do
version 1	step 16
version 2	step 17

16 List the loadfile in the directory by typing

>DSKUT;LISTVOL D000 DCH load_file_name ALL

and pressing the Enter key.

or

>DSKUT;LISTVOL D010 DCH_load_file_name ALL

NTBX02 in an RSC RCC2 (continued)

and pressing the Enter key.

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

Example of a MAP response
TAPE$DIR
DCH32BT

Proceed to step 18.

17 List the loadfile in the directory by typing

>DISKUT;LV S00D

and pressing the Enter key.

>LF S00D file_name

and pressing the Enter key.

or

>DISKUT;LV S01D

and pressing the Enter key.

>LF S01D file_name

and pressing the Enter key.

18 Leave the disk utility by typing

>quit

and pressing the Enter key.

19 Compare the information in the example in step 14 with the information in the example in step 16 to verify the DCH file name exists. For instance, the file name in step 16 is *DCH32BT*, which corresponds to the file name in step 14.

20 Busy the faulty card by typing

>BSY

and pressing the Enter key.

NTBX02
in an RSC RCC2 (continued)

At the RSCE frame

21



WARNING
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.



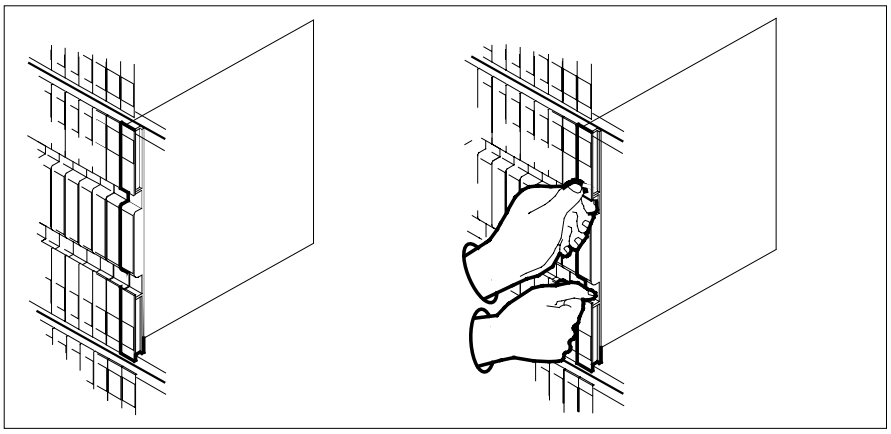
DANGER
Equipment damage
Take these precautions when removing or inserting a card:

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

Put on a wrist strap.

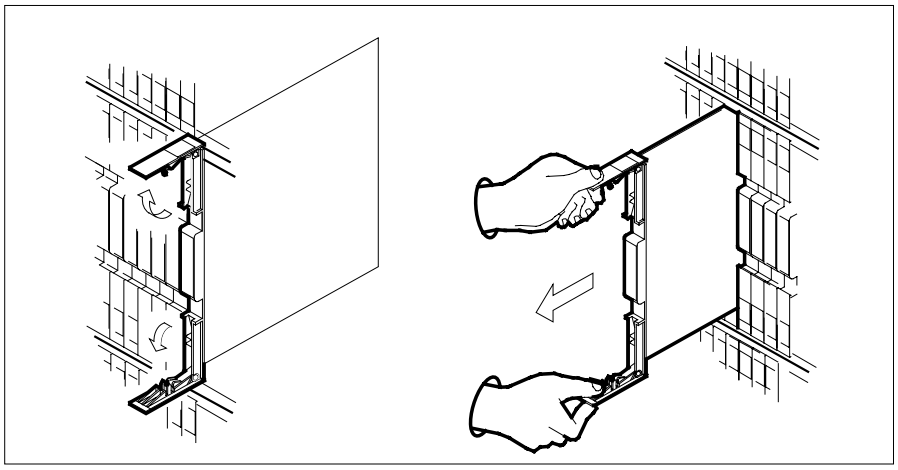
22 Remove the NTBX02 card as shown in the following figures.

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.

NTBX02
in an RSC RCC2 (continued)

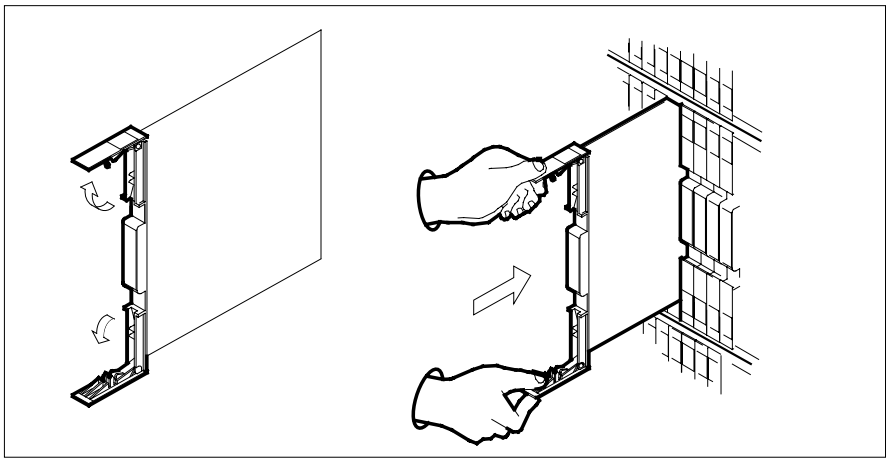


c Ensure the replacement card has the same PEC, including suffix, as the card you just removed.

23 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.



24

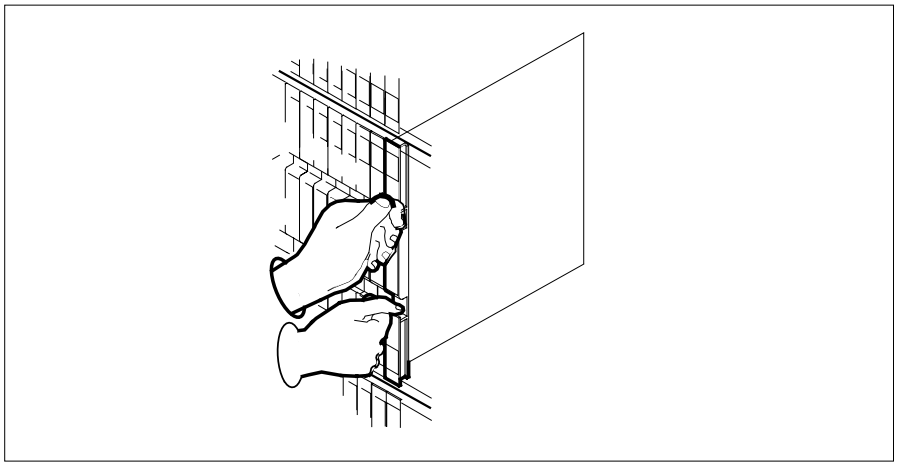
CAUTION
Loss of subscriber service
Subscriber service may be lost in the active unit when reseating the NTBX02 card.

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

25 Load the DCH card by typing

>LOADPM

and pressing the Enter key.

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

If load	Do
passed	step 27
failed	step 34

27 Return the DCH card to service by typing

>RTS

NTBX02
in an RSC RCC2 (continued)

and pressing the Enter key.

If RTS	Do
passed	step 28
failed	step 34

28 Leave the DCH level of the MAP display and return to the RCC2 level by typing

>QUIT

and pressing the Enter key.

29 Return to service the PM unit busied in step 11 by typing

***>RTS unit* unit_no**

and pressing the Enter key.

where

unit_no
is the number of the inactive RCC2 unit (0 or 1) containing the new BX02 card

30 Ensure that the RCC2 unit is in service by typing

>QUERYPM FLT

and pressing the Enter key.

Example of a MAP display:

```
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        1
 3 ListSet
 4         RCC2  0  InSv  Links_OOS:  CSide  0, PSide   0
 5 TRNSL_  Unit0:   Act InSv
 6 Tst_    Unit1:   Inact InSv
 7 Bsy_    QUERYPM FLT
 8 RTS_         Unit0  No troubles exist
 9 OffL         Unit1  No troubles exist
10 LoadPM_
11 Disp_
12 Next
13
14 QueryPM
15 DCH
16
17
18
```

NTBX02 in an RSC RCC2 (end)

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

If faults are	Do
not indicated	step 31
indicated	step 34

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

32 Record the date the card was replaced, the serial number of the card, and the symptoms that prompted replacement of the card.

If you entered this procedure from	Do
alarm clearing procedures	step 33
other	step 35

33 Return to *Alarm Clearing Procedures* 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.

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

35 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.

NTBX02 in an RSC-S (DS-1) Model A RCC2

Application

Use this procedure to replace an NTBX02 card in an RSC-S RCC2.

PEC	Suffixes	Name
NTBX02	AA, BA	D-Channel Handler
Note: NTBX02BA is required when the RCC2 is configured with the optional processor NTAX74AA instead of the NTMX77AA.		

Common procedures

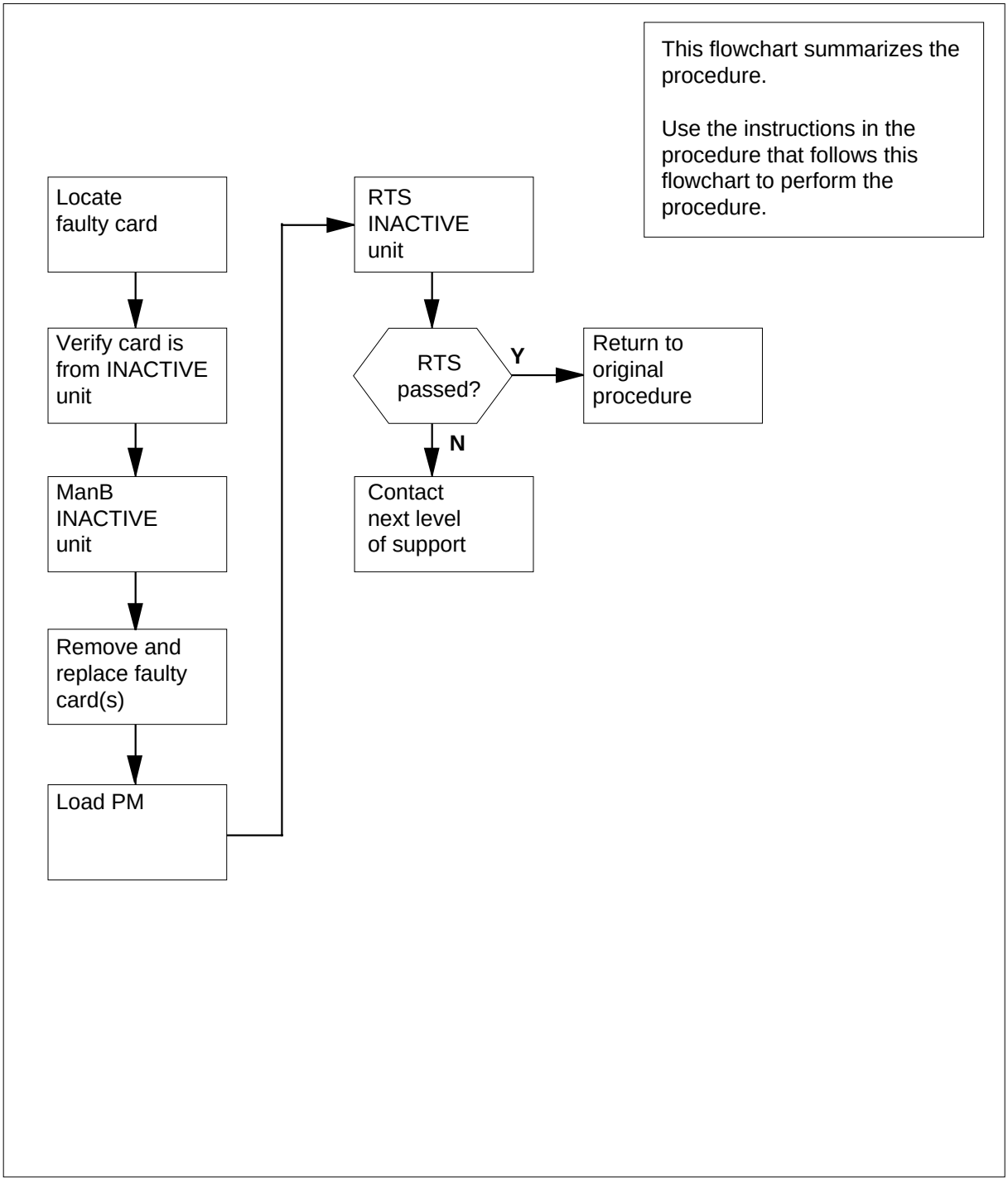
None

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.

NTBX02
in an RSC-S (DS-1) Model A RCC2 (continued)

Summary of card replacement procedure for an NTBX02 card in an RSC-S RCC2



NTBX02 in an RSC-S (DS-1) Model A RCC2 (continued)

Replacing an NTBX02 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.

If the faulty card is	Do
in an extension (EXT) shelf	step 3
not in an EXT shelf	step 4

At the MAP terminal

3 For an extension shelf, refer to the slot positions in the following table to determine which unit contains the faulty NTBX02 card, and proceed to step 4.

IfEXT shelf slot number	DoCPM unit number
3 / 24	0
4 / 23	0
5 / 22	0
6 / 21	0
7 / 20	0
8 / 19	1
9 / 18	1

NTBX02 in an RSC-S (DS-1) Model A RCC2 (continued)

If EXT shelf slot number	DoCPM unit number
10 / 17	1
11 / 16	1
12 / 15	1

4 Ensure the PM level of the MAP display is currently displayed and the RCC2 with the faulty DCH card is posted 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:

```
 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     Links_OOS:  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 DCH
16
17
18
```

5 Refer to the MAP display posted in step 4 to see if the faulty NTBX02 card is in the active or inactive unit.

If faulty card is in	Do
active unit	step 6
inactive unit	step 11

NTBX02
in an RSC-S (DS-1) Model A RCC2 (continued)

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

>SWACT

and pressing the Enter key.

If SWACT	Do
cannot continue at this time	step 7
can continue at this time	step 8

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

>NO

and pressing the Enter key.

The system discontinues the SWACT.

Return to step 6 during a period of low traffic.

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 to the next maintenance action.

If the message is	Do
SWACT passed	step 10
SWACT failed	step 9
SWACT refused by SWACT controller	step 9

9 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 RCE frame

10 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.

At the MAP terminal

11 Busy the inactive PM unit by typing

>bsy unit **unit_no**

and pressing the Enter key.

where

NTBX02
in an RSC-S (DS-1) Model A RCC2 (continued)

unit_no
is the number of the inactive RCC2 unit (0 or 1) containing the faulty BX02 card

12 Access the DCH level of the MAP display by typing

>DCH

and pressing the Enter key.

Example of a MAP display:

```
CM    MS    IOD    Net    PM    CCS    LNS    Trks    Ext    Appl
 .     .      .      .     .     .      .       .       .      .

 DCH              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
 4         RCC2  0     Links_OOS:  CSide  0, PSide   0
 5 TRNSL   Unit0:   InSv
 6 TST     Unit1:   InSv
 7 BSY
 8 RTS       DCH     0        0        0        1        0         0
 9 OffL
10 LoadPM_
11 Disp_
12 Next_
13 SwAct
14 QueryPM
15 DCH
16
17 Perform
18
```

13 Using the information in the MAP display in step 12, identify and post the faulty DCH card state by typing

>POST dch_card_state

and pressing the Enter key.

where

dch_card_state
is either CBsy, SysB or ISTb. The example in step 12 shows the DCH card as being CBsy.

Example of a MAP display:

NTBX02
in an RSC-S (DS-1) Model A RCC2 (continued)

```
CM    MS    IOD    Net    PM    CCS    LNS    Trks    Ext    Appl
 .     .      .      .     .     .      .      .       .      .

DCH              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
 4         RCC2  0    Links_OOS:  CSide  0, PSide   0
 5 TRNSL   Unit0:   InSv
 6 TST     Unit1:   InSv
 7 BSY
 8 RTS        DCH    0        0        0        1        0         0
 9 OffL
10 LoadPM_    DCH   0  ISG   1   CBSY   RCC2     2  PORT  15
11 Disp_
12 Next_
13 SwAct
14 QueryPM
15 DCH
16
17 Perform
18
```

14 Identify the DCH load file name by typing

>QUERYPM

and pressing the Enter key.

Example of a MAP response

```
Site  Flr  RPos  Bay_id   Shf  Description    Slot  EqPEC
HOST  01    R09 LTEI 00   32   LTC : 002      02    BX02

Loadnames : DCHINV – DCH32BT  : INTL INDEX : 8
```

The DCH load file name in the example is *DCH32BT*.

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

If system load module is	Do
version 1	step 16
version 2	step 17

16 List the loadfile in the directory by typing

>DSKUT;LISTVOL D000 DCH load_file_name ALL

and pressing the Enter key.

or

>DSKUT;LISTVOL D010 DCH_load_file_name ALL

and pressing the Enter key.

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

Example of a MAP response
TAPE$DIR
DCH32BT

Proceed to step 18.

17 List the loadfile in the directory by typing

```
>DISKUT;LV S00D
```

and pressing the Enter key.

```
>LF S00D file_name
```

and pressing the Enter key.

or

```
>DISKUT;LV S01D
```

and pressing the Enter key.

```
>LF S01D file_name
```

and pressing the Enter key.

18 Leave the disk utility by typing

```
>quit
```

and pressing the Enter key.

19 Compare the information in the example in step 14 with the information in the example in step 16 to verify the DCH file name exists. For instance, the file name in step 16 is *DCH32BT*, which corresponds to the file name in step 14.

20 Busy the faulty card by typing

```
>BSY
```

and pressing the Enter key.

NTBX02 in an RSC-S (DS-1) Model A RCC2 (continued)

At the RCE frame

21

WARNING
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.

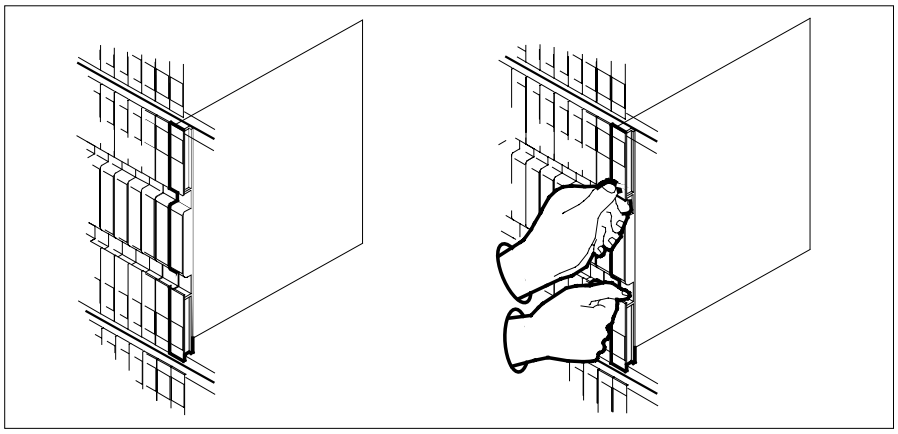
DANGER
Equipment damage
Take these precautions when removing or inserting a card:

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

Put on a wrist strap.

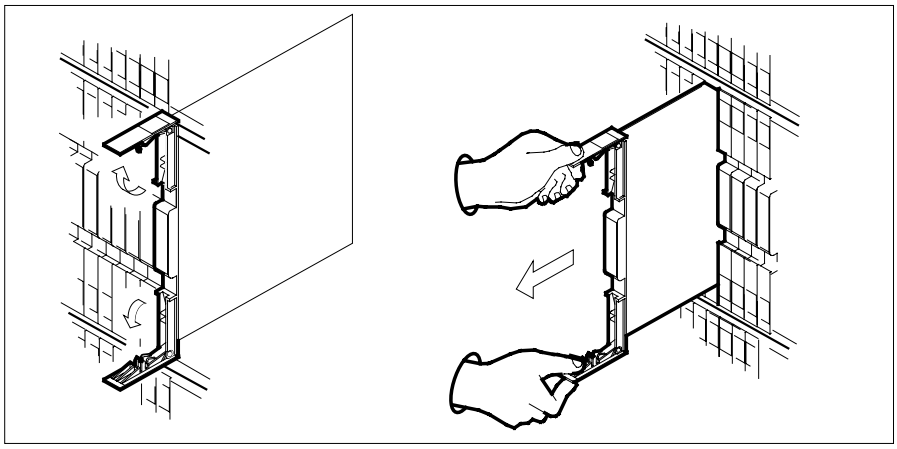
22 Remove the NTBX02 card as shown in the following figures.

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.

NTBX02
in an RSC-S (DS-1) Model A RCC2 (continued)

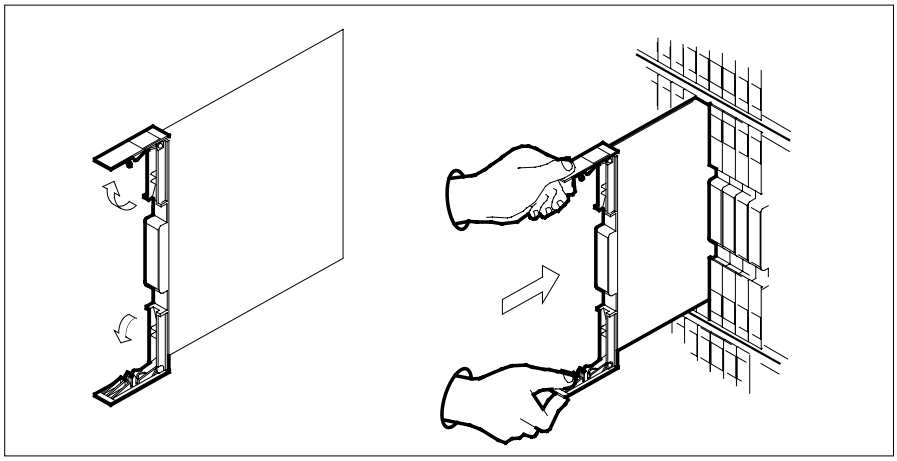


c Ensure the replacement card has the same PEC, including suffix, as the card you just removed.

23 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.



24

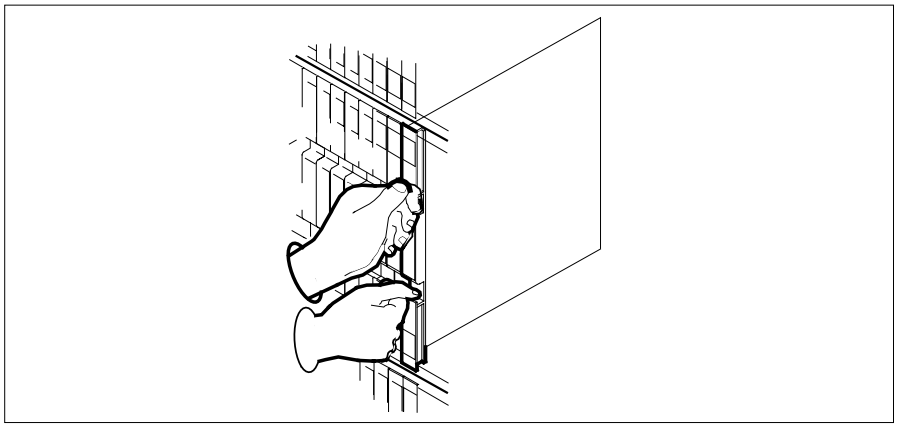
CAUTION
Loss of subscriber service
Subscriber service may be lost in the active unit when reseating the NTBX02 card. It is recommended that this procedure be performed during low traffic periods.

NTBX02
in an RSC-S (DS-1) Model A RCC2 (continued)

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

25 Load the DCH card by typing

>LOADPM

and pressing the Enter key.

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

If load	Do
passed	step 27
failed	step 34

27 Return the DCH card to service by typing

>RTS

and pressing the Enter key.

If RTS	Do
passed	step 28
failed	step 34

28 Leave the DCH level of the MAP display and return to the RCC2 level by typing

>QUIT

and pressing the Enter key.

NTBX02
in an RSC-S (DS-1) Model A RCC2 (continued)

29 Return to service the PM unit busied in step 11 by typing

>RTS unit **unit_no**

and pressing the Enter key.

where

unit_no
is the number of the inactive RCC2 unit (0 or 1) containing the new BX02 card

30 Ensure that the RCC2 unit is in service by typing

>QUERYPM FLT

and pressing the Enter key.

Example of a MAP display:

```
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         1
 3 ListSet
 4         RCC2  0  InSv  Links_OOS:  CSide  0, PSide   0
 5 TRNSL_  Unit0:   Act InSv
 6 Tst_    Unit1:   Inact InSv
 7 Bsy_    QUERYPM FLT
 8 RTS_         Unit0  No troubles exist
 9 OffL         Unit1  No troubles exist
10 LoadPM_
11 Disp_
12 Next
13
14 QueryPM
15 DCH
16
17
18
```

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

If faults are	Do
not indicated	step 31
indicated	step 34

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

NTBX02 in an RSC-S (DS-1) Model A RCC2 (end)

32 Record the date the card was replaced, the serial number of the card, and the symptoms that prompted replacement of the card.

If you entered this procedure from	Do
alarm clearing procedures	step 33
other	step 35

33 Return to *Alarm Clearing Procedures* 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.

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

35 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.

NTBX02 in an RSC-S (DS-1) Model B RCC2

Application

Use this procedure to replace an NTBX02 card in an RSC-S RCC2.

PEC	Suffixes	Name
NTBX02	AA, BA	D-Channel Handler
Note: NTBX02BA is required when the RCC2 is configured with the optional processor NTAX74AA instead of the NTMX77AA.		

Common procedures

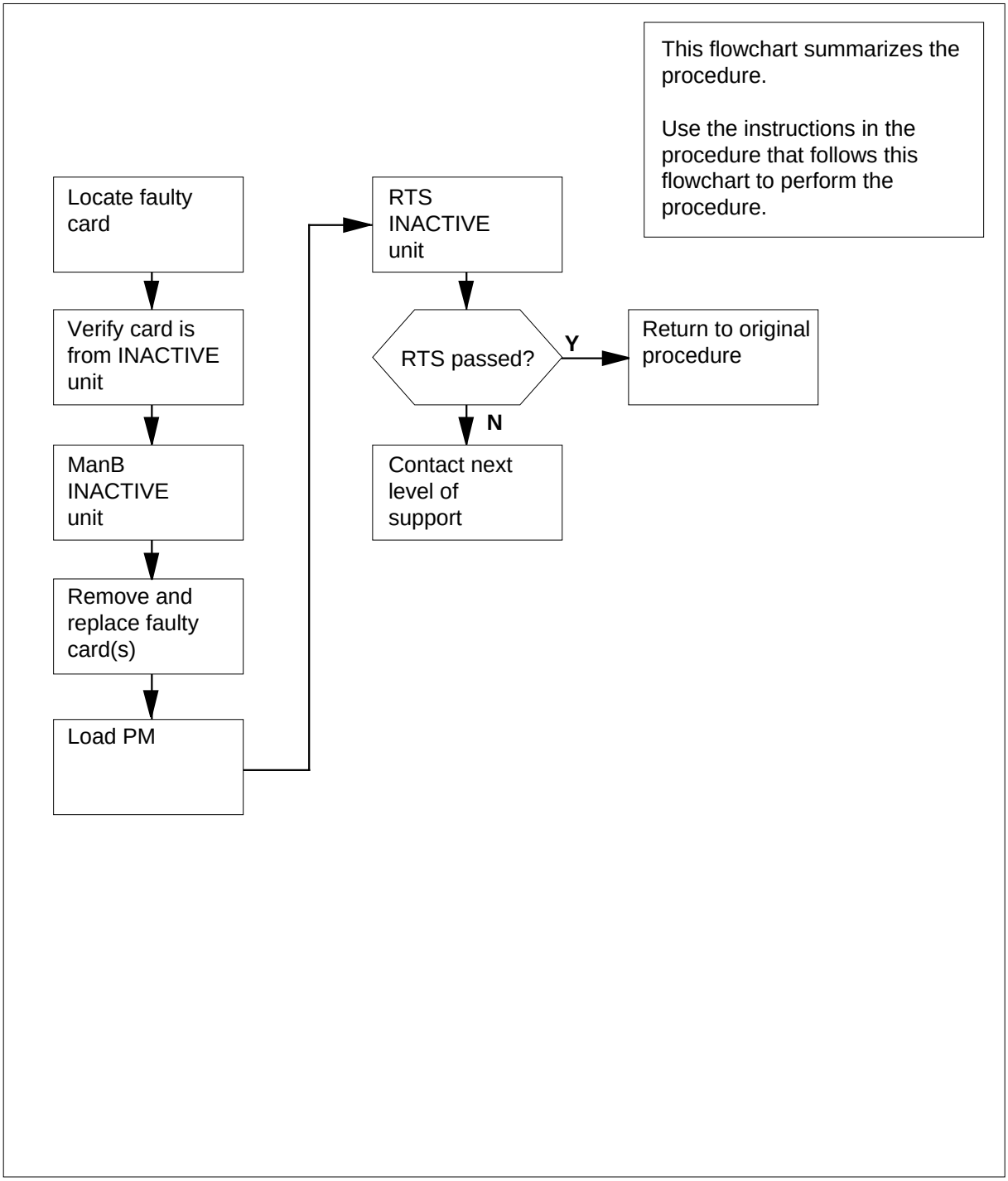
None

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.

NTBX02
in an RSC-S (DS-1) Model B RCC2 (continued)

Summary of card replacement procedure for an NTBX02 card in an RSC-S RCC2



NTBX02 in an RSC-S (DS-1) Model B RCC2 (continued)

Replacing an NTBX02 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.

If the faulty card is	Do
in an extension (EXT) shelf	step 3
not in an EXT shelf	step 4

At the MAP terminal

3 For an extension shelf, refer to the slot positions in the following table to determine which unit contains the faulty NTBX02 card, and proceed to step 4.

IfEXT shelf slot number	DoCPM unit number
3 / 24	0
4 / 23	0
5 / 22	0
6 / 21	0
7 / 20	0
8 / 19	1
9 / 18	1

NTBX02
in an RSC-S (DS-1) Model B RCC2 (continued)

If EXT shelf slot number	DoCPM unit number
10 / 17	1
11 / 16	1
12 / 15	1

4 Ensure the PM level of the MAP display is currently displayed and the RCC2 with the faulty DCH card is posted 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:

```
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     Links_OOS:  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 DCH
16
17
18
```

5 Refer to the MAP display posted in step 4 to see if the faulty NTBX02 card is in the active or inactive unit.

If faulty card is in	Do
active unit	step 6
inactive unit	step 11

NTBX02
in an RSC-S (DS-1) Model B RCC2 (continued)

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

>SWACT

and pressing the Enter key.

If SWACT	Do
cannot continue at this time	step 7
can continue at this time	step 8

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

>NO

and pressing the Enter key.

The system discontinues the SWACT.

Return to step 1 during a period of low traffic.

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 to the next maintenance action.

If the message is	Do
SWACT passed	step 10
SWACT failed	step 9
SWACT refused by SWACT controller	step 9

9 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 RCE frame

10 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.

At the MAP terminal

11 Busy the inactive PM unit by typing

>bsy unit unit_no

and pressing the Enter key.

where

NTBX02
in an RSC-S (DS-1) Model B RCC2 (continued)

unit_no
is the number of the inactive RCC2 unit (0 or 1) containing the faulty BX02 card

12 Access the DCH level of the MAP display by typing

>DCH

and pressing the Enter key.

Example of a MAP display:

```
 CM    MS    IOD    Net    PM    CCS    LNS    Trks    Ext    Appl
  .     .     .      .     .      .      .       .      .      .

DCH              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
4         RCC2  0     Links_OOS:  CSide  0, PSide   0
5 TRNSL   Unit0:   InSv
6 TST     Unit1:   InSv
7 BSY
8 RTS       DCH     0        0        0        1        0         0
9 OffL
10 LoadPM_
11 Disp_
12 Next_
13 SwAct
14 QueryPM
15 DCH
16
17 Perform
18
```

13 Using the information in the MAP display in step 12, identify and post the faulty DCH card state by typing

>POST dch_card_state

and pressing the Enter key.

where

dch_card_state
is either CBsy, SysB or ISTb. The example in step 12 shows the DCH card as being CBsy.

Example of a MAP display:

NTBX02
in an RSC-S (DS-1) Model B RCC2 (continued)

```
CM    MS    IOD    Net    PM    CCS    LNS    Trks    Ext    Appl
 .     .     .      .      .     .      .       .      .       .

DCH              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
4         RCC2  0    Links_OOS:  CSide  0, PSide   0
5 TRNSL   Unit0:   InSv
6 TST     Unit1:   InSv
7 BSY
8 RTS        DCH    0        0        0        1        0         0
9 OffL
10 LoadPM_    DCH   0  ISG   1   CBSY   RCC2     2  PORT  15
11 Disp_
12 Next_
13 SwAct
14 QueryPM
15 DCH
16
17 Perform
18
```

14 Identify the DCH load file name by typing

>QUERYPM

and pressing the Enter key.

Example of a MAP response

```
Site  Flr  RPos  Bay_id   Shf  Description    Slot  EqPEC
HOST  01    R09 LTEI 00   32   LTC : 002      02    BX02

Loadnames : DCHINV – DCH32BT  : INTL INDEX : 8
```

The DCH load file name in the example is *DCH32BT*.

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

If system load module is	Do
version 1	step 16
version 2	step 17

16 List the loadfile in the directory by typing

>DSKUT;LISTVOL D000 DCH load_file_name ALL

and pressing the Enter key.

or

>DSKUT;LISTVOL D010 DCH_load_file_name ALL

NTBX02
in an RSC-S (DS-1) Model B RCC2 (continued)

and pressing the Enter key.

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

Example of a MAP response
TAPE$DIR
DCH32BT

Proceed to step 18.

17 List the loadfile in the directory by typing

>DISKUT;LV S00D

and pressing the Enter key.

>LF S00D file_name

and pressing the Enter key.

or

>DISKUT;LV S01D

and pressing the Enter key.

>LF S01D file_name

and pressing the Enter key.

18 Leave the disk utility by typing

>quit

and pressing the Enter key.

19 Compare the information in the example in step 14 with the information in the example in step 16 to verify the DCH file name exists. For instance, the file name in step 16 is *DCH32BT*, which corresponds to the file name in step 14.

20 Busy the faulty card by typing

>BSY

and pressing the Enter key.

NTBX02
in an RSC-S (DS-1) Model B RCC2 (continued)

At the RCE frame

21

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.

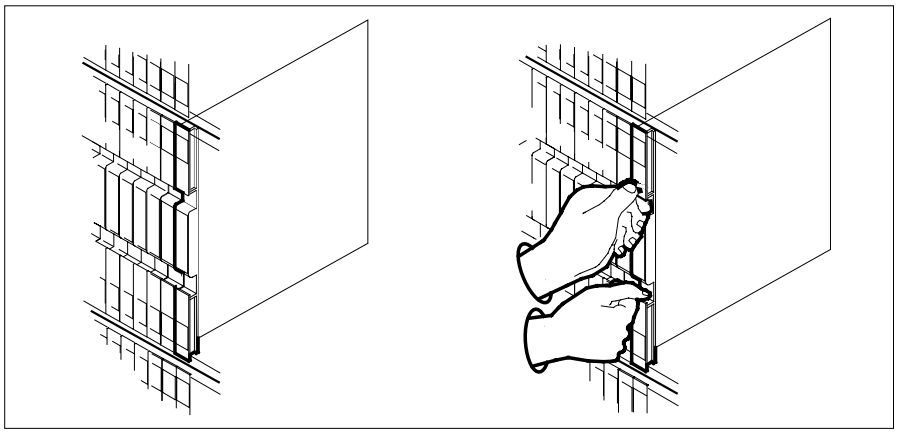
DANGER
Equipment damage
Take these precautions when removing or inserting a card:

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

Put on a wrist strap.

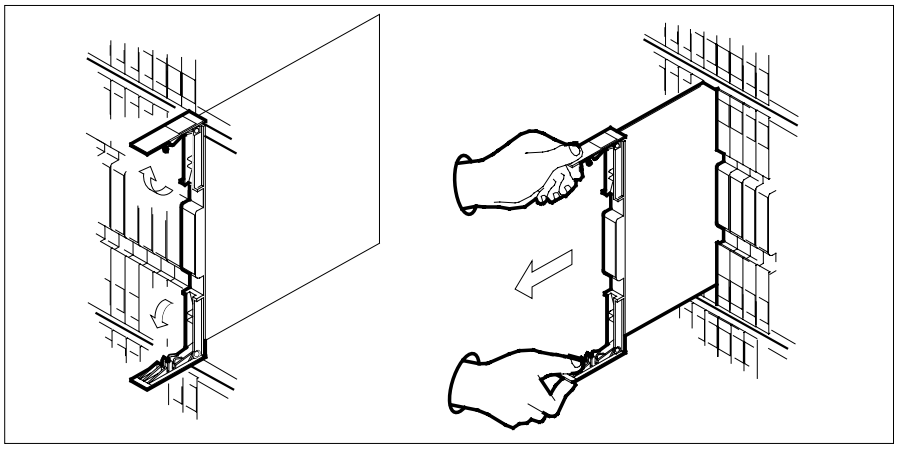
22 Remove the NTBX02 card as shown in the following figures.

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.

NTBX02
in an RSC-S (DS-1) Model B RCC2 (continued)

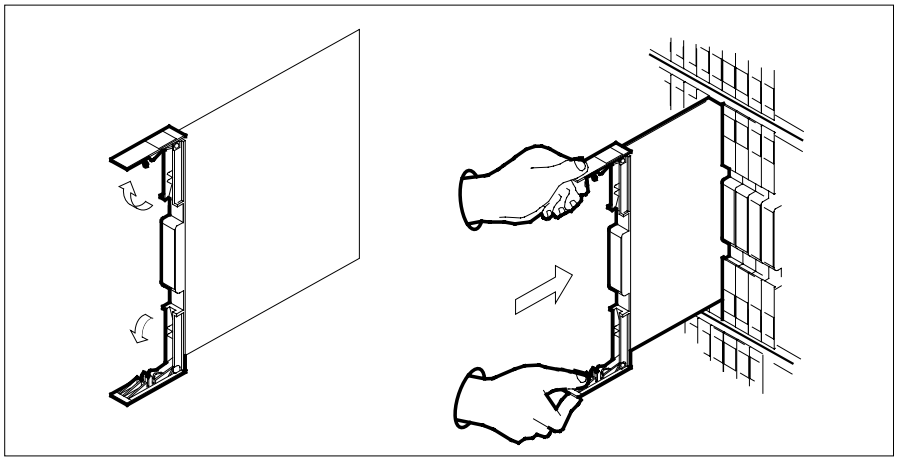


c Ensure the replacement card has the same PEC, including suffix, as the card you just removed.

23 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.



NTBX02
in an RSC-S (DS-1) Model B RCC2 (continued)

24

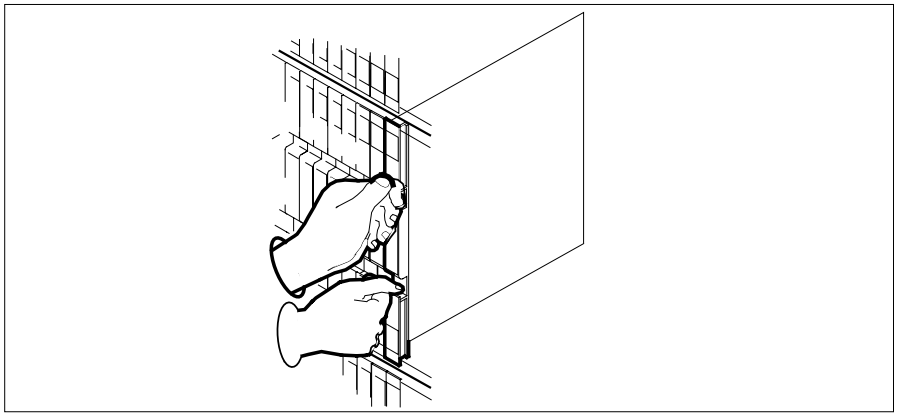
CAUTION
Loss of subscriber service
Subscriber service may be lost in the active unit when reseating the NTBX02 card.

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

25 Load the DCH card by typing

>LOADPM

and pressing the Enter key.

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

If load	Do
passed	step 27
failed	step 34

27 Return the DCH card to service by typing

>RTS

NTBX02
in an RSC-S (DS-1) Model B RCC2 (continued)

and pressing the Enter key.

If RTS	Do
passed	step 28
failed	step 34

28 Leave the DCH level of the MAP display and return to the RCC2 level by typing

>QUIT

and pressing the Enter key.

29 Return to service the PM unit busied in step 11 by typing

***>RTS unit* unit_no**

and pressing the Enter key.

where

unit_no
is the number of the inactive RCC2 unit (0 or 1) containing the new BX02 card

30 Ensure that the RCC2 unit is in service by typing

>QUERYPM FLT

and pressing the Enter key.

Example of a MAP display:

```
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        1
 3 ListSet
 4         RCC2  0  InSv  Links_OOS:  CSide  0, PSide   0
 5 TRNSL_  Unit0:   Act InSv
 6 Tst_    Unit1:   Inact InSv
 7 Bsy_    QUERYPM FLT
 8 RTS_         Unit0  No troubles exist
 9 OffL         Unit1  No troubles exist
10 LoadPM_
11 Disp_
12 Next
13
14 QueryPM
15 DCH
16
17
18
```

NTBX02 in an RSC-S (DS-1) Model B RCC2 (end)

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

If faults are	Do
not indicated	step 31
indicated	step 34

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

32 Record the date the card was replaced, the serial number of the card, and the symptoms that prompted replacement of the card.

If you entered this procedure from	Do
alarm clearing procedures	step 33
other	step 35

33 Return to *Alarm Clearing Procedures* 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.

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

35 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.

NTBX02 in an RSC-S (PCM-30) Model A RCO2

Application

Use this procedure to replace an NTBX02 card in an RSC-S RCO2.

PEC	Suffixes	Name
NTBX02	AA	D-Channel Handler
NTBX02	BA	Enhanced D-Channel Handler
Note: NTBX02BA is required when the RC02 is configured with the optional processor NTAX74AA instead of the NTMX77AA.		

Common procedures

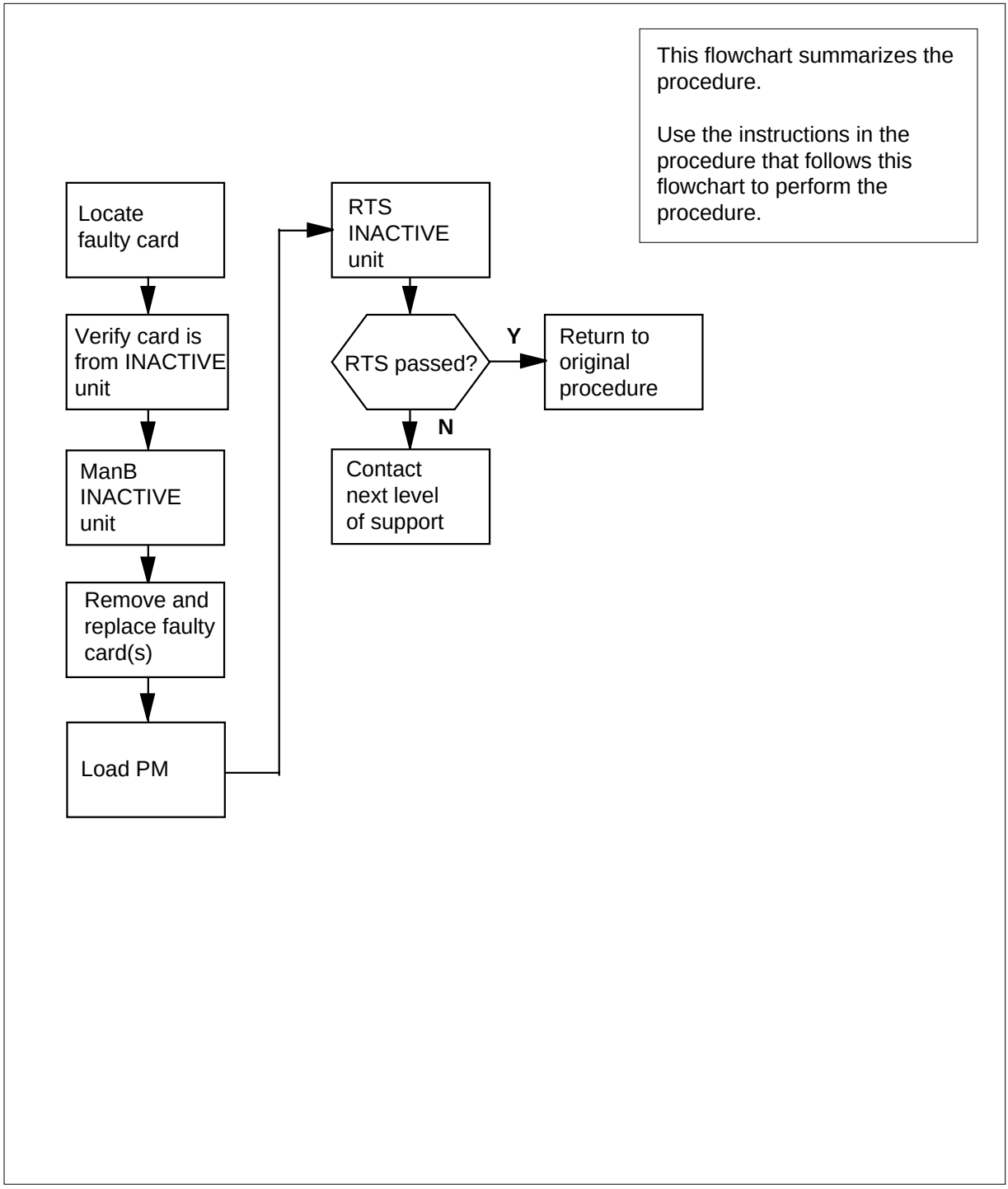
None

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.

NTBX02
in an RSC-S (PCM-30) Model A RCO2 (continued)

Summary of card replacement procedure for an NTBX02 card in an RSC-S RCO2



NTBX02 in an RSC-S (PCM-30) Model A RCO2 (continued)

Replacing an NTBX02 card 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.

If the faulty card is	Do
in an extension (EXT) shelf	step 3
not in an EXT shelf	step 4

At the MAP terminal

3 For an extension shelf, refer to the slot positions in the following table to determine which unit contains the faulty NTBX02 card, and proceed to step 4.

If EXT shelf slot number	Do CPM unit number
3 / 24	0
4 / 23	0
5 / 22	0
6 / 21	0
7 / 20	0
8 / 19	1
9 / 18	1
10 / 17	1
11 / 16	1
12 / 15	1

NTBX02 in an RSC-S (PCM-30) Model A RCO2 (continued)

4 Ensure the PM level of the MAP display is currently displayed and the RCO2 with the faulty DCH card is posted 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:

```
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     Links_OOS:  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 DCH
16
17
18
```

5 Refer to the MAP display posted in step 4 to see if the faulty NTBX02 card is in the active or inactive unit.

If faulty card is in	Do
active unit	step 6
inactive unit	step 10

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

>SWACT

and pressing the Enter key.

If SWACT	Do
cannot continue at this time	step 7

NTBX02
in an RSC-S (PCM-30) Model A RCO2 (continued)

If SWACT	Do
can continue at this time	step 8

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

>NO

and pressing the Enter key.

The system discontinues the SWACT.

Return to step 6 during a period of low traffic.

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 to the next maintenance action.

If the message is	Do
SWACT passed	step 10
SWACT failed	step 9
SWACT refused by SWACT controller	step 9

9 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 RCE frame

10 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

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 inactive RCO2 unit (0 or 1) containing the faulty BX02 card

12 Access the DCH level of the MAP display by typing

>DCH

and pressing the Enter key.

Example of a MAP display:

```
CM    MS    IOD    Net    PM    CCS    LNS    Trks    Ext    Appl
.     .     .      .      .     .      .      .       .      .

DCH              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
4         RCO2  0     Links_OOS:  CSide  0, PSide   0
5 TRNSL   Unit0:   InSv
6 TST     Unit1:   InSv
7 BSY
8 RTS       DCH    0        0        0        1        0         0
9 OffL
10 LoadPM_
11 Disp_
12 Next_
13 SwAct
14 QueryPM
15 DCH
16
17 Perform
18
```

13 Using the information in the MAP display in step 12, identify and post the faulty DCH card state by typing

`>POST dch_card_state`

and pressing the Enter key.

where

dch_card_state
is either CBsy, SysB or ISTb. The example in step 12 shows the DCH card as being CBsy.

Example of a MAP display

NTBX02
in an RSC-S (PCM-30) Model A RCO2 (continued)

```
CM    MS    IOD    Net    PM    CCS    LNS    Trks    Ext    Appl
.     .      .      .     .      .      .      .       .      .

DCH              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
4         RCO2  0    Links_OOS:  CSide  0, PSide   0
5 TRNSL   Unit0:   InSv
6 TST     Unit1:   InSv
7 BSY
8 RTS        DCH    0        0        0        1        0         0
9 OffL
10 LoadPM_    DCH   0  ISG   1   CBSY   RCO2     2  PORT  15
11 Disp_
12 Next_
13 SwAct
14 QueryPM
15 DCH
16
17 Perform
18
```

14 Identify the DCH load file name by typing

>QUERYPM

and pressing the Enter key.

Example of a MAP response

```
Site  Flr  RPos  Bay_id   Shf  Description    Slot  EqPEC
HOST  01    R09 LTEI 00   32   PLGC : 002      02    BX02

Loadnames : DCHINV – DCH32BT  : INTL INDEX : 8
```

The DCH load file name in the example is *DCH32BT*.

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

If system load module is	Do
version 1	step 16
version 2	step 17

16 List the loadfile in the directory by typing

>DSKUT;LISTVOL D000_dch_load_file_name ALL

and pressing the Enter key.

or

>DSKUT;LISTVOL D010_dch_load_file_name ALL

and pressing the Enter key.

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

Example of a MAP response:

```
TAPE$DIR
DCH32BT
```

Proceed to step 18.

17 List the loadfile in the directory by typing

`>DISKUT;LV S00D`

and pressing the Enter key.

`>LF S00D file_name`

and pressing the Enter key.

or

`>DISKUT;LV S01D`

and pressing the Enter key.

`>LF S01D file_name`

and pressing the Enter key.

18 Leave the disk utility by typing

`>quit`

and pressing the Enter key.

19 Compare the information in the example in step 14 with the information in the example in step 16 or 17 to verify the DCH file name exists. For instance, the file name in step 16 is *DCH32BT*, which corresponds with the file name in step 14.

20 Busy the faulty card by typing

`>BSY`

and pressing the Enter key.

NTBX02 in an RSC-S (PCM-30) Model A RCO2 (continued)

At the RCE frame

21

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.

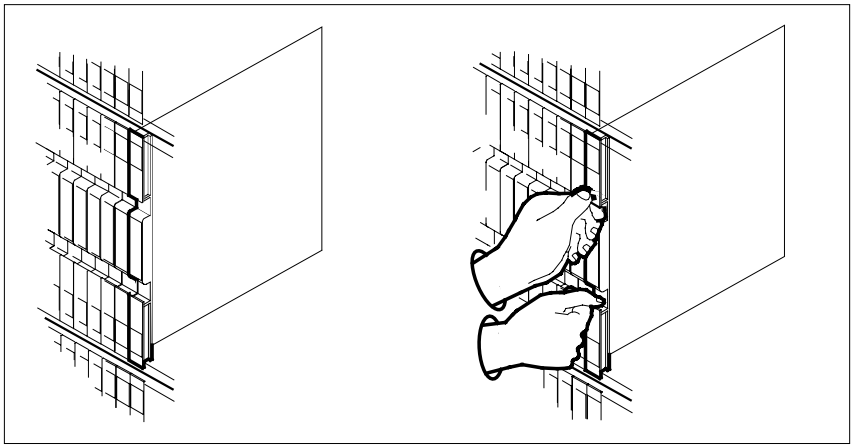
DANGER
Equipment damage
Take these precautions when removing or inserting a card:

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

Put on a wrist strap.

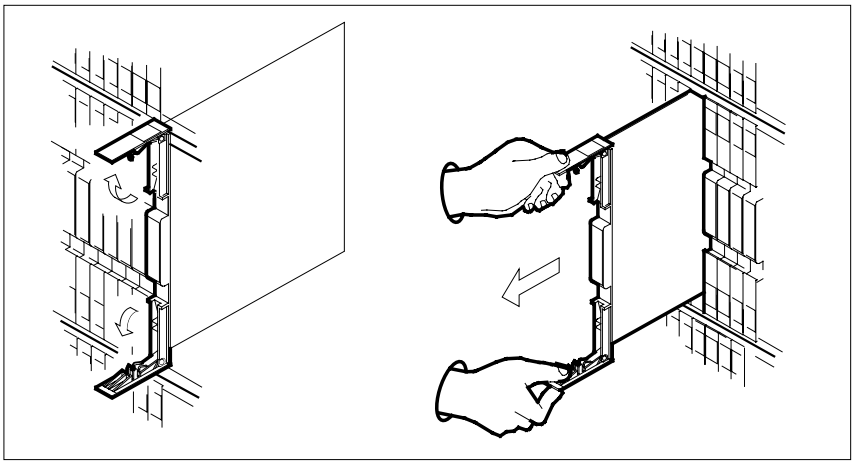
22 Remove the NTBX02 card as shown in the following figures.

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.

NTBX02
in an RSC-S (PCM-30) Model A RCO2 (continued)

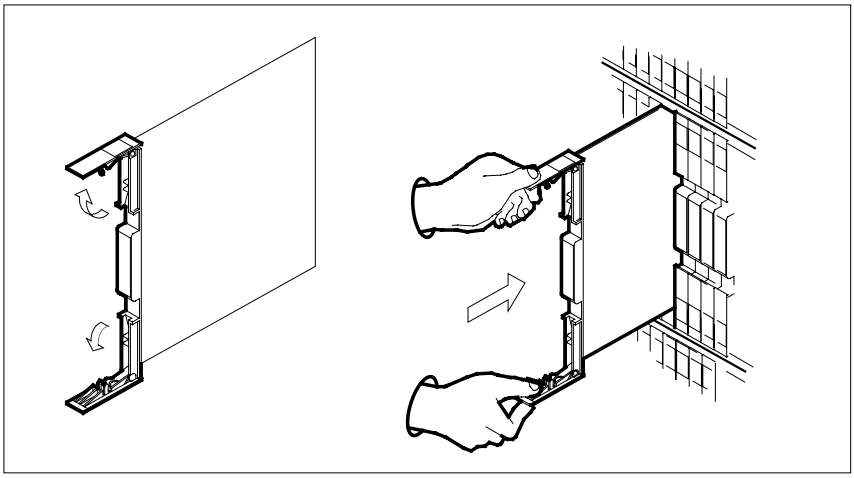


c Ensure the replacement card has the same PEC, including suffix, as the card you just removed.

23 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.



NTBX02
in an RSC-S (PCM-30) Model A RCO2 (continued)

24

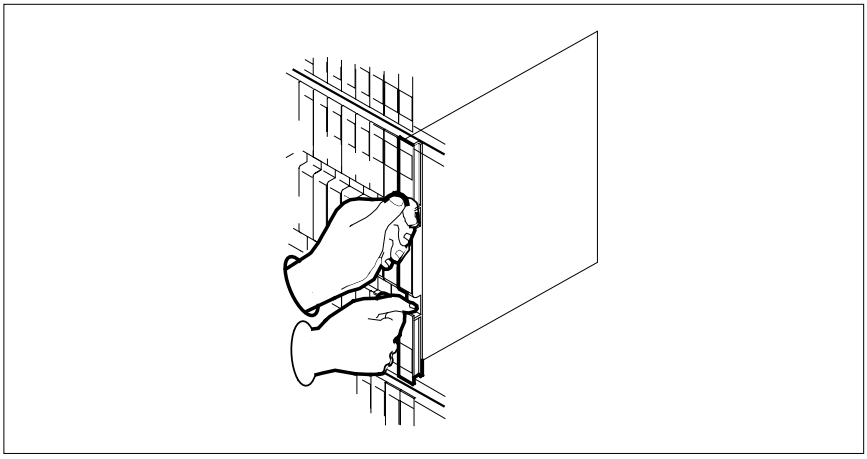
CAUTION
Loss of subscriber service
Subscriber service may be lost in the active unit when reseating the NTBX02 card.

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

25 Load the DCH card by typing

>LOADPM

and pressing the Enter key.

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

If LOADPM	Do
passed	step 27
failed	step 34

NTBX02 in an RSC-S (PCM-30) Model A RCO2 (continued)

27 Return the DCH card to service by typing

>RTS

and pressing the Enter key.

If RTS	Do
passed	step 28
failed	step 34

28 Leave the DCH level of the MAP display and return to the RCO2 level by typing

>QUIT

and pressing the Enter key.

29 Return to service the PM unit busied in step 11 by typing

>RTS unit **unit_no**

and pressing the Enter key.

where

unit_no
is the number of the inactive RCO2 unit (0 or 1) containing the new BX02 card

30 Ensure that the RCO2 unit is in service by typing

>QUERYPM FLT

and pressing the Enter key.

Example of a MAP display:

NTBX02
in an RSC-S (PCM-30) Model A RCO2 (end)

```
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        1
 3 ListSet
 4         RCO2  0  InSv  Links_OOS:  CSide  0, PSide   0
 5 TRNSL_  Unit0:   Act InSv
 6 Tst_    Unit1:   Inact InSv
 7 Bsy_    QUERYPM FLT
 8 RTS_         Unit0  No troubles exist
 9 OffL         Unit1  No troubles exist
10 LoadPM_
11 Disp_
12 Next
13
14 QueryPM
15 DCH
16
17
18
```

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

If faults are	Do
not indicated	step 31
indicated	step 34

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

32 Record the date the card was replaced, the serial number of the card, and the symptoms that prompted replacement of the card.

If you entered this procedure from	Do
alarm clearing procedures	step 33
other	step 35

33 Return to *Alarm Clearing Procedures* 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.

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

35 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.

NTBX02 in an RSC-S (PCM-30) Model B RCO2

Application

Use this procedure to replace an NTBX02 card in an RSC-S RCO2.

PEC	Suffixes	Name
NTBX02	AA	D-Channel Handler
NTBX02	BA	Enhanced D-Channel Handler
Note: NTBX02BA is required when the RC02 is configured with the optional processor NTAX74AA instead of the NTMX77AA.		

Common procedures

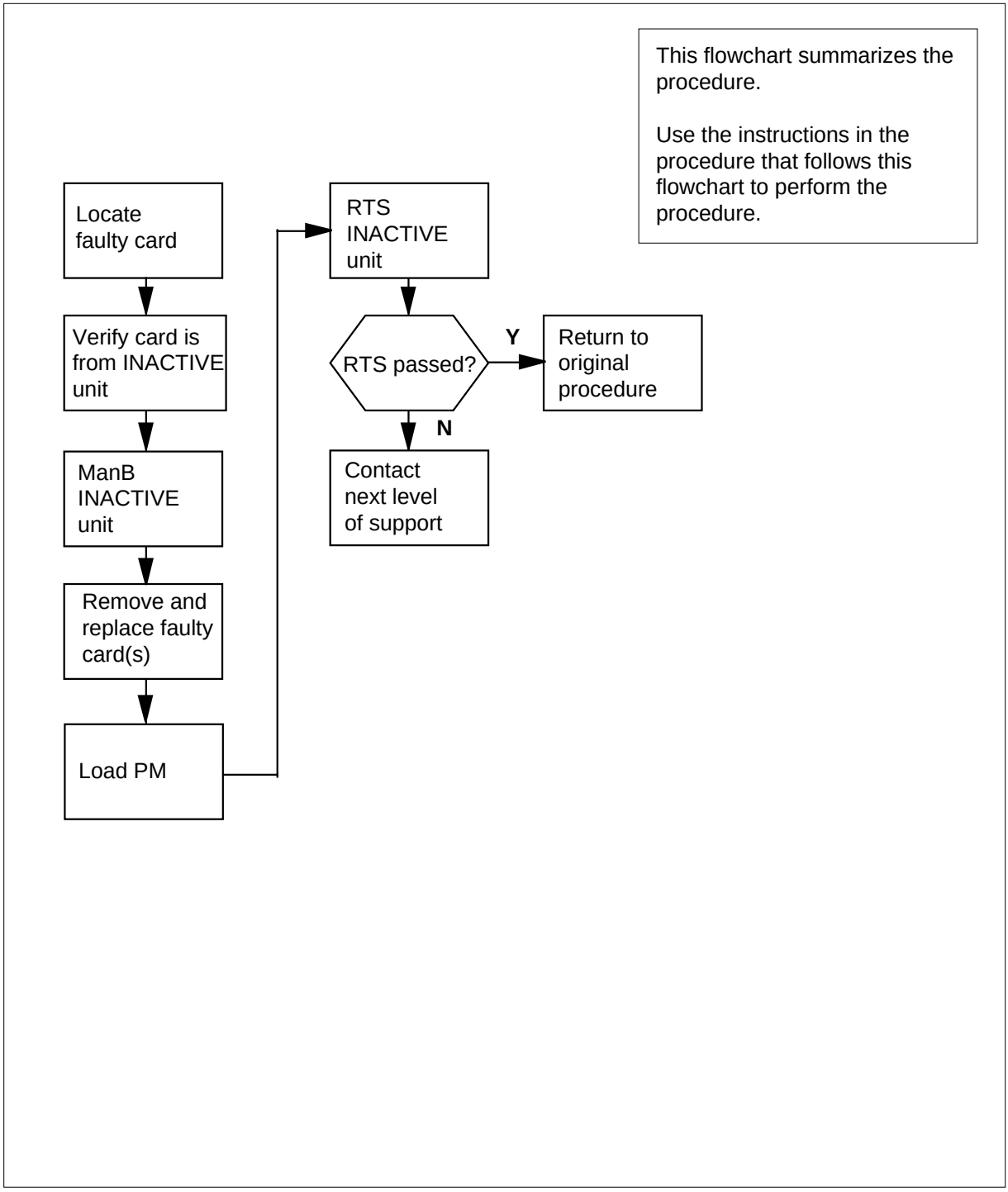
None

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.

NTBX02
in an RSC-S (PCM-30) Model B RCO2 (continued)

Summary of card replacement procedure for an NTBX02 card in an RSC-S RCO2



NTBX02
in an RSC-S (PCM-30) Model B RCO2 (continued)

Replacing an NTBX02 card 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.

If the faulty card is	Do
in an extension (EXT) shelf	step 3
not in an EXT shelf	step 4

At the MAP terminal

3 For an extension shelf, refer to the slot positions in the following table to determine which unit contains the faulty NTBX02 card, and proceed to step 4.

If EXT shelf slot number	Do CPM unit number
3 / 24	0
4 / 23	0
5 / 22	0
6 / 21	0
7 / 20	0
8 / 19	1
9 / 18	1
10 / 17	1
11 / 16	1
12 / 15	1

NTBX02
in an RSC-S (PCM-30) Model B RCO2 (continued)

4 Ensure the PM level of the MAP display is currently displayed and the RCO2 with the faulty DCH card is posted 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:

```
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     Links_OOS:  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 DCH
16
17
18
```

5 Refer to the MAP display posted in step 4 to see if the faulty NTBX02 card is in the active or inactive unit.

If faulty card is in	Do
active unit	step 6
inactive unit	step 10

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

>SWACT

and pressing the Enter key.

If SWACT	Do
cannot continue at this time	step 7

NTBX02 in an RSC-S (PCM-30) Model B RCO2 (continued)

If SWACT	Do
can continue at this time	step 8

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

>NO

and pressing the Enter key.

The system discontinues the SWACT.

Return to step 6 during a period of low traffic.

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 to the next maintenance action.

If the message is	Do
SWACT passed	step 10
SWACT failed	step 9
SWACT refused by SWACT controller	step 9

9 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 RCE frame

10 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

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 inactive RCO2 unit (0 or 1) containing the faulty BX02 card

12 Access the DCH level of the MAP display by typing

>DCH

NTBX02
in an RSC-S (PCM-30) Model B RCO2 (continued)

and pressing the Enter key.

Example of a MAP display:

```
CM    MS    IOD    Net    PM    CCS    LNS    Trks    Ext    Appl
.     .     .      .      .     .      .      .       .      .

DCH              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
4         RCO2  0     Links_OOS:  CSide  0, PSide   0
5 TRNSL   Unit0:   InSv
6 TST     Unit1:   InSv
7 BSY
8 RTS       DCH    0        0        0        1        0         0
9 OffL
10 LoadPM_
11 Disp_
12 Next_
13 SwAct
14 QueryPM
15 DCH
16
17 Perform
18
```

13 Using the information in the MAP display in step 12, identify and post the faulty DCH card state by typing

>POST dch_card_state

and pressing the Enter key.

where

dch_card_state
is either CBsy, SysB or ISTb. The example in step 12 shows the DCH card as being CBsy.

Example of a MAP display

NTBX02
in an RSC-S (PCM-30) Model B RCO2 (continued)

```
CM    MS    IOD    Net    PM    CCS    LNS    Trks    Ext    Appl
.     .      .      .     .      .      .      .       .      .

DCH              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
4         RCO2  0    Links_OOS:  CSide  0, PSide   0
5 TRNSL   Unit0:   InSv
6 TST     Unit1:   InSv
7 BSY
8 RTS        DCH    0        0        0        1        0         0
9 OffL
10 LoadPM_    DCH   0  ISG   1   CBSY   RCO2     2  PORT  15
11 Disp_
12 Next_
13 SwAct
14 QueryPM
15 DCH
16
17 Perform
18
```

14 Identify the DCH load file name by typing

>QUERYPM

and pressing the Enter key.

Example of a MAP response

```
Site  Flr  RPos  Bay_id   Shf  Description    Slot  EqPEC
HOST  01    R09 LTEI 00   32   PLGC : 002      02    BX02

Loadnames : DCHINV – DCH32BT  : INTL INDEX : 8
```

The DCH load file name in the example is *DCH32BT*.

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

If system load module is	Do
version 1	step 16
version 2	step 17

16 List the loadfile in the directory by typing

>DSKUT;LISTVOL D000_dch_load_file_name ALL

and pressing the Enter key.

or

>DSKUT;LISTVOL D010_dch_load_file_name ALL

NTBX02
in an RSC-S (PCM-30) Model B RCO2 (continued)

and pressing the Enter key.

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

Example of a MAP response:

```
TAPE$DIR
DCH32BT
```

Proceed to step 18.

17 List the loadfile in the directory by typing

>DISKUT;LV S00D

and pressing the Enter key.

>LF S00D file_name

and pressing the Enter key.

or

>DISKUT;LV S01D

and pressing the Enter key.

>LF S01D file_name

and pressing the Enter key.

18 Leave the disk utility by typing

>quit

and pressing the Enter key.

19 Compare the information in the example in step 14 with the information in the example in step 16 or 17 to verify the DCH file name exists. For instance, the file name in step 16 is *DCH32BT*, which corresponds with the file name in step 14.

20 Busy the faulty card by typing

>BSY

and pressing the Enter key.

NTBX02
in an RSC-S (PCM-30) Model B RCO2 (continued)

At the RCE frame

21

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.

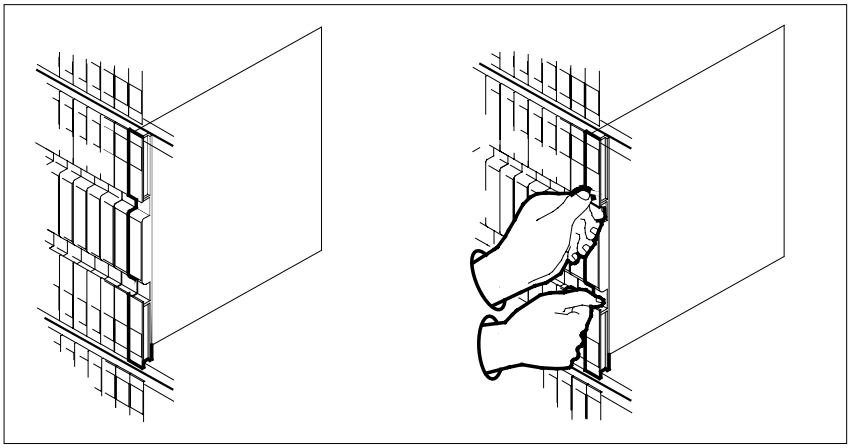
DANGER
Equipment damage
Take these precautions when removing or inserting a card:

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

Put on a wrist strap.

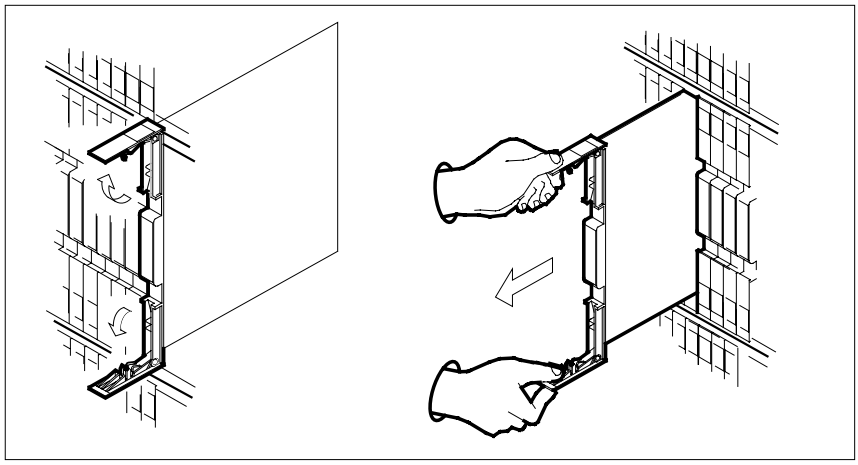
22 Remove the NTBX02 card as shown in the following figures.

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.

NTBX02
in an RSC-S (PCM-30) Model B RCO2 (continued)

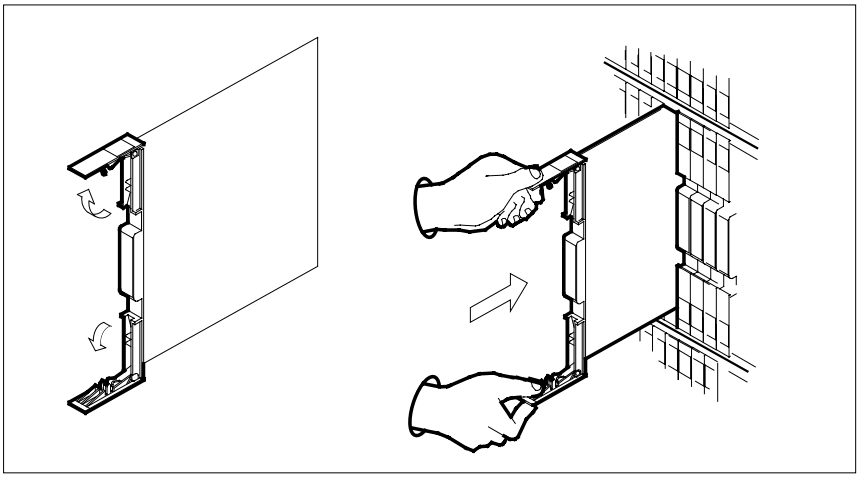


c Ensure the replacement card has the same PEC, including suffix, as the card you just removed.

23 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.



NTBX02
in an RSC-S (PCM-30) Model B RCO2 (continued)

24

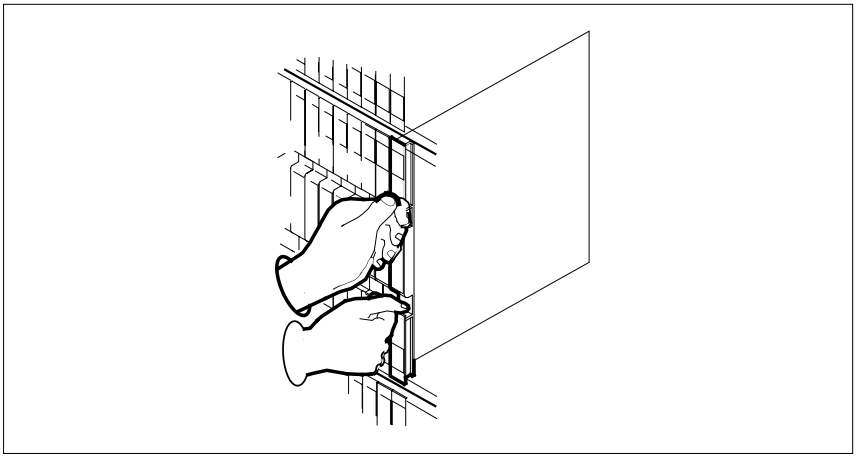
CAUTION
Loss of subscriber service
Subscriber service may be lost in the active unit when reseating the NTBX02 card.

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

25 Load the DCH card by typing

>LOADPM

and pressing the Enter key.

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

If load	Do
passed	step 27
failed	step 34

NTBX02
in an RSC-S (PCM-30) Model B RCO2 (continued)

27 Return the DCH card to service by typing

>RTS

and pressing the Enter key.

If RTS	Do
passed	step 28
failed	step 34

28 Leave the DCH level of the MAP display and return to the RCO2 level by typing

>QUIT

and pressing the Enter key.

29 Return to service the PM unit busied in step 11 by typing

>RTS unit **unit_no**

and pressing the Enter key.

where

unit_no
is the number of the inactive RCO2 unit (0 or 1) containing the new BX02 card

30 Ensure that the RCO2 unit is in service by typing

>QUERYPM FLT

and pressing the Enter key.

Example of a MAP display:

NTBX02
in an RSC-S (PCM-30) Model B RCO2 (end)

```
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        1
 3 ListSet
 4         RCO2  0  InSv  Links_OOS:  CSide  0, PSide   0
 5 TRNSL_  Unit0:   Act InSv
 6 Tst_    Unit1:   Inact InSv
 7 Bsy_    QUERYPM FLT
 8 RTS_         Unit0  No troubles exist
 9 OffL         Unit1  No troubles exist
10 LoadPM_
11 Disp_
12 Next
13
14 QueryPM
15 DCH
16
17
18
```

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

If faults are	Do
not indicated	step 31
indicated	step 34

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

32 Record the date the card was replaced, the serial number of the card, and the symptoms that prompted replacement of the card.

If you entered this procedure from	Do
alarm clearing procedures	step 33
other	step 35

33 Return to *Alarm and Performance Monitoring Procedures* 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.

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

35 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.

NTBX02 in an SMA

Application

Use this procedure to replace an NTBX02 card in an SMA.

PEC	Suffixes	Name
NTBX02	BA	Enhanced D-Channel Handler (DCH) card

Common procedures

The following procedures are referenced in this procedure:

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

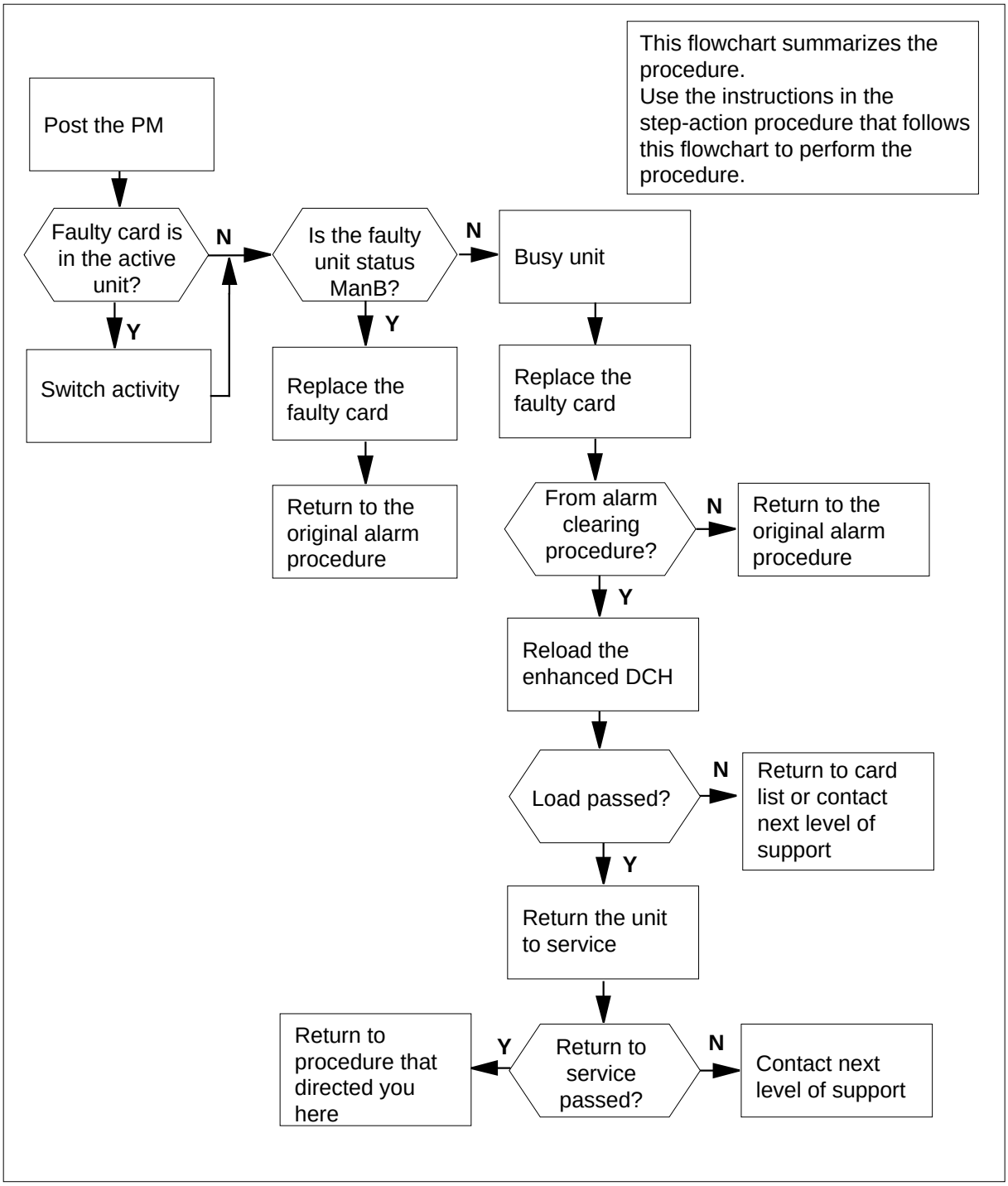
Do not go to the common procedures unless directed to do so in the step-action procedure.

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.

NTBX02
in an SMA (continued)

Summary of card replacement procedure for an NTBX02 card in an SMA



NTBX02 in an SMA (continued)

Replacing an NTBX02 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 to be posted

Example of a MAP response

NTBX02
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_OOS:  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 25

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

NTBX02
in an SMA (continued)

9 The inactive unit could not establish two-way communication with the central control 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 23.

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.

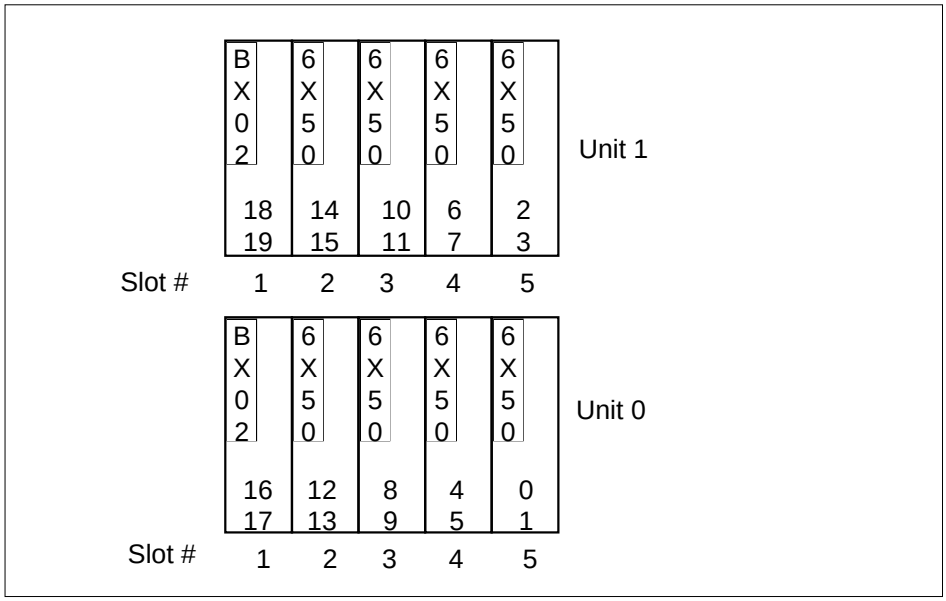
At the MAP terminal

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

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

12 Identify all D-channel handler (DCH) cards (NTBX02) with ports connected to the busied unit using the following diagram.

Table LTCPSINV shows the card type for each slot. Table DCHINV associates DCH numbers with slots.



13 Go to the DCH level of the MAP terminal by typing

>DCH

and pressing the Enter key.

NTBX02 in an SMA (continued)

14 Post the faulty DCH card (NTBX02) by typing

>POST dch_no

and pressing the Enter key.

Table DCHINV details the physical P-side link, which maps the logical DCH number to the physical location.

15 Busy the link to the faulty DCH card by typing

>BSY dch_no

and pressing the Enter key.

where

dch_no
is one of the cards with ports connected to the busied unit

At the equipment frame

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

Repeat steps 14 and 15 for each DCH card (NTBX02) with ports connected to the busied unit.

17 Replace the faulty NTBX02 card using the common replacing a card procedure in this document.

At the MAP terminal

18 Use the following information to determine the next step.

If you were directed here from	Do
alarm clearing procedures	step 24
other	step 19

19 Load the replaced DCH card by typing

>LOADPM

and pressing the Enter key.

If load	Do
passed	step 20

NTBX02 in an SMA (end)

If load	Do
failed	step 23

20 Return to service one of the DCH cards with ports connected to the inactive unit by typing

>RTS

and pressing the Enter key.

If RTS	Do
passed	step 21
failed	step 23

At the equipment frame

21 Remove the sign from the active SMA unit.

22 Go to the common returning a card procedure in this document.

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.

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.

NTBX02 in an SMA-MVI-20

Application

Use this procedure to replace an NTBX02 card in an SMA.

PEC	Suffixes	Name
NTBX02	BA	Enhanced D-Channel Handler (DCH) card

Common procedures

The following procedures are referenced in this procedure:

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

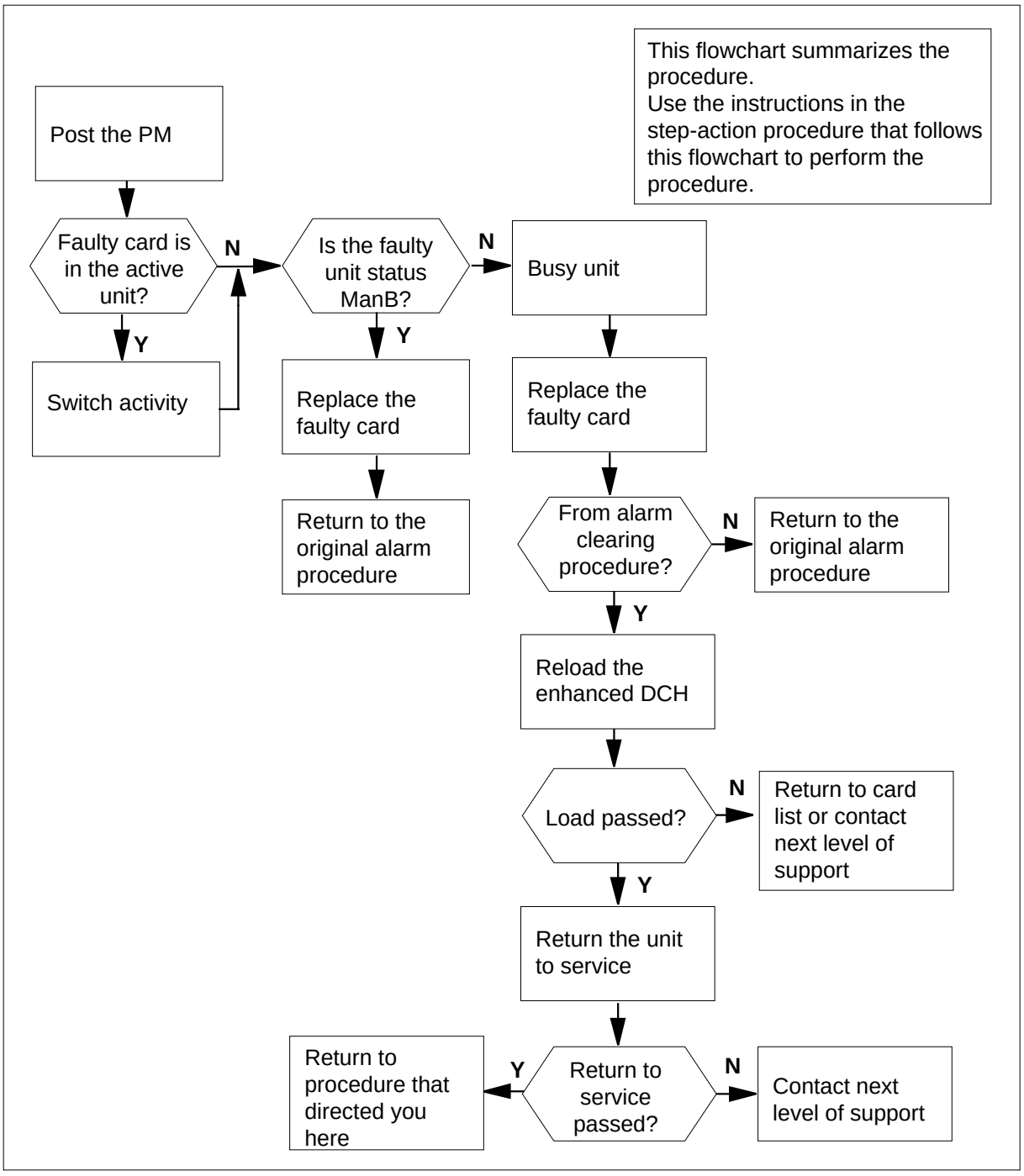
Do not go to the common procedures unless directed to do so in the step-action procedure.

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.

NTBX02
in an SMA-MVI-20 (continued)

Summary of card replacement procedure for an NTBX02 card in an SMA



NTBX02 in an SMA-MVI-20 (continued)

Replacing an NTBX02 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 to be posted

Example of a MAP response

NTBX02
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_OOS:  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

NTBX02
in an SMA-MVI-20 (continued)

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

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

Go to step 25.

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

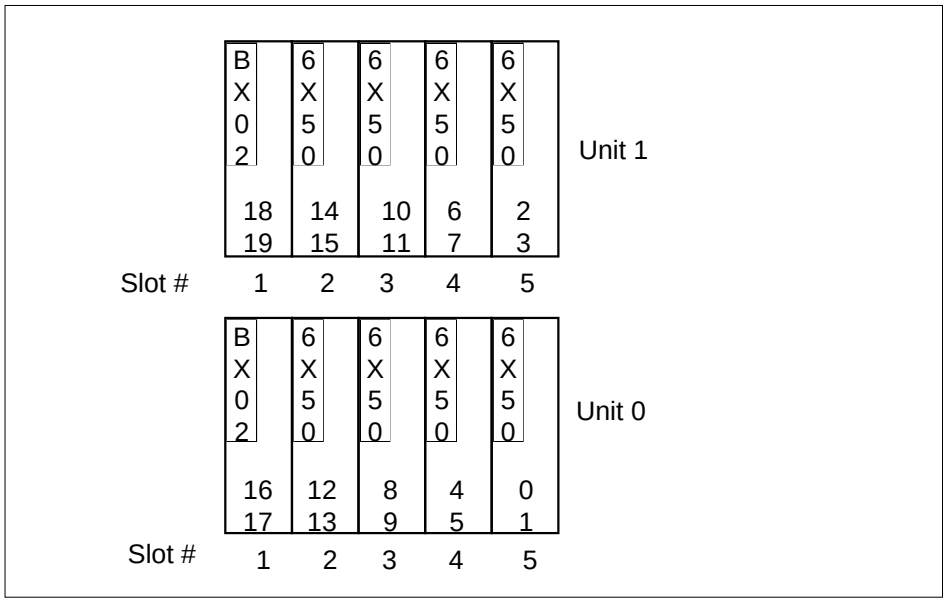
12 Observe the MAP display and determine the state of the inactive unit.

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

13 Identify all D-channel handler (DCH) cards (NTBX02) with ports connected to the busied unit using the following diagram.

Table LTCPSINV shows the card type for each slot. Table DCHINV associates DCH numbers with slots.

NTBX02
in an SMA-MVI-20 (continued)



14 Go to the DCH level of the MAP terminal by typing

>DCH

and pressing the Enter key.

15 Post the faulty DCH card (NTBX02) by typing

>POST dch_no

and pressing the Enter key.

Table DCHINV details the physical P-side link, which maps the logical DCH number to the physical location.

16 Busy the link to the faulty DCH card by typing

>BSY dch_no

and pressing the Enter key.

where

dch_no
is one of the cards with ports connected to the busied unit

NTBX02 in an SMA-MVI-20 (continued)

At the equipment frame

17



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.

Repeat steps 15 and 16 for each DCH card (NTBX02) with ports connected to the busied unit.

18 Replace the faulty NTBX02 card using the common replacing a card procedure in this document.

At the MAP terminal

19 Use the following information to determine the next step.

If you were directed here from	Do
alarm clearing procedures	step 26
other	step 20

20 Load the replaced DCH card by typing

>LOADPM

and pressing the Enter key.

If load	Do
passed	step 21
failed	step 25

21 Return-to-service one of the DCH cards with ports connected to the inactive unit by typing

>RTS

and pressing the Enter key.

If RTS	Do
passed	step 22
failed	step 25

NTBX02 in an SMA-MVI-20 (end)

At the equipment frame

22 Remove the sign from the active SMA unit.

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

24 Note in office records:

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

Go to step 26.

25 For further assistance, contact the personnel responsible for the next 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.

NTBX02 in an SMA2

Application

Use this procedure to replace an NTBX02 card in an SMA2.

PEC	Suffixes	Name
NTBX02	BA	Enhanced D-Channel Handler (DCH) card

D-channel handler (DCH) circuit cards are not provided with the multi-vendor interface (MVI) 28 project, enhanced DCH (EDCH) circuit cards are provided instead. At the MAP position DCH is displayed, meaning an EDCH circuit card. Any reference to a DCH circuit card in this document means an EDCH circuit card.

Common procedures

The following procedures are referenced in this procedure:

- “Locating a faulty card in an SMA2"
- replacing a card
- returning a card

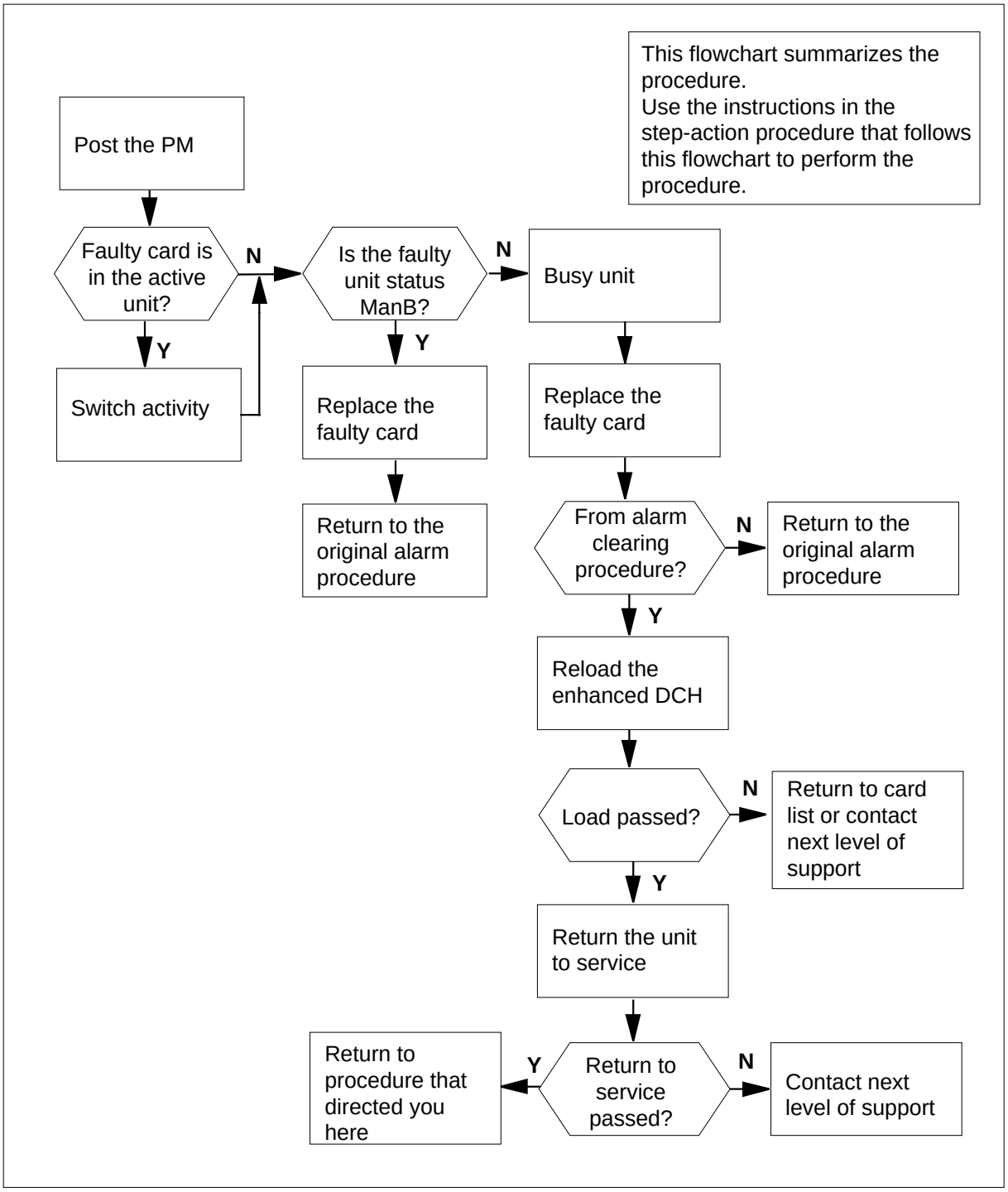
Do not go to a common procedure unless directed to do so in the step-action procedure.

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.

NTBX02 in an SMA2 (continued)

Summary of card replacement procedure for an NTBX02 card in an SMA2



Replacing an NTBX02 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" and return to step 4

4 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 to be 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     0     7

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

6 Go to the DCH level of the MAP display by typing

`>DCH`

and pressing the Enter key.

7 Post all DCH cards associated with the posted SMA2 by typing

`>POST ALL`

NTBX02
in an SMA2 (continued)

and pressing the Enter key.

8 Display all DCH cards associated with the posted SMA2 by typing

```
>DISP ALL
```

and pressing the Enter key.

Note: Identify the number of a spare DCH card.

9 Post the faulty DCH circuit card by typing

```
>POST  dch_no
```

and pressing the Enter key.

where

dch_no
is the number of the DCH card you are replacing

If the DCH card to be replaced is	Do
already a spare	step 11
not a spare	step 10

10 Make the posted DCH card a spare by typing

```
>SWTCH spare dch_no
```

and pressing the Enter key.

where

spare dch_no
is the number of the spare DCH card identified in step 8

If the switch is	Do
successful	step 11
not successful	step 18

11 Busy the link to the faulty DCH circuit card by typing

```
>BSY
```

and pressing the Enter key.

NTBX02
in an SMA2 (continued)

At the frame or cabinet

12



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.

Replace the faulty DCH circuit card using the common replacing a card procedure in this document.

At the MAP terminal

13 Use the following information to determine the next step.

If you were directed here from	Do
alarm clearing procedures	step 19
other	step 14

14 Load the replaced DCH circuit card by typing

>LOADPM

and pressing the Enter key.

If load	Do
passed	step 15
failed	step 18

15 Return-to-service one of the DCH circuit cards with ports connected to the inactive unit by typing

>RTS

and pressing the Enter key.

If RTS	Do
passed	step 16
failed	step 18

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

17 Go to the common returning a card procedure in this document.

Go to step 19.

NTBX02 in an SMA2 (end)

18 For further assistance, contact the personnel responsible for the next 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.

NTBX02 in an SMU

Application

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

PEC	Suffixes	Name
NTBX02	AA, BA	D-Channel handler

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

Common procedure

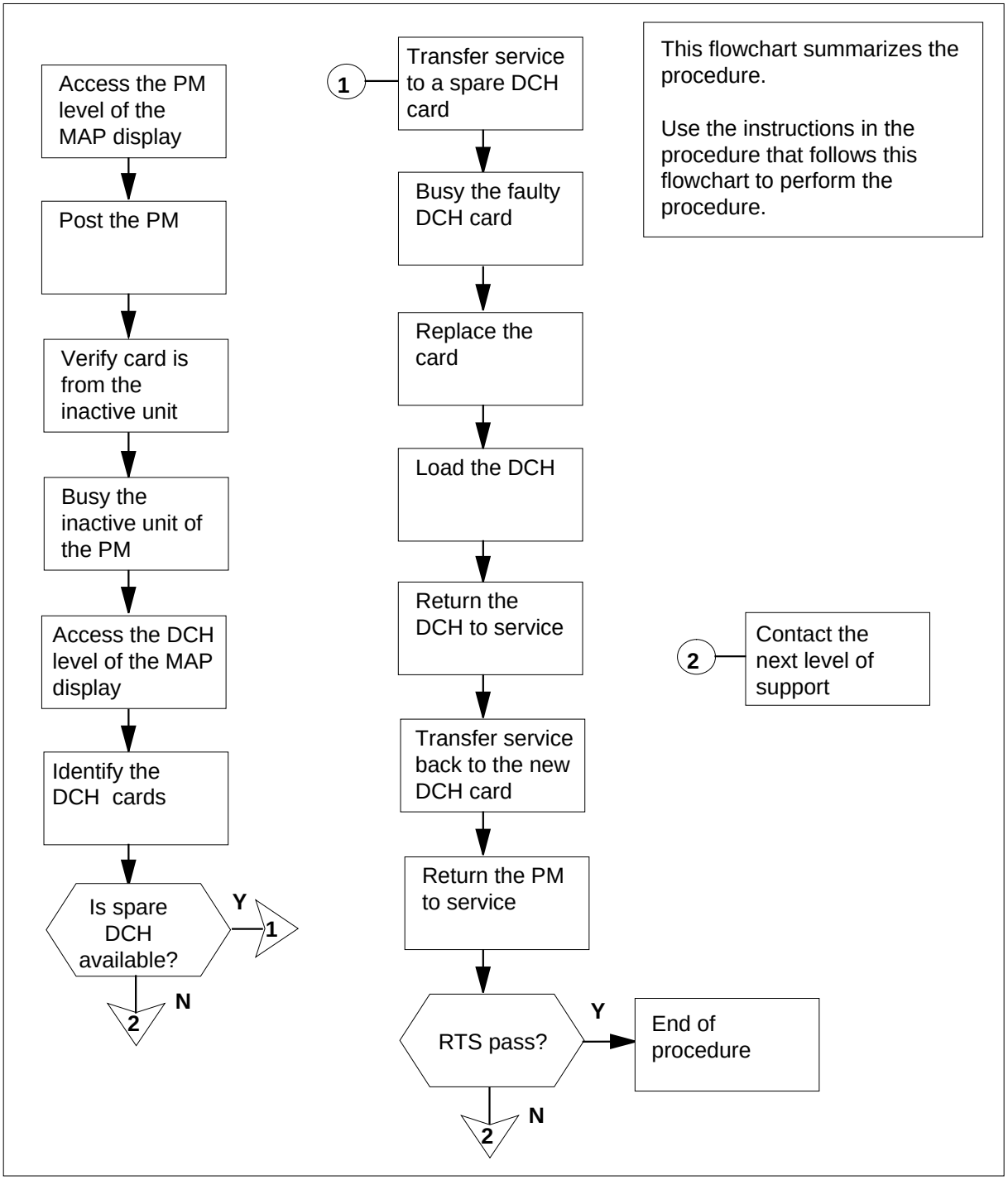
The common replacing a card procedure is referenced in this procedure.

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.

NTBX02 in an SMU (continued)

Summary of Replacing an NTBX02 in an SMU



Replacing an NTBX02 in an SMU

At the 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.

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

At the MAP terminal

3 Access the PM level of the MAP display by typing

`>MAPCI;MTC;PM`

and pressing the Enter key.

4 Post the SMU associated with the card you are replacing by typing

`>POST SMU smu_no`

and pressing the Enter key.

where

smu_no
is the number of the SMU with the faulty card

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 0, PSide 0
Unit0:  Act   ISTb
Unit1:  Inact InSv
```

NTBX02
in an SMU (continued)

5 Refer to the MAP display posted in step 4 to see if the faulty NTBX02 card is in the active or inactive unit.

If faulty card is in	Do
active unit	step 6
inactive unit	step 10

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

>SWACT

and pressing the Enter key.

If SWACT	Do
cannot continue at this time	step 7
can continue at this time	step 8

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

>NO

and pressing the Enter key.

The system discontinues the SWACT.

Return to step 6 during a period of low traffic.

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 to the next maintenance action.

If the message is	Do
SWACT passed	step 10
SWACT failed	step 9
SWACT refused by SWACT controller	step 9

9 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.

NTBX02 in an SMU (continued)

At the frame:

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

At the MAP terminal:

11 Busy the inactive 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) containing the faulty BX02 card

12 Access the DCH level of the MAP display by typing

>DCH

and pressing the Enter key.

13 Post all DCH cards by typing

>POST ALL

and pressing the Enter key

14 Identify the faulty DCH card by typing

>DISP ALL

and pressing the Enter key

Example of a MAP response:

```
DCH   8 ISG   4 CBsy SMU   1 port 17
DCH   9 spare   InSv SMU   1 port 19
```

15 Post the faulty DCH card by typing

>POST dch_card_state

and pressing the Enter key.

where

dch_card_state
is Cbsy, SysB, or ISTb

Example of a MAP display:

```
DCH  8  ISG 1  CBSY SMU  1   PORT 17
```

Note: Record the number of the faulty DCH card for later use in this procedure.

16 Identify the DCH load file name by typing

>QUERYPM

and pressing the Enter key.

NTBX02
in an SMU (continued)

Example of a MAP response:

```
Site  Flr  RPos  Bay_id Shf  Description   Slot EqPEC
HOST  01    R09  SME 00  32   SMU : 002     02  BX02
Loadnames :  DCHINV – SCH36BT : INTL INDEX : 8
```

The DCH load file name in the example is *SCH36BT.* SCH is the load file name prefix for the DCH card. The enhanced DCH (EDCH) load file name prefix is ESH.

17 Identify available DCH cards by typing

>DISP ALL

and pressing the Enter key.

Example of a MAP response:

```
DCH   8 ISG   4 CBsy SMU   1 port 17

DCH   9 spare   InSv SMU   1 port 19
```

If	Do
spare DCH cards are available	step 18
there are no spare DCH cards	step 30

18 Transfer the service group to a spare DCH by typing

SWTCH spare_dch_no

and pressing the Enter key.

where

spare_dch_no
is a number from 0 to 9 of an in-service DCH card that will take over service

Example of a MAP response:

```
Takeover passed DCH 8 to DCH 9 ISG 4
```

Note: Record the number of the spare DCH that is taking over service for use later in this procedure.

19 Busy the faulty DCH by typing

>BSY

and pressing the Enter key.

At the shelf

20



WARNING
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 card using the common replacing a card procedure in this document. When you have completed the procedure, return to this point.

Note: If the card you are replacing has switches, ensure that the switches on the replacement card have the same settings.

21 The next action depends on your reason for performing this procedure.

If you were	Do
directed to this procedure from a maintenance procedure	step 22
not directed to this procedure from a maintenance procedure	step 23

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

At the MAP terminal

23 Load the DCH by typing

>LOADPM

and pressing the Enter key.

If the LOADPM command	Do
failed	step 30
passed	step 24

24 Return the DCH to service by typing

>RTS

and pressing the Enter key.

where

unit_no
is the PM unit number (0 or 1)

NTBX02
in an SMU (continued)

Example of a MAP response:

```
DCH 8   Out-of-service test initiatedDCH 8 Tst PassedDCH 8 Rts Passed
```

If the RTS command	Do
failed	step 30
passed	step 25

25 Post the DCH card spared in step 18 by typing

>POST dch_card_no

and pressing the Enter key.

where

dch_card_no
is the spare DCH

Example of a MAP display:

```
DCH  9  ISG 1  InSv SMU  1   PORT 19
```

26 Transfer service back to the DCH card posted in step 15 by typing

>SWTCH spare_dch_no

and pressing the Enter key.

where

spare_dch_no
is the DCH card number from 0 to 9 identified in step 15

Example of a MAP response:

```
 Takeover passed DCH 9 to DCH 8 ISG 4
```

27 Post the new DCH card by typing

>POST dch_card_no

and pressing the Enter key.

where

dch_card_no
is the replacement DCH card

Example of a MAP display:

```
DCH  8  ISG 1  InSv SMU  1   PORT 17
```

28 Return to the PM level of the MAP display by typing

>QUIT

and pressing the Enter key.

29 Return the inactive unit of the PM to service by typing

`RTS UNIT unit_no`

and pressing the Enter key.

where

unit_no
is the number of the SMU unit (0 or 1) busied in step 11

If the RTS	Do
passed	step 31
failed	step 30

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

31 You have completed this procedure.

NTBX26 in an RSC LCME

Application

Use this procedure to replace an NTBX26 card in an RSCE LCME.

PEC	Suffixes	Name
NTBX26	AA	ISDN S/T Interface Line card

Common procedures

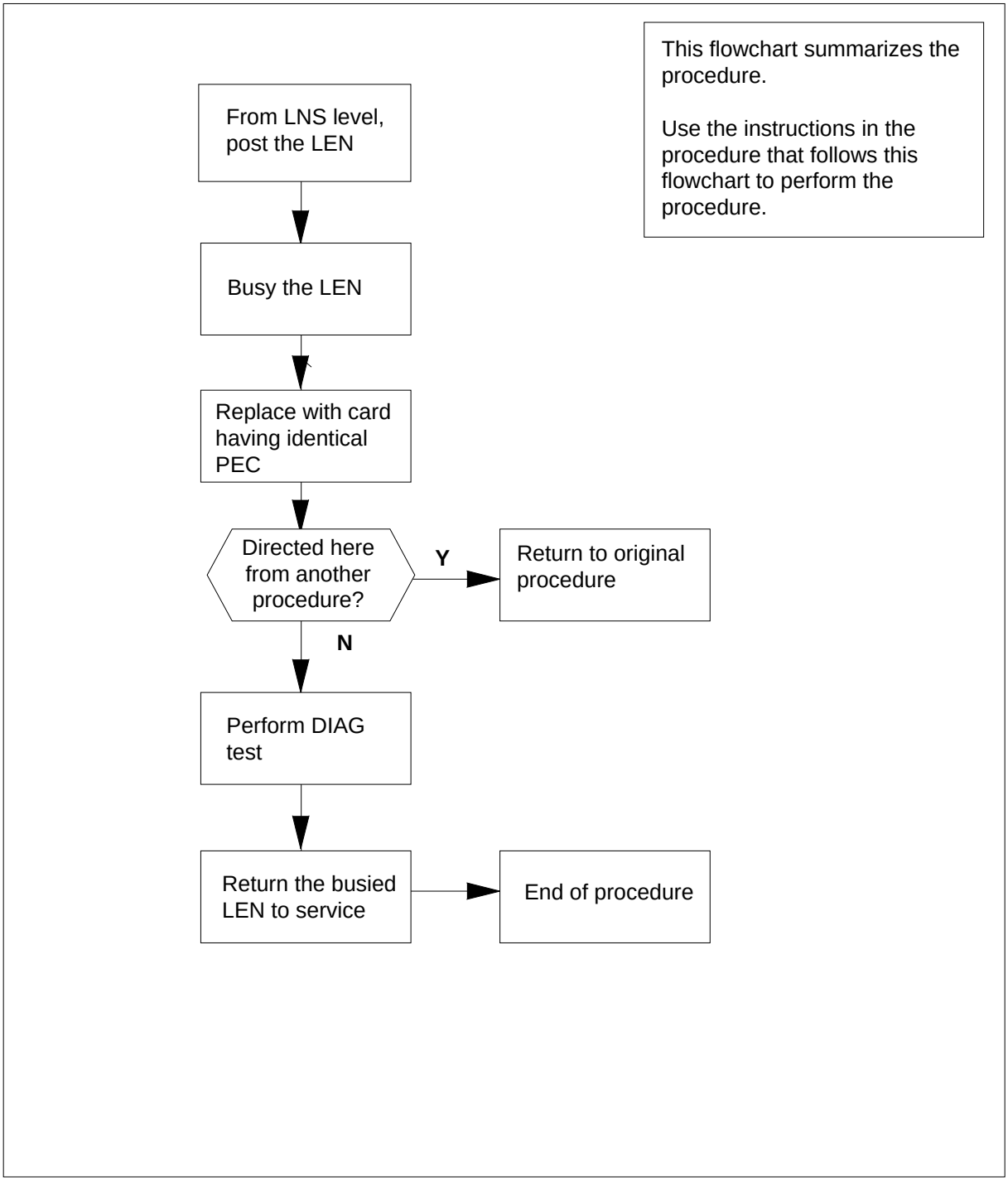
None

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.

NTBX26 in an RSC LCME (continued)

Summary of card replacement procedure for an NTBX26 card in an RSCE LCME



NTBX26 in an RSC LCME (continued)

Replacing an NTBX26 card in an RSCE 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 an NTBX26 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 line equipment number (LEN) of the card to be replaced by typing

```
>MAPCI;MTC;LNS;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:

```
 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           ISDN Loop 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 NTBX26 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          ISDN Loop  HOST 00 0 03 03 4931082  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
```

NTBX26
in an RSC LCME (continued)

At the LCE frame

5



WARNING
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.

Put on a wrist strap.

Line card insertion / withdrawal tool for	Apparatus code	Common product code
3-inch cards	QTH56A	A0298291
6-inch cards	QTH58A	A0313317

Note 1: Card shrouds are required for inserting or removing cards in line drawers. Two sizes are available for use with 3-inch and 6-inch cards. Descriptions of these shrouds follow.

Note 2: Card removal tools are required for removing cards from line drawers. Two sizes are available. Descriptions of these tools follow.

Card removal tool for	Apparatus code	Common product code
3-4 inch cards	QTH57A	A0298292
Note: For 4-inch or larger cards, use the large grip tool ITA9953.		

6 To prepare to remove the faulty card, open the line drawer and do the following 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.

NTBX26
in an RSC 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 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 15
other	step 10

At the MAP terminal

10 Test the NTBX26 line card by typing

```
>DIAG
```

and pressing the Enter key.

11 Use the following information to determine where to proceed.

If DIAG	Do
passed	step 12
failed	step 15

12 Return the NTBX26 card to service by typing

```
>RTS
```

and pressing the Enter key.

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 this manual.

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.

NTBX26 in an RSC-S (DS-1) Model A LCME

Application

Use this procedure to replace an NTBX26 card in an RSC-S LCME.

PEC	Suffixes	Name
NTBX26	AA	ISDN S/T Interface Line card

Common procedures

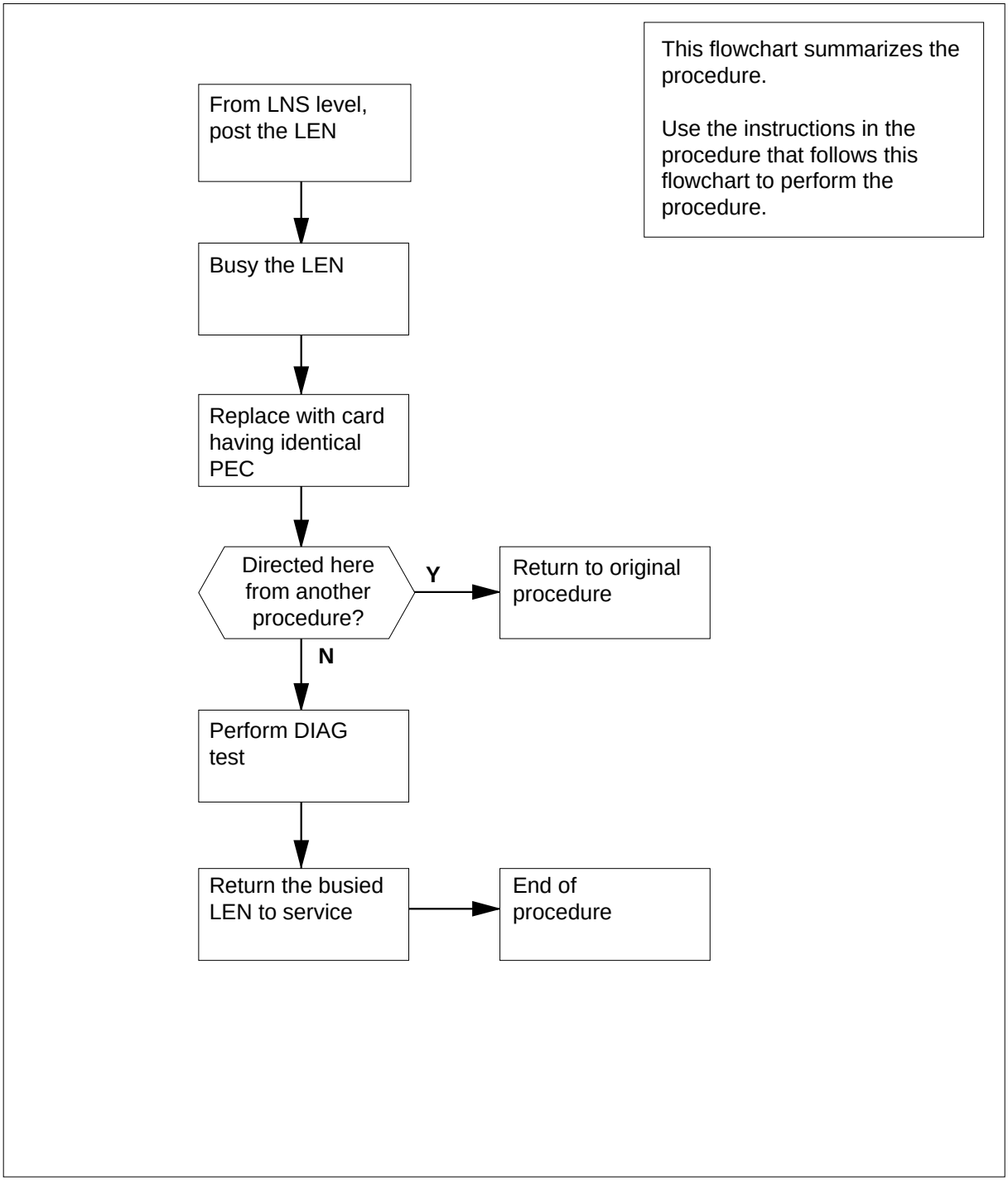
None

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.

NTBX26
in an RSC-S (DS-1) Model A LCME (continued)

Summary of card replacement procedure for an NTBX26 card in an RSC-S LCME



NTBX26 in an RSC-S (DS-1) Model A LCME (continued)

Replacing an NTBX26 card in an 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 an NTBX26 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 line equipment number (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:

```
 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           ISDN Loop 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 NTBX26 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          ISDN Loop  HOST 00 0 03 03 4931082  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
```

NTBX26 in an RSC-S (DS-1) Model A LCME (continued)

At the LCE frame

5



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 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.



WARNING
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.

NTBX26
in an RSC-S (DS-1) Model A LCME (continued)



CAUTION
Special tools required
Card shrouds and removal tools are required for removing cards from the line drawers. For descriptions of these tools, refer to the following notes.

Put on a wriststrap.

Note: Card shrouds are required for inserting or removing cards in line drawers. Two sizes are available for use with 3-inch and 6-inch cards, as shown in the following table.

Line card insertion / withdrawal tool for	Apparatus code	Common product code
3-inch cards	QTH56A	A0298291
6-inch cards	QTH58A	A0313317

Note: Card removal tools are required for removing cards from line drawers. Two sizes are available, as shown in the following table.

Card removal tool for	Apparatus code	Common product code
3—4 inch cards	QTH57A	A0298292
Note: For 4-inch or larger cards, use the large grip tool ITA9953.		

6 To prepare to remove the faulty card, open the line drawer and do the following 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.

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.

NTBX26 in an RSC-S (DS-1) Model A LCME (continued)

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 15
other	step 10

At the MAP terminal

10 Test the NTBX26 line card by typing

```
>DIAG
```

and pressing the Enter key.

11 Use the following information to determine where to proceed.

If DIAG	Do
passed	step 12
failed	step 15

NTBX26 in an RSC-S (DS-1) Model A LCME (end)

12 Return the NTBX26 card to service by typing

>RTS

and pressing the Enter key.

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 this manual.

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.

NTBX26 in an RSC-S (DS-1) Model B LCME

Application

Use this procedure to replace an NTBX26 card in an RSC-S LCME.

PEC	Suffixes	Name
NTBX26	AA	ISDN S/T Interface Line card

Common procedures

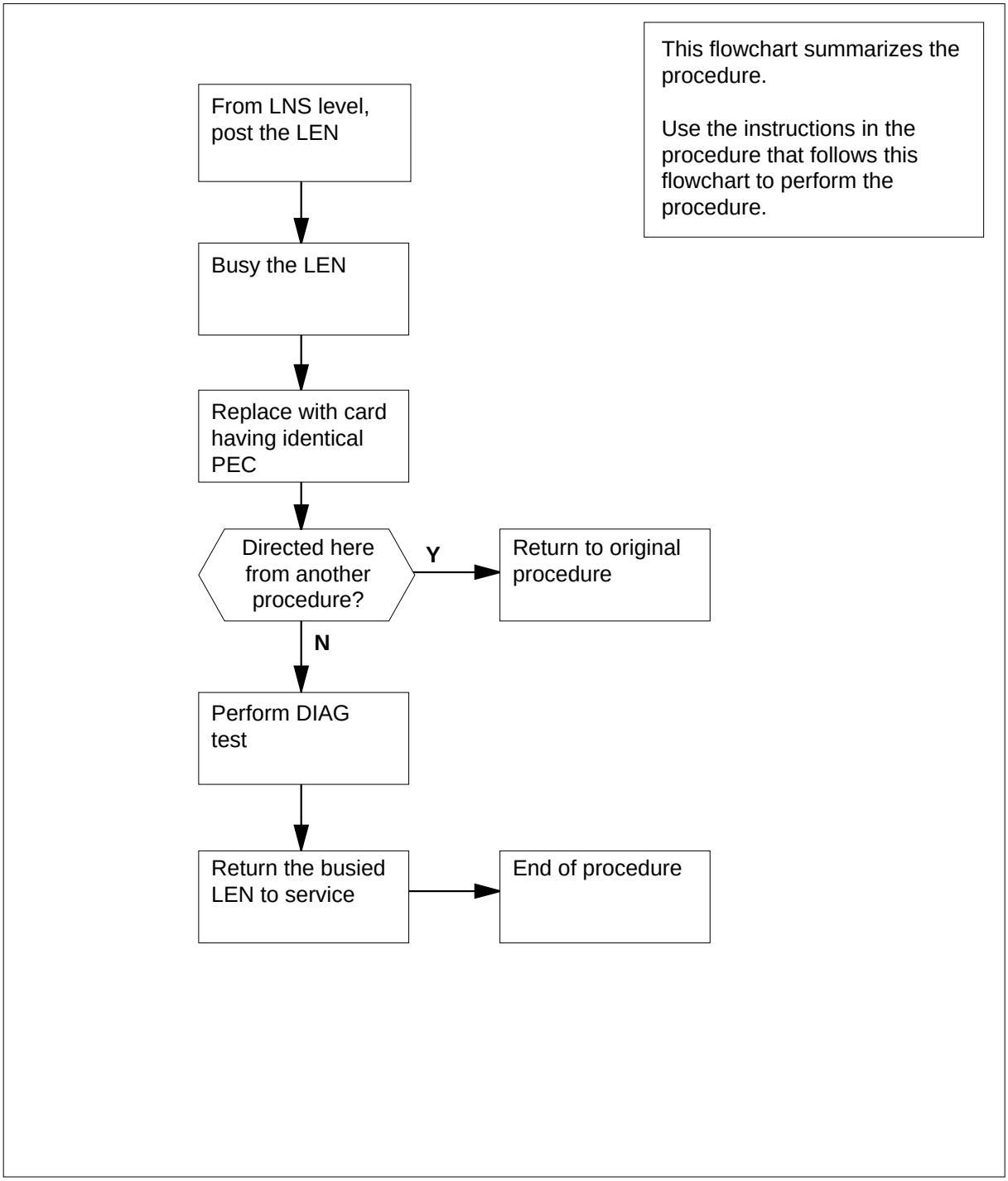
None

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.

NTBX26
in an RSC-S (DS-1) Model B LCME (continued)

Summary of card replacement procedure for an NTBX26 card in an RSC-S LCME



NTBX26 in an RSC-S (DS-1) Model B LCME (continued)

Replacing an NTBX26 card in an 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 an NTBX26 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 line equipment number (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:

NTBX26
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           ISDN Loop 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 NTBX26 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          ISDN Loop  HOST 00 0 03 03 4931082  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
```

NTBX26 in an RSC-S (DS-1) Model B LCME (continued)

At the LCE frame

5



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 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.



WARNING
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.

NTBX26
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 wriststrap.

Note: Card shrouds are required for inserting or removing cards in line drawers. Two sizes are available for use with 3-inch and 6-inch cards, as shown in the following table.

Line card insertion / withdrawal tool for	Apparatus code	Common product code
3-inch cards	QTH56A	A0298291
6-inch cards	QTH58A	A0313317

Note: Card removal tools are required for removing cards from line drawers. Two sizes are available, as shown in the following table.

Card removal tool for	Apparatus code	Common product code
3—4 inch cards	QTH57A	A0298292
Note: For 4-inch or larger cards, use the large grip tool ITA9953.		

6 To prepare to remove the faulty card, open the line drawer and do the following 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.

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.

NTBX26 in an RSC-S (DS-1) Model B LCME (continued)

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 15
other	step 10

At the MAP terminal

10 Test the NTBX26 line card by typing

```
>DIAG
```

and pressing the Enter key.

11 Use the following information to determine where to proceed.

If DIAG	Do
passed	step 12
failed	step 15

NTBX26 in an RSC-S (DS-1) Model B LCME (end)

12 Return the NTBX26 card to service by typing

>RTS

and pressing the Enter key.

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 this manual.

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.

NTBX27 in an RSC LCME

Application

Use this procedure to replace an NTBX27 card in an RSCE LCME.

PEC	Suffixes	Name
NTBX27	AA	ISDN 2B1Q U Interface Line card

Common procedures

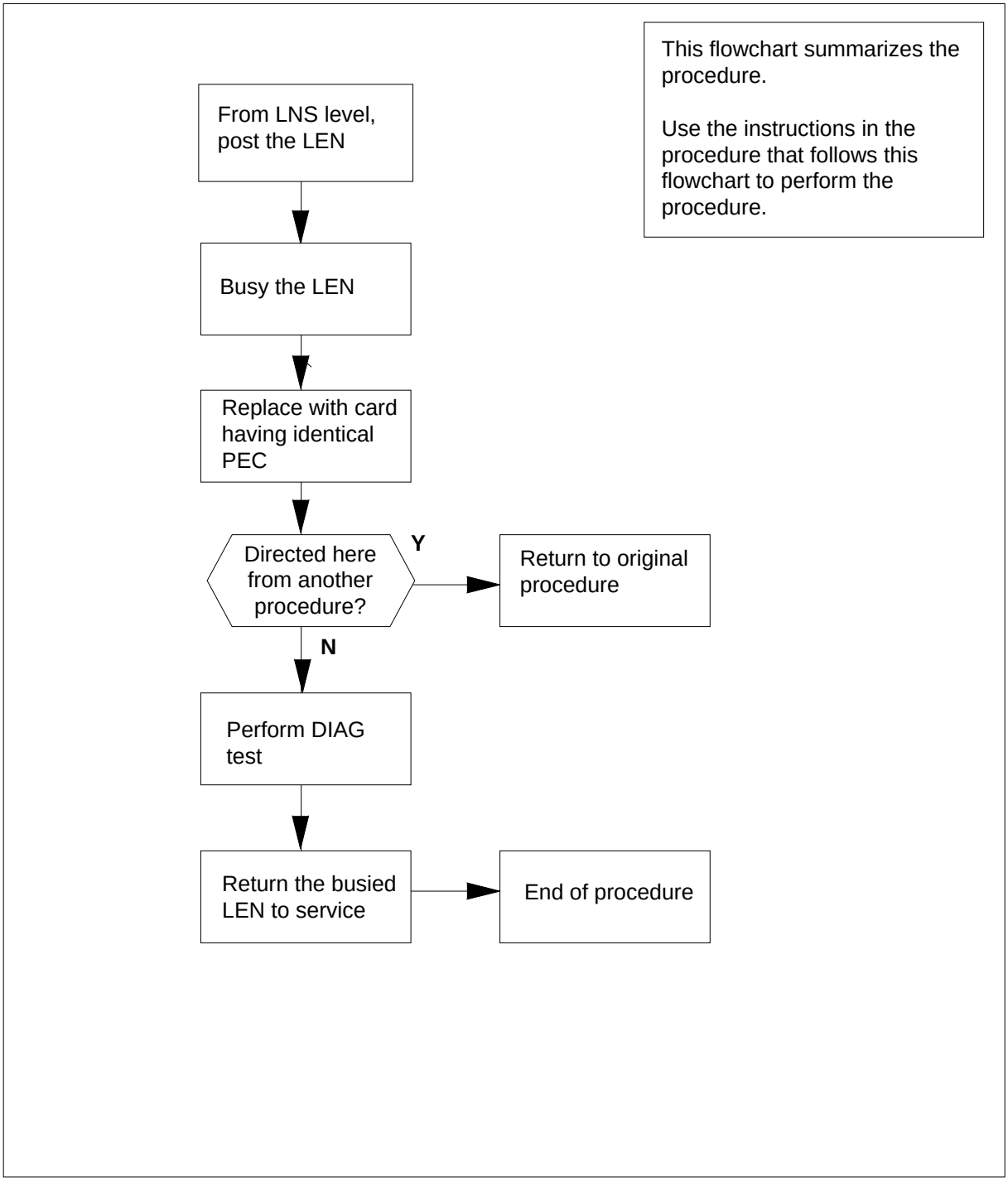
None

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.

NTBX27 in an RSC LCME (continued)

Summary of card replacement procedure for an NTBX27 card in an RSC LCME



NTBX27 in an RSC LCME (continued)

Replacing an NTBX27 card in an RSCE 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 an NTBX27 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:

```
 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          ISDN Loop    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 NTBX27 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          ISDN Loop  HOST 00 0 03 03 4931082  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
```

NTBX27
in an RSC LCME (continued)

At the LCE frame

5



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.



WARNING
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
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.

NTBX27
in an RSC LCME (continued)

Put on a wrist strap.

Line card insertion / withdrawal tool for	Apparatus code	Common product code
3-inch cards	QTH56A	A0298291
6-inch cards	QTH58A	A0313317

Note 1: Card shrouds are required for inserting or removing cards in line drawers. Two sizes are available for use with 3-inch and 6-inch cards. Descriptions of these shrouds follow.

Note 2: Card removal tools are required for removing cards from line drawers. Two sizes are available. Descriptions of these tools follow.

Card removal tool for	Apparatus code	Common product code
3-4 inch cards	QTH57A	A0298292
Note: For 4-inch or larger cards, use the large grip tool ITA9953.		

6 To prepare to remove the faulty card, 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 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.

NTBX27
in an RSC 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 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 15
other	step 10

At the MAP terminal

10 Test the NTBX27 line card by typing

```
>DIAG
```

and pressing the Enter key.

11 Use the following information to determine where to proceed.

If DIAG	Do
passed	step 12
failed	step 16

12 Return the NTBX27 card to service by typing

```
>RTS
```

and pressing the Enter key.

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 this manual.

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.

NTBX27 in an RSC-S (DS-1) Model A LCME

Application

Use this procedure to replace an NTBX27 card in an RSC-S LCME.

PEC	Suffixes	Name
NTBX27	AA	ISDN 2B1Q U Interface Line card

Common procedures

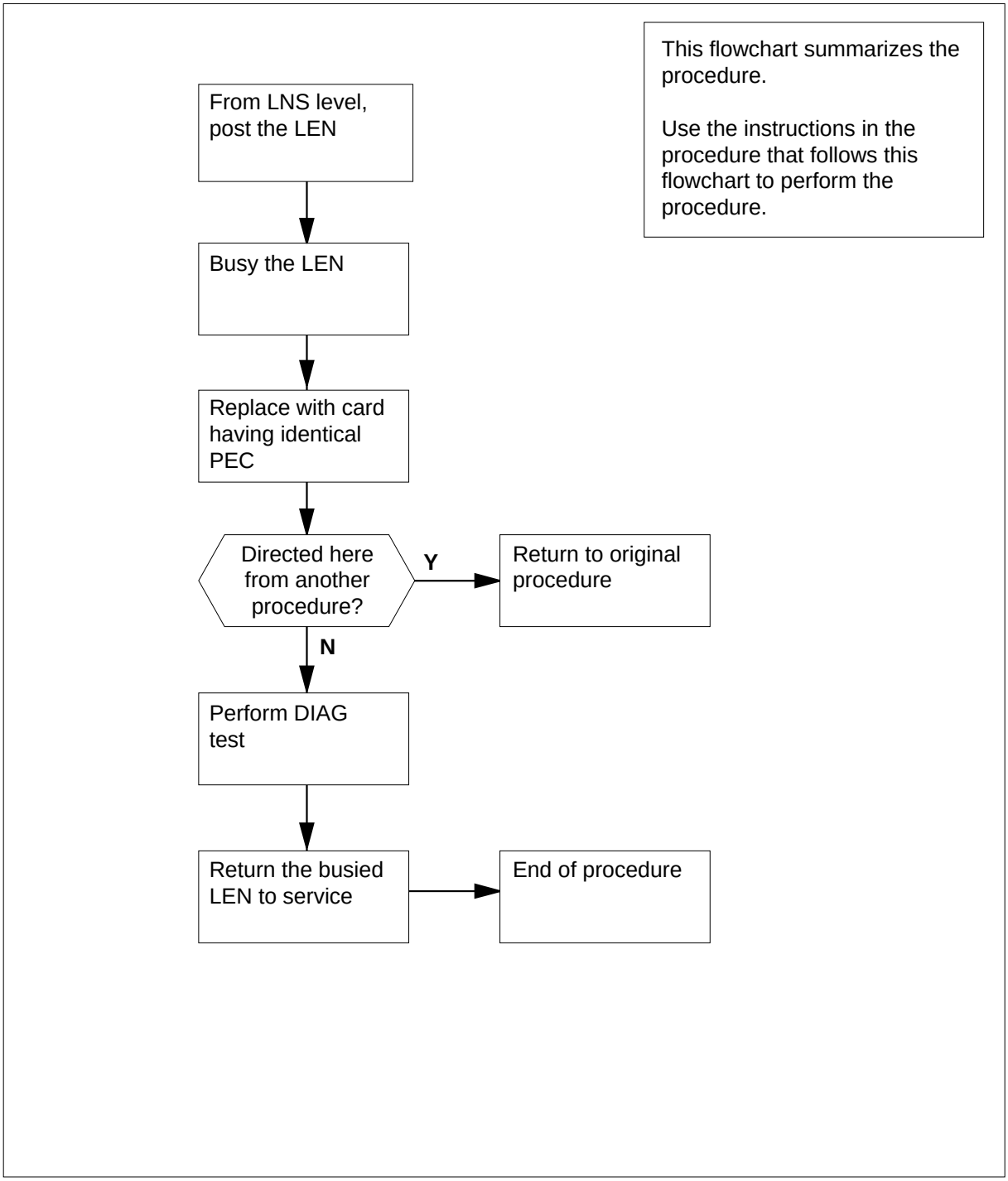
None

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.

NTBX27
in an RSC-S (DS-1) Model A LCME (continued)

Summary of card replacement procedure for an NTBX27 card in an RSC-S LCME



NTBX27 in an RSC-S (DS-1) Model A LCME (continued)

Replacing an NTBX27 card in an 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 an NTBX27 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:

```
 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          ISDN Loop    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 NTBX27 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          ISDN Loop  HOST 00 0 03 03 4931082  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
```

NTBX27 in an RSC-S (DS-1) Model A LCME (continued)

At the LCE frame

5



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 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.



WARNING
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.

NTBX27
in an RSC-S (DS-1) Model A LCME (continued)



CAUTION
Special tools required
Card shrouds and removal tools are required for removing cards from the line drawers. For descriptions of these tools, refer to the following notes.

Put on a wriststrap.

Note: Card shrouds are required for inserting or removing cards in line drawers. Two sizes are available for use with 3-inch and 6-inch cards, as shown in the following table.

Line card insertion / withdrawal tool for	Apparatus code	Common product code
3-inch cards	QTH56A	A0298291
6-inch cards	QTH58A	A0313317

Note: Card removal tools are required for removing cards from line drawers. Two sizes are available, as shown in the following table.

Card removal tool for	Apparatus code	Common product code
3—4 inch cards	QTH57A	A0298292
Note: For 4-inch or larger cards, use the large grip tool ITA9953.		

6 To prepare to remove the faulty card, 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 (1.0 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.

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.

NTBX27
in an RSC-S (DS-1) Model A LCME (continued)

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 15
other	step 10

At the MAP terminal

10 Test the NTBX27 line card by typing

```
>DIAG
```

and pressing the Enter key.

11 Use the following information to determine where to proceed.

If DIAG	Do
passed	step 12
failed	step 16

NTBX27
in an RSC-S (DS-1) Model A LCME (end)

12 Return the NTBX27 card to service by typing

>RTS

and pressing the Enter key.

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 this manual.

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.

NTBX27 in an RSC-S (DS-1) Model B LCME

Application

Use this procedure to replace an NTBX27 card in an RSC-S LCME.

PEC	Suffixes	Name
NTBX27	AA	ISDN 2B1Q U Interface Line card

Common procedures

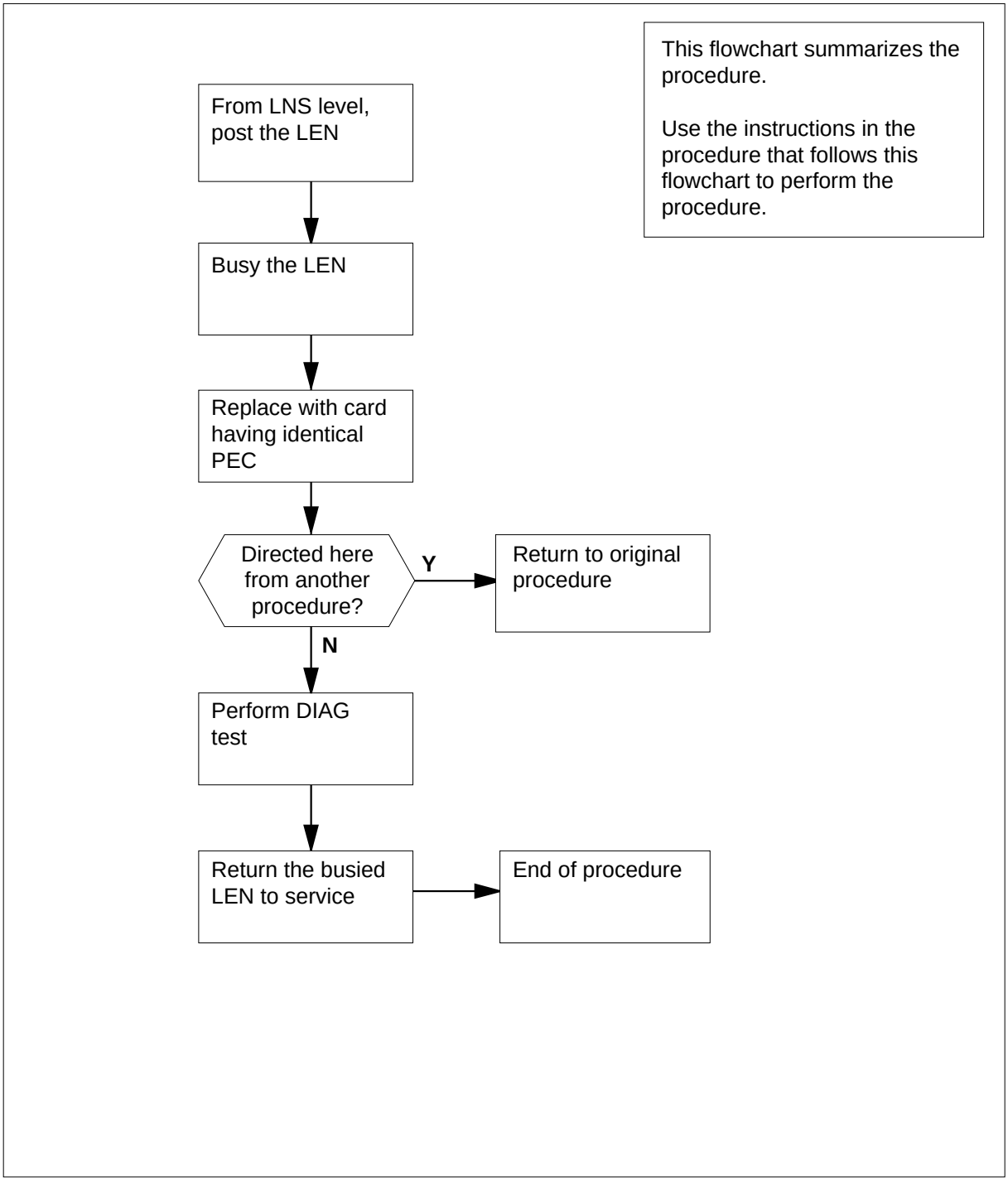
None

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.

NTBX27
in an RSC-S (DS-1) Model B LCME (continued)

Summary of card replacement procedure for an NTBX27 card in an RSC-S LCME



NTBX27 in an RSC-S (DS-1) Model B LCME (continued)

Replacing an NTBX27 card in an 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 an NTBX27 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:

```
 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          ISDN Loop    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 NTBX27 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          ISDN Loop  HOST 00 0 03 03 4931082  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
```

NTBX27
in an RSC-S (DS-1) Model B LCME (continued)

At the LCE frame

5



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 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.



WARNING
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.

NTBX27
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 wriststrap.

Note: Card shrouds are required for inserting or removing cards in line drawers. Two sizes are available for use with 3-inch and 6-inch cards, as shown in the following table.

Line card insertion / withdrawal tool for	Apparatus code	Common product code
3-inch cards	QTH56A	A0298291
6-inch cards	QTH58A	A0313317

Note: Card removal tools are required for removing cards from line drawers. Two sizes are available, as shown in the following table.

Card removal tool for	Apparatus code	Common product code
3—4 inch cards	QTH57A	A0298292
Note: For 4-inch or larger cards, use the large grip tool ITA9953.		

6 To prepare to remove the faulty card, 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 (1.0 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.

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.

NTBX27
in an RSC-S (DS-1) Model B LCME (continued)

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 15
other	step 10

At the MAP terminal

10 Test the NTBX27 line card by typing

```
>DIAG
```

and pressing the Enter key.

11 Use the following information to determine where to proceed.

If DIAG	Do
passed	step 12
failed	step 16

NTBX27
in an RSC-S (DS-1) Model B LCME (end)

12 Return the NTBX27 card to service by typing

>RTS

and pressing the Enter key.

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 this manual.

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.

NTBX27 in a STAR or RLD

Application

Use this procedure to replace an NTBX27 card in a STAR or remote line drawer (RLD).

PEC	Suffixes	Name
NTBX27	AA	ISDN 2B1Q U Interface Line card

Common procedures

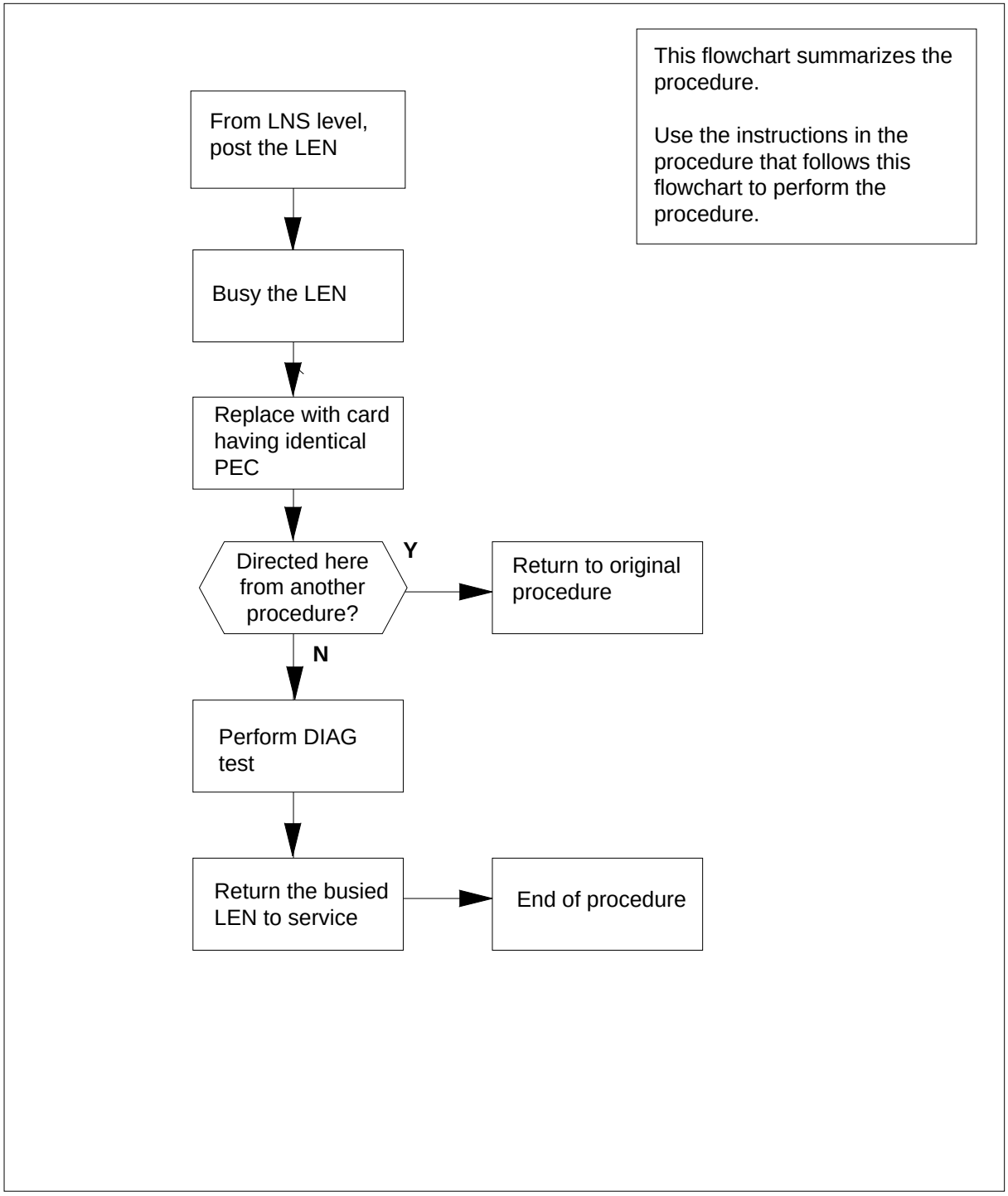
None

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.

NTBX27 in a STAR or RLD (continued)

Summary of card replacement procedure for an NTBX27 card in a STAR or RLD



NTBX27 in a STAR or RLD (continued)

Replacing an NTBX27 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 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:

```
Post       DELQ       BUSYQ        PREFIX
LCC PTY RNG....LEN......DN       STA F S LTA TE RESULT
ISDN Loop    HOST 00 0 03 03  4931082  IDL
```

4 To busy the NTBX27 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
ISDN Loop  HOST 00 0 03 03 4931082  MB
```

NTBX27
in a STAR or RLD (continued)

At the SRHE frame

5



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
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
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.

NTBX27
in a STAR or RLD (continued)

Put on a wrist strap.

Note: A card shroud is required for inserting or removing cards in line drawers. A description of this shroud follows.

Line card insertion / withdrawal tool for	Apparatus code	Common product code
3-inch cards	QTH56A	A0298291

Note: A card removal tool is required for removing cards from line drawers. A descriptions of this tool follows.

Card removal tool for	Apparatus code	Common product code
3-4 inch cards	QTH57A	A0298292
Note: For 4-inch or larger cards, use the large grip tool ITA9953.		

6 To prepare to remove the faulty card, 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 Mke 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.

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 15
other	step 10

At the MAP terminal

10 To test the NTBX27 line card, type

`>DIAG`

and press the Enter key.

11 Use the following information to determine how to proceed.

If DIAG	Do
passes	step 12
fails	step 16

12 To return the NTBX27 card to service, type

`>RTS`

and press the Enter key.

If RTS	Do
passes	step 13
fails	step 16

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

NTBX27 in a STAR or RLD (end)

14 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 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 this manual.

16 Get additional help replacing this card by contacting personnel responsible for a 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.

NTBX34 in an RSC LCME

Application

Use this procedure to replace an NTBX34 card in RSCE LCME.

PEC	Suffixes	Name
NTBX34	BA	ISDN Enhanced LCM Processor

Common procedures

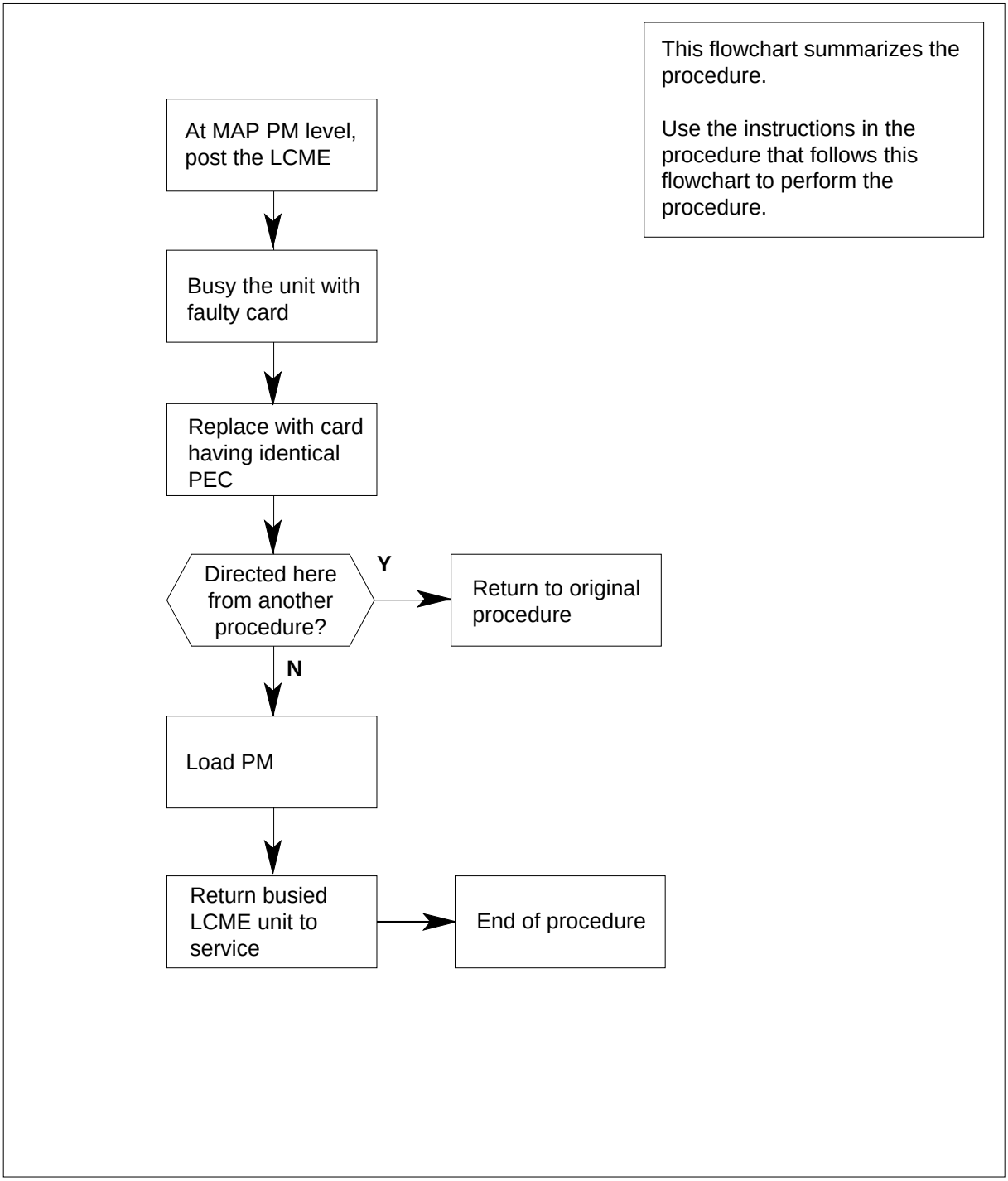
None

Action

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

NTBX34 in an RSC LCME (continued)

Summary of card replacement procedure for an NTBX34 card in an RSC LCME



NTBX34
in an RSC LCME (continued)

Replacing an NTBX34 card in an 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 an NTBX34 replacement card. Ensure the replacement card has the same product equipment code (PEC), including suffix, as the card that is to be removed.

3 Set the MAP display to the PM level and post the LCME by typing

`>MAPCI;MTC;PM;POST LCME site frame_no lcme_no`

and pressing the Enter key.

where

site
is the name of the site at which the LCME is located

frame_no
is the number of the frame at 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
 .     .      .      .     .      .      .      .       .      .

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_OOS:  CSide 0
 5 Trnsl_     Unit-0:   InSv              /RG:  0
 6 Tst_       Unit-1:   InSv              /RG:  0
 7 Bsy_      RG: Preferred 0:  InSv  Standby1:  InSv
 8 RTS_
 9 OffL_
10 LoadPM_
11 Disp_
12 Next_
13
14 QueryPM
15
16
17
18
```

NTBX34
in an RSC LCME (continued)

4 Busy the LCME unit by typing

>BSY UNIT unit_no

and pressing the Enter key.

where

unit_no
is the number of the LCME unit with the faulty card

Example of a MAP display:

```
 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        1        0        0        0         0
 3
 4 Swrg_      LCME  RemL  00 0   Links_OOS:  CSide 0
 5 Trnsl_     Unit-0:   InSv Mtce Takeover /RG:  0
 6 Tst_       Unit-1:   ManB Mtce          /RG:  0
 7 Bsy_      RG: Preferred 0:  InSv  Standby1:  InSv
 8 RTS_
 9 OffL_
10 LoadPM_
11 Disp_
12 Next_
13
14 QueryPM
15
16
17
18
```

NTBX34
in an RSC LCME (continued)

At the LCE frame

5

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.

WARNING
Card damage—transport
Take these precautions to protect the circuit cards from electrical and mechanical damage while transporting cards.

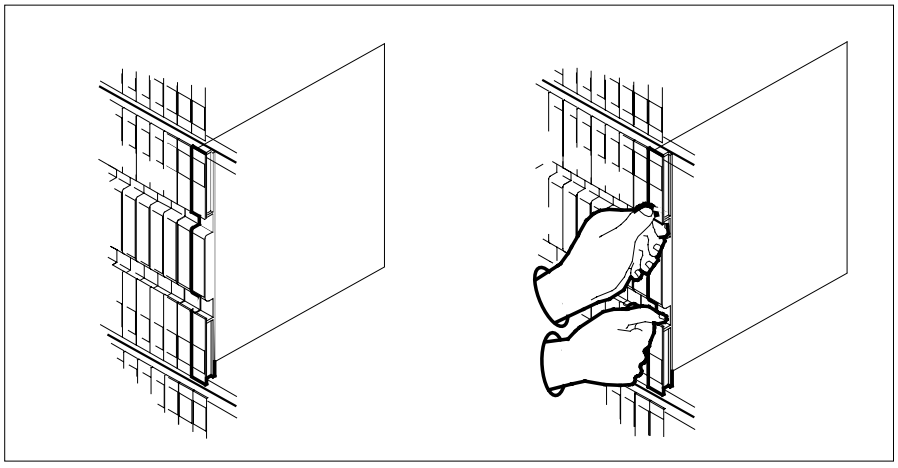
When handling a circuit card not in an electrostatic discharge (ESD) protective container, stand on a conductive floor mat and wear a wrist strap connected, through a 1-megohm resistor, to a suitably grounded object, such as a metal workbench or a DMS switch frame (Northern Telecom Corporate Standard 5028).

Store and transport circuit cards in an ESD protective container.

Put on a wrist strap.

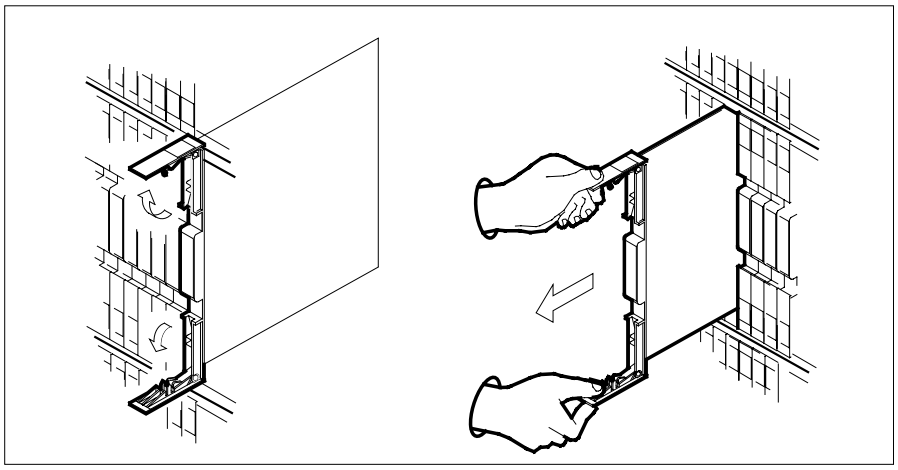
6 Remove the NTBX34 card as shown in the following figures.

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



NTBX34
in an RSC 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.

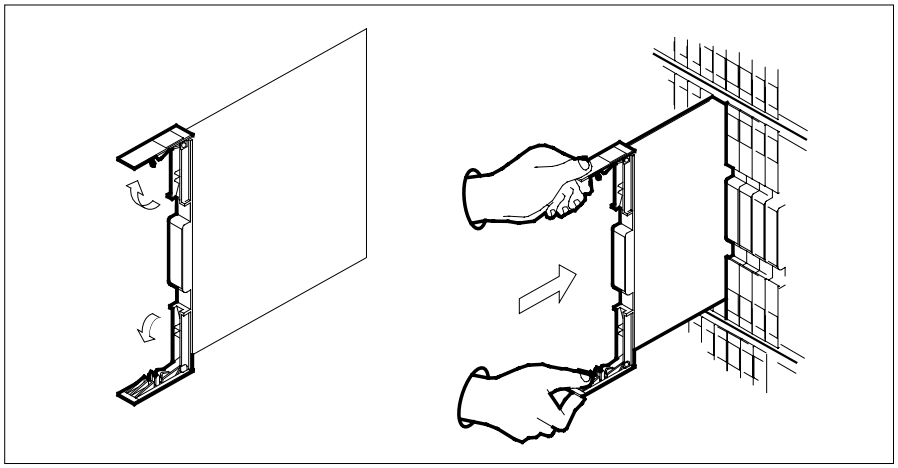


c Ensure the replacement card has the same PEC, including suffix, as the card you just removed.

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.

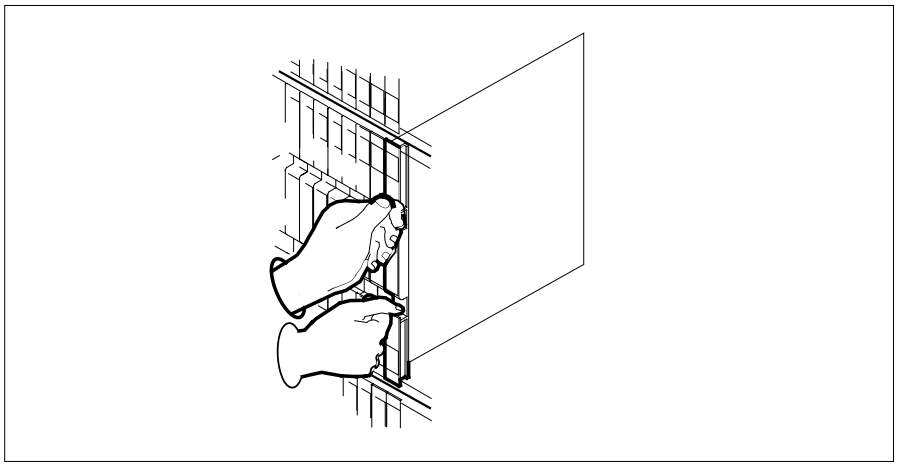


8 Seat and lock the card.

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.

NTBX34
in an RSC LCME (continued)



At the MAP terminal

9 Load the LCME unit by typing

`>loadpm unit unit_no CC`

and pressing the Enter key.

where

unit_no
is the number of the LCME unit busied in step 4

10 Use the following information to determine where to proceed.

If load	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 Return the LCME unit to service by typing

`>RTS UNIT lcme_unit_no`

and pressing the Enter key.

where

NTBX34
in an RSC LCME (end)

lcme_unit_no
is the number of the LCME unit busied in step 4

13 Use the following information to determine where to proceed.

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.

NTBX34 in an RSC-S (DS-1) Model A LCME

Application

Use this procedure to replace an NTBX34 card in an RSC-S LCME.

PEC	Suffixes	Name
NTBX34	BA	ISDN Enhanced LCM Processor

Common procedures

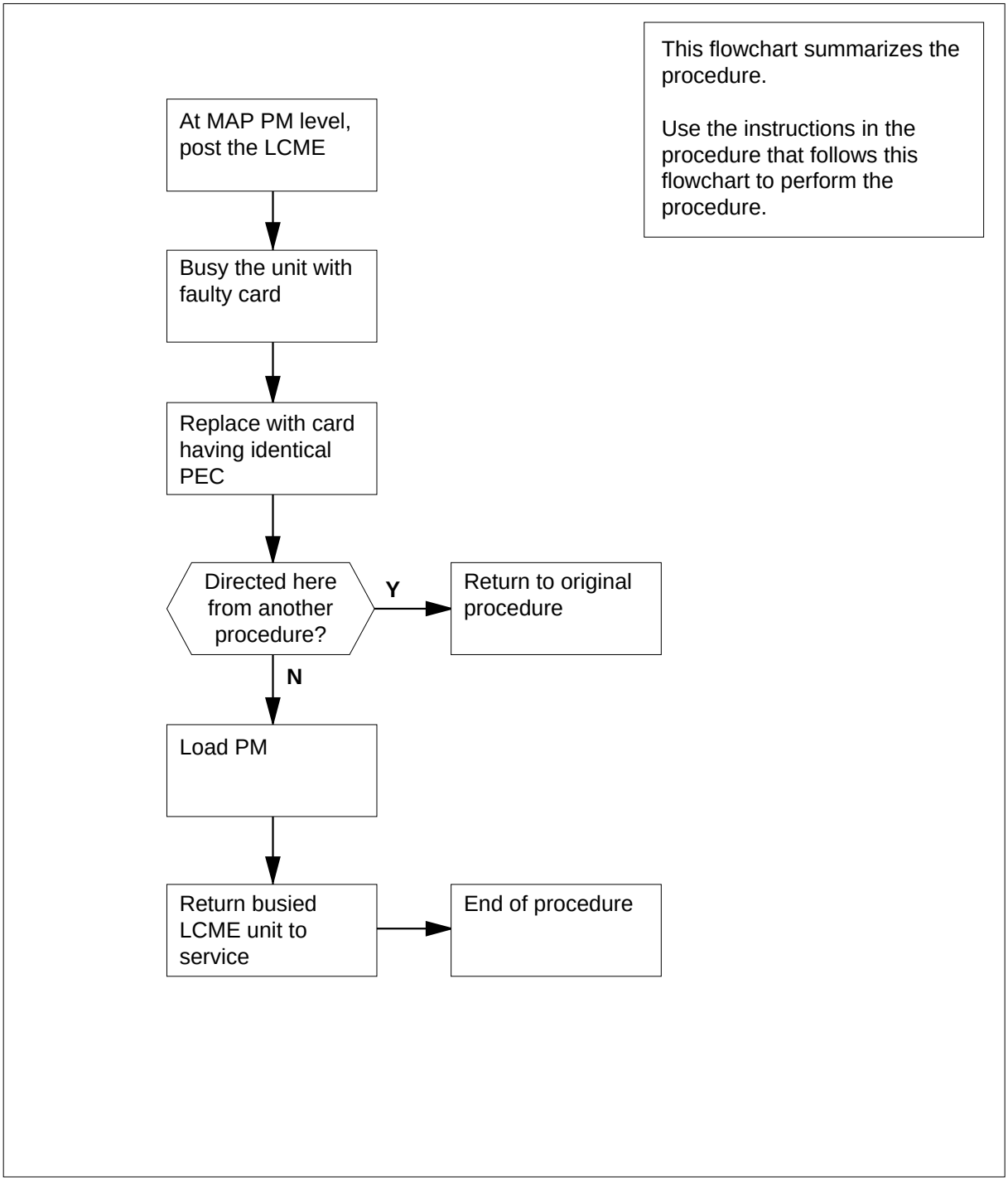
None

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.

NTBX34 in an RSC-S (DS-1) Model A LCME (continued)

Summary of card replacement procedure for an NTBX34 card in an RSC-S LCME



NTBX34 in an RSC-S (DS-1) Model A LCME (continued)

Replacing an NTBX34 card in an 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 an NTBX34 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 LCME by typing

```
>MAPCI;MTC;PM;POST LCME site frame_no lcme_no
```

and pressing the Enter key.

where

site
is the name of the site at which the LCME is located

frame_no
is the number of the frame at which the LCME is located

lcme_no
is the number of the LCME with the faulty card

Example of a MAP display:

NTBX34
in an RSC-S (DS-1) Model A LCME (continued)

```
 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_OOS:  CSide 0
 5 Trnsl_      Unit-0:   InSv              /RG:  0
 6 Tst_        Unit-1:   InSv              /RG:  0
 7 Bsy_        RG: Preferred 0:  InSv  Standby1:  InSv
 8 RTS_
 9 OffL_
10 LoadPM_
11 Disp_
12 Next_
13
14 QueryPM
15
16
17
18
```

4 Busy the LCME unit by typing

>BSY UNIT unit_no

and pressing the Enter key.

where

unit_no
is the number of the LCME unit with the faulty card

Example of a MAP display:

NTBX34
in an RSC-S (DS-1) Model A LCME (continued)

```
 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        1        0        0        0         0
 3
 4 Swrg_       LCME  RemL  00 0   Links_OOS:  CSide 0
 5 Trnsl_      Unit-0:   InSv Mtce Takeover /RG:  0
 6 Tst_        Unit-1:   ManB Mtce          /RG:  0
 7 Bsy_        RG: Preferred 0:  InSv  Standby1:  InSv
 8 RTS_
 9 OffL_
10 LoadPM_
11 Disp_
12 Next_
13
14 QueryPM
15
16
17
18
```

NTBX34 in an RSC-S (DS-1) Model A LCME (continued)

At the LCE frame

5



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 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.



WARNING
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:

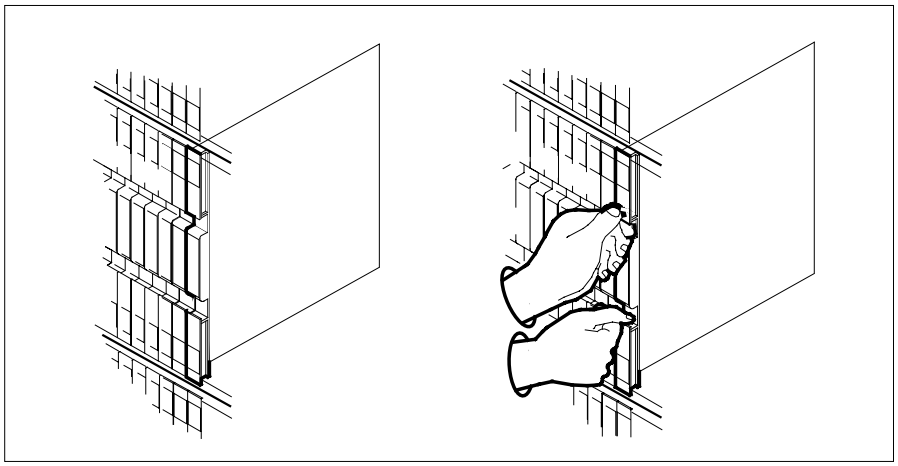
1. Do not apply direct pressure to the components.
2. Do not force the cards into the slots.

Put on a wriststrap.

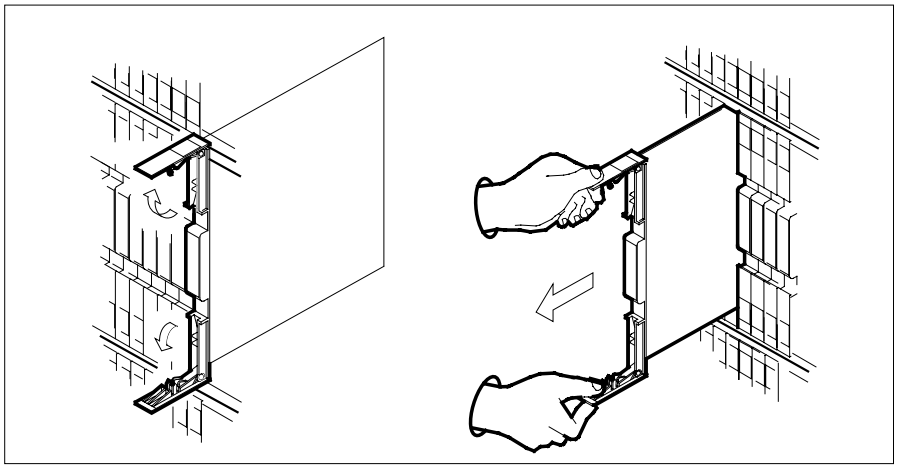
6 Remove the NTBX34 card as shown in the following figures.

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

NTBX34
in an RSC-S (DS-1) Model A LCME (continued)



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



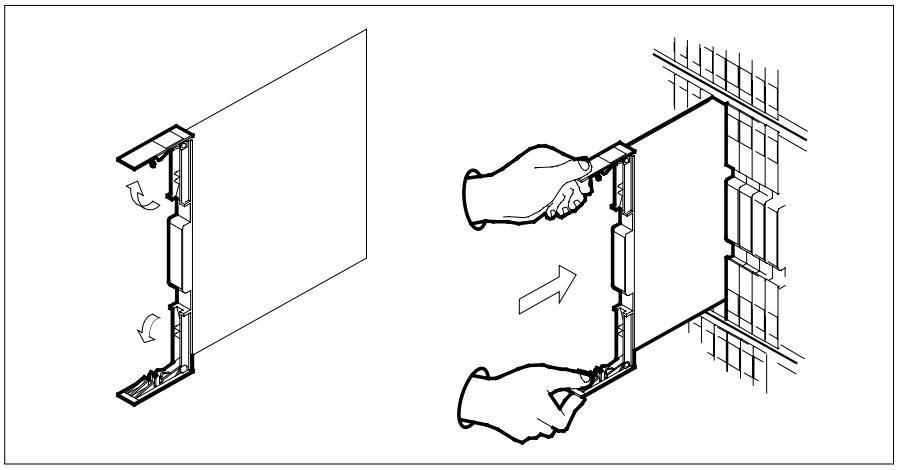
c Ensure the replacement card has the same PEC, including suffix, as the card you just removed.

7 Open the locking levers on the replacement card.

a Align the card with the slots in the shelf.

b Gently slide the card into the shelf.

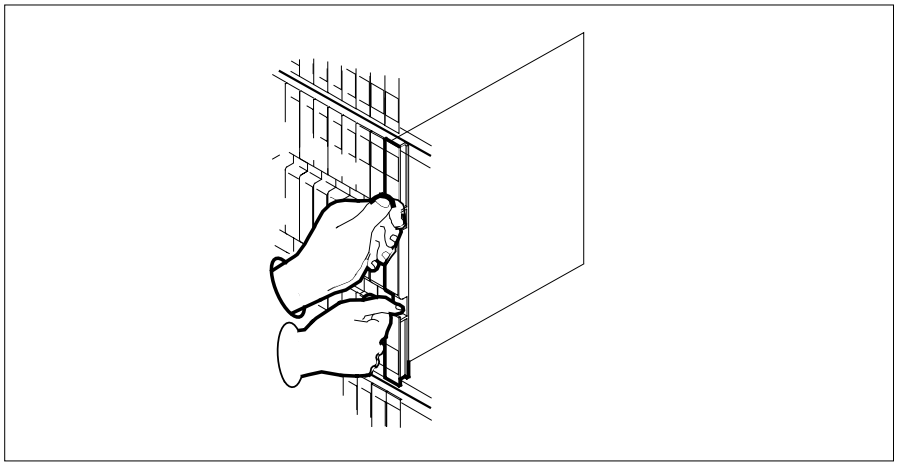
NTBX34
in an RSC-S (DS-1) Model A LCME (continued)



8 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 LCME unit by typing

`>loadpm unit unit_no CC`

and pressing the Enter key.

where

unit_no
is the number of the LCME unit busied in step 4

NTBX34 in an RSC-S (DS-1) Model A LCME (continued)

10 Use the following information to determine where to proceed.

If load	Do
passed	step 11
failed	step 19

11 Test the LCME unit by typing

>TST UNIT unit_no

and pressing the Enter key.

where

unit_no
is the number of the LCME unit loaded in step 9

12 Use the following information to determine where to proceed.

If TST	Do
passed	step 13
failed	step 18

13 Use the following information to determine where to proceed.

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

14 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 12

15 Use the following information to determine where to proceed.

If RTS	Do
passed	step 16
failed	step 19

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

NTBX34
in an RSC-S (DS-1) Model A LCME (end)

17 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 20.

18 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.

19 Obtain further assistance in replacing this card by contacting operating company maintenance personnel.

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

NTBX34 in an RSC-S (DS-1) Model B LCME

Application

Use this procedure to replace an NTBX34 card in an RSC-S LCME.

PEC	Suffixes	Name
NTBX34	BA	ISDN Enhanced LCM Processor

Common procedures

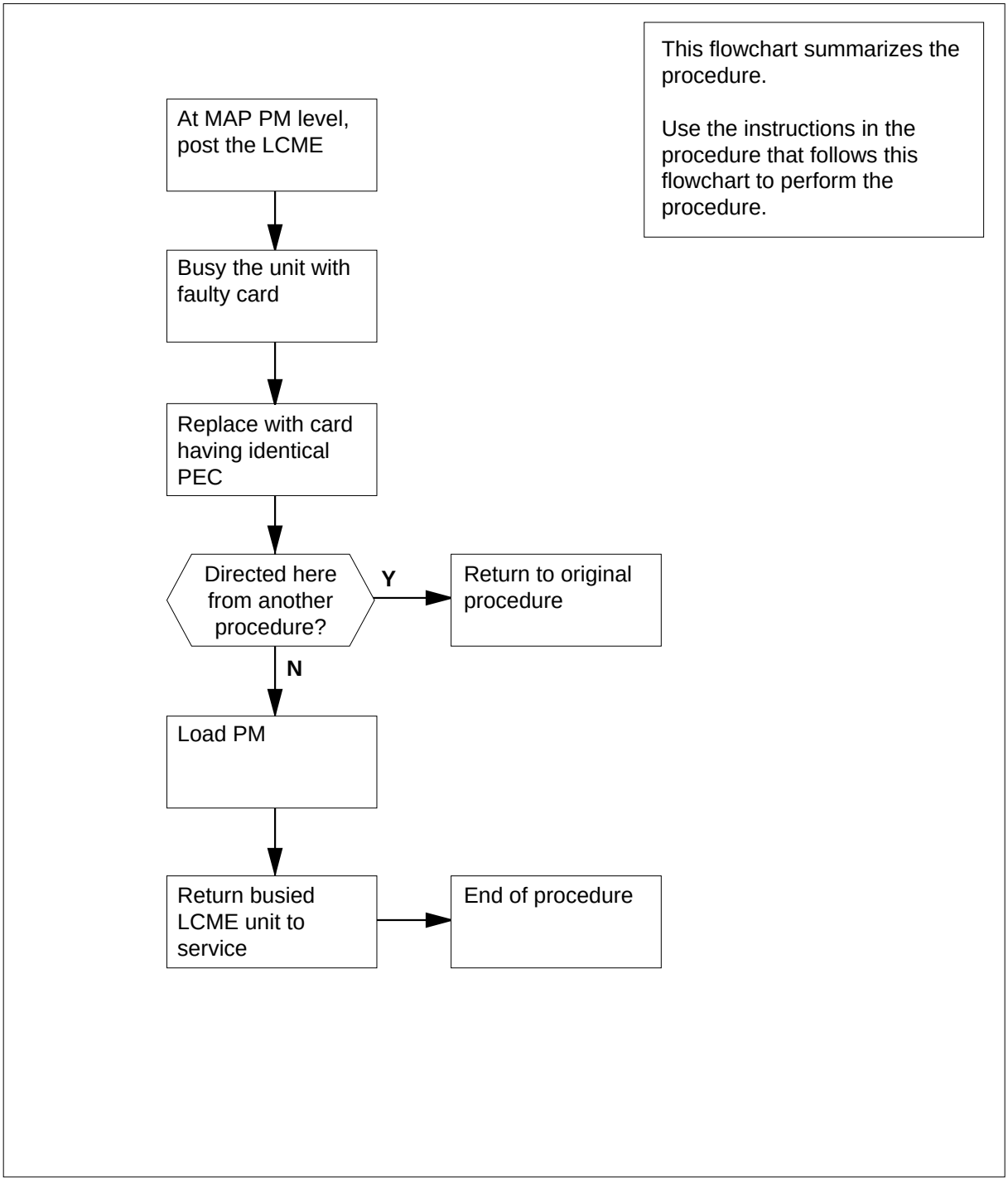
None

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.

NTBX34
in an RSC-S (DS-1) Model B LCME (continued)

Summary of card replacement procedure for an NTBX34 card in an RSC-S LCME



NTBX34 in an RSC-S (DS-1) Model B LCME (continued)

Replacing an NTBX34 card in an 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 an NTBX34 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 LCME by typing

```
>MAPCI;MTC;PM;POST LCME site frame_no lcme_no
```

and pressing the Enter key.

where

site
is the name of the site at which the LCME is located

frame_no
is the number of the frame at which the LCME is located

lcme_no
is the number of the LCME with the faulty card

Example of a MAP display:

NTBX34
in an RSC-S (DS-1) Model B LCME (continued)

```
 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_OOS:  CSide 0
 5 Trnsl_     Unit-0:   InSv              /RG:  0
 6 Tst_       Unit-1:   InSv              /RG:  0
 7 Bsy_      RG: Preferred 0:  InSv  Standby1:  InSv
 8 RTS_
 9 OffL_
10 LoadPM_
11 Disp_
12 Next_
13
14 QueryPM
15
16
17
18
```

4 Busy the LCME unit by typing

>BSY UNIT unit_no

and pressing the Enter key.

where

unit_no
is the number of the LCME unit with the faulty card

Example of a MAP display:

NTBX34
in an RSC-S (DS-1) Model B LCME (continued)

```
 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        1        0        0        0         0
 3
 4 Swrg_      LCME  RemL  00 0   Links_OOS:  CSide 0
 5 Trnsl_     Unit-0:   InSv Mtce Takeover /RG:  0
 6 Tst_       Unit-1:   ManB Mtce          /RG:  0
 7 Bsy_      RG: Preferred 0:  InSv  Standby1:  InSv
 8 RTS_
 9 OffL_
10 LoadPM_
11 Disp_
12 Next_
13
14 QueryPM
15
16
17
18
```

NTBX34 in an RSC-S (DS-1) Model B LCME (continued)

At the LCE frame

5



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 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.



WARNING
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:

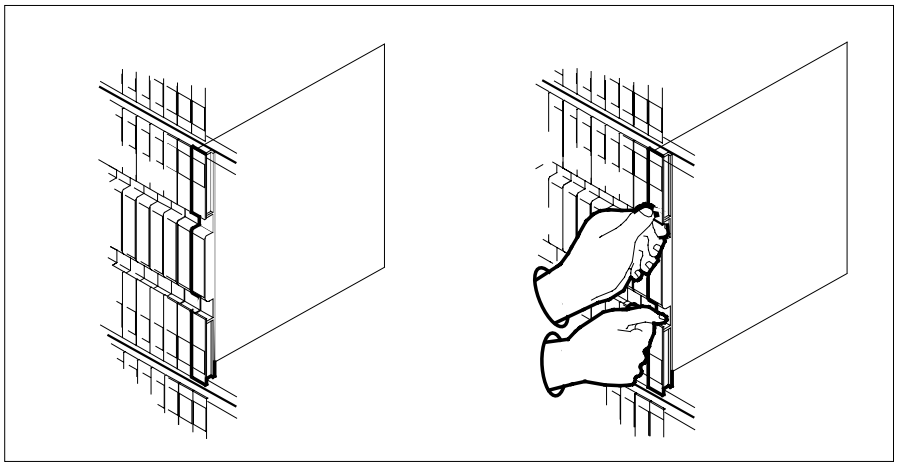
1. Do not apply direct pressure to the components.
2. Do not force the cards into the slots.

Put on a wriststrap.

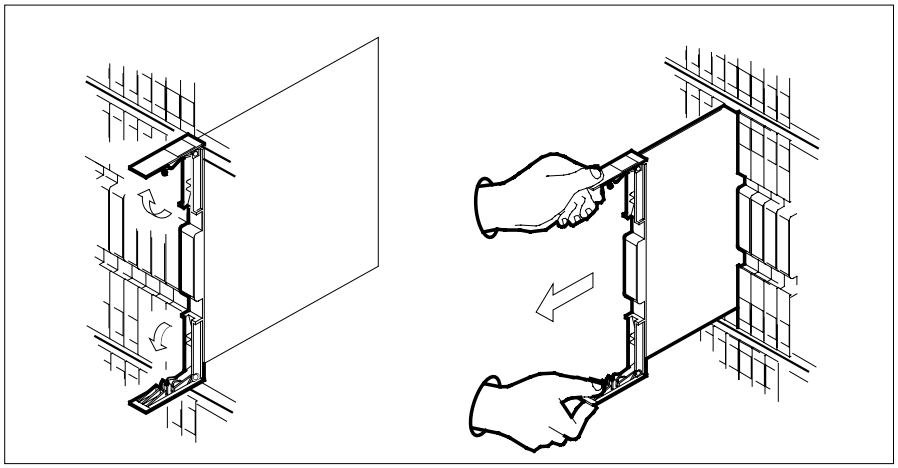
6 Remove the NTBX34 card as shown in the following figures.

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

NTBX34
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.



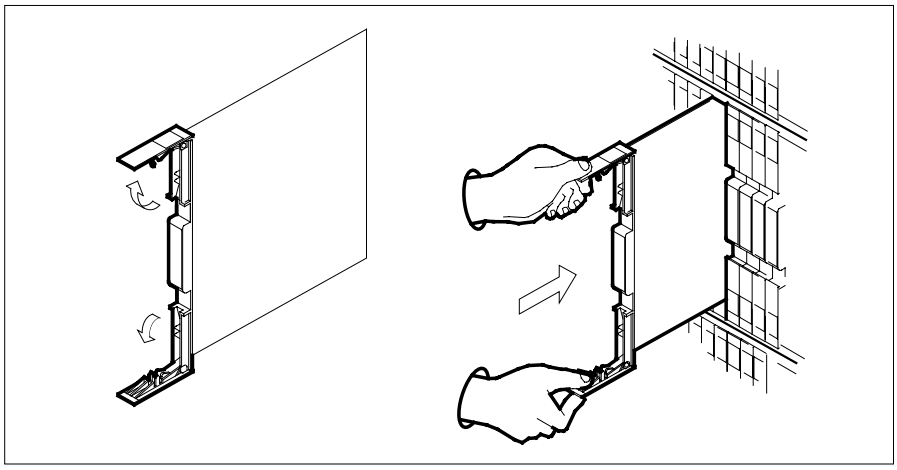
c Ensure the replacement card has the same PEC, including suffix, as the card you just removed.

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.

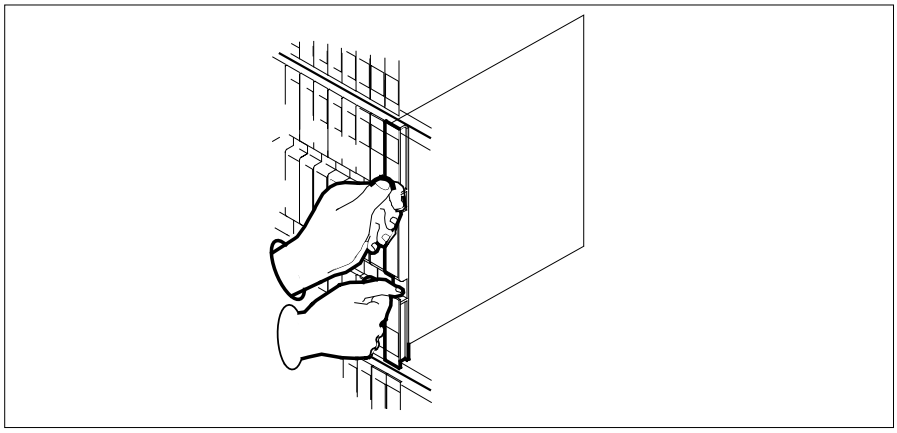
NTBX34
in an RSC-S (DS-1) Model B LCME (continued)



8 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 LCME unit by typing

`>loadpm unit unit_no CC`

and pressing the Enter key.

where

unit_no
is the number of the LCME unit busied in step 4

NTBX34
in an RSC-S (DS-1) Model B LCME (continued)

10 Use the following information to determine where to proceed.

If load	Do
passed	step 11
failed	step 19

11 Test the LCME unit by typing

>TST UNIT unit_no

and pressing the Enter key.

where

unit_no
is the number of the LCME unit loaded in step 9

12 Use the following information to determine where to proceed.

If TST	Do
passed	step 13
failed	step 18

13 Use the following information to determine where to proceed.

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

14 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 12

15 Use the following information to determine where to proceed.

If RTS	Do
passed	step 16
failed	step 19

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

NTBX34
in an RSC-S (DS-1) Model B LCME (end)

17 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 20.

18 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.

19 Obtain further assistance in replacing this card by contacting operating company maintenance personnel.

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

NTBX34 in an RSC-S (PCM-30) Model A LCME

Application

Use this procedure to replace an NTBX34 card in an RSC-S LCME.

PEC	Suffixes	Name
NTBX34	BA	ISDN Enhanced LCM Processor

Common procedures

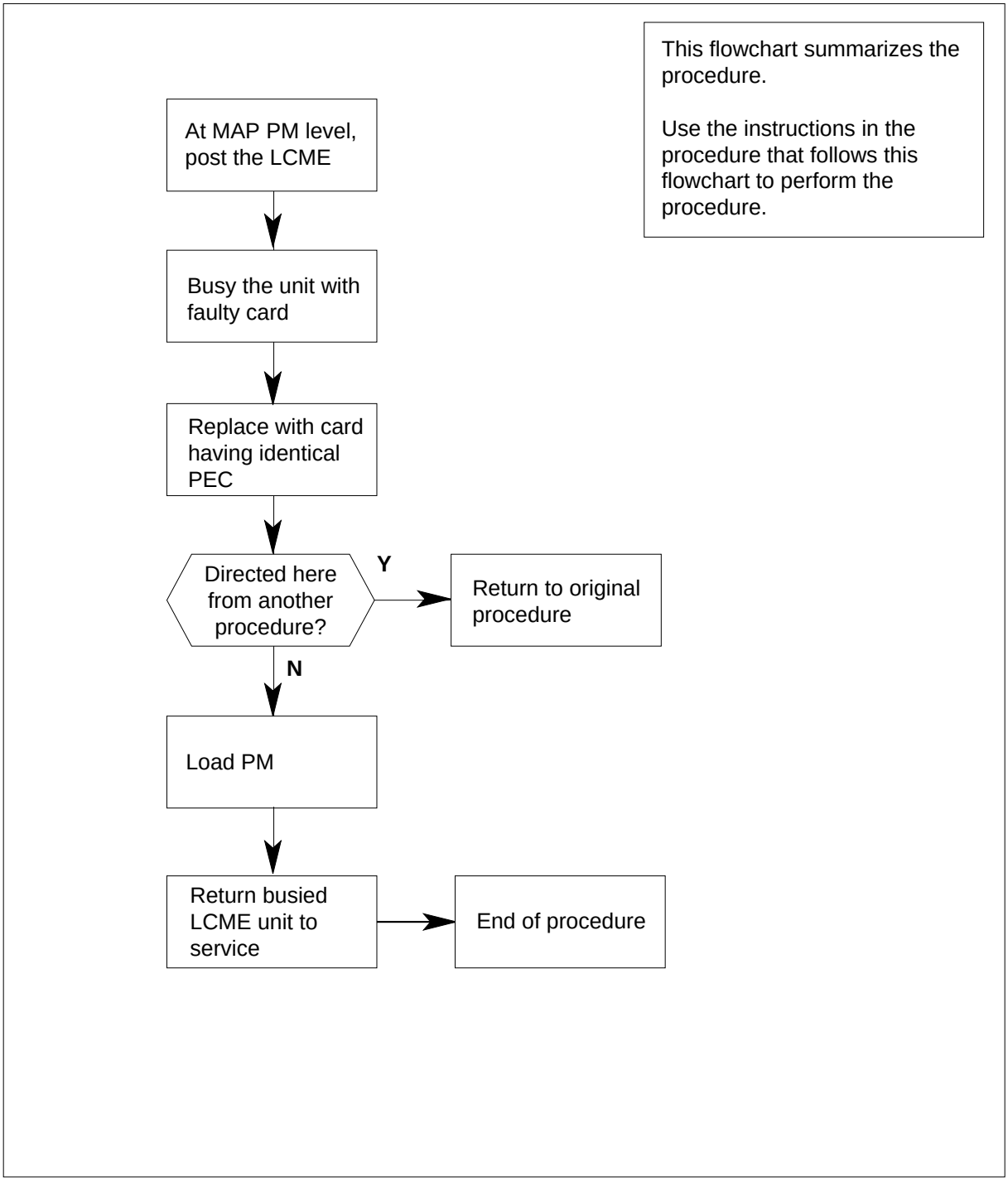
None

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.

NTBX34 in an RSC-S (PCM-30) Model A LCME (continued)

Summary of card replacement procedure for an NTBX34 card in an RSC-S LCME



NTBX34 in an RSC-S (PCM-30) Model A LCME (continued)

Replacing an NTBX34 card in an 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 an NTBX34 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 LCME by typing

```
>MAPCI;MTC;PM;POST LCME site frame_no lcme_no
```

and pressing the Enter key.

where

site
is the name of the site at which the LCME is located

frame_no
is the number of the frame at which the LCME is located

lcme_no
is the number of the LCME with the faulty card

Example of a MAP display:

NTBX34
in an RSC-S (PCM-30) Model A LCME (continued)

```
 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_OOS:  CSide 0
 5 Trnsl_     Unit-0:   InSv              /RG:  0
 6 Tst_       Unit-1:   InSv              /RG:  0
 7 Bsy_      RG: Preferred 0:  InSv  Standby1:  InSv
 8 RTS_
 9 OffL_
10 LoadPM_
11 Disp_
12 Next_
13
14 QueryPM
15
16
17
18
```

4 Busy the LCME unit by typing

>BSY UNIT unit_no

and pressing the Enter key.

where

unit_no
is the number of the LCME unit with the faulty card

Example of a MAP display:

NTBX34
in an RSC-S (PCM-30) Model A LCME (continued)

```
 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        1        0        0        0         0
 3
 4 Swrg_      LCME  RemL  00 0   Links_OOS:  CSide 0
 5 Trnsl_     Unit-0:   InSv Mtce Takeover /RG:  0
 6 Tst_       Unit-1:   ManB Mtce          /RG:  0
 7 Bsy_      RG: Preferred 0:  InSv  Standby1:  InSv
 8 RTS_
 9 OffL_
10 LoadPM_
11 Disp_
12 Next_
13
14 QueryPM
15
16
17
18
```

NTBX34 in an RSC-S (PCM-30) Model A LCME (continued)

At the LCE frame

5

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.

WARNING
Card damage—transport
Take these precautions to protect the circuit cards from electrical and mechanical damage while transporting cards.

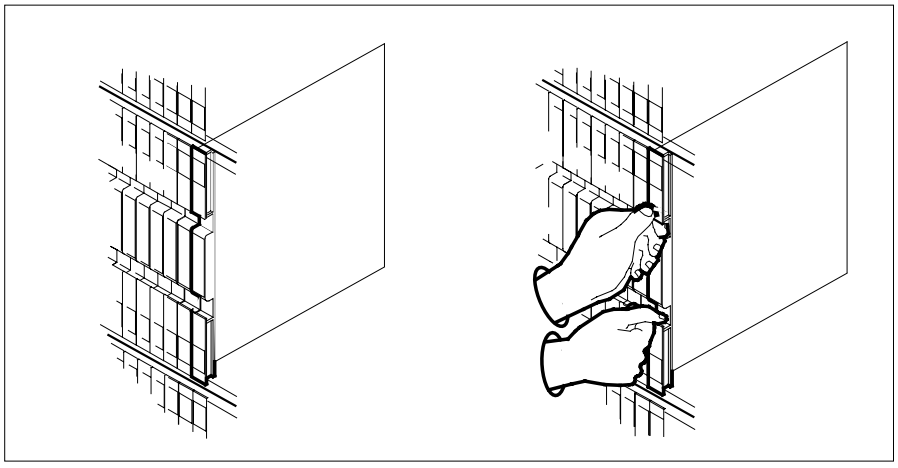
When handling a circuit card not in an electrostatic discharge (ESD) protective container, stand on a conductive floor mat and wear a wrist strap connected, through a 1-megohm resistor, to a suitably grounded object, such as a metal workbench or a DMS switch frame (Northern Telecom Corporate Standard 5028).

Store and transport circuit cards in an ESD protective container.

Put on a wrist strap.

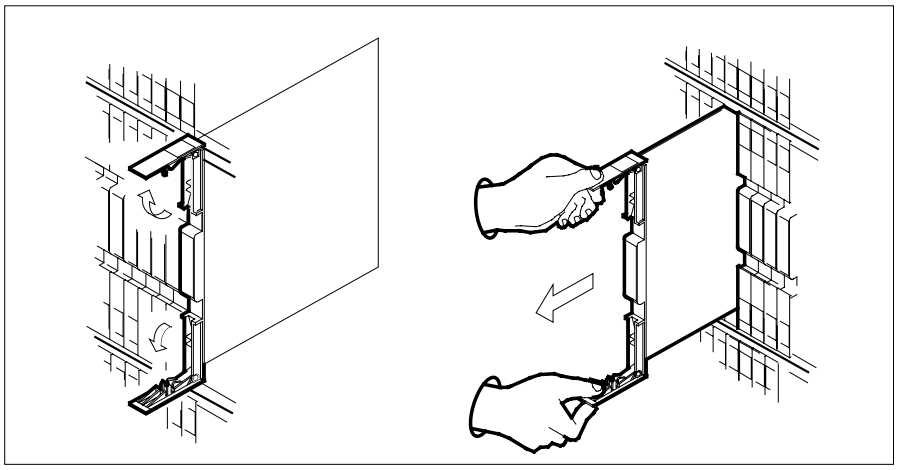
6 Remove the NTBX34 card as shown in the following figures.

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



NTBX34
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.

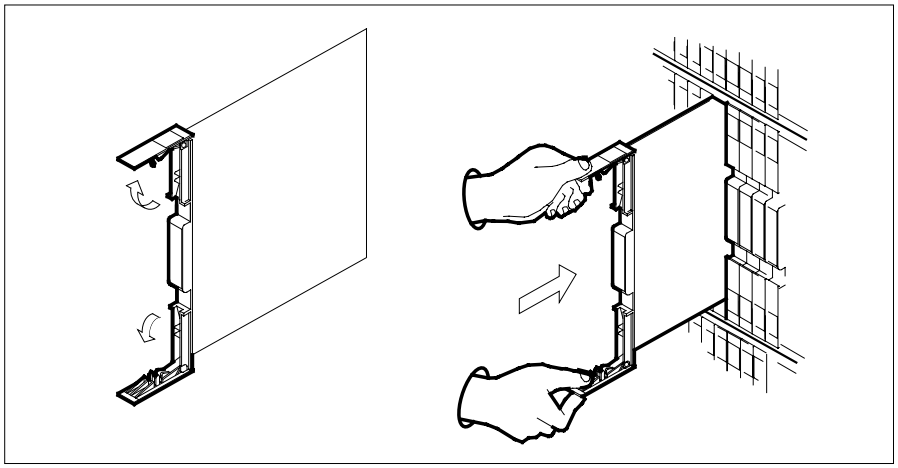


c Ensure the replacement card has the same PEC, including suffix, as the card you just removed.

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.

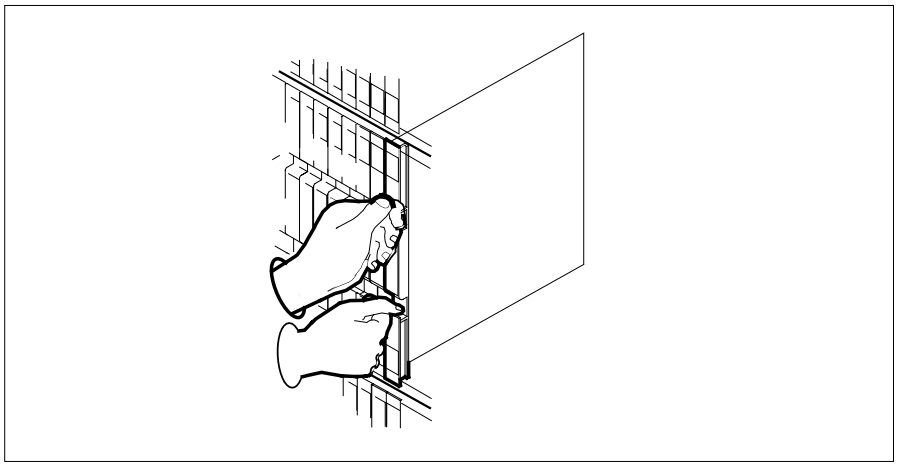


8 Seat and lock the card.

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.

NTBX34 in an RSC-S (PCM-30) Model A LCME (continued)



At the MAP terminal

9 Load the LCME unit by typing

>loadpm unit **unit_no CC**

and pressing the Enter key.

where

unit_no
is the number of the LCME unit busied in step 4

10 Use the following information to determine where to proceed.

If load	Do
passed	step 11
failed	step 19

11 Test the LCME unit by typing

>TST UNIT unit_no

and pressing the Enter key.

where

unit_no
is the number of the LCME unit loaded in step 9

12 Use the following information to determine where to proceed.

If TST	Do
passed	step 13
failed	step 18

NTBX34 in an RSC-S (PCM-30) Model A LCME (end)

13 Use the following information to determine where to proceed.

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

14 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 12

15 Use the following information to determine where to proceed.

If RTS	Do
passed	step 16
failed	step 19

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

17 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 20.

18 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.

19 Obtain further assistance in replacing this card by contacting operating company maintenance personnel.

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

NTBX35 in an RSC LCME

Application

Use this procedure to replace an NTBX35 card in an RSCE LCME.

PEC	Suffixes	Name
NTBX35	AA	ISDN LCM Digroup Controller

Common procedures

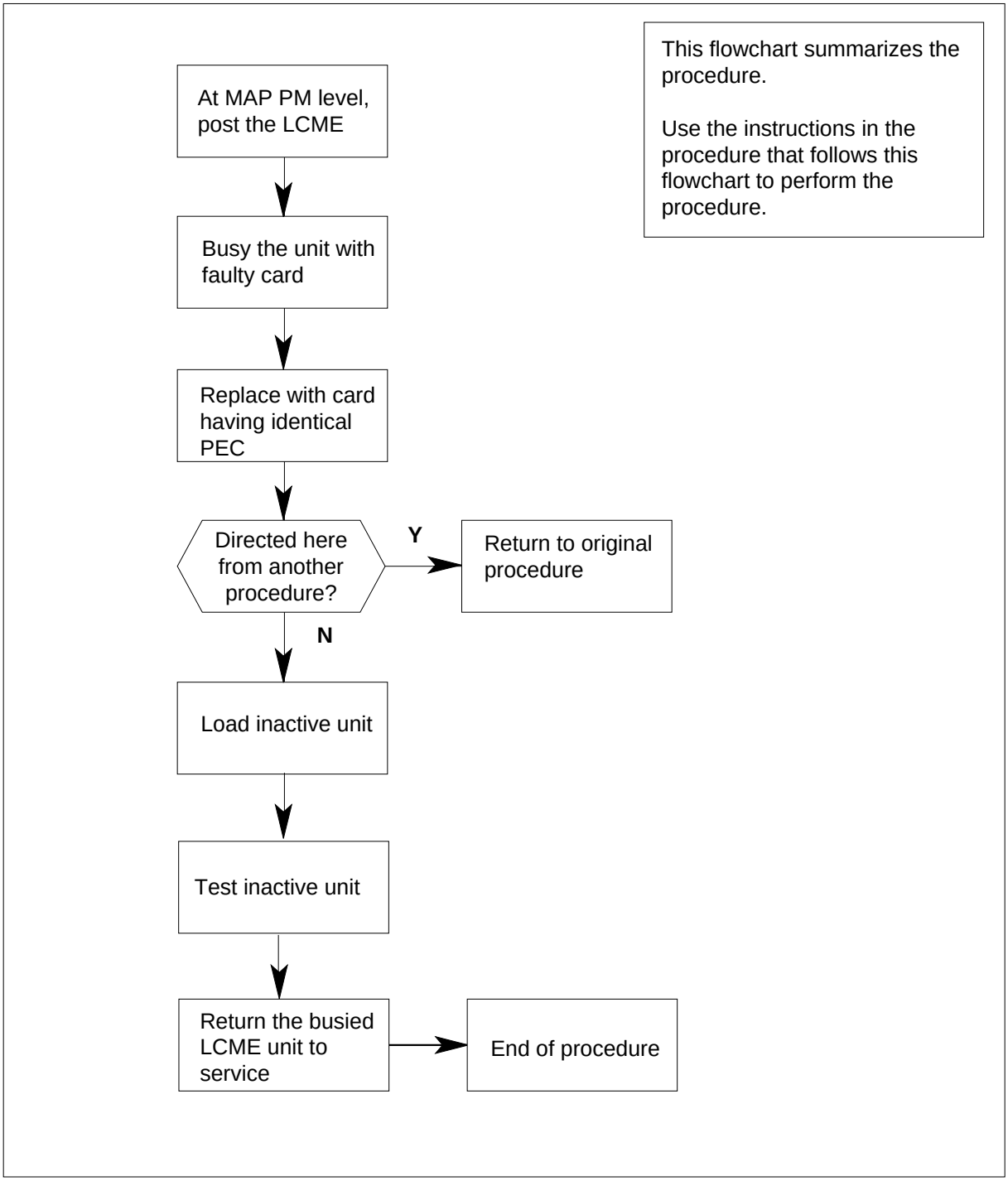
None

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.

NTBX35 in an RSC LCME (continued)

Summary of card replacement procedure for an NTBX35 card in an RSC-S LCME



NTBX35
in an RSC LCME (continued)

Replacing an NTBX35 card in an RSCE 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 an NTBX35 replacement card. Ensure the replacement card has the same product equipment code (PEC), including suffix, as the card that is to be removed.

3 Set the MAP to the PM level and post the LCME by typing

`>MAPCI;MTC;PM;POST LCME site frame_no unit_no`

and pressing the Enter key.

where

site
is the name of the site at which the LCME is located

frame_no
is the number of the frame in which the LCME is located

unit_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
 .      .       .      .     .      .      .       .       .         .
LCME             SysB     ManB     OffL     CBsy     ISTb      InSv
 0 Quit    PM       o        0        0        0        0       130
 2 Post_   LCME     0        0        0        0        0         0
 3
 4 Swrg_
 5 Trnsl_                     LCME   RemL  OO O   Links_OOS:  CSide 0
 6 Tst_                       Unit-0:  InSv               /RG:  0
 7 Bsy_                       Unit-1:  InSv               /RG:  0
 8 RTS_                     RG: Preferred 0:  InSv   Standby1: InSv
 9 OffL_
10 LoadPM_
11 Disp_
12 Next_
13
14 QueryPM
15
16
17
18
```

NTBX35
in an RSC LCME (continued)

4 Busy the LCME unit by typing

>BSY UNIT unit_no

and pressing the Enter key.

where

unit_no
is the number of the LCME unit with the faulty card

Example of a MAP display:

```
 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        1        0        0        0         0
 3
 4 SwRg              LCME   RemL  OO O   Links_OOS:  CSide 0
 5 Trnsl             Unit-0:  InSv  Mtce TakeOver /RG:  0
 6 Tst               Unit-1:  ManB Mtce           /RG:  0
 7 Bsy              RG: Preferred 0:  InSv   Standby1: InSv
 8 RTS
 9 OffL
10 LoadPM
11 Disp_
12 Next
13
14 QueryPM
15
16
17
18
```

NTBX35 in an RSC LCME (continued)

At the LCE frame

5

WARNING
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.

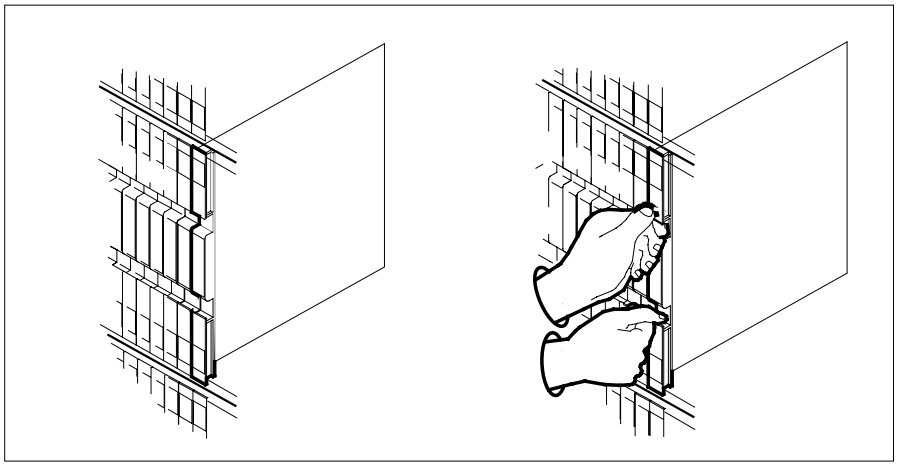
DANGER
Equipment damage
Take these precautions when removing or inserting a card:

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

Put on a wrist strap.

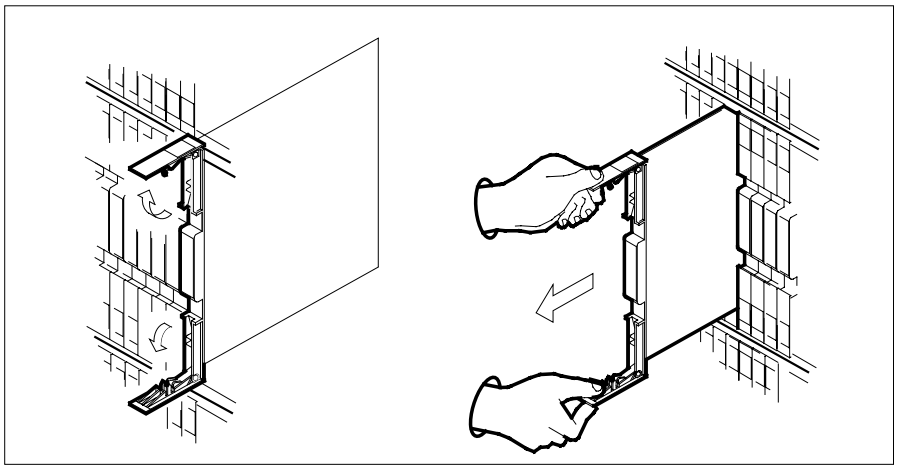
6 Remove the NTBX35 card as shown in the following figures.

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



NTBX35
in an RSC 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.

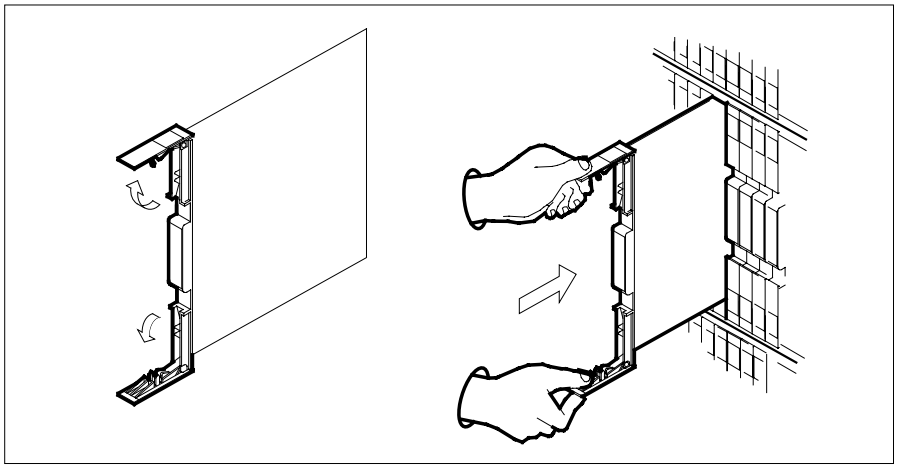


c Ensure the replacement card has the same PEC, including suffix, as the card you just removed.

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.

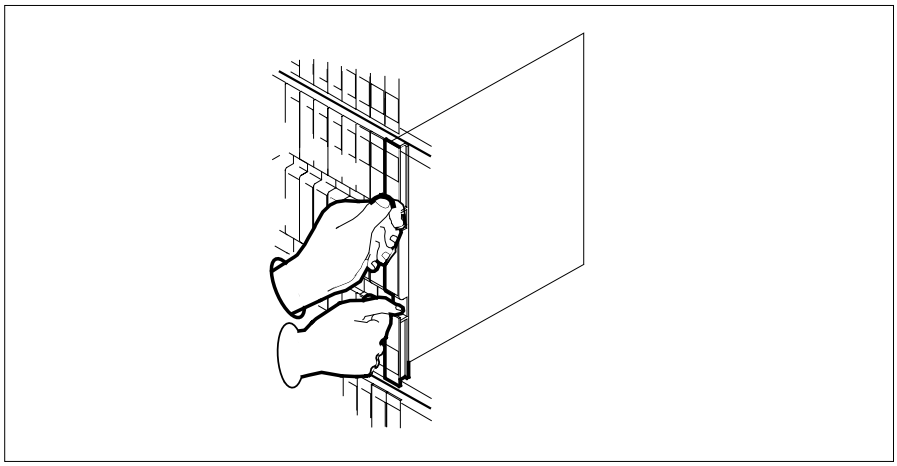


8 Seat and lock the card.

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.

NTBX35
in an RSC LCME (continued)



At the MAP terminal

9 Load the LCME unit by typing

`>loadpm uNIT unit_no CC`

and pressing the Enter key.

where

unit_no
is the number of the LCME unit busied in step 4

If load	Do
passed	step 10
failed	step 15

10 Use the following information to determine where to proceed.

If you entered this procedure from	Do
alarm clearing procedures	step 14
other	step 11

11 Return the LCME unit to service by typing

`>RTS UNIT lcme_unit_no`

and pressing the Enter key.

where

NTBX35 in an RSC LCME (end)

lcme_unit_no
is the number of the LCME unit busied in step 4

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. 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.

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.

NTBX35 in an RSC-S (DS-1) Model A LCME

Application

Use this procedure to replace an NTBX35 card in an RSC-S LCME.

PEC	Suffixes	Name
NTBX35	AA	ISDN LCM Digroup Controller

Common procedures

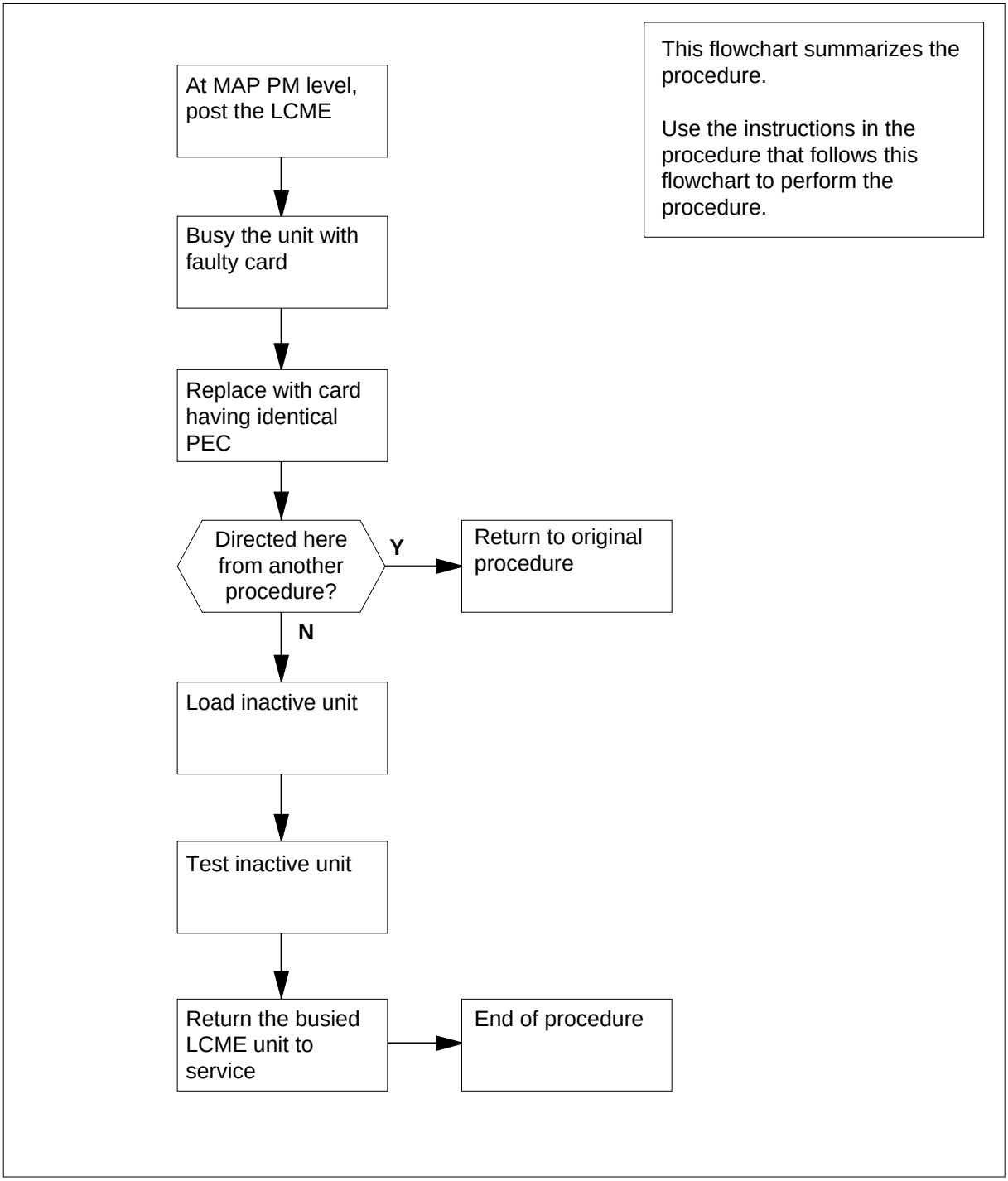
None

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.

NTBX35 in an RSC-S (DS-1) Model A LCME (continued)

Summary of card replacement procedure for an NTBX35 card in an RSC-S LCME



NTBX35 in an RSC-S (DS-1) Model A LCME (continued)

Replacing an NTBX35 card in an 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 an NTBX35 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 site frame_no unit_no
```

and pressing the Enter key.

where

site
is the name of the site at which the LCME is located

frame_no
is the number of the frame in which the LCME is located

unit_no
is the number of the LCME with the faulty card

Example of a MAP display:

NTBX35
in an RSC-S (DS-1) Model A LCME (continued)

```
 CM     MS     IOD    Net    PM    CCS    LNS    Trks    Ext    Appl
 .      .       .      .      .     .      .       .      .       .

LCME             SysB     ManB     OffL     CBsy     ISTb      InSv
 0 Quit    PM       o        0        0        0        0       130
 2 Post_   LCME     0        0        0        0        0         0
 3
 4 Swrg_
 5 Trnsl_    LCME   RemL  OO O   Links_OOS:  CSide 0
 6 Tst_       Unit-0:  InSv                /RG:  0
 7 Bsy_       Unit-1:  InSv                /RG:  0
 8 RTS_       RG: Preferred 0:  InSv   Standby1: InSv
 9 OffL_
10 LoadPM_
11 Disp_
12 Next_
13
14 QueryPM
15
16
17
18
```

4 Busy the LCME unit by typing

>BSY UNIT unit_no

and pressing the Enter key.

where

unit_no
is the number of the LCME unit with the faulty card

Example of a MAP display:

NTBX35
in an RSC-S (DS-1) Model A LCME (continued)

```
 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        1        0        0        0         0
 3
 4 SwRg
 5 Trnsl     LCME   RemL  OO O   Links_OOS:  CSide 0
 6 Tst        Unit-0:  InSv  Mtce TakeOver /RG:  0
 7 Bsy        Unit-1:  ManB Mtce           /RG:  0
 8 RTS        RG: Preferred 0:  InSv   Standby1: InSv
 9 OffL
10 LoadPM
11 Disp_
12 Next
13
14 QueryPM
15
16
17
18
```

NTBX35 in an RSC-S (DS-1) Model A LCME (continued)

At the LCE frame

5



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 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.



WARNING
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:

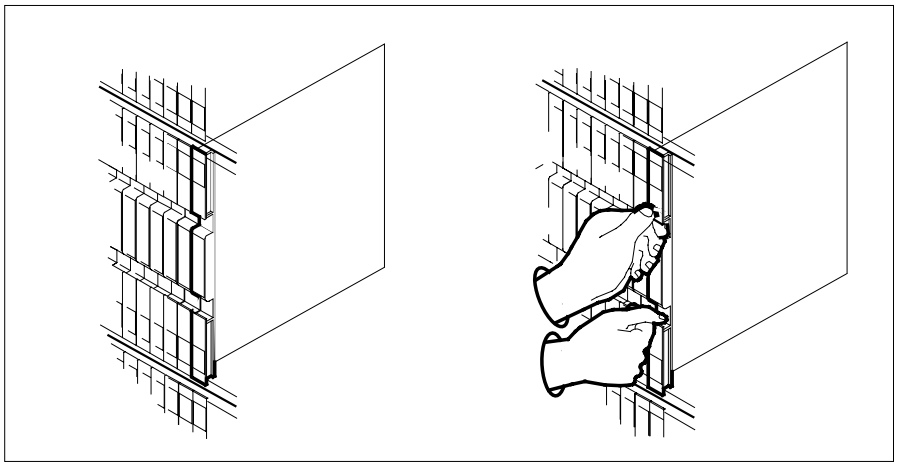
1. Do not apply direct pressure to the components.
2. Do not force the cards into the slots.

Put on a wriststrap.

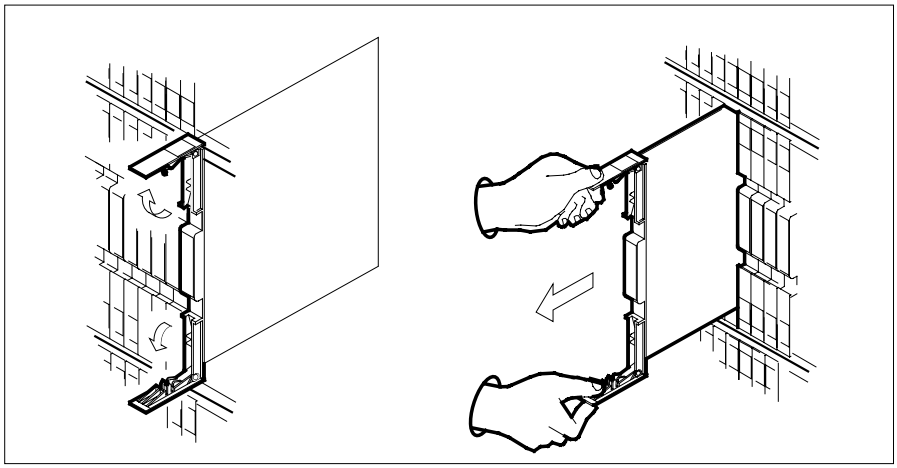
6 Remove the NTBX35 card as shown in the following figures.

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

NTBX35
in an RSC-S (DS-1) Model A LCME (continued)



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



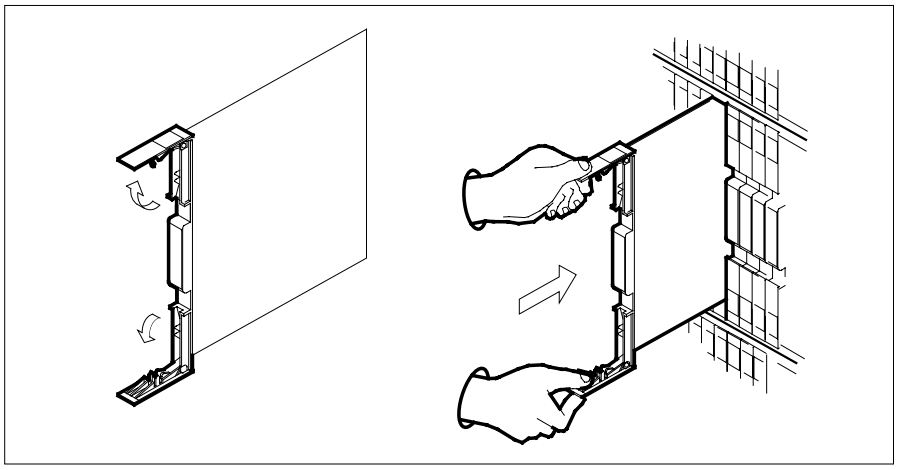
c Ensure the replacement card has the same PEC, including suffix, as the card you just removed.

7 Open the locking levers on the replacement card.

a Align the card with the slots in the shelf.

b Gently slide the card into the shelf.

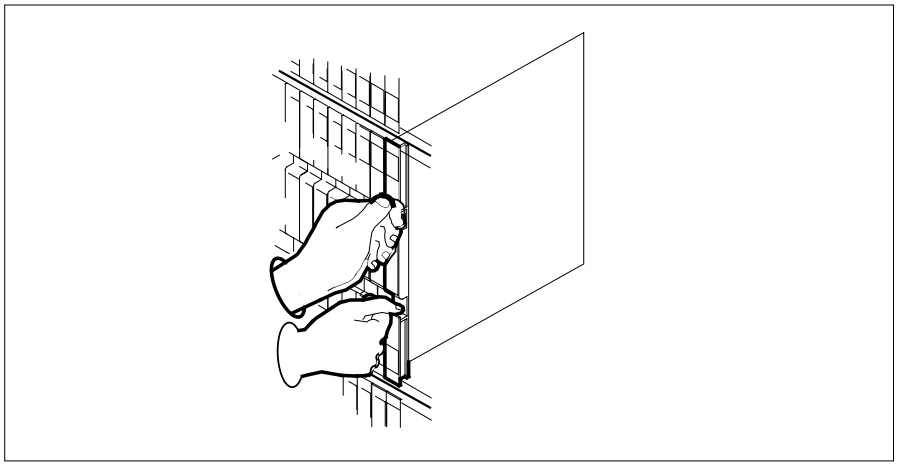
NTBX35
in an RSC-S (DS-1) Model A LCME (continued)



8 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 LCME unit by typing

`>loadpm uNIT unit_no CC`

and pressing the Enter key.

where

NTBX35
in an RSC-S (DS-1) Model A LCME (continued)

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 unit_no`

and pressing the Enter key.

where

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.

NTBX35
in an RSC-S (DS-1) Model A LCME (end)

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 this manual.

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.

NTBX35 in an RSC-S (DS-1) Model B LCME

Application

Use this procedure to replace an NTBX35 card in an RSC-S LCME.

PEC	Suffixes	Name
NTBX35	AA	ISDN LCM Digroup Controller

Common procedures

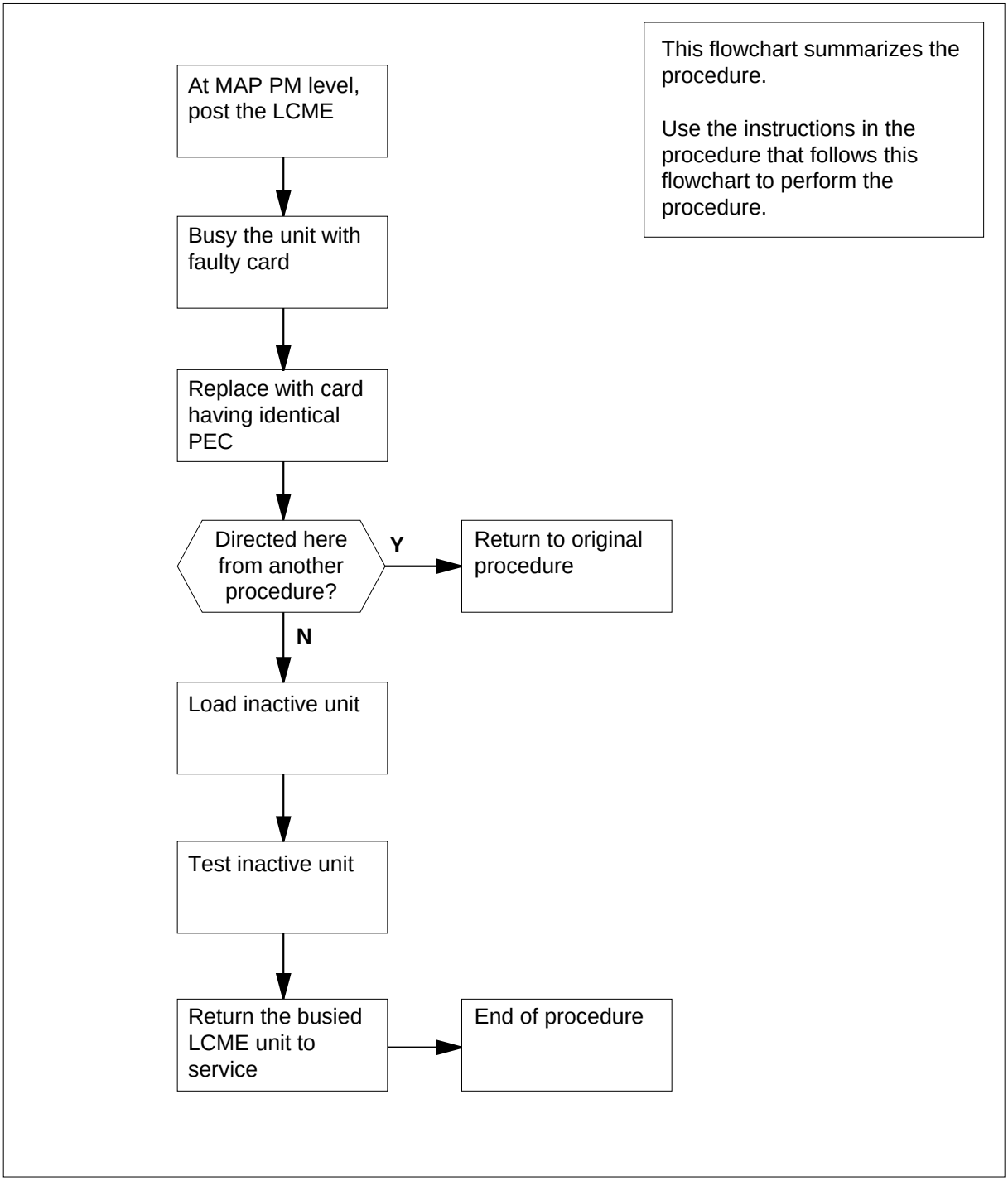
None

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.

NTBX35 in an RSC-S (DS-1) Model B LCME (continued)

Summary of card replacement procedure for an NTBX35 card in an RSC-S LCME



NTBX35 in an RSC-S (DS-1) Model B LCME (continued)

Replacing an NTBX35 card in an 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 an NTBX35 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 site frame_no unit_no
```

and pressing the Enter key.

where

site
is the name of the site at which the LCME is located

frame_no
is the number of the frame in which the LCME is located

unit_no
is the number of the LCME with the faulty card

Example of a MAP display:

NTBX35
in an RSC-S (DS-1) Model B LCME (continued)

```
 CM     MS     IOD    Net    PM    CCS    LNS    Trks    Ext    Appl
 .      .       .      .      .     .      .       .      .       .

LCME             SysB     ManB     OffL     CBsy     ISTb      InSv
 0 Quit    PM       o        0        0        0        0       130
 2 Post_   LCME     0        0        0        0        0         0
 3
 4 Swrg_
 5 Trnsl_     LCME   RemL  OO O   Links_OOS:  CSide 0
 6 Tst_       Unit-0:  InSv                /RG:  0
 7 Bsy_       Unit-1:  InSv                /RG:  0
 8 RTS_       RG: Preferred 0:  InSv   Standby1: InSv
 9 OffL_
10 LoadPM_
11 Disp_
12 Next_
13
14 QueryPM
15
16
17
18
```

4 Busy the LCME unit by typing

>BSY UNIT unit_no

and pressing the Enter key.

where

unit_no
is the number of the LCME unit with the faulty card

Example of a MAP display:

NTBX35
in an RSC-S (DS-1) Model B LCME (continued)

```
 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        1        0        0        0         0
 3
 4 SwRg      LCME   RemL  OO O   Links_OOS:  CSide 0
 5 Trnsl     Unit-0:  InSv  Mtce TakeOver /RG:  0
 6 Tst       Unit-1:  ManB Mtce           /RG:  0
 7 Bsy       RG: Preferred 0:  InSv   Standby1: InSv
 8 RTS
 9 OffL
10 LoadPM
11 Disp_
12 Next
13
14 QueryPM
15
16
17
18
```

NTBX35 in an RSC-S (DS-1) Model B LCME (continued)

At the LCE frame

5



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 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.



WARNING
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:

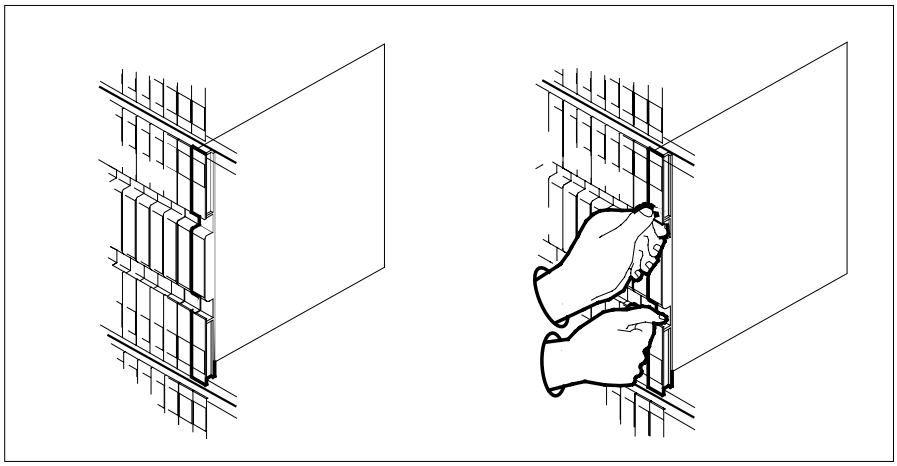
1. Do not apply direct pressure to the components.
2. Do not force the cards into the slots.

Put on a wriststrap.

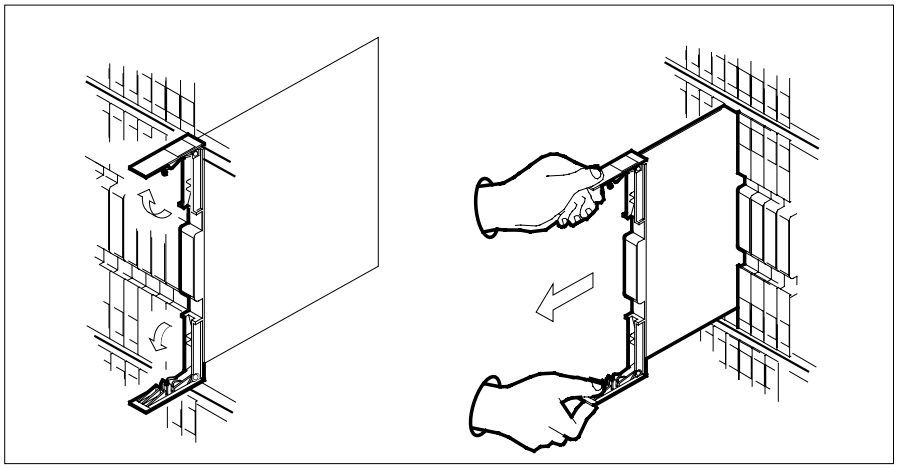
6 Remove the NTBX35 card as shown in the following figures.

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

NTBX35
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.



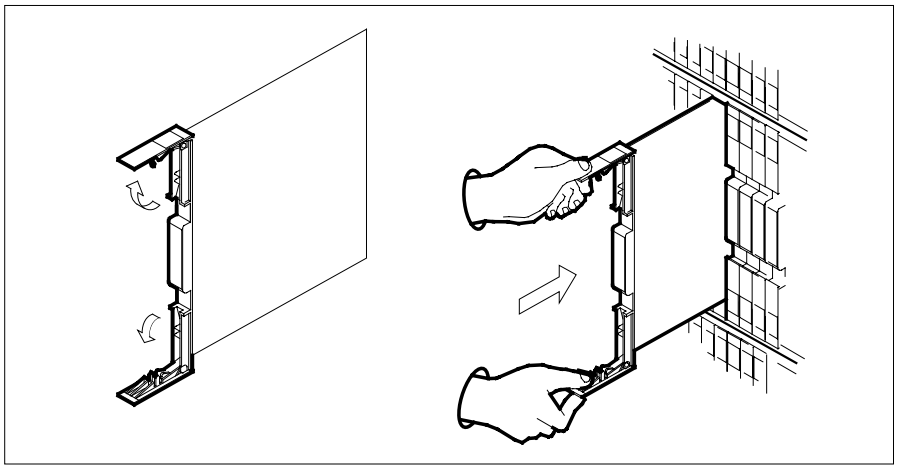
c Ensure the replacement card has the same PEC, including suffix, as the card you just removed.

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.

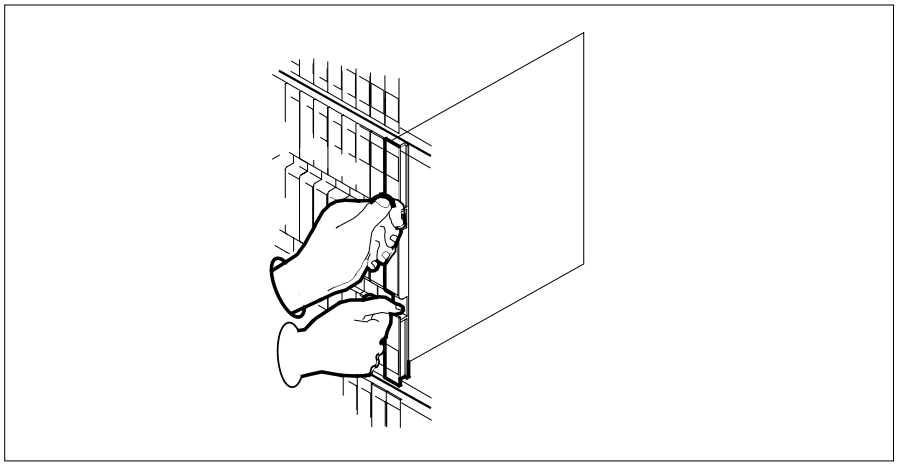
NTBX35
in an RSC-S (DS-1) Model B LCME (continued)



8 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 LCME unit by typing

`>loadpm uNIT unit_no CC`

and pressing the Enter key.

where

NTBX35
in an RSC-S (DS-1) Model B LCME (continued)

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 unit_no`

and pressing the Enter key.

where

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.

NTBX35
in an RSC-S (DS-1) Model B LCME (end)

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 this manual.

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.

NTBX35 in an RSC-S (PCM-30) Model A LCME

Application

Use this procedure to replace an NTBX35 card in an RSC-S LCME.

PEC	Suffixes	Name
NTBX35	AA	ISDN LCM Digroup Controller

Common procedures

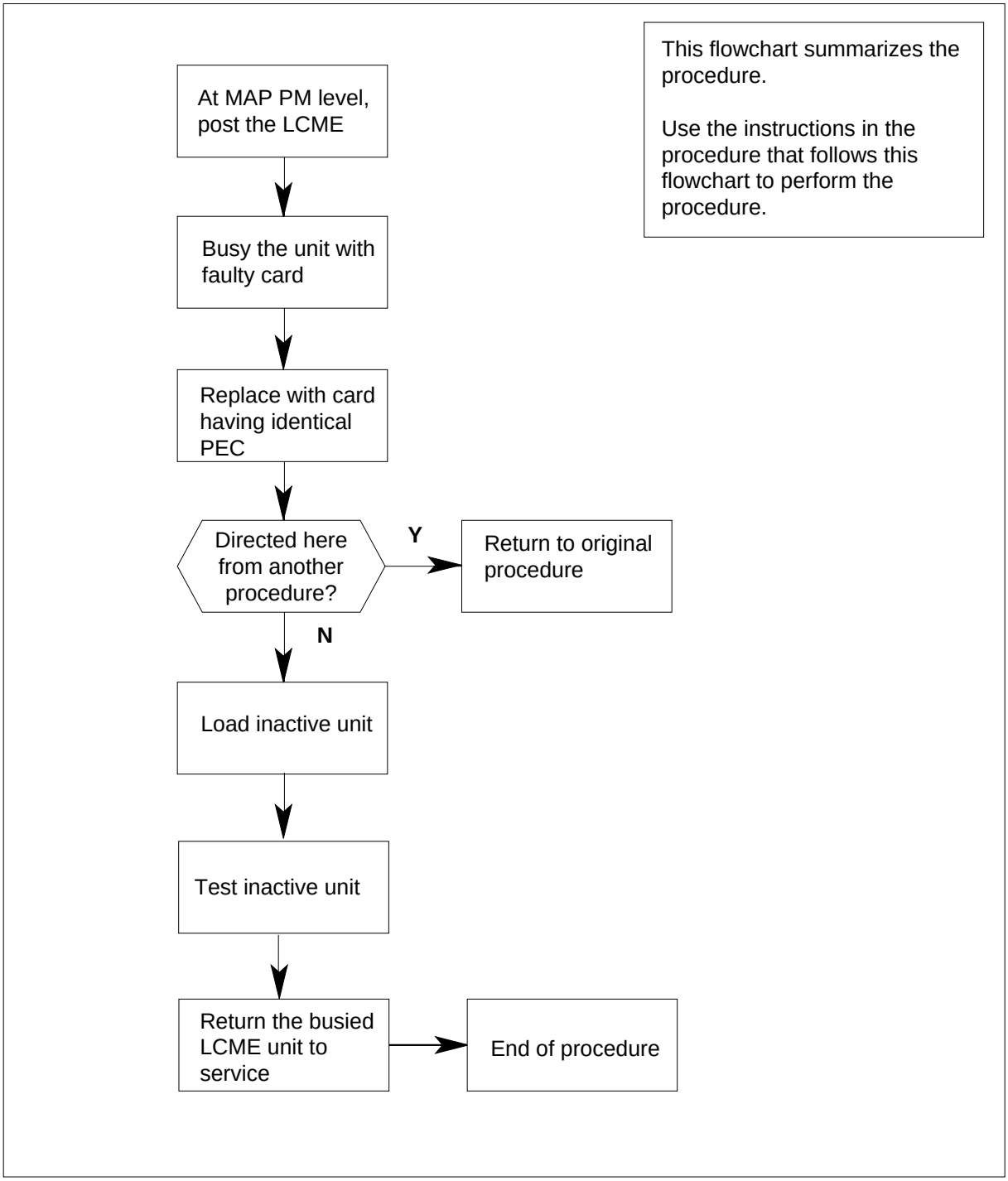
None

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.

NTBX35
in an RSC-S (PCM-30) Model A LCME (continued)

Summary of card replacement procedure for an NTBX35 card in an RSC-S LCME



NTBX35 in an RSC-S (PCM-30) Model A LCME (continued)

Replacing an NTBX35 card in an 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 an NTBX35 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 site frame_no unit_no
```

and pressing the Enter key.

where

site
is the name of the site at which the LCME is located

frame_no
is the number of the frame in which the LCME is located

unit_no
is the number of the LCME with the faulty card

Example of a MAP display:

NTBX35
in an RSC-S (PCM-30) Model A LCME (continued)

```
 CM     MS     IOD    Net    PM    CCS    LNS    Trks     Ext      Appl
 .      .       .      .     .      .      .       .       .         .
LCME             SysB     ManB     OffL     CBsy     ISTb      InSv
 0 Quit    PM       o        0        0        0        0       130
 2 Post_   LCME     0        0        0        0        0         0
 3
 4 Swrg_
 5 Trnsl_                      LCME   RemL  OO O   Links_OOS:  CSide 0
 6 Tst_                        Unit-0:  InSv                /RG:  0
 7 Bsy_                        Unit-1:  InSv                /RG:  0
 8 RTS_                       RG: Preferred 0:  InSv   Standby1: InSv
 9 OffL_
10 LoadPM_
11 Disp_
12 Next_
13
14 QueryPM
15
16
17
18
```

4 Busy the LCME unit by typing

>BSY UNIT unit_no

and pressing the Enter key.

where

unit_no
is the number of the LCME unit with the faulty card

Example of a MAP display:

NTBX35
in an RSC-S (PCM-30) Model A LCME (continued)

```
 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        1        0        0        0         0
 3
 4 SwRg              LCME   RemL  OO O   Links_OOS:  CSide 0
 5 Trnsl             Unit-0:  InSv  Mtce TakeOver /RG:  0
 6 Tst               Unit-1:  ManB Mtce           /RG:  0
 7 Bsy              RG: Preferred 0:  InSv   Standby1: InSv
 8 RTS
 9 OffL
10 LoadPM
11 Disp_
12 Next
13
14 QueryPM
15
16
17
18
```

NTBX35
in an RSC-S (PCM-30) Model A LCME (continued)

At the LCE frame

5

WARNING
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.

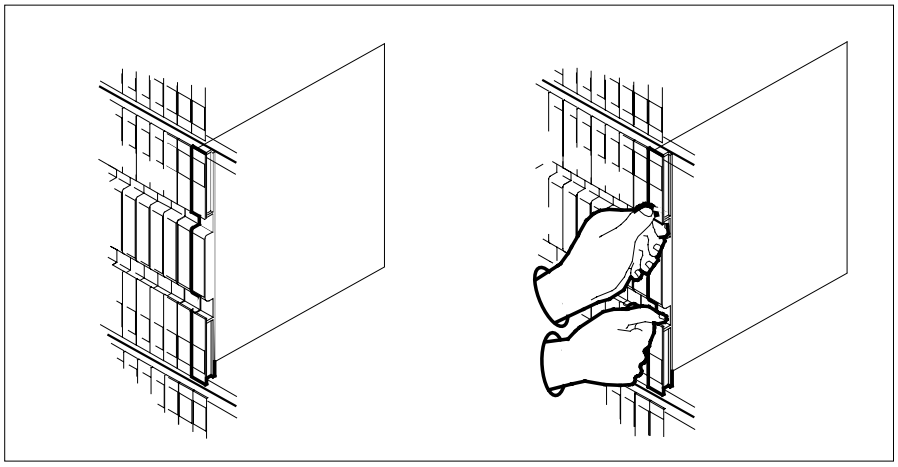
DANGER
Equipment damage
Take these precautions when removing or inserting a card:

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

Put on a wrist strap.

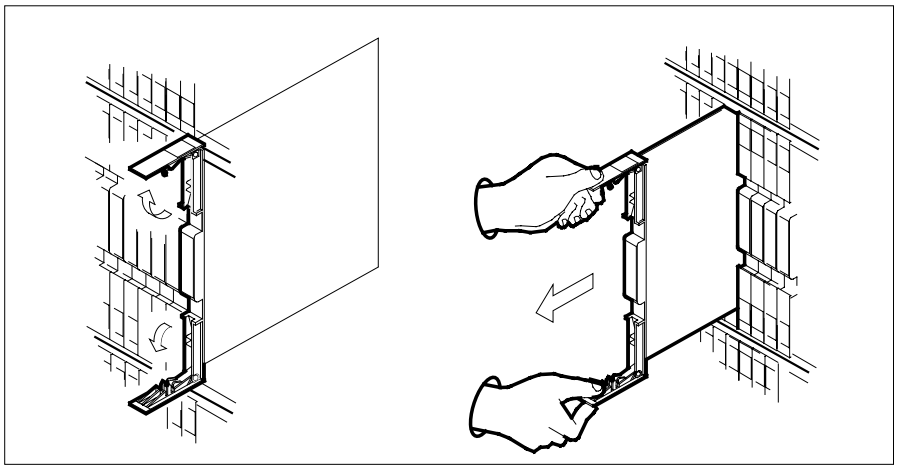
6 Remove the NTBX35 card as shown in the following figures.

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



NTBX35
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.

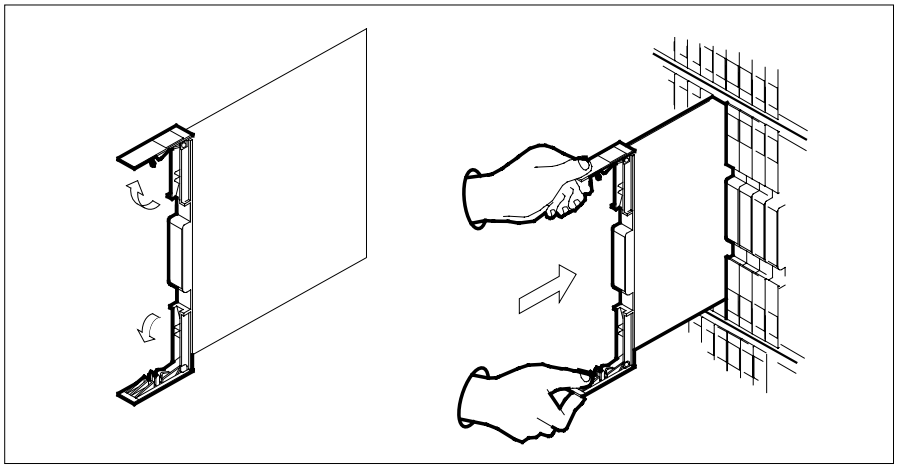


c Ensure the replacement card has the same PEC, including suffix, as the card you just removed.

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.

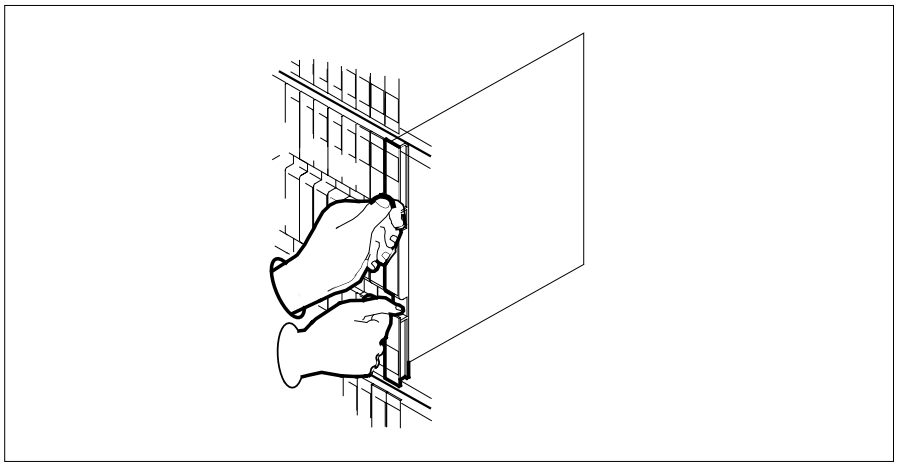


8 Seat and lock the card.

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.

NTBX35
in an RSC-S (PCM-30) Model A LCME (continued)



At the MAP terminal

9 Load the LCME unit by typing

`>loadpm uNIT unit_no CC`

and pressing the Enter key.

where

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 unit_no`

and pressing the Enter key.

where

unit_no
is the number of the LCME unit loaded in step 9

If TST	Do
passed	step 11
failed	step 15

NTBX35 in an RSC-S (PCM-30) Model A LCME (end)

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 this manual.

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.

NTBX36 in an RSC LCME

Application

Use this procedure to replace an NTBX36 card in an RSCE LCME.

PEC	Suffixes	Name
NTBX36	BA	Bus Interface Card (BIC)

Common procedures

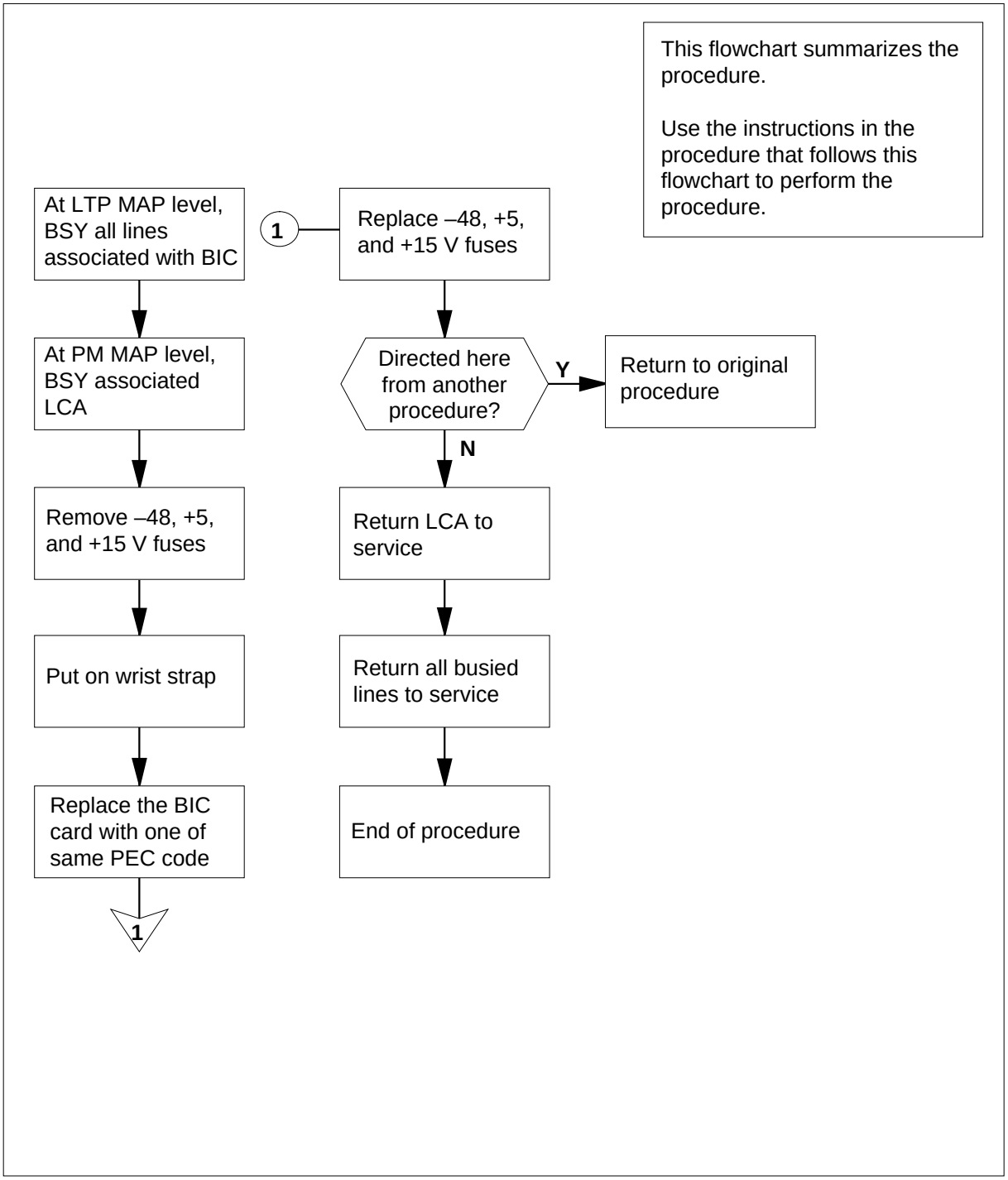
None

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.

NTBX36 in an RSC LCME (continued)

Summary of card replacement procedure for an NTBX36 card in RSC LCME



NTBX36 in an RSC LCME (continued)

Replacing an NTBX36 card in RSC LCME

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 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 terminal

3 Access the LTP level and post the first line subgroup (LSG) of the line drawer that contains the bus interface card (BIC) to be replaced by typing

```
>MAPCI;MTC;LNS;LTP;POST L site frame_no unit_no lcm_dr
LSG
```

and pressing the Enter key.

where

site_
is the name of the site at which the LCME is located

frame_no
is the number of the frame in which the LCME is located

unit_no
is the number of the LCME unit with the faulty card

lcm_dr
is the number of the drawer with the faulty card

4 Busy all lines in the first LSG by typing

```
>BSY ALL
```

and pressing the Enter key.

5 Post the next LSG of the same line drawer by typing

```
>NEXT D
```

and pressing the Enter key.

6 Repeat step 4 and step 5 until all LSGs of the same line drawer are busied.

7 Post the LCME with the LCA shelf containing the card to be replaced by typing

```
>PM;POST LCME site frame_no unit_no
```

and pressing the Enter key.

where

site
is the name of the site at which the LCME is located

NTBX36 in an RSC LCME (continued)

frame_no
is the number of the frame in which the LCME is located

unit_no
is the number of the LCME unit with the faulty card

Example of a MAP display:

```
 CM     MS     IOD    Net     PM    CCS     LNS    Trks    Ext   Appl
 .      .       .      .     1LCME    .       .       .       .     .
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  ISTb   Links_OOS:  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         Stby:1 InSv
 9 OffL             .. .. .. .. .. .. .. .. .. ..
10 LoadPM
11 Disp_
12 Next
13
14 QueryPM
15
16
17
18
```

8 Busy all LSGs associated with the LCME drawer in which the card is being replaced by typing

>BSY DRWR x

and pressing the Enter key.

>BSY DRWR y

and pressing the Enter key.

>BSY DRWR z

and pressing the Enter key.

where

x
is the first line subgroup

y
is the next line subgroup

z
is the next line subgroup (if an LCMI)

Example of a MAP response:
Please confirm ("YES" or "NO")

9 Confirm the busied LSGs by typing

>YES

and pressing the Enter key.

Example of a MAP display:

```
 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_OOS:   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 46 67 89 01 23 45         Stby:1 InSv
 9 OffL             .. .. MM .. .. .. .. .. .. ..
10 LoadPM
11 Disp_
12 Next
13
14 QueryPM
15
16
17
18
```

NTBX36
in an RSC LCME (continued)

At the LCE frame

10



WARNING
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.

Remove the -48V fuse for the line drawer containing the BIC to be replaced.

Remove the +5V fuse for the line drawer containing the BIC to be replaced.

Remove the + 15V fuse for the line drawer containing the BIC to be replaced.

Put on a wrist strap.

Line card insertion / withdrawal tool for	Apparatus code	Common product code
3-inch cards	QTH56A	A0298291
6-inch cards	QTH58A	A0313317

Note 1: Card shrouds are required for inserting or removing cards in line drawers. Two sizes are available for use with 3-inch and 6-inch cards. Descriptions of these shrouds follow.

Note 2: Card removal tools are required for removing cards from line drawers. Two sizes are available. Descriptions of these tools follow.

Card removal tool for	Apparatus code	Common product code
3-4 inch cards	QTH57A	A0298292
Note: For 4-inch or larger cards, use the large grip tool ITA9953.		

11 To prepare to remove the faulty card, 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 the 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.

12 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.

NTBX36
in an RSC 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 card removed into the ESD container and store using local procedures.

13 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.

f Close the line drawer.

14 Replace the -48V fuse for the line drawer containing the BIC that was replaced.

Replace the +5V fuse for the line drawer containing the BIC that was replaced.

Replace the +15V fuse for the line drawer containing the BIC that was replaced.

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

If you entered this procedure from	Do
alarm clearing procedures	step 25
other	step 16

At the MAP terminal

16 Return the LSGs to service by typing

`>RTS DRWR x`

and pressing the Enter key.

`>RTS DRWR y`

and pressing the Enter key.

where

x
is the first line subgroup busied in step 8

y
is the next line subgroup busied in step 8

17 Access the PM level of the MAP display and post the first LSG of the line drawer that contains the BIC to be replaced by typing

```
>MAPCI;MTC;PM;LNS;LTP;POST L site frame_no unit_no lcm_dr
```

and pressing the Enter key.

where

site
is the name of the site at which the LCME is located

frame_no
is the number of the frame in which the LCME is located

unit_no
is the number of the LCME unit with the faulty card

lcm_dr
is the number of the drawer with the faulty card

18 Return the busied lines in the first LSG to service by typing

```
>RTS ALL
```

and pressing the Enter key.

19 Post the next LSG of the same line drawer by typing

```
>NEXT D
```

and pressing the Enter key.

20 Repeat step 18 and step 19 until all busied lines in the drawer are returned to service.

21 Post the LCME with the LCA shelf containing the replaced card by typing

```
>PM;POST LCME site frame_no unit_no
```

and pressing the Enter key.

where

site
is the name of the site at which the LCME is located

frame_no
is the number of the frame in which the LCME is located

unit_no
is the number of the LCME unit with the faulty card

22 Return the LCME unit to service by typing

```
>RTS lcm_unit_no
```

and pressing the Enter key.

where

NTBX36 in an RSC LCME (end)

lcm_unit_no
is the number of the LCME unit posted in step 21

If RTS	Do
passed	step 23
failed	step 26

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

24 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 27.

25 Return to the Alarm Clearing or other 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.

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

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

NTBX36 in an RSC-S (DS-1) Model A LCME

Application

Use this procedure to replace an NTBX36 card in an RSC-S LCME.

PEC	Suffixes	Name
NTBX36	BA	Bus Interface Card (BIC)

Common procedures

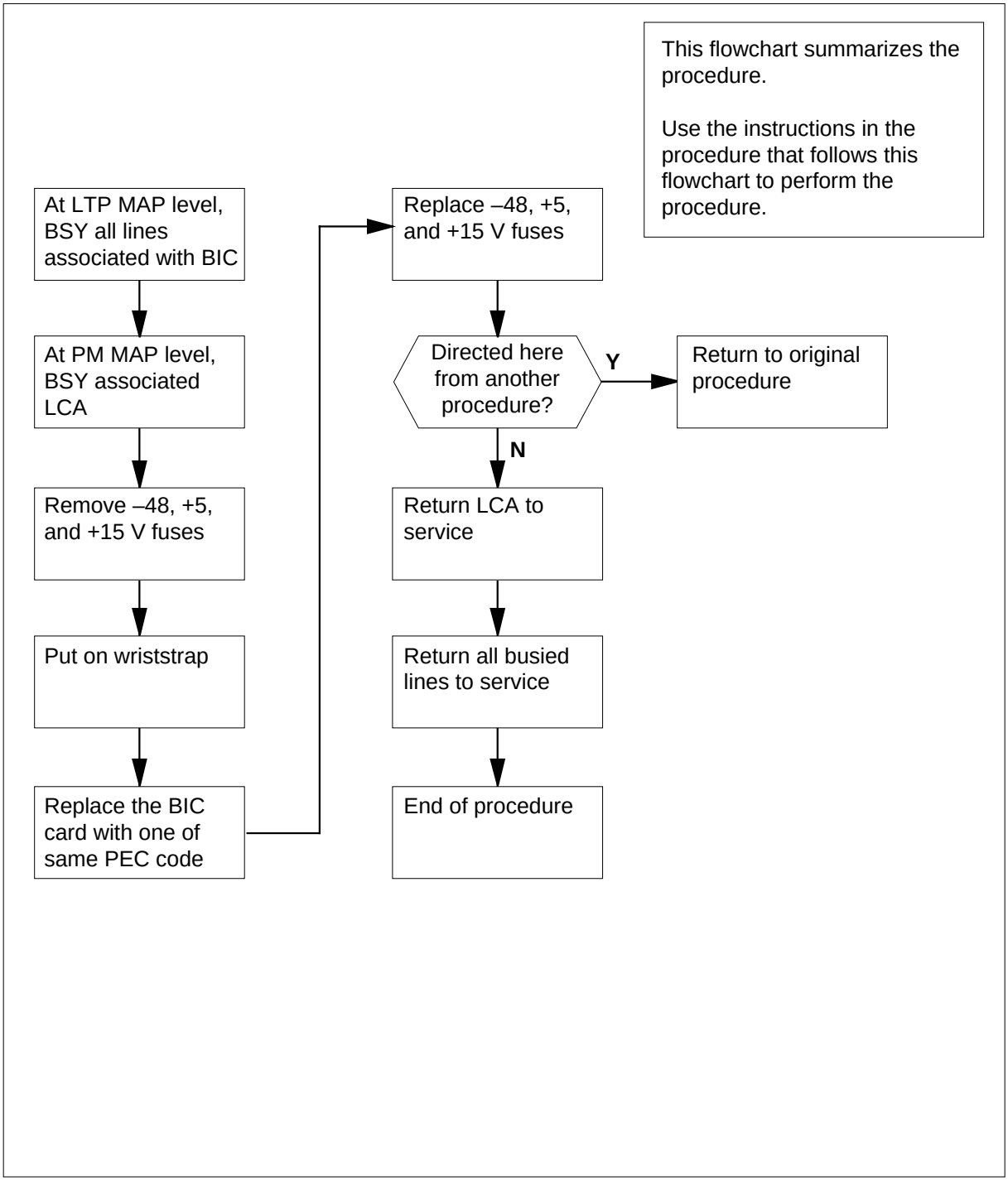
None

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.

NTBX36 in an RSC-S (DS-1) Model A LCME (continued)

Summary of card replacement procedure for an NTBX36 card in RSC-S LCME



NTBX36 in an RSC-S (DS-1) Model A LCME (continued)

Replacing an NTBX36 card in RSC-S LCME

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 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 terminal

3 Access the LTP level and post the first line subgroup (LSG) of the line drawer that contains the bus interface card (BIC) to be replaced by typing

```
>MAPCI;MTC;LNS;LTP;POST L site frame_no unit_no lcm_dr
LSG
```

and pressing the Enter key.

where

site_
is the name of the site at which the LCME is located

frame_no
is the number of the frame in which the LCME is located

unit_no
is the number of the LCME unit with the faulty card

lcm_dr
is the number of the drawer with the faulty card

4 Busy all lines in the first LSG by typing

```
>BSY ALL
```

and pressing the Enter key.

5 Post the next LSG of the same line drawer by typing

```
>NEXT D
```

and pressing the Enter key.

6 Repeat steps 4 and 5 until all LSGs of the same line drawer are busied.

7 Post the LCME with the LCA shelf containing the card to be replaced by typing

```
>PM;POST LCME site frame_no unit_no
```

and pressing the Enter key.

where

site
is the name of the site at which the LCME is located

NTBX36 in an RSC-S (DS-1) Model A LCME (continued)

frame_no
is the number of the frame in which the LCME is located

unit_no
is the number of the LCME unit with the faulty card

Example of a MAP display:

```
CM     MS     IOD    Net     PM    CCS     LNS    Trks    Ext   Appl
.      .       .      .     1LCME    .       .       .        .    .

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  ISTb   Links_OOS:  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         Stby:1 InSv
 9 OffL            .. .. .. .. .. .. .. .. .. ..
10 LoadPM
11 Disp_
12 Next
13
14 QueryPM
15
16
17
18
```

8 Busy all LSGs associated with the LCME drawer in which the card is being replaced by typing

>BSY DRWR x

and pressing the Enter key.

>BSY DRWR y

and pressing the Enter key.

>BSY DRWR z

and pressing the Enter key.

where

x
is the first line subgroup

y
is the next line subgroup

z
is the next line subgroup (if an LCMI)

Example of a MAP response:
Please confirm (“YES" or “NO")

9 Confirm the busied LSGs by typing

>YES

and pressing the Enter key.

Example of a MAP display:

```
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_OOS:   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 46 67 89 01 23 45         Stby:1 InSv
 9 OffL            .. .. MM .. .. .. .. .. .. ..
10 LoadPM
11 Disp_
12 Next
13
14 QueryPM
15
16
17
18
```

NTBX36 in an RSC-S (DS-1) Model A LCME (continued)

At the LCE frame

10



WARNING
Card damage—transport
Take the folowing 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
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.



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.

Remove the -48V, +5V, and +15V fuses (in that order) for the line drawer containing the BIC to be replaced.

Put on a wriststrap.

NTBX36
in an RSC-S (DS-1) Model A LCME (continued)

Note: Card shrouds are required for inserting or removing cards in line drawers. Two sizes are available for use with 3-inch and 6-inch cards, as shown in the following table.

Line card insertion / withdrawal tool for	Apparatus code	Common product code
3-inch cards	QTH56A	A0298291
6-inch cards	QTH58A	A0313317

Note: Card removal tools are required for removing cards from line drawers. Two sizes are available, as shown in the following table.

Card removal tool for	Apparatus code	Common product code
3—4 inch cards	QTH57A	A0298292
Note: For 4-inch or larger cards, use the large grip tool ITA9953.		

11 To prepare to remove the faulty card, 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 the 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.

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.

12 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.

NTBX36
in an RSC-S (DS-1) Model A 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.

13 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.

f Close the line drawer.

14 Replace the -48V, +5V, and +15V fuses (in that order) for the line drawer containing the BIC that was replaced.

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

If you entered this procedure from	Do
alarm clearing procedures	step 26
other	step 16

At the MAP terminal

16 Return the LSGs to service by typing

`>RTS DRWR x`

and pressing the Enter key.

`>RTS DRWR y`

and pressing the Enter key.

where

x
is the first line subgroup busied in step 8

y
is the next line subgroup busied in step 8

17 Access the PM level of the MAP display and post the first LSG of the line drawer that contains the BIC to be replaced by typing

`>MAPCI;MTC;PM;LNS;LTP;POST L site frame_no unit_no lcm_dr`

and pressing the Enter key.

NTBX36
in an RSC-S (DS-1) Model A LCME (continued)

where

site
is the name of the site at which the LCME is located

frame_no
is the number of the frame in which the LCME is located

unit_no
is the number of the LCME unit with the faulty card

lcm_dr
is the number of the drawer with the faulty card

18 Return the busied lines in the first LSG to service by typing

```
>RTS ALL
```

and pressing the Enter key.

19 Post the next LSG of the same line drawer by typing

```
>NEXT D
```

and pressing the Enter key.

20 Repeat steps 18 and 19 until all busied lines in the drawer are returned to service.

21 Post the LCME with the LCA shelf containing the replaced card by typing

```
>PM;POST LCME site frame_no unit_no
```

and pressing the Enter key.

where

site
is the name of the site at which the LCME is located

frame_no
is the number of the frame in which the LCME is located

unit_no
is the number of the LCME unit with the faulty card

22 Test the LCME unit by typing

```
>TST UNIT lcm_unit_no
```

and pressing the Enter key.

where

lcm_unit_no
is the number of the LCME unit posted in step 21

If TST	Do
passed	step 23
failed	step 26

NTBX36 in an RSC-S (DS-1) Model A LCME (end)

23 Return the LCME unit to service by typing

`>RTS lcm_unit_no`

and pressing the Enter key.

where

lcm_unit_no
is the number of the LCME unit tested in step 22

If RTS	Do
passed	step 24
failed	step 27

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

25 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 28.

26 Return to the Alarm Clearing or other 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.

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

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

NTBX36 in an RSC-S (DS-1) Model B LCME

Application

Use this procedure to replace an NTBX36 card in an RSC-S LCME.

PEC	Suffixes	Name
NTBX36	BA	Bus Interface Card (BIC)

Common procedures

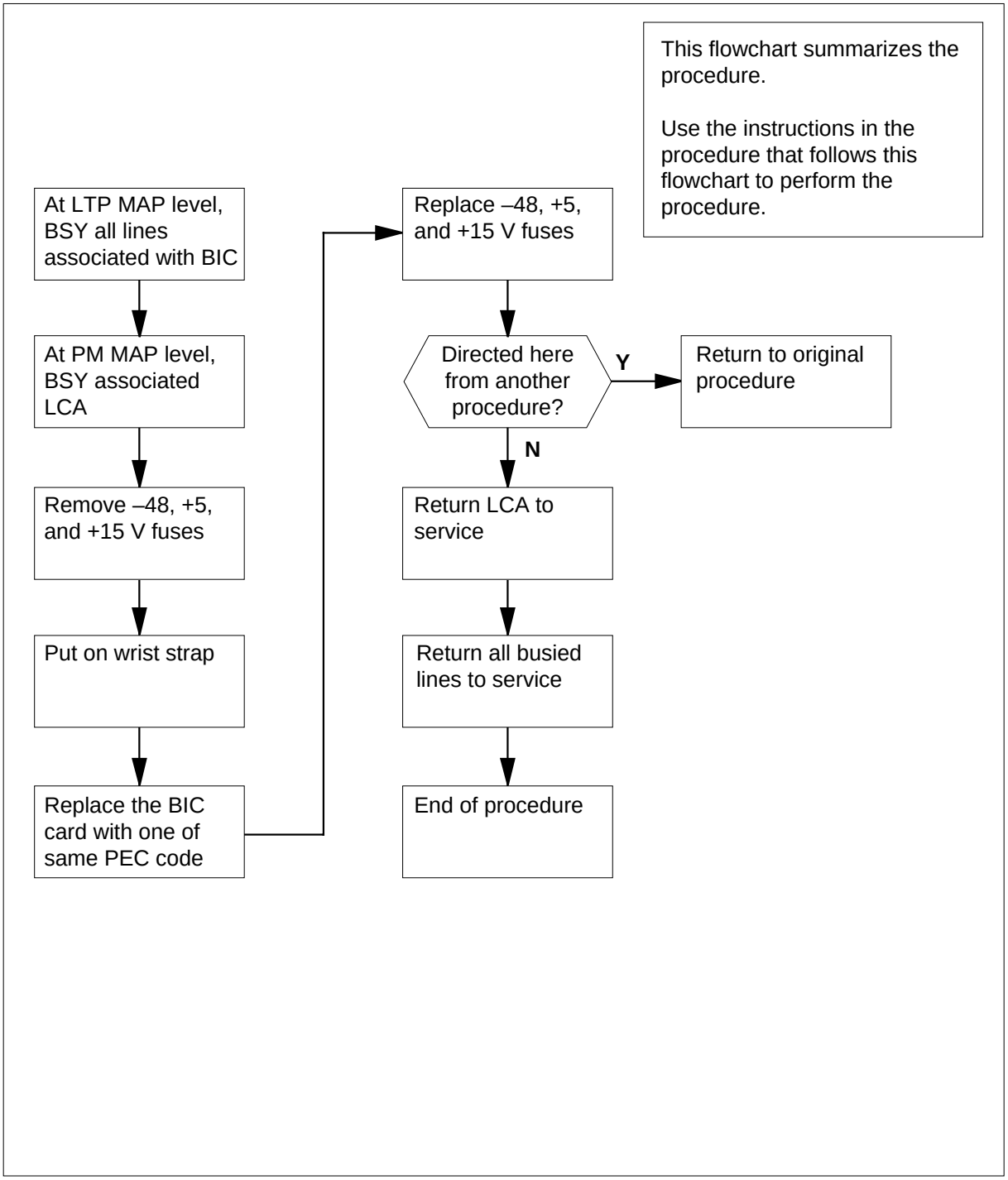
None

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.

NTBX36
in an RSC-S (DS-1) Model B LCME (continued)

Summary of card replacement procedure for an NTBX36 card in RSC-S LCME



NTBX36 in an RSC-S (DS-1) Model B LCME (continued)

Replacing an NTBX36 card in RSC-S LCME

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 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 terminal

3 Access the LTP level and post the first line subgroup (LSG) of the line drawer that contains the bus interface card (BIC) to be replaced by typing

```
>MAPCI;MTC;LNS;LTP;POST L site frame_no unit_no lcm_dr
LSG
```

and pressing the Enter key.

where

site_
is the name of the site at which the LCME is located

frame_no
is the number of the frame in which the LCME is located

unit_no
is the number of the LCME unit with the faulty card

lcm_dr
is the number of the drawer with the faulty card

4 Busy all lines in the first LSG by typing

```
>BSY ALL
```

and pressing the Enter key.

5 Post the next LSG of the same line drawer by typing

```
>NEXT D
```

and pressing the Enter key.

6 Repeat steps 4 and 5 until all LSGs of the same line drawer are busied.

7 Post the LCME with the LCA shelf containing the card to be replaced by typing

```
>PM;POST LCME site frame_no unit_no
```

and pressing the Enter key.

where

site
is the name of the site at which the LCME is located

NTBX36 in an RSC-S (DS-1) Model B LCME (continued)

frame_no
is the number of the frame in which the LCME is located

unit_no
is the number of the LCME unit with the faulty card

Example of a MAP display:

```
CM     MS     IOD    Net     PM    CCS     LNS    Trks    Ext   Appl
 .      .      .      .     1LCME   .       .       .      .     .

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  ISTb   Links_OOS:  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         Stby:1 InSv
 9 OffL             .. .. .. .. .. .. .. .. .. ..
10 LoadPM
11 Disp_
12 Next
13
14 QueryPM
15
16
17
18
```

8 Busy all LSGs associated with the LCME drawer in which the card is being replaced by typing

>BSY DRWR x

and pressing the Enter key.

>BSY DRWR y

and pressing the Enter key.

>BSY DRWR z

and pressing the Enter key.

where

x
is the first line subgroup

y
is the next line subgroup

z
is the next line subgroup (if an LCMI)

Example of a MAP response:
Please confirm (“YES" or “NO")

9 Confirm the busied LSGs by typing

>YES

and pressing the Enter key.

Example of a MAP display:

```
 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_OOS:   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 46 67 89 01 23 45         Stby:1 InSv
 9 OffL             .. .. MM .. .. .. .. .. .. ..
10 LoadPM
11 Disp_
12 Next
13
14 QueryPM
15
16
17
18
```

NTBX36 in an RSC-S (DS-1) Model B LCME (continued)

At the LCE frame

10



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 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.



WARNING
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.

NTBX36
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.

Remove the -48V, +5V, and +15V fuses (in that order) for the line drawer containing the BIC to be replaced.

Put on a wriststrap.

Note: Card shrouds are required for inserting or removing cards in line drawers. Two sizes are available for use with 3-inch and 6-inch cards, as shown in the following table.

Line card insertion / withdrawal tool for	Apparatus code	Common product code
3-inch cards	QTH56A	A0298291
6-inch cards	QTH58A	A0313317

Note: Card removal tools are required for removing cards from line drawers. Two sizes are available, as shown in the following table.

Card removal tool for	Apparatus code	Common product code
3—4 inch cards	QTH57A	A0298292
Note: For 4-inch or larger cards, use the large grip tool ITA9953.		

11 To prepare to remove the faulty card, 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 the 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.

NTBX36
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.

12 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.

13 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.

f Close the line drawer.

14 Replace the -48V, +5V, and +15V fuses (in that order) for the line drawer containing the BIC that was replaced.

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

If you entered this procedure from	Do
alarm clearing procedures	step 26
other	step 16

NTBX36
in an RSC-S (DS-1) Model B LCME (continued)

At the MAP terminal

16 Return the LSGs to service by typing

```
>RTS DRWR  x
```

and pressing the Enter key.

```
>RTS DRWR  y
```

and pressing the Enter key.

where

x
is the first line subgroup busied in step 8

y
is the next line subgroup busied in step 8

17 Access the PM level of the MAP display and post the first LSG of the line drawer that contains the BIC to be replaced by typing

```
>MAPCI;MTC;PM;LNS;LTP;POST L site frame_no unit_no lcm_dr
```

and pressing the Enter key.

where

site
is the name of the site at which the LCME is located

frame_no
is the number of the frame in which the LCME is located

unit_no
is the number of the LCME unit with the faulty card

lcm_dr
is the number of the drawer with the faulty card

18 Return the busied lines in the first LSG to service by typing

```
>RTS ALL
```

and pressing the Enter key.

19 Post the next LSG of the same line drawer by typing

```
>NEXT D
```

and pressing the Enter key.

20 Repeat steps 18 and 19 until all busied lines in the drawer are returned to service.

21 Post the LCME with the LCA shelf containing the replaced card by typing

```
>PM;POST LCME site frame_no unit_no
```

and pressing the Enter key.

where

site
is the name of the site at which the LCME is located

NTBX36 in an RSC-S (DS-1) Model B LCME (end)

frame_no
is the number of the frame in which the LCME is located

unit_no
is the number of the LCME unit with the faulty card

22 Test the LCME unit by typing

`>TST UNIT lcm_unit_no`

and pressing the Enter key.

where

lcm_unit_no
is the number of the LCME unit posted in step 21

If TST	Do
passed	step 23
failed	step 26

23 Return the LCME unit to service by typing

`>RTS lcm_unit_no`

and pressing the Enter key.

where

lcm_unit_no
is the number of the LCME unit tested in step 22

If RTS	Do
passed	step 24
failed	step 27

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

25 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 28.

26 Return to the alarm clearing or other 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.

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

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

NTBX72 in an RSC LCME

Application

Use this procedure to replace an NTBX72 card in an RSCE LCME.

PEC	Suffixes	Name
NTBX72	AA	ISDN LCME Battery and Ring Router

Common procedures

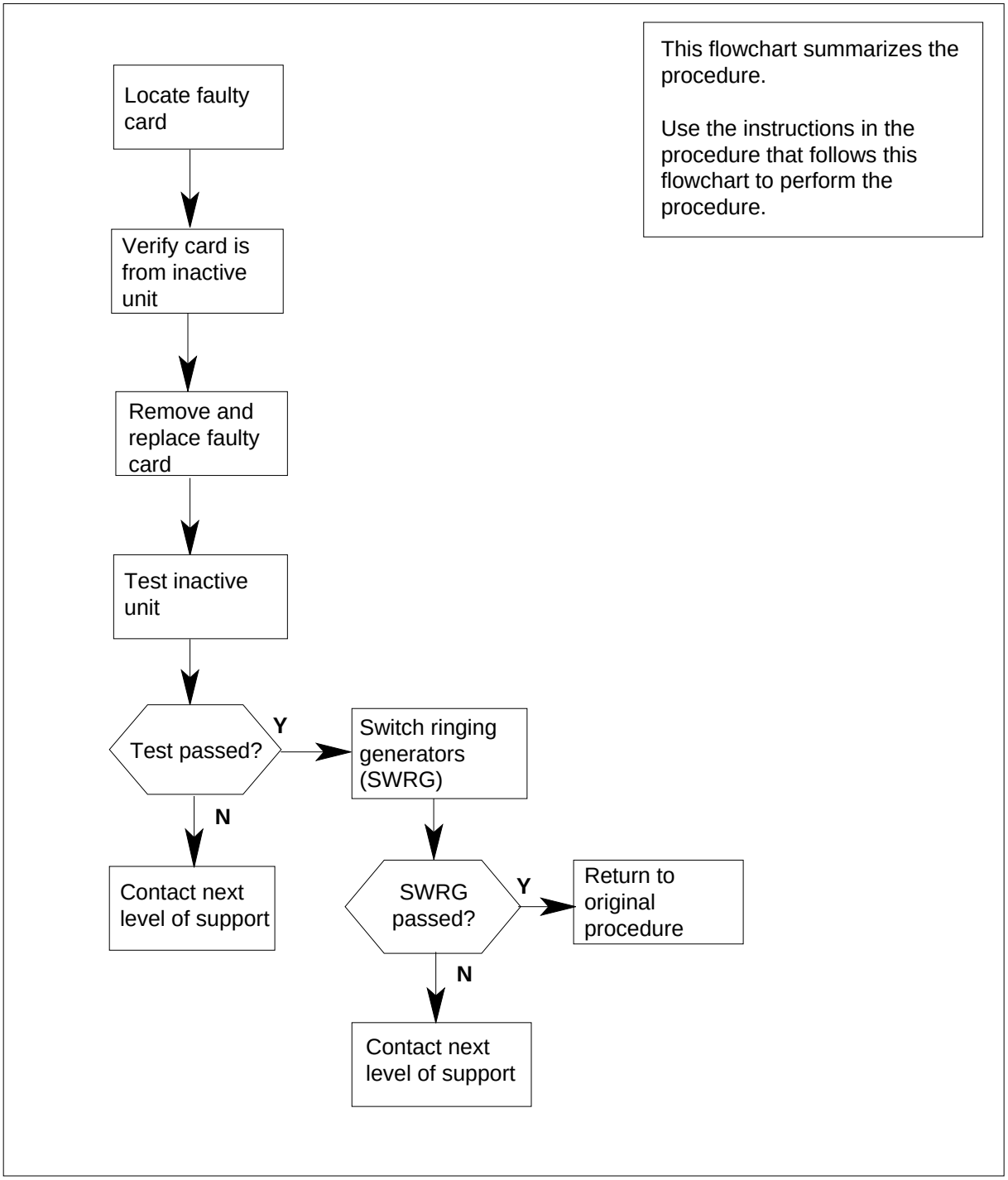
None

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.

NTBX72 in an RSC LCME (continued)

Summary of card replacement procedure for an NTBX72 card in an RSCE LCME



NTBX72 in an RSC LCME (continued)

Replacing an NTBX72 card in an RSCE 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 an NTBX72 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 LCME by typing

```
>MAPCI;MTC;PM;POST LCME site frame_no unit_no
```

and pressing the Enter key.

where

site
is the name of the site at which the LCME is located

frame_no
is the number of the frame in which the LCME is located

unit_no
is the number of the LCME with the faulty card

Example of a MAP display:

NTBX72
in an RSC LCME (continued)

```
 CM     MS     IOD    Net     PM    CCS    Lns    Trks    Ext     Appl
 .      .       .       .    1LCME     .       .       .        .       .

LCME               SysB     ManB     OffL     CBsy     ISTb      InSv
 0 Quit     PM        1        0        2        0        2        12
 2 Post_    LCME      0        0        2        0        2         9
 3 ListSet
 4 SwRG     LCME   RSCE  14 1 ISTb  Links_OOS:  CSide  0   PSide   0
 5 Trnsl_   Unit0:   InSv                /RG: 1
 6 Tst_     Unit1:   InSv                /RG: 1
 7 Bsy_                                 11  11  11  11  11  RG:Pref 1 ISTB
 8 RTS_     Drwr: 01 23  45  67  89  01  23  45  67  89     Stby 0 InSv
 9 OffL
10 LoadPM_
11 Disp_
12 Next
13
14 QueryPM
15
16
17
18
```

4 Check for fault indicators by typing

>QUERYPM FLT

and pressing the Enter key.

Example of a MAP display:

NTBX72
in an RSC LCME (continued)

```
 CM     MS     IOD    Net    PM    CC     Lns    Trks    Ext    Appl
 .      .       .       .    1LCME     .       .

LCME               SysB     ManB     OffL     CBsy     ISTb      InSv
 0 Quit     PM        1        0        2        0        2        12
 2 Post_    LCME      0        0        2        0        2         9
 3 ListSet
 4 SwRG     LCME   RSCE  14 1 ISTb  Links_OOS:  CSide  0   PSide   0
 5 Trnsl_   Unit0:   InSv  Takeover       /RG: 1
 6 Tst_     Unit1:   ISTb                 /RG: 1
 7 Bsy_                                 11  11  11   RG:Pref 1 ISTb
 8 RTS_     Drwr:  01  23  45  67  89  01  23  45      Stby 0 InSv
 9 OffL            ..  ..  ..  ..  ..  ..  ..  ..  ..  ..
10 LoadPM_  QUERYPM FLT
11 Disp_    Node inservice troubles exist:
12 Next         One or both Units inservice trouble
13          LCME   UNIT 0  Inservice
14 QueryPM  LCME   UNIT 1  Inservice
15          Ringing Generator 1 failure
16
17
18
```

5 Switch ringing generator activity from the unit with the faulty NTBX72 card by typing

>SWRG PM

and pressing the Enter key.

If SWRG	Do
passed	step 6
failed	step 19

6 Busy the LCME unit by typing

>BSY UNIT lcme_unit_no

and pressing the Enter key.

where

lcme_unit_no
is the number of the LCME unit with the faulty card

NTBX72 in an RSC LCME (continued)

At the RCE

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 (FSP) of the LCME. This protects the equipment against damage caused by static electricity.

Put on a wrist strap.

8

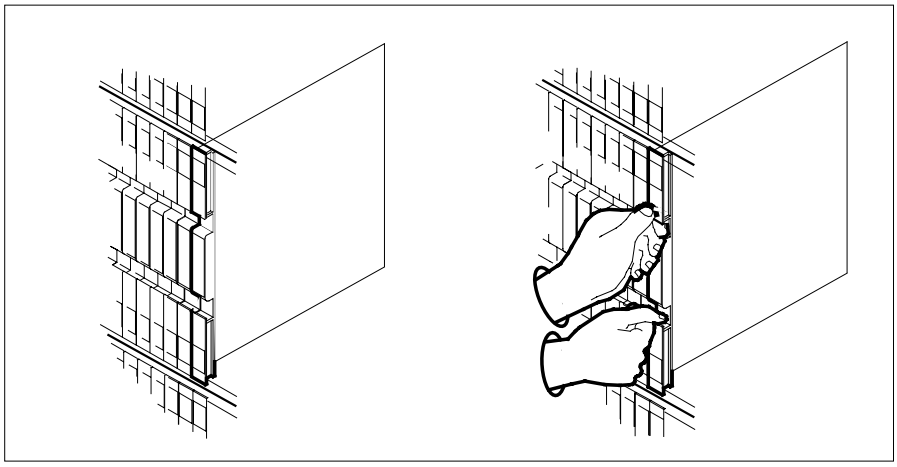
DANGER
Equipment damage
Take these precautions when removing or inserting a card:

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

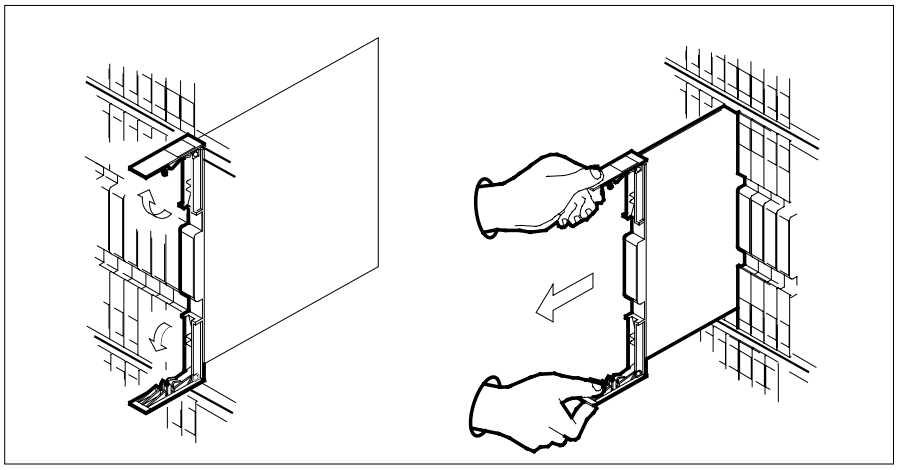
Power down the NT6X53 power converter by setting the POWER switch to the OFF position.

9 Remove the NTBX72 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.

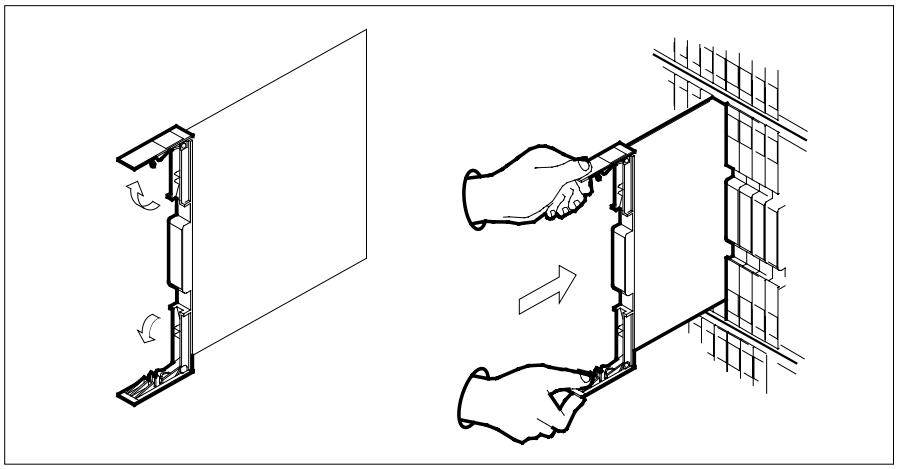


c Ensure the replacement card has the same PEC, including suffix, as the card you just removed.

10 Open the locking levers on the replacement card.

a Align the card with the slots in the shelf.

b Gently slide the card into the shelf.

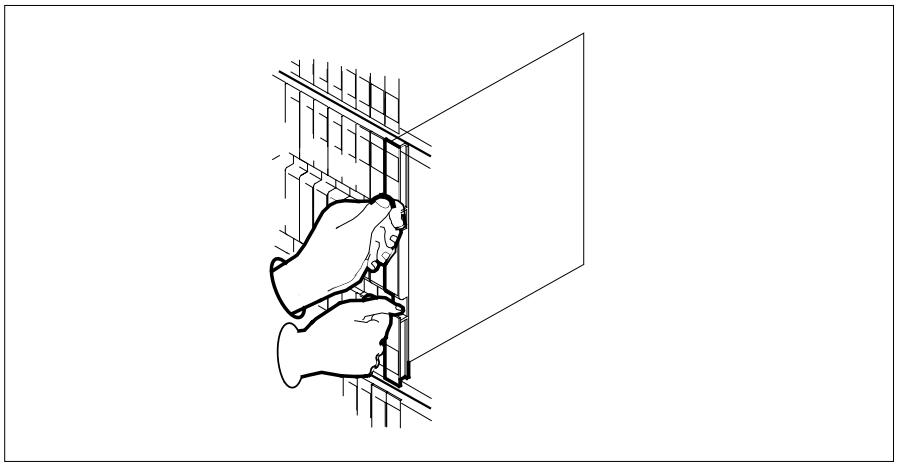


11 Seat and lock the card.

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.

NTBX72
in an RSC LCME (continued)



12 Power up the LCME 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 switch to the ON position.

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 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 busied in step 6

If RTS	Do
passed	step 15
failed	step 19

15 Switch ringing generator activity to the new NTBX72 card by typing

`>SWRG PM`

and pressing the Enter key.

If SWRG	Do
passed	step 16
failed	step 19

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

17 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 20.

18 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.

19 Obtain further assistance in replacing this card by contacting operating company maintenance personnel.

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

NTBX72 in an RSC-S (DS-1) Model A LCME

Application

Use this procedure to replace an NTBX72 card in an RSC-S LCME.

PEC	Suffixes	Name
NTBX72	AA	ISDN LCME Battery and Ring Router

Common procedures

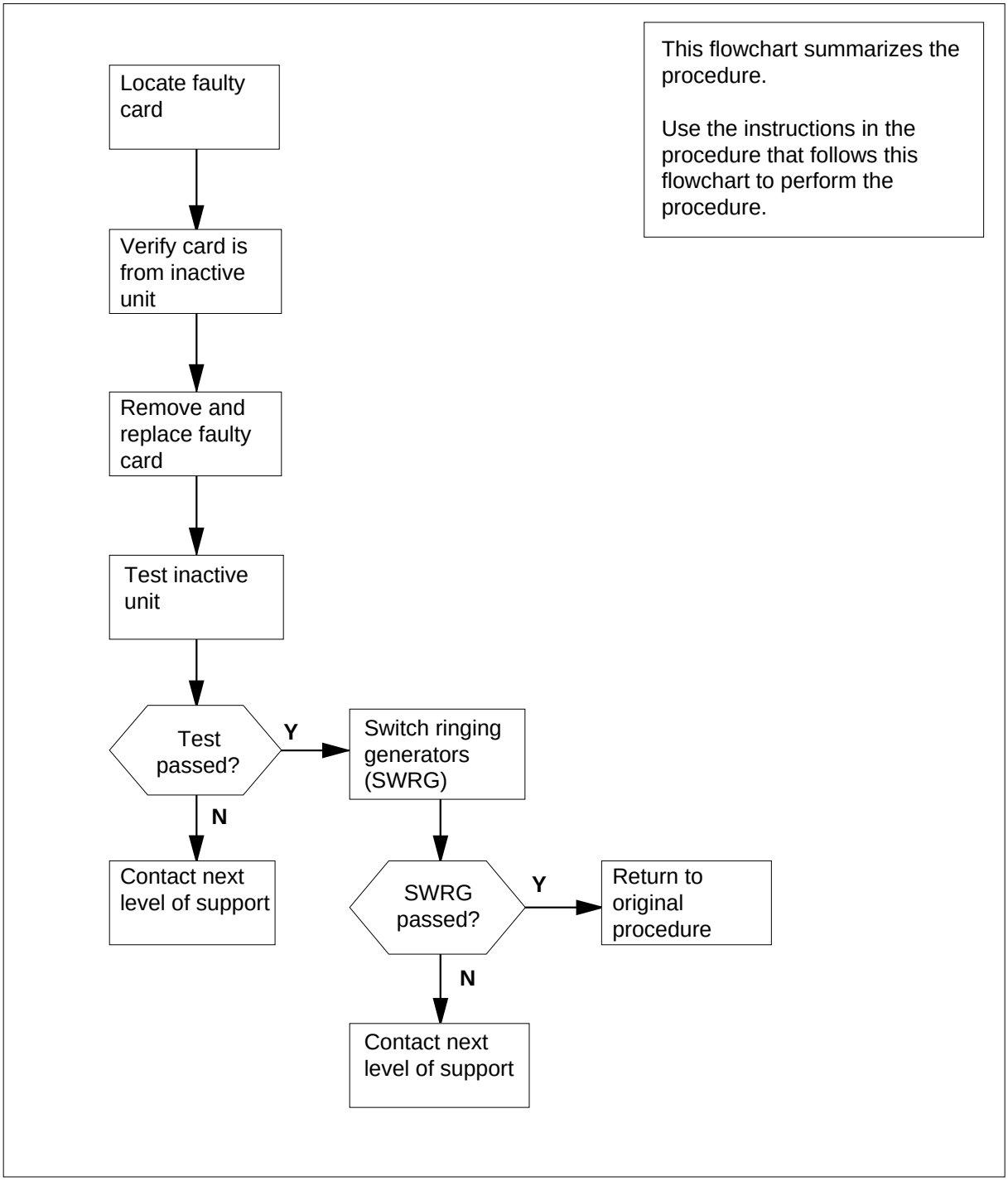
None

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.

NTBX72 in an RSC-S (DS-1) Model A LCME (continued)

Summary of card replacement procedure for an NTBX72 card in an RSC-S LCME



NTBX72 in an RSC-S (DS-1) Model A LCME (continued)

Replacing an NTBX72 card in an 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 an NTBX72 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 LCME by typing

```
>MAPCI;MTC;PM;POST LCME site frame_no unit_no
```

and pressing the Enter key.

where

site
is the name of the site at which the LCME is located

frame_no
is the number of the frame in which the LCME is located

unit_no
is the number of the LCME with the faulty card

Example of a MAP display:

NTBX72
in an RSC-S (DS-1) Model A LCME (continued)

```
 CM     MS     IOD    Net     PM    CCS    Lns    Trks    Ext    Appl
 .      .       .      .     1LCME   .      .       .      .       .

LCME               SysB     ManB     OffL     CBsy     ISTb      InSv
 0 Quit     PM        1        0        2        0        2        12
 2 Post_    LCME      0        0        2        0        2         9
 3 ListSet
 4 SwRG     LCME   RSC-S  14 1 ISTb  Links_OOS:  CSide  0   PSide   0
 5 Trnsl_   Unit0:   InSv                /RG: 1
 6 Tst_     Unit1:   InSv                /RG: 1
 7 Bsy_                                 11  11  11  11  11  RG:Pref 1 ISTB
 8 RTS_     Drwr: 01 23  45  67  89  01  23  45  67  89     Stby 0 InSv
 9 OffL
10 LoadPM_
11 Disp_
12 Next
13
14 QueryPM
15
16
17
18
```

4 Check for fault indicators by typing

>QUERYPM FLT

and pressing the Enter key.

Example of a MAP display:

NTBX72
in an RSC-S (DS-1) Model A LCME (continued)

```
 CM     MS     IOD    Net    PM     CC    Lns    Trks    Ext    Appl
 .      .       .      .    1LCME   .      .       .      .       .

LCME              SysB     ManB     OffL     CBsy     ISTb      InSv
 0 Quit     PM        1        0        2        0        2        12
 2 Post_    LCME      0        0        2        0        2         9
 3 ListSet
 4 SwRG     LCME   RSC-S 14 1 ISTb  Links_OOS:  CSide  0   PSide   0
 5 Trnsl_   Unit0:   InSv  Takeover       /RG: 1
 6 Tst_     Unit1:   ISTb               /RG: 1
 7 Bsy_                                 11  11  11   RG:Pref 1 ISTb
 8 RTS_     Drwr:  01  23  45  67  89  01  23  45      Stby 0 InSv
 9 OffL            ..  ..  ..  ..  ..  ..  ..  ..  ..  ..
10 LoadPM_  QUERYPM FLT
11 Disp_    Node inservice troubles exist:
12 Next         One or both Units inservice trouble
13          LCME   UNIT 0  Inservice
14 QueryPM  LCME   UNIT 1  Inservice
15          Ringing Generator 1 failure
16
17
18
```

5 Switch ringing generator activity from the unit with the faulty NTBX72 card by typing

>SWRG PM

and pressing the Enter key.

If SWRG	Do
passed	step 6
failed	step 20

6 Busy the LCME unit by typing

>BSY UNIT lcme_unit_no

and pressing the Enter key.

where

lcme_unit_no
is the number of the LCME unit with the faulty card

NTBX72
in an RSC-S (DS-1) Model A LCME (continued)

At the RCE

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 (FSP) of the LCME. This protects the equipment against damage caused by static electricity.

Put on a wrist strap.

8

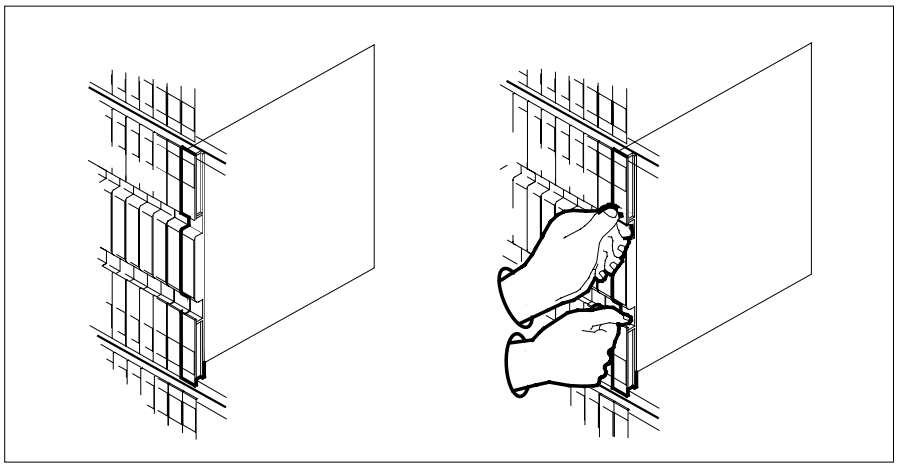
DANGER
Equipment damage
Take these precautions when removing or inserting a card:

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

Power down the NT6X53 power converter by setting the POWER switch to the OFF position.

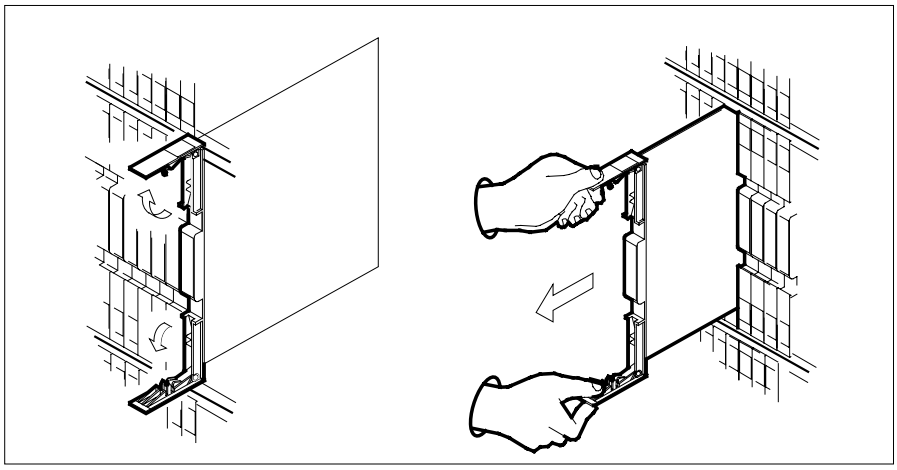
9 Remove the NTBX72 card as shown in the following figures.

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.

NTBX72
in an RSC-S (DS-1) Model A LCME (continued)

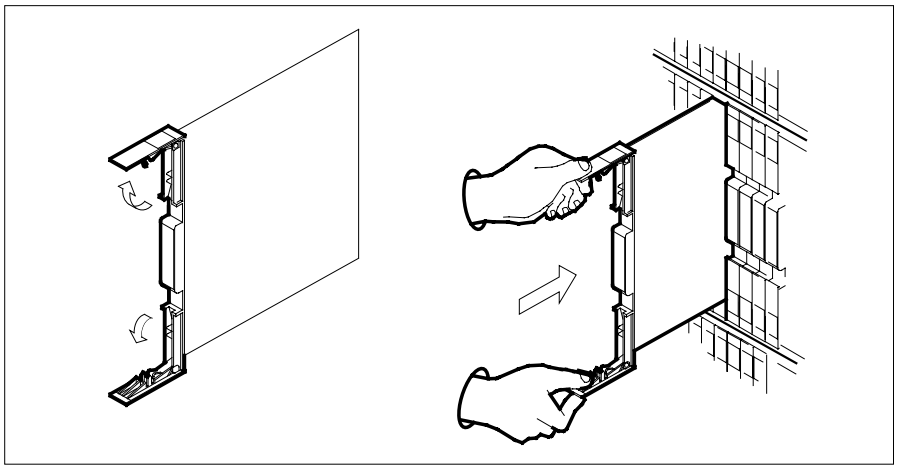


c Ensure the replacement card has the same PEC, including suffix, as the card you just removed.

10 Open the locking levers on the replacement card.

a Align the card with the slots in the shelf.

b Gently slide the card into the shelf.

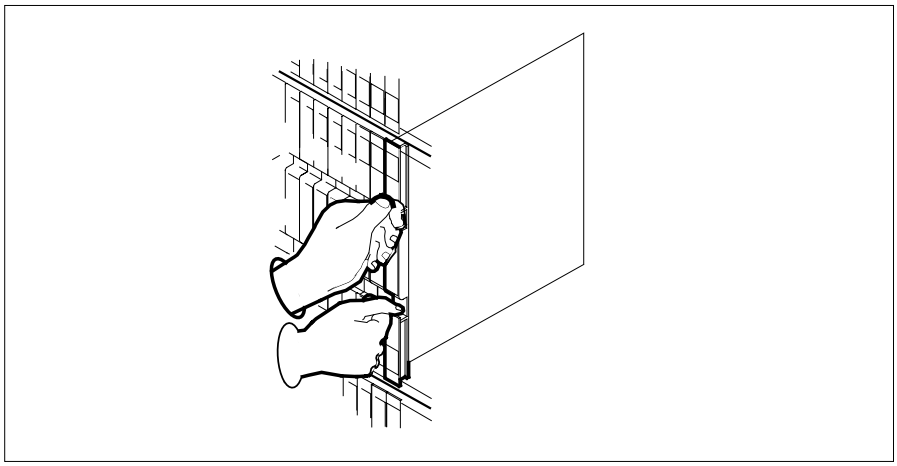


11 Seat and lock the card.

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.

NTBX72
in an RSC-S (DS-1) Model A LCME (continued)



12 Power up the LCME 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 switch to the ON position.

13 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 14

At the MAP terminal

14 Test the unit by typing

`>TST UNIT lcme_unit_no`

and pressing the Enter key.

where

lcme_unit_no
is the number of the LCME unit posted in step 3

If TST	Do
passed	step 15
failed	step 19

15 Return the LCME unit to service by typing

`>RTS UNIT lcme_unit_no`

NTBX72 in an RSC-S (DS-1) Model A LCME (end)

and pressing the Enter key.

where

lcme_unit_no
is the number of the LCME unit tested in step 14

If RTS	Do
passed	step 16
failed	step 20

16 Switch ringing generator activity to the new NTBX72 card by typing

```
>SWRG PM
```

and pressing the Enter key.

If SWRG	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 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.

20 Obtain further assistance in replacing this card by contacting operating company maintenance personnel.

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

NTBX72 in an RSC-S (DS-1) Model B LCME

Application

Use this procedure to replace an NTBX72 card in an RSC-S LCME.

PEC	Suffixes	Name
NTBX72	AA	ISDN LCME Battery and Ring Router

Common procedures

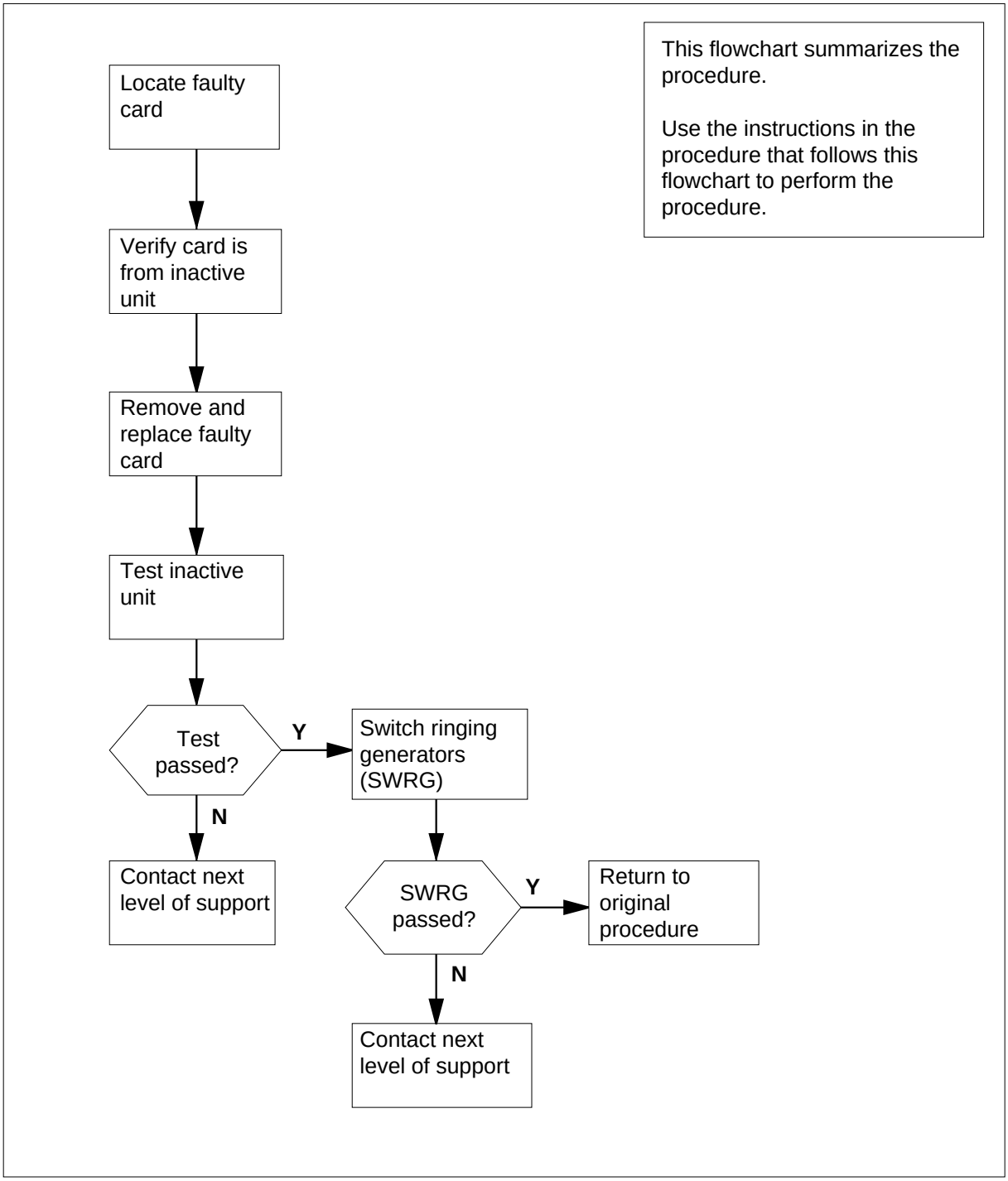
None

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.

NTBX72
in an RSC-S (DS-1) Model B LCME (continued)

Summary of card replacement procedure for an NTBX72 card in an RSC-S LCME



NTBX72 in an RSC-S (DS-1) Model B LCME (continued)

Replacing an NTBX72 card in an 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 an NTBX72 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 LCME by typing

```
>MAPCI;MTC;PM;POST LCME site frame_no unit_no
```

and pressing the Enter key.

where

site
is the name of the site at which the LCME is located

frame_no
is the number of the frame in which the LCME is located

unit_no
is the number of the LCME with the faulty card

Example of a MAP display:

NTBX72
in an RSC-S (DS-1) Model B LCME (continued)

```
 CM     MS     IOD    Net     PM    CCS    Lns    Trks    Ext    Appl
 .      .       .      .    1LCME    .      .       .      .      .

LCME               SysB     ManB     OffL     CBsy     ISTb      InSv
 0 Quit     PM        1        0        2        0        2        12
 2 Post_    LCME      0        0        2        0        2         9
 3 ListSet
 4 SwRG     LCME   RSC-S  14 1 ISTb  Links_OOS:  CSide  0   PSide   0
 5 Trnsl_   Unit0:   InSv                /RG: 1
 6 Tst_     Unit1:   InSv                /RG: 1
 7 Bsy_                                 11  11  11  11  11  RG:Pref 1 ISTB
 8 RTS_     Drwr: 01 23  45  67  89  01  23  45  67  89     Stby 0 InSv
 9 OffL
10 LoadPM_
11 Disp_
12 Next
13
14 QueryPM
15
16
17
18
```

4 Check for fault indicators by typing

>QUERYPM FLT

and pressing the Enter key.

Example of a MAP display:

NTBX72
in an RSC-S (DS-1) Model B LCME (continued)

```
 CM     MS     IOD    Net    PM    CC     Lns    Trks   Ext   Appl
 .      .       .      .    1LCME   .      .       .     .      .

LCME               SysB     ManB     OffL     CBsy     ISTb     InSv
 0 Quit     PM        1        0        2        0        2       12
 2 Post_    LCME      0        0        2        0        2        9
 3 ListSet
 4 SwRG     LCME   RSC-S 14 1 ISTb  Links_OOS:  CSide  0   PSide   0
 5 Trnsl_   Unit0:   InSv  Takeover       /RG: 1
 6 Tst_     Unit1:   ISTb                 /RG: 1
 7 Bsy_                                 11  11  11   RG:Pref 1 ISTb
 8 RTS_     Drwr:  01  23  45  67  89  01  23  45      Stby 0 InSv
 9 OffL            ..  ..  ..  ..  ..  ..  ..  ..  ..  ..
10 LoadPM_  QUERYPM FLT
11 Disp_    Node inservice troubles exist:
12 Next         One or both Units inservice trouble
13          LCME   UNIT 0  Inservice
14 QueryPM  LCME   UNIT 1  Inservice
15          Ringing Generator 1 failure
16
17
18
```

5 Switch ringing generator activity from the unit with the faulty NTBX72 card by typing

>SWRG PM

and pressing the Enter key.

If SWRG	Do
passed	step 6
failed	step 20

6 Busy the LCME unit by typing

>BSY UNIT lcme_unit_no

and pressing the Enter key.

where

lcme_unit_no
is the number of the LCME unit with the faulty card

NTBX72 in an RSC-S (DS-1) Model B LCME (continued)

At the RCE

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

Put on a wrist strap.

8

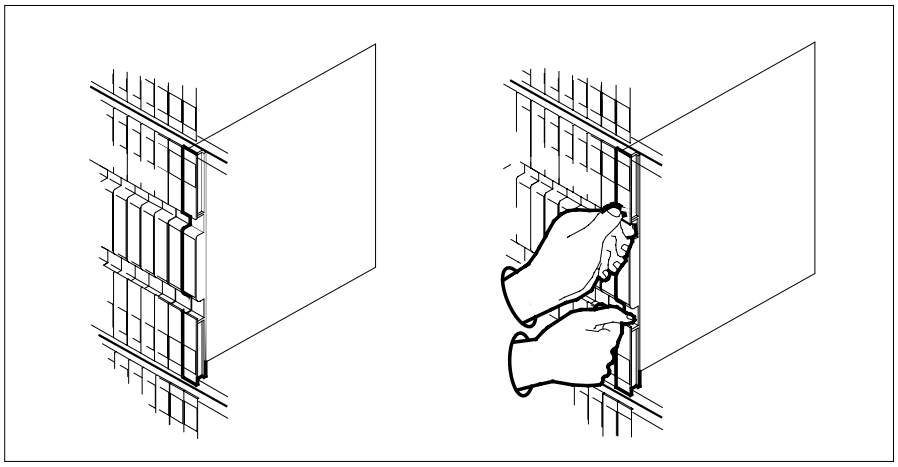
DANGER
Equipment damage
Take these precautions when removing or inserting a card:

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

Power down the NT6X53 power converter by setting the POWER switch to the OFF position.

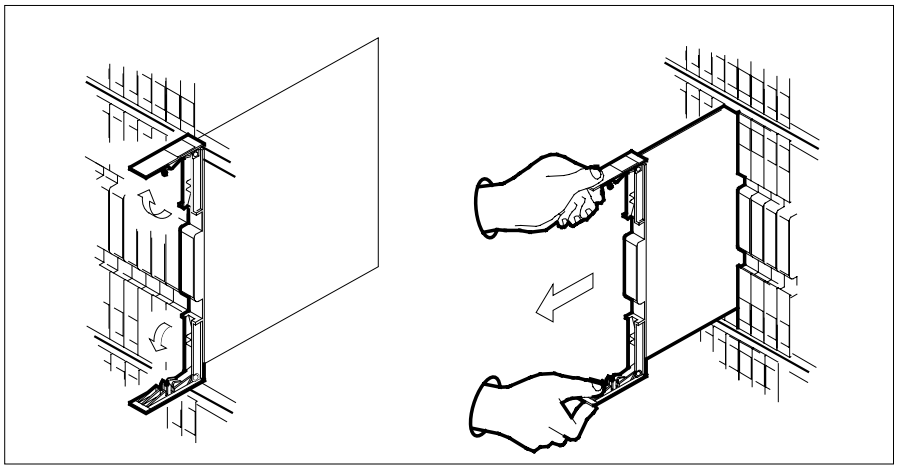
9 Remove the NTBX72 card as shown in the following figures.

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.

NTBX72
in an RSC-S (DS-1) Model B LCME (continued)

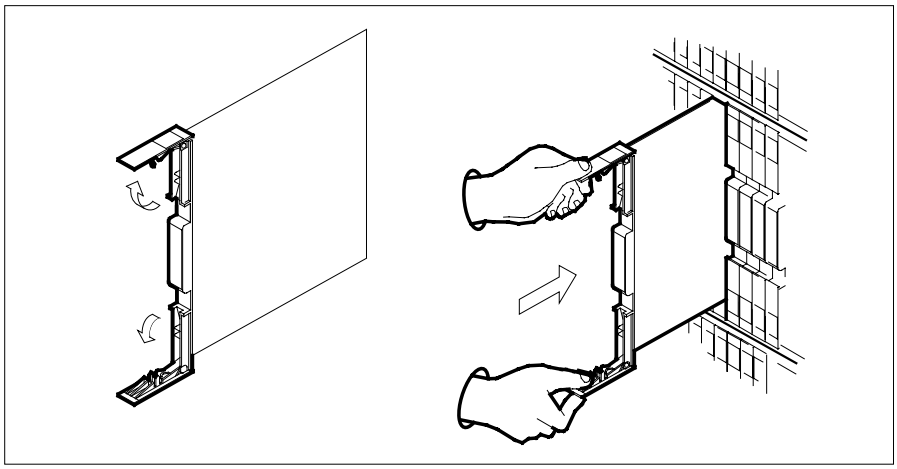


c Ensure the replacement card has the same PEC, including suffix, as the card you just removed.

10 Open the locking levers on the replacement card.

a Align the card with the slots in the shelf.

b Gently slide the card into the shelf.

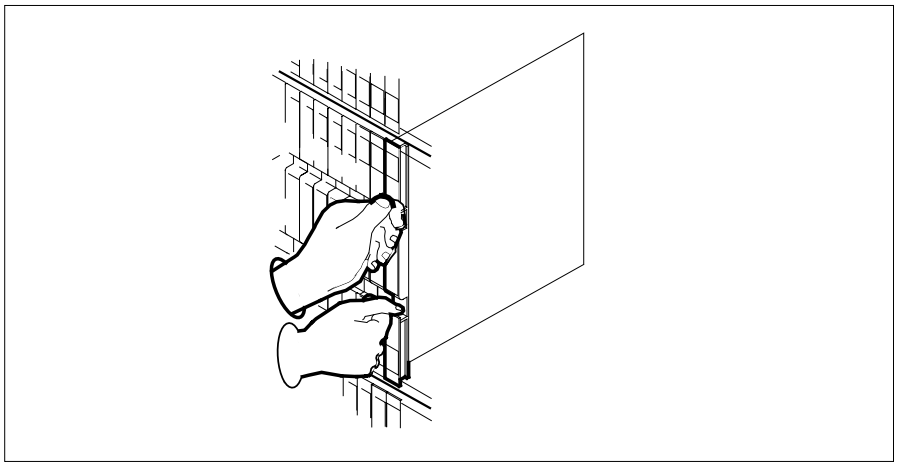


11 Seat and lock the card.

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.

NTBX72
in an RSC-S (DS-1) Model B LCME (continued)



12 Power up the LCME 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 switch to the ON position.

13 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 14

At the MAP terminal

14 Test the unit by typing

`>TST UNIT lcme_unit_no`

and pressing the Enter key.

where

lcme_unit_no
is the number of the LCME unit posted in step 3

If TST	Do
passed	step 15
failed	step 19

15 Return the LCME unit to service by typing

`>RTS UNIT lcme_unit_no`

NTBX72 in an RSC-S (DS-1) Model B LCME (end)

and pressing the Enter key.

where

lcme_unit_no
is the number of the LCME unit tested in step 14

If RTS	Do
passed	step 16
failed	step 20

16 Switch ringing generator activity to the new NTBX72 card by typing

```
>SWRG PM
```

and pressing the Enter key.

If SWRG	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 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.

20 Obtain further assistance in replacing this card by contacting operating company maintenance personnel.

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

NTBX72 in an RSC-S (PCM-30) Model A LCME

Application

Use this procedure to replace an NTBX72 card in an RSC-S LCME.

PEC	Suffixes	Name
NTBX72	AA	ISDN LCME Battery and Ring Router

Common procedures

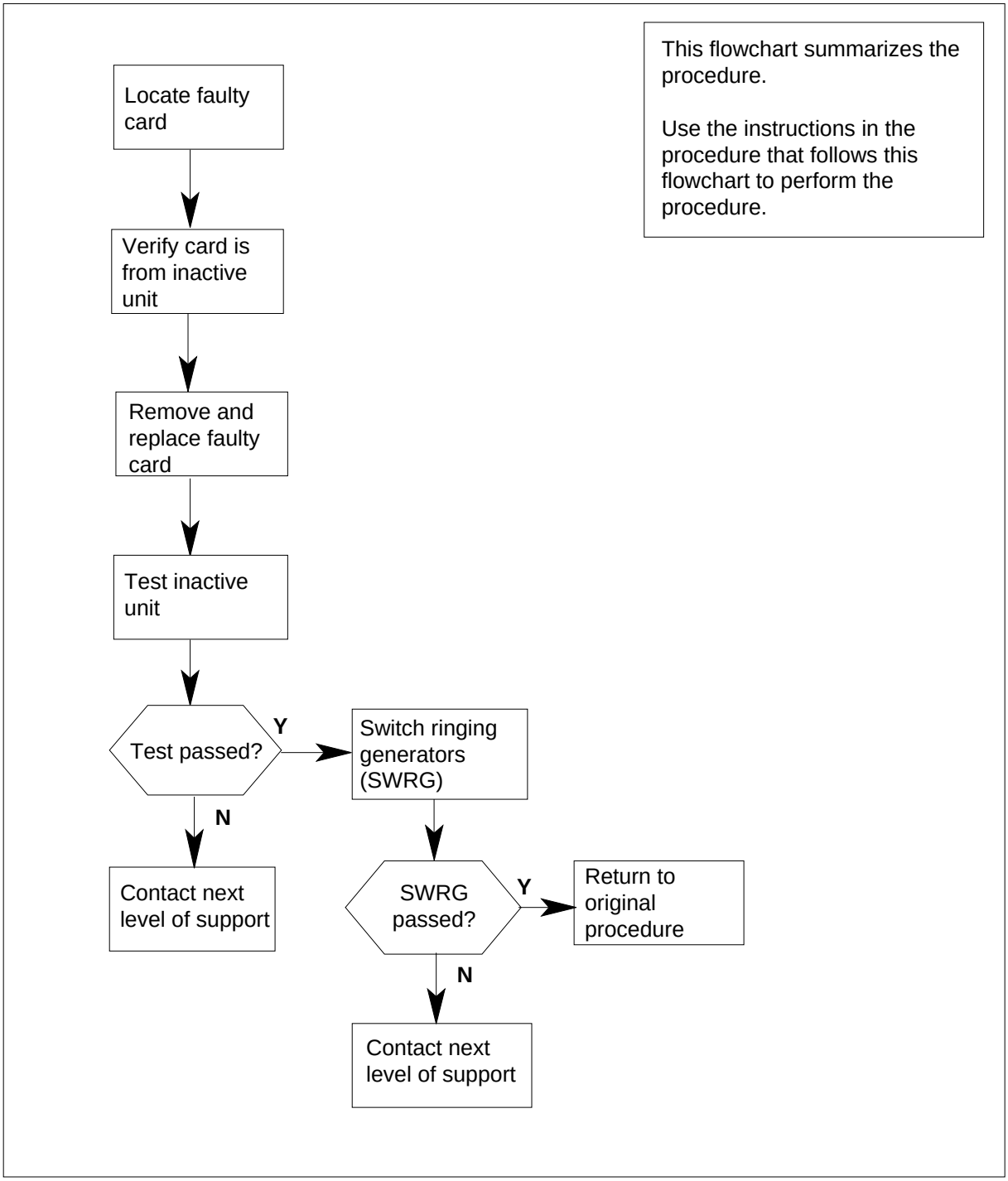
None

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.

NTBX72
in an RSC-S (PCM-30) Model A LCME (continued)

Summary of card replacement procedure for an NTBX72 card in an RSC-S LCME



NTBX72 in an RSC-S (PCM-30) Model A LCME (continued)

Replacing an NTBX72 card in an 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 an NTBX72 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 LCME by typing

```
>MAPCI;MTC;PM;POST LCME site frame_no unit_no
```

and pressing the Enter key.

where

site
is the name of the site at which the LCME is located

frame_no
is the number of the frame in which the LCME is located

unit_no
is the number of the LCME with the faulty card

Example of a MAP display:

NTBX72
in an RSC-S (PCM-30) Model A LCME (continued)

```
 CM     MS     IOD    Net     PM    CCS    Lns    Trks    Ext     Appl
 .      .       .       .    1LCME     .       .       .       .       .

LCME               SysB     ManB     OffL     CBsy     ISTb      InSv
 0 Quit     PM        1        0        2        0        2        12
 2 Post_    LCME      0        0        2        0        2         9
 3 ListSet
 4 SwRG     LCME   RSC-S  14 1 ISTb  Links_OOS:  CSide  0   PSide   0
 5 Trnsl_   Unit0:   InSv                /RG: 1
 6 Tst_     Unit1:   InSv                /RG: 1
 7 Bsy_                              11  11  11  11  11  RG:Pref 1 ISTB
 8 RTS_     Drwr: 01 23  45  67  89  01  23  45  67  89     Stby 0 InSv
 9 OffL
10 LoadPM_
11 Disp_
12 Next
13
14 QueryPM
15
16
17
18
```

4 Check for fault indicators by typing

>QUERYPM FLT

and pressing the Enter key.

Example of a MAP display:

NTBX72
in an RSC-S (PCM-30) Model A LCME (continued)

```
 CM     MS     IOD    Net    PM    CC     Lns    Trks    Ext    Appl
 .      .       .       .    1LCME     .       .

LCME               SysB     ManB     OffL     CBsy     ISTb      InSv
 0 Quit     PM        1        0        2        0        2        12
 2 Post_    LCME      0        0        2        0        2         9
 3 ListSet
 4 SwRG     LCME   RSC-S 14 1 ISTb  Links_OOS:  CSide  0   PSide   0
 5 Trnsl_   Unit0:   InSv  Takeover       /RG: 1
 6 Tst_     Unit1:   ISTb                 /RG: 1
 7 Bsy_                                 11  11  11   RG:Pref 1 ISTb
 8 RTS_     Drwr:  01  23  45  67  89  01  23  45      Stby 0 InSv
 9 OffL            ..  ..  ..  ..  ..  ..  ..  ..  ..  ..
10 LoadPM_  QUERYPM FLT
11 Disp_    Node inservice troubles exist:
12 Next         One or both Units inservice trouble
13          LCME   UNIT 0  Inservice
14 QueryPM  LCME   UNIT 1  Inservice
15          Ringing Generator 1 failure
16
17
18
```

5 Switch ringing generator activity from the unit with the faulty NTBX72 card by typing

>SWRG PM

and pressing the Enter key.

If SWRG	Do
passed	step 6
failed	step 20

6 Busy the LCME unit by typing

>BSY UNIT lcme_unit_no

and pressing the Enter key.

where

lcme_unit_no
is the number of the LCME unit with the faulty card

NTBX72
in an RSC-S (PCM-30) Model A LCME (continued)

At the RCE

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 (FSP) of the LCME. This protects the equipment against damage caused by static electricity.

Put on a wrist strap.

8

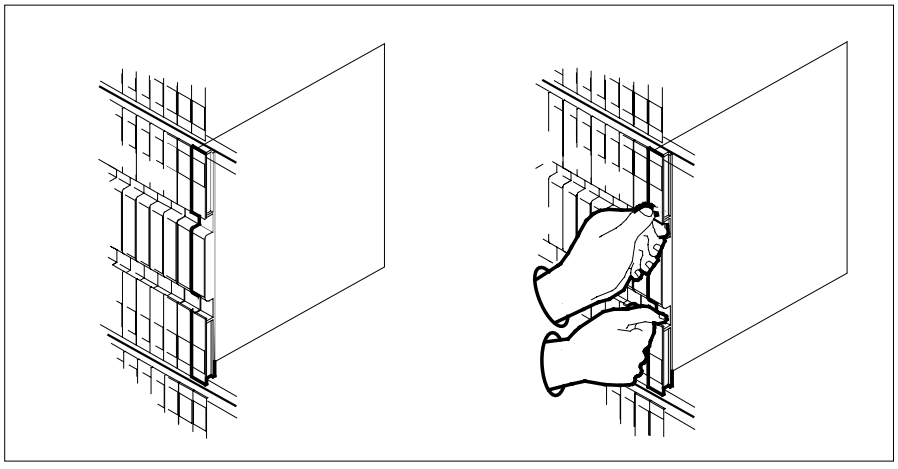
DANGER
Equipment damage
Take these precautions when removing or inserting a card:

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

Power down the NT6X53 power converter by setting the POWER switch to the OFF position.

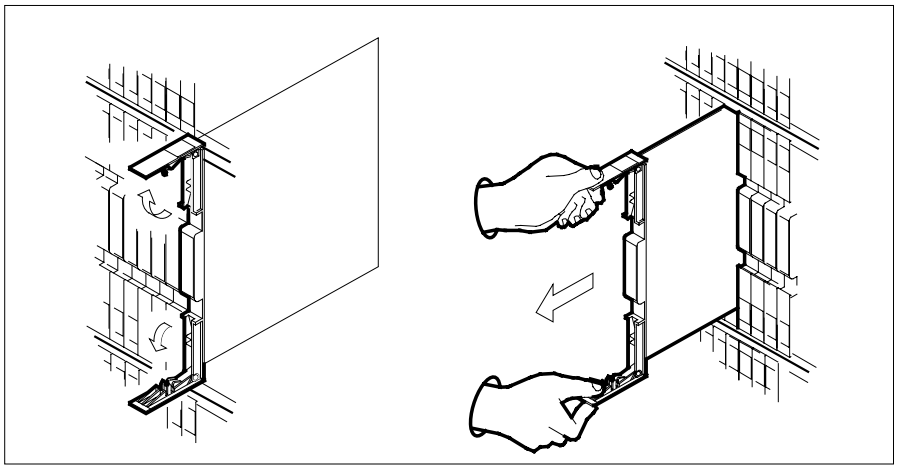
9 Remove the NTBX72 card as shown in the following figures.

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.

NTBX72
in an RSC-S (PCM-30) Model A LCME (continued)

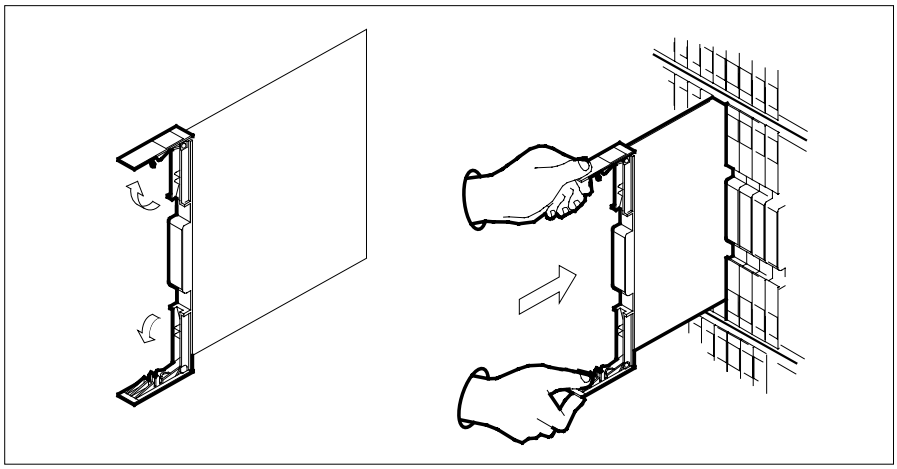


c Ensure the replacement card has the same PEC, including suffix, as the card you just removed.

10 Open the locking levers on the replacement card.

a Align the card with the slots in the shelf.

b Gently slide the card into the shelf.

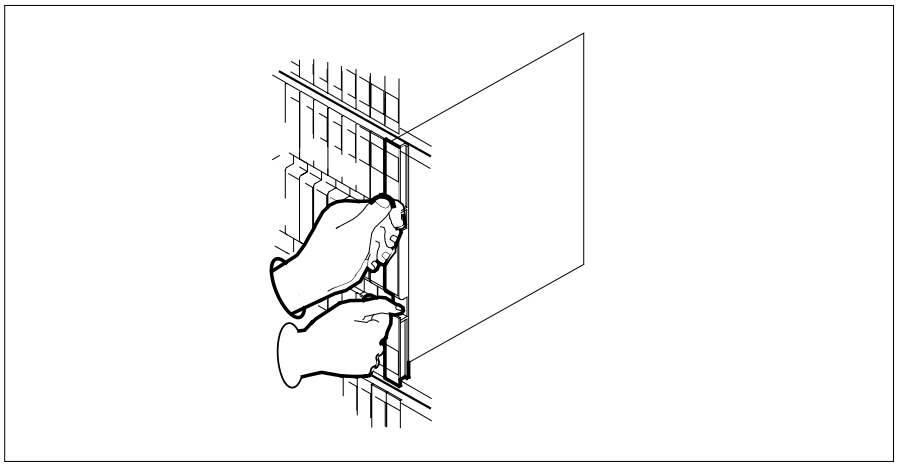


11 Seat and lock the card.

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.

NTBX72
in an RSC-S (PCM-30) Model A LCME (continued)



12 Power up the LCME 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 switch to the ON position.

13 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 14

At the MAP terminal

14 Test the unit by typing

`>TST UNIT lcme_unit_no`

and pressing the Enter key.

where

lcme_unit_no
is the number of the LCME unit posted in step 3

If TST	Do
passed	step 15
failed	step 19

15 Return the LCME unit to service by typing

`>RTS UNIT lcme_unit_no`

NTBX72 in an RSC-S (PCM-30) Model A LCME (end)

and pressing the Enter key.

where

lcme_unit_no
is the number of the LCME unit tested in step 14

If RTS	Do
passed	step 16
failed	step 20

16 Switch ringing generator activity to the new NTBX72 card by typing

```
>SWRG PM
```

and pressing the Enter key.

If SWRG	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 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.

20 Obtain further assistance in replacing this card by contacting operating company maintenance personnel.

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

NTEX17 in an RLCM

Application

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

PEC	Suffixes	Name
NTEX17	AA	xDSL line card
NTEX17	BA	xDSL line card
NTEX17	CA	xDSL line card
NTEX17	DA	xDSL line card

Common procedures

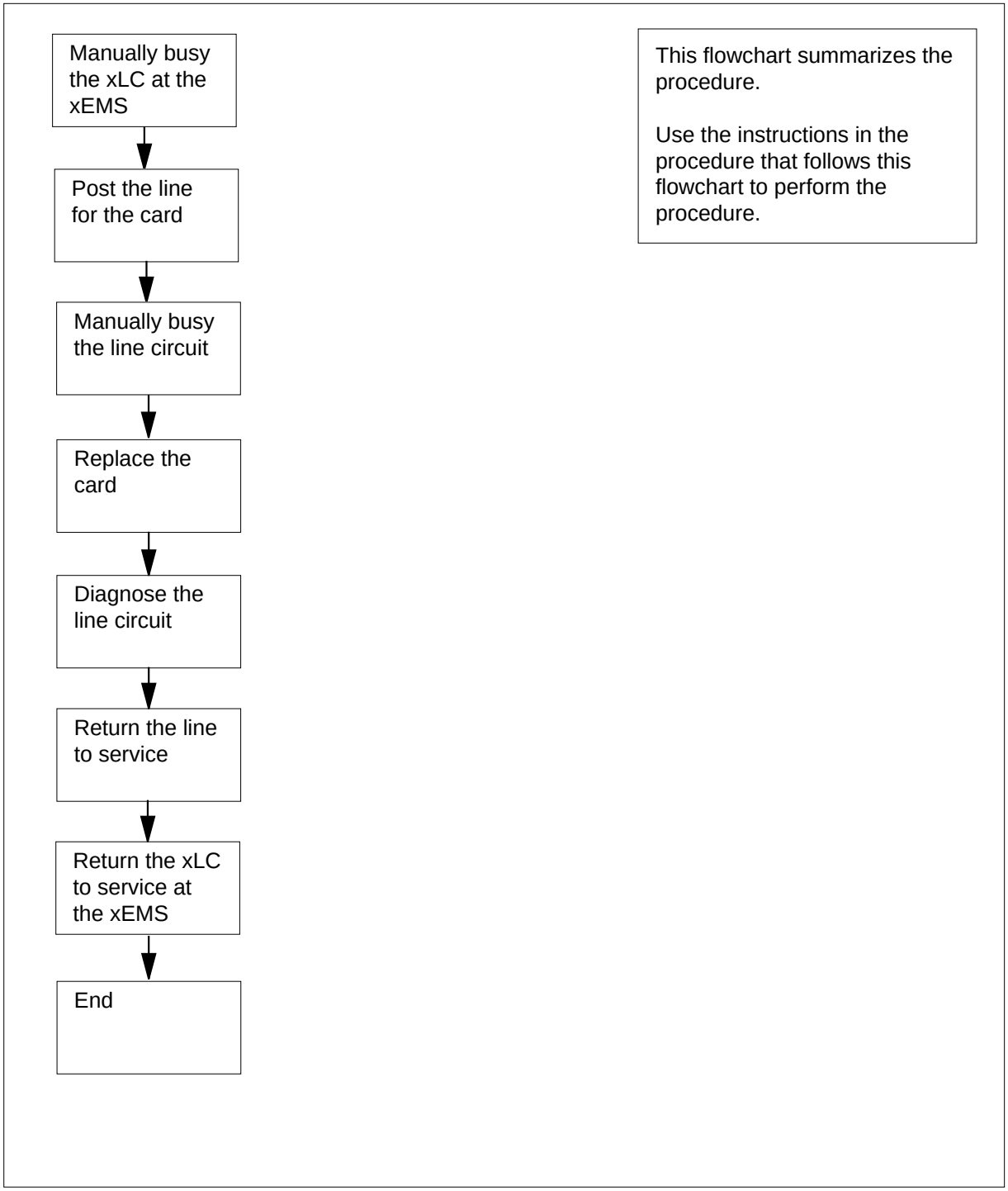
None

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.

NTEX17
in an RLCM (continued)

Summary of replacing an NTEX17 in an RLCM



NTEX17 in an RLCM (continued)

Replacing an NTEX17 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 for verifying or accepting cards, or were directed to this procedure by your maintenance support group.

2 Obtain a replacement card. Make sure that the replacement card and the card that you remove have the same product engineering code (PEC) and PEC suffix.

At the xEMS workstation

3 Go to the submap of the LCM line drawer with the NTEX17 card that you will replace.

4 Place the cursor on the XLC you want to busy and use the mouse to select

`Maintenance : XLC -> MB`

and press the Enter key.

At the MAP terminal

5 To access the LTP level of the MAP display, type

`>MAPCI;MTC;LNS;LTP`

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
```

Note: If you worked at the LTP level of the MAP display, a posted line can be present. A posted line does not interfere with this maintenance procedure.

6 To post the line for the card to be replaced, type

`>POST L site frame_no unit_no drawer_no slot_no`

and press the Enter key.

where

site
is the PM location (alphanumeric)

frame_no
is the frame number (0 to 511)

unit_no
is the PM unit number (0 or 1)

drawer_no
is the line drawer number (0 to 19)

ckt_no
is the card slot number (0 to 31)

NTEX17
in an RLCM (continued)

Example of a MAP display:

```
LCC PTY RNG .....LEN.........     DN    STA F S LTA  TE RESULT
1FR         REM1 01 0 01 01     621 1134 IDL
```

7 Determine the state of the posted line.

If the state of the line	Do
is CPB, CPD	step 8
is CUT, HAZ, IDL, LO, PLO, SB	step 9
is MB	step 10
is NEQ	To determine why the component is offline or not equipped, consult operating company personnel. Continue as directed by operating company personnel.
is DEL, DMB, INB, LMB	step 19

8 Wait until the line state changes. Go to step 7.

9 To manually busy the line circuit, type

>BSY

and press the Enter key.

Example of a MAP display:

```
LCC PTY RNG .....LEN.........     DN    STA F S LTA  TE RESULT
1FR         HOST 01 0 01 01     621 1134 MB
```

Note: Observe that the state that appears under the STA header changed to MB.

If BSY command	Do
passed	step 10
failed	step 19

At the MAP terminal

10 To display the cabinet location of the faulty line card, type

>CKTLOC

and press the Enter key.

Example of a MAP display:

NTEX17
in an RLCM (continued)

```
Site Flr RPos  Bay_id   Shf  Description    Slot     EqPEC
REM1  01  B04  LCE  01   04  LCM  01 0      01:00    EX17DA

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

Note: In the example MAP display, the line card is an NTEX17DA and the location of the card is

Site
in the remote site

Flr
on the 1st floor

RPos
row B is the location of the line equipment bay 04

Bay_id
in line concentrating equipment, bay 01

Shf
in shelf 04

Description
in hardware device LCM, bay 01

Slot
in line drawer 01, slot 00

NTEX17
in an RLCM (continued)

At the shelf

11



DANGER
Static electricity damage
Wear a wrist strap that connects to a wrist-strap grounding point to handle circuit cards. The wrist-strap grounding point is on a frame supervisory panel (FSP) or a modular supervisory panel (MSP). The wrist strap protects the cards against static electricity damage.



DANGER
Risk of 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.



DANGER
Risk of equipment damage
Proceed only if a step in a maintenance procedure directs you here. If you perform this procedure without permission, equipment damage can occur.



DANGER
Risk of electrocution
Proceed only if a step in a maintenance procedure directs you here. If you perform this procedure without permission, personal injury can occur.

Put on a wriststrap.

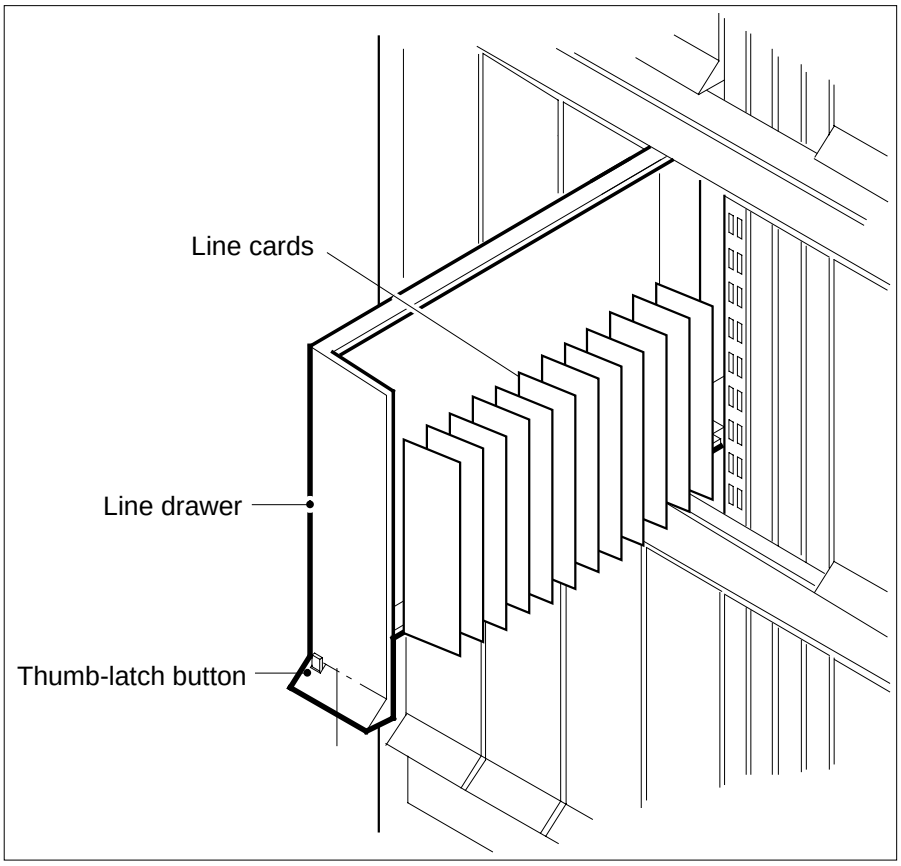
Note 1: A card shroud is required to insert or remove an NTEX17 card in line drawers. This is a 6-inch (152 mm) card, and requires the card shroud with apparatus code QTH58A and common product code A0313317.

Note 2: A card removal tool is required to remove the NTEX17 card from line drawers. The apparatus code for the grip tool is QTH57A, and the common product code is A0298292. You can also use the large grip tool ITA9953.

12 Use the information you obtained in step 6 to locate the physical location of the line card.

NTEX17
in an RLCM (continued)

13 Prepare to remove the faulty card identified in step 6 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.

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.

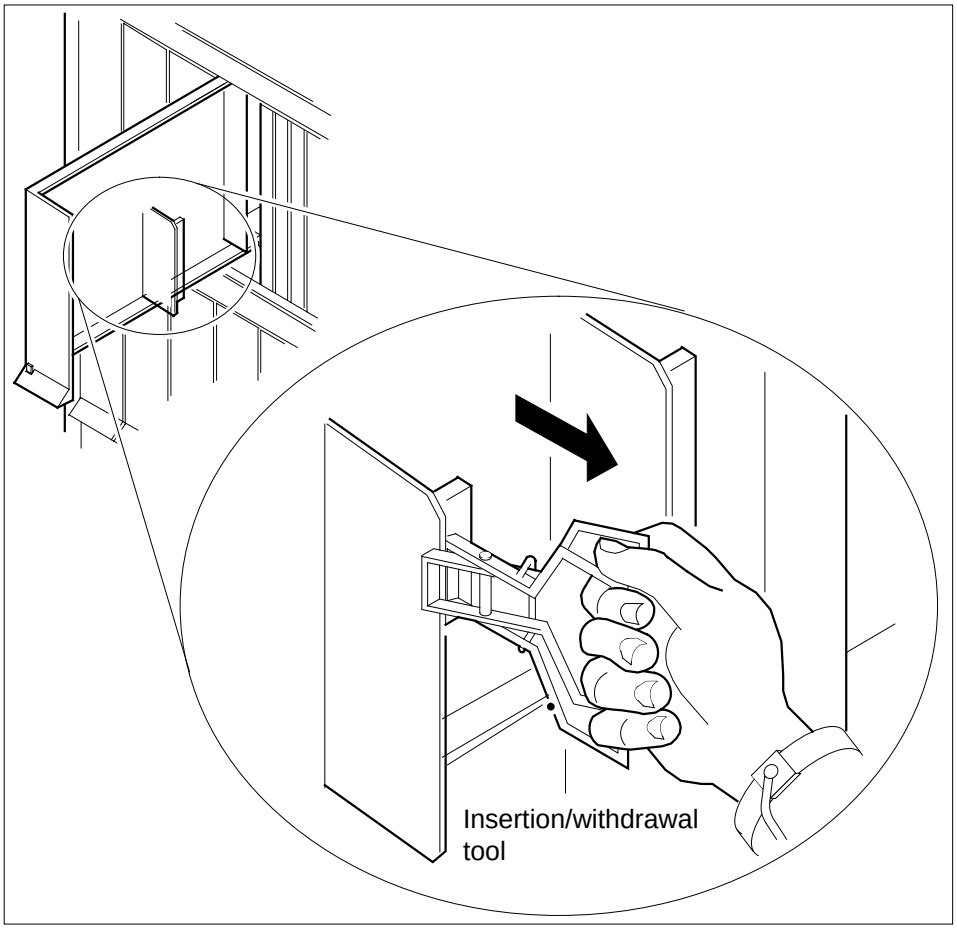
f Ensure a card shroud and line card extractor are available.

NTEX17
in an RLCM (continued)

14

DANGER
Risk of personal injury
Make sure you handle the line card carefully. The line feed resistor can be very hot. To avoid injury, use the insertion/withdrawal tool to remove the card as shown in the figure that follows.

Remove the line card to be replaced by using the following 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.

15 Replace the faulty card using the following 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.

16 Close the line drawer.

At the MAP terminal

17 To perform a diagnostic test on the line, type

>DIAG

and press the Enter key.

Example of a MAP response:

```
ECOME004AH ***+LINE100 DEC17 10:04:26 0200 PASS LN_DIAG
        LEN HOST 01 0 11 02      NO DIRN
        DIAGNOSTIC RESULT   Card Diagnostic OK
        ACTION REQUIRED  None
        CARD TYPE  EX17DA
```

If the DIAG command	Do
passed	step 18
failed	step 19

18 To return the line to service, type

>RTS

and press the Enter key.

If RTS command	Do
passed	step 20
failed	step 19

NTEX17 in an RLCM (end)

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

At the xEMS workstation

20 At the submap of the LCM line drawer with the NTEX17 card that you replaced.

21 Place the cursor on the the XLC card you want to return the card to service and use the mouse to select

`Maintenance : XLC -> IDL`

and press the Enter key.

22 The procedure is complete.

NTEX17 in an RSC LCM

Application

Use this procedure to replace the following card in an RSC LCM line drawer.

PEC	Suffixes	Name
NTEX17	AA	xDSL line card
NTEX17	BA	xDSL line card
NTEX17	CA	xDSL line card

Common procedures

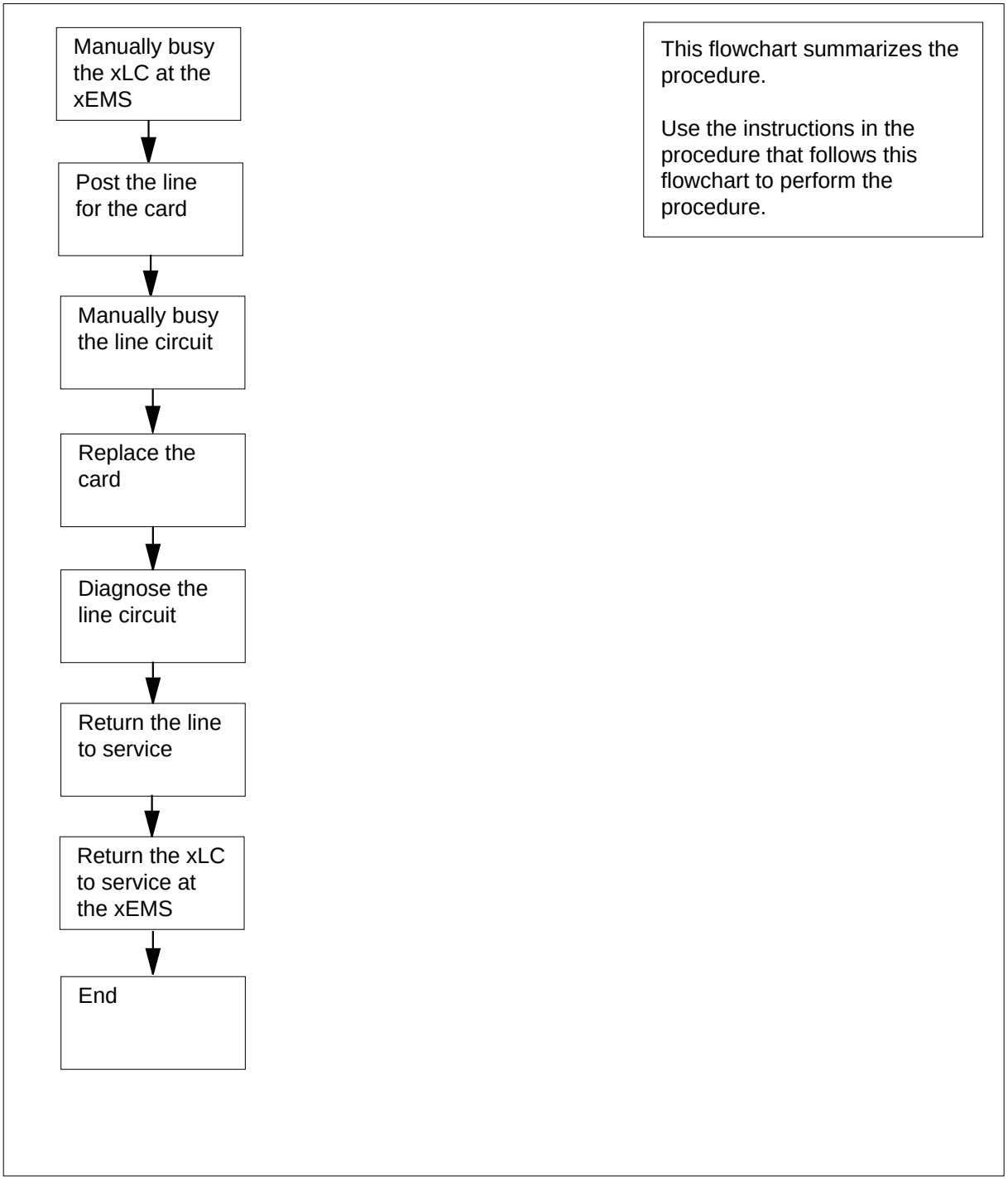
None

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.

NTEX17
in an RSC LCM (continued)

Summary of replacing an NTEX17 in RSC LCM



NTEX17
in an RSC LCM (continued)

Replacing an NTEX17 in 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 for verifying or accepting cards, or were directed to this procedure by your maintenance support group.

2 Obtain a replacement card. Make sure that the replacement card and the card that you remove have the same product engineering code (PEC) and PEC suffix.

At the xEMS workstation

3 Go to the submap of the LCM line drawer with the NTEX17 card that you will replace.

4 Place the cursor on the XLC you want to busy and use the mouse to select

`Maintenance : XLC -> MB`

and press the Enter key.

At the MAP terminal

5 To access the LTP level of the MAP display, type

`>MAPCI;MTC;LNS;LTP`

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
```

Note: If you worked at the LTP level of the MAP display, a posted line can be present. A posted line does not interfere with this maintenance procedure.

6 To post the line for the card to be replaced, type

`>POST L site frame_no unit_no drawer_no slot_no`

and press the Enter key.

where

site
is the PM location (alphanumeric)

frame_no
is the frame number (0 to 511)

unit_no
is the PM unit number (0 or 1)

drawer_no
is the line drawer number (0 to 19)

NTEX17
in an RSC LCM (continued)

ckt_no
is the card slot number (0 to 31)

Example of a MAP display:

```
LCC PTY RNG .....LEN.........     DN STA F S LTA  TE  RESULT
 1FR  REM1 01 0 01 01     621 1134 IDL
```

7 Determine the state of the posted line.

If the state of the line	Do
is CPB, CPD	step 8
is CUT, HAZ, IDL, LO, PLO, SB	step 9
is MB	step 10
is NEQ	To determine why the component is offline or not equipped, consult operating company personnel. Continue as directed by operating company personnel.
is DEL, DMB, INB, LMB	step 19

8 Wait until the line state changes. Go to step 7.

9 To manually busy the line circuit, type

>BSY

and press the Enter key.

Example of a MAP display:

```
LCC  PTY  RNG .....LEN.........     DN    STA F S LTA  TE  RE
1FR           HOST   01 0 01 01     621 1134 MB
```

Note: Observe that the state that appears under the STA header changed to MB.

If BSY command	Do
passed	step 10
failed	step 19

NTEX17
in an RSC LCM (continued)

At the MAP terminal

10 To display the cabinet location of the faulty line card, type

>CKTLOC

and press the Enter key.

Example of a MAP display:

```
Site Flr RPos  Bay_id   Shf  Description    Slot     EqPEC
REM1  01  B04  LCE 01   04  LCM  01 0      01:00    EX17CA

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

Note: In the example MAP display, the line card is an NTEX17CA and the location of the card is

Site
in the remote site

Flr
on the 1st floor

RPos
row B is the location of the line equipment bay 04

Bay_id
in line concentrating equipment, bay 01

Shf
in shelf 04

Description
in hardware device LCM, bay 01

Slot
in line drawer 01, slot 00

NTEX17
in an RSC LCM (continued)

At the shelf

11



DANGER
Static electricity damage
Wear a wrist strap that connects to a wrist-strap grounding point to handle circuit cards. The wrist-strap grounding point is on a frame supervisory panel (FSP) or a modular supervisory panel (MSP). The wrist strap protects the cards against static electricity damage.



DANGER
Risk of 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.



DANGER
Risk of equipment damage
Proceed only if a step in a maintenance procedure directs you here. If you perform this procedure without permission, equipment damage can occur.



DANGER
Risk of electrocution
Proceed only if a step in a maintenance procedure directs you here. If you perform this procedure without permission, personal injury can occur.

Put on a wriststrap.

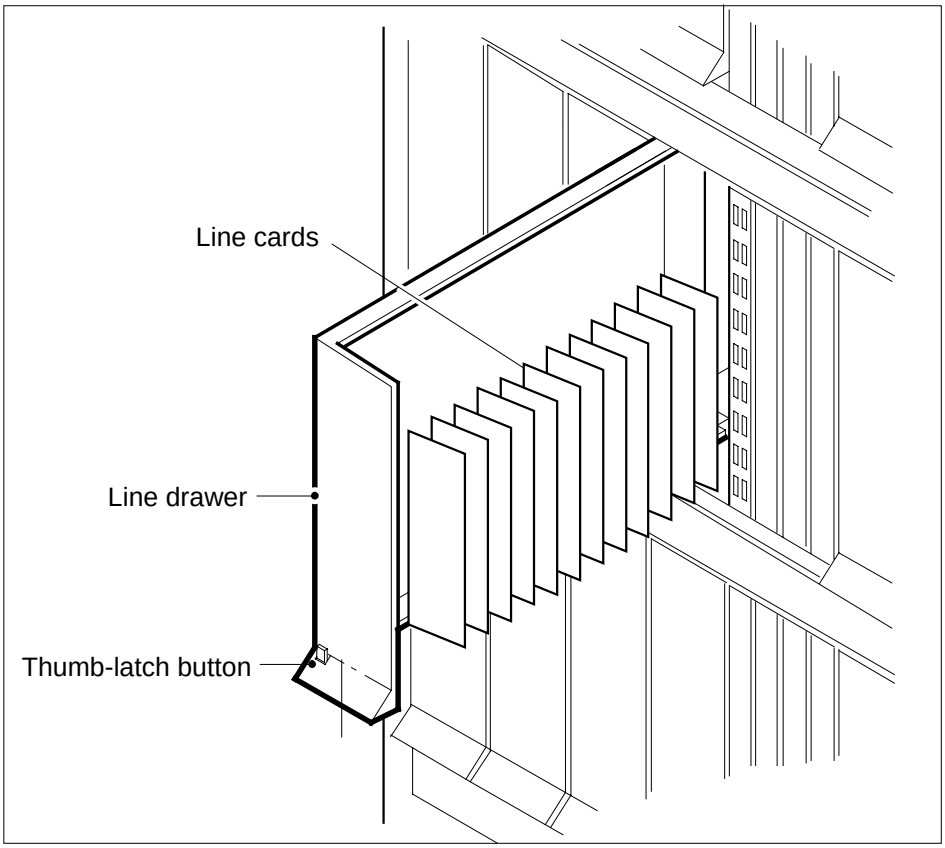
Note 1: A card shroud is required to insert or remove an NTEX17 card in line drawers. This is a 6-inch (152 mm) card, and requires the card shroud with appratus code QTH58A and common product code A0313317.

Note 2: A card removal tool is required to remove the NTEX17 card from line drawers. The appratus code for the grip tool is QTH57A, and the common product code is A0298292. You can also use the large grip tool ITA9953.

NTEX17
in an RSC LCM (continued)

12 Use the information you obtained in step 6 to locate the physical location of the line card.

13 Prepare to remove the faulty card identified in step 6 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.

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.

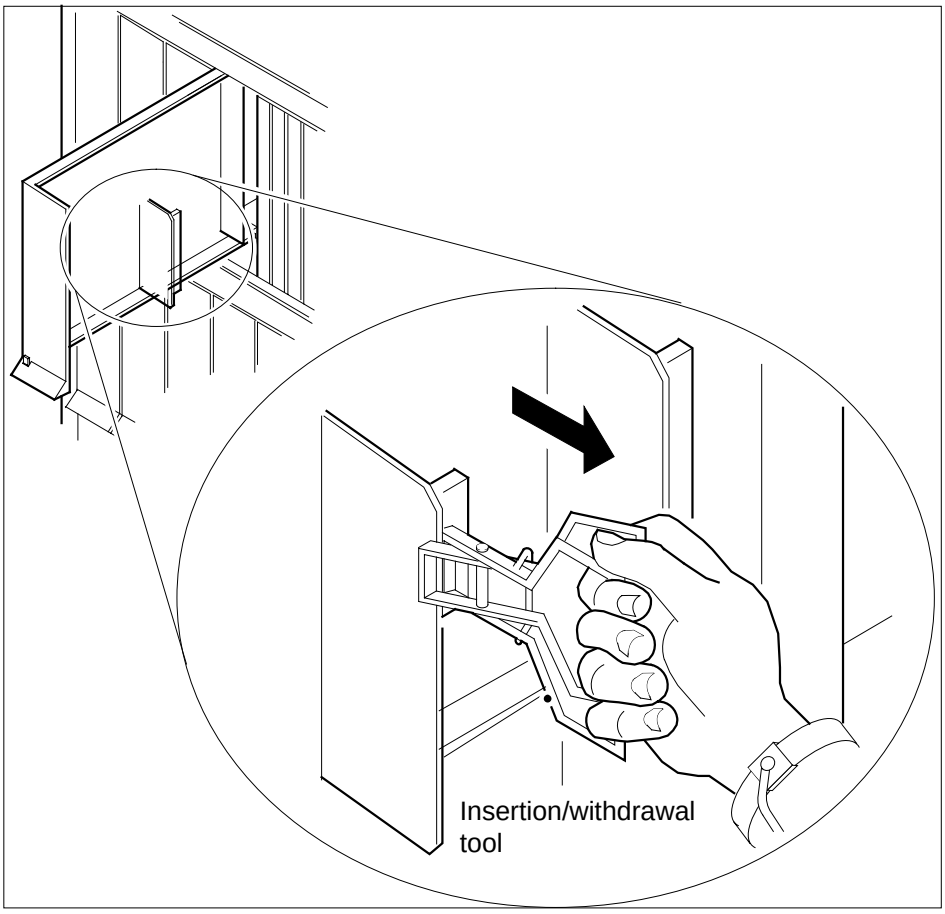
f Ensure a card shroud and line card extractor are available.

NTEX17
in an RSC LCM (continued)

14

DANGER
Risk of personal injury
Make sure you handle the line card carefully. The line feed resistor can be very hot. To avoid injury, use the insertion/withdrawal tool to remove the card as shown in the figure that follows.

Remove the line card to be replaced by using the following 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.

15 Replace the faulty card using the following 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.

16 Close the line drawer.

At the MAP terminal

17 To perform a diagnostic test on the line, type

`>DIAG`

and press the Enter key.

Example of a MAP response:

```
ECOME004AH ***+LINE100 DEC17 10:04:26 0200 PASS LN_DIAG
        LEN  HOST  01 0 11 02     NO DIRN
        DIAGNOSTIC RESULT  Card Diagnostic  OK
        ACTION REQUIRED  None
        CARD TYPE  EX17BA
```

If the DIAG command	Do
passed	step 18
failed	step 19

18 To return the line to service, type

`>RTS`

and press the Enter key.

If RTS command	Do
passed	step 20

NTEX17 in an RSC LCM (end)

If RTS command	Do
failed	step 19

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

At the xEMS workstation

20 At the submap of the LCM line drawer with the NTEX17 card that you replaced.

21 Place the cursor on the the XLC card you want to return the card to service and use the mouse to select

`Maintenance : XLC -> IDL`

and press the Enter key.

22 The procedure is complete.

NTEX17 in an RSC-S (DS-1) Model A LCME

Application

Use this procedure to replace the following card in an RSC LCME line drawer.

PEC	Suffixes	Name
NTEX17	AA	xDSL line card
NTEX17	BA	xDSL line card
NTEX17	CA	xDSL line card

Common procedures

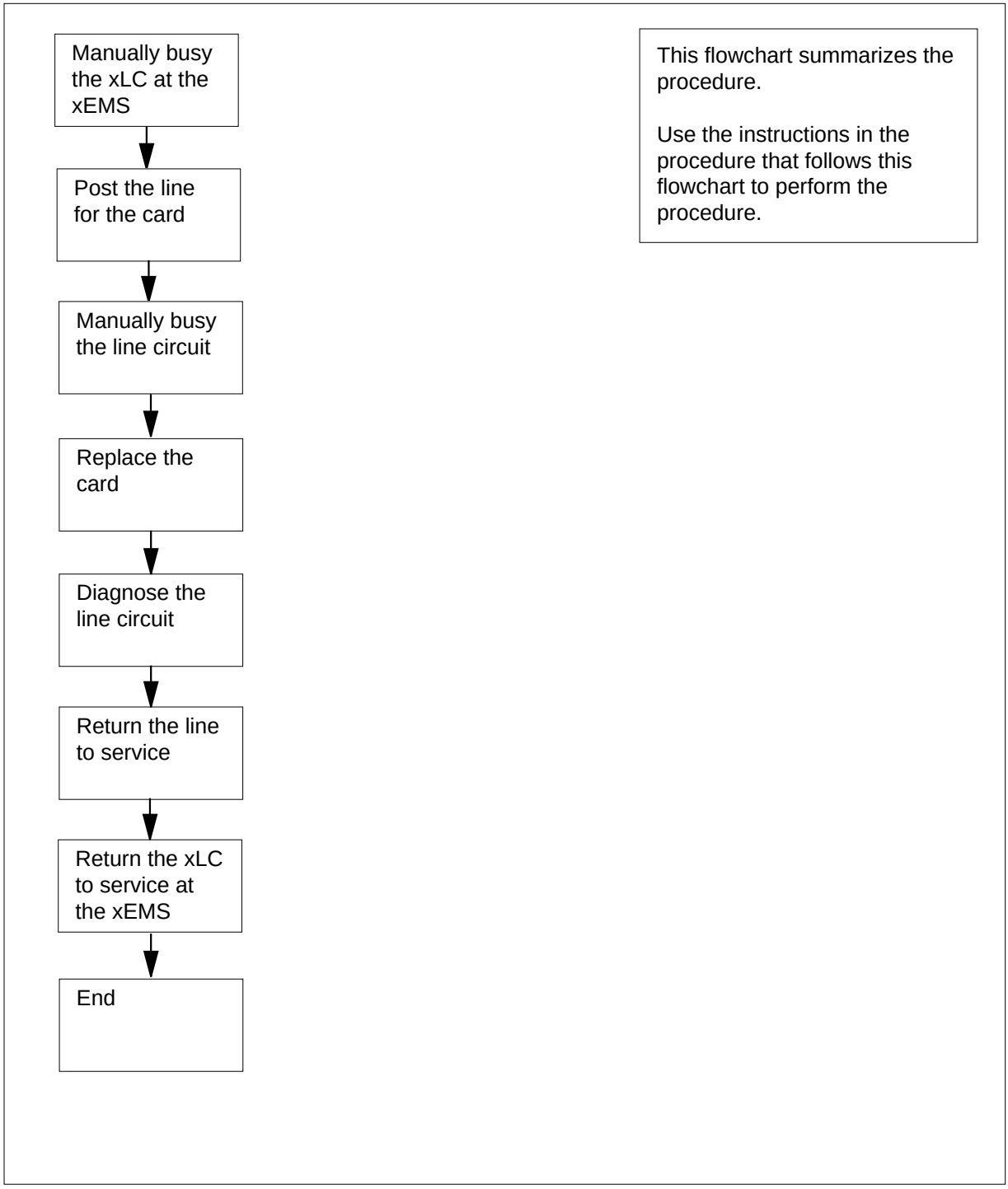
None

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.

NTEX17
in an RSC-S (DS-1) Model A LCME (continued)

Summary of replacing an NTEX17 in RSC-S LCME



NTEX17 in an RSC-S (DS-1) Model A LCME (continued)

Replacing an NTEX17 in RSC-S LCME

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 were directed to this procedure by your maintenance support group.

2 Obtain a replacement card. Make sure that the replacement card and the card that you remove have the same product engineering code (PEC) and PEC suffix.

At the xEMS workstation

3 Go to the submap of the LCM line drawer with the NTEX17 card that you will replace.

4 Place the cursor on the XLC you want to busy and use the mouse to select

`Maintenance : XLC -> MB`

and press the Enter key.

At the MAP terminal

5 To access the LTP level of the MAP display, type

`>MAPCI;MTC;LNS;LTP`

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
```

Note: If you worked at the LTP level of the MAP display, a posted line can be present. A posted line does not interfere with this maintenance procedure.

6 To post the line for the card to be replaced, type

`>POST L site frame_no unit_no drawer_no slot_no`

and press the Enter key.

where

site
is the PM location (alphanumeric)

frame_no
is the frame number (0 to 511)

unit_no
is the PM unit number (0 or 1)

drawer_no
is the line drawer number (0 to 19)

ckt_no
is the card slot number (0 to 31)

NTEX17
in an RSC-S (DS-1) Model A LCME (continued)

Example of a MAP display:

```
LCC PTY RNG .....LEN.........     DN    STA F S LTA  TE   RESULT
1FR         REM1 01 0 01 01     621 1134 IDL
```

7 Determine the state of the posted line.

If the state of the line	Do
is CPB, CPD	step 8
is CUT, HAZ, IDL, LO, PLO, SB	step 9
is MB	step 10
is NEQ	To determine why the component is offline or not equipped, consult operating company personnel. Continue as directed by operating company personnel.
is DEL, DMB, INB, LMB	step 19

8 Wait until the line state changes. Go to step 7.

9 To manually busy the line circuit, type

>BSY

and press the Enter key.

Example of a MAP display:

```
LCC PTY RNG .....LEN.........     DN    STA F S LTA  TE   RESULT
1FR         HOST 01 0 01 01     621 1134 MB
```

Note: Observe that the state that appears under the STA header changed to MB.

If BSY command	Do
passed	step 10
failed	step 19

At the MAP terminal

10 To display the cabinet location of the faulty line card, type

>CKTLOC

and press the Enter key.

Example of a MAP display:

NTEX17
in an RSC-S (DS-1) Model A LCME (continued)

```
Site Flr RPos  Bay_id   Shf  Description    Slot     EqPEC
REM1  01  B04  LCE  01   04  LCM  01 0      01:00    EX17C

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

Note: In the example MAP display, the line card is an NTEX17CA and the location of the card is

Site
in the remote site

Flr
on the 1st floor

RPos
row B is the location of the line equipment bay 04

Bay_id
in line concentrating equipment, bay 01

Shf
in shelf 04

Description
in hardware device LCM, bay 01

Slot
in line drawer 01, slot 00

NTEX17
in an RSC-S (DS-1) Model A LCME (continued)

At the shelf

11



DANGER
Static electricity damage
Wear a wrist strap that connects to a wrist-strap grounding point to handle circuit cards. The wrist-strap grounding point is on a frame supervisory panel (FSP) or a modular supervisory panel (MSP). The wrist strap protects the cards against static electricity damage.



DANGER
Risk of 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.



DANGER
Risk of equipment damage
Proceed only if a step in a maintenance procedure directs you here. If you perform this procedure without permission, equipment damage can occur.



DANGER
Risk of electrocution
Proceed only if a step in a maintenance procedure directs you here. If you perform this procedure without permission, personal injury can occur.

Put on a wriststrap.

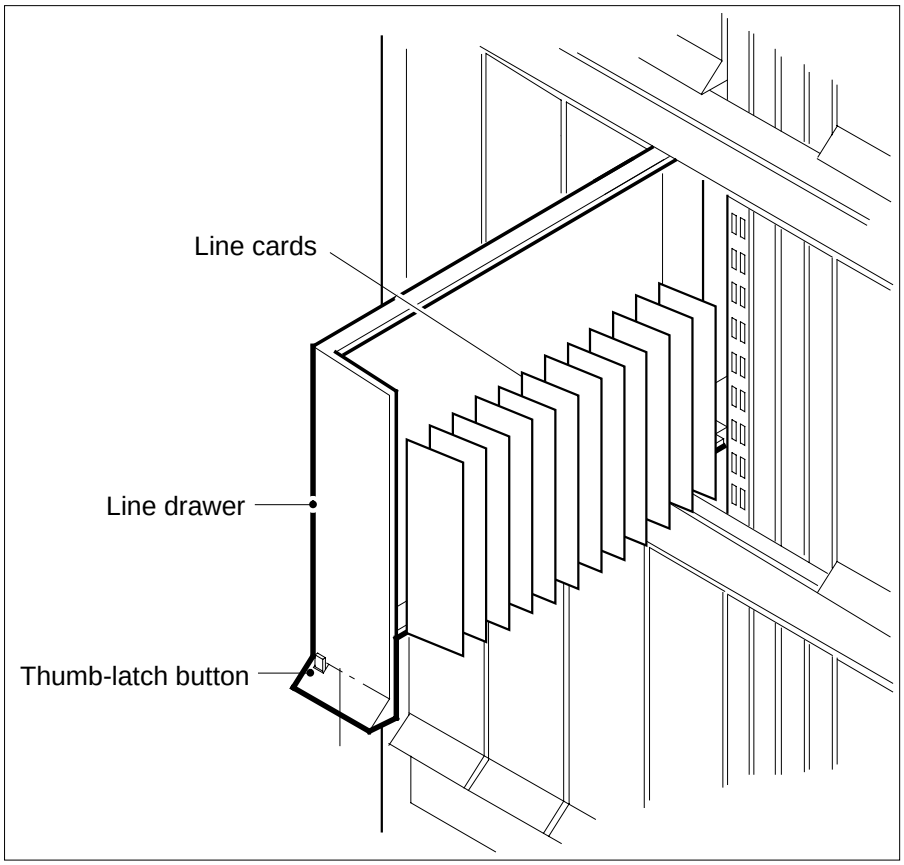
Note 1: A card shroud is required to insert or remove an NTEX17 card in line drawers. This is a 6-inch (152 mm) card, and requires the card shroud with apparatus code QTH58A and common product code A0313317.

Note 2: A card removal tool is required to remove the NTEX17 card from line drawers. The apparatus code for the grip tool is QTH57A, and the common product code is A0298292. You can also use the large grip tool ITA9953.

12 Use the information you obtained in step 6 to locate the physical location of the line card.

NTEX17
in an RSC-S (DS-1) Model A LCME (continued)

13 Prepare to remove the faulty card identified in step 6 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.

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.

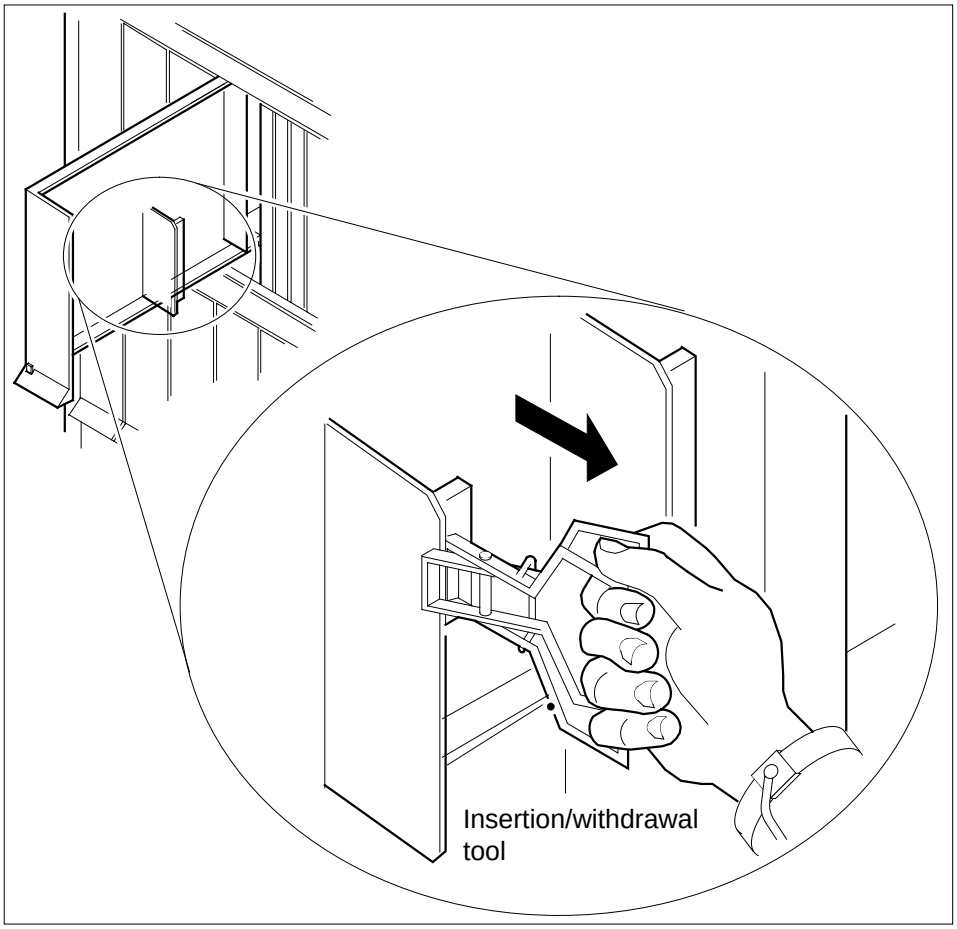
f Ensure a card shroud and line card extractor are available.

NTEX17
in an RSC-S (DS-1) Model A LCME (continued)

14

DANGER
Risk of personal injury
Make sure you handle the line card carefully. The line feed resistor can be very hot. To avoid injury, use the insertion/withdrawal tool to remove the card as shown in the figure that follows.

Remove the line card to be replaced by using the following 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.

15 Replace the faulty card using the following 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.

16 Close the line drawer.

At the MAP terminal

17 To perform a diagnostic test on the line, type

>DIAG

and press the Enter key.

Example of a MAP response:

```
ECOME004AH ***+LINE100 DEC17 10:04:26 0200 PASS LN_DIAG
       LEN HOST 01 0 11 02      NO DIRN
       DIAGNOSTIC RESULT   Card Diagnostic OK
       ACTION REQUIRED  None
       CARD TYPE  EX17BA
```

If the DIAG command	Do
passed	step 18
failed	step 19

18 To return the line to service, type

>RTS

and press the Enter key.

If RTS command	Do
passed	step 20
failed	step 19

NTEX17 in an RSC-S (DS-1) Model A LCME (end)

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

At the xEMS workstation

20 Go to the submap of the LCM line drawer with the NTEX17 card that you replaced

21 Place the cursor on the the XLC card you want to return the card to service and use the mouse to select

`Maintenance : XLC -> IDL`

and press the Enter key.

22 The procedure is complete.

NTEX17 in an RSC-S (DS-1) Model B LCM

Application

Use this procedure to replace the following card in an RSC-S LCM line drawer.

PEC	Suffixes	Name
NTEX17	AA	xDSL line card
NTEX17	BA	xDSL line card
NTEX17	CA	xDSL line card

Common procedures

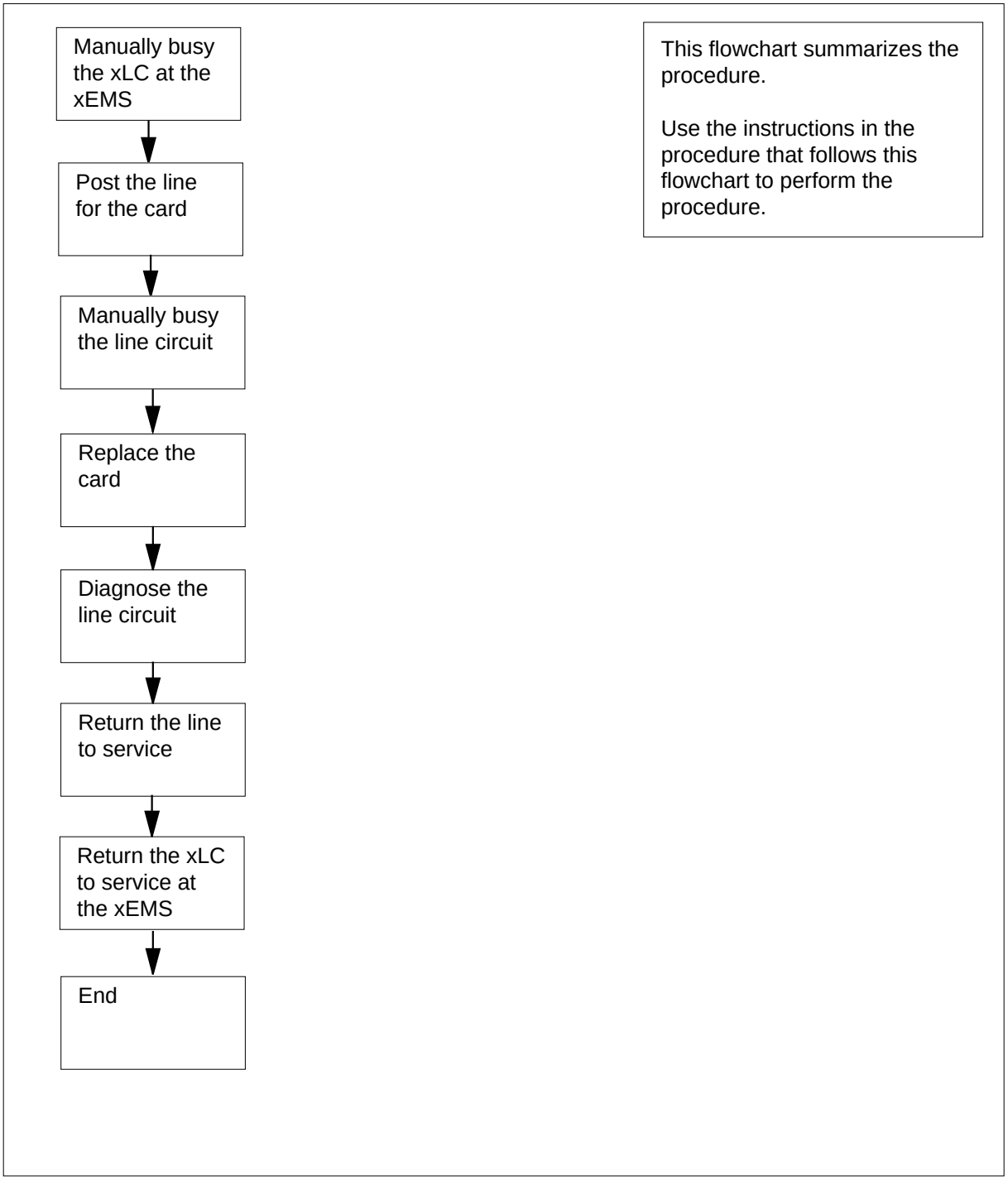
None

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.

NTEX17
in an RSC-S (DS-1) Model B LCM (continued)

Summary of replacing an NTEX17 in RSC-S LCM



NTEX17
in an RSC-S (DS-1) Model B LCM (continued)

Replacing an NTEX17 in RSC-S 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 for verifying or accepting cards, or were directed to this procedure by your maintenance support group.

2 Obtain a replacement card. Make sure that the replacement card and the card that you remove have the same product engineering code (PEC) and PEC suffix.

At the xEMS workstation

3 Go to the submap of the LCM line drawer with the NTEX17 card that you will replace.

4 Place the cursor on the XLC you want to busy and use the mouse to select

`Maintenance : XLC -> MB`

and press the Enter key.

At the MAP terminal

5 To access the LTP level of the MAP display, type

`>MAPCI;MTC;LNS;LTP`

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
```

Note: If you worked at the LTP level of the MAP display, a posted line can be present. A posted line does not interfere with this maintenance procedure.

6 To post the line for the card to be replaced, type

`>POST L site frame_no unit_no drawer_no slot_no`

and press the Enter key.

where

site
is the PM location (alphanumeric)

frame_no
is the frame number (0 to 511)

unit_no
is the PM unit number (0 or 1)

drawer_no
is the line drawer number (0 to 19)

NTEX17
in an RSC-S (DS-1) Model B LCM (continued)

ckt_no
is the card slot number (0 to 31)

Example of a MAP display:

```
LCC PTY RNG .....LEN.........     DN STA F S LTA  TE  RESULT
1FR        REM1 01 0 01 01     621 1134 IDL
```

7 Determine the state of the posted line.

If the state of the line	Do
is CPB, CPD	step 8
is CUT, HAZ, IDL, LO, PLO, SB	step 9
is MB	step 10
is NEQ	To determine why the component is offline or not equipped, consult operating company personnel. Continue as directed by operating company personnel.
is DEL, DMB, INB, LMB	step 19

8 Wait until the line state changes. Go to step 7.

9 To manually busy the line circuit, type

>BSY

and press the Enter key.

Example of a MAP display:

```
LCC PTY RNG .....LEN.........     DN STA F S LTA  TE  RESULT
1FR         HOST 01 0 01 01     621 1134 MB
```

Note: Observe that the state that appears under the STA header changed to MB.

If BSY command	Do
passed	step 10
failed	step 19

NTEX17
in an RSC-S (DS-1) Model B LCM (continued)

At the MAP terminal

10 To display the cabinet location of the faulty line card, type

>CKTLOC

and press the Enter key.

Example of a MAP display:

```
Site Flr RPos  Bay_id   Shf  Description    Slot   EqPEC
REM1  01  B04  LCE  01   04  LCM  01 0     01:00  EX17CA

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

Note: In the example MAP display, the line card is an NTEX17CA and the location of the card is

Site
in the remote site

Flr
on the 1st floor

RPos
row B is the location of the line equipment bay 04

Bay_id
in line concentrating equipment, bay 01

Shf
in shelf 04

Description
in hardware device LCM, bay 01

Slot
in line drawer 01, slot 00

NTEX17
in an RSC-S (DS-1) Model B LCM (continued)

At the shelf

11



DANGER
Static electricity damage
Wear a wrist strap that connects to a wrist-strap grounding point to handle circuit cards. The wrist-strap grounding point is on a frame supervisory panel (FSP) or a modular supervisory panel (MSP). The wrist strap protects the cards against static electricity damage.



DANGER
Risk of 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.



DANGER
Risk of equipment damage
Proceed only if a step in a maintenance procedure directs you here. If you perform this procedure without permission, equipment damage can occur.



DANGER
Risk of electrocution
Proceed only if a step in a maintenance procedure directs you here. If you perform this procedure without permission, personal injury can occur.

Put on a wriststrap.

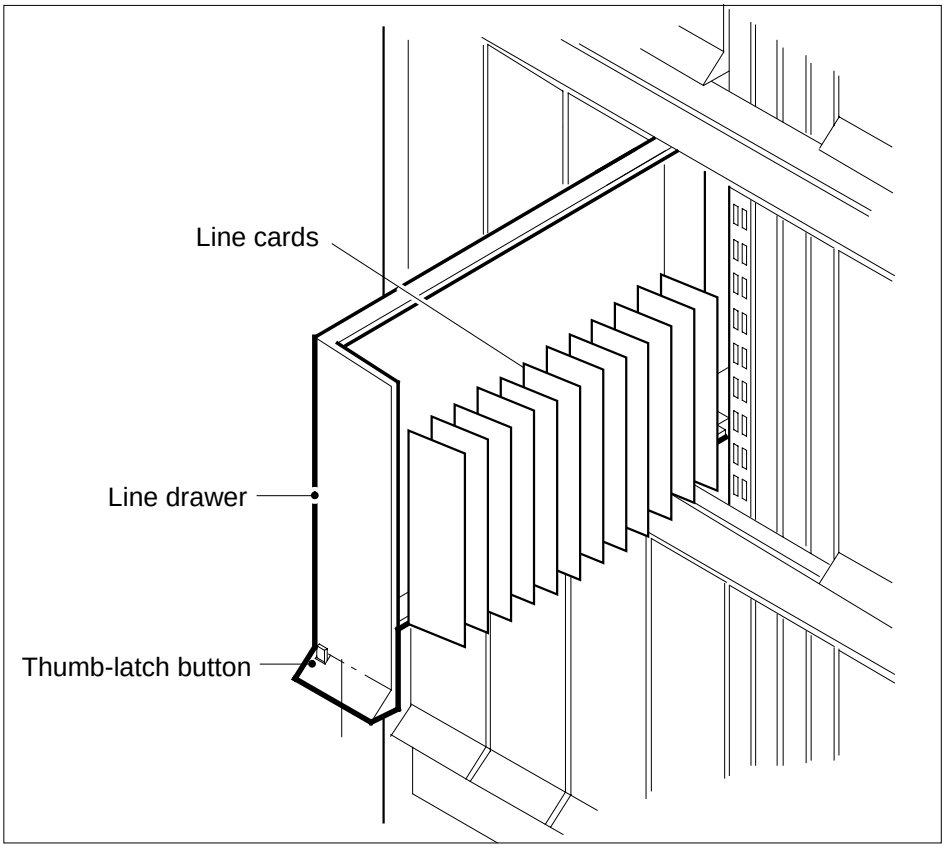
Note 1: A card shroud is required to insert or remove an NTEX17 card in line drawers. This is a 6-inch (152 mm) card, and requires the card shroud with apparatus code QTH58A and common product code A0313317.

Note 2: A card removal tool is required to remove the NTEX17 card from line drawers. The apparatus code for the grip tool is QTH57A, and the common product code is A0298292. You can also use the large grip tool ITA9953.

12 Use the information you obtained in step 6 to locate the physical location of the line card.

NTEX17
in an RSC-S (DS-1) Model B LCM (continued)

13 Prepare to remove the faulty card identified in step 6 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.

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.

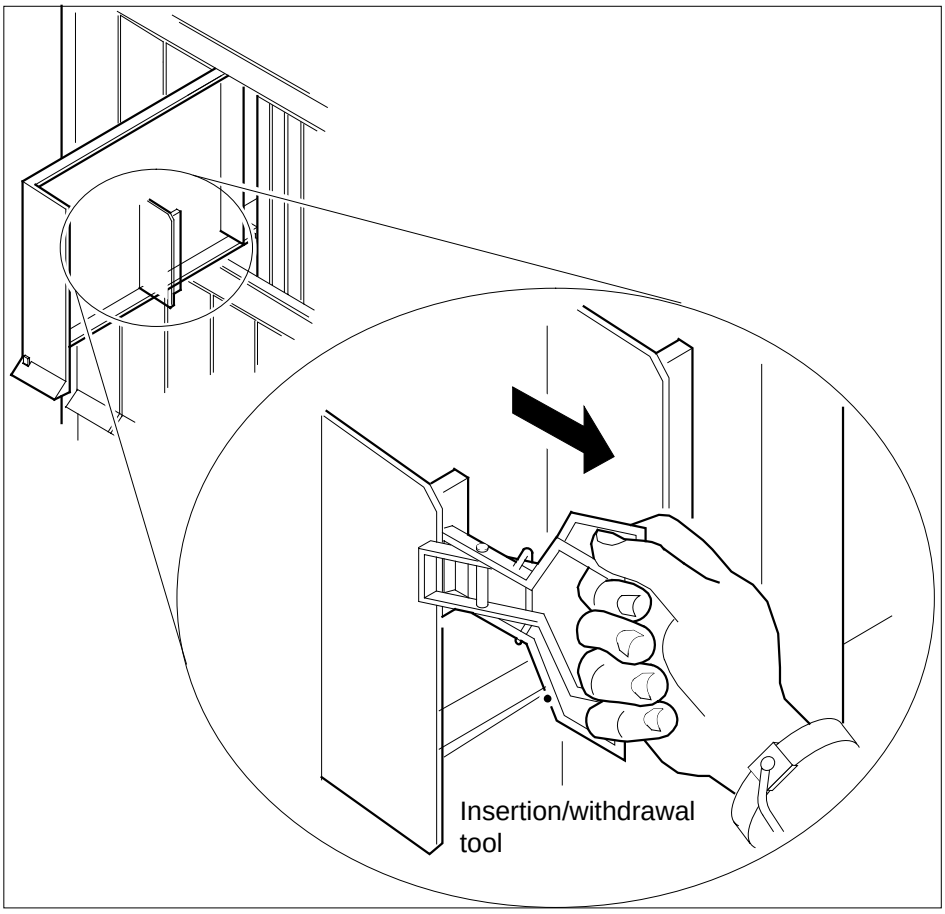
f Ensure a card shroud and line card extractor are available.

NTEX17
in an RSC-S (DS-1) Model B LCM (continued)

14

DANGER
Risk of personal injury
Make sure you handle the line card carefully. The line feed resistor can be very hot. To avoid injury, use the insertion/withdrawal tool to remove the card as shown in the figure that follows.

Remove the line card to be replaced by using the following 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.

NTEX17
in an RSC-S (DS-1) Model B LCM (continued)

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.

15 Replace the faulty card using the following 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.

16 Close the line drawer.

At the MAP terminal

17 To perform a diagnostic test on the line, type

>DIAG

and press the Enter key.

Example of a MAP response:

```
ECOME004AH ***+LINE100 DEC17 10:04:26 0200 PASS LN_DIAG
       LEN HOST 01 0 11 02      NO DIRN
       DIAGNOSTIC RESULT   Card Diagnostic  OK
       ACTION REQUIRED  None
       CARD TYPE  EX17BA
```

If the DIAG command	Do
passed	step 18
failed	step 19

18 To return the line to service, type

>RTS

and press the Enter key.

If RTS command	Do
passed	step 20

NTEX17 in an RSC-S (DS-1) Model B LCM (end)

If RTS command	Do
failed	step 19

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

At the xEMS workstation

20 Go to the submap of the LCM line drawer with the NTEX17 card that you replaced.

21 Place the cursor on the the XLC card you want to return the card to service and use the mouse to select

`Maintenance : XLC -> IDL`

and press the Enter key.

22 The procedure is complete.

NTEX17 in a STAR

Application

Use this procedure to replace the following card in a Star Hub line drawer.

PEC	Suffixes	Name
NTEX17	DA	xDSL line card

Common procedures

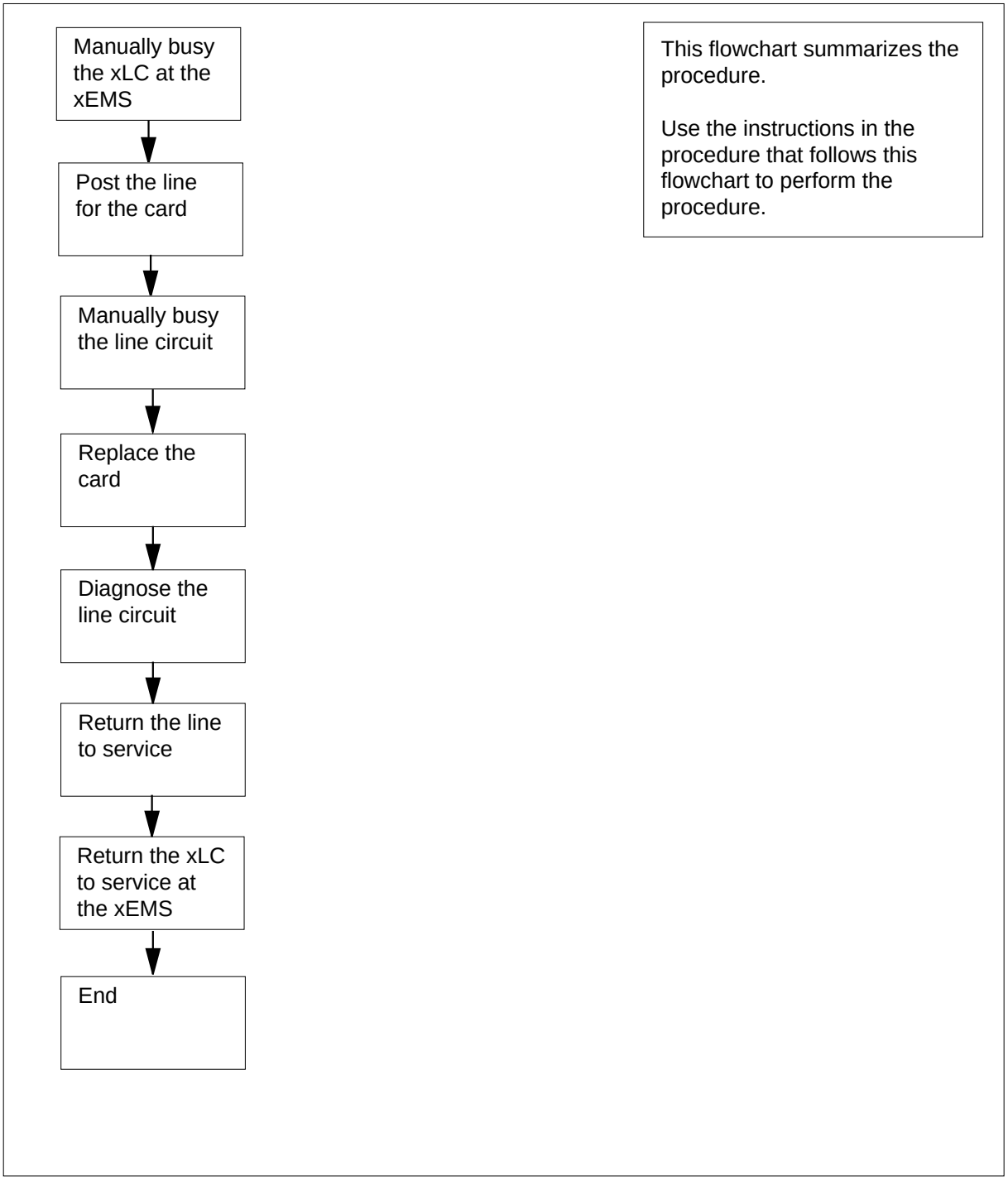
None

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.

NTEX17
in a STAR (continued)

Summary of replacing an NTEX17 in a STAR



NTEX17 in a STAR (continued)

Replacing an NTEX17 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 for checking or accepting cards, or were directed to this procedure by your maintenance support group.

2 Get a replacement card. Make sure that the replacement card and the card that you remove have the same product engineering code (PEC) and PEC suffix.

At the xEMS workstation

3 Go to the submap of the STAR line drawer with the NTEX17 card to be replaced.

4 Place the cursor on the XLC you want to busy and use the mouse to select

`Maintenance : XLC -> MB`

and press the Enter key.

At the MAP terminal

5 To access the LTP level of the MAP display, type

`>MAPCI;MTC;LNS;LTP`

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
```

Note: If you worked at the LTP level of the MAP display, a posted line can be present. A posted line does not interfere with this maintenance procedure.

6 To post the line for the card to be replaced, type

`>POST L site frame_no unit_no drawer_no slot_no`

and press the Enter key.

where

site
is the PM location (alphanumeric)

frame_no
is the frame number (0 to 511)

unit_no
is the PM unit number (0 or 1)

NTEX17
in a STAR (continued)

drawer_no
is the line drawer number (0 to 19)

ckt_no
is the card slot number (0 to 31)

Example of a MAP display:

```
LCC PTY RNG .....LEN.........     DN    STA F S LTA  TE  RESULT
1FR          REM1 01 0 01 01     621 1134 IDL
```

7 Determine the state of the posted line.

If the state of the line	Do
is CPB, CPD	step 8
is CUT, HAZ, IDL, LO, PLO, SB	step 9
is MB	step 10
is NEQ	To determine why the component is offline or not equipped, consult operating company personnel. Continue as directed by operating company personnel.
is DEL, DMB, INB, LMB	step 23

8 Wait until the line state changes. Go to step 7.

9 To manually busy the line circuit, type

>BSY

and press the Enter key.

Example of a MAP display:

```
LCC PTY RNG .....LEN.........     DN    STA F S LTA  TE  RESULT
1FR           REM1 01 0 01 01     621 1134 MB
```

Note: Observe that the state that appears under the STA header changed to MB.

If BSY command	Do
passes	step 10
fails	step 23

NTEX17 in a STAR (continued)

At the MAP terminal

10 To display the cabinet location of the line card with faults, type

>CKTLOC

and press the Enter key.

Example of a MAP display:

```
Site Flr RPos  Bay_id   Shf  Description    Slot     EqPEC
REM1  01  B04  SRHE01   03  HUB  01 0     01:00     EX17DA

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

Note: In the example MAP display, the line card is an NTEX17DA and the location of the card is

Site
in the remote site

Flr
on the 1st floor

RPos
row B is the location of the Star Hub bay 04

Bay_id
in Star Remote Hub Equipment (SRME), bay 01

Shf
in shelf 03

Description
in hardware device HUB, bay 01

Slot
in line drawer 01, slot 00

NTEX17
in a STAR (continued)

At the shelf

11



WARNING
Static electricity damage
Wear a wrist strap that connects to a wrist-strap grounding point to handle circuit cards. The wrist-strap grounding point is on the frame supervisory panel (FSP). The wrist strap protects the cards against static electricity damage.



WARNING
Risk of 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.



WARNING
Risk of equipment damage
Proceed only if a step in a maintenance procedure directs you here. If you perform this procedure without permission, equipment damage can occur.



DANGER
Risk of electrocution
Proceed only if a step in a maintenance procedure directs you here. If you perform this procedure without permission, personal injury can occur.

Put on an ESD wrist strap.

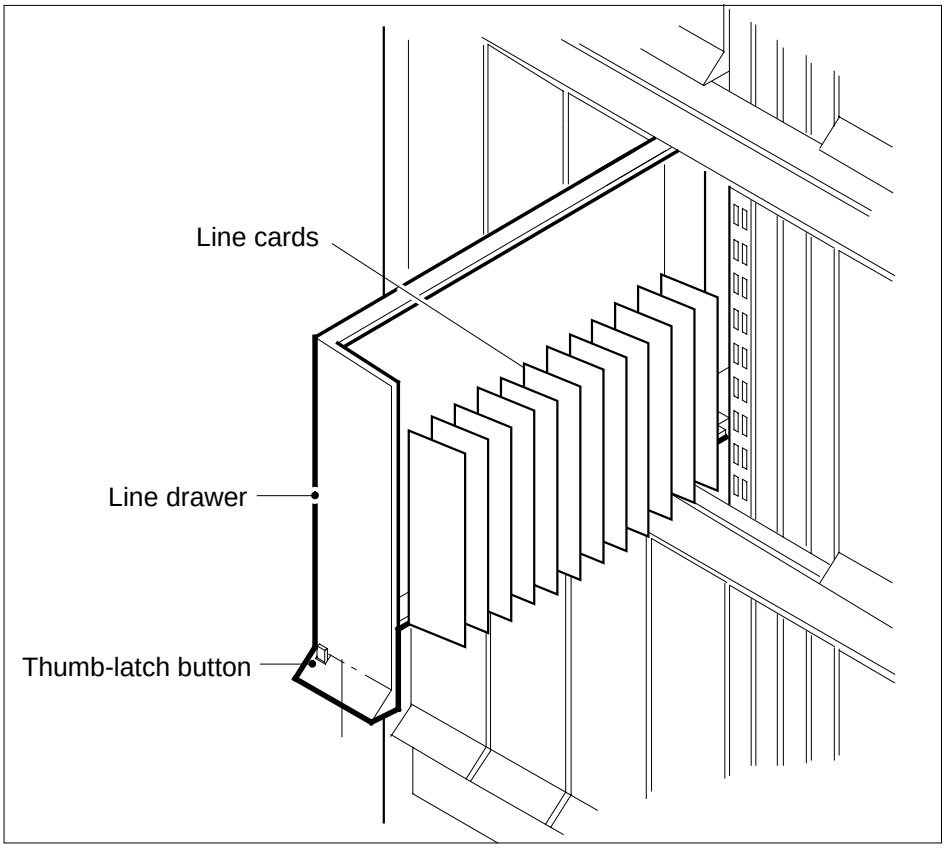
Note 1: A card shroud is required to insert or remove an NTEX17 card in line drawers. This is a 6-inch (152 mm) card, and requires the card shroud with apparatus code QTH58A and common product code A0313317.

Note 2: A card removal tool is required to remove the NTEX17 card from line drawers. The apparatus code for the grip tool is QTH57A, and the common product code is A0298292. You can also use the large grip tool ITA9953.

12 Use the information you obtained in step 6 to locate the physical location of the line card.

NTEX17
in a STAR (continued)

13 Prepare to remove the faulty card identified in step 6 by opening the line drawer and following these substeps.



a Face the drawer shelf and hold 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.

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.

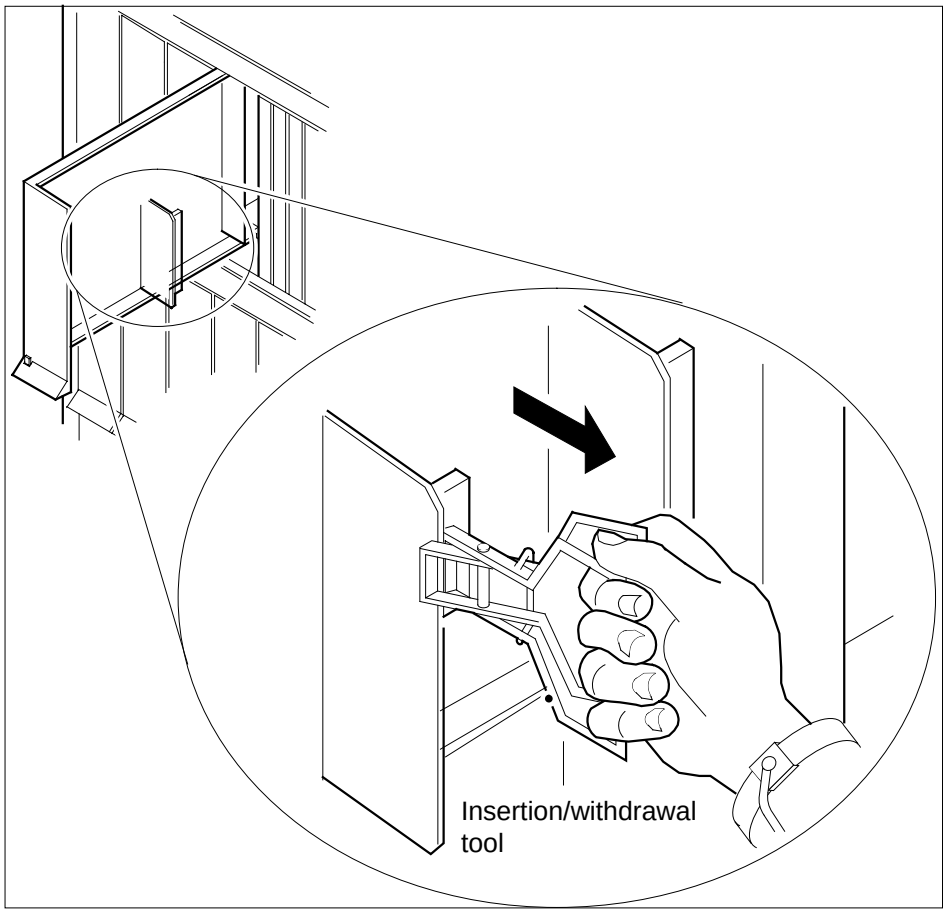
f Make sure a card shroud and line card extractor are available.

NTEX17
in a STAR (continued)

14

DANGER
Risk of personal injury
Make sure you handle the line card carefully. The line feed resistor can be very hot. To avoid injury, use the insertion/withdrawal tool to remove the card as shown in the figure that follows.

Remove the line card to be replaced by using the following 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 Hold the edge of the card with a line card extractor at a point in the center between the top and bottom edges. Hold the extractor in your right hand.

c Squeeze the handles of the extractor together to hold 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 disconnects 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.

15 Replace the faulty card using the following 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 Hold 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.

16 Close the line drawer.

At the MAP terminal

17 To perform a diagnostic test on the line, type

>DIAG

and press the Enter key.

Example of a MAP response:

```
ECOME004AH ***+LINE100 JUL17 10:04:26 0200 PASS LN_DIAG
         LEN REM1 01 0 01 01      NO DIRN
         DIAGNOSTIC RESULT   Card Diagnostic   OK
         ACTION REQUIRED  None
         CARD TYPE  EX17DA
```

If the DIAG command	Do
passes	step 18
fails	step 23

18 To return the line to service, type

>RTS

and press the Enter key.

If RTS command	Do
passes	step 19
fails	step 23

NTEX17 in a STAR (end)

At the xEMS workstation

19 At the submap of the LCM line drawer with the NTEX17 card that you replaced.

20 Place the cursor on the the XLC card you want to return the card to service and use the mouse to select

`Maintenance : XLC -> IDL`

and press the Enter key.

21 Send any cards with faults for repair according to local procedure.

22 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 24.

23 Get additional assistance in replacing this card by contacting personnel responsible for a higher level of support.

24 The procedure is complete.

NTEX54 in an RLCM

Application

Use this procedure to replace the following cards in an RLCM line drawer.

PEC	Suffixes	Name
NTEX54	AA	Data enhanced bus interface card (DBIC)
NTEX54	AB	Data enhanced bus interface card (DBIC)
NTEX54	BA	Data enhanced bus interface card (DBIC)
NTEX54	CA	Data enhanced bus interface card (DBIC)

Common procedures

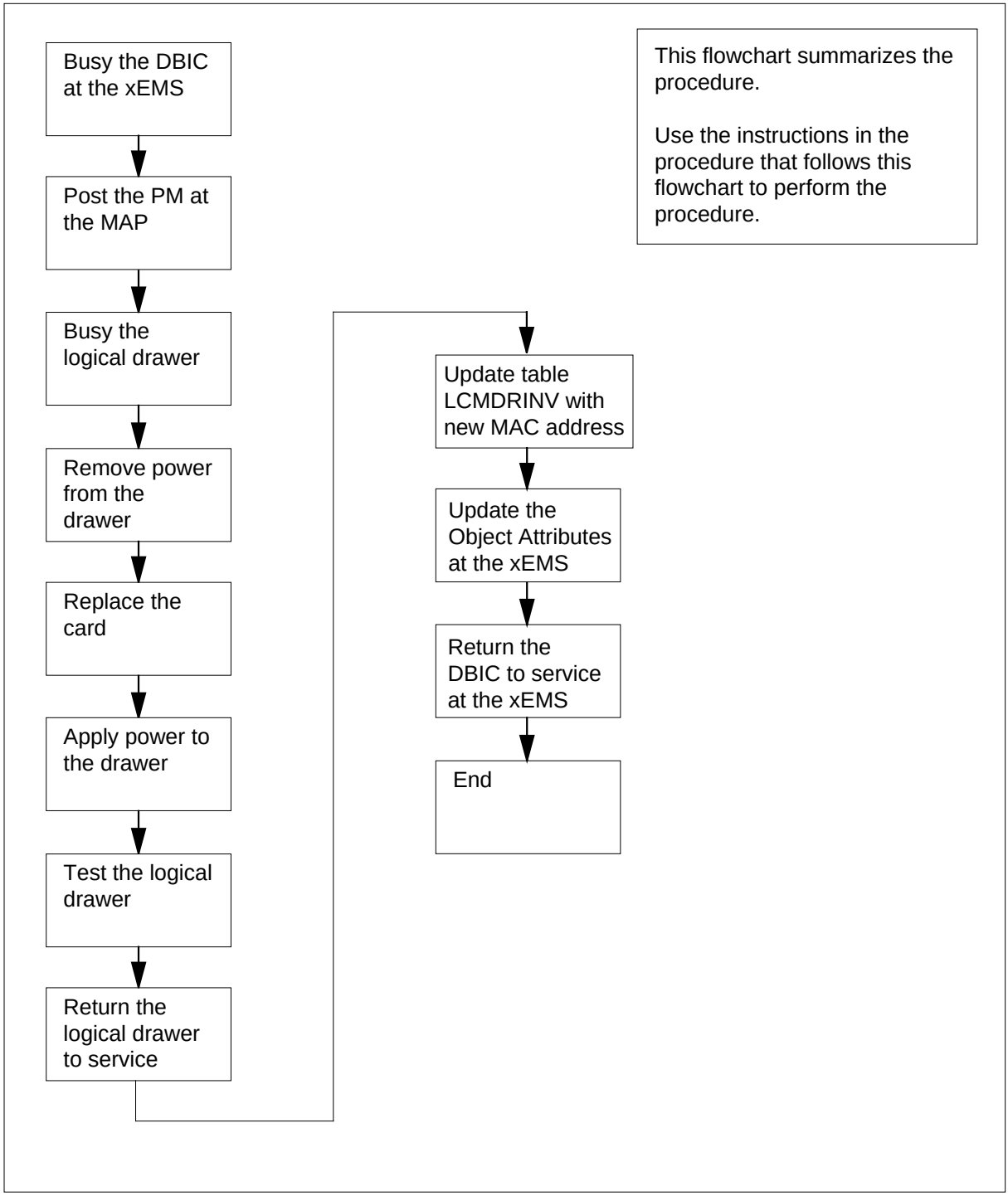
None

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.

NTEX54
in an RLCM (continued)

Summary of replacing an NTEX54 in an RLCM



NTEX54 in an RLCM (continued)

Replacing an NTEX54 in an RLCM

At your current location

1



CAUTION
Loss of service
This procedure directs you to manually busy a line drawer. Removal of a line drawer from service can cause the system to drop calls in progress. Perform this procedure only if you need to restore out-of-service components. Unless it is urgent, perform this procedure during periods of low traffic.

Obtain a replacement card. Make sure that the replacement card and the card that you remove have the same product engineering code (PEC) and PEC suffix.

2



CAUTION
Transport network must know new MAC address
Work with the network administrator during this procedure. The transport network must know the MAC adress of the new DBIC before the DBIC can support 1MMS.

Write down the 12-digit number stamped on the new NTEX54 card. This number is the media access control (MAC) address. You will use the MAC address later in this procedure.

At the xEMS workstation

3 Go to the submap of the LCM line drawer with the NTEX54 card that you will replace.

4 Place the cursor on the DBIC you want to busy and use the mouse to select

```
Maintenance -> DBIC -> ManB
```

from the pop-up menu.

At the MAP terminal

5 To access the peripheral module (PM) level of the MAP (maintenance and administration position) display and post the LCM, type

```
>MAPCI;MTC;PM;POST LCM site frame_no lcm_no
```

and press the Enter key.

where

NTEX54
in an RLCM (continued)

site
is the PM location (alphanumeric)

frame_no
is the equipment frame number (00 to 511)

lcm_no
is the number of the LCM (0 or 1)

Example of a MAP display:

```
LCM  REM1 01 1   ISTb   Links OOS: Cside  0 Pside  0
Unit0: ISTb                 /RG: 0
Unit1: ISTb  Mtce           /RG: 1  Ring gen Test
                         11  11  11  11  11  RG: Pref 1 InSv
Drwr:  01  23  45  67  89  01  23  45  67  89      Stby 0 InSv
       ..  ..  ..  ..  MM  ..  ..  ..  ..  ..
```

6 Record the numbers of the logical drawers for the NTEX54.

Note: Logical drawers configure in pairs for the physical drawer. The NTEX54 services the physical drawer. Both logical drawers must be manually busy to perform this card replacement procedure.

7 Check the state of the affected logical drawers.

If the state for	Do
one or both logical drawers is `I,S,` or `.` (dot)	step 8
both logical drawers is `M`	step 11
one or both logical drawers is `0` or `-`	Determine why the drawer is offline. If necessary, contact the next level of support.

8 To manually busy the logical drawer, type

`>BSY DRWR drwr_no`

and press the Enter key.

where

drwr_no
is the logical drawer number (0 to 23)

Example of a MAP response:

```
LCM REM1 01 1  Drwr 0 will be taken out of service
Please confirm ("YES", "Y", "NO", or "N"):
```

9 To confirm the command, type

`>YES`

and press the Enter key.

Example of a MAP response:

```
LCM REM1 01 1  Drwr 0 Bsy Passed
```

If	Do
you must busy the other logical drawer of the pair	step 10
both logical drawers are now `M`	step 11

10 Busy the other logical drawer of the pair.

`>BSY DRWR drwr_no`

and press the Enter key.

where

drwr_no
is the logical drawer number (0 to 23)

Example of a MAP response:

```
LCM REM1 01 1  Drwr 0 Bsy Passed
```

NTEX54
in an RLCM (continued)

At the shelf

11

DANGER
Static electricity damage
Wear a wrist strap that connects to the wrist-strap grounding point to handle circuit cards. The wrist-strap grounding point is on a frame supervisory panel (FSP) or a modular supervisory panel (MSP). The wrist strap protects the cards against static electricity damage.

DANGER
Potential equipment damage
Note the fuses that you remove from the fuse panel. If you do not insert fuses in the correct location on the fuse panel, equipment damage occurs.

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.

Remove fuses for the line drawer containing the faulty DBIC. Perform the following steps. Refer to the figure that follows to identify the correct fuses.

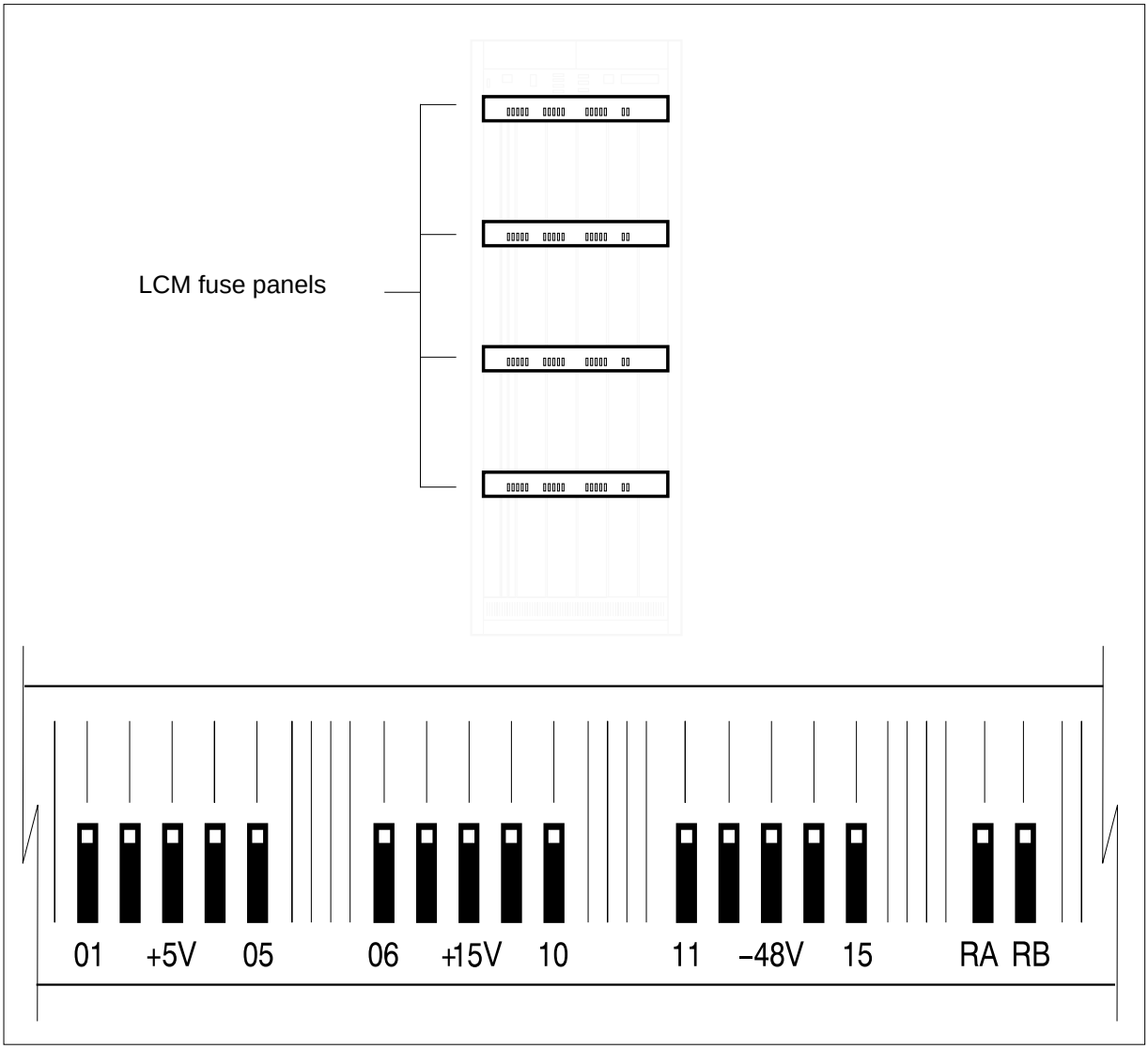
Note: Fuse markings do not always identify voltage. Make sure that you note the fuses and the location of the fuses in the fuse panel.

a Remove the -48V fuse for the line drawer that contains the faulty DBIC.

b Remove the +15V fuse for the line drawer that contains the faulty DBIC.

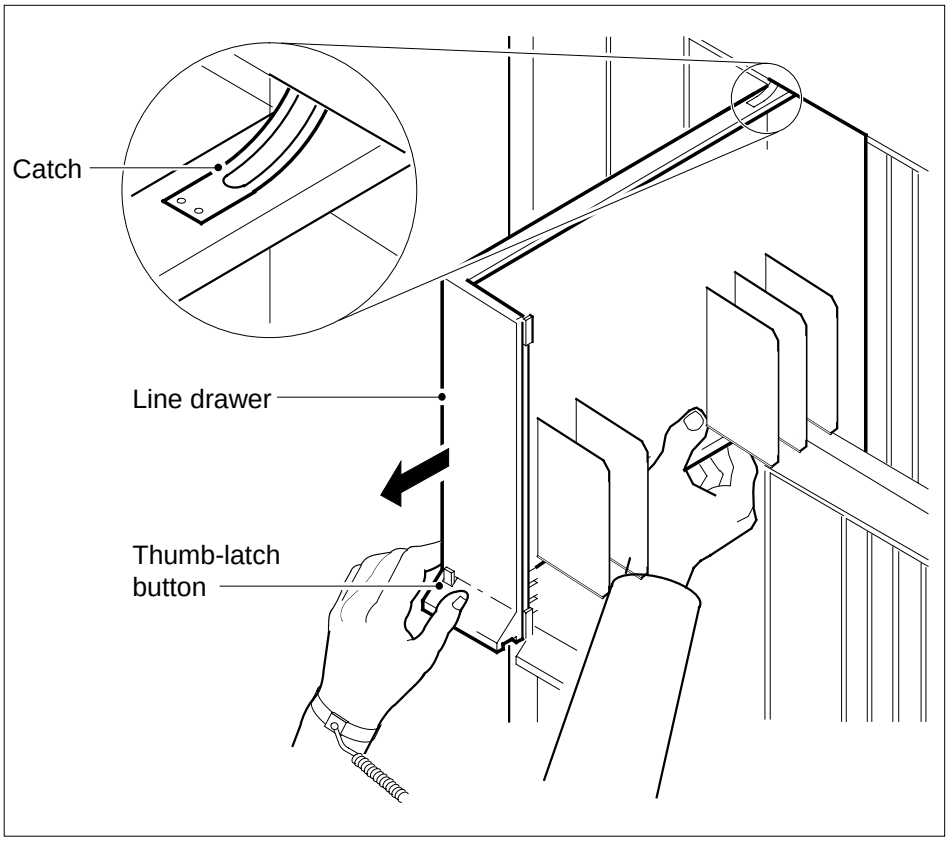
c Remove the +5V fuse for the line drawer that contains the faulty DBIC.

NTEX54
in an RLCM (continued)



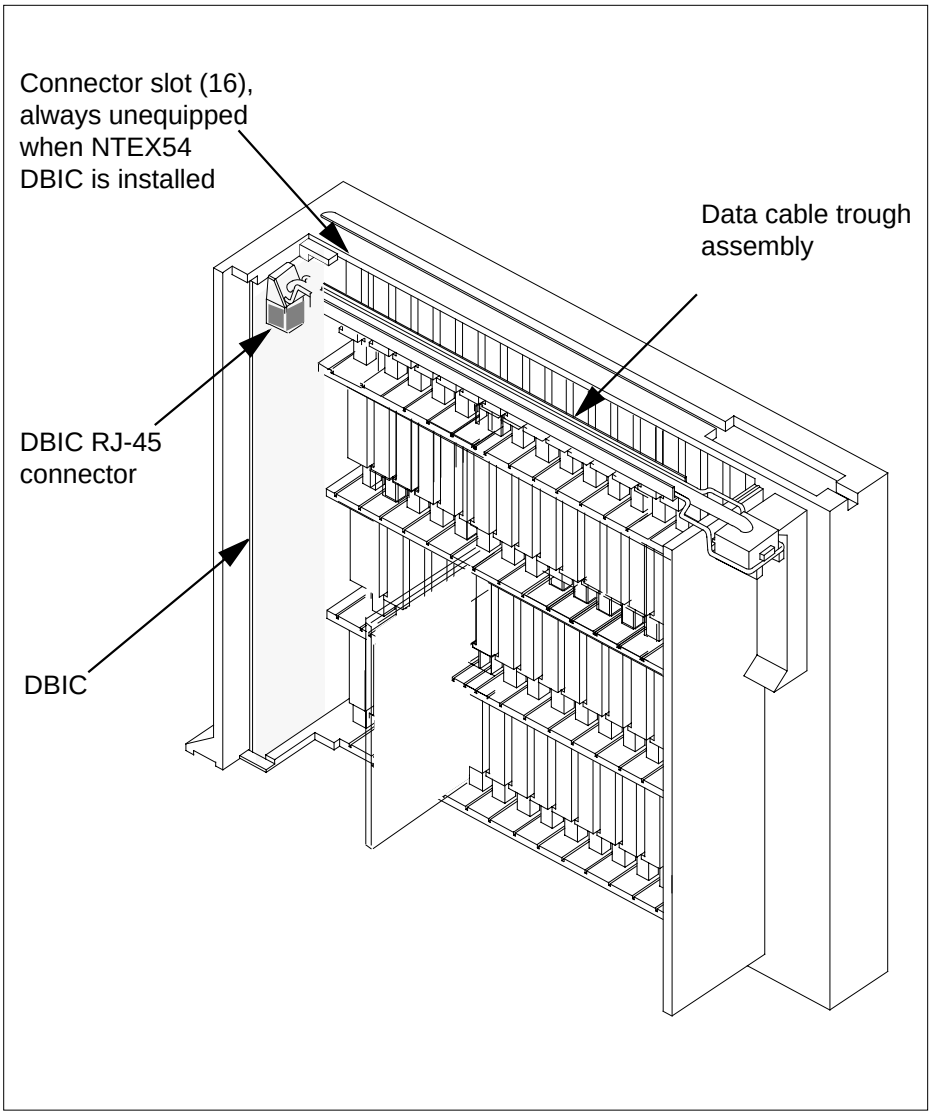
12 Identify the drawer. Press the small thumb-latch button on the lower left edge of the drawer. Pull the drawer out. To secure the drawer in a steady horizontal position, tip the drawer until the catch rests on the line drawer track.

NTEX54
in an RLCM (continued)



13 Disconnect the data cable from the RJ-45 connector on the DBIC. The RJ-45 connector is located at slot position 16 of the odd LSG (connector slot). Refer to the following figure.

NTEX54
in an RLCM (continued)

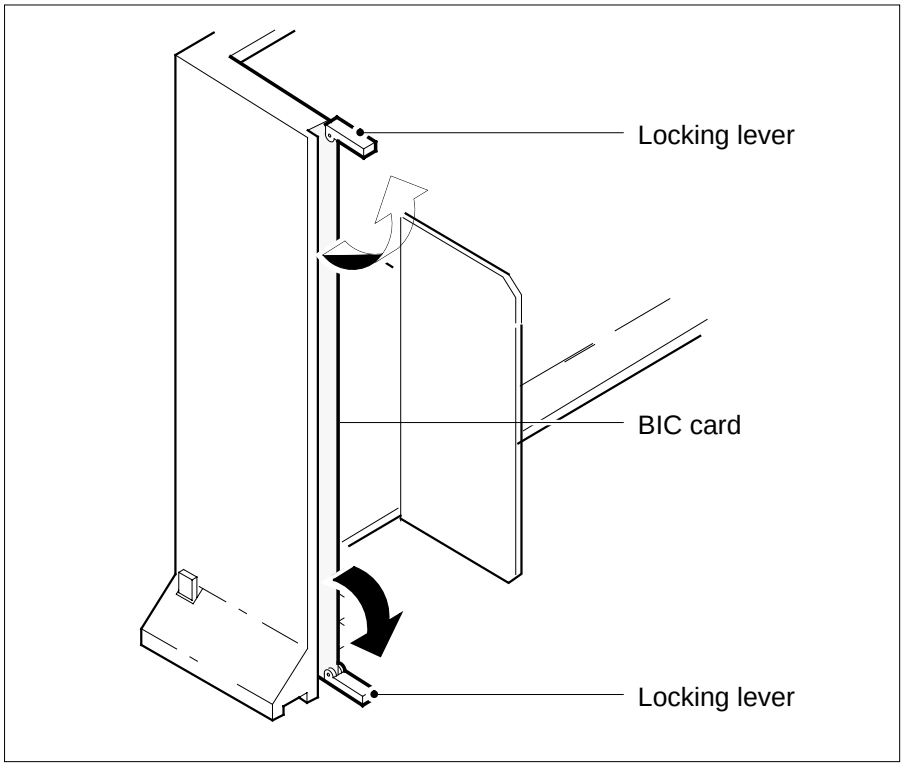


14

DANGER
Do not hold the card by the levers only
If you hold a card by the locking levers only, the levers can break. Pull the card half way out of the slot. Carefully grasp the card from below for more support. Continue to remove the card from the drawer. Make sure that you do not touch any wires or internal parts on the card.

NTEX54
in an RLCM (continued)

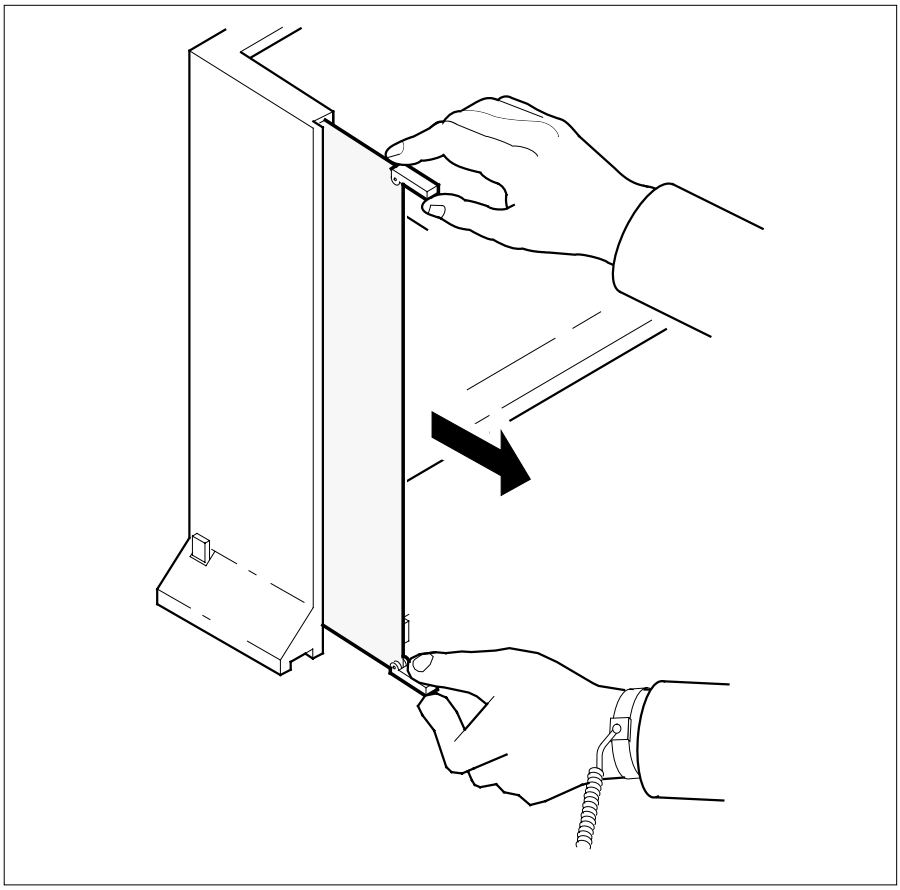
Open the locking levers on the face of the card.



15 Grasp the locking levers. Carefully pull the card toward you until the card clears the drawer.

Note: Do not use a rocking motion to remove the card.

NTEX54
in an RLCM (continued)



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

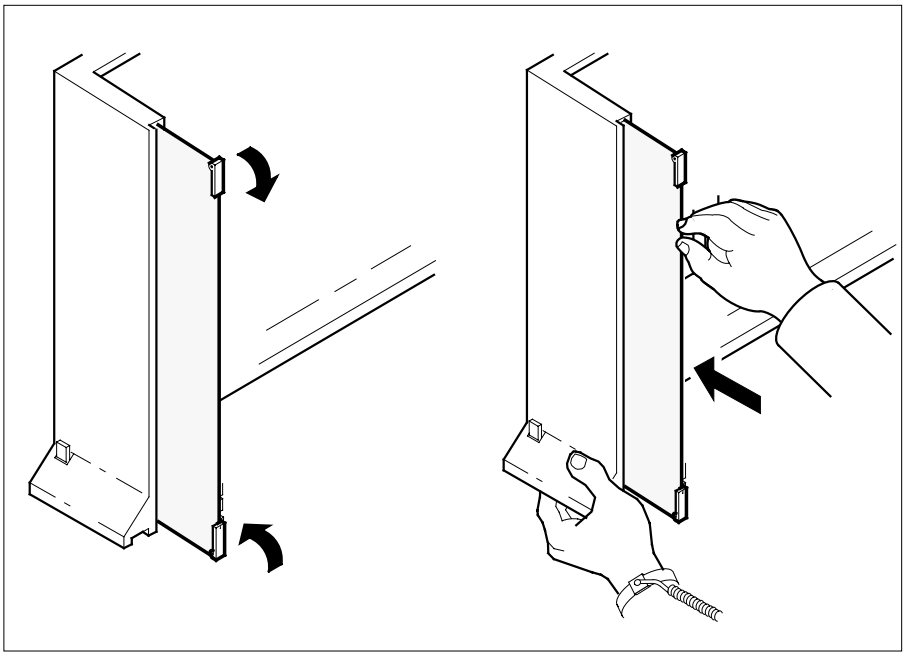
17 Make sure that the replacement card and the card that you remove have the same PEC and PEC suffix.

18 Close the locking levers on the replacement card. Align the card with the pin slots in the drawer. Carefully slide the card into the drawer.

19 Support the drawer with your left hand. Use your right hand to push on the upper and lower edges of the card. Make sure that the card sits completely in the drawer.

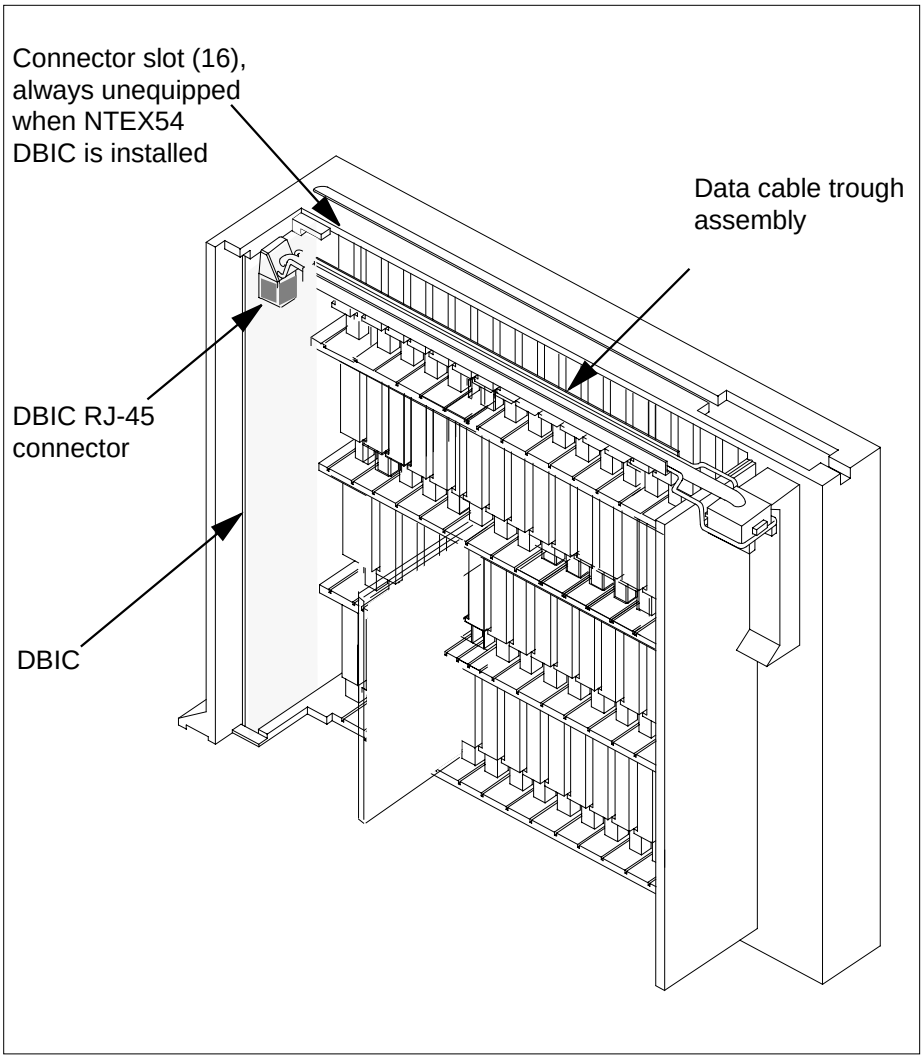
Note: Do not use a rocking motion to insert the card.

NTEX54
in an RLCM (continued)



20 Connect the data cable to the RJ-45 connector that you disconnected in step 13. Refer to the following figure.

NTEX54
in an RLCM (continued)



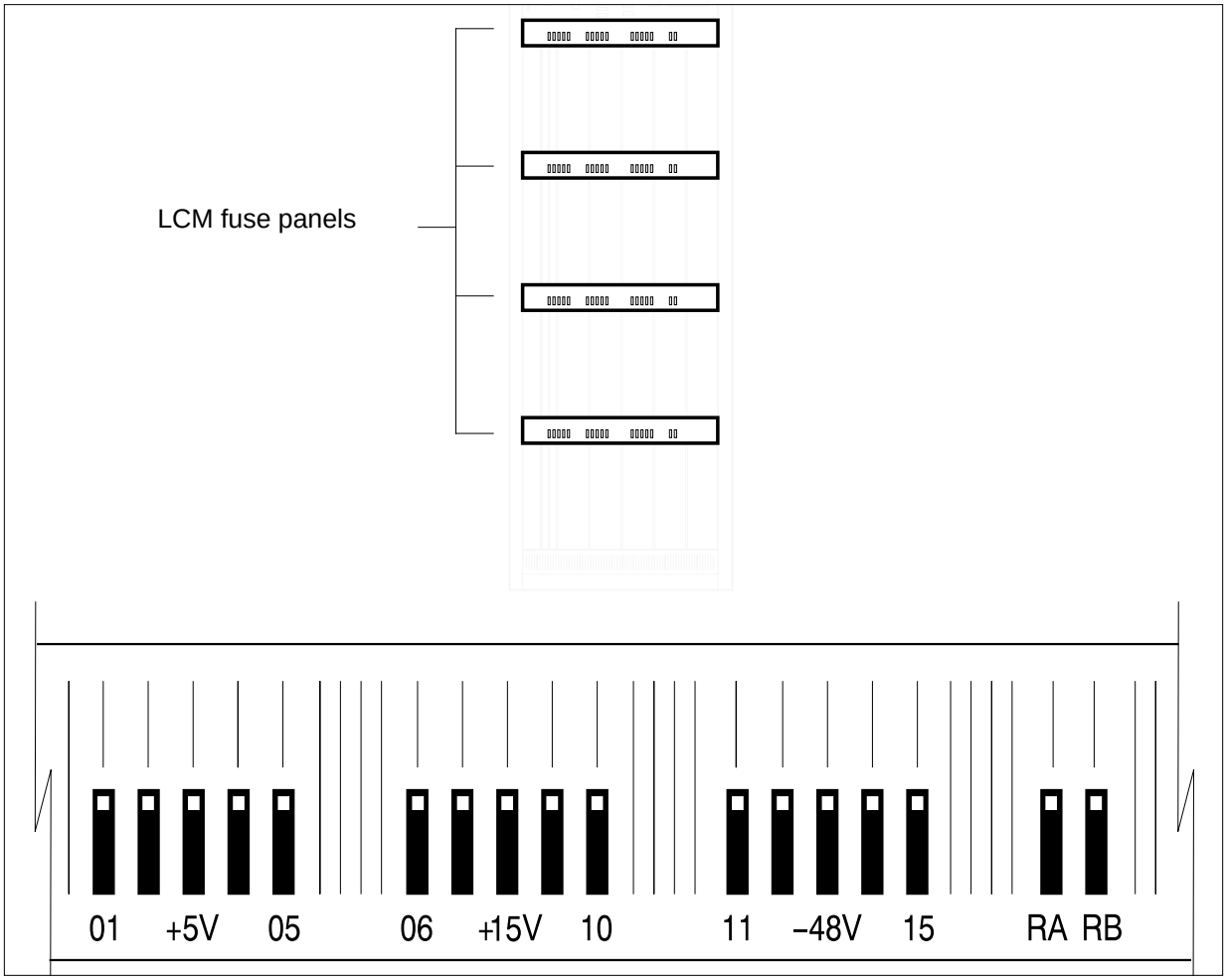
21 Close the line drawer.

22

DANGER
Potential equipment damage
Make sure you insert the fuses in the correct location on the fuse panel to prevent equipment damage.

Insert the fuses that you removed in step 11. Refer to the following figure.

NTEX54
in an RLCM (continued)



Note: Fuses are coded for position. The colored square on the face of the fuse identifies the top edge.

a Insert the +5V fuse.

b Insert the +15V fuse.

c Insert the -48V fuse.

At the MAP terminal

23 A maintenance flag (Mtce) can appear. This flag indicates that system-initiated maintenance tasks are in progress. To stop the system-initiated maintenance tasks, type

>ABTK

and press the Enter key.

24 To return the logical drawer to service, type

>RTS DRWR drwr_no

and press the Enter key.

where

drwr_no
is the logical drawer number (0 to 19)

Example of a MAP response:

```
OSvce Tests Initiated
LCM REM1 00 0  Drwr 0 Tst Passed
LCM REM1 00 0  Drwr 0 Rts Passed
```

If the RTS command	Do
passed, and you must return the other logical drawer to service	step 25
passed, and the other logical drawer is in service	step 26
failed	step 39

25 Repeat step 24 for the other logical drawer in the pair.

26 Update table LCMDRINV.

Note: Make sure you have the new MAC address from the replacement card as recorded in step 2.

a To open table LCMDRINV, type

>TABLE LCMDRINV

and press the Enter key.

b To position on the tuple for the LCM, type

>POS site_name frame_no lcm_no

and press the Enter key.

where

site_name
is the name of the site

frame_no
is the number of the frame

lcm_no
is the number of the LCM

c To begin changing the tuple, type

>CHA

and press the Enter key.

NTEX54
in an RLCM (continued)

d To continue processing, type

>Y

and press the Enter key.

e Press the Enter key to scroll through the fields until you access the field with the MAC address.

f Enter the new MAC address. Type

>drwr_id card_pec drwr_pec mac_address ip_address

and press the Enter key.

where

drwr_id
is the physical number of the drawer

card_pec
is NTEX54AA, NTEX54AB, NTEX54BA, or NTEX54CA

drwr_pec
is the PEC of the drawer

mac_address
is the MAC address of the new NTEX54

ip_address
is the IP address of the new NTEX54

g Press the Enter key to scroll through remaining fields.

h Confirm the change. Type

>Y

and press the Enter key.

i Exit the table. Type

>QUIT

and press the Enter key.

At the xEMS workstation

27



CAUTION
Transport network must know new MAC address
Before you return the DBIC to service, you must provide the MAC address for the DBIC to the transport network. Contact the network administrator for assistance.

Go to the submap of the LCM line drawer with the new NTEX54 card.

28 Select the card by placing the cursor on the DBIC.

NTEX54 in an RLCM (end)

29 From the pop-up menu select Describe/Modify Object. The Object Description dialog box appears.

30 From the Object Description dialog box, select HSTP Application from the fields under Object Attributes.

31 Select View/Modify Object Attributes.

32 Enter the new MAC address in the %LAC MAC Address field, for example, 0060381120a1.

33 Click the Verify button to verify the information.

34 Click the OK button to close the Attributes dialog box.

35 Click OK to close the Object Description dialog box.

36 Place the cursor on the DBIC you want to return to service and use the mouse to select

`Maintenance -> DBIC -> Rts`

from the pop-up menu.

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

38 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 40.

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

40 You have successfully completed this card replacement procedure.

NTEX54 in an RSC LCM

Application

Use this procedure to replace the following cards in an RSC LCM line drawer.

PEC	Suffixes	Name
NTEX54	AA	Data enhanced bus interface card (DBIC)
NTEX54	AB	Data enhanced bus interface card (DBIC)
NTEX54	BA	Data enhanced bus interface card (DBIC)

Common procedures

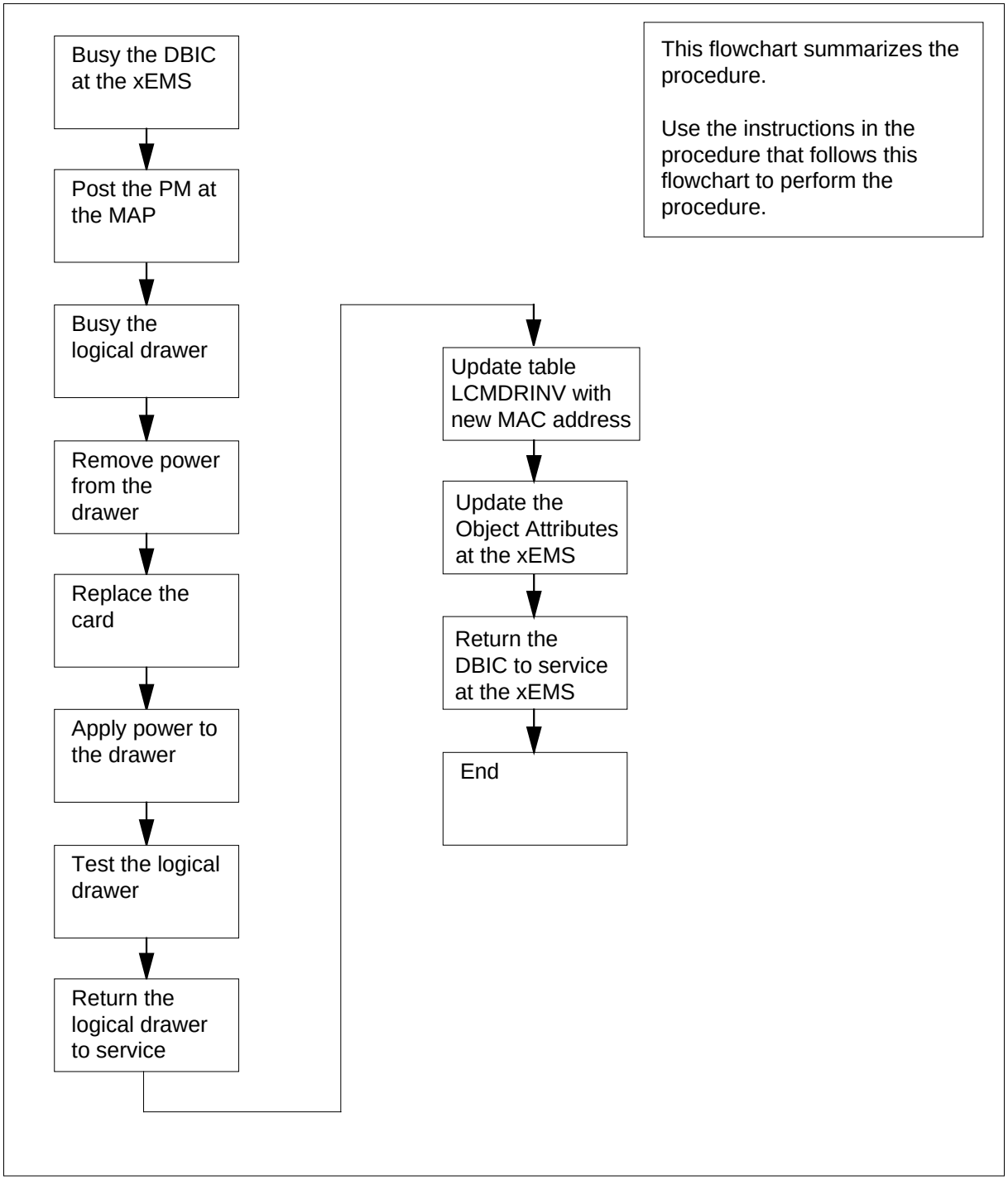
None

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.

NTEX54
in an RSC LCM (continued)

Summary of replacing an NTEX54 in RSC LCM



NTEX54
in an RSC LCM (continued)

Replacing an NTEX54 in RSC LCM

At your current location

1



CAUTION
Loss of service
This procedure directs you to manually busy a line drawer. Removal of a line drawer from service can cause the system to drop calls in progress. Perform this procedure only if you need to restore out-of-service components. Unless it is urgent, perform this procedure during periods of low traffic.

Obtain a replacement card. Make sure that the replacement card and the card that you remove have the same product engineering code (PEC) and PEC suffix.

2



CAUTION
Transport network must know new MAC address
Work with the network administrator during this procedure. The transport network must know the MAC adress of the new DBIC before the DBIC can support 1MMS.

Write down the 12-digit number stamped on the new NTEX54 card. This number is the media access control (MAC) address. You will use the MAC address later in this procedure.

At the xEMS workstation

3 Go to the submap of the LCM line drawer with the NTEX54 card that you will replace.

4 Place the cursor on the DBIC you want to busy and use the mouse to select

`Maintenance -> DBIC -> ManB`

from the pop-up menu.

NTEX54
in an RSC LCM (continued)

At the MAP terminal

5 To access the peripheral module (PM) level of the MAP (maintenance and administration position) display and post the LCM, type

`>MAPCI;MTC;PM;POST LCM site frame_no lcm_no`

and press the Enter key.

where

site
is the PM location (alphanumeric)

frame_no
is the equipment frame number (00 to 511)

lcm_no
is the number of the LCM (0 or 1)

Example of a MAP display:

```
LCM  REM1 01 1   ISTb   Links OOS: Cside  0 Pside  0Unit0: ISTb
/RG: 0Unit1: ISTb  Mtce           /RG: 1  Ring gen Test                    11  11
11  11  11  RG: Pref 1 InSvDrwr:  01  23  45  67  89  01  23  45  67  89     Stby
0 InSv       ..  ..  ..  ..  MM  ..  ..  ..  ..  ..
```

6 Record the numbers of the logical drawers for the NTEX54.

Note: Logical drawers configure in pairs for the physical drawer. The NTEX54 services the physical drawer. Both logical drawers must be manually busy to perform this card replacement procedure.

7 Check the state of the affected logical drawers.

If the state for	Do
one or both logical drawers is `I,S,` or `.` (dot)	step 8
both logical drawers is `M`	step 11
one or both logical drawers is `0` or `-`	Determine why the drawer is offline. If necessary, contact the next level of support.

8 To manually busy the logical drawer, type

`>BSY DRWR drwr_no`

and press the Enter key.

where

drwr_no
is the logical drawer number (0 to 23)

NTEX54
in an RSC LCM (continued)

Example of a MAP response:

```
LCM REM1 01 1  Drwr 0 will be taken out of servicePlease confirm ("YES",
"Y", "NO", or "N"):
```

9 To confirm the command, type

>YES

and press the Enter key.

Example of a MAP response:

```
LCM REM1 01 1  Drwr 0 Bsy Passed
```

If	Do
you must busy the other logical drawer of the pair	step 10
both logical drawers are now `M`	step 11

10 Busy the other logical drawer of the pair.

>BSY DRWR drwr_no

and press the Enter key.

where

drwr_no
is the logical drawer number (0 to 23)

Example of a MAP response:

```
LCM REM1 01 1  Drwr 0 Bsy Passed
```

NTEX54
in an RSC LCM (continued)

At the shelf

11



WARNING
Static electricity damage
Wear a wrist strap that connects to the wrist-strap grounding point to handle circuit cards. The wrist-strap grounding point is on a frame supervisory panel (FSP) or a modular supervisory panel (MSP). The wrist strap protects the cards against static electricity damage.



DANGER
Potential equipment damage
Note the fuses that you remove from the fuse panel. If you do not insert fuses in the correct location on the fuse panel, equipment damage occurs.



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.

Remove fuses for the line drawer containing the faulty DBIC. Perform the following steps. Refer to the figure that follows to identify the correct fuses.

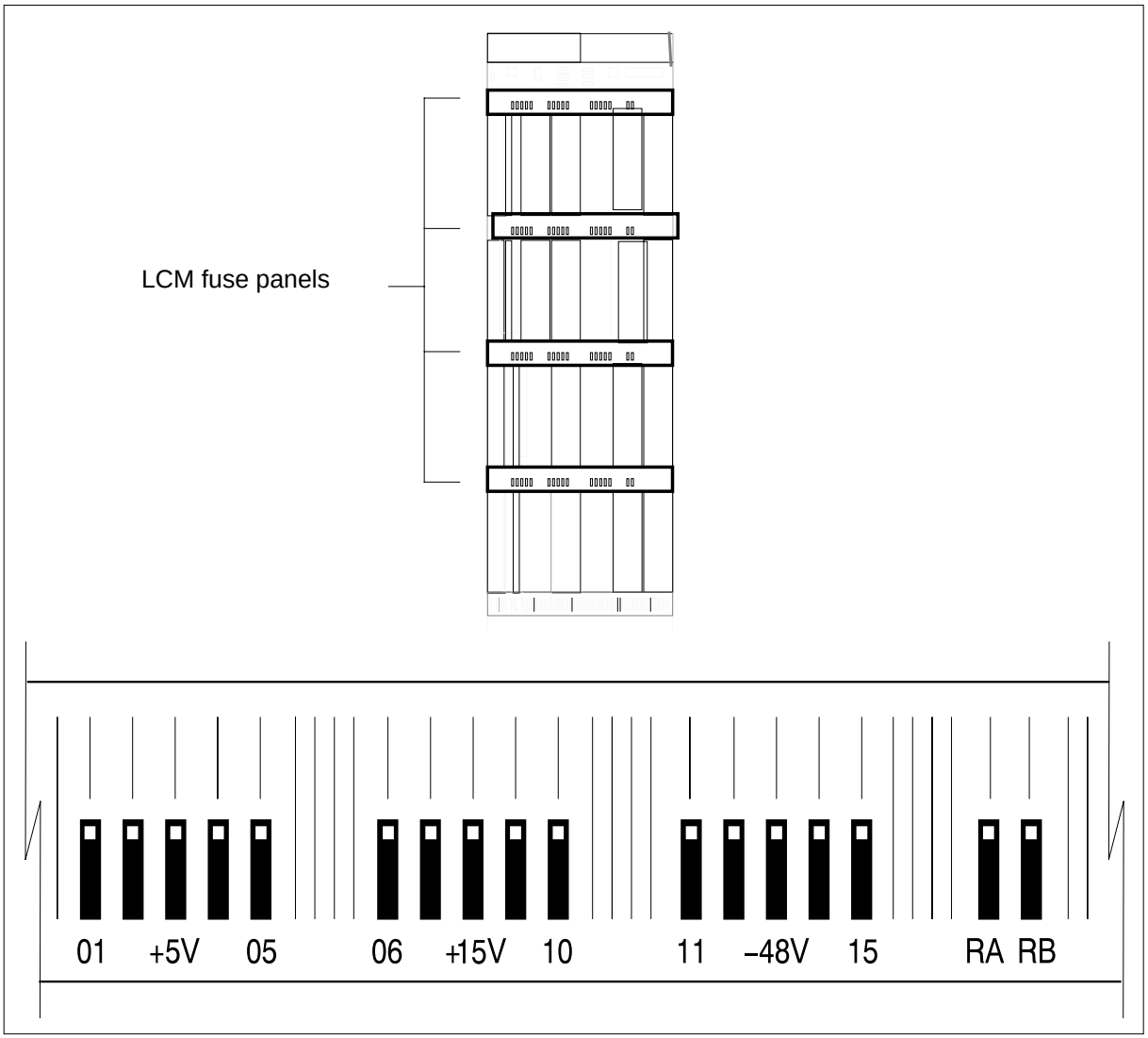
Note: Fuse markings do not always identify voltage. Make sure that you note the fuses and the location of the fuses in the fuse panel.

a Remove the -48V fuse for the line drawer that contains the faulty DBIC.

b Remove the +15V fuse for the line drawer that contains the faulty DBIC.

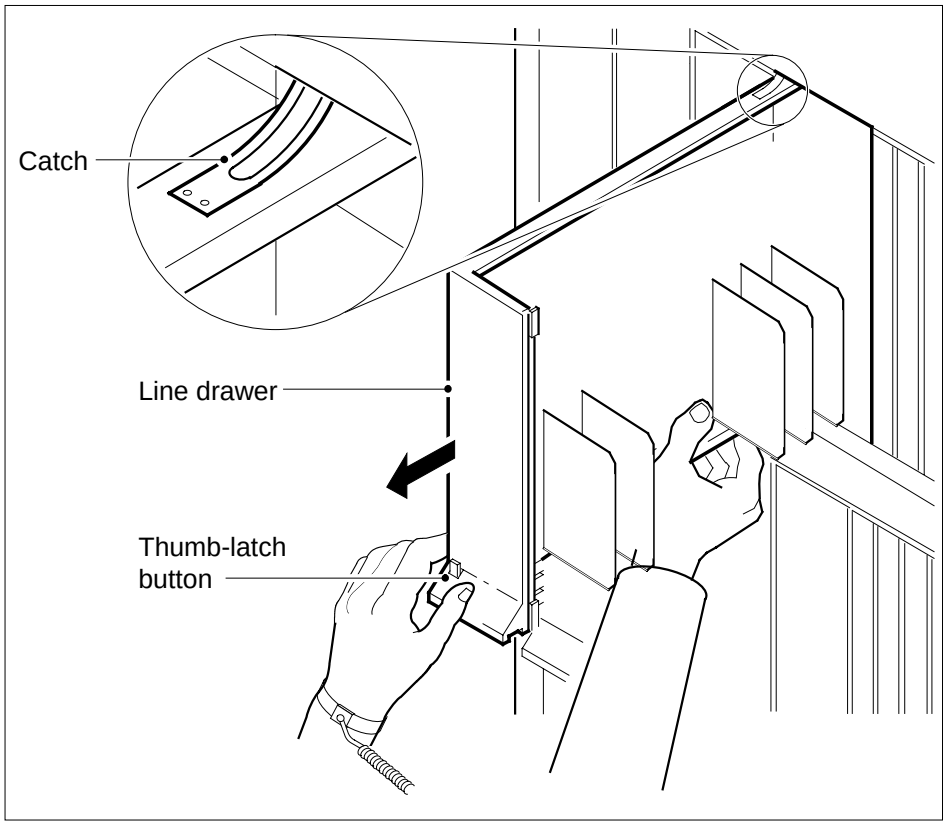
c Remove the +5V fuse for the line drawer that contains the faulty DBIC.

NTEX54
in an RSC LCM (continued)



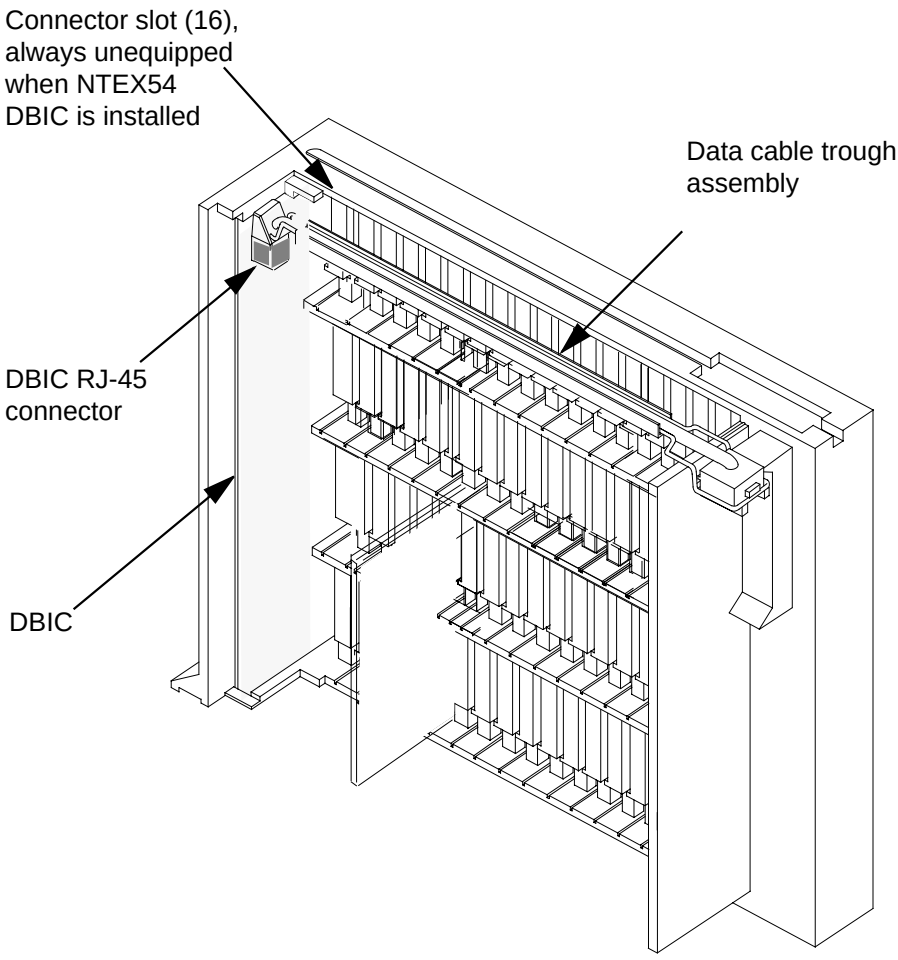
12 Identify the drawer. Press the small thumb-latch button on the lower left edge of the drawer. Pull the drawer out. To secure the drawer in a steady horizontal position, tip the drawer until the catch rests on the line drawer track.

NTEX54
in an RSC LCM (continued)



13 Disconnect the data cable from the RJ-45 connector on the DBIC card. The RJ-45 connector is located at slot position 16 of the odd LSG (connector slot). Refer to the following figure.

NTEX54
in an RSC LCM (continued)

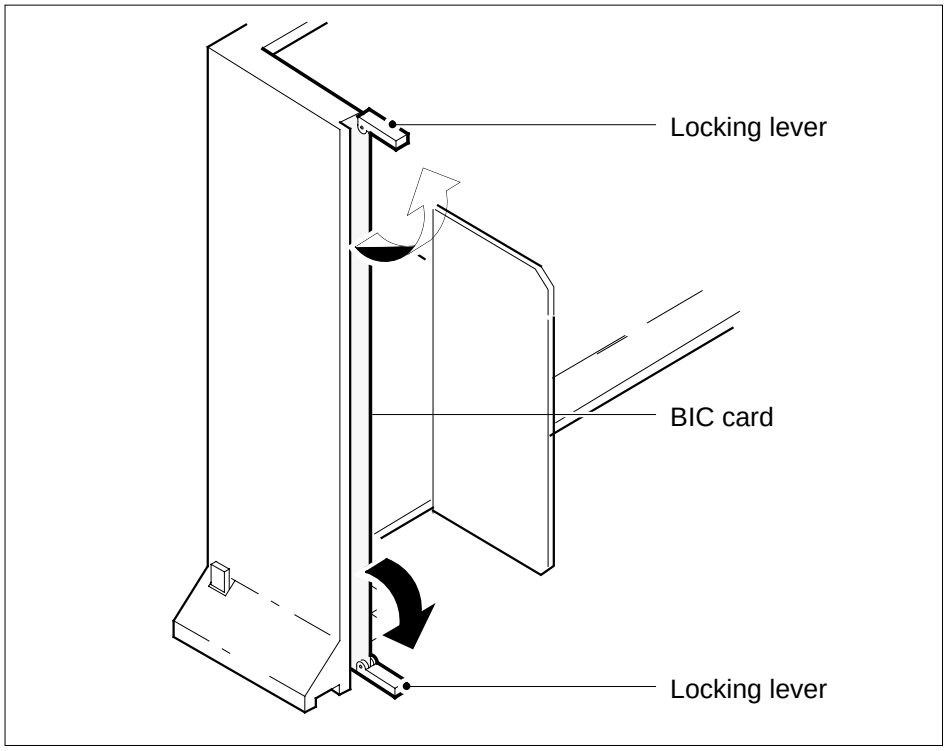


14

DANGER
Do not hold the card by the levers only
If you hold a card by the locking levers only, the levers can break. Pull the card half way out of the slot. Carefully grasp the card from below for more support. Continue to remove the card from the drawer. Make sure that you do not touch any wires or internal parts on the card.

NTEX54
in an RSC LCM (continued)

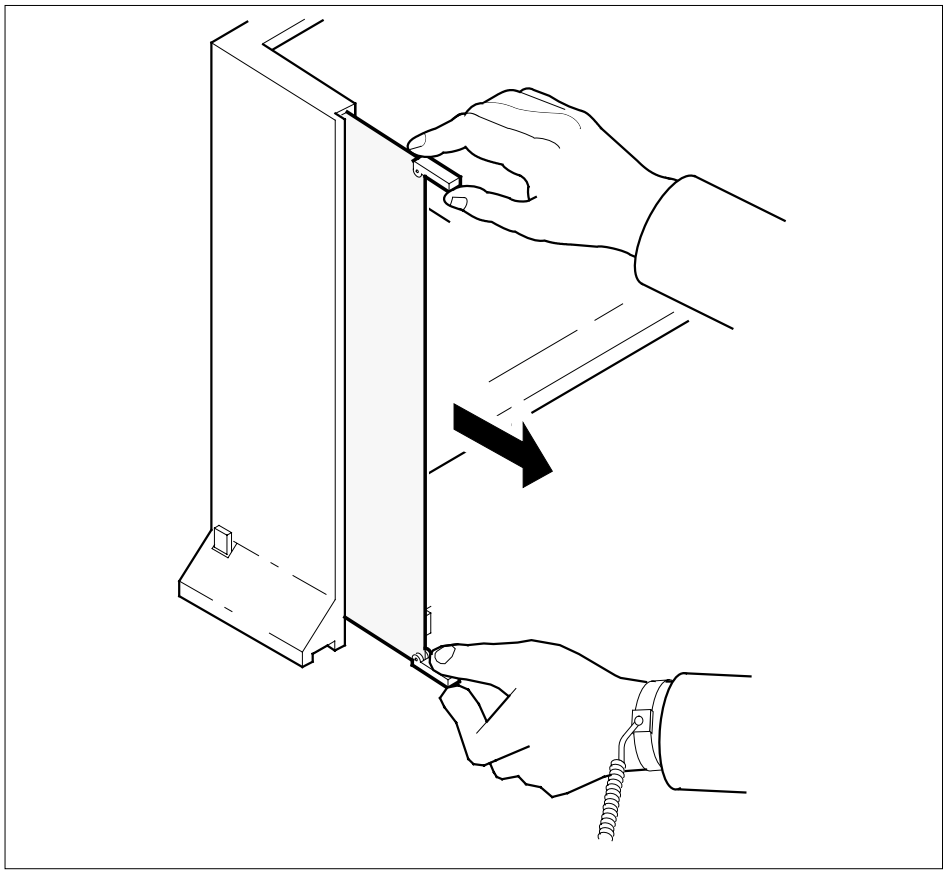
Open the locking levers on the face of the card.



15 Grasp the locking levers. Carefully pull the card toward you until the card clears the drawer.

Note: Do not use a rocking motion to remove the card.

NTEX54
in an RSC LCM (continued)



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

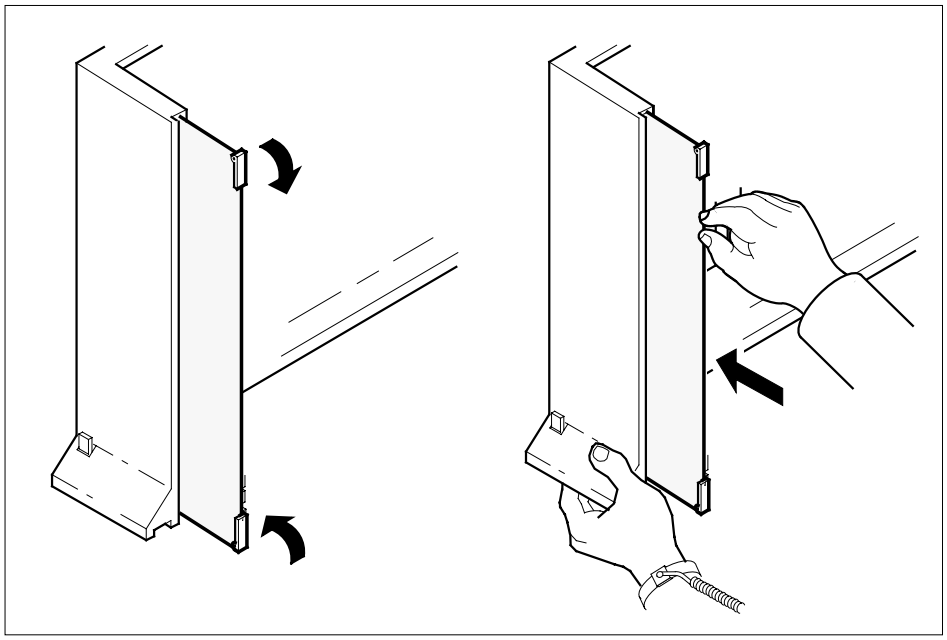
17 Make sure that the replacement card and the card that you remove have the same PEC and PEC suffix.

18 Close the locking levers on the replacement card. Align the card with the pin slots in the drawer. Carefully slide the card into the drawer.

19 Support the drawer with your left hand. Use your right hand to push on the upper and lower edges of the card. Make sure that the card sits completely in the drawer.

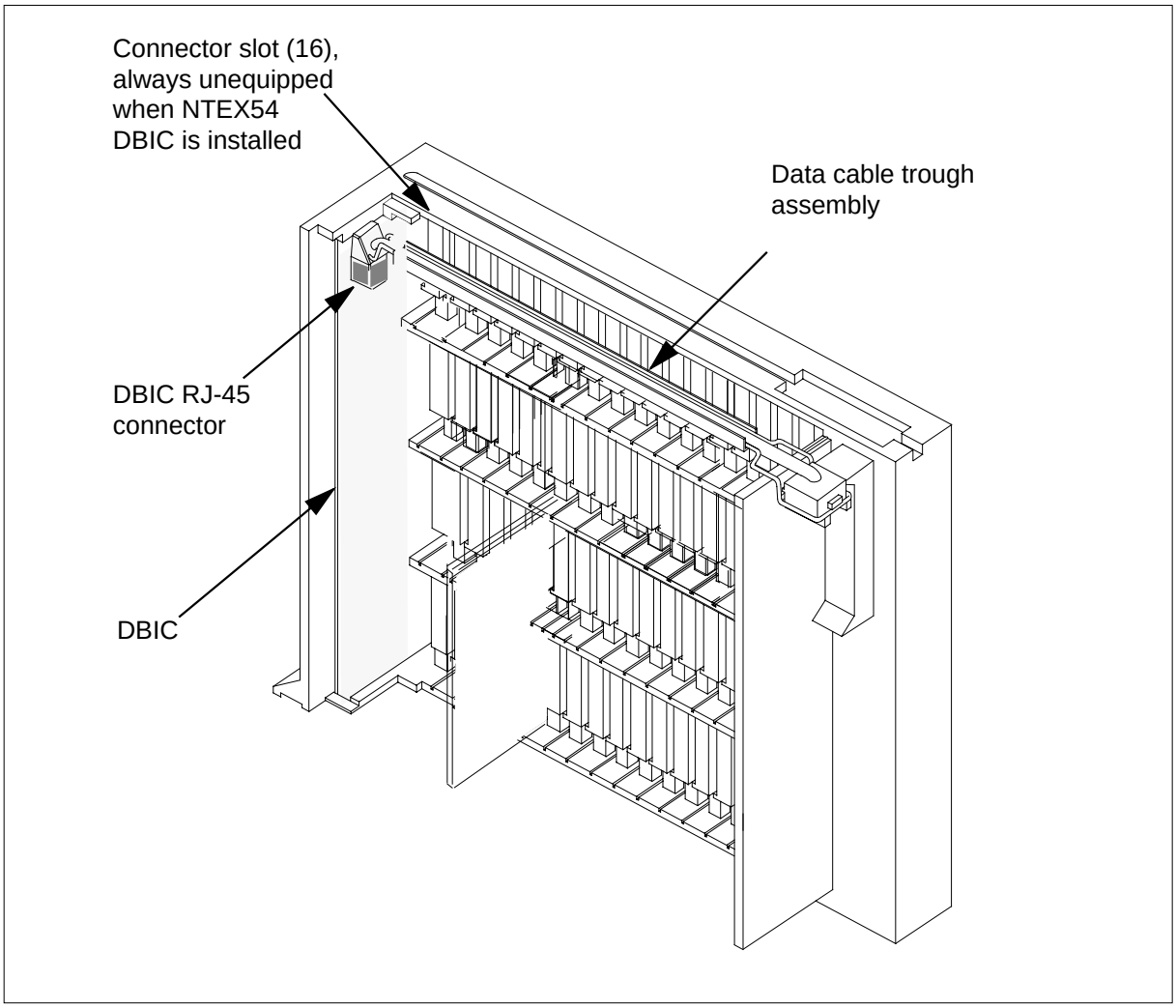
Note: Do not use a rocking motion to insert the card.

NTEX54
in an RSC LCM (continued)



20 Connect the data cable to the RJ-45 connector that you disconnected in step 13 . Refer to the following figure.

NTEX54
in an RSC LCM (continued)



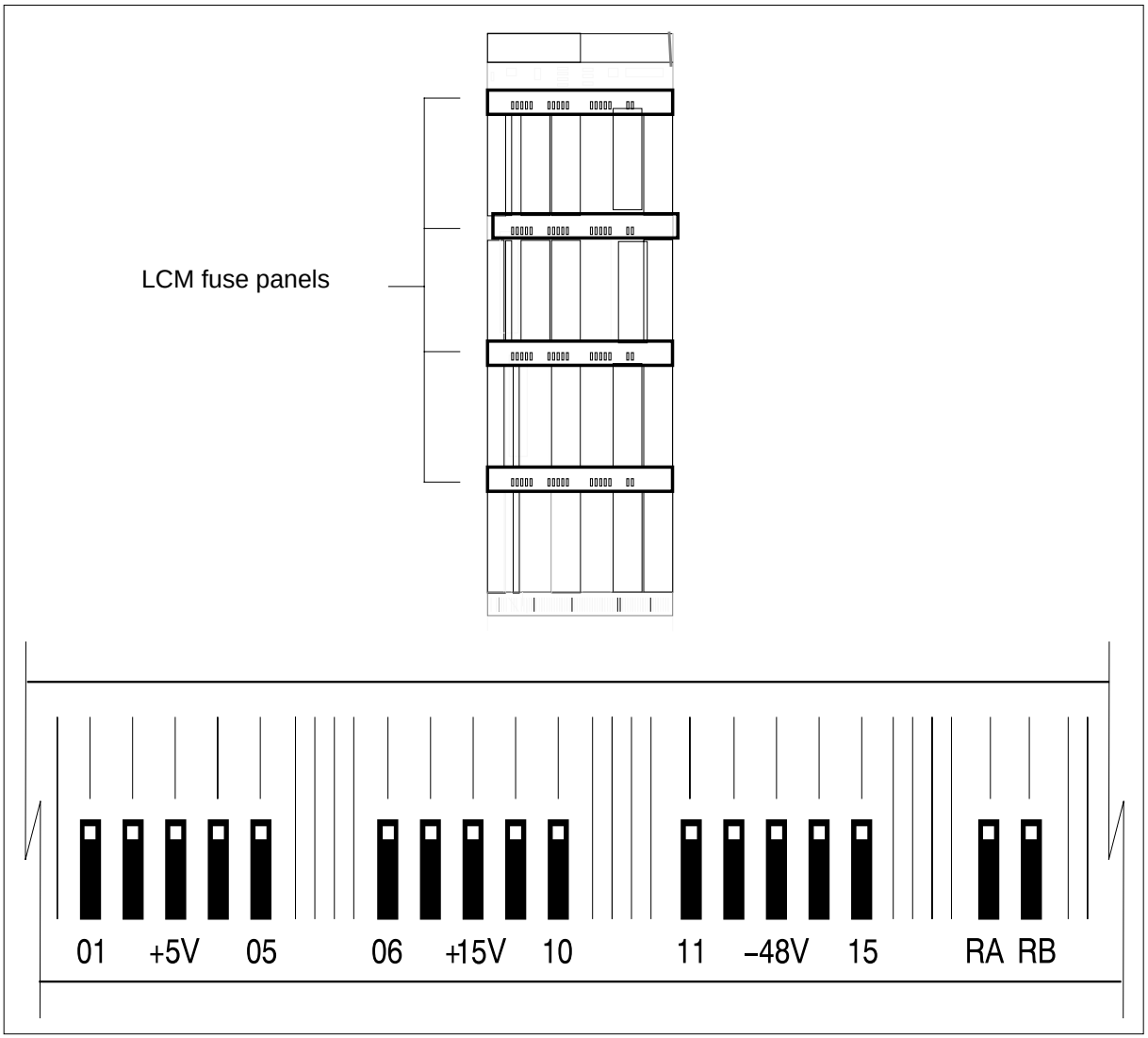
21 Close the line drawer.

22

DANGER
Potential equipment damage
Make sure you insert the fuses in the correct location on the fuse panel to prevent equipment damage.

Insert the fuses that you removed in step 11. Refer to the following figure.

NTEX54
in an RSC LCM (continued)



Note: Fuses are coded for position. The colored square on the face of the fuse identifies the top edge.

a Insert the +5V fuse.

b Insert the +15V fuse.

c Insert the -48V fuse.

NTEX54
in an RSC LCM (continued)

At the MAP terminal

23 A maintenance flag (Mtce) can appear. This flag indicates that system-initiated maintenance tasks are in progress. To stop the system-initiated maintenance tasks, type

```
>ABTK
```

and press the Enter key.

24 To return the logical drawer to service, type

```
>RTS  DRWR  drwr_no
```

and press the Enter key.

where

drwr_no
is the logical drawer number (0 to 19)

Example of a MAP response:
OSvce Tests InitiatedLCM REM1 00 0 Drwr 0 Tst PassedLCM REM1 00 0 Drwr 0 Rts Passed

If the RTS command	Do
passed, and you must return the other logical drawer to service	step 25
passed, and the other logical drawer is in service	step 26
failed	step 39

25 Repeat step 24 for the other logical drawer in the pair.

26 Update table LCMDRINV.

Note: Make sure you have the new MAC address from the replacement card as recorded in step 2.

a To open table LCMDRINV, type

```
>TABLE  LCMDRINV
```

and press the Enter key.

b To position on the tuple for the LCM, type

```
>POS  site_name  frame_no  lcm_no
```

and press the Enter key.

where

site_name
is the name of the site

frame_no
is the number of the frame

NTEX54
in an RSC LCM (continued)

lcm_no
is the number of the LCM

c To begin changing the tuple, type

>CHA

and press the Enter key.

d To continue processing, type

>Y

and press the Enter key.

e Press the Enter key to scroll through the fields until you access the field with the MAC address.

f Enter the new MAC address. Type

>drwr_id pec_id drwr_pec mac_address ip_address

and press the Enter key.

where

drwr_id
is the physical number of the drawer

pec_id
is NTEX54AA, NTEX54AB, or NTEX54BA

drwr_pec
is the PEC of the drawer

mac_address
is the MAC address of the new NTEX54

ip_address
is the IP address of the new NTEX54

g Press the Enter key to scroll through remaining fields.

h Confirm the change. Type

>Y

and press the Enter key.

i Exit the table. Type

>QUIT

and press the Enter key.

NTEX54 in an RSC LCM (end)

At the xEMS workstation

27



CAUTION
Transport network must know new MAC address
Before you return the DBIC to service, you must provide the MAC address for the DBIC to the transport network. Contact the network administrator for assistance.

Go to the submap of the LCM line drawer with the new NTEX54 card.

28 Select the card by placing the cursor on the DBIC.

29 From the pop-up menu select Describe/Modify Object. The Object Description dialog box appears.

30 From the Object Description dialog box, select HSTP Application from the fields under Object Attributes.

31 Select View/Modify Object Attributes.

32 Enter the new MAC address in the LAC MAC Address field, for example, 0060381120a1.

33 Click the Verify button to verify the information.

34 Click the OK button to close the Attributes dialog box.

35 Click OK to close the Object Description dialog box.

36 Place the cursor on the DBIC you want to return to service and use the mouse to select

`Maintenance -> DBIC -> Rts`

from the pop-up menu.

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

38 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 40.

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

40 You have successfully completed this card replacement procedure.

NTEX54 in an RSC-S (DS-1) Model A LCME

Application

Use this procedure to replace the following cards in an RSC-S LCME line drawer.

PEC	Suffixes	Name
NTEX54	AA	Data enhanced bus interface card (DBIC)
NTEX54	AB	Data enhanced bus interface card (DBIC)
NTEX54	BA	Data enhanced bus interface card (DBIC)

Common procedures

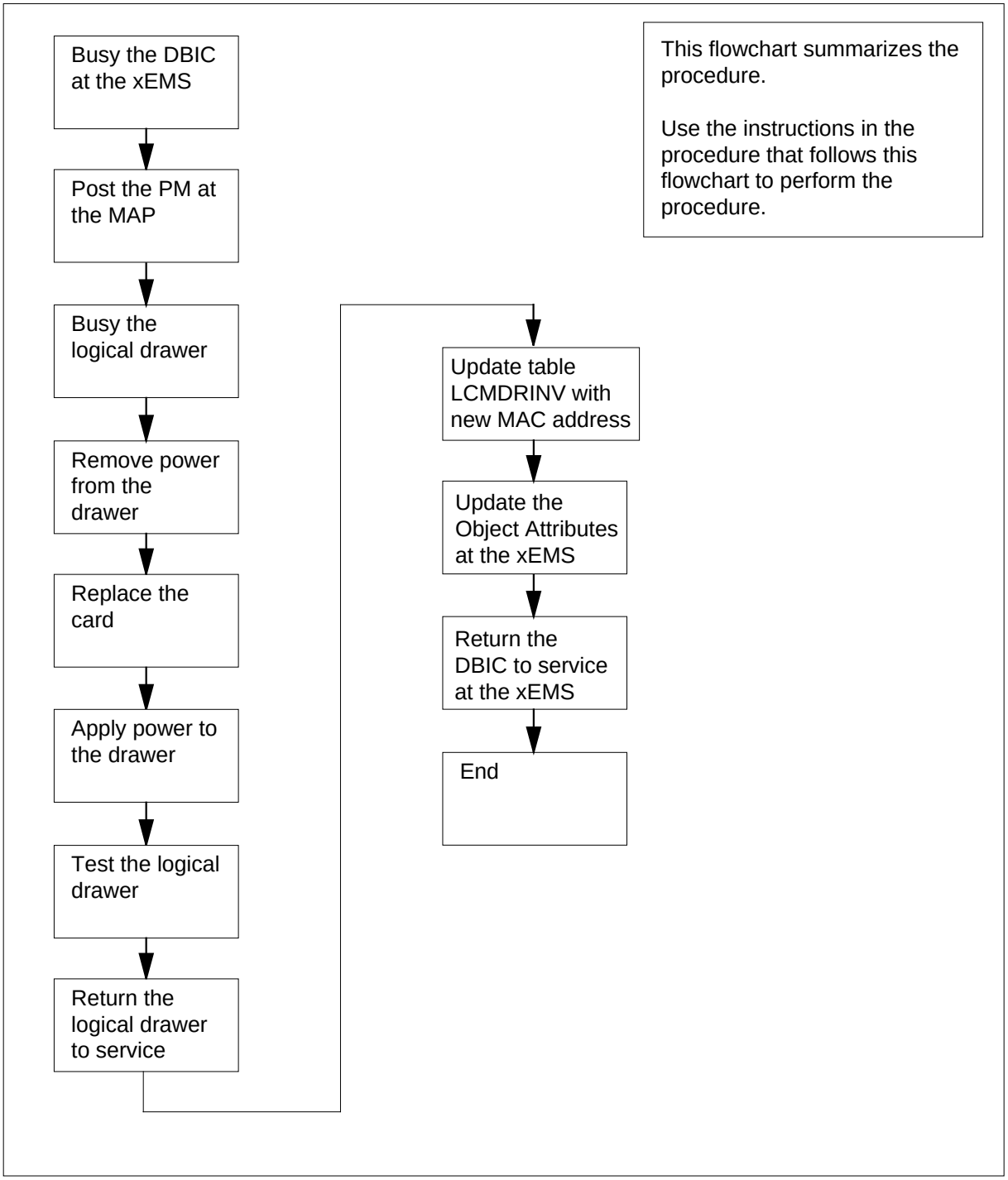
None

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.

NTEX54
in an RSC-S (DS-1) Model A LCME (continued)

Summary of replacing an NTEX54 in RSC-S LCME



NTEX54 in an RSC-S (DS-1) Model A LCME (continued)

Replacing an NTEX54 in RSC-S LCME

At your current location

1



CAUTION
Loss of service
This procedure directs you to manually busy a line drawer. Removal of a line drawer from service can cause the system to drop calls in progress. Perform this procedure only if you need to restore out-of-service components. Unless it is urgent, perform this procedure during periods of low traffic.

Obtain a replacement card. Make sure that the replacement card and the card that you remove have the same product engineering code (PEC) and PEC suffix.

2



CAUTION
Transport network must know new MAC address
Work with the network administrator during this procedure. The transport network must know the MAC adress of the new DBIC before the DBIC can support 1MMS.

Write down the 12-digit number stamped on the new NTEX54 card. This number is the media access control (MAC) address. You will use the MAC address later in this procedure.

At the xEMS workstation

3 Go to the submap of the LCM line drawer with the NTEX54 card that you will replace.

4 Place the cursor on the DBIC you want to busy and use the mouse to select

`Maintenance -> DBIC -> ManB`

from the pop-up menu.

NTEX54
in an RSC-S (DS-1) Model A LCME (continued)

At the MAP terminal

5 To access the peripheral module (PM) level of the MAP (maintenance and administration position) display and post the LCM, type

`>MAPCI;MTC;PM;POST LCM site frame_no lcm_no`

and press the Enter key.

where

site
is the PM location (alphanumeric)

frame_no
is the equipment frame number (00 to 511)

lcm_no
is the number of the LCM (0 or 1)

Example of a MAP display:

```
LCM  REM1 01 1   ISTb   Links OOS: Cside  0 Pside  0
Unit0: ISTb                  /RG: 0
Unit1: ISTb  Mtce          /RG: 1  Ring gen Test
                          11  11   11  11  11  RG: Pref 1 InSv
Drwr:  01  23  45  67  89  01  23  45  67  89     Stby            0 InSv
         ..  ..  ..  ..  MM  ..  ..  ..  ..  ..
```

6 Record the numbers of the logical drawers for the NTEX54.

Note: Logical drawers configure in pairs for the physical drawer. The NTEX54 services the physical drawer. Both logical drawers must be manually busy to perform this card replacement procedure.

7 Check the state of the affected logical drawers.

If the state for	Do
one or both logical drawers is `I,S,` or `.` (dot)	step 8
both logical drawers is `M`	step 11
one or both logical drawers is `0` or `-`	Determine why the drawer is offline. If necessary, contact the next level of support.

8 To manually busy the logical drawer, type

`>BSY DRWR drwr_no`

and press the Enter key.

where

drwr_no
is the logical drawer number (0 to 23)

NTEX54
in an RSC-S (DS-1) Model A LCME (continued)

Example of a MAP response:

```
LCM REM1 01 1  Drwr 0 will be taken out of service
Please confirm ("YES",     "Y", "NO", or "N"):
```

9 To confirm the command, type

>YES

and press the Enter key.

Example of a MAP response:

```
LCM REM1 01 1  Drwr 0 Bsy Passed
```

If	Do
you must busy the other logical drawer of the pair	step 10
both logical drawers are now M	step 11

10 Busy the other logical drawer of the pair.

>BSY DRWR drwr_no

and press the Enter key.

where

drwr_no
is the logical drawer number (0 to 23)

Example of a MAP response:

```
LCM REM1 01 1  Drwr 0 Bsy Passed
```

NTEX54
in an RSC-S (DS-1) Model A LCME (continued)

At the shelf

11



WARNING
Static electricity damage
Wear a wrist strap that connects to the wrist-strap grounding point to handle circuit cards. The wrist-strap grounding point is on a frame supervisory panel (FSP) or a modular supervisory panel (MSP). The wrist strap protects the cards against static electricity damage.



DANGER
Potential equipment damage
Note the fuses that you remove from the fuse panel. If you do not insert fuses in the correct location on the fuse panel, equipment damage occurs.



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.

Remove fuses for the line drawer containing the faulty DBIC. Perform the following steps. Refer to the figure that follows to identify the correct fuses.

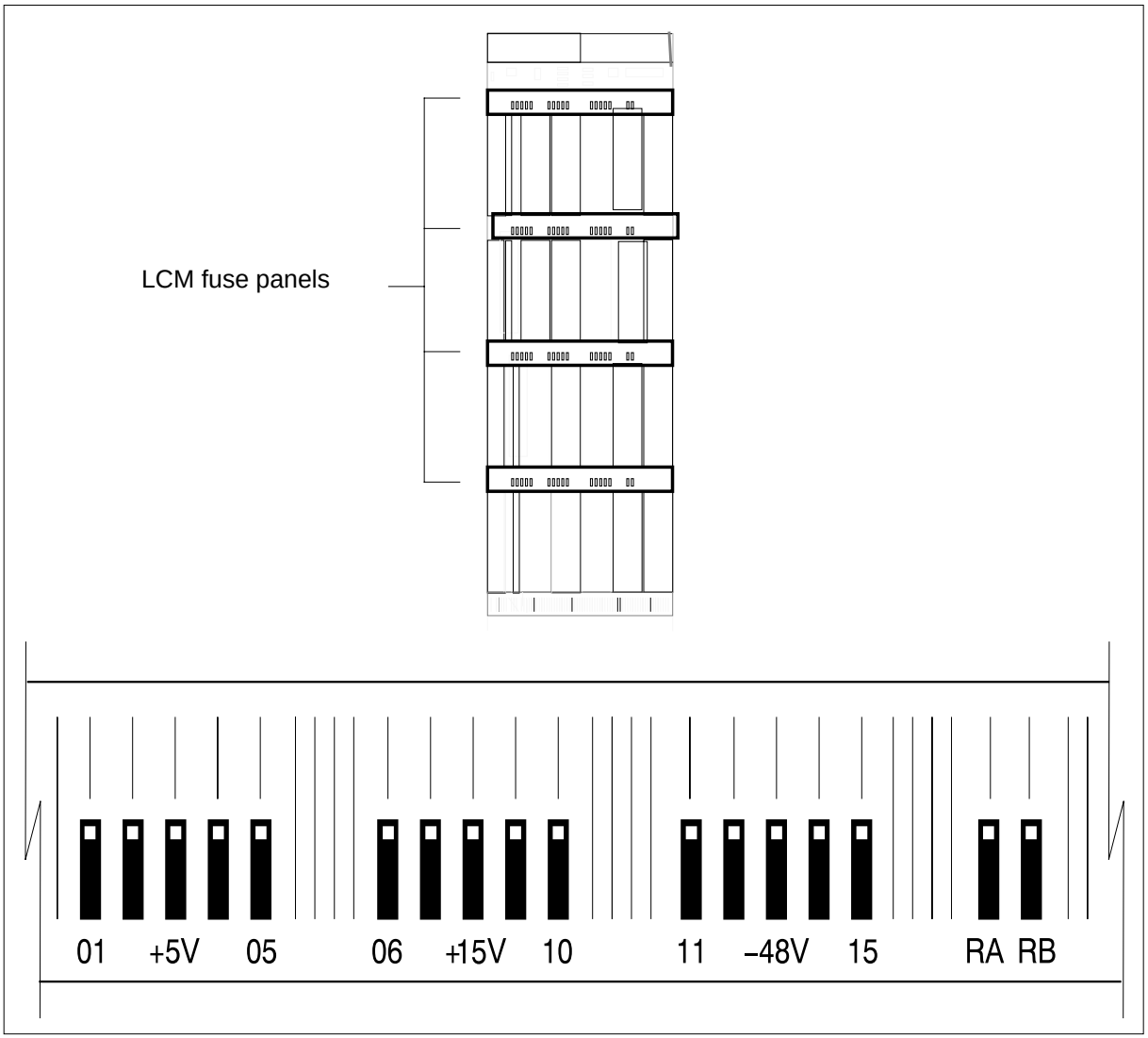
Note: Fuse markings do not always identify voltage. Make sure that you note the fuses and the location of the fuses in the fuse panel.

a Remove the -48V fuse for the line drawer that contains the faulty DBIC.

b Remove the +15V fuse for the line drawer that contains the faulty DBIC.

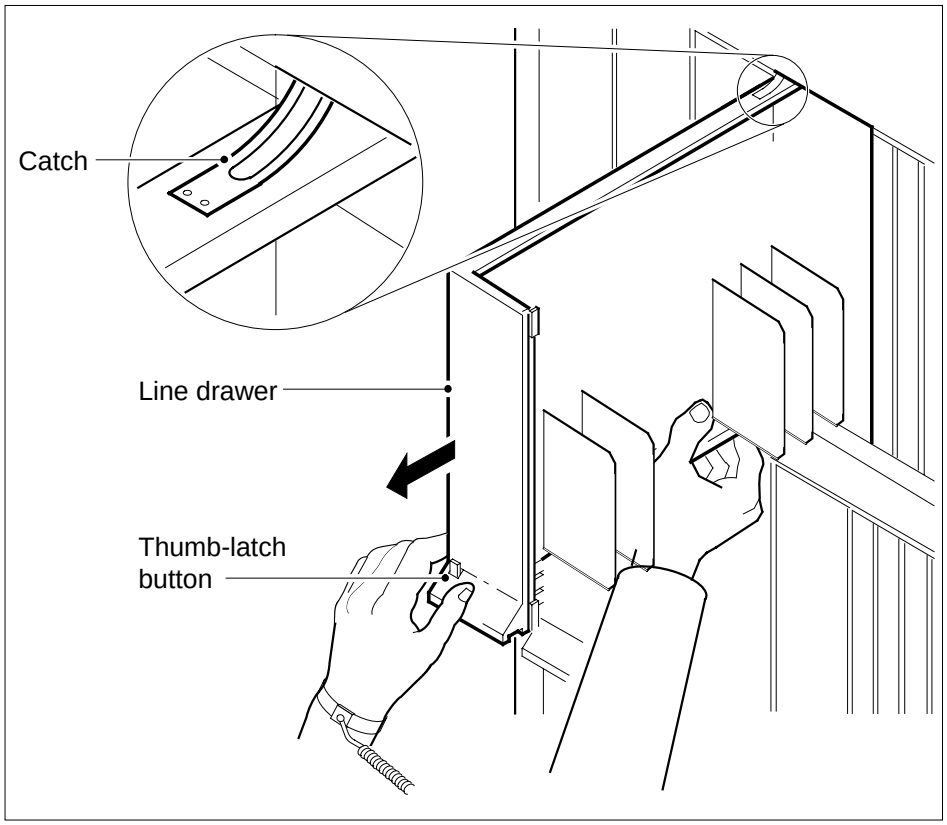
c Remove the +5V fuse for the line drawer that contains the faulty DBIC.

NTEX54
in an RSC-S (DS-1) Model A LCME (continued)



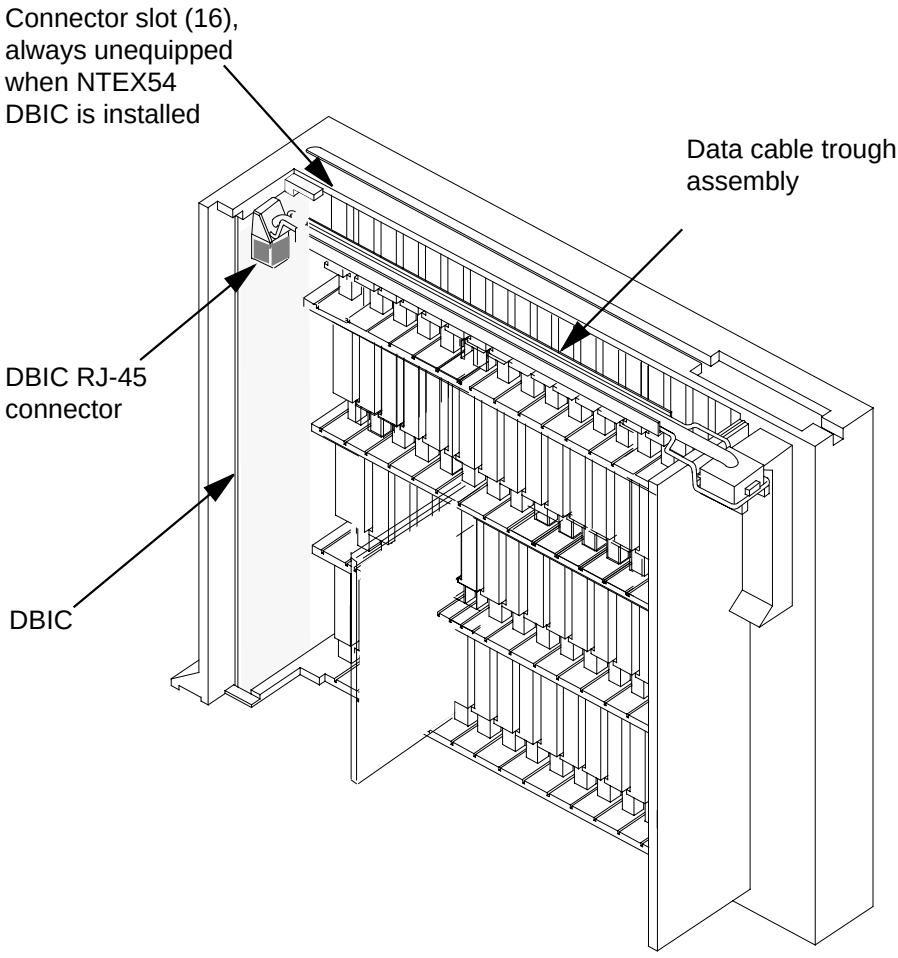
12 Identify the drawer. Press the small thumb-latch button on the lower left edge of the drawer. Pull the drawer out. To secure the drawer in a steady horizontal position, tip the drawer until the catch rests on the line drawer track.

NTEX54
in an RSC-S (DS-1) Model A LCME (continued)



13 Disconnect the data cable from the RJ-45 connector on the card. The RJ-45 connector is located at slot position 16 of the odd LSG (connector slot). Refer to the following figure.

NTEX54
in an RSC-S (DS-1) Model A LCME (continued)

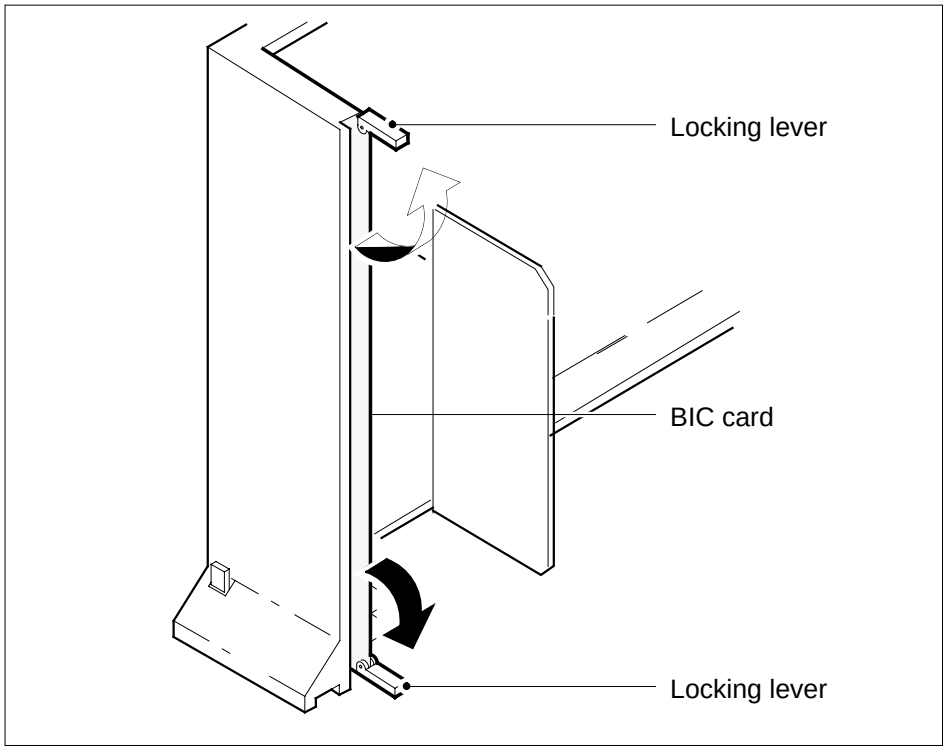


14

DANGER
Do not hold the card by the levers only
If you hold a card by the locking levers only, the levers can break. Pull the card half way out of the slot. Carefully grasp the card from below for more support. Continue to remove the card from the drawer. Make sure that you do not touch any wires or internal parts on the card.

NTEX54
in an RSC-S (DS-1) Model A LCME (continued)

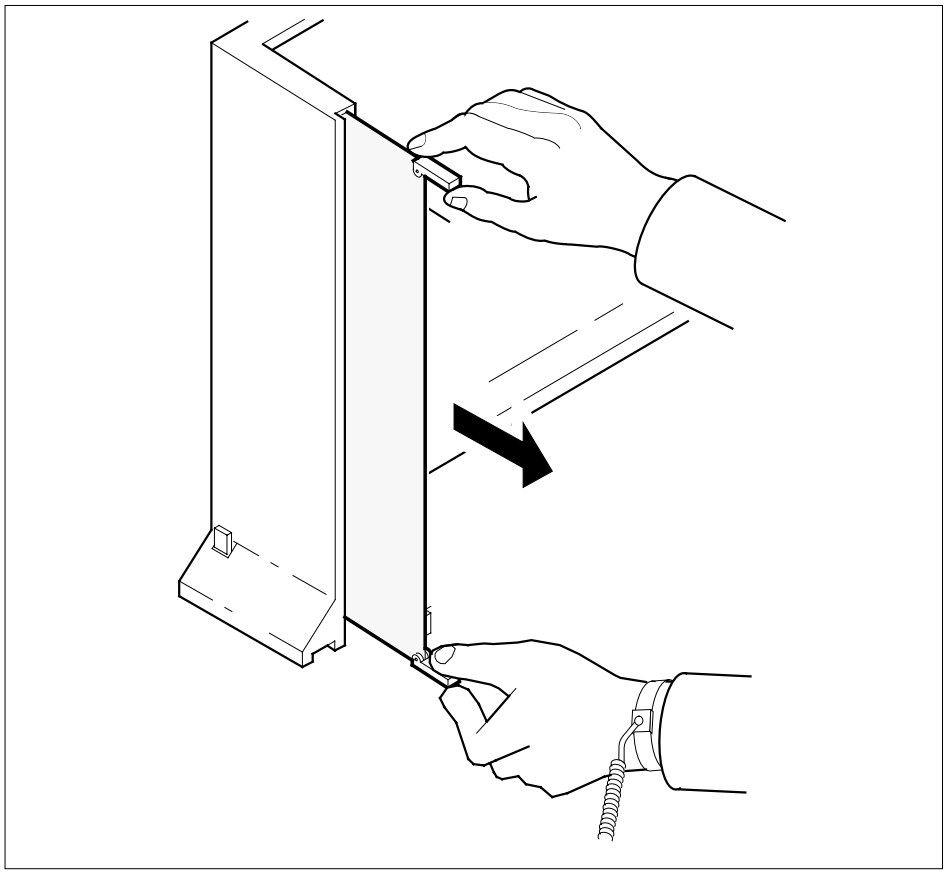
Open the locking levers on the face of the card.



15 Grasp the locking levers. Carefully pull the card toward you until the card clears the drawer.

Note: Do not use a rocking motion to remove the card.

NTEX54
in an RSC-S (DS-1) Model A LCME (continued)



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

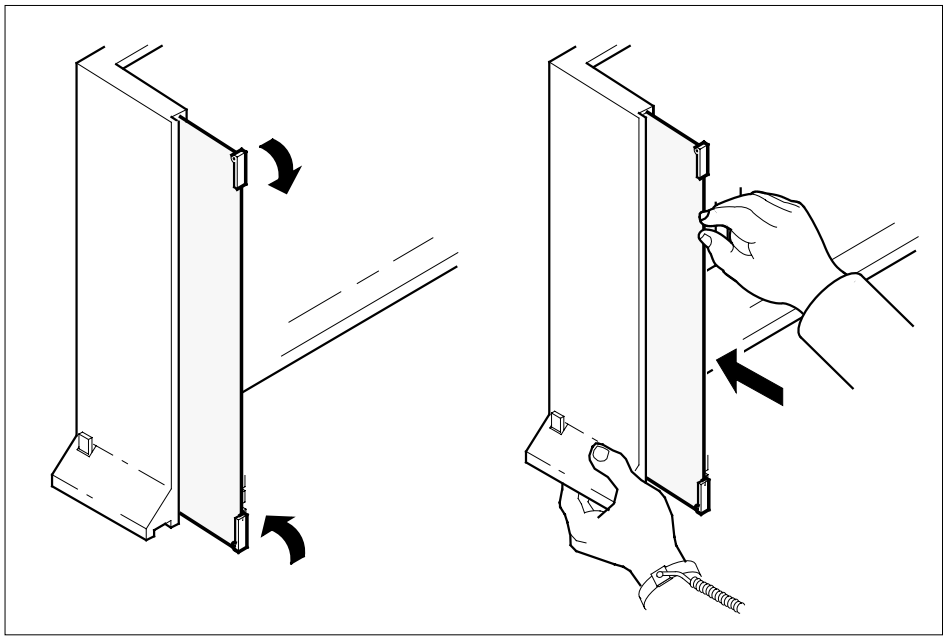
17 Make sure that the replacement card and the card that you remove have the same PEC and PEC suffix.

18 Close the locking levers on the replacement card. Align the card with the pin slots in the drawer. Carefully slide the card into the drawer.

19 Support the drawer with your left hand. Use your right hand to push on the upper and lower edges of the card. Make sure that the card sits completely in the drawer.

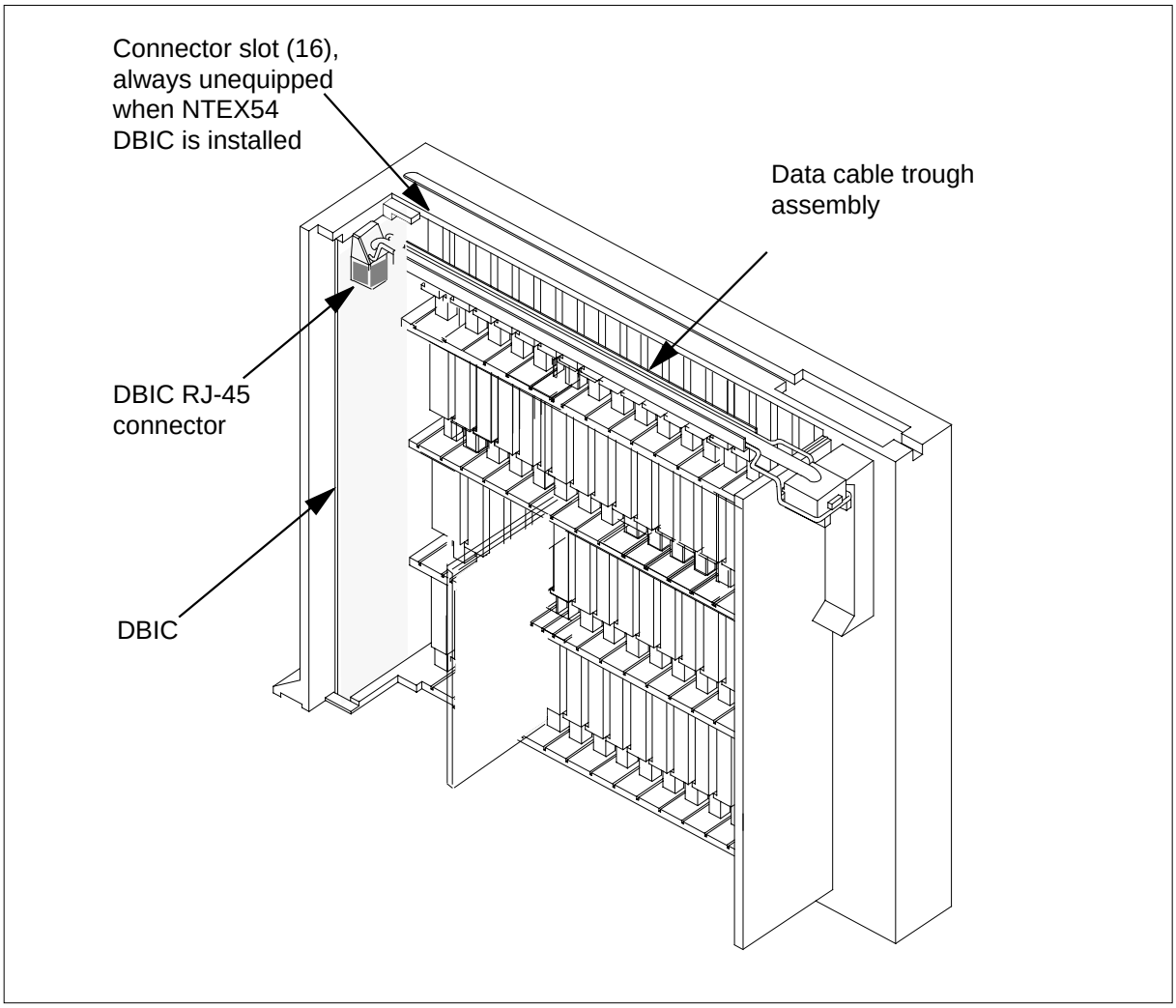
Note: Do not use a rocking motion to insert the card.

NTEX54
in an RSC-S (DS-1) Model A LCME (continued)



20 Connect the data cable to the RJ-45 connector that you disconnected in step 13. Refer to the following figure.

NTEX54
in an RSC-S (DS-1) Model A LCME (continued)



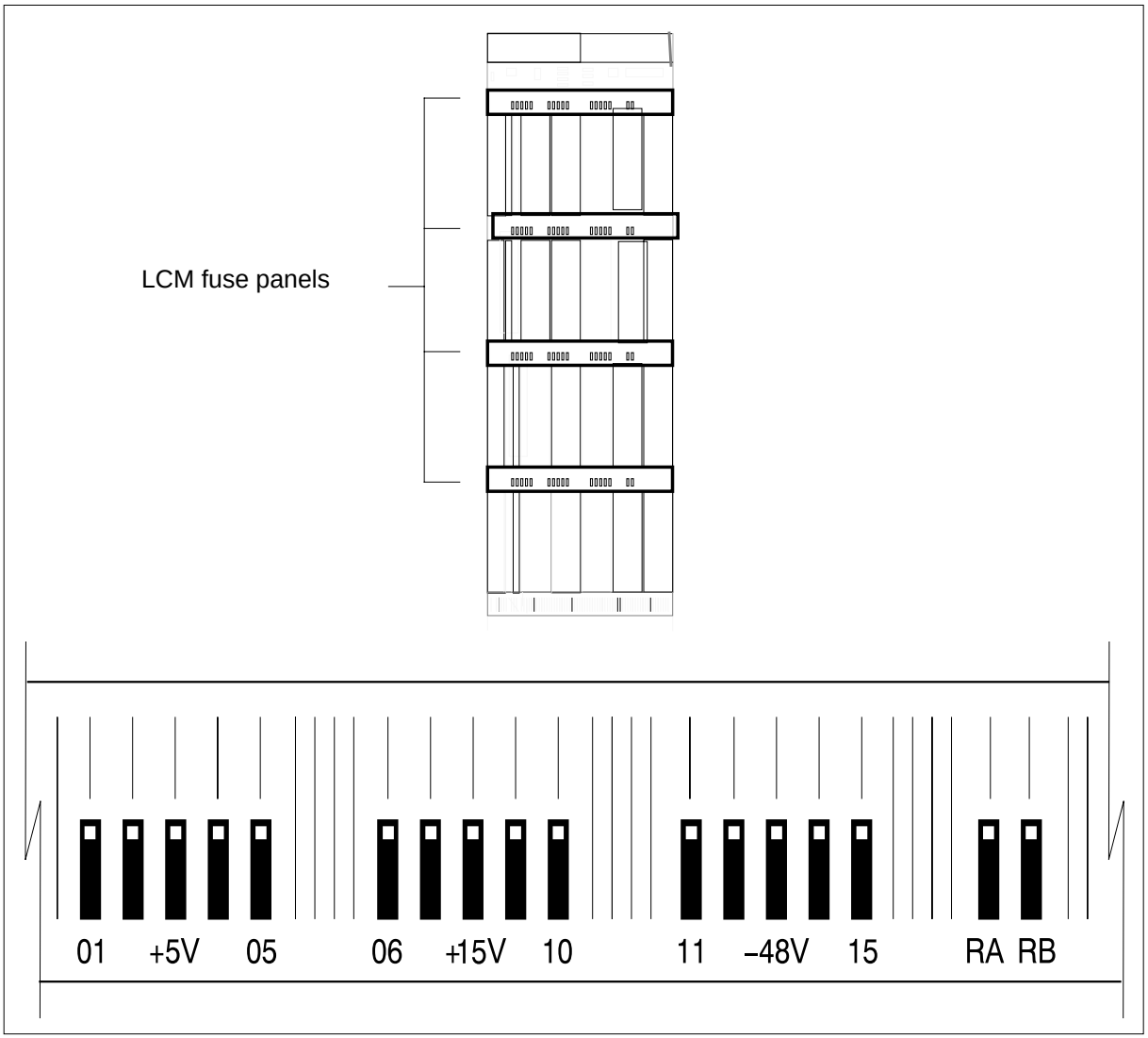
21 Close the line drawer.

22

DANGER
Potential equipment damage
Make sure you insert the fuses in the correct location on the fuse panel to prevent equipment damage.

Insert the fuses that you removed in step 11. Refer to the following figure.

NTEX54
in an RSC-S (DS-1) Model A LCME (continued)



Note: Fuses are coded for position. The colored square on the face of the fuse identifies the top edge.

a Insert the +5V fuse.

b Insert the +15V fuse.

c Insert the -48V fuse.

NTEX54
in an RSC-S (DS-1) Model A LCME (continued)

At the MAP terminal

23 A maintenance flag (Mtce) can appear. This flag indicates that system-initiated maintenance tasks are in progress. To stop the system-initiated maintenance tasks, type

```
>ABTK
```

and press the Enter key.

24 To return the logical drawer to service, type

```
>RTS  DRWR  drwr_no
```

and press the Enter key.

where

drwr_no
is the logical drawer number (0 to 19)

Example of a MAP response:

```
OSvce Tests Initiated
LCM REM1 00 0 Drwe 0 Tst Passed
LCM REM1 00 0 Drwr 0 Rts Passed
```

If the RTS command	Do
passed, and you must return the other logical drawer to service	step 25
passed, and the other logical drawer is in service	step 26
failed	step 39

25 Repeat step 24 for the other logical drawer in the pair.

26 Update table LCMDRINV.

Note: Make sure you have the new MAC address from the replacement card as recorded in step 2.

a To open table LCMDRINV, type

```
>TABLE  LCMDRINV
```

and press the Enter key.

b To position on the tuple for the LCM, type

```
>POS  site_name  frame_no  lcm_no
```

and press the Enter key.

where

site_name
is the name of the site

NTEX54
in an RSC-S (DS-1) Model A LCME (continued)

frame_no
is the number of the frame

lcm_no
is the number of the LCM

c To begin changing the tuple, type

>CHA

and press the Enter key.

d To continue processing, type

>Y

and press the Enter key.

e Press the Enter key to scroll through the fields until you access the field with the MAC address.

f Enter the new MAC address. Type

>drwr_id card_pec drwr_pec mac_address ip_address

and press the Enter key.

where

drwr_id
is the physical number of the drawer

card_pec
is NTEX54AA, NTEX54AB, or NTEX54BA

drwr_pec
is the PEC of the drawer

mac_address
is the MAC address of the new NTEX54

ip_address
is the IP address of the new NTEX54

g Press the Enter key to scroll through remaining fields.

h Confirm the change. Type

>Y

and press the Enter key.

i Exit the table. Type

>QUIT

and press the Enter key.

NTEX54 in an RSC-S (DS-1) Model A LCME (end)

At the xEMS workstation

27



CAUTION
Transport network must know new MAC address
Before you return the DBIC to service, you must provide the MAC address for the DBIC to the transport network. Contact the network administrator for assistance.

Go to the submap of the LCM line drawer with the new NTEX54 card.

28 Select the card by placing the cursor on the DBIC.

29 From the pop-up menu select Describe/Modify Object. The Object Description dialog box appears.

30 From the Object Description dialog box, select HSTP Application from the fields under Object Attributes.

31 Select View/Modify Object Attributes.

32 Enter the new MAC address in the %LAC MAC Address field, for example, 0060381120a1.

33 Click the Verify button to verify the information.

34 Click the OK button to close the Attributes dialog box.

35 Click OK to close the Object Description dialog box.

36 Place the cursor on the DBIC you want to return to service and use the mouse to select

```
Maintenance -> DBIC -> Rts
```

from the pop-up menu.

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

38 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 40.

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

40 You have successfully completed this card replacement procedure.

NTEX54
in an RSC-S (DS-1) Model B LCM

Application

Use this procedure to replace the following cards in an RSC-S LCM line drawer.

PEC	Suffixes	Name
NTEX54	AA	Data enhanced bus interface card (DBIC)
NTEX54	AB	Data enhanced bus interface card (DBIC)
NTEX54	BA	Data enhanced bus interface card (DBIC)

Common procedures

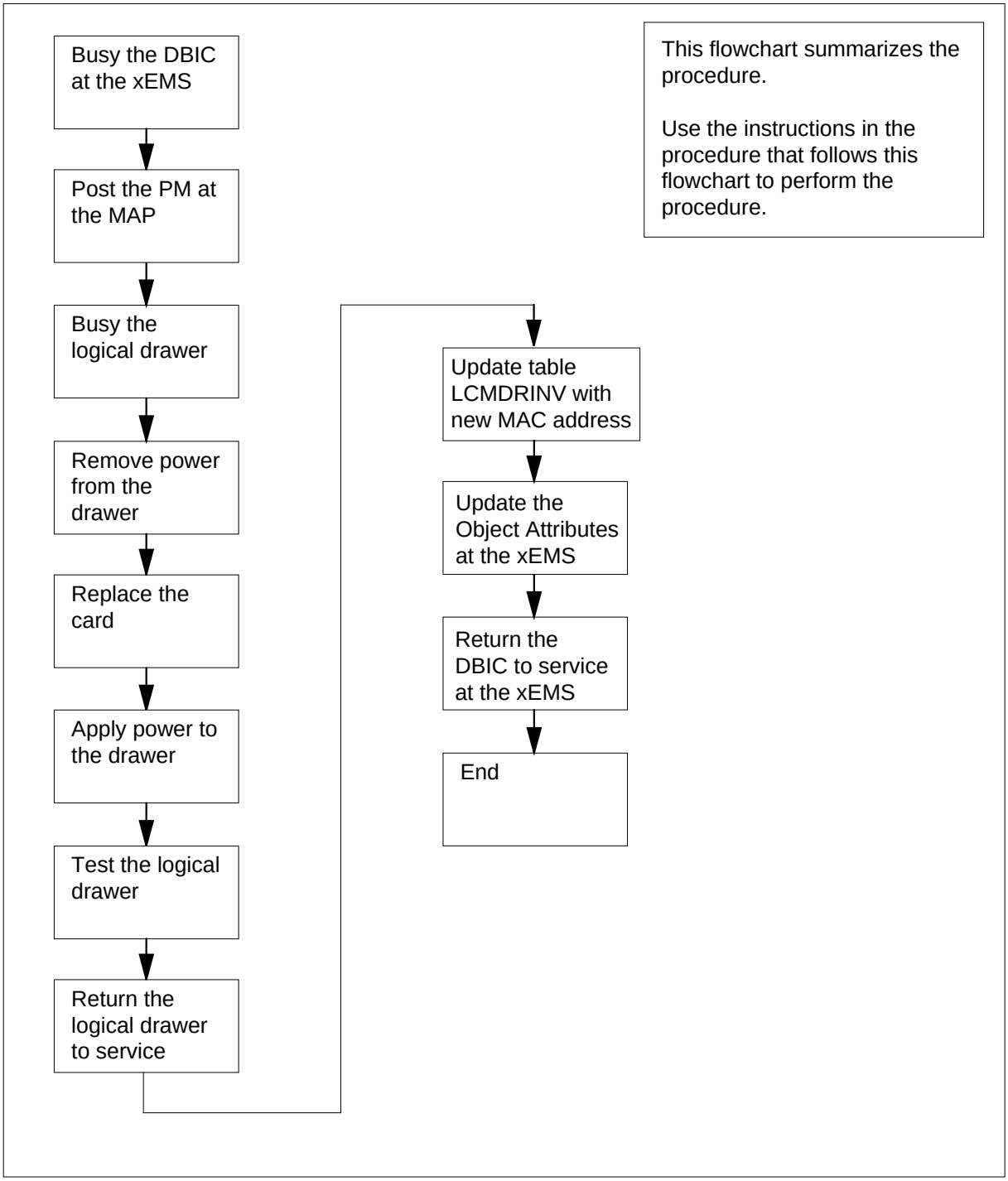
None

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.

NTEX54
in an RSC-S (DS-1) Model B LCM (continued)

Summary of replacing an NTEX54 in RSC-S LCM



NTEX54 in an RSC-S (DS-1) Model B LCM (continued)

Replacing an NTEX54 in RSC-S LCM

At your current location

1



CAUTION
Loss of service
This procedure directs you to manually busy a line drawer. Removal of a line drawer from service can cause the system to drop calls in progress. Perform this procedure only if you need to restore out-of-service components. Unless it is urgent, perform this procedure during periods of low traffic.

Obtain a replacement card. Make sure that the replacement card and the card that you remove have the same product engineering code (PEC) and PEC suffix.

2



CAUTION
Transport network must know new MAC address
Work with the network administrator during this procedure. The transport network must know the MAC adress of the new DBIC before the DBIC can support 1MMS.

Write down the 12-digit number stamped on the new NTEX54 card. This number is the media access control (MAC) address. You will use the MAC address later in this procedure.

At the xEMS workstation

3 Go to the submap of the LCM line drawer with the NTEX54 card that you will replace.

4 Place the cursor on the DBIC you want to busy and use the mouse to select

`Maintenance -> DBIC -> ManB`

from the pop-up menu.

NTEX54
in an RSC-S (DS-1) Model B LCM (continued)

At the MAP terminal

5 To access the peripheral module (PM) level of the MAP (maintenance and administration position) display and post the LCM, type

`>MAPCI;MTC;PM;POST LCM site frame_no lcm_no`

and press the Enter key.

where

site
is the PM location (alphanumeric)

frame_no
is the equipment frame number (00 to 511)

lcm_no
is the number of the LCM (0 or 1)

Example of a MAP display:

```
 LCM    REM1 01 1   ISTb   Links OOS: Cside  0 Pside  0
Unit0: ISTb                    /RG: 0
Unit1: ISTb  Mtce              /RG: 1  Ring gen Test
                               11  11  11  11  11  RG: Pref 1 InSv
Drwr:  01  23  45  67  89  01  23  45  67  89      Stby   0 InSv
       ..  ..  ..  ..  MM  ..  ..  ..  ..  ..
```

6 Record the numbers of the logical drawers for the NTEX54.

Note: Logical drawers configure in pairs for the physical drawer. The NTEX54 services the physical drawer. Both logical drawers must be manually busy to perform this card replacement procedure.

7 Check the state of the affected logical drawers.

If the state for	Do
one or both logical drawers is `I,S,` or `.` (dot)	step 8
both logical drawers is `M`	step 11
one or both logical drawers is `0` or `-`	Determine why the drawer is offline. If necessary, contact the next level of support.

8 To manually busy the logical drawer, type

`>BSY DRWR drwr_no`

and press the Enter key.

where

drwr_no
is the logical drawer number (0 to 23)

NTEX54
in an RSC-S (DS-1) Model B LCM (continued)

Example of a MAP response:

```
LCM REM1 01 1  Drwr 0 will be taken out of service
Please confirm ("YES","Y", "NO", or "N"):
```

9 To confirm the command, type

>YES

and press the Enter key.

Example of a MAP response:

```
LCM REM1 01 1  Drwr 0 Bsy Passed
```

If	Do
you must busy the other logical drawer of the pair	step 10
both logical drawers are now M	step 11

10 Busy the other logical drawer of the pair.

>BSY DRWR drwr_no

and press the Enter key.

where

drwr_no
is the logical drawer number (0 to 23)

Example of a MAP response:

```
LCM REM1 01 1  Drwr 0 Bsy Passed
```

NTEX54
in an RSC-S (DS-1) Model B LCM (continued)

At the shelf

11



WARNING
Static electricity damage
Wear a wrist strap that connects to the wrist-strap grounding point to handle circuit cards. The wrist-strap grounding point is on a frame supervisory panel (FSP) or a modular supervisory panel (MSP). The wrist strap protects the cards against static electricity damage.



DANGER
Potential equipment damage
Note the fuses that you remove from the fuse panel. If you do not insert fuses in the correct location on the fuse panel, equipment damage occurs.



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.

Remove fuses for the line drawer containing the faulty DBIC. Perform the following steps. Refer to the figure that follows to identify the correct fuses.

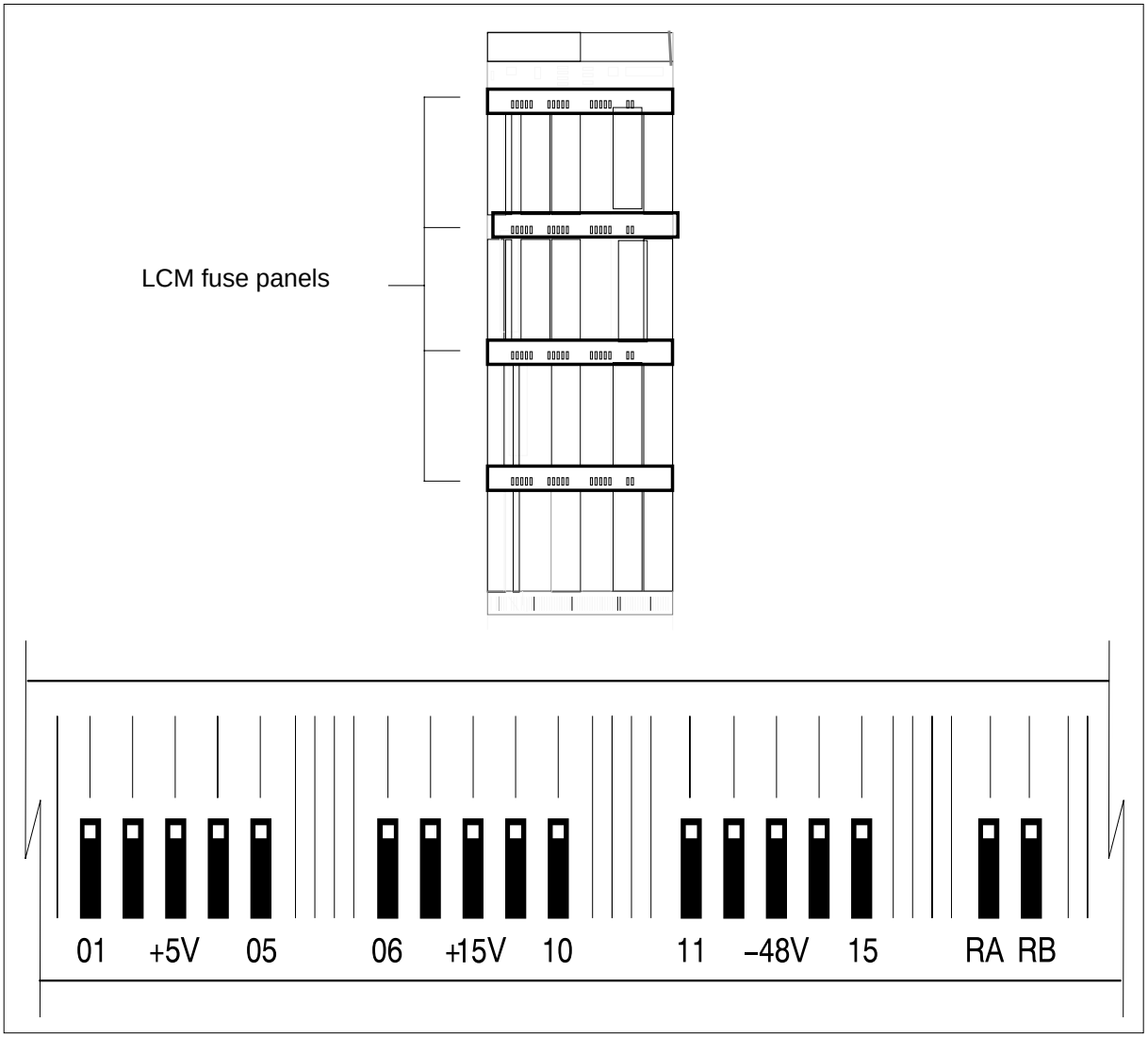
Note: Fuse markings do not always identify voltage. Make sure that you note the fuses and the location of the fuses in the fuse panel.

a Remove the -48V fuse for the line drawer that contains the faulty DBIC.

b Remove the +15V fuse for the line drawer that contains the faulty DBIC.

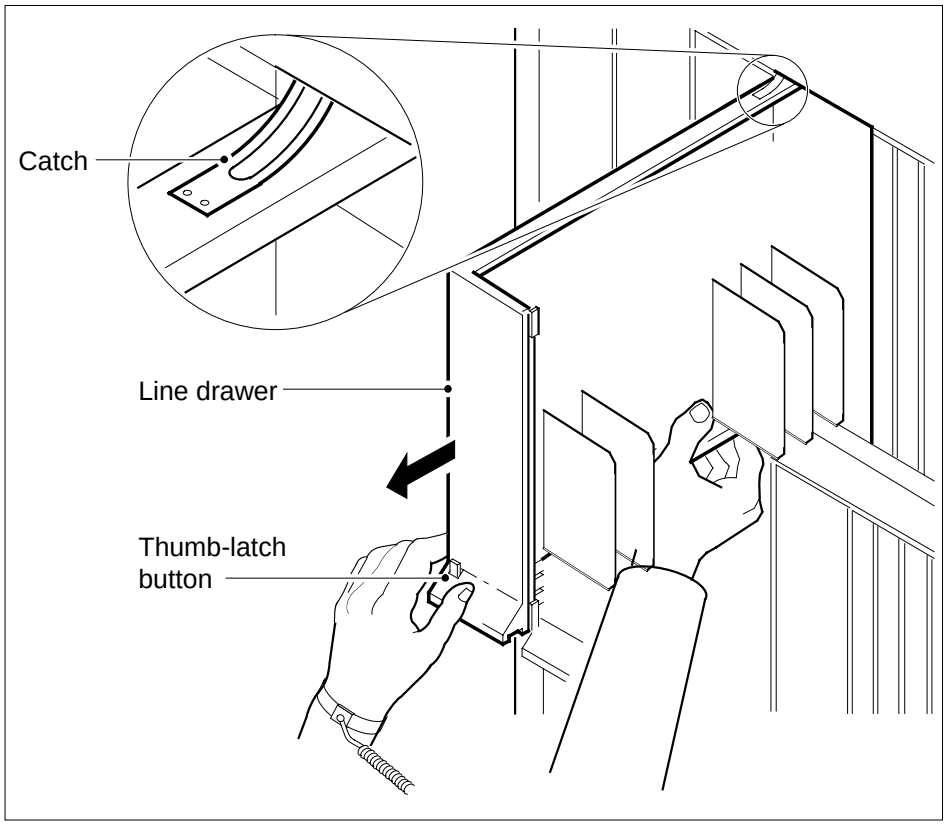
c Remove the +5V fuse for the line drawer that contains the faulty DBIC.

NTEX54
in an RSC-S (DS-1) Model B LCM (continued)



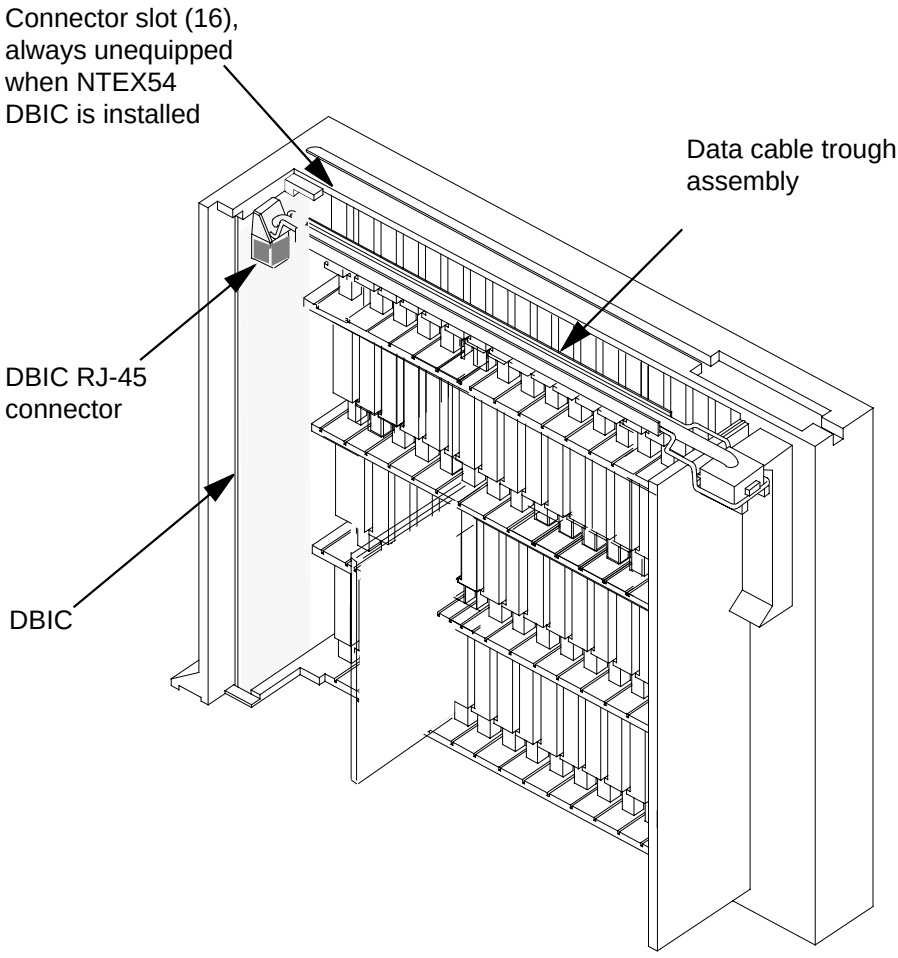
12 Identify the drawer. Press the small thumb-latch button on the lower left edge of the drawer. Pull the drawer out. To secure the drawer in a steady horizontal position, tip the drawer until the catch rests on the line drawer track.

NTEX54
in an RSC-S (DS-1) Model B LCM (continued)



13 Disconnect the data cable from the RJ-45 connector on the DBIC. The RJ-45 connector is located at slot position 16 of the odd LSG (connector slot). Refer to the following figure.

NTEX54
in an RSC-S (DS-1) Model B LCM (continued)

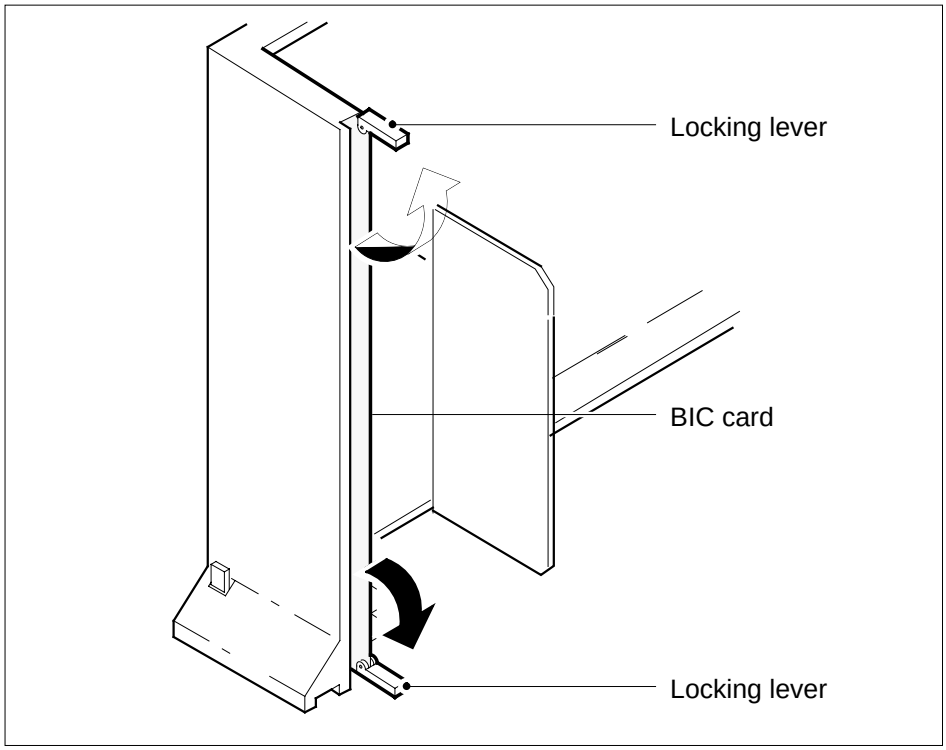


14

DANGER
Do not hold the card by the levers only
If you hold a card by the locking levers only, the levers can break. Pull the card half way out of the slot. Carefully grasp the card from below for more support. Continue to remove the card from the drawer. Make sure that you do not touch any wires or internal parts on the card.

NTEX54
in an RSC-S (DS-1) Model B LCM (continued)

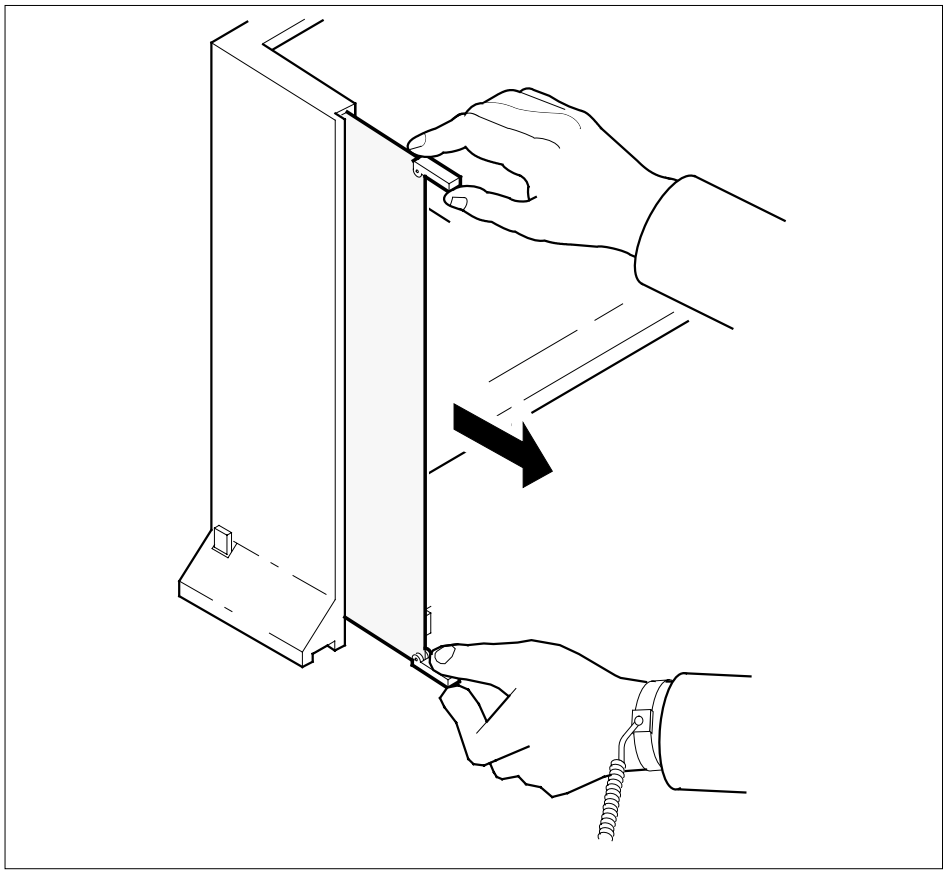
Open the locking levers on the face of the card.



15 Grasp the locking levers. Carefully pull the card toward you until the card clears the drawer.

Note: Do not use a rocking motion to remove the card.

NTEX54
in an RSC-S (DS-1) Model B LCM (continued)



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

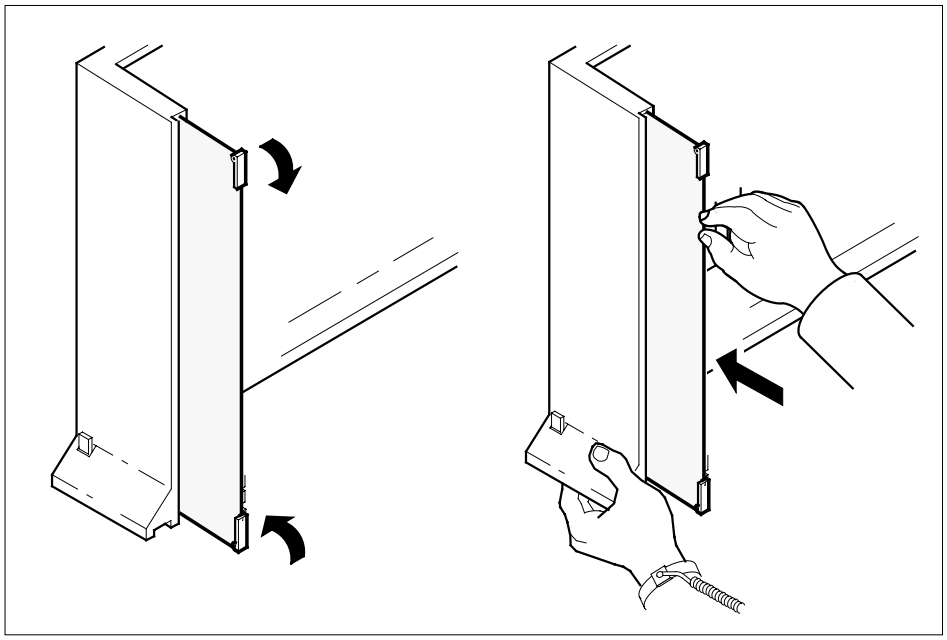
17 Make sure that the replacement card and the card that you remove have the same PEC and PEC suffix.

18 Close the locking levers on the replacement card. Align the card with the pin slots in the drawer. Carefully slide the card into the drawer.

19 Support the drawer with your left hand. Use your right hand to push on the upper and lower edges of the card. Make sure that the card sits completely in the drawer.

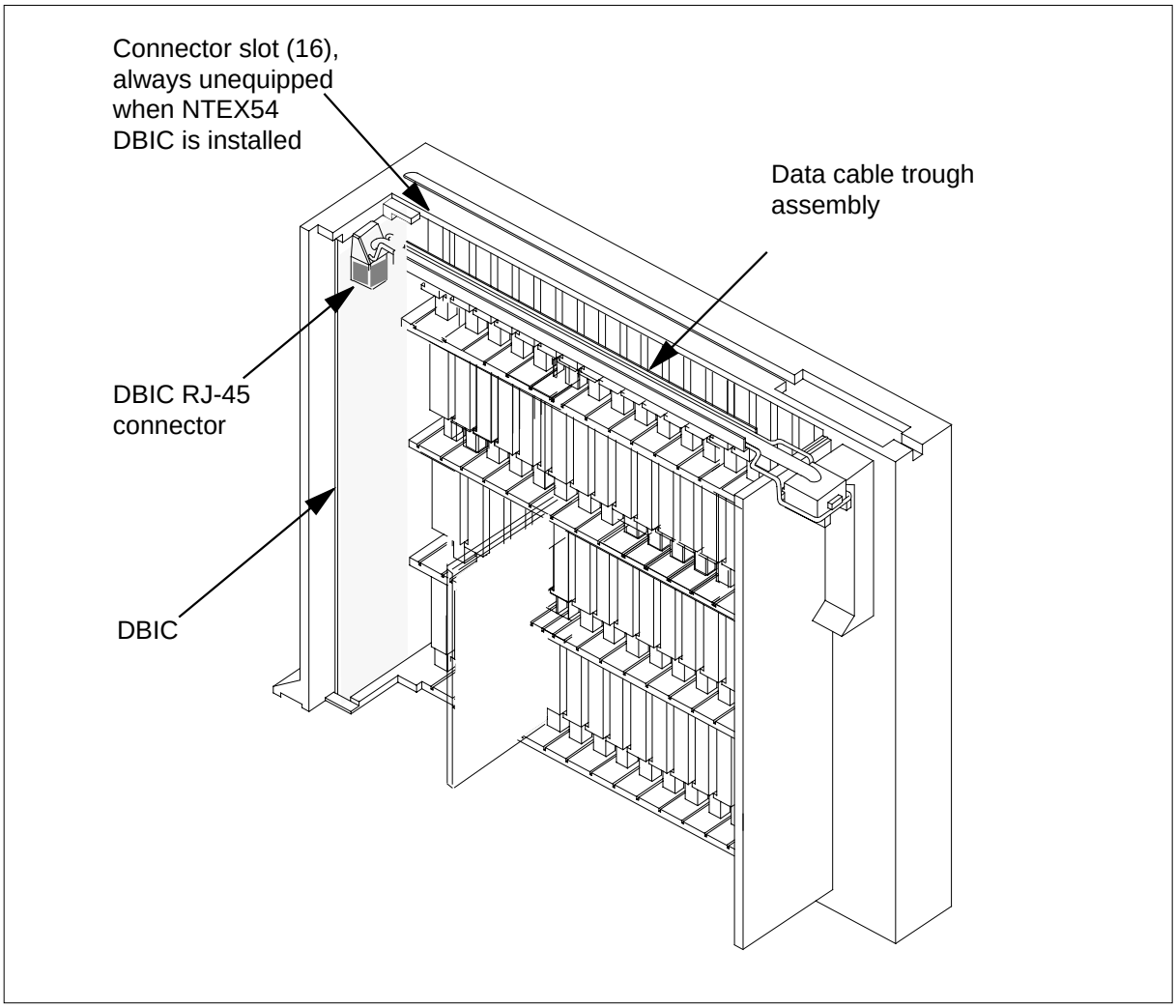
Note: Do not use a rocking motion to insert the card.

NTEX54
in an RSC-S (DS-1) Model B LCM (continued)



20 Connect the data cable RJ-45 connector that you disconnected in step 13. Refer to the following figure.

NTEX54
in an RSC-S (DS-1) Model B LCM (continued)



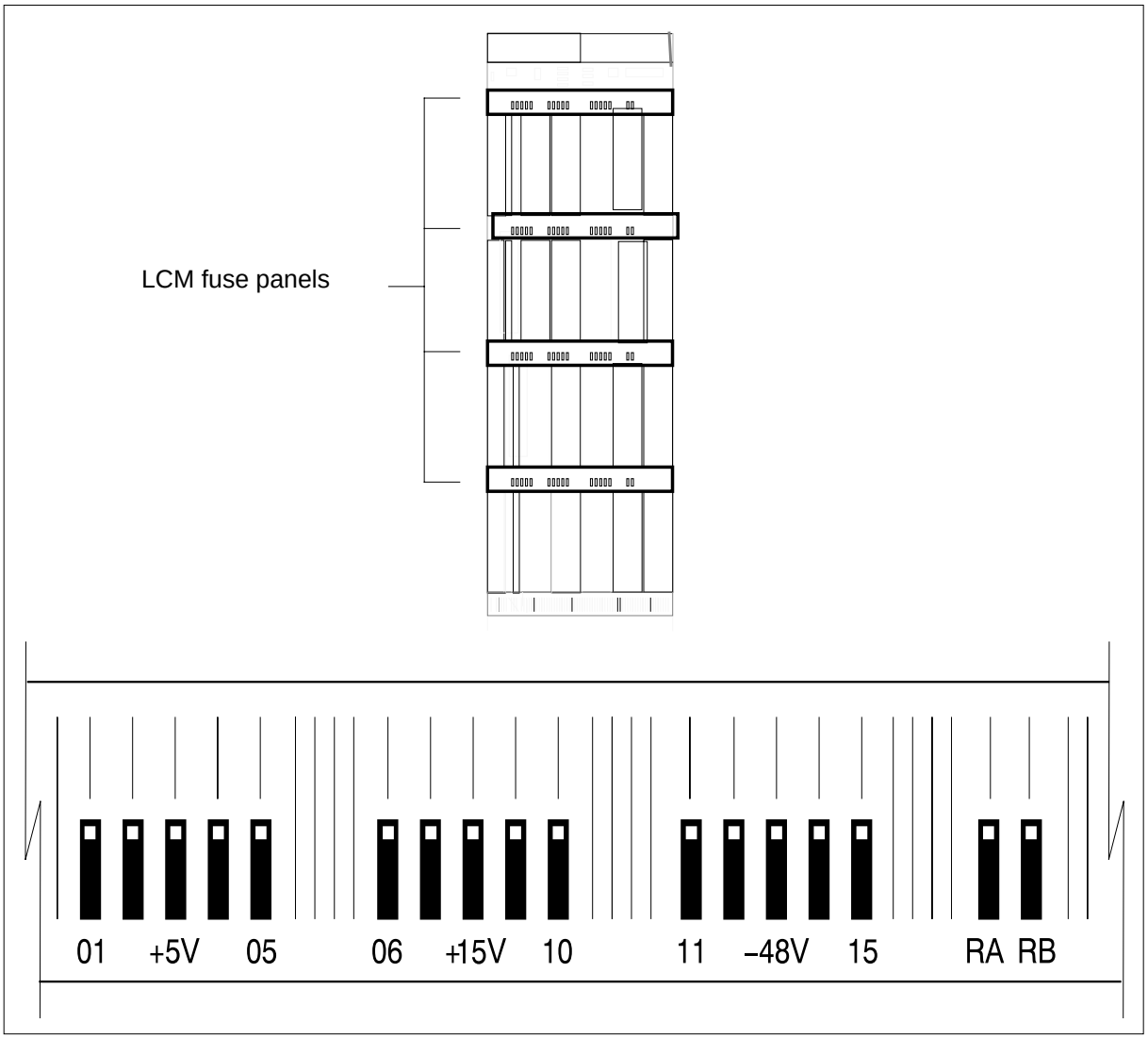
21 Close the line drawer.

22

DANGER
Potential equipment damage
Make sure you insert the fuses in the correct location on the fuse panel to prevent equipment damage.

Insert the fuses that you removed in step 11. Refer to the following figure.

NTEX54
in an RSC-S (DS-1) Model B LCM (continued)



Note: Fuses are coded for position. The colored square on the face of the fuse identifies the top edge.

a Insert the +5V fuse.

b Insert the +15V fuse.

c Insert the -48V fuse.

NTEX54
in an RSC-S (DS-1) Model B LCM (continued)

At the MAP terminal

23 A maintenance flag (Mtce) can appear. This flag indicates that system-initiated maintenance tasks are in progress. To stop the system-initiated maintenance tasks, type

```
>ABTK
```

and press the Enter key.

24 To return the logical drawer to service, type

```
>RTS  DRWR  drwr_no
```

and press the Enter key.

where

drwr_no
is the logical drawer number (0 to 19)

Example of a MAP response:

```
0Svce Tests Initiated
LCM REM1 00 0  Drwr 0 Tst Passed
LCM REM1 00 0Drwr 0 Rts Passed
```

If the RTS command	Do
passed, and you must return the other logical drawer to service	step 25
passed, and the other logical drawer is in service	step 26
failed	step 39

25 Repeat step 24 for the other logical drawer in the pair.

26 Update table LCMDRINV.

Note: Make sure you have the new MAC address from the replacement card as recorded in step 2.

a To open table LCMDRINV, type

```
>TABLE  LCMDRINV
```

and press the Enter key.

b To position on the tuple for the LCM, type

```
>POS  site_name  frame_no  lcm_no
```

and press the Enter key.

where

site_name
is the name of the site

NTEX54
in an RSC-S (DS-1) Model B LCM (continued)

frame_no
is the number of the frame

lcm_no
is the number of the LCM

c To begin changing the tuple, type

```
>CHA
```

and press the Enter key.

d To continue processing, type

```
>Y
```

and press the Enter key.

e Press the Enter key to scroll through the fields until you access the field with the MAC address.

f Enter the new MAC address. Type

```
>drwr_id  card_pec  drwr_pec mac_address ip_address
```

and press the Enter key.

where

drwr_id
is the physical number of the drawer

card_pec
is NTEX54AA, NTEX54AB, or NTEX54BA

drwr_pec
is the PEC of the drawer

mac_address
is the MAC address of the new NTEX54

ip_address
is the IP address of the new NTEX54

g Press the Enter key to scroll through remaining fields.

h Confirm the change. Type

```
>Y
```

and press the Enter key.

i Exit the table. Type

```
>QUIT
```

and press the Enter key.

NTEX54 in an RSC-S (DS-1) Model B LCM (end)

At the xEMS workstation

27



CAUTION
Transport network must know new MAC address
Before you return the DBIC to service, you must provide the MAC address for the DBIC to the transport network. Contact the network administrator for assistance.

Go to the submap of the LCM line drawer with the new NTEX54 card.

28 Select the card by placing the cursor on the DBIC.

29 From the pop-up menu select Describe/Modify Object. The Object Description dialog box appears.

30 From the Object Description dialog box, select HSTP Application from the fields under Object Attributes.

31 Select View/Modify Object Attributes.

32 Enter the new MAC address in the %LAC MAC Address field, for example, 0060381120a1.

33 Click the Verify button to verify the information.

34 Click the OK button to close the Attributes dialog box.

35 Click OK to close the Object Description dialog box.

36 Place the cursor on the DBIC you want to return to service and use the mouse to select

`Maintenance -> DBIC -> Rts`

from the pop-up menu.

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

38 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 40.

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

40 You have successfully completed this card replacement procedure.

NTEX54 in a STAR

Application

Use this procedure to replace the following cards in a Star Hub line drawer.

PEC	Suffixes	Name
NTEX54	CA	Data enhanced bus interface card (DBIC)

Common procedures

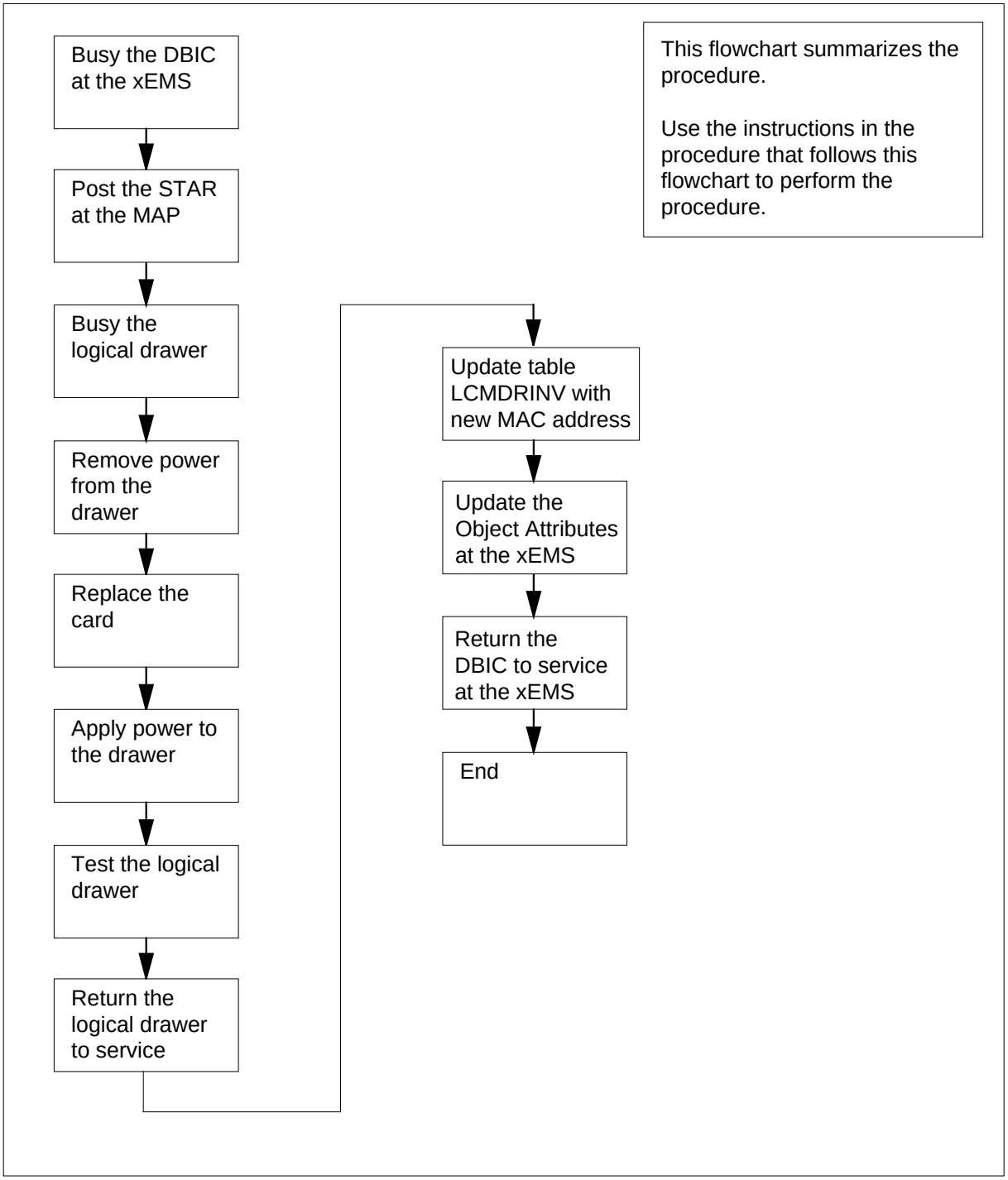
None

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.

NTEX54 in a STAR (continued)

Summary of replacing an NTEX54 in a STAR



Replacing an NTEX54 in STAR

At your current location

1



CAUTION
Loss of service
This procedure directs you to manually busy a line drawer. Removal of a line drawer from service can cause the system to drop calls in progress. Perform this procedure only if you need to restore out-of-service components. Unless it is urgent, perform this procedure during periods of low traffic.

Get a replacement card. Make sure that the replacement card and the card that you remove have the same product engineering code (PEC) and PEC suffix.

2



CAUTION
Transport network must know new MAC address
Work with the network administrator during this procedure. The transport network must know the MAC address of the new DBIC before the DBIC can support 1-Meg Modem Service.

Write down the 12-digit number stamped on the new NTEX54 card. This number is the media access control (MAC) address. You will use the MAC address later in this procedure.

At the xEMS workstation

3 Go to the submap of the STAR line drawer with the NTEX54 card to be replaced.

4 Place the cursor on the data-enhanced bus interface card (DBIC) you want to busy and use the mouse to select

`Maintenance -> DBIC -> ManB`

from the pop-up menu.

NTEX54
in a STAR (continued)

At the MAP terminal

5 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_no unit_no`

and press the Enter key.

where

site
is the site name (alphanumeric) of the STAR

frame_no
is the equipment frame number (00 to 511) of the STAR

unit_no
is 0 for the STAR

Example of a MAP display:

```
STAR  REM1  O1 1 ISTb   Links_OOS: CSide 0 PSide 0 UMP OOS: 0
Unit  0:  InSv  Mtce      /RG:  0
Unit 1:  InsV  Mtce       /RG:  0                RG

                          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
..  ..  SS  ..  ..  ..  ..  ..       ..  ..  ..  ..  ..  ..  ..  ..  ..  ..
```

6 Record the numbers of the logical drawers for the NTEX54.

Note: Logical drawers configure in pairs for the physical drawer. The NTEX54 services the physical drawer. Both logical drawers must be manually busy to perform this card replacement procedure.

7 Check the state of the affected logical drawers.

If the state for	Do
one or both logical drawers is `I,S,` or `.` (dot)	step 8
both logical drawers is `M`	step 11
one or both logical drawers is `0` or `-`	Determine why the drawer is offline. If necessary, contact the next level of support.

8 To manually busy the logical drawer, type

`>BSY DRWR drwr_no`

and press the Enter key.

where

drwr_no
is the logical drawer number (0 to 23)

Example of a MAP response:

```
STAR REM1 01 Drwr 4 will be taken out of service
Please confirm ("YES",  "Y",  "NO",  or  "N"):
```

9 To confirm the command, type

>YES

and press the Enter key.

Example of a MAP response:

```
STAR REM1 01 1  Drwr 4 Bsy Passed
```

If	Do
you must busy the other logical drawer of the pair	step 10
both logical drawers are now M	step 11

10 Busy the other logical drawer of the pair.

>BSY DRWR drwr_no

and press the Enter key.

where

drwr_no
is the logical drawer number (0 to 23)

Example of a MAP response:

```
STAR REM1 01 1  Drwr 5 Bsy Passed
```

NTEX54
in a STAR (continued)

At the SRHE frame

11



WARNING
Static electricity damage
Wear a wrist strap that connects to the wrist-strap grounding point to handle circuit cards. The wrist-strap grounding point is on the frame supervisory panel (FSP). The wrist strap protects the cards against static electricity damage.



WARNING
Potential equipment damage
Note the fuses that you remove from the fuse panel. If you do not insert fuses in the correct location on the fuse panel, equipment damage occurs.



WARNING
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.

Remove fuses for the line drawer containing the faulty DBIC. Refer to the figure and table that follow to identify the correct fuses. Perform the following steps.

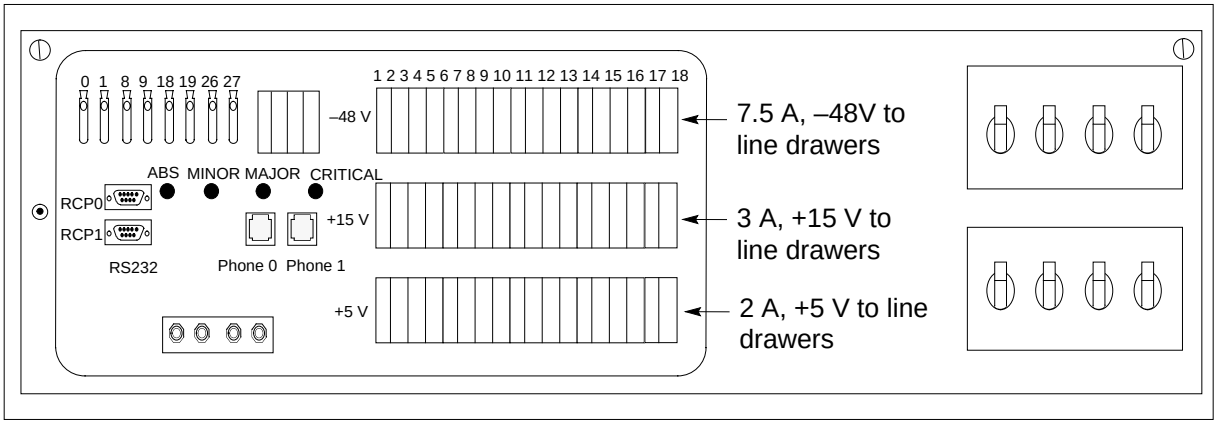
a Remove the -48V fuse for the line drawer that contains the faulty DBIC.

b Remove the +15V fuse for the line drawer that contains the faulty DBIC.

c Remove the +5V fuse for the line drawer that contains the faulty DBIC.

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 drawer 1 and any fuse in position 2 is associated with line drawer 2, and so forth.

FSP front panel layout



Relationship of line drawer to FSP fuse numbers (Sheet 1 of 2)

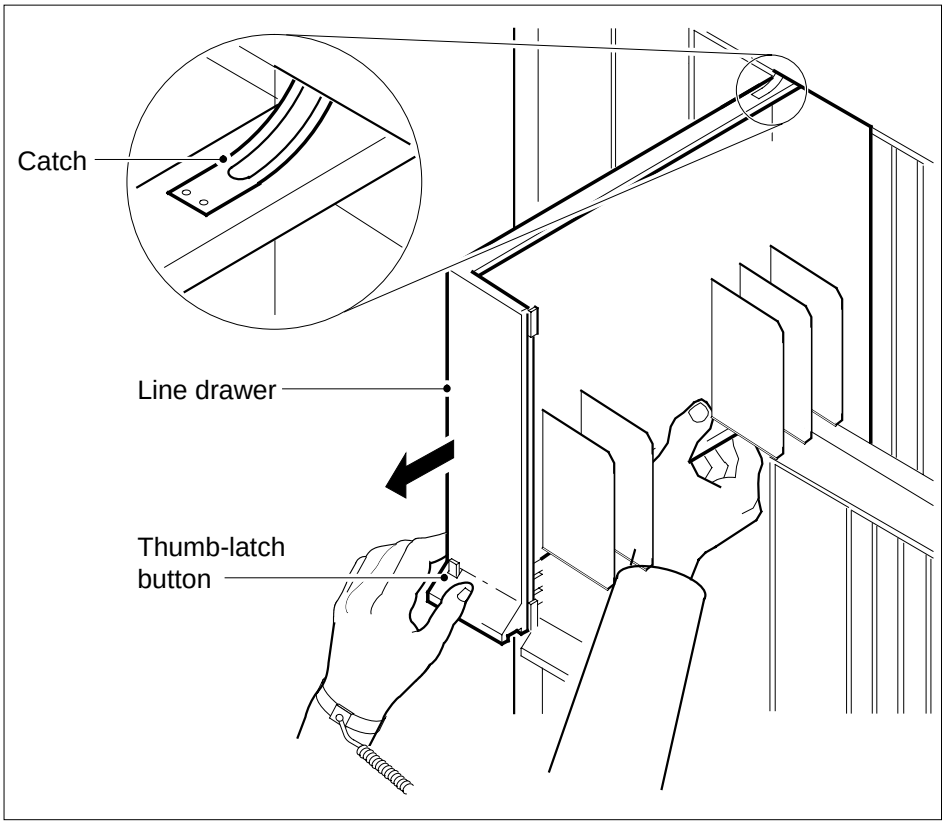
		FSP FUSE numbers	
Line drawer	**+5 V**	**+15 V**	**-48 V**
1	01	01	01
2	02	02	02
3	03	03	03
4	04	04	04
5	05	05	05
6	06	06	06
7	07	07	07
8	08	08	08
9	09	09	09
10	10	10	10
11	11	11	11
12	12	12	12
13	13	13	13
14	14	14	14

NTEX54
in a STAR (continued)

Relationship of line drawer to FSP fuse numbers (Sheet 2 of 2)

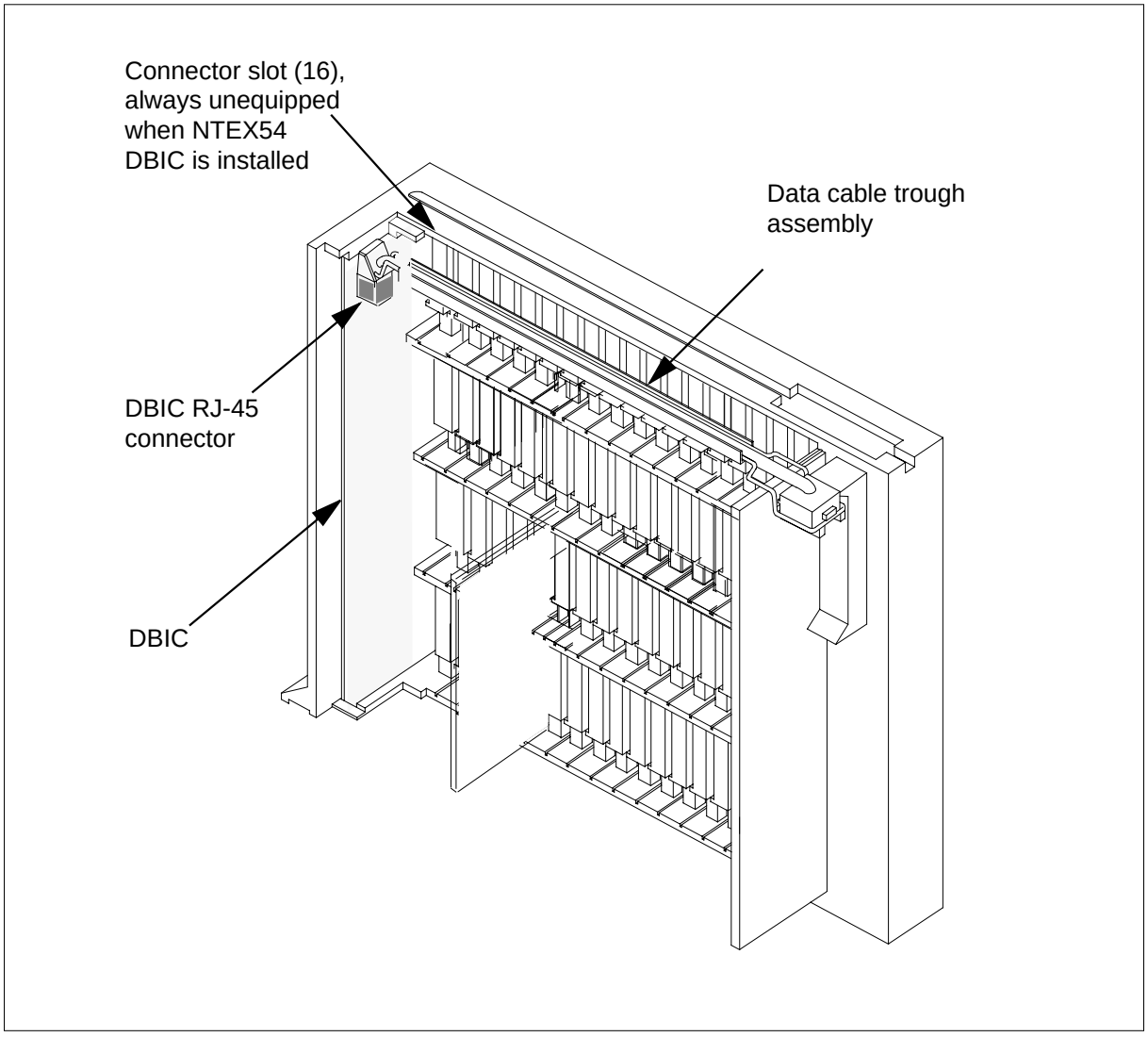
	FSP FUSE numbers		
Line drawer	**+5 V**	**+15 V**	**-48 V**
15	15	15	15
16	16	16	16
17	17	17	17
18	18	18	18

12 Identify the drawer. Press the small thumb-latch button on the lower left edge of the drawer. Pull the drawer out. To secure the drawer in a steady horizontal position, tip the drawer until the catch rests on the line drawer track.



13 Disconnect the data cable from the RJ-45 connector on the DBIC. The RJ-45 connector is located at slot position 16 of the odd LSG (connector slot). Refer to the following figure.

NTEX54
in a STAR (continued)

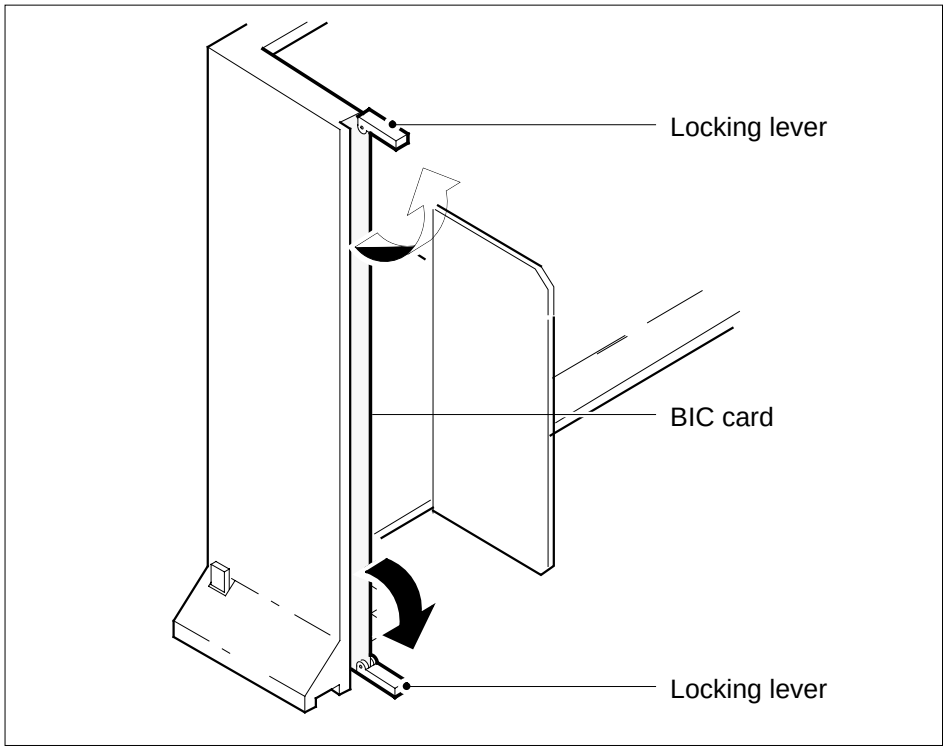


14

WARNING
Do not hold the card by the levers only
If you hold a card by the locking levers only, the levers can break. Pull the card half way out of the slot. Carefully grasp the card from below for more support. Continue to remove the card from the drawer. Make sure that you do not touch any wires or internal parts on the card.

NTEX54
in a STAR (continued)

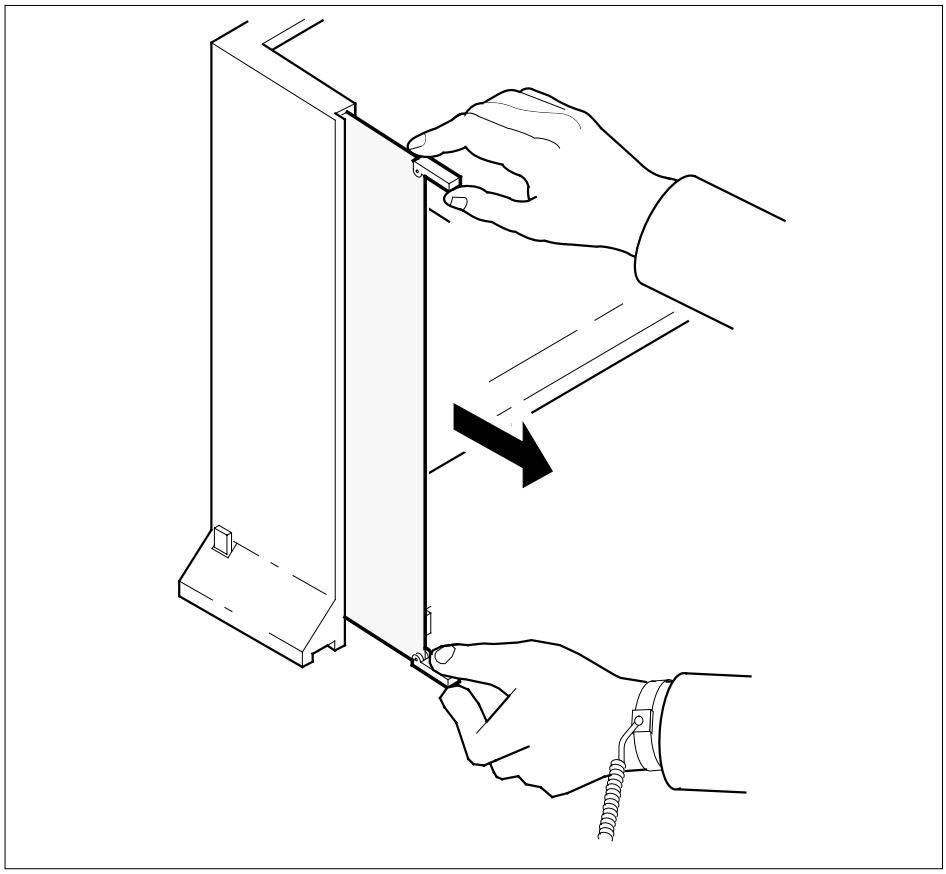
Open the locking levers on the face of the card.



15 Hold the locking levers. Carefully pull the card toward you until the card clears the drawer.

Note: Do not use a rocking motion to remove the card.

NTEX54
in a STAR (continued)



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

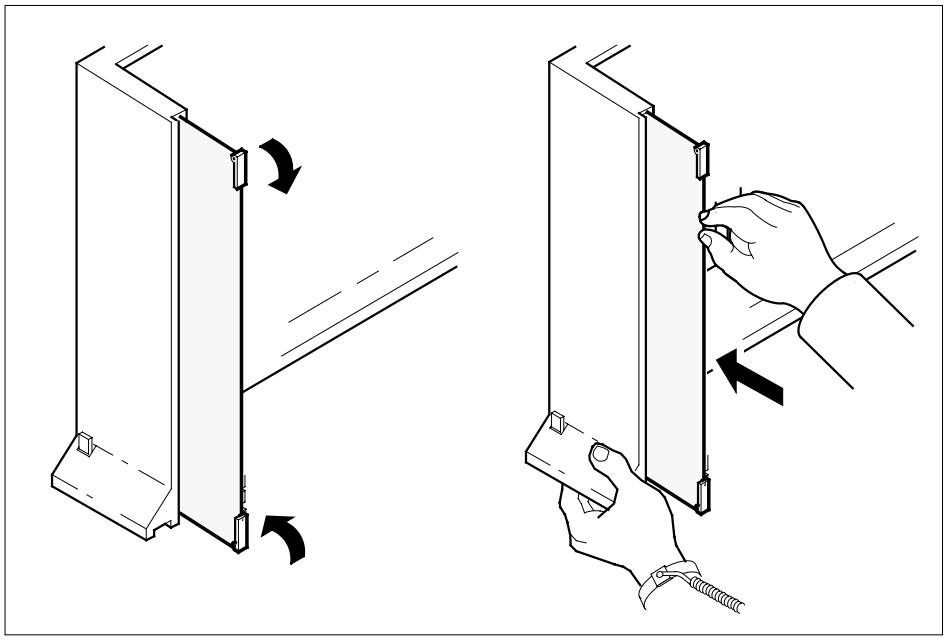
17 Make sure that the replacement card and the card that you remove have the same PEC and PEC suffix.

18 Close the locking levers on the replacement card. Align the card with the pin slots in the drawer. Carefully slide the card into the drawer.

19 Support the drawer with your left hand. Use your right hand to push on the upper and lower edges of the card. Make sure that the card sits completely in the drawer.

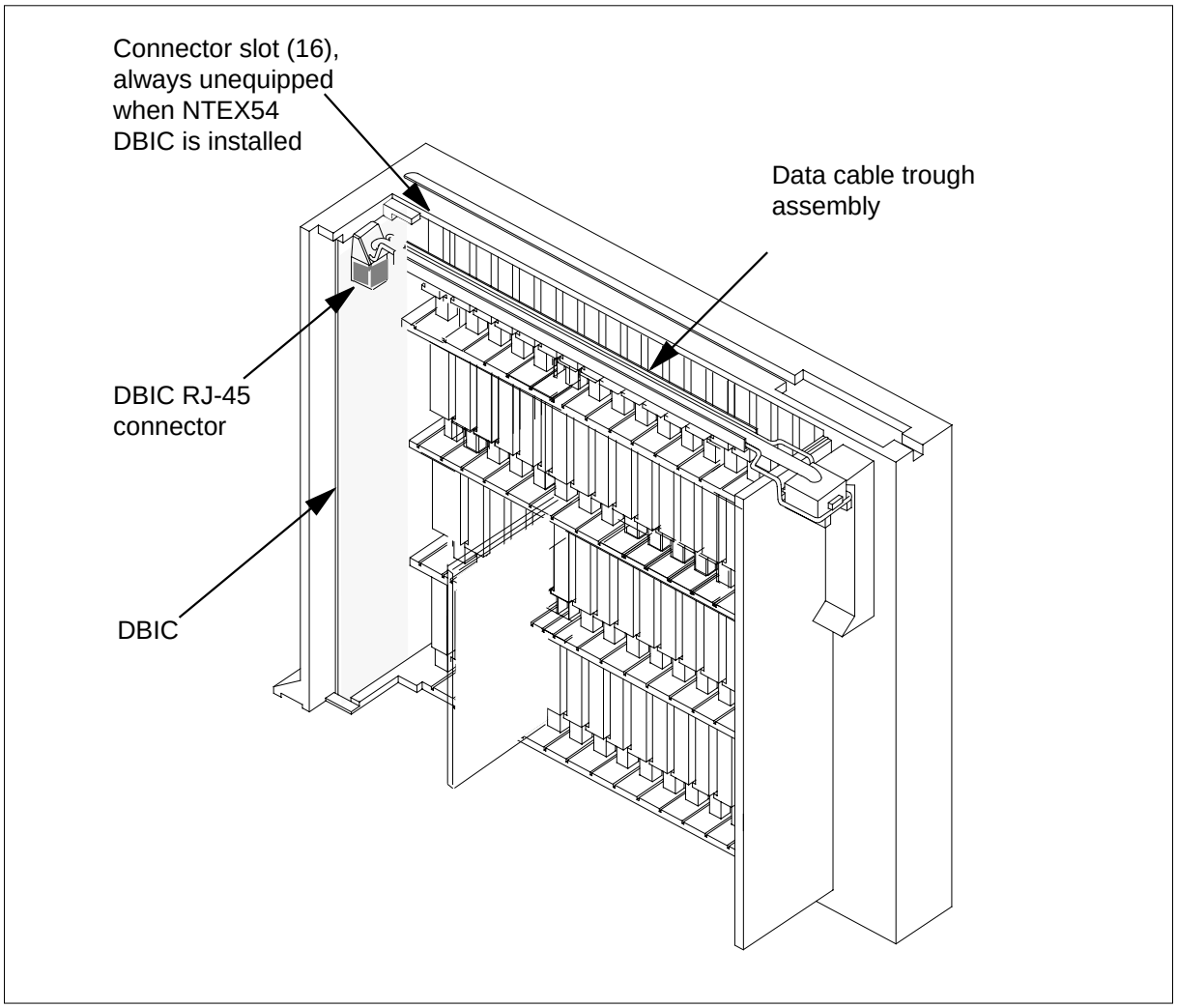
Note: Do not use a rocking motion to insert the card.

NTEX54
in a STAR (continued)



20 Connect the data cable to the RJ-45 connector that you disconnected in step 13. Refer to the following figure.

NTEX54
in a STAR (continued)



21 Close the line drawer.

22

WARNING
Potential equipment damage
Make sure you insert the fuses in the correct location on the fuse panel to prevent equipment damage.

Insert the fuses that you removed in step 11. Refer to the following figure.

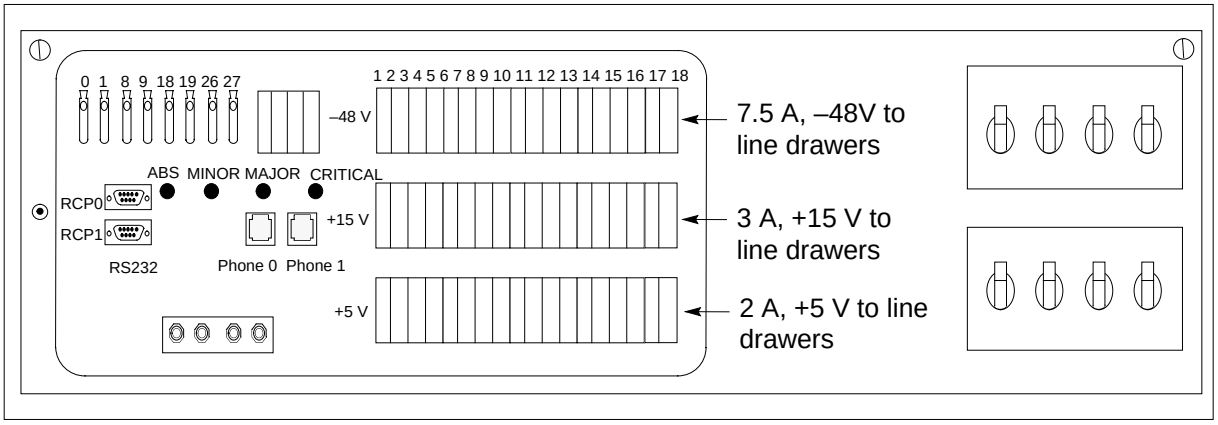
NTEX54
in a STAR (continued)

a Insert the +5V fuse.

b Insert the +15V fuse.

c Insert the -48V fuse.

FSP front panel layout



At the MAP terminal

23 A maintenance flag (Mtce) can appear. This flag indicates that system-initiated maintenance tasks are in progress. To stop the system-initiated maintenance tasks, type

>ABTK

and press the Enter key.

24 To return the logical drawer to service, type

>RTS DRWR drwr_no

and press the Enter key.

where

drwr_no
is the logical drawer number (0 to 17)

Example of a MAP response:

```
OSvce Tests Initiated
STAR REM1 00 0 Drwr 4 Tst Passed
STAR REM1 00 0 Drwr 4 Rts Passed
```

If the RTS command	Do
passes, and you must return the other logical drawer to service	step 25
passes, and the other logical drawer is in service	step 26

If the RTS command	Do
fails	step 39

25 Repeat step 24 for the other logical drawer in the pair.

26 Update table LCMDRINV.

Note: Make sure you have the new MAC address from the replacement card as recorded in step 2.

a To open table LCMDRINV, type

```
>TABLE  LCMDRINV
```

and press the Enter key.

b To position on the tuple for the STAR, type

```
>POS  site_name  frame_no  lcm_no
```

and press the Enter key.

where

site_name
is the name of the site

frame_no
is the number of the frame

lcm_no
is the number of the STAR

c To begin changing the tuple, type

```
>CHA
```

and press the Enter key.

d To continue processing, type

```
>Y
```

and press the Enter key.

e Press the Enter key to scroll through the fields until you access the field with the MAC address.

f Enter the new MAC address. Type

```
>drwr_id  card_pec  drwr_pec mac_address ip_address
```

and press the Enter key.

where

drwr_id
is the physical number of the drawer

card_pec
is NTEX54AA, NTEX54AB, NTEX54BA, or NTEX54CA

drwr_pec
is the PEC of the drawer

NTEX54
in a STAR (continued)

mac_address
is the MAC address of the new NTEX54

ip_address
is the IP address of the new NTEX54

g Press the Enter key to scroll through remaining fields.

h Confirm the change. Type

>Y

and press the Enter key.

i Exit the table. Type

>QUIT

and press the Enter key.

At the xEMS workstation

27



CAUTION
Transport network must know new MAC address
Before you return the DBIC to service, you must provide the MAC address for the DBIC to the transport network. Contact the network administrator for assistance.

Go to the submap of the STAR line drawer with the new NTEX54 card.

28 Select the card by placing the cursor on the DBIC.

29 From the pop-up menu select Describe/Modify Object. The Object Description dialog box appears.

30 From the Object Description dialog box, select HSTP Application from the fields under Object Attributes.

31 Select View/Modify Object Attributes.

32 Enter the new MAC address in the %LAC MAC Address field, for example, 0060381120a1.

33 Click the Verify button to check the information.

34 Click the OK button to close the Attributes dialog box.

35 Click OK to close the Object Description dialog box.

36 Place the cursor on the DBIC you want to return to service and use the mouse to select

Maintenance -> DBIC -> Rts

from the pop-up menu.

37 Send any cards with faults for repair according to local procedure.

NTEX54 in a STAR (end)

38 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 40.

39 Get additional help in replacing this card by contacting the personnel responsible for higher level of support.

40 You have correctly completed this card replacement procedure.

NTMX45 in an IOPAC HIE

Application

Use this procedure to replace an NTMX45 in host interface equipment (HIE) shelf.

PEC	Suffixes	Name
NTMX45	AA	Emergency Stand-Alone (ESA) processor (EP)

If you cannot identify the PEC, suffix, and shelf or frame for the card you want to replace, refer to the “Index" in this document. The index lists the cards, shelves, and frames in this card replacement NTP.

Common procedures

This procedure does not refer to any common procedures.

Next level of maintenance

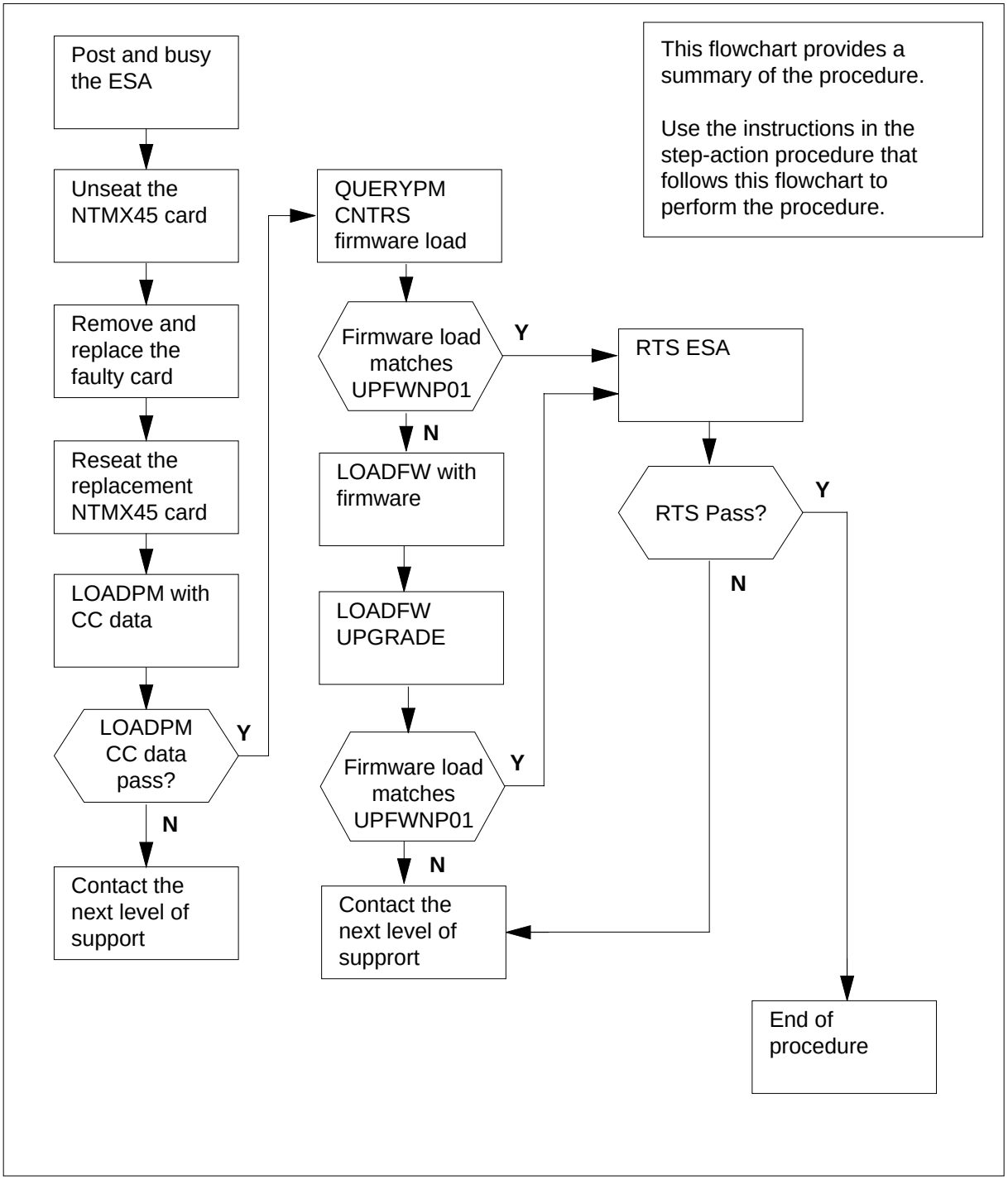
A problem can occur that requires the help of the local maintenance personnel. Gather all important logs, reports, and system information (that is, product type and current software load) for analysis. The related logs, maintenance notes, and system information help make sure that the next level of maintenance and support can find the problem. More detail about logs appears in the *Log Report Reference Manual*.

Action

The flowchart that follows provides a summary of this procedure. Use the instructions in the step-action procedure that follows the flowchart to replace the card.

NTMX45 in an IOPAC HIE (continued)

Summary of replacing an NTMX45 HIE



NTMX45 in an IOPAC HIE (continued)

Replacing an NTMX45 HIE

At your Current Location

1 Continue if you were referred to this card replacement procedure

- from a step in a maintenance procedure
- to verify or accept cards
- 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 original card.

At the MAP terminal

3 Access the PM level of the MAP and post the ESA by typing

`>MAPCI;MTC;PM;POST ESA esa_no`

and pressing the Enter key.

where

esa_no
is the number of the ESA unit to be busied (0 to 255)

Example of a MAP display:

```
   CM    MS   IOD   Net    PM    CCS    LNS    Trks    Ext    APPL
    .     .     .     .   1RLCM   .      .      .       .       .

ESA              SysB     ManB     OffL     CBsy     ISTb      InSv
0 Quit     PM     0        0        2        0        2         25
2 Post_    ESA    0        0        0        0        1          1
3 ListSet
4                              Links_OOS: CSide  0
5 Trnsl          RLCM  ESA    4 Sysb
6 Tst
7 Bsy_
8 RTS_
9 OffL
10 LoadPM
11 Disp_
12 Next_
13
14 QueryPM
15
16
17
18
```

NTMX45 in an IOPAC HIE (continued)

At the MAP terminal

4 Busy the inactive ESA processor by typing

>BSY

and pressing the Enter key.

Example of a MAP response:

```
ESA 4      This action will take this PM
           out of service
Please confirm ("YES", "Y", "NO", or "N"):
```

Respond by typing

>YES

At the RLCM frame

5



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



DANGER
Equipment damage
Take the following precautions when removing or inserting a card:

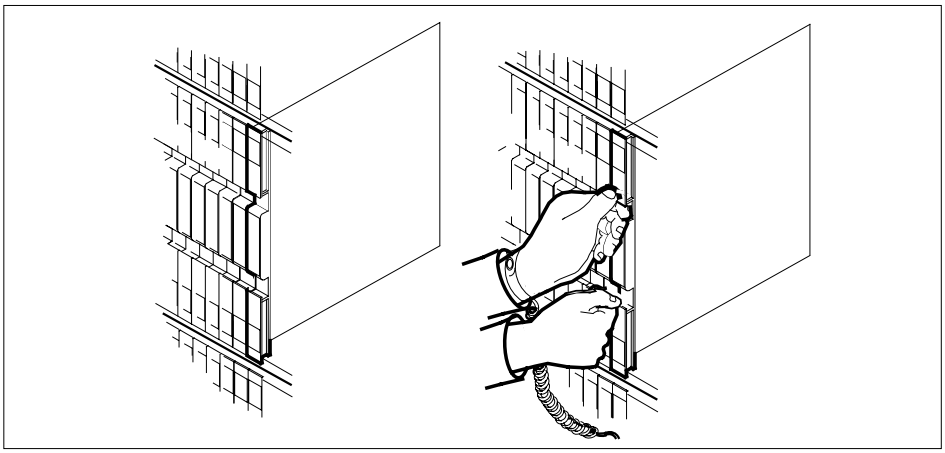
1. Do not apply direct pressure to the components.
2. Do not force the cards into the slots.

Put on a wrist strap.

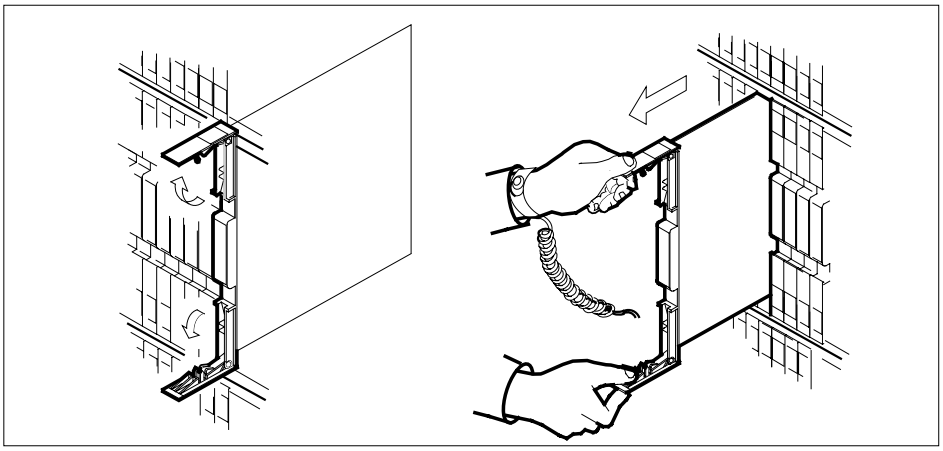
6 Remove the NTMX45 card as shown in the following figures.

a Locate the damaged card on the appropriate shelf.

NTMX45
in an IOPAC HIE (continued)



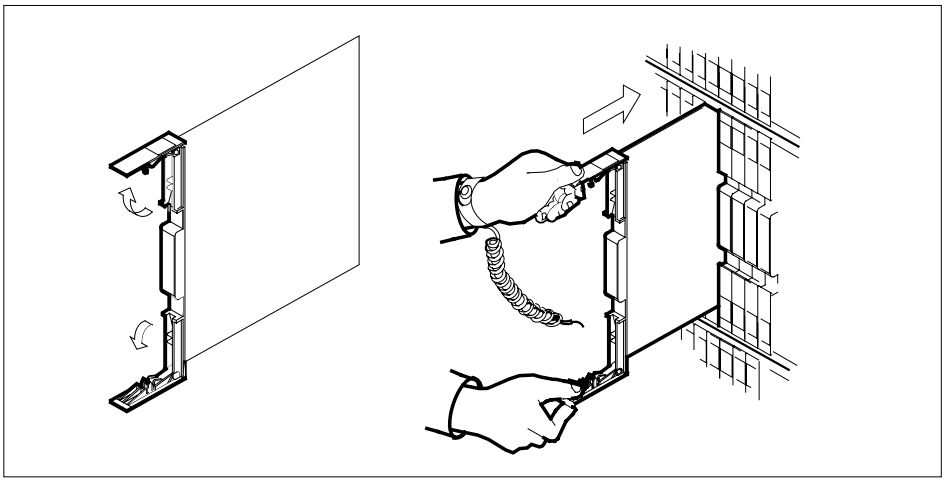
b Open the locking levers on the damaged card and carefully pull the card towards you until it clears the shelf.



c Make sure that the replacement card has the same PEC and suffix as the card you just removed. Also make sure that all DIP switches on the replacement card match settings of the card just removed.

7 Open the locking levers on the replacement card.

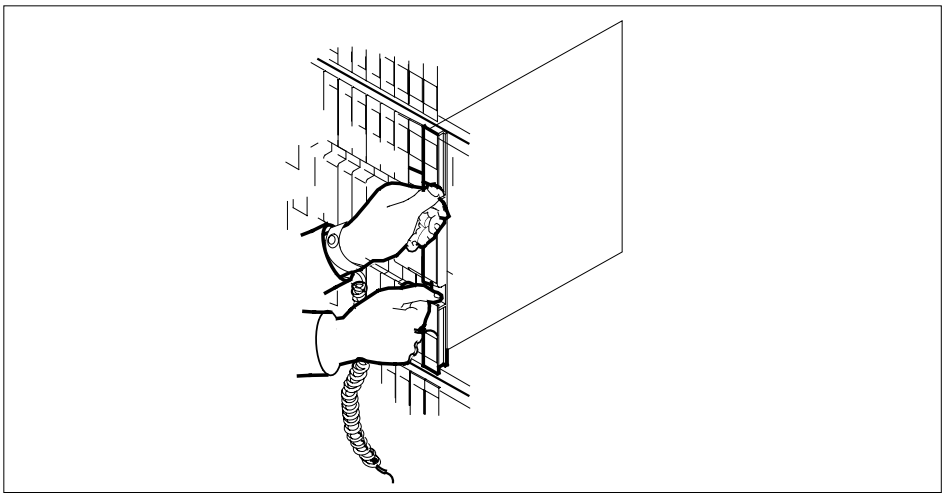
a Align the card with the slots in the shelf and carefully slide the card into the shelf.



Seat and lock the card.

b Use your fingers or thumbs to push on the upper and lower edges of the faceplate.

c Close the locking levers.



8 Use the following table to determine the next step in this procedure.

If you entered this procedure from	Do
an alarm clearing procedure	step 34
other	step 9

NTMX45
in an IOPAC HIE (continued)

9 Load the ESA processor by typing

>LOADPM

and pressing the Enter key.

If the load	Do
message “loadfile not found in directory" is received	step 10
load passes	step 28
load fails	step 35

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.

12 Mount the tape on a magnetic tape drive.

At the MAP terminal

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 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

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 display 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.

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

```
>DISKUT
```

and pressing the Enter key.

24 List all SLM disk volumes into your 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.

NTMX45 in an IOPAC HIE (continued)

27 Reload the ESA processor by typing

>LOADPM

and pressing the Enter key.

If loadpm	Do
passes	step 28
fails	step 35

28 Query the PM counters for the firmware load on the NTMX45 by typing

>QUERYPM CNTRS

and pressing the Enter key.

Example of a MAP display:

```
Unsolicitited MSG limit = 250, count = 0
Ram Load: MSA12AM1
EPRom Version: Ac01
EEPRom Load: Loadable NP02 , Executable: NP02
EP:MX45AA
```

NTMX45 Firmware loadname

If firmware is	Do
valid	step 31
invalid	step 29

29 Load the NTMX45 firmware by typing

>LOADFW

and pressing the Enter key.

Note: The command applies the firmware file provisioned in table XESAINV unless the firmware load is indicated with the command.

If load	Do
passes	step 30
fails	step 35

30 Upgrade the firmware in the NTMX45AA by typing

>LOADFW UPGRADE

and pressing the Enter key.

If the LOADFW UPGRADE	Do
passes	step 31
fails	step 35

31 Return the ESA to service by typing

>RTS

and pressing the Enter key.

If the RTS	Do
passes	step 32
fails	step 35

32 Send any damaged cards for repair according to local procedure.

33 Record the following items in office records:

- date the card was replaced
- serial number of the card
- problems that required replacement of the card

Go to step 36.

34 Return to the *Alarm Clearing Procedure* that referred you to this procedure. If necessary, go to the point where the damaged card list was produced, identify the next damaged card on the list, and go to the appropriate procedure for that card in this manual.

35 Contact the next level of support for additional help to replace this card.

36 You have completed this procedure. Return to the maintenance procedure that referred you to this card replacement procedure and continue.

NTMX45 in an OPAC HIE

Application

Use this procedure to replace an NTMX45 in host interface equipment (HIE) shelf.

PEC	Suffixes	Name
NTMX45	AA	Emergency Stand-Alone (ESA) processor (EP)

If you cannot identify the PEC, suffix, and shelf or frame for the card you want to replace, refer to the “Index" in this document. The index lists the cards, shelves, and frames in this card replacement NTP.

Common procedures

This procedure does not refer to any common procedures.

Next level of maintenance

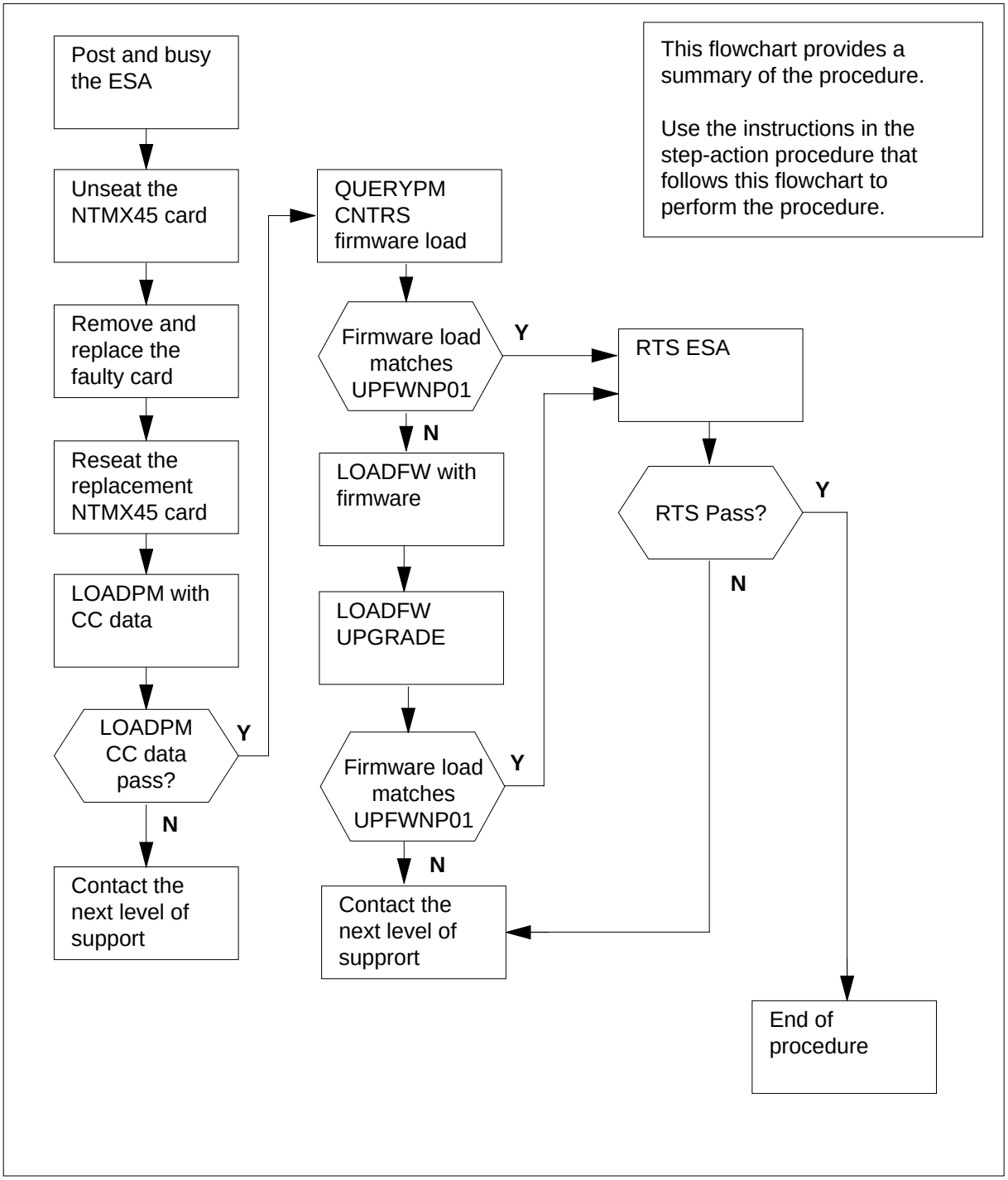
A problem can occur that requires the help of the local maintenance personnel. Gather all important logs, reports, and system information (that is, product type and current software load) for analysis. The related logs, maintenance notes, and system information help make sure that the next level of maintenance and support can find the problem. More detail about logs appears in the *Log Report Reference Manual*.

Action

The flowchart that follows provides a summary of this procedure. Use the instructions in the step-action procedure that follows the flowchart to replace the card.

NTMX45
in an OPAC HIE (continued)

Summary of replacing an NTMX45 HIE



NTMX45
in an OPAC HIE (continued)

Replacing an NTMX45 HIE

At your Current Location

1 Continue if you were referred to this card replacement procedure

- from a step in a maintenance procedure
- to verify or accept cards
- 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 original card.

At the MAP terminal

3 Access the PM level of the MAP and post the ESA by typing

`>MAPCI;MTC;PM;POST ESA esa_no`

and pressing the Enter key.

where

esa_no
is the number of the ESA unit to be busied (0 to 255)

Example of a MAP display:

```
   CM    MS   IOD   Net    PM    CCS    LNS    Trks    Ext    APPL
    .     .     .     .   1RLCM   .      .      .       .       .

ESA              SysB     ManB     OffL     CBsy     ISTb      InSv
0 Quit     PM     0        0        2        0        2         25
2 Post_    ESA    0        0        0        0        1          1
3 ListSet
4                              Links_OOS: CSide  0
5 Trnsl          RLCM  ESA    4 Sysb
6 Tst
7 Bsy_
8 RTS_
9 OffL
10 LoadPM
11 Disp_
12 Next_
13
14 QueryPM
15
16
17
18
```

NTMX45 in an OPAC HIE (continued)

At the MAP terminal

4 Busy the inactive ESA processor by typing

>BSY

and pressing the Enter key.

Example of a MAP response:

```
ESA 4      This action will take this PM
           out of service
Please confirm ("YES", "Y", "NO", or "N"):
```

Respond by typing

>YES

At the RLCM frame

5



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



DANGER
Equipment damage
Take the following precautions when removing or inserting a card:

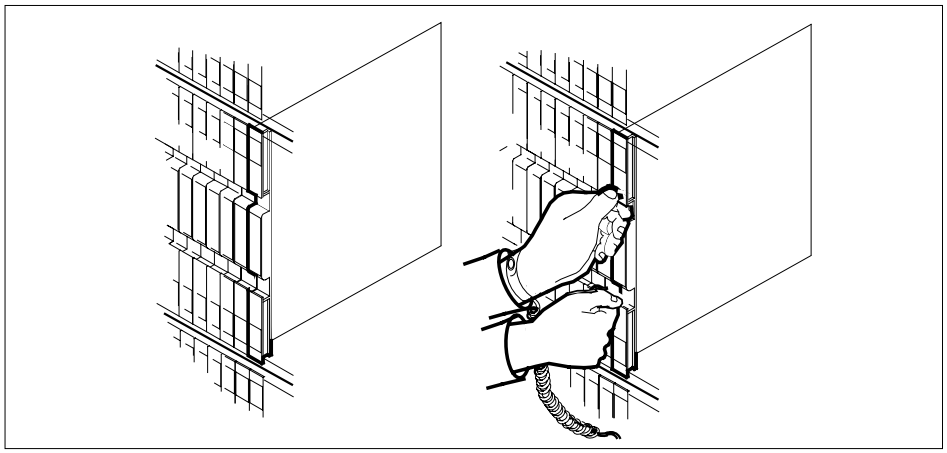
1. Do not apply direct pressure to the components.
2. Do not force the cards into the slots.

Put on a wrist strap.

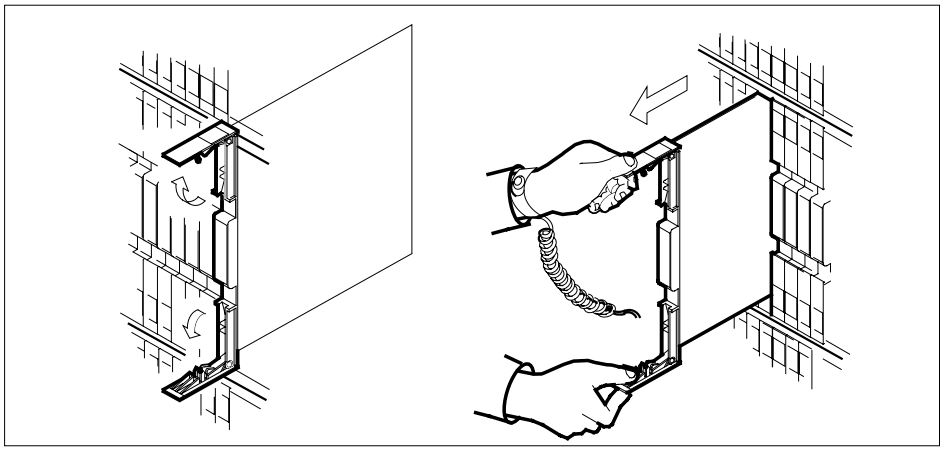
6 Remove the NTMX45 card as shown in the following figures.

a Locate the damaged card on the appropriate shelf.

NTMX45
in an OPAC HIE (continued)



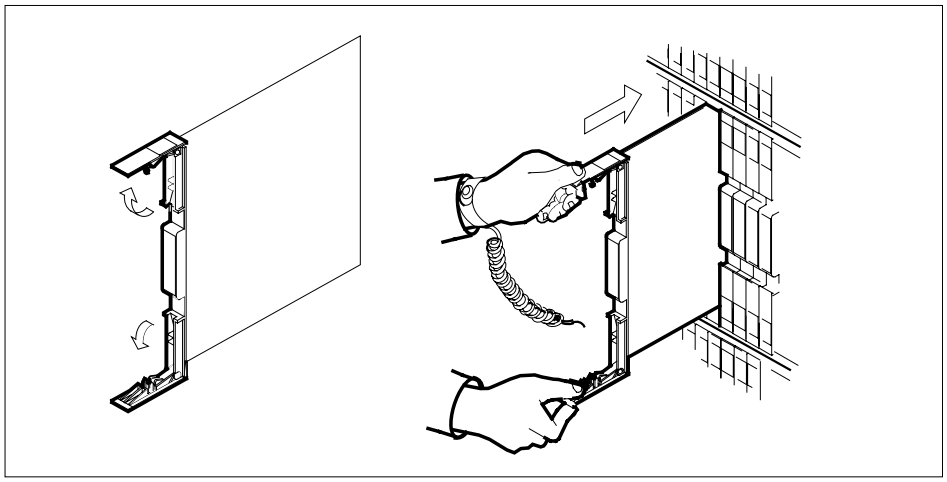
b Open the locking levers on the damaged card and carefully pull the card towards you until it clears the shelf.



c Make sure that the replacement card has the same PEC and suffix as the card you just removed. Also make sure that all DIP switches on the replacement card match settings of the card just removed.

7 Open the locking levers on the replacement card.

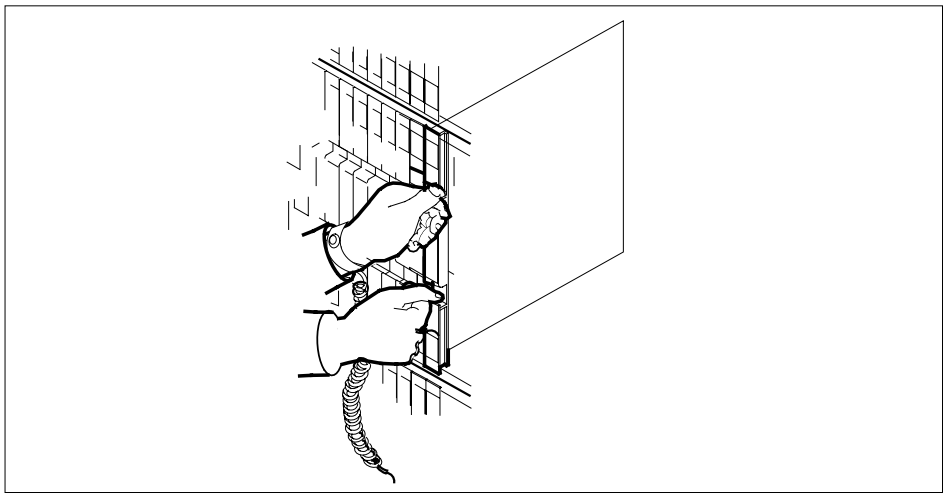
a Align the card with the slots in the shelf and carefully slide the card into the shelf.



Seat and lock the card.

b Use your fingers or thumbs to push on the upper and lower edges of the faceplate.

c Close the locking levers.



8 Use the following table to determine the next step in this procedure.

If you entered this procedure from	Do
an alarm clearing procedure	step 34
other	step 9

NTMX45
in an OPAC HIE (continued)

9 Load the ESA processor by typing

>LOADPM

and pressing the Enter key.

If the load	Do
message “loadfile not found in directory" is received	step 10
load passes	step 28
load fails	step 35

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.

12 Mount the tape on a magnetic tape drive.

At the MAP terminal

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 Demount the tape by typing

>DEMOUNT T tape_no

and pressing the Enter key.

where

NTMX45
in an OPAC HIE (continued)

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

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 display 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.

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

```
>DISKUT
```

and pressing the Enter key.

24 List all SLM disk volumes into your 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.

NTMX45
in an OPAC HIE (continued)

27 Reload the ESA processor by typing

>LOADPM

and pressing the Enter key.

If loadpm	Do
passes	step 28
fails	step 35

28 Query the PM counters for the firmware load on the NTMX45 by typing

>QUERYPM CNTRS

and pressing the Enter key.

Example of a MAP display:

```
Unsolicitited MSG limit = 250, count = 0
Ram Load: MSA12AM1
EPRom Version: Ac01
EEPRom Load: Loadable NP02 , Executable: NP02
EP:MX45AA
```

NTMX45 Firmware loadname

If firmware is	Do
valid	step 31
invalid	step 29

29 Load the NTMX45 firmware by typing

>LOADFW

and pressing the Enter key.

Note: The command applies the firmware file provisioned in table XESAINV unless the firmware load is indicated with the command.

If load	Do
passes	step 30
fails	step 35

30 Upgrade the firmware in the NTMX45AA by typing

>LOADFW UPGRADE

and pressing the Enter key.

If the LOADFW UPGRADE	Do
passes	step 31
fails	step 35

31 Return the ESA to service by typing

>RTS

and pressing the Enter key.

If the RTS	Do
passes	step 32
fails	step 35

32 Send any damaged cards for repair according to local procedure.

33 Record the following items in office records:

- date the card was replaced
- serial number of the card
- problems that required replacement of the card

Go to step 36.

34 Return to the *Alarm Clearing Procedure* that referred you to this procedure. If necessary, go to the point where the damaged card list was produced, identify the next damaged card on the list, and go to the appropriate procedure for that card in this manual.

35 Contact the next level of support for additional help to replace this card.

36 You have completed this procedure. Return to the maintenance procedure that referred you to this card replacement procedure and continue.

NTMX45 in an OPM HIE

Application

Use this procedure to replace an NTMX45 in host interface equipment (HIE) shelf.

PEC	Suffixes	Name
NTMX45	AA	Emergency Stand-Alone (ESA) processor (EP)

If you cannot identify the PEC, suffix, and shelf or frame for the card you want to replace, refer to the “Index" in this document. The index lists the cards, shelves, and frames in this card replacement NTP.

Common procedures

This procedure does not refer to any common procedures.

Next level of maintenance

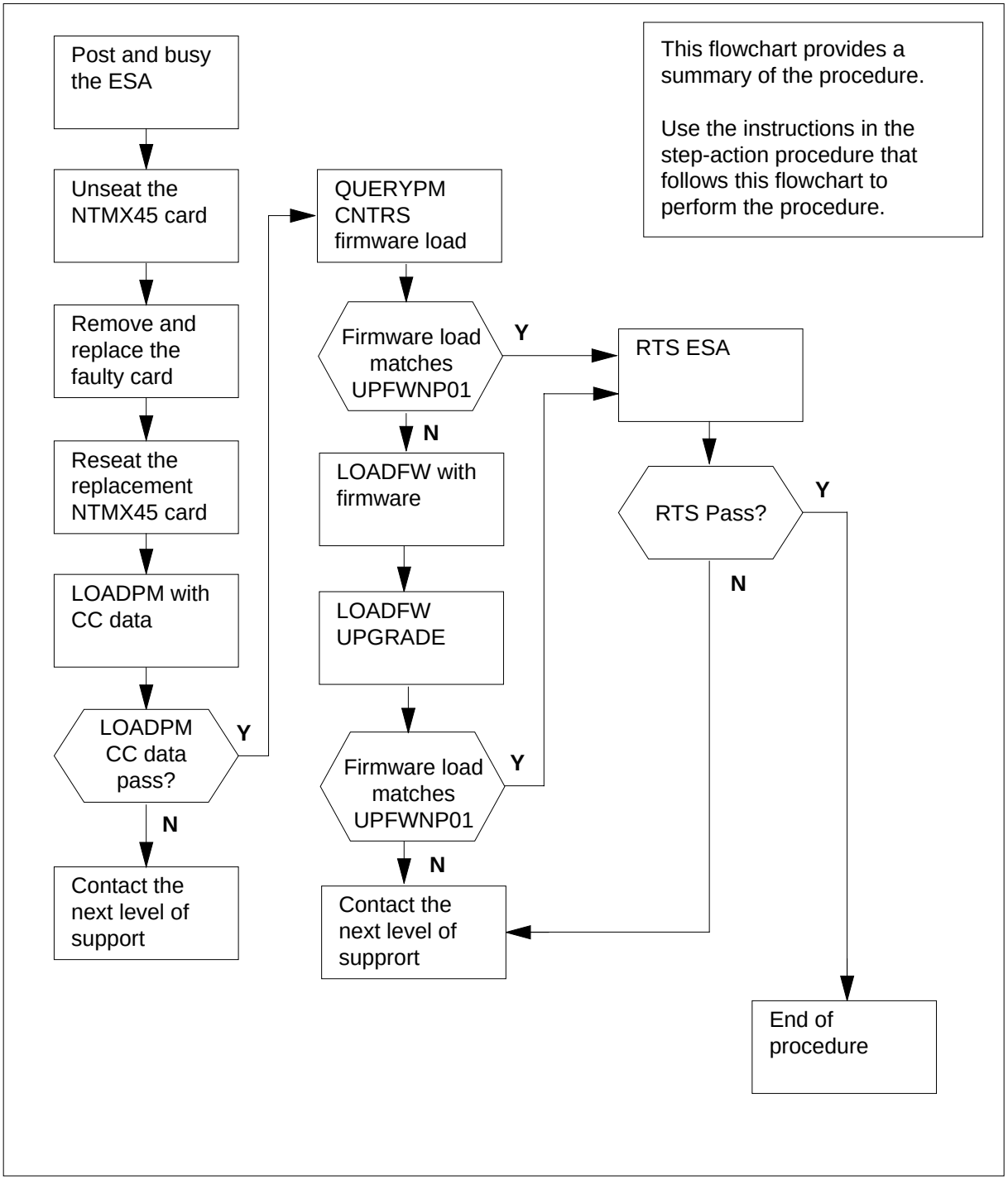
A problem can occur that requires the help of the local maintenance personnel. Gather all important logs, reports, and system information (that is, product type and current software load) for analysis. The related logs, maintenance notes, and system information help make sure that the next level of maintenance and support can find the problem. More detail about logs appears in the *Log Report Reference Manual*.

Action

The flowchart that follows provides a summary of this procedure. Use the instructions in the step-action procedure that follows the flowchart to replace the card.

NTMX45
in an OPM HIE (continued)

Summary of replacing an NTMX45 HIE



NTMX45
in an OPM HIE (continued)

Replacing an NTMX45 HIE

At your Current Location

1 Continue if you were referred to this card replacement procedure

- from a step in a maintenance procedure
- to verify or accept cards
- 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 original card.

At the MAP terminal

3 Access the PM level of the MAP and post the ESA by typing

`>MAPCI;MTC;PM;POST ESA esa_no`

and pressing the Enter key.

where

esa_no
is the number of the ESA unit to be busied (0 to 255)

Example of a MAP display:

```
   CM    MS   IOD   Net    PM    CCS    LNS    Trks    Ext    APPL
    .     .     .     .   1RLCM   .      .      .       .       .

ESA              SysB     ManB     OffL     CBsy     ISTb      InSv
 0 Quit     PM     0        0        2        0        2         25
 2 Post_    ESA    0        0        0        0        1          1
 3 ListSet
 4                              Links_OOS: CSide  0
 5 Trnsl          RLCM  ESA    4 Sysb
 6 Tst
 7 Bsy_
 8 RTS_
 9 OffL
10 LoadPM
11 Disp_
12 Next_
13
14 QueryPM
15
16
17
18
```

NTMX45 in an OPM HIE (continued)

At the MAP terminal

4 Busy the inactive ESA processor by typing

>BSY

and pressing the Enter key.

Example of a MAP response:

```
ESA 4      This action will take this PM
           out of service
Please confirm ("YES", "Y", "NO", or "N"):
```

Respond by typing

>YES

At the RLCM frame

5



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



DANGER
Equipment damage
Take the following precautions when removing or inserting a card:

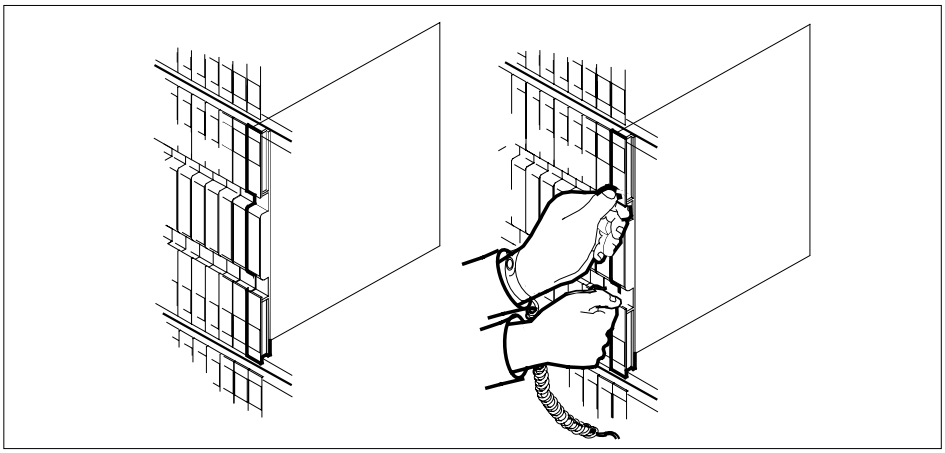
1. Do not apply direct pressure to the components.
2. Do not force the cards into the slots.

Put on a wrist strap.

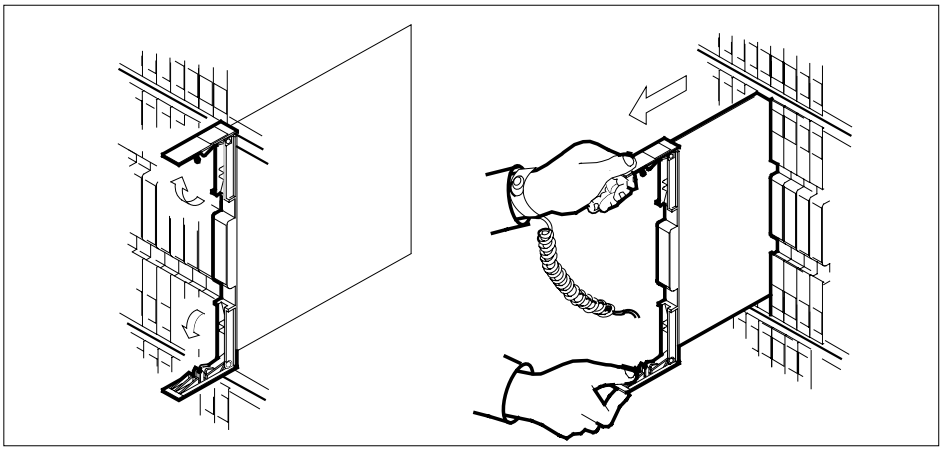
6 Remove the NTMX45 card as shown in the following figures.

a Locate the damaged card on the appropriate shelf.

NTMX45
in an OPM HIE (continued)



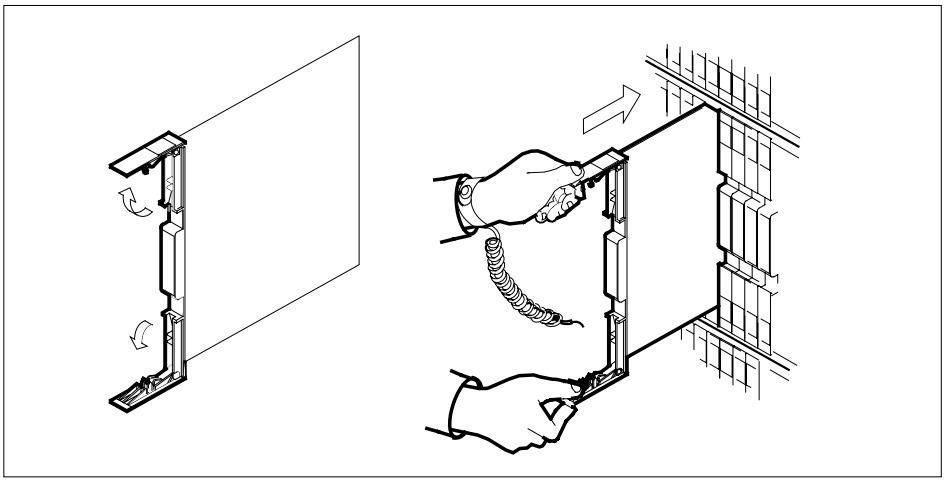
b Open the locking levers on the damaged card and carefully pull the card towards you until it clears the shelf.



c Make sure that the replacement card has the same PEC and suffix as the card you just removed. Also make sure that all DIP switches on the replacement card match settings of the card just removed.

7 Open the locking levers on the replacement card.

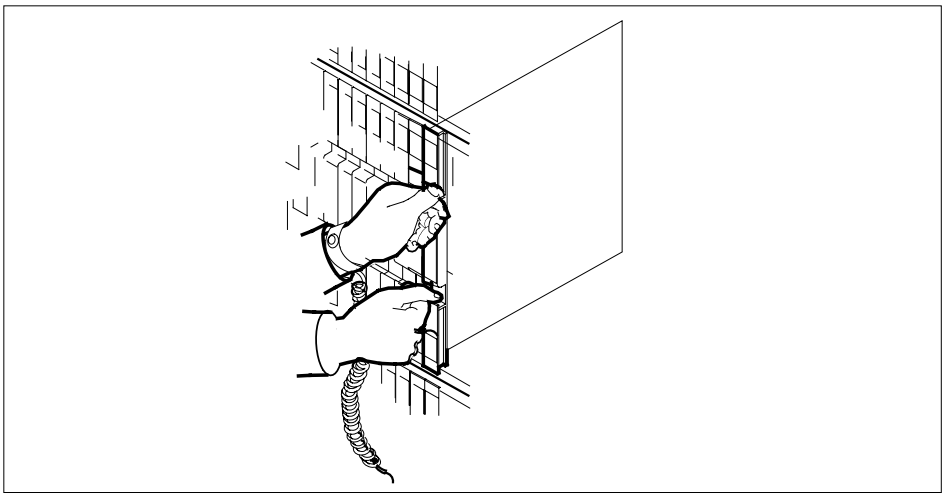
a Align the card with the slots in the shelf and carefully slide the card into the shelf.



Seat and lock the card.

b Use your fingers or thumbs to push on the upper and lower edges of the faceplate.

c Close the locking levers.



8 Use the following table to determine the next step in this procedure.

If you entered this procedure from	Do
an alarm clearing procedure	step 34
other	step 9

NTMX45
in an OPM HIE (continued)

9 Load the ESA processor by typing

>LOADPM

and pressing the Enter key.

If the load	Do
message “loadfile not found in directory" is received	step 10
load passes	step 28
load fails	step 35

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.

12 Mount the tape on a magnetic tape drive.

At the MAP terminal

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 Demount the tape by typing

>DEMOUNT T tape_no

and pressing the Enter key.

where

NTMX45
in an OPM HIE (continued)

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

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 display 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.

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

```
>DISKUT
```

and pressing the Enter key.

24 List all SLM disk volumes into your 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.

NTMX45 in an OPM HIE (continued)

27 Reload the ESA processor by typing

>LOADPM

and pressing the Enter key.

If loadpm	Do
passes	step 28
fails	step 35

28 Query the PM counters for the firmware load on the NTMX45 by typing

>QUERYPM CNTRS

and pressing the Enter key.

Example of a MAP display:

```
Unsolicitited MSG limit = 250, count = 0
Ram Load: MSA12AM1
EPRom Version: Ac01
EEPRom Load: Loadable: NP02 , Executable: NP02
EP:MX45AA
```

NTMX45 Firmware loadname

If firmware is	Do
valid	step 31
invalid	step 29

29 Load the NTMX45 firmware by typing

>LOADFW

and pressing the Enter key.

Note: The command applies the firmware file provisioned in table XESAINV unless the firmware load is indicated with the command.

If load	Do
passes	step 30
fails	step 35

30 Upgrade the firmware in the NTMX45AA by typing

>LOADFW UPGRADE

and pressing the Enter key.

If the LOADFW UPGRADE	Do
passes	step 31
fails	step 35

31 Return the ESA to service by typing

>RTS

and pressing the Enter key.

If the RTS	Do
passes	step 32
fails	step 35

32 Send any damaged cards for repair according to local procedure.

33 Record the following items in office records:

- date the card was replaced
- serial number of the card
- problems that required replacement of the card

Go to step 36.

34 Return to the *Alarm Clearing Procedure* that referred you to this procedure. If necessary, go to the point where the damaged card list was produced, identify the next damaged card on the list, and go to the appropriate procedure for that card in this manual.

35 Contact the next level of support for additional help to replace this card.

36 You have completed this procedure. Return to the maintenance procedure that referred you to this card replacement procedure and continue.

NTMX45 in an RLCM HIE

Application

Use this procedure to replace an NTMX45 in host interface equipment (HIE) shelf.

PEC	Suffixes	Name
NTMX45	AA	Emergency Stand-Alone (ESA) processor (EP)

If you cannot identify the PEC, suffix, and shelf or frame for the card you want to replace, refer to the “Index" in this document. The index lists the cards, shelves, and frames in this card replacement NTP.

Common procedures

This procedure does not refer to any common procedures.

Next level of maintenance

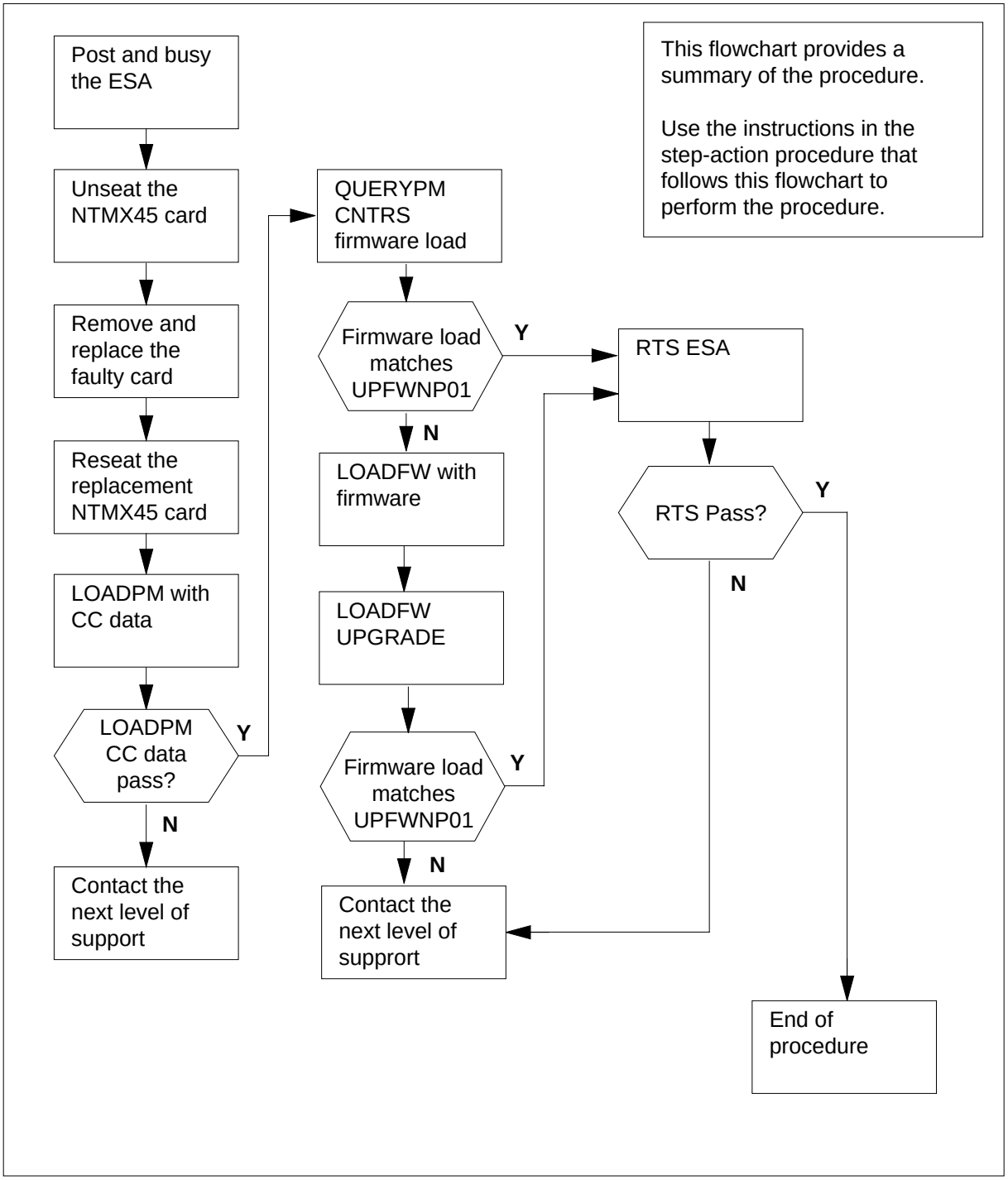
A problem can occur that requires the help of the local maintenance personnel. Gather all important logs, reports, and system information (that is, product type and current software load) for analysis. The related logs, maintenance notes, and system information help make sure that the next level of maintenance and support can find the problem. More detail about logs appears in the *Log Report Reference Manual*.

Action

The flowchart that follows provides a summary of this procedure. Use the instructions in the step-action procedure that follows the flowchart to replace the card.

NTMX45
in an RLCM HIE (continued)

Summary of replacing an NTMX45 HIE



NTMX45 in an RLCM HIE (continued)

Replacing an NTMX45 HIE

At your Current Location

1 Continue if you were referred to this card replacement procedure

- from a step in a maintenance procedure
- to verify or accept cards
- 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 original card.

At the MAP terminal

3 Access the PM level of the MAP and post the ESA by typing

`>MAPCI;MTC;PM;POST ESA esa_no`

and pressing the Enter key.

where

esa_no
is the number of the ESA unit to be busied (0 to 255)

Example of a MAP display:

```
   CM    MS   IOD   Net    PM    CCS    LNS    Trks    Ext    APPL
    .     .     .     .   1RLCM   .      .      .       .       .

ESA              SysB     ManB     OffL     CBsy     ISTb      InSv
 0 Quit     PM     0        0        2        0        2         25
 2 Post_    ESA    0        0        0        0        1          1
 3 ListSet
 4                              Links_OOS: CSide  0
 5 Trnsl          RLCM  ESA    4 Sysb
 6 Tst
 7 Bsy_
 8 RTS_
 9 OffL
10 LoadPM
11 Disp_
12 Next_
13
14 QueryPM
15
16
17
18
```

NTMX45
in an RLCM HIE (continued)

At the MAP terminal

4 Busy the inactive ESA processor by typing

>BSY

and pressing the Enter key.

Example of a MAP response:

```
ESA 4      This action will take this PM
           out of service
Please confirm ("YES", "Y", "NO", or "N"):
```

Respond by typing

>YES

At the RLCM frame

5



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



DANGER
Equipment damage
Take the following precautions when removing or inserting a card:

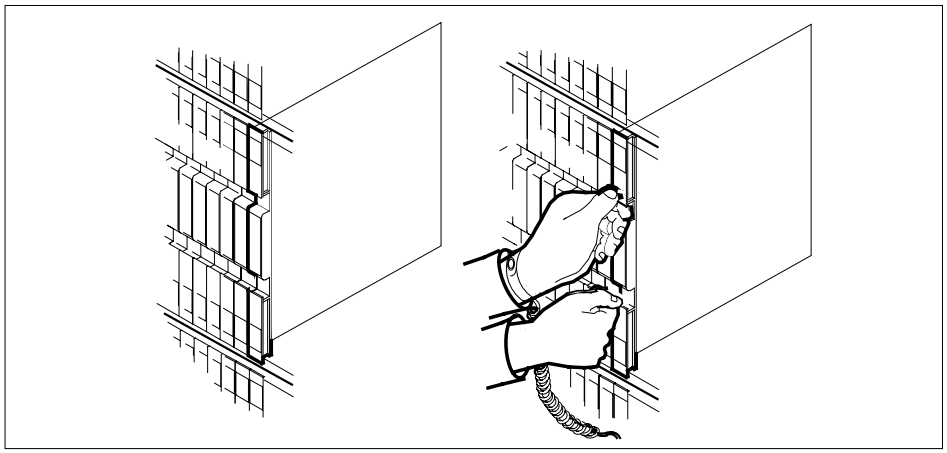
1. Do not apply direct pressure to the components.
2. Do not force the cards into the slots.

Put on a wrist strap.

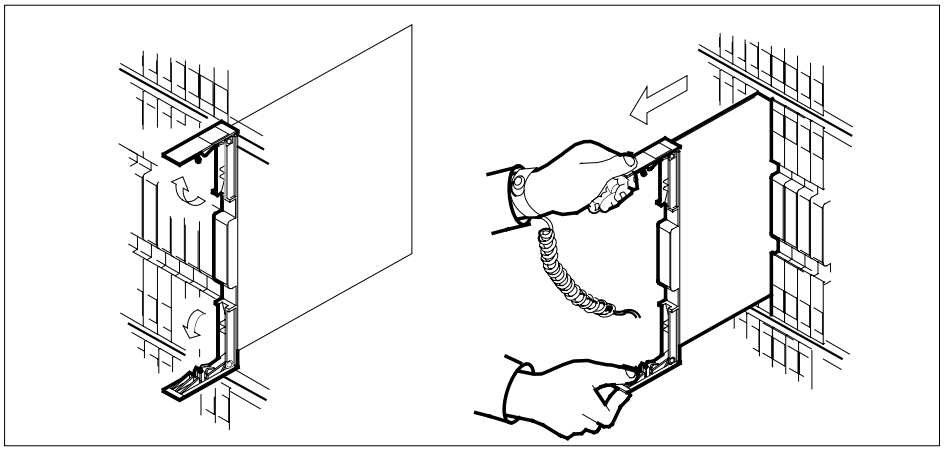
6 Remove the NTMX45 card as shown in the following figures.

a Locate the damaged card on the appropriate shelf.

NTMX45
in an RLCM HIE (continued)



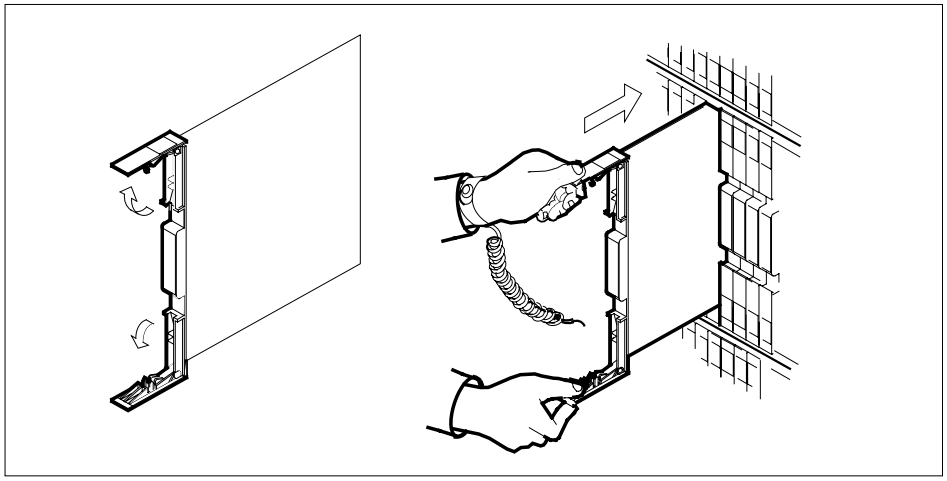
b Open the locking levers on the damaged card and carefully pull the card towards you until it clears the shelf.



c Make sure that the replacement card has the same PEC and suffix as the card you just removed. Also make sure that all DIP switches on the replacement card match settings of the card just removed.

7 Open the locking levers on the replacement card.

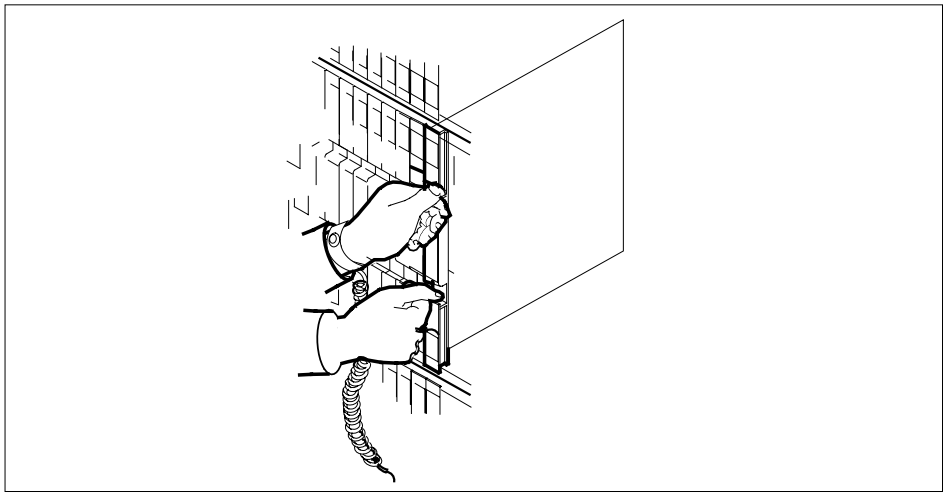
a Align the card with the slots in the shelf and carefully slide the card into the shelf.



Seat and lock the card.

b Use your fingers or thumbs to push on the upper and lower edges of the faceplate.

c Close the locking levers.



8 Use the following table to determine the next step in this procedure.

If you entered this procedure from	Do
an alarm clearing procedure	step 34
other	step 9

NTMX45
in an RLCM HIE (continued)

9 Load the ESA processor by typing

>LOADPM

and pressing the Enter key.

If the load	Do
message “loadfile not found in directory" is received	step 10
load passes	step 28
load fails	step 35

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.

12 Mount the tape on a magnetic tape drive.

At the MAP terminal

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 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

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 display 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.

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

```
>DISKUT
```

and pressing the Enter key.

24 List all SLM disk volumes into your 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.

NTMX45 in an RLCM HIE (continued)

27 Reload the ESA processor by typing

>LOADPM

and pressing the Enter key.

If loadpm	Do
passes	step 28
fails	step 35

28 Query the PM counters for the firmware load on the NTMX45 by typing

>QUERYPM CNTRS

and pressing the Enter key.

Example of a MAP display:

```
Unsolicitited MSG limit = 250, count = 0
Ram Load: MSA12AM1
EPRom Version: Ac01
EEPRom Load: Loadable NP02, Executable: NP02
EP:MX45AA
```

NTMX45 Firmware loadname

If firmware is	Do
valid	step 31
invalid	step 29

29 Load the NTMX45 firmware by typing

>LOADFW

and pressing the Enter key.

Note: The command applies the firmware file provisioned in table XESAINV unless the firmware load is indicated with the command.

If load	Do
passes	step 30
fails	step 35

30 Upgrade the firmware in the NTMX45AA by typing

>LOADFW UPGRADE

and pressing the Enter key.

If the LOADFW UPGRADE	Do
passes	step 31
fails	step 35

31 Return the ESA to service by typing

>RTS

and pressing the Enter key.

If the RTS	Do
passes	step 32
fails	step 35

32 Send any damaged cards for repair according to local procedure.

33 Record the following items in office records:

- date the card was replaced
- serial number of the card
- problems that required replacement of the card

Go to step 36.

34 Return to the *Alarm Clearing Procedure* that referred you to this procedure. If necessary, go to the point where the damaged card list was produced, identify the next damaged card on the list, and go to the appropriate procedure for that card in this manual.

35 Contact the next level of support for additional help to replace this card.

36 You have completed this procedure. Return to the maintenance procedure that referred you to this card replacement procedure and continue.

NTMX71 in an RSC

Application

Use this procedure to replace a NTMX71 card in a RCC.

PEC	Suffixes	Name
NTMX71	AA	XPM Plus Terminator Paddleboard

Common procedures

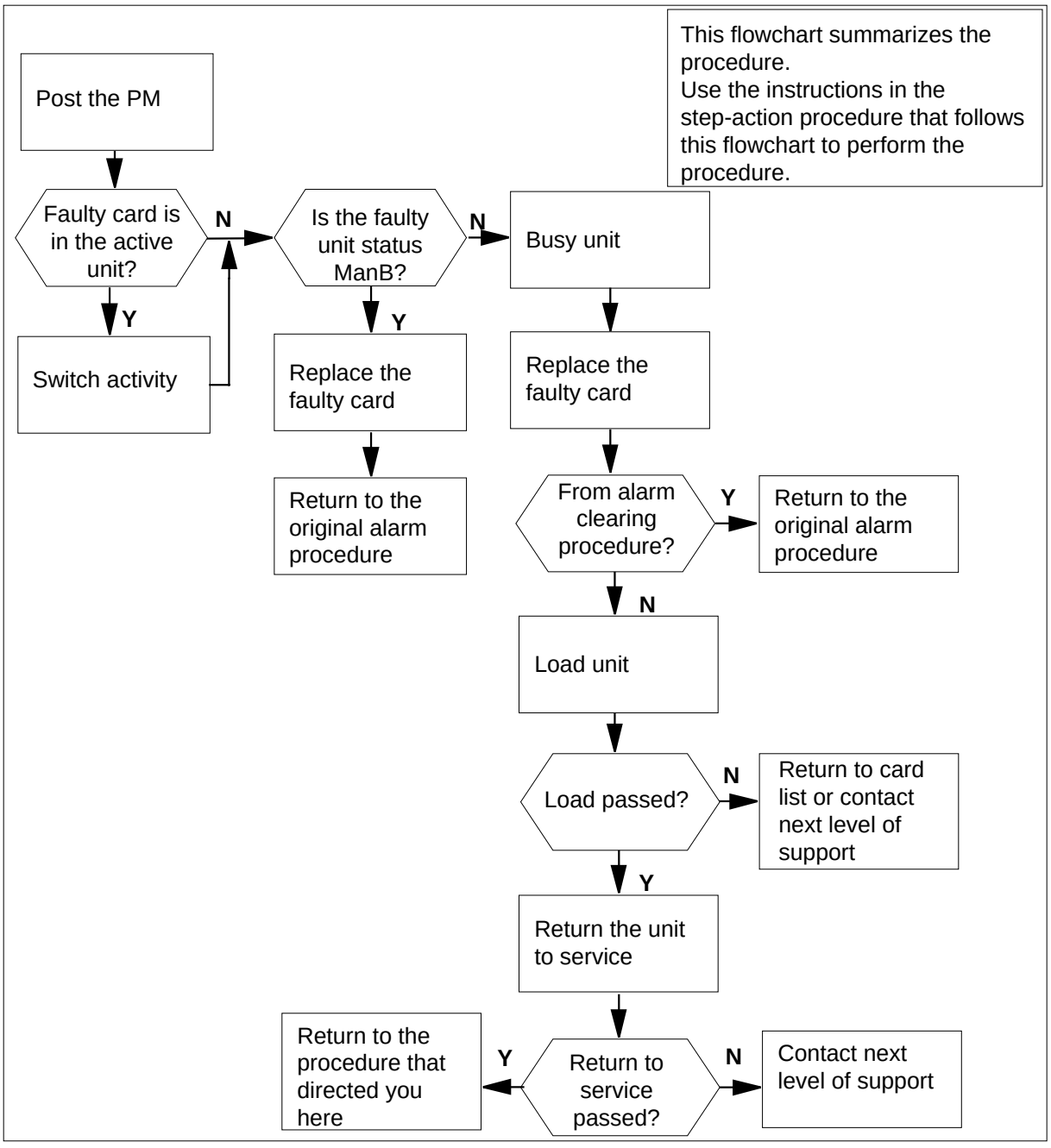
None

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.

NTMX71 in an RSC (continued)

Summary of card replacement procedure for a NTMX71 card in a in RSC RCC



NTMX71 in an RSC (continued)

Replacing a NTMX71 card in a RCC

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 engineering code (PEC), including suffix, as the card being removed.

At the MAP terminal

3 Ensure the current MAP display is at the PM level and post the RCC by typing

`>MAPCI;MTC;PM;POST RCC rcc_no`

and pressing the Enter key.

where

rcc_no
is the number of the RCC being posted

Example of a MAP response

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

RCC 0 ISTb  Links_OOS:  CSide 0, PSide 0
Unit0:  Act   InSv
Unit1:  Inact ISTb
```

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

At the equipment frame

5 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

6 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 8

NTMX71 in an RSC (continued)

If state is	Do
SysB, CBsy, ISTb, or InSv	step 7

7 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 RCC unit (0 or 1)

At the equipment 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.



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 Unseat the NT6X48 card in slots 06 and 07.

10 Unseat the NT6X72 card in slot 19.

11 Unseat the NTMX77 card in slot 13.

NTMX71 in an RSC (continued)

12



DANGER
Personal injury
Take the following precautions when removing a backplane card:

To prevent eye and facial injuries do not jerk the card from backplane pins. Gently rock the card off the backplane pins

Using a slot screwdriver, loosen the screws from the two brackets that secure the card to the backplane at slot 18. Keep the screws in place on the backplane, moving only the two securing brackets away from the screws.

13 Gently remove the card from the backplane pins.

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

15 Line up the holes on the brackets of the replacement card with the holes on the backplane of slot 18.

16 Using a slot screwdriver, secure the card to the backplane with the screws that were loosened in step 12. Ensure the fiber washer is between the securing brackets of the replacement card and the backplane before tightening the screws.

17 Reseat the NTMX77 card in slot 13.

18 Reseat the NT6X72 card in slot 19.

19 Reseat the NT6X48 cards in slots 06 and 07.

20 Use the following information to determine the next step.

If you were directed here from	Do
alarm and trouble clearing procedures	step 26
other	step 21

At the MAP terminal

21 The peripheral loader card (NT7X05) allows local loading of the RCC data. Local data loading reduces recovery time. Determine if an NT7X05 is located in slot 12. Check if the NT7X05 card is provisioned by typing:

```
>QUERYPM FILES
```

and pressing the Enter key.

Example of a MAP display:

```
   CM   MS   IOD   Net    PM    CCS    LNS    Trks    Ext    APPL
    .    .     .     .   1RCC    .      .       .      .      .
                         *C*
 RCC            SysB     ManB     OffL     CBsy     ISTb     InSv
 0 Quit     PM     2        0        2        0        2       25
 2 Post     RCC    1        0        0        0        1        1
 3 ListSet
 4          RCC      0 ISTb  Links_OOS:  CSide  0,  PSide   0
 5 TRNSL_   Unit 0:  Inact ManB
 6 TST_     Unit 1:  Act   InSv
 7 BSY_
 8 RTS_     QUERYPM files
 9 OffL     Unit 0:
10 LoadPM_     NT7X05 load File: ESR05AT
11 Disp_       NT7X05 Image File:ESR05AT
12 Next_
13 SwAct   Unit 1:
14 QueryPM     NT7X05 load File: ESR05AT
15             NT7X05 Image File:ESR05AT
16 IRLINK
17 Perform
18
```

Note: If the NT7X05 card is not provisioned the MAP response is:`Nt7X05 not datafilled,  QueryPm files invalid`

If the NT7X05 card is	Do
provisioned	step 22
not provisioned	step 24

22 Load the RCC from the local image by typing

`>LOADPM UNIT unit_no LOCAL IMAGE`

and pressing the Enter key.

where

rcc_unit_no
is the number of the inactive RCC unit

If the load	Do
passed	step 25
failed	step 23

23 Load the RCC from the local loadfile by typing

`>LOADPM UNIT unit_no LOCAL LOADFILE`

and pressing the Enter key.

NTMX71 in an RSC (continued)

where

rcc_unit_no
is the number of the inactive RCC unit

If the load	Do
passed	step 25
failed	step 24

24 Load the inactive RCC unit by typing

`>LOADPM UNIT unit_no`

and pressing the Enter key.

where

unit_no
is the number of the inactive RCC unit

If load	Do
passed	step 25
failed	step 29

25 Return the inactive RCC unit to service by typing

`>RTS UNIT unit_no`

and pressing the Enter key.

where

unit_no
is the number of the inactive RCC unit

If RTS	Do
passed	step 26
failed	step 29

At the equipment frame

26 Remove the sign from the active RCC unit.

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

28 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 30.

NTMX71 in an RSC (end)

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

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

NTMX71 in an SMA

Application

Use this procedure to replace an NTMX71 card in an SMA.

PEC	Suffixes	Name
NTMX71	AA	XPM Plus Terminator Paddleboard

Common procedures

The following procedures are referenced in this procedure:

- “Locating a faulty card in an SMA"
- returning a card

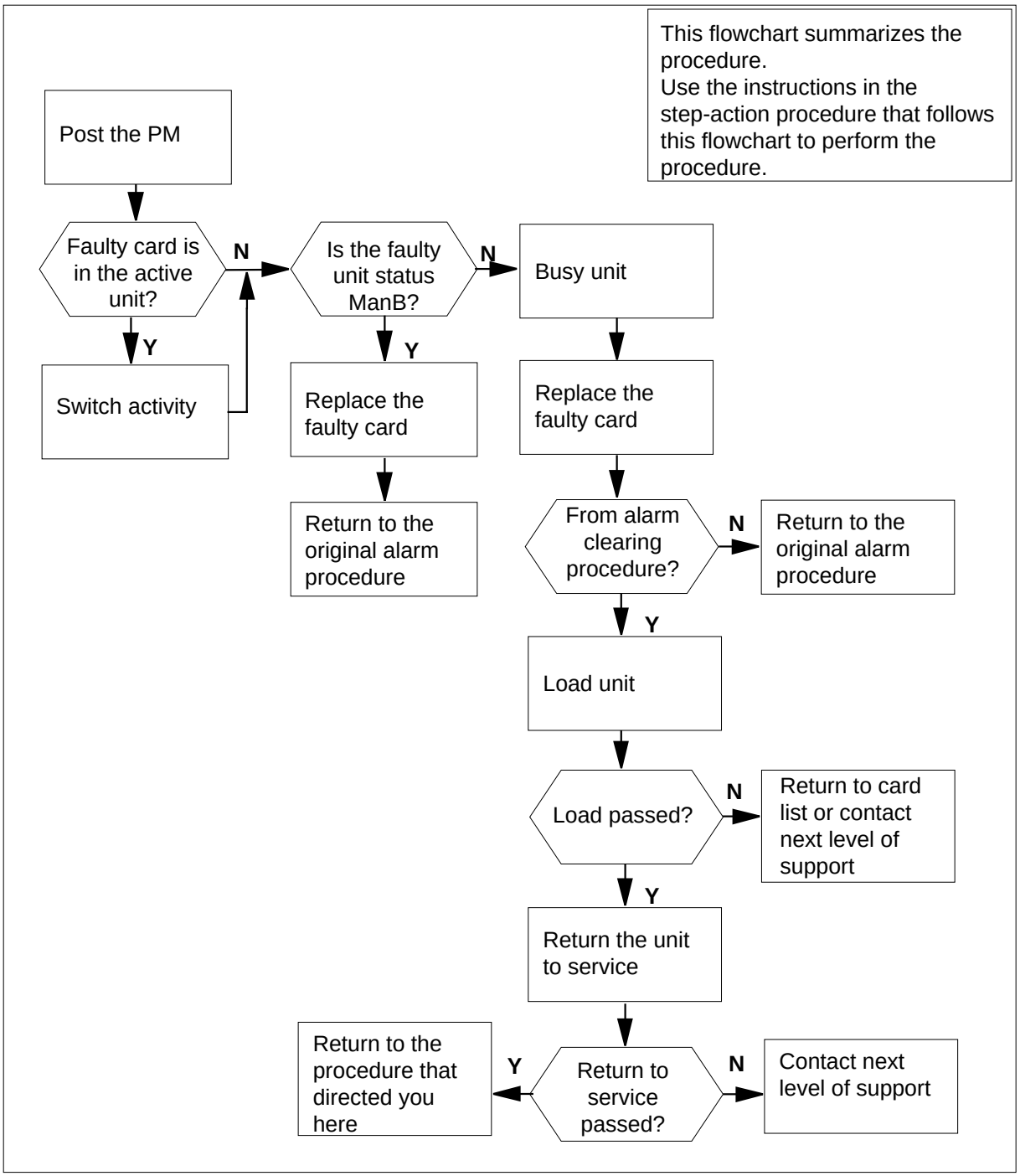
Do not go to the common procedures unless directed to do so in the step-action procedure.

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.

NTMX71
in an SMA (continued)

Summary of card replacement procedure for an NTMX71 card in an SMA



NTMX71 in an SMA (continued)

Replacing an NTMX71 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

NTMX71
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_OOS:  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 29

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

NTMX71
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 27.

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)

NTMX71
in an SMA (continued)

At the equipment frame

13



WARNING
Static electricity damage
Before removing any cards, put on a wrist strap connected to the wrist strap grounding point on the frame supervisory panel (FSP). This strap protects the cards 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.

Unseat the NT6X41 card in slot 21.

14 Unseat the NTAX74 card in slot 12.

15



DANGER
Risk of eye or facial injury
When removing the NTMX71 card, do not jerk the paddleboard from the backplane pins. Instead, gently rock the paddleboard off the backplane pins.

Using a slot screwdriver, remove the screws from the two brackets that secure the card to the backplane at slot 19.

16 Gently remove the card from the backplane pins.

Note: A paddleboard extraction tool is available to ease removal of the NTMX71 card from the backplane pins. The tool can be purchased from Northern Telecom by using the following ordering information:

NPS Spec.
NPS50897-61

AO code
AO643786

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

NTMX71
in an SMA (continued)

18 Line up the holes on the brackets of the replacement card with the holes with the holes on the back plane at slot 19.

19 Using a slot screwdriver, secure the card to the backplane with the screws that were removed in step 15. Ensure the fiber washer is between the brackets of the replacement card and the backplane before tightening the screws.

20 Reseat the NTAX74 card in slot 12.

21 Reseat the NT6X41 card in slot 21.

22 Use the following information to determine the next step.

If you were directed here from	Do
alarm clearing procedures	step 25
other	step 23

At the MAP terminal

23 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

If load	Do
passed	step 24
failed	step 27

24 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 23

If RTS	Do
passed	step 25
failed	step 27

At the equipment frame

25 Remove the sign from the active SMA unit.

NTMX71 in an SMA (end)

26 Go to the common returning a card procedure in this document.

Go to step 28.

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

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

29 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.

NTMX71 in an SMA-MVI-20

Application

Use this procedure to replace an NTMX71 card in an SMA.

PEC	Suffixes	Name
NTMX71	AA	XPM Plus Terminator Paddleboard

Common procedures

“Locating a faulty card in an SMA" is referenced in this procedure.

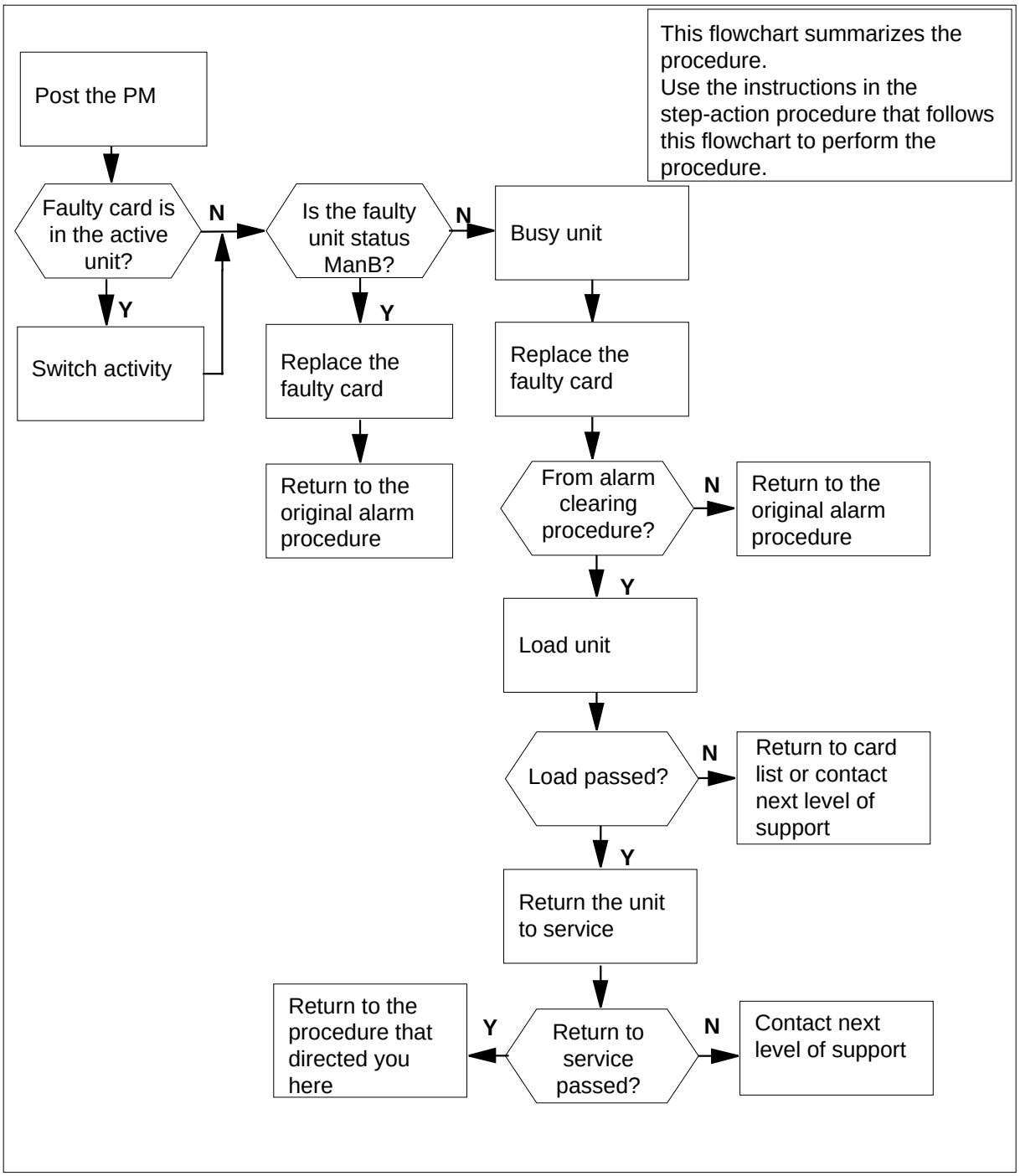
Do not go to the common procedure unless directed to do so in the step-action procedure.

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.

NTMX71
in an SMA-MVI-20 (continued)

Summary of card replacement procedure for an NTMX71 card in an SMA



NTMX71 in an SMA-MVI-20 (continued)

Replacing an NTMX71 card in an SMA

At the SMA

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

NTMX71
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_OOS:  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 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.

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

NTMX71
in an SMA-MVI-20 (continued)

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

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

Go to step 29.

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)

NTMX71
in an SMA-MVI-20 (continued)

At the equipment frame

14



WARNING
Static electricity damage
Before removing any cards, put on a wrist strap connected to the wrist strap grounding point on the frame supervisory panel (FSP). This strap protects the cards 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.

Unseat the NT6X41 card in slot 21.

15 Unseat the NTAX74 card in slot 12.

16



DANGER
Personal injury
Take the following precautions when removing a backplane card:

To prevent eye and facial injuries do not jerk the card from backplane pins. Gently rock the card off the backplane pins

Using a slot screwdriver, remove the screws from the two brackets that secure the card to the backplane at slot 19.

17 Gently remove the card from the backplane pins.

Note: A paddleboard extraction tool is available to ease removal of the NTMX71 card from the backplane pins. The tool can be purchased from Northern Telecom by using the following ordering information:

NPS Spec.
NPS50897-61

AO code
AO643786

NTMX71
in an SMA-MVI-20 (continued)

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

19 Line up the holes on the brackets of the replacement card with the holes with the holes on the backplane at slot 19.

20 Using a slot screwdriver, secure the card to the backplane with the screws that were removed in step 16. Ensure the fiber washer is between the brackets of the replacement card and the backplane before tightening the screws.

21 Reseat the NTAX74 card in slot 12.

22 Reseat the NT6X41 card in slot 21.

23 Use the following information to determine the next step.

If you were directed here from	Do
alarm clearing procedures	step 26
other	step 24

At the MAP terminal

24 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

If load	Do
passed	step 25
failed	step 29

25 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 24

If RTS	Do
passed	step 26
failed	step 29

NTMX71 in an SMA-MVI-20 (end)

At the equipment frame

26 Remove the sign from the active SMA unit.

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

28 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 30.

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

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

NTMX71 in an SMS

Application

Use this procedure to replace a NTMX71 card in a SMS.

PEC	Suffixes	Name
NTMX71	AA	XPM Plus Terminator Paddleboard

Common procedures

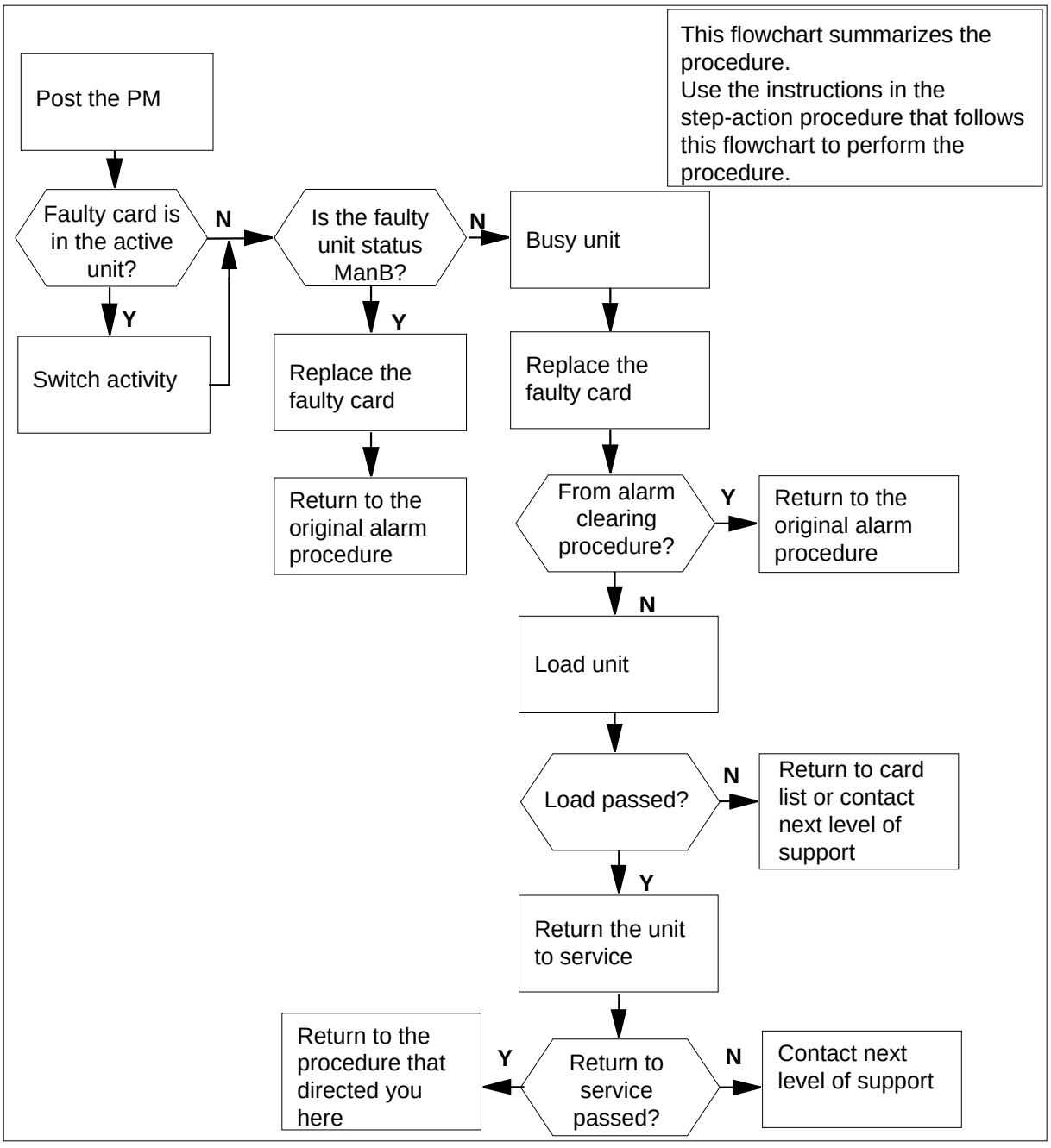
None

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.

NTMX71 in an SMS (continued)

Summary of card replacement procedure for a NTMX71 card in a SMS



NTMX71
in an SMS (continued)

Replacing a NTMX71 card 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 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

3 Ensure the current MAP display is at the PM level and post the SMS by typing

`>MAPCI;MTC;PM;POST SMS sms_no`

and pressing the Enter key.

where

sms_no
is the number of the SMS being posted

Example of a MAP response

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

SMS 0 ISTb  Links_OOS:  CSide 0, PSide 0
Unit0:  Act   InSv
Unit1:  Inact ISTb
```

4 Observe the MAP display and determine if the faulty card is in the active or the inactive unit. The example in step 3 shows the status of the PM as in-service (InSv) on the active unit and in-service trouble (ISTb) on the inactive unit.

If the faulty card is in the	Do
active unit	step 5
inactive unit	step 12

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 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 35

6 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 12
`SWACT failed Reason: XPM SWACTback`	step 7
`SWACT refused by SWACT Controller`	step 8

7 The inactive unit could not establish two-way communication with the central control 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 9.

8 The SWACT controller does not recommend a SWACT for one of the following reasons:

- IMC link failures
- message link failures
- parity audit failures
- superframe sync failures
- inactive unit was unable to keep activity last time
- dropping activity
- pre-SWACT query failure
- unit is jammed inactive
- unit is in overload
- pre-SWACT difficulties

NTMX71
in an SMS (continued)

You must clear all faults on the inactive unit and switch activity to the inactive unit before attempting to change the faulty card on the active unit.

9 A problem has been detected as a result of your attempt to SWACT to the inactive unit. Check the alarm banner for alarms.

If there is a	Do
new alarm	step 10
no new alarm	step 33

10 Go to the appropriate procedure in the “SMS alarm clearing procedures" section of this document to determine what steps to take to clear the problem on the inactive unit.

Clear the problem then return to this step.

11 When the trouble on the inactive unit is cleared, force a SWACT to the active unit by typing

>SWACT FORCE

and pressing the Enter key.

At the equipment frame

12 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

13 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 19
SysB, CBsy, ISTb, or InSv	step 14

14 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 SMS unit (0 or 1)

15 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 equipment frame

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 frame supervisory panel of the SMS. 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.

17 Unseat the NT6X41 card.

18 Unseat the NTMX77 card.

19 Using a slot screwdriver, loosen the screws from the two brackets that secure the NTMX71 card to the backplane in slot 19. Keep the screws in place on the backplane.

20



DANGER
Risk of eye or facial injury
When removing the NTMX77 card, do not jerk the paddleboard from the backplane pins. Instead, gently rock the paddleboard off the packplane pins.

Remove the NTMX71 card.

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

NTMX71
in an SMS (continued)

22 Line up the holes on the brackets of the replacement card with the holes on the backplane of slot 19.

23 Using a slot screwdriver, secure the card to the backplane with the screws that were loosened in step20. Ensure the fiber washer is between the brackets of the replacement card and the backplane before tightening the screws.

24 Reseat the NTMX77.

25 Reseat the NT6X41 card.

26 Use the following information to determine the next step.

If you were directed here from	Do
alarm and trouble clearing procedures	step 30
other	step 27

At the MAP terminal

27 Load the inactive SMS unit by typing

`>LOADPM UNIT unit_no`

and pressing the Enter key.

where

unit_no
is the number of the busied SMS unit (0 or 1)

If load	Do
passed	step 28
failed	step 33

28 Test the inactive SMS unit by typing

`>TST UNIT unit_no`

and pressing the Enter key.

where

unit_no
is the number of the SMS unit loaded in step 27

If TST	Do
passed	step 29
failed	step 33

29 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 SMS unit tested in step 28

If RTS	Do
passed	step 30
failed	step 33

At the equipment frame

30 Remove the sign from the active SMS unit.

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

32 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 34.

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

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

35 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.

NTMX71 in an SMU

Application

Use this procedure to replace a NTMX71 card in an SMU.

PEC	Suffixes	Name
NTMX71	AA	XPM Plus Terminator Paddleboard

Common procedures

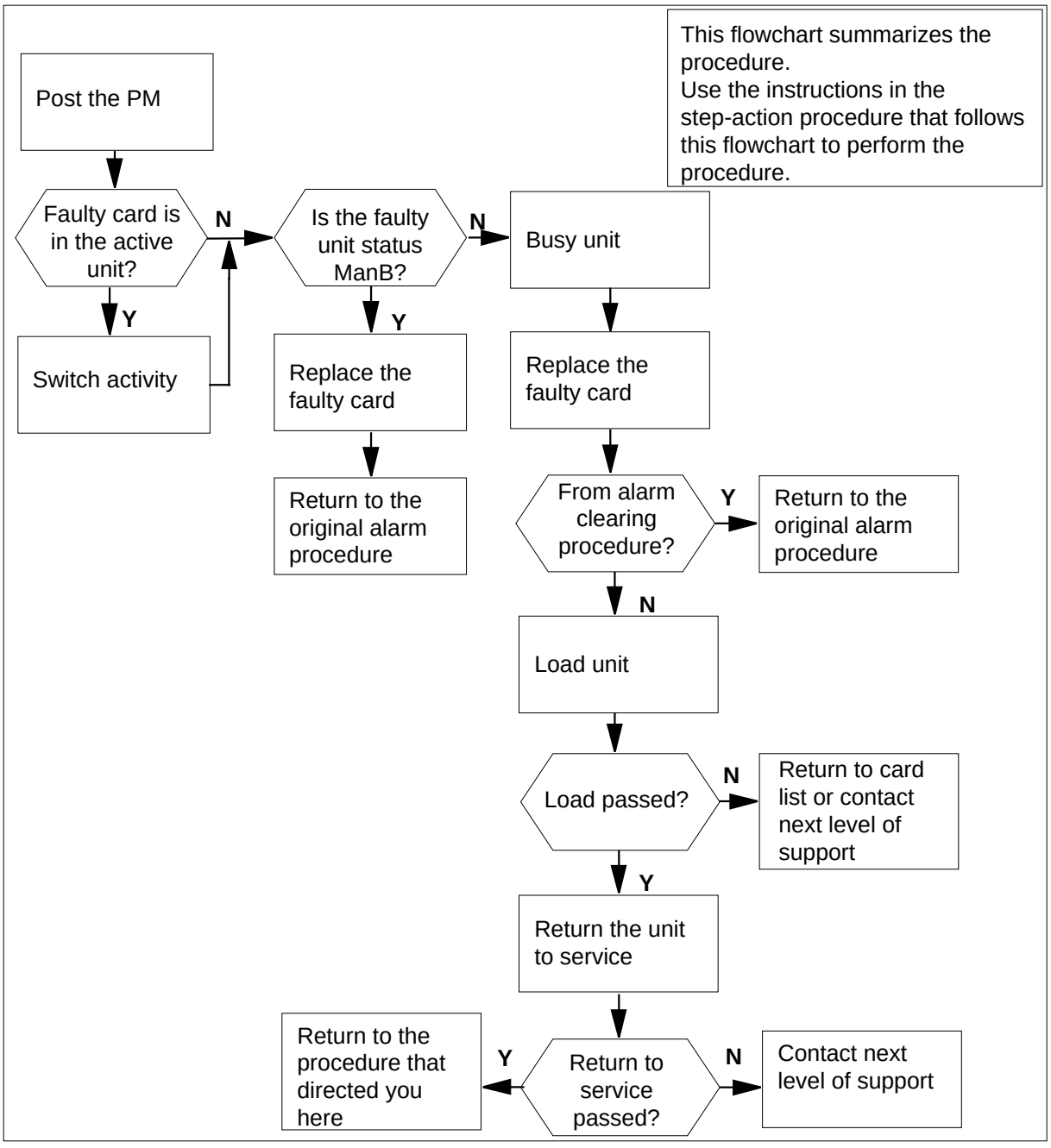
None

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.

NTMX71
in an SMU (continued)

Summary of card replacement procedure for a NTMX71 card in a in an SMU



NTMX71 in an SMU (continued)

Replacing a NTMX71 card in a SMU

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 engineering code (PEC), including suffix, as the card being removed.

At the MAP terminal

3 Ensure the current MAP display is at the PM level 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 being 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 0, PSide 0
Unit0:  Act   InSv
Unit1:  Inact ISTb
```

4 Observe the MAP display and determine if the faulty card is in the active or the inactive unit. The example in step 3 shows the status of the PM as in-service (InSv) on the active unit and in-service trouble (ISTb) on the inactive unit.

If the faulty card is in the	Do
active unit	step 5
inactive unit	step 13

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 Reject the prompt to switch the activity of the units by typing

>NO

and pressing the Enter key.

The system discontinues the SWACT.

7 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 13
`SWACT failed Reason: XPM SWACTback`	step 8
`SWACT refused by SWACT Controller`	step 9

NTMX71
in an SMU (continued)

8 The inactive unit could not establish two-way communication with the central control 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 10.

9 The SWACT controller does not recommend a SWACT for one of the following reasons:

- IMC link failures
- message link failures
- parity audit failures
- superframe sync failures
- inactive unit was unable to keep activity last time
- dropping activity
- pre-SWACT query failure
- unit is jammed inactive
- unit is in overload
- pre-SWACT difficulties

You must clear all faults on the inactive unit and switch activity to the inactive unit before attempting to change the faulty card on the active unit.

10 A problem has been detected as a result of your attempt to SWACT to the inactive unit. Check the alarm banner for alarms.

If there is a	Do
new alarm	step 11
no new alarm	step 34

11 Go to the appropriate procedure in the *Alarm Clearing Procedures* to determine what steps to take to clear the problem on the inactive unit.

Clear the problem then return to this step.

12 When the trouble on the inactive unit is cleared, force a SWACT to the active unit by typing

```
>SWACT FORCE
```

and pressing the Enter key.

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.

NTMX71
in an SMU (continued)

At the MAP terminal

14 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 21
SysB, CBsy, ISTb, or InSv	step 15

15 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)

16 Set the inactive unit to the ROM level by typing

>PMRESET UNIT smu_unit_no NORUN

and pressing the Enter key.

where

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

NTMX71
in an SMU (continued)

At the equipment frame

17



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 SMU. 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.

18 Unseat the NT6X41 card in slot 21.

19 Unseat the NTMX77 card in slot 13.

20



DANGER
Personal injury
Take the following precautions when removing a backplane card:

To prevent eye and facial injuries do not jerk the card from backplane pins. Gently rock the card off the backplane pins.

Using a slot screwdriver, loosen the screws from the two brackets that secure the card to the backplane at slot 19. Keep the screws in place on the backplane.

21 Remove the card.

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

23 Line up the holes on the brackets of the replacement card with the holes on the backplane of slot 19.

24 Using a slot screwdriver, secure the card to the backplane with the screws that were loosened in step 20. Ensure the fiber washer is between the

brackets of the replacement card and the backplane before tightening the screws.

25 Reseat the NTMX77 card in slot 13.

26 Reseat the NT6X41 card in slot 21.

27 Use the following information to determine the next step.

If you were directed here from	Do
alarm and trouble clearing procedures	step 31
other	step 28

At the MAP terminal

28 Load the inactive SMU unit by typing

`>LOADPM UNIT unit_no`

and pressing the Enter key.

where

unit_no
is the number of the busied SMU unit (0 or 1)

If load	Do
passed	step 29
failed	step 34

29 Test the inactive SMU unit by typing

`>TST UNIT unit_no`

and pressing the Enter key.

where

unit_no
is the number of the SMU unit loaded in step 28

If TST	Do
passed	step 30
failed	step 34

30 Return the inactive SMU unit to service by typing

`>RTS UNIT unit_no`

and pressing the Enter key.

where

NTMX71 in an SMU (end)

unit_no
is the number of the SMU unit tested in step 29

If RTS	Do
passed	step 31
failed	step 34

At the equipment frame

31 Remove the sign from the active SMU unit.

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

33 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 35.

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

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

NTMX72 in an RSC-M

Application

Use this procedure to replace an NTMX72 circuit card in a Remote Switching Center Multi-Access (RSC-M) main shelf.

Note: In the examples in 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
NTMX72	AA, AB	Power converter

Common procedures

This section refers to the following common procedures:

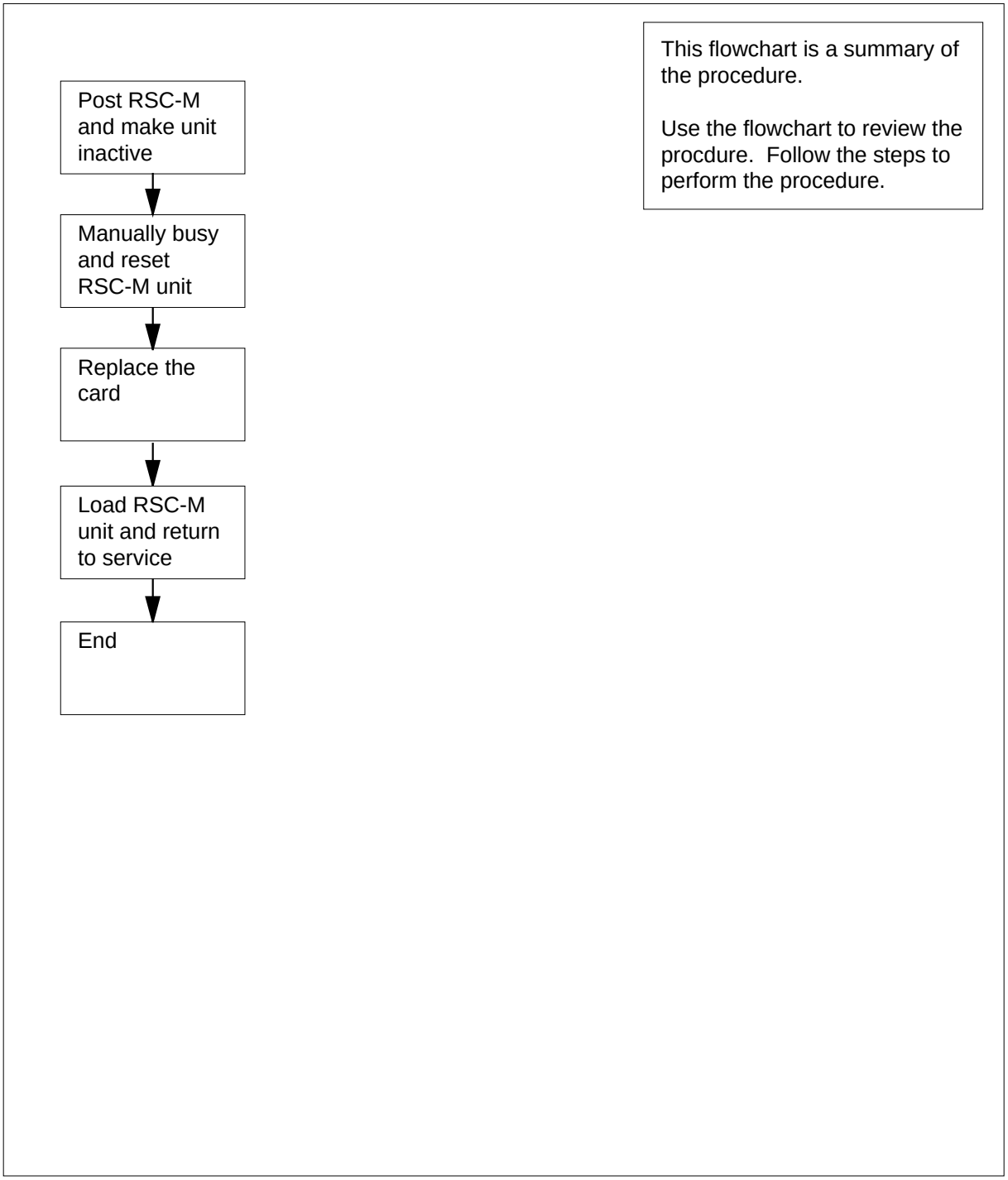
- replacing a card
- returning a card

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.

NTMX72
in an RSC-M (continued)

Summary of replacing an NTMX72 in an RSC-M



NTMX72
in an RSC-M (continued)

To replace an NTMX72 in an RSC-M

At the MAP display

1 Proceed if one of the following conditions apply:

- a step in a maintenance procedure directed you to this card replacement procedure
- you use this procedure to verify or accept cards
- the maintenance support group directed 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 NTMX72 replacement circuit card. Make sure the replacement circuit card 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:

NTMX72
in an RSC-M (continued)

```
RSC-M              SysB     ManB     OffL     CBsy     ISTb      InSv
 0 Quit    PM      0        0         2       0        2         25
 2 Post_   RCO2     0        0         0       0        1          1
 3 ListSet
 4         RCO2   0 ISTb  Links_OOS:  CSide  1, PSide   1
 5 TRNSL   Unit0:   Inact CBsy
 6 TST     Unit1:   Act InSv
 7 BSY
 8 RTS
 9 OffL
10 LoadPM_
11 Disp_
12 Next_
```

4 To determine the location of the RCO2 that contains the NTMX72 circuit card you are to replace, type:

>QUERYPM

and press the Enter key.

Example of a MAP response:

```
PM Type: RCO2 PM No.: 0 PM Int. No.: 9 Node_No: 24
PMs Equipped: 53 Loadname:KRI07BI1 EEPRom Load:MX77NG03
WARM SWACT is supported and available
RCO2 0 is included in the REX schedule.
REX on RCO2 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  RCO2: 000        MX85AA
RSC-M 00  C02  RSC-M 00  47  EXT:LEFT   01:13 MX86AA
```

5 Determine the state of the RCO2 unit for the circuit card you are to replace.

If the state of the RCO2 unit	Do
is active	step 6
is inactive	step 8

6 To switch activity (SWACT) of the units, type:

>SWACT

and press the Enter key.

Example of a MAP response:

```
RCO2 0     A Warm SwAct will be performed after
          data sync of active terminals.
Please confirm ("YES", "Y", "NO", or "N"):
```

If the system	Do
prompts you to confirm a warm SWACT	step 7
rejects the SWACT	step 24

7 To confirm the command, type:

>YES

and press the Enter key.

Example of a MAP response:

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

RCO2 0     SwAct Passed
```

If the MAP response	Do
is SWACT passed	step 8
other than listed here	step 23

8 A maintenance flag (Mtce) can appear. A maintenance flag indicates system-initiated maintenance tasks are in progress. Wait until the flag disappears from the status lines for both RCO2 units before you proceed to the next step.

At the cabinet

9 Place a sign with the words *Active unit-Do not touch* on the active unit. Do not attach this sign with magnets or tape.

10 To manually busy (ManB) the inactive unit, type:

>BSY INACTIVE

and press the Enter key.

Example of a MAP response:

NTMX72
in an RSC-M (continued)

```
RCO2     0 ISTb  Links_OOS: CSide  0 , PSide  1
Unit0:   Inact ManB
Unit1:   Act   ISTb
Bsy INACTIVE
RCO2 0 Unit 0    Bsy Passed
```

If the BSY command	Do
passes	step 11
fails	step 23

11 To reset the inactive RCO2 unit, type:

>PMRESET UNIT unit_no NORUN

and press the Enter key.

where

unit_no
is the RCO2 unit number zero or one

Example of a MAP response:

```
RCO2 1 Unit 0    PMReset Passed
```

12 Use the following information to determine the next step:

If the card you are to replace has a suffix of	Do
AA	step 13
AB	step 15

NTMX72
in an RSC-M (continued)

At the shelf

13



WARNING
Static electricity damage
Wear a wrist strap that connects to the wrist-strap grounding point of the modular supervisory panel (MSP) to handle circuit cards. This protects the cards against static electricity damage.

To power down the inactive unit, set the power switch on the NTMX72 faceplate to the OFF position.

Note: The NTMX72 circuit cards, are in slots 1 and 2 of unit 0, and in slots 26 and 27 of unit 1.

14 To replace the card, use thecommon replacing a card procedure in this document. Complete this procedure and go to step 17.

Note: If the circuit card you are to replace has switches, make sure the switches on the replacement circuit card have the same settings.

15



WARNING
Briefly state reasons for the ESDS caution
Enter the reasons for the electro-static discharge caution: an ESDS caution informs the reader to observe precautions for handling an electrostatically sensitive device.

To power down the NTMX72AB power converter, set the circuit breaker on the MSP for the inactive unit to the OFF position.

16 To replace the card, use the procedure removing and replacing a card in this section. Complete this procedure and go to step 17.

17 Power up the NTMX72 circuit card as follows:

a Insert the NTMX72 circuit card completely. An audible alarm can sound. To silence this alarm, restore power to the NTMX72 circuit card.

b If you replaced an NTMX72AA power converter, set the POWER switch to the ON position. Set the POWER switch to RESET when you set the circuit breaker on the MSP to the ON position.

c If you replaced an NTMX72AB power converter, set the circuit breaker on the MSP to the ON position. Set the circuit breaker on the MSP to ON, for the NTMX72AB that you powered down in step 15.

18 To load the inactive unit, type:

```
>LOADPM  INACTIVE
```

NTMX72 in an RSC-M (end)

and press the Enter key.

If the LOADPM command	Do
passes	step 19
fails	step 23

19 To return the inactive unit to service, type:

```
>RTS  INACTIVE
```

and press the Enter key.

If the RTS command	Do
passed	step 20
failed	step 23

20 Remove the sign from the active unit.

21 Go to the common returning a card procedure in this document.

22 This procedure is complete.

23 For additional help contact the next level of support.

24 For additional help with the SWACT, contact the next level of support.

Note: The system can recommend the of use the SWACT command with the FORCE option. When this condition occurs, contact office personnel to determine if the use of the FORCE option is acceptable.

NTMX72 in an RSC RCC2

Application

Use this procedure to replace an NTMX72 card in an RSCE RCC2.

PEC	Suffixes	Name
NTMX72	AA, AB	Power Converter

Common procedures

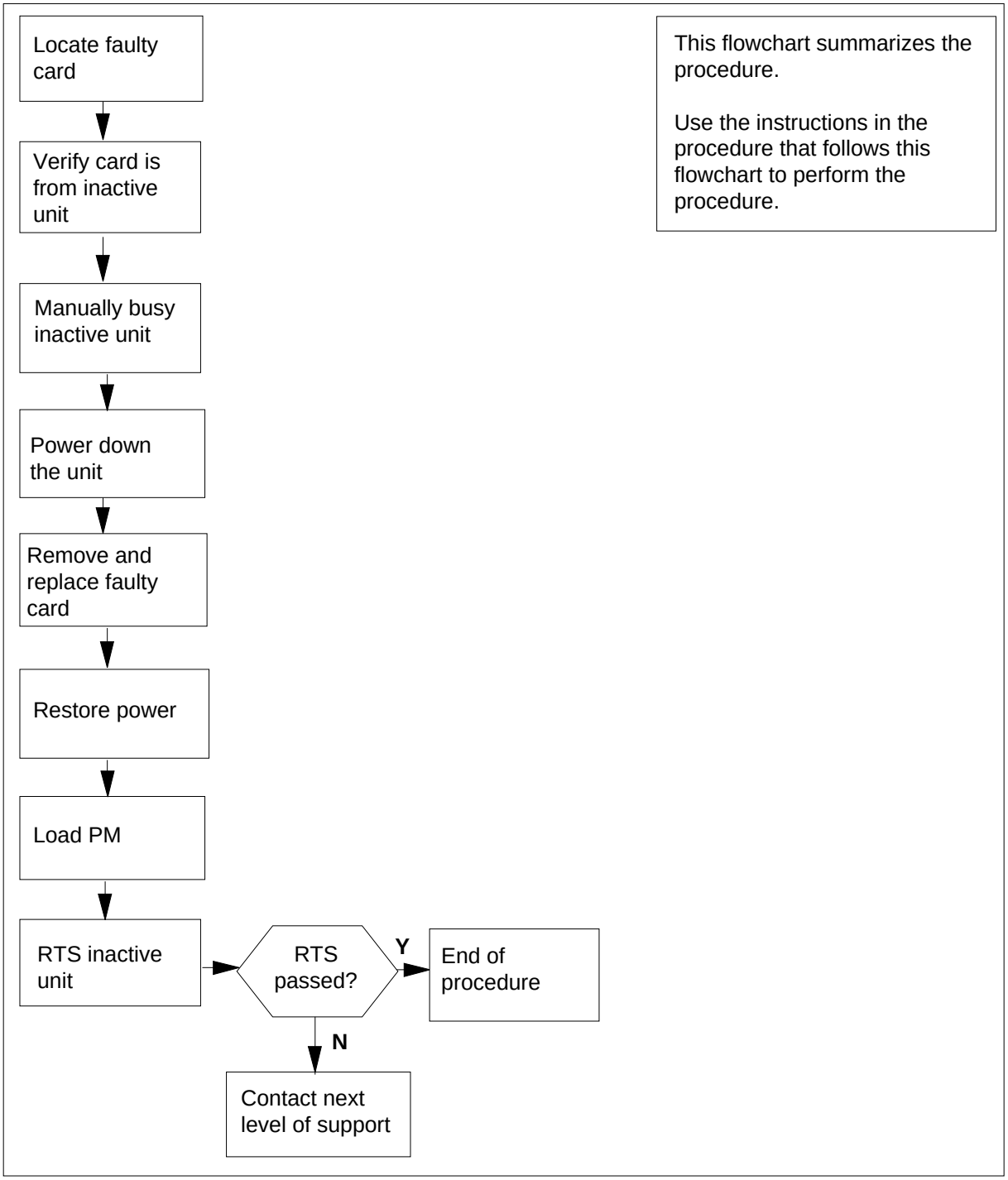
None

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.

NTMX72 in an RSC RCC2 (continued)

Summary of card replacement procedure for an NTMX72 card in an RSC RCC2



NTMX72 in an RSC RCC2 (continued)

Replacing an NTMX72 card in an RSCE 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 NTMX72 replacement card. Ensure the replacement card has the same product engineering 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 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:

NTMX72
in an RSC 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 ISTb  Links_OOS:  CSide  0, PSide   0
 5 TRNSL   Unit0:   Inact InSv
 6 TST     Unit1:   Act InSv
 7 BSY
 8 RTS
 9 OffL
10 LoadPM_
11 Disp_
12 Next_
13
14 QueryPM
15
16
17
18
```

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

5 Busy the inactive PM unit by typing

>bsy **INACTIVE**

and pressing the Enter key.

Example of a MAP response:

```
RCC2     0 ISTb  Links_OOS: CSide  0 , PSide  1
Unit0:   Inact ManB
Unit1:   Act   ISTb
bsy unit 0
RCC2 0 Unit 0    Bsy Passed
```

If the BSY command	Do
passed	step 6
failed	step 22

6 Reset the inactive RCC2 unit by typing

>PMRESET UNIT unit_no NORUN

and pressing the Enter key.

where

NTMX72 in an RSC RCC2 (continued)

unit_no
is the RCC2 unit number (0 or 1)

Example of a MAP response:

```
RCC2 1 Unit 0    PMReset Passed
```

At the RSCE frame

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.

8 Use the following information to determine where to proceed:

If the card you are replacing has a suffix of	Do
AA	step 9
AB	step 10

9 Power down the NTMX72AA power converter by setting the POWER switch on the NTMX72 card to the OFF position.

Go to step 11.

10 Power down the NTMX72AB power converter by setting the circuit breaker on the MSP for the inactive unit to the OFF position.

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



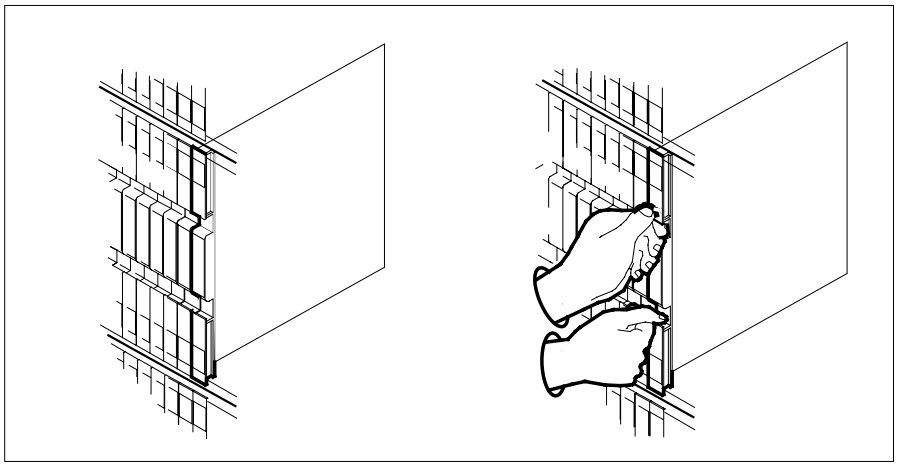
DANGER
Equipment damage
Take the following precautions when removing or inserting a card:

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

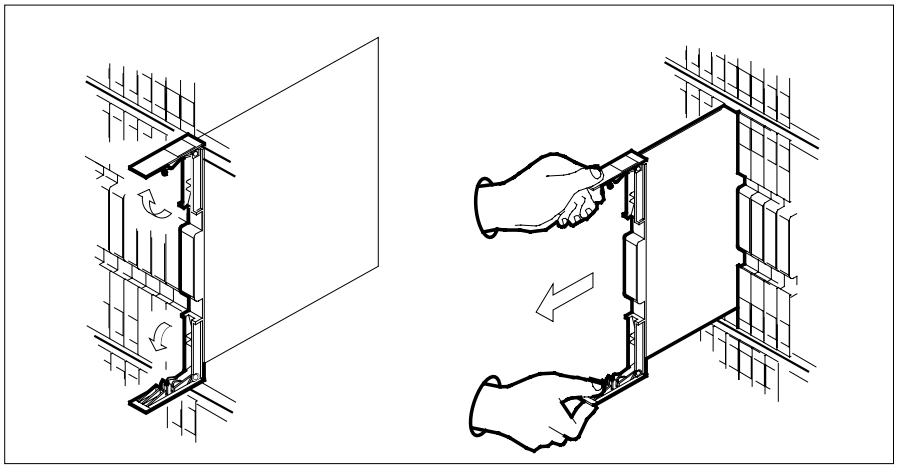
Remove the NTMX72 card as shown in the following figures.

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

NTMX72
in an RSC 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.

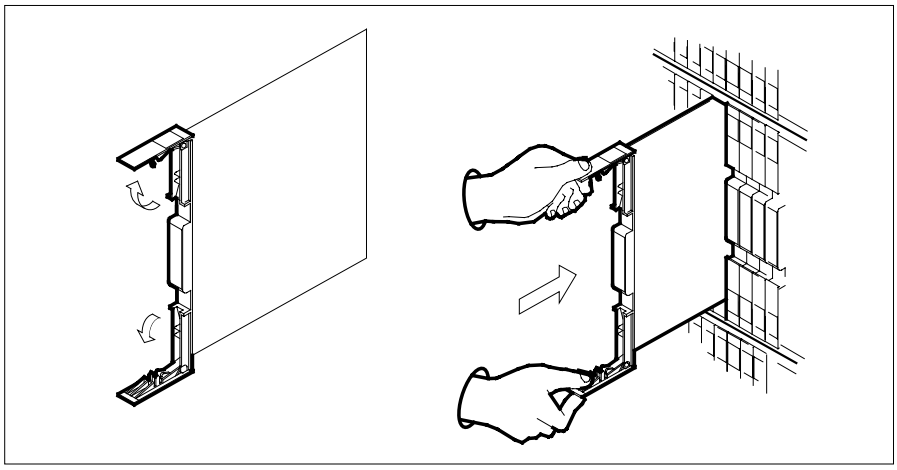


c Ensure the replacement card has the same PEC, including suffix, as the card you just removed.

12 Open the locking levers on the replacement card.

a Align the card with the slots in the shelf.

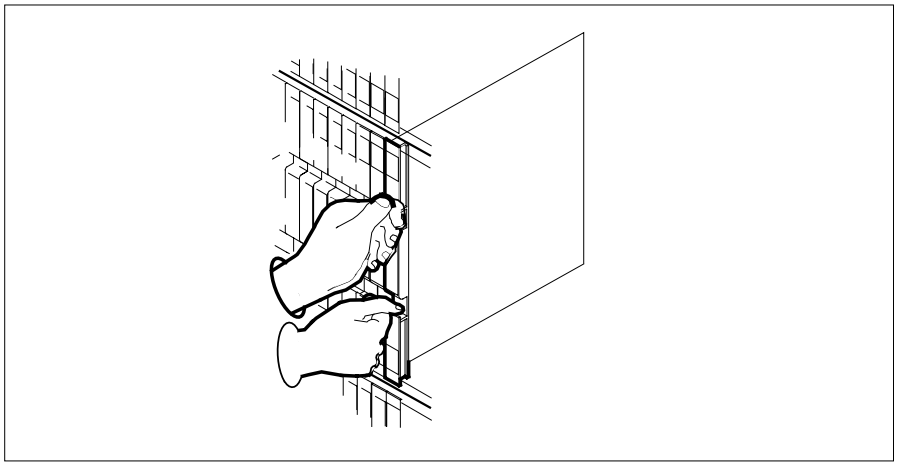
b Gently slide the card into the shelf.



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.



14 Power up the inactive RCC2 unit as follows:

a Ensure the NTMX72 circuit card is fully inserted. A major audible alarm may sound. This alarm is silenced when power to the NTMX72 circuit card is restored.

Note:

b If the power converter replaced is an NTMX72AA, set the switch on the power converter to the Reset position. Set the associated circuit breaker on the MSP to the ON position.

If both the converter FAIL LED and FRAME FAIL lamp on the MSP go OFF, go to step 15.

NTMX72
in an RSC RCC2 (continued)

If both the converter FAIL LED and FRAME FAIL lamp on the MSP do not go OFF, hold the switch on the NTMX72AA power converter in the Reset position and simultaneously set the associated circuit breaker on the MSP to the ON position. Both the converter FAIL LED and FRAME FAIL lamp on the MSP will go OFF. Go to step 15.

c If the power converter replaced is an NTMX72AB, set the associated circuit breaker on the MSP to the ON position for the NTMX72AB that was powered down in step 10. Both the converter FAIL LED and FRAME FAIL lamp on the MSP will go OFF. Go to step 15.

15 After replacing the faulty card, load the inactive RCC2 unit by typing

```
>LOADPM UNIT unit_no
```

and pressing the Enter key.

where

unit_no
is the number of the inactive RCC2 unit

If load	Do
passed	step 16
failed	step 22

16 Use the following information to determine where to proceed.

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

17 Return the inactive RCC2 unit to service by typing

```
>RTS UNIT unit_no
```

and pressing the Enter key.

where

unit_no
is the number of the inactive RCC2 unit

If RTS	Do
passed	step 18
failed	step 22

18 Remove the sign from the active RCC2 unit.

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

NTMX72
in an RSC RCC2 (end)

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 operating company maintenance personnel.

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

NTMX72 in an RSC-S (DS-1) Model A RCC2

Application

Use this procedure to replace an NTMX72 card in an RSC-S RCC2.

PEC	Suffixes	Name
NTMX72	AA, AB	Power Converter

Common procedures

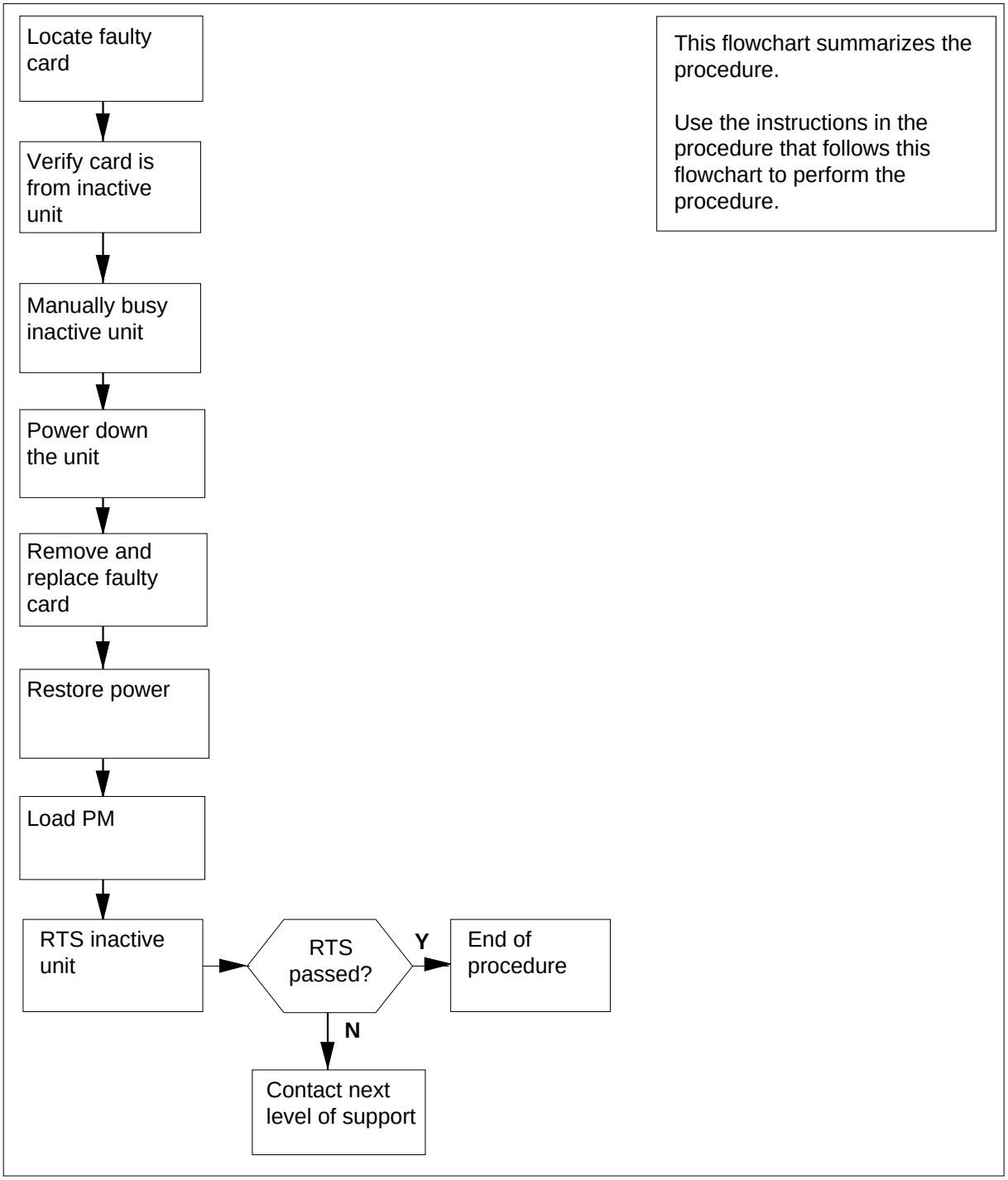
None

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.

NTMX72 in an RSC-S (DS-1) Model A RCC2 (continued)

Summary of card replacement procedure for an NTMX72 card in an RSC-S RCC2



NTMX72 in an RSC-S (DS-1) Model A RCC2 (continued)

Replacing an NTMX72 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 NTMX72 replacement card. Ensure the replacement card has the same product engineering 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 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:

NTMX72
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 ISTb  Links_OOS:  CSide  0, PSide   0
 5 TRNSL   Unit0:   Inact InSv
 6 TST     Unit1:   Act InSv
 7 BSY
 8 RTS
 9 OffL
10 LoadPM_
11 Disp_
12 Next_
13
14 QueryPM
15
16
17
18
```

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

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 Answer the prompt by typing

>YES

and pressing the Enter key.

7 Busy the inactive PM unit by typing

>bsy **INACTIVE**

and pressing the Enter key.

Example of a MAP response:

NTMX72
in an RSC-S (DS-1) Model A RCC2 (continued)

```
RCC2     0 ISTb  Links_OOS: CSide  0 , PSide  1
Unit0:   Inact ManB
Unit1:   Act   ISTb
bsy unit 0
RCC2 0 Unit 0    Bsy Passed
```

If the BSY command	Do
passed	step 8
failed	step 24

8 Reset the inactive RCC2 unit by typing

>PMRESET UNIT unit_no NORUN

and pressing the Enter key.

where

unit_no
is the RCC2 unit number (0 or 1)

Example of a MAP response:

```
RCC2 0 Unit 0    PMReset Passed
```

At the RCC2 frame

9 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.

10 Use the following information to determine where to proceed:

If the card you are replacing has a suffix of	Do
AA	step 11
AB	step 12

11 Power down the NTMX72AA power converter by setting the POWER switch on the NTMX72 card to the OFF position.

Go to step 13.

12 Power down the NTMX72AB power converter by setting the circuit breaker on the frame supervisory panel (FSP) for the inactive unit to the OFF position.

NTMX72
in an RSC-S (DS-1) Model A RCC2 (continued)

13

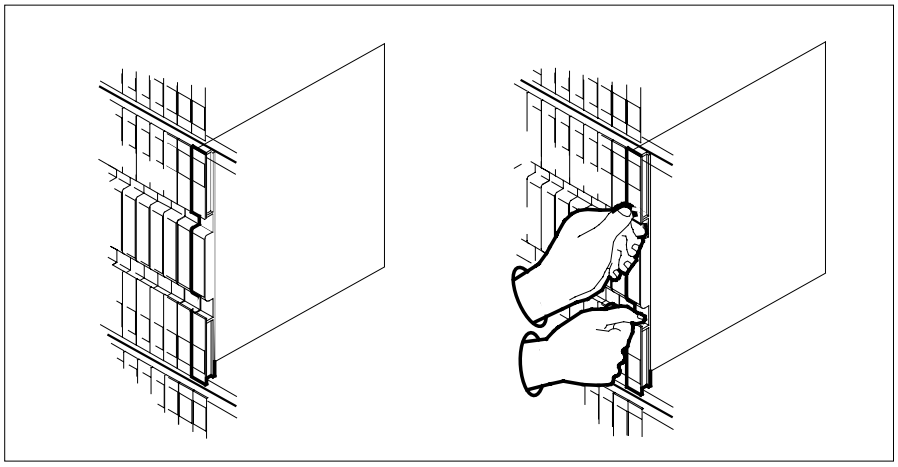
WARNING
Static electricity damage
Before removing any cards, put on a wrist strap and connect it to the wrist strap grounding point on the left side of the FSP. This protects the equipment against damage caused by static electricity.

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.

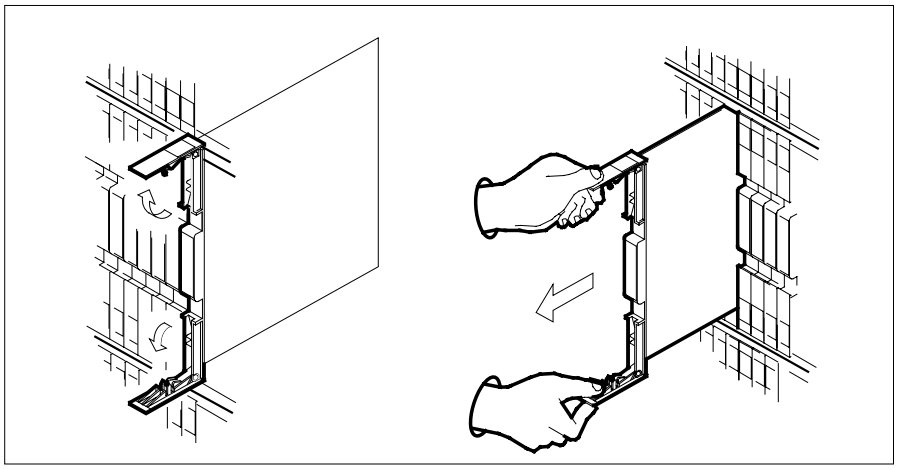
Remove the NTMX72 card as shown in the following figures.

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.

NTMX72
in an RSC-S (DS-1) Model A RCC2 (continued)

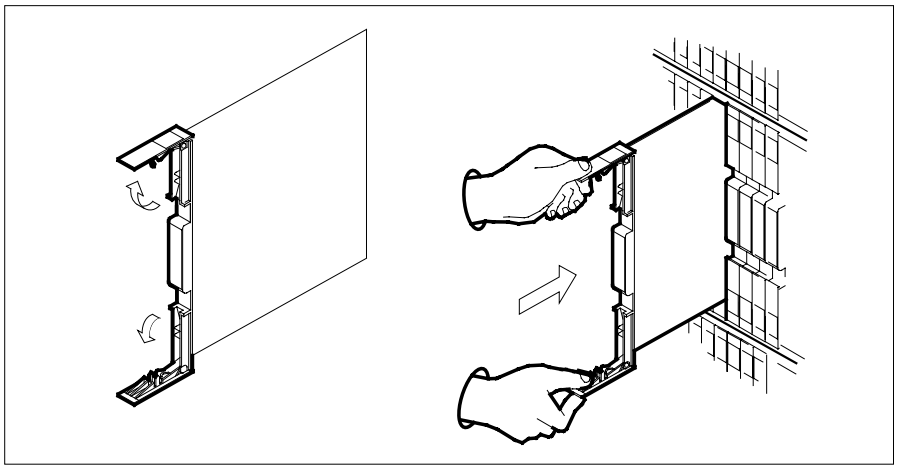


c Ensure the replacement card has the same PEC, including suffix, as the card you just removed.

14 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.

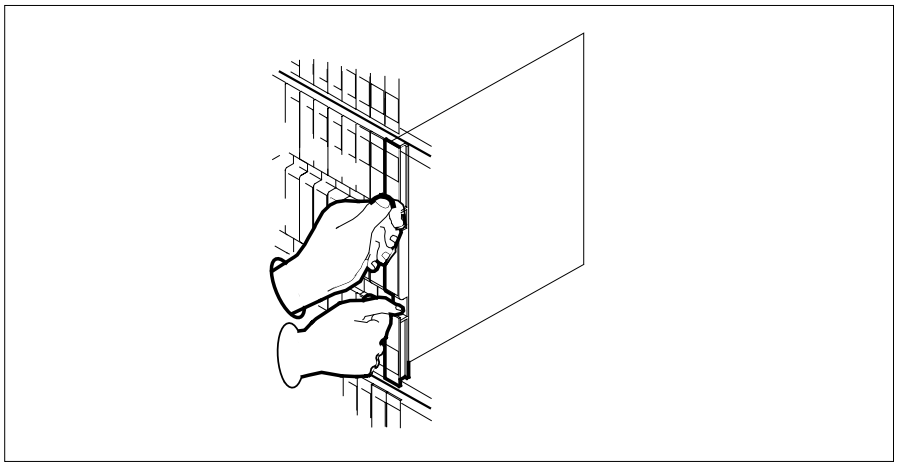


15 Seat and lock the card.

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.

NTMX72
in an RSC-S (DS-1) Model A RCC2 (continued)



16 Power up the inactive RCC2 unit as follows:

a Ensure that the power converter (NTMX72) is fully inserted. A major audible alarm may sound. This alarm is silenced when power to the NTMX72 circuit card is restored.

Note:

b If the power converter is an NTMX72AA, set the switch on the power converter to the Reset position. Set the associated circuit breaker on the FSP to the ON position.

If both the converter FAIL LED and FRAME FAIL lamp on the FSP go OFF, go to step 17.

If both the converter FAIL LED and FRAME FAIL lamp on the FSP do not go OFF, hold the switch on the NTMX72AA converter in the Reset position and simultaneously set the associated circuit breaker on the FSP to the ON position. Both the converter FAIL LED and FRAME FAIL lamp on the FSP will go OFF. Go to step 17.

c If the power converter replaced is an NTMX72AB set the associated circuit breaker on the FSP to the ON position for the NTMX72AB that was powered down in step 12. Both the converter FAIL LED and FRAME FAIL lamp on the FSP will go OFF. Go to step 17.

17 After replacing the faulty card, load the inactive RCC2 unit by typing

>LOADPM UNIT **unit_no**

and pressing the Enter key.

where

unit_no
is the number of the inactive RCC2 unit

If load	Do
passed	step 18

NTMX72 in an RSC-S (DS-1) Model A RCC2 (end)

If load	Do
failed	step 24

18 Use the following information to determine where to proceed.

If you entered this procedure from	Do
alarm clearing procedures	step 23
other	step 19

19 Return the inactive RCC2 unit to service by typing

`>RTS UNIT unit_no`

and pressing the Enter key.

where

unit_no
is the number of the inactive RCC2 unit

If RTS	Do
passed	step 20
failed	step 24

20 Remove the sign from the active RCC2 unit.

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

22 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 25.

23 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.

24 Obtain further assistance in replacing this card by contacting operating company maintenance personnel.

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

NTMX72 in an RSC-S (DS-1) Model B RCC2

Application

Use this procedure to replace an NTMX72 card in an RSC-S RCC2.

PEC	Suffixes	Name
NTMX72	AA, AB	Power Converter

Common procedures

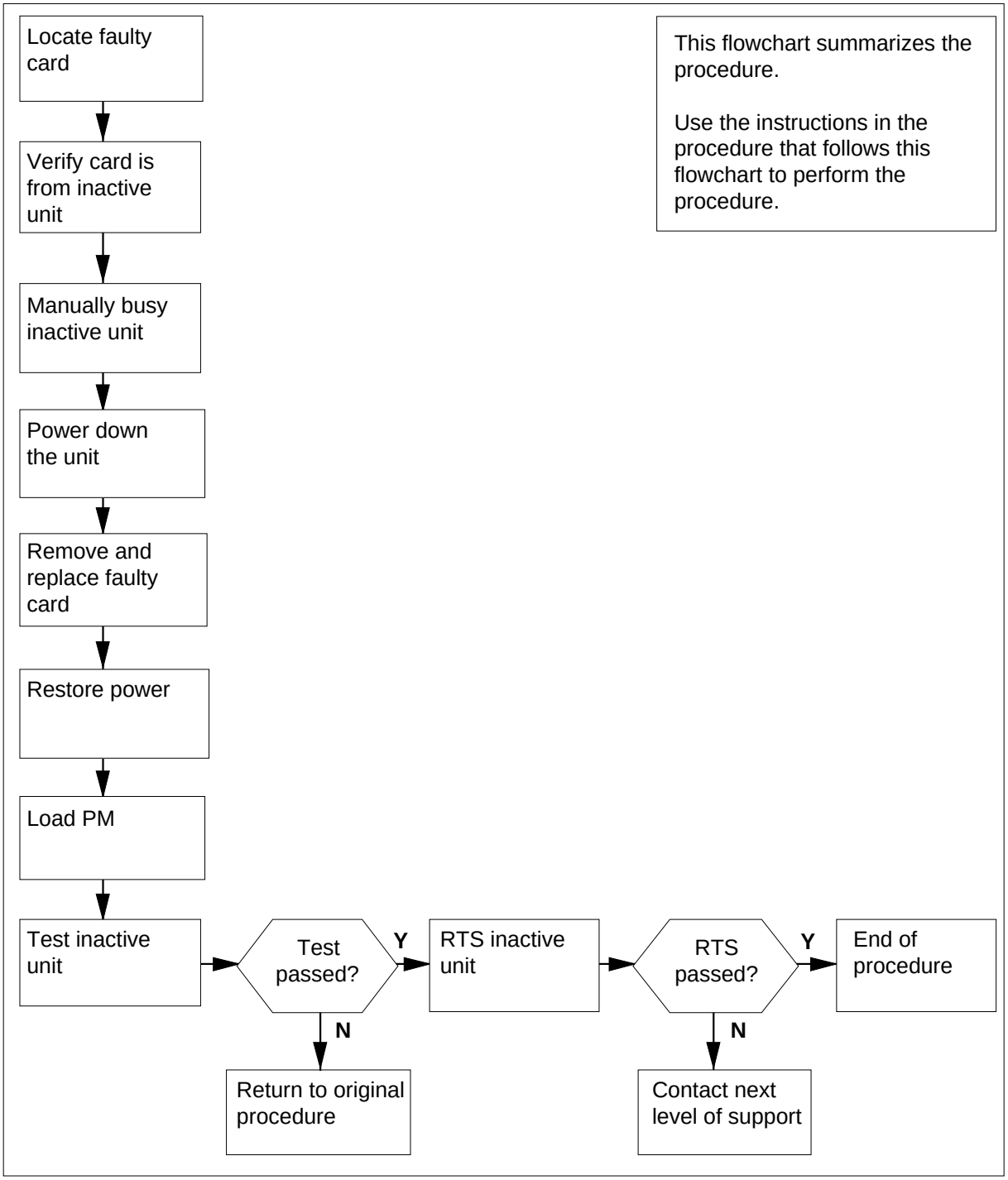
None

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.

NTMX72 in an RSC-S (DS-1) Model B RCC2 (continued)

Summary of card replacement procedure for an NTMX72 card in an RSC-S RCC2



NTMX72 in an RSC-S (DS-1) Model B RCC2 (continued)

Replacing an NTMX72 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 NTMX72 replacement card. Ensure the replacement card has the same product engineering 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 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:

NTMX72
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 ISTb  Links_OOS:  CSide  0, PSide   0
 5 TRNSL   Unit0:   Inact InSv
 6 TST     Unit1:   Act InSv
 7 BSY
 8 RTS
 9 OffL
10 LoadPM_
11 Disp_
12 Next_
13
14 QueryPM
15
16
17
18
```

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

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 Answer the prompt by typing

>YES

and pressing the Enter key.

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.

8 Busy the inactive PM unit by typing

>bsy **INACTIVE**

Example of a MAP response:

NTMX72
in an RSC-S (DS-1) Model B RCC2 (continued)

```
RCC2     0 ISTb  Links_OOS: CSide  0 , PSide  1
Unit0:   Inact ManB
Unit1:   Act   ISTb
bsy unit 0
RCC2 0 Unit 0    Bsy Passed
```

9 Reset the inactive RCC2 unit by typing

`>PMRESET UNIT unit_no NORUN`

and pressing the Enter key.

where

unit_no
is the RCC2 unit number (0 or 1)

Example of a MAP response:

```
RCC2 0 Unit 0    PMReset Passed
```

At the RSCE frame

10 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.

11 Use the following information to determine where to proceed:

If the card you are replacing has a suffix of	Do
AA	step 12
AB	step 13
anything else	step 14

12 Power down the NTMX72AA power converter by setting the POWER switch on the NTMX72 card to the OFF position.

13 Power down the NTMX72AB power converter by setting the circuit breaker on the MSP for the inactive unit to the OFF position.

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

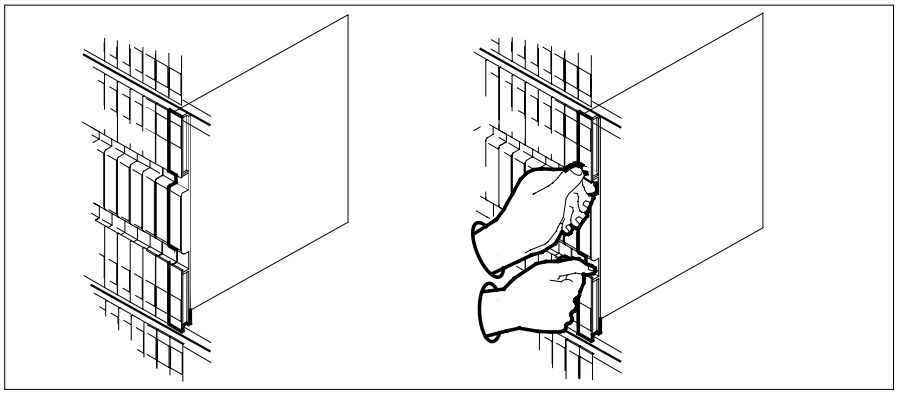
NTMX72
in an RSC-S (DS-1) Model B RCC2 (continued)

DANGER
Equipment damage
Take the following precautions when removing or inserting a card:

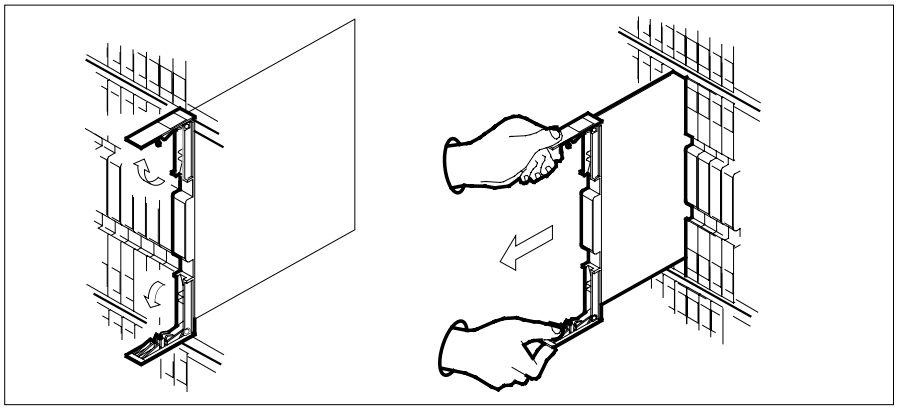
1. Do not apply direct pressure to the components.
2. Do not force the cards into the slots.

Remove the NTMX72 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.



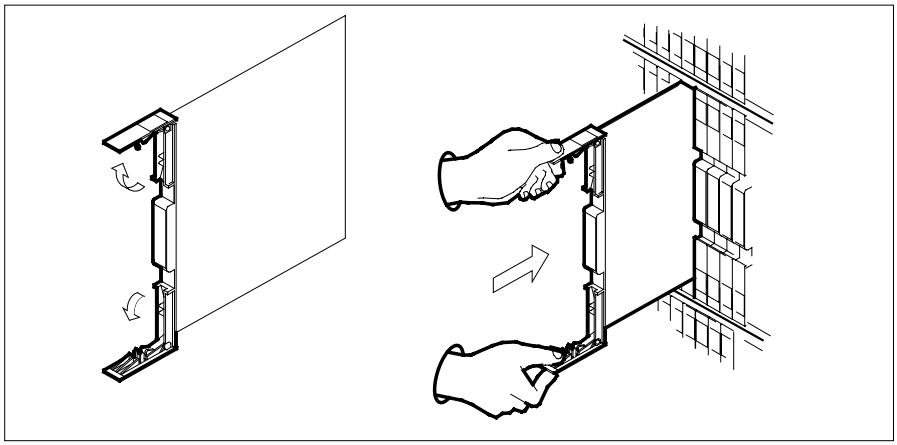
c Ensure the replacement card has the same PEC, including suffix, as the card you just removed.

15 Open the locking levers on the replacement card.

a Align the card with the slots in the shelf.

NTMX72
in an RSC-S (DS-1) Model B RCC2 (continued)

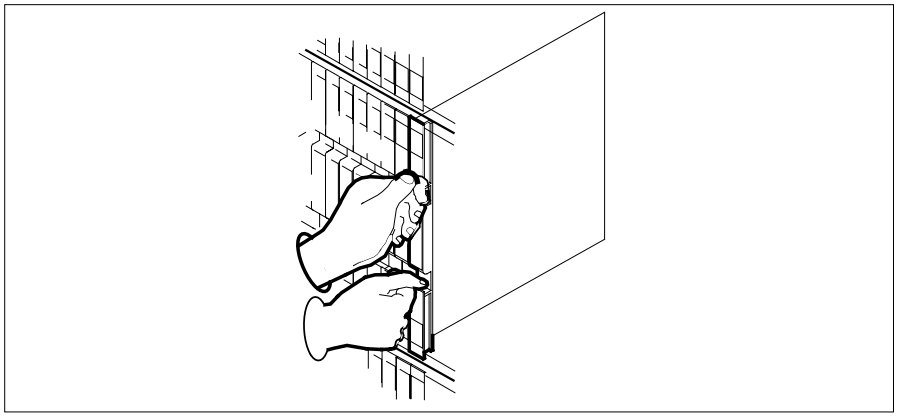
b Gently slide the card into the shelf.



16 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.



17 Power up the inactive RCC2 unit as follows:

a Ensure the NTMX72 circuit card is fully inserted. A major audible alarm may sound. The alarm is silenced when power is restored to the NTMX72 circuit card.

Note:

b If the power converter replaced is an NTMX72AA, set the switch on the power converter to the Reset position. Set the associated circuit breaker on the MSP to the ON position.

If both the converter FAIL LED and FRAME FAIL lamp on the MSP go OFF, go to step 18.

NTMX72
in an RSC-S (DS-1) Model B RCC2 (continued)

If both the converter FAIL LED and FRAME FAIL lamp on the MSP do not go OFF, hold the switch on the NTMX72AA power converter in the Reset position and simultaneously set the associated circuit breaker on the MSP to the ON position. Go to step 18.

c If the power converter replaced is an NTMX72AB, set the associated circuit breaker on the MSP to the ON position for the NTMX72AB converter that was powered down in step 13.

18 After replacing the faulty card, load the inactive RCC2 unit by typing

>LOADPM UNIT **unit_no**

and pressing the Enter key.

where

unit_no
is the number of the inactive RCC2 unit

If load	Do
passed	step 19
failed	step 26

19 Test the inactive unit by typing

>TST UNIT **unit_no**

and pressing the Enter key.

where

unit_no
is the number of the inactive RCC2 unit

If TST	Do
passed	step 20
failed	step 25

20 Use the following information to determine where to proceed.

If you entered this procedure from	Do
alarm clearing procedures	step 25
other	step 21

21 Return the inactive RCC2 unit to service by typing

>RTS UNIT **unit_no**

and pressing the Enter key.

where

NTMX72
in an RSC-S (DS-1) Model B RCC2 (end)

unit_no
is the number of the inactive RCC2 unit

If RTS	Do
passed	step 22
failed	step 26

22 Remove the sign from the active RCC2 unit.

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

24 Record the date the card was replaced, the serial number of the card, and the symptoms that prompted replacement of the card. Go to step 27.

25 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.

26 Obtain further assistance in replacing this card by contacting operating company maintenance personnel.

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

NTMX72 in an RSC-S (PCM-30) Model A RCO2

Application

Use this procedure to replace an NTMX72 card in an RSC-S RCO2.

PEC	Suffixes	Name
NTMX72	AA, AB	Power Converter

Common procedures

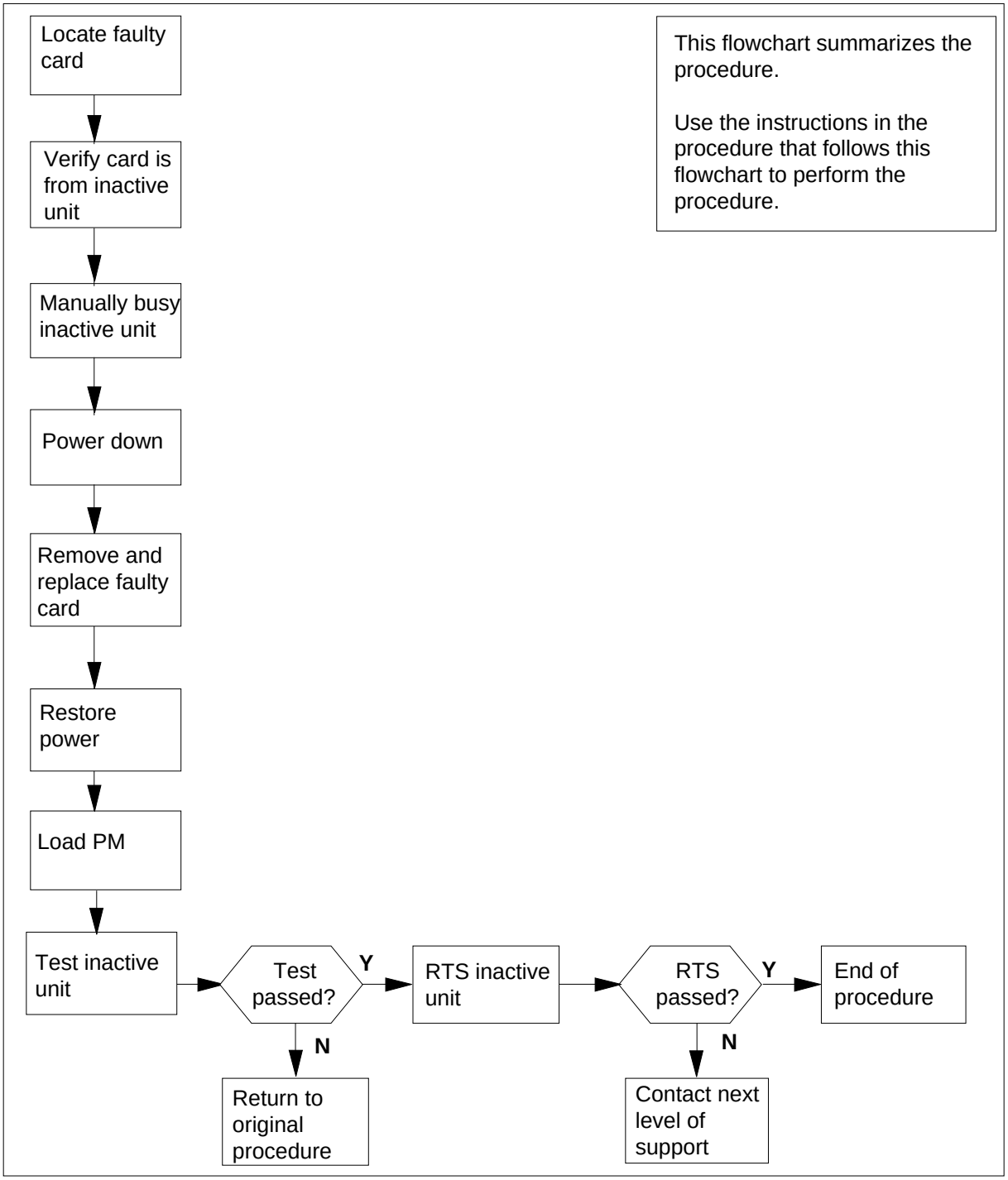
None

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.

NTMX72 in an RSC-S (PCM-30) Model A RCO2 (continued)

Summary of card replacement procedure for an NTMX72 card in an RSC-S RCO2



NTMX72 in an RSC-S (PCM-30) Model A RCO2 (continued)

Replacing an NTMX72 card 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 an NTMX72 replacement card. Ensure the replacement card has the same product engineering 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 RCO2 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:

NTMX72
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 ISTb  Links_OOS:  CSide  0, PSide   0
 5 TRNSL   Unit0:   Inact InSv
 6 TST     Unit1:   Act InSv
 7 BSY
 8 RTS
 9 OffL
10 LoadPM_
11 Disp_
12 Next_
13
14 QueryPM
15
16
17
18
```

4 By observing the MAP display, be sure that the card 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 Answer the prompt by typing

>YES

and pressing the Enter key.

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.

8 Busy the inactive PM unit by typing

>bsy UNIT **unit_no**

and pressing the Enter key.

NTMX72
in an RSC-S (PCM-30) Model A RCO2 (continued)

where

unit_no
is the number of the faulty RCO2 unit

9 Use the following information to determine where to proceed:

If the card you are replacing has a suffix of	Do
AA	step 10
AB	step 11

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 (FSP) of the RCO2. This protects the equipment against damage caused by static electricity.

Power down the NTMX72 power converter by setting the POWER switch on the face plate to the OFF position.

Go to step 12.

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.

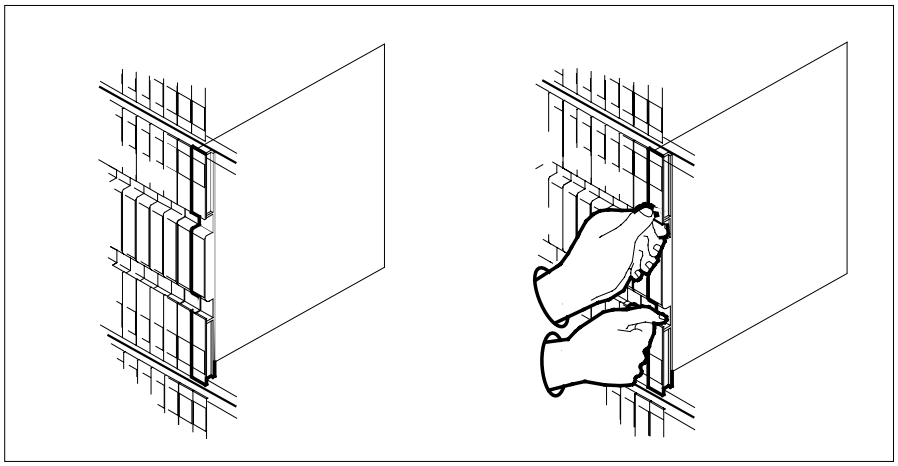
Power down the NTMX72AB power converter by setting the circuit breaker on the FSP for the inactive unit to the OFF position.

Go to step 12.

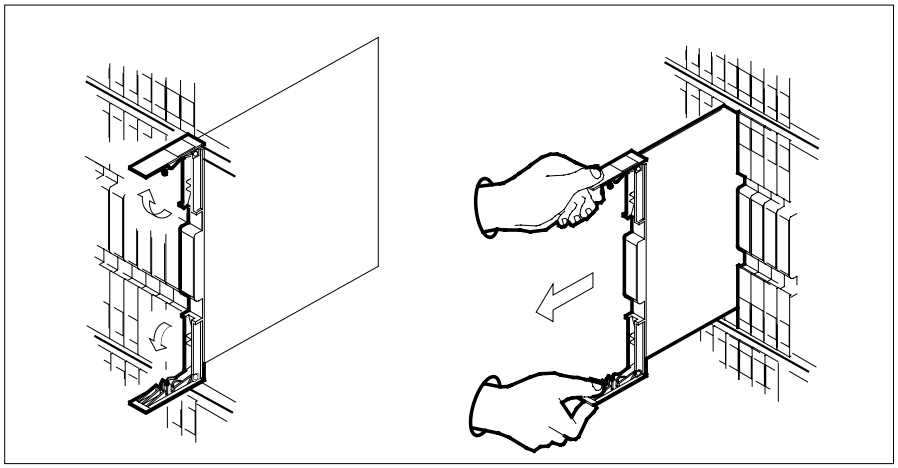
12 Remove the NTMX72 card as shown in the following figures.

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

NTMX72
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.



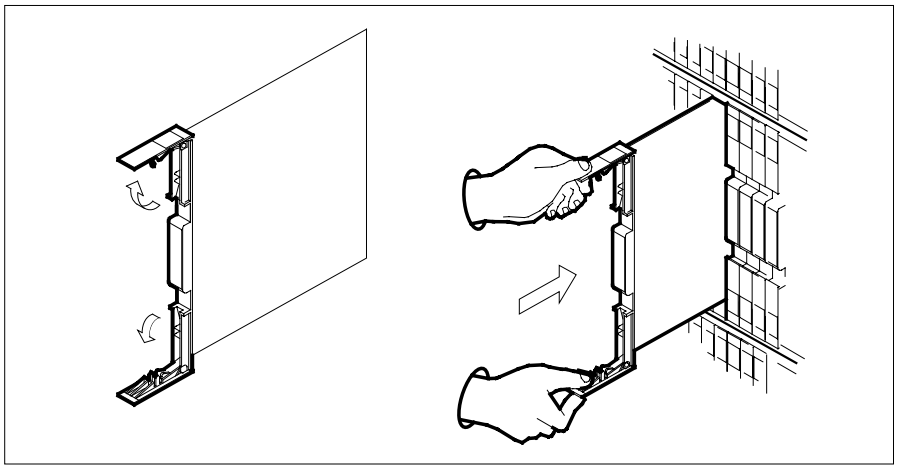
c Ensure the replacement card has the same PEC, including suffix, as the card you just removed.

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.

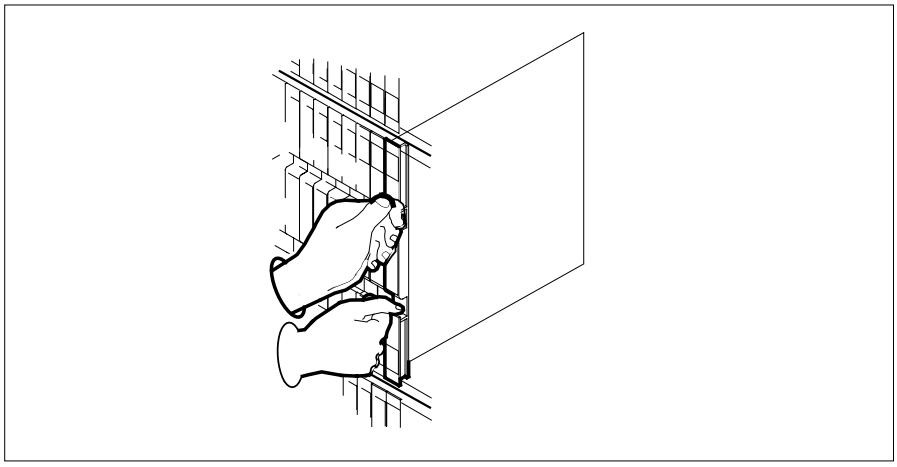
NTMX72
in an RSC-S (PCM-30) Model A RCO2 (continued)



14 Seat and lock the card.

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

b Close the locking levers.



15 Power up the inactive RCO2 unit as follows:

a Ensure the power converter (NTMX72) is inserted. A major audible alarm may sound. This alarm is silenced when power is restored to the converter.

b If the power converter you replaced is an NTMX72AA, set the POWER switch to the ON position. Set the POWER switch to RESET when setting the circuit breaker on the FSP to the ON position.

c If the power converter you replaced is an NTMX72AB, set the circuit breaker on the FSP to the ON position for the NTMX72AB that was powered down in step 11.

NTMX72
in an RSC-S (PCM-30) Model A RCO2 (continued)

16 After replacing the faulty card, load the inactive RCO2 unit by typing

>LOADPM UNIT **unit_no**

and pressing the Enter key.

where

unit_no
is the number of the inactive RCO2 unit

If LOADPM	Do
passed	step 17
failed	step 24

17 Test the inactive unit by typing

>TST UNIT **unit_no**

and pressing the Enter key.

where

unit_no
is the number of the inactive RCO2 unit

If TST	Do
passed	step 18
failed	step 23

18 Use the following information to determine where to proceed.

If you entered this procedure from	Do
alarm clearing procedures	step 23
other	step 19

19 Return the inactive RCO2 unit to service by typing

>RTS UNIT **unit_no**

and pressing the Enter key.

where

unit_no
is the number of the inactive RCO2 unit

If RTS	Do
passed	step 20

NTMX72
in an RSC-S (PCM-30) Model A RCO2 (end)

If RTS	Do
failed	step 24

20 Remove the sign from the active RCO2 unit.

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

22 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 25.

23 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.

24 Obtain further assistance in replacing this card by contacting operating company maintenance personnel.

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

NTMX72 in an RSC-S (PCM-30) Model B RCO2

Application

Use this procedure to replace an NTMX72 card in an RSC-S RCO2.

PEC	Suffixes	Name
NTMX72	AA, AB	Power Converter

Common procedures

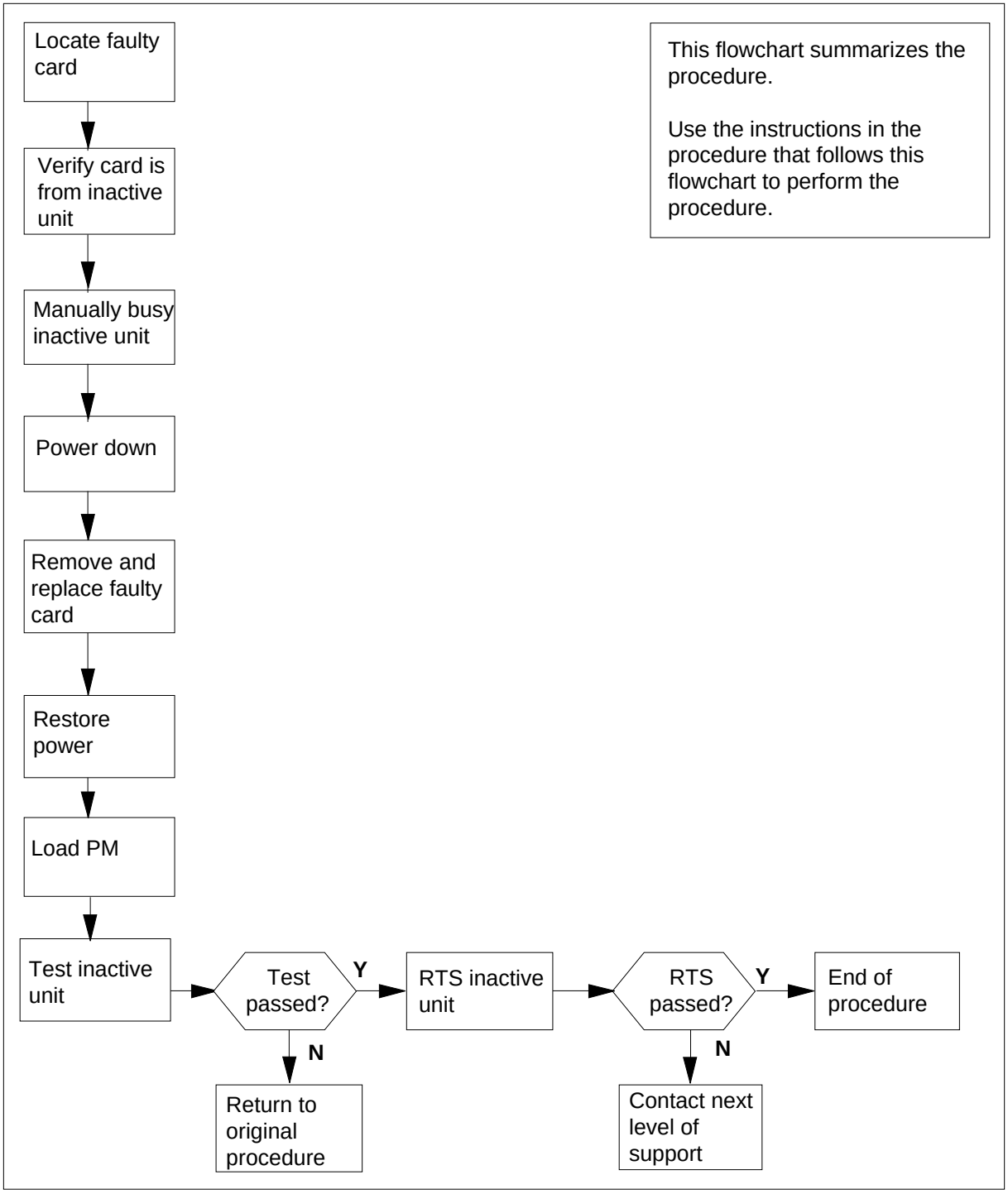
None

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.

NTMX72
in an RSC-S (PCM-30) Model B RCO2 (continued)

Summary of card replacement procedure for an NTMX72 card in an RSC-S RCO2



NTMX72 in an RSC-S (PCM-30) Model B RCO2 (continued)

Replacing an NTMX72 card 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 an NTMX72 replacement card. Ensure the replacement card has the same product engineering 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 RCO2 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:

NTMX72
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 ISTb  Links_OOS:  CSide  0, PSide   0
 5 TRNSL   Unit0:   Inact InSv
 6 TST     Unit1:   Act InSv
 7 BSY
 8 RTS
 9 OffL
10 LoadPM_
11 Disp_
12 Next_
13
14 QueryPM
15
16
17
18
```

4 By observing the MAP display, be sure that the card 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 Answer the prompt by typing

>YES

and pressing the Enter key.

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.

8 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 RCO2 unit

9 Use the following information to determine where to proceed:

If the card you are replacing has a suffix of	Do
AA	step 10
AB	step 11

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.

Power down the NTMX72 power converter by setting the POWER switch on the face plate to the OFF position.

Go to step 12.

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.

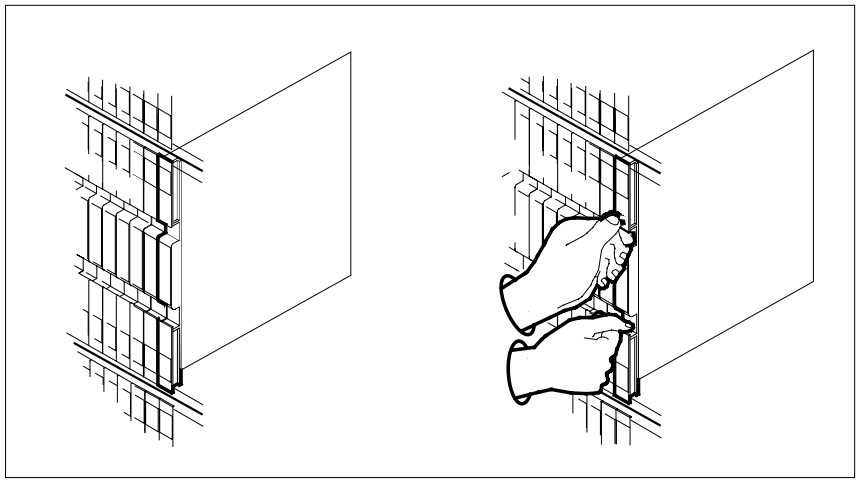
Power down the NTMX72AB power converter by setting the circuit breaker on the MSP for the inactive unit to the OFF position.

Go to step 12.

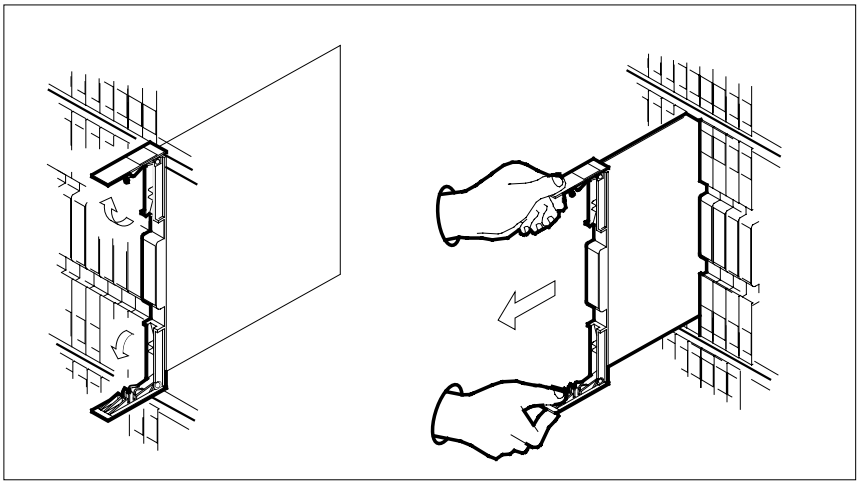
12 Remove the NTMX72 card as shown in the following figures.

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

NTMX72
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.



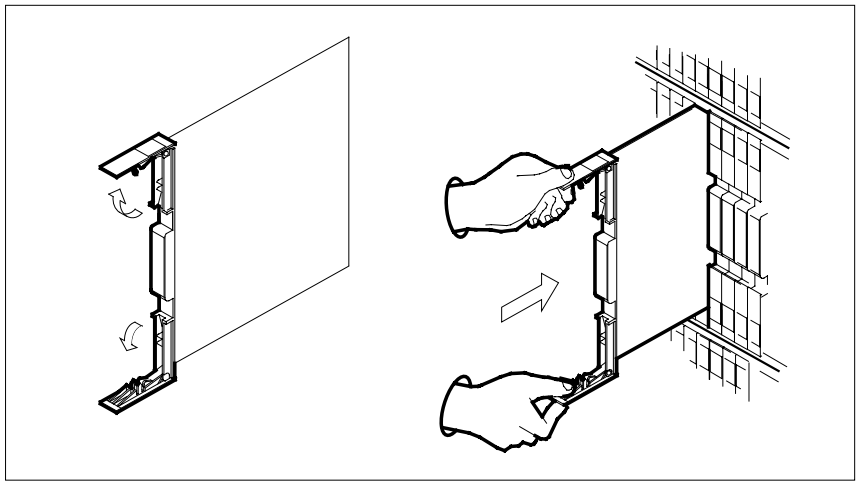
c Ensure the replacement card has the same PEC, including suffix, as the card you just removed.

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.

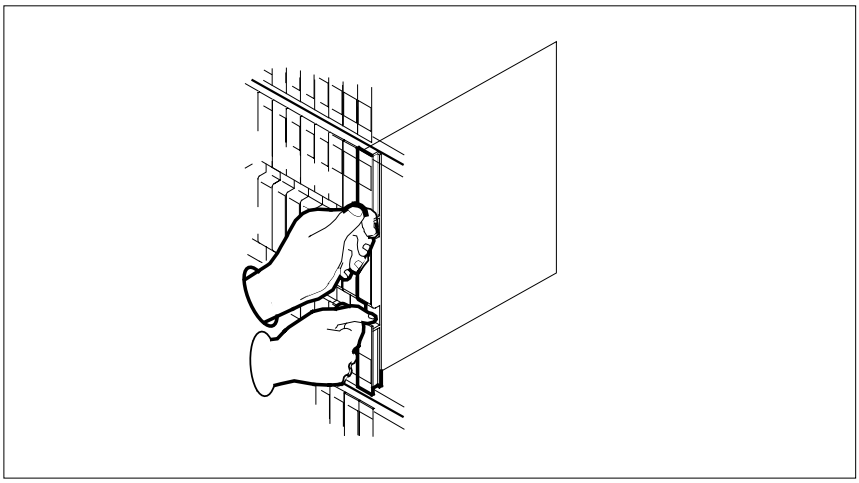
NTMX72
in an RSC-S (PCM-30) Model B RCO2 (continued)



14 Seat and lock the card.

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

b Close the locking levers.



15 Power up the inactive RCO2 unit as follows:

a Ensure the power converter (NTMX72) is inserted. A major audible alarm may sound. This alarm is silenced when power is restored to the converter.

b If the power converter you replaced is an NTMX72AA, set the POWER switch to the ON position. Set the POWER switch to RESET when setting the circuit breaker on the MSP to the ON position.

c If the power converter you replaced is an NTMX72AB, set the circuit breaker on the MSP to the ON position for the NTMX72AB that was powered down in step 11.

NTMX72
in an RSC-S (PCM-30) Model B RCO2 (continued)

16 After replacing the faulty card, load the inactive RCO2 unit by typing

>LOADPM UNIT **unit_no**

and pressing the Enter key.

where

unit_no
is the number of the inactive RCO2 unit

If LOADPM	Do
passed	step 17
failed	step 24

17 Test the inactive unit by typing

>TST UNIT **unit_no**

and pressing the Enter key.

where

unit_no
is the number of the inactive RCO2 unit

If TST	Do
passed	step 18
failed	step 23

18 Use the following information to determine where to proceed.

If you entered this procedure from	Do
alarm clearing procedures	step 23
other	step 19

19 Return the inactive RCO2 unit to service by typing

>RTS UNIT **unit_no**

and pressing the Enter key.

where

unit_no
is the number of the inactive RCO2 unit

If RTS	Do
passed	step 20

NTMX72 in an RSC-S (PCM-30) Model B RCO2 (end)

If RTS	Do
failed	step 24

20 Remove the sign from the active RCO2 unit.

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

22 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 25.

23 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.

24 Obtain further assistance in replacing this card by contacting operating company maintenance personnel.

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

NTMX72 in an SMA2

Application

Use this procedure to replace an NTMX72 card in an SMA2.

PEC	Suffixes	Name
NTMX72	AA, AB	Power Converter

Common procedures

The following procedures are referenced in this procedure:

- “Locating a faulty card in an SMA2"
- replacing a card
- returning a card

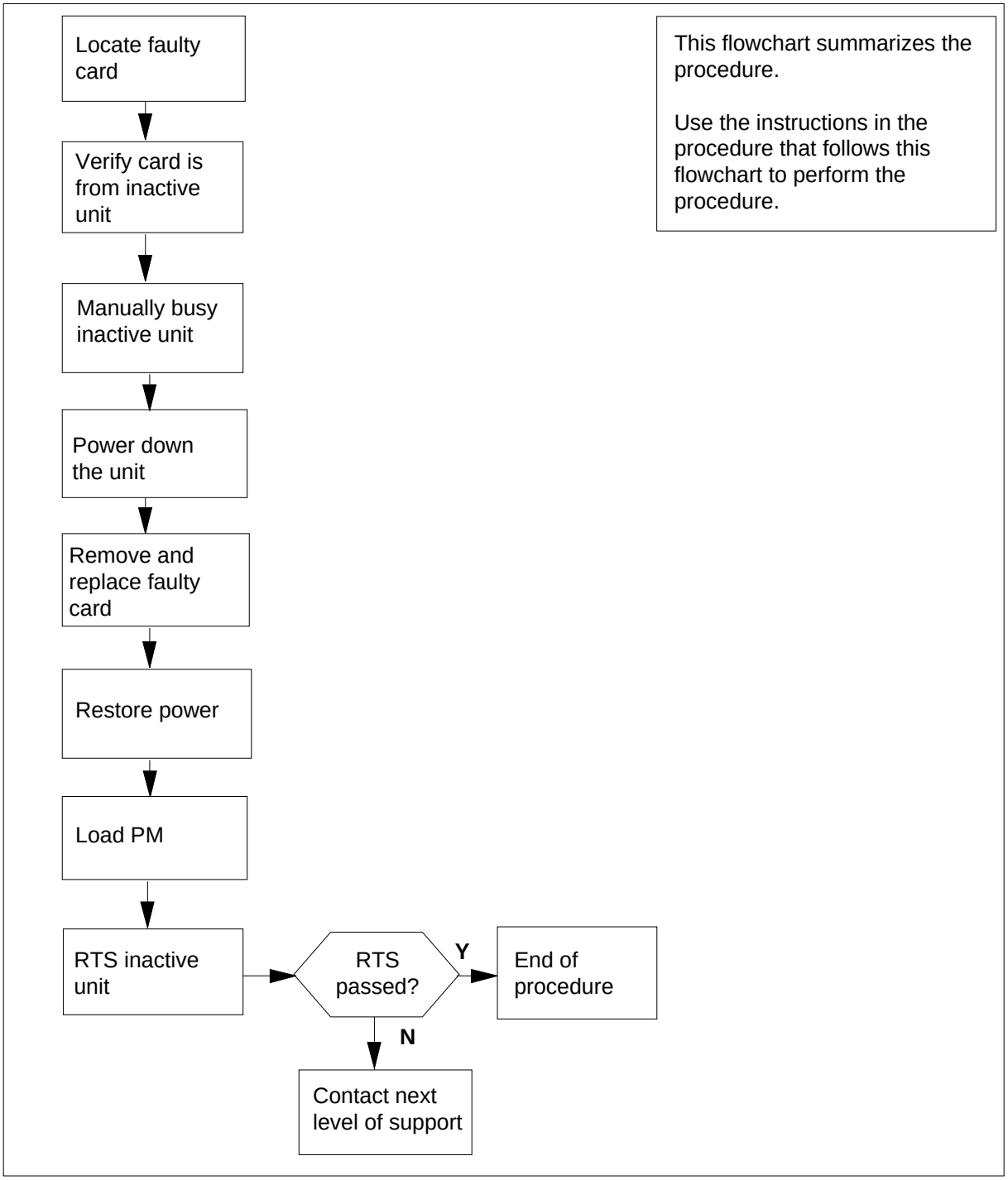
Do not go to a common procedure unless directed to do so in the step-action procedure.

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.

NTMX72 in an SMA2 (continued)

Summary of card replacement procedure for an NTMX72 card in an SMA2



NTMX72 in an SMA2 (continued)

Replacing an NTMX72 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 an NTMX72 replacement card. Ensure the replacement card has the same product engineering code (PEC), including suffix, as the card to be 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 with the faulty card

Example of a MAP display:

NTMX72
in an SMA2 (continued)

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

SMA2   0 ISTb  Links_OOS:  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 faulty card is on	Do
active unit	step 7
inactive unit	step 11

7 Switch the processing activity (SWACT) to the inactive unit by typing

>SWACT

and pressing the Enter key.

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

If prompt indicates	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

NTMX72
in an SMA2 (continued)

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

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

Go to step 23.

At the frame or 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.

At the MAP terminal

12 Busy the inactive PM unit by typing

`>bsy INACTIVE`

and pressing the Enter key.

At the frame or cabinet

13 Use the following information to determine where to proceed:

If the card you are replacing has a suffix of	Do
AA	step 14
AB	step 15

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

Power down the NTMX72 power converter by setting the POWER switch on the face plate to the OFF position.

Perform the common replacing a card procedure in this document.

Go to step 16.

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

Power down the NTMX72AB power converter by setting the circuit breaker on the MSP for the inactive unit to the OFF position.

Perform the common replacing a card procedure in this document.

Go to step 16.

16 Power up the inactive SMA2 unit as follows:

a Ensure the power converter (NTMX72) is inserted. A major audible alarm may sound. This alarm is silenced when power is restored to the converter.

b If the power converter you replaced is an NTMX72AA, set the POWER switch to the ON position. Set the POWER switch to RESET when setting the circuit breaker on the MSP to the ON position.

c If the power converter you replaced is an NTMX72AB, set the circuit breaker on the MSP to the ON position for the NTMX72AB that was powered down in step 15.

17 After replacing the faulty card, load the inactive SMA2 unit by typing

>LOADPM INACTIVE

and pressing the Enter key.

where

unit_no
is the number of the inactive SMA2 unit

If load	Do
passed	step 18
failed	step 23

18 Use the following information to determine where to proceed.

If you entered this procedure from	Do
alarm clearing procedures	step 22

NTMX72 in an SMA2 (end)

If you entered this procedure from	Do
other	step 19

19 Return the inactive SMA2 unit to service by typing

>RTS inactive

and pressing the Enter key.

If RTS	Do
passed	step 20
failed	step 23

20 Remove the sign from the active SMA2 unit.

21 Go to the common returning a card procedure in this document.

Go to step 23.

22 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.

23 Obtain further assistance in replacing this card by contacting operating company maintenance personnel.

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

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Product Documentation - Dept. 3423
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Publication number: 297-8021-547
Product release: LET0015 and up
Document release: Standard 14.02
Date: May 2001
Printed in the United States of America

