Critical Release Notice

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The content of this customer NTP supports the SN06 (DMS) software releases.

Bookmarks used in this NTP highlight the changes between the baseline NTP 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 baseline NTP remains unchanged and is valid for the current release.

Bookmark Color Legend

Black: Applies to new or modified content for the NA015 baseline NTP 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.

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

Publication History

November 2005

For the SN06 (DMS) standard release 16.02, the following updates were made:

Volume 1
Section “Clearing an SPM UR or a NA link state” added for CR Q01007141.

Volume 2
No changes

May 2003

For the SN06 (DMS) release, 16.01, updates were made to Volume 2 according to CR Q00569522. There were no changes to Volume 1.

297-8021-544

DMS-100 Family

North American DMS-100

Trouble Locating and Clearing Procedures

Volume 2 of 2

LET0015 and up Standard 14.02 May 2001

NORTEL NETWORKS™

DMS-100 Family

North American DMS-100

Trouble Locating and Clearing Procedures

Volume 2 of 2

Publication number: 297-8021-544
Product release: LET0015 and up
Document release: Standard 14.02
Date: May 2001

Contents

Trouble Locating and Clearing Procedures
Volume 2 of 2

NTP Summary Contents

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Trouble Locating and Clearing Procedures Volume 2 of 2

1 Trouble locating and clearing procedures (continued)

The following chapter is a continuation of the trouble locating and clearing procedures. For general information on the trouble locating and clearing procedures refer to the introduction in Volume 1.

Recovering a stuck HLIU or HSLR

Application

Use this procedure to recover a stuck high-speed link interface unit (HLIU) or a high-speed link router (HSLR).

Definition

An HLIU or HSLR is stuck when both F-bus taps of the individual HLIU or HSLR are not accessible (NA).

Common procedures

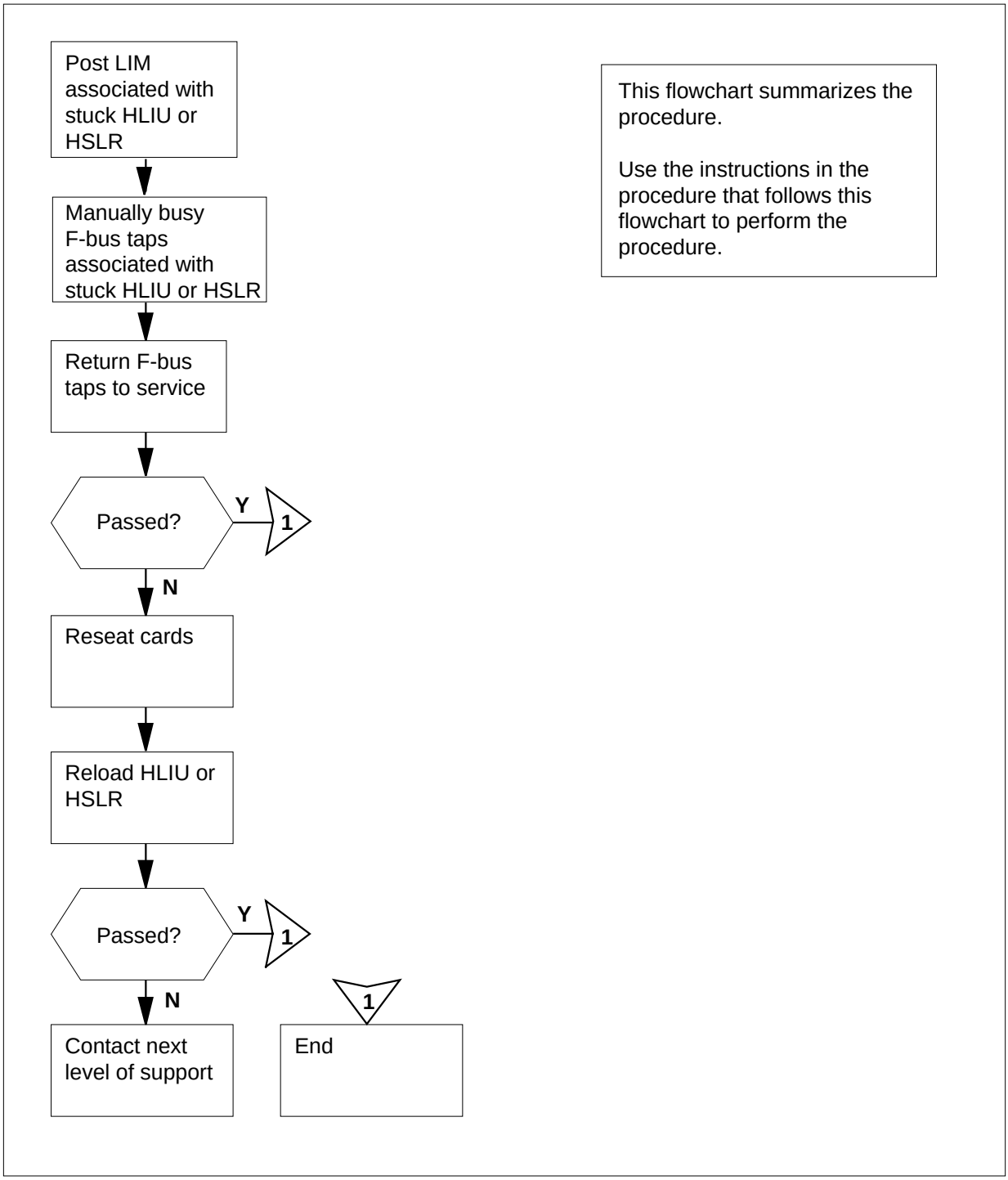
None

Action

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

Recovering a stuck HLIU or HSLR (continued)

Summary of Recovering a stuck HLIU or HSLR



Recovering a stuck HLIU or HSLR (continued)

Recovering a stuck HLIU or HSLR

At the MAP terminal

1

DANGER
Contact your next level of support
Do not attempt this procedure before contacting your next level of support.

Access the PM level of the MAP display by typing

>MAPCI;MTC;PM

and pressing the Enter key.

2 Post the system-busy not accessible HLIU or HSLR by typing

>POST HLIU SYSB

and pressing the Enter key.

or

>POST HSLR SYSB

and pressing the Enter key.

If the state of the HLIU or HSLR is	Do
SysB (NA)	step 5
SysB	step 3

3 Display the next system-busy HLIU or HSLR by typing

>NEXT

and pressing the Enter key.

4 Repeat step 3 until you find the system-busy not accessible (NA) HLIU or HSLR.

5 Determine the LIM associated with the stuck HLIU or HSLR by typing

>QUERYPM

and pressing the Enter key.

Example of a MAP response:
QueryPM
PM type: HLIU PM NO.: 0 Status: SysB
LIM: 0 Shelf: 1 Slot: 8 LIU FTA 4240 1000
Default Load: HCA11AV
Running Load: HCA11AV
Potential service affecting conditions:

Recovering a stuck HLIU or HSLR (continued)

```
    Msg Channel #1  NA
    TAP #0 OOS/NA
    TAP #1 OOS/NA
LMS States  :  InSv     InSv
Auditing    :  No       No
Msg Channels:  Acc      No
TAP 0       :  I (NA)   S (NA)
Reserved HLIU forms part of CCS7 Linkset :HSL172001000 SLC:0
LIU is not allocated
```

6 Post the LIM associated with the stuck HLIU or HSLR by typing

`>POST LIM lim_no`

and pressing the Enter key.

where

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

7 Post the LIS associated with the stuck HLIU or HSLR by typing

`>POST LIS lis_no`

and pressing the Enter key.

where

lis_no
is the number of the shelf (1 to 3)

8 Determine which F-bus taps are associated with the stuck HLIU or HSLR by typing

`>TRNSL fbus_no`

and pressing the Enter key.

where

fbus_no
is the number of the FBus (0 or 1)

Example of a MAP response for HLIU:

```
LIM 8 LIS 2 FBus 0 Tap 0 is unequipped.
LIM 8 LIS 2 FBus 0 Tap 1 is unequipped
LIM 8 LIS 2 FBus 0 Tap 2 is on HLIU 1
LIM 8 LIS 2 FBus 0 Tap 3 is on HSLR 1
LIM 8 LIS 2 FBus 0 Tap 4 is unequipped
```

9 Manually busy the F-bus taps associated with the stuck HLIU or HSLR by typing

`>BSY FBUS fbus_no tap_no`

and pressing the Enter key.

where

fbus_no
is the number of the F-bus (0 or 1)

Recovering a stuck HLIU or HSLR (continued)

tap_no
is the number of the F-bus tap (0 to 11)

Perform this step for both F-bus taps associated with the stuck HLIU or HSLR.

10 Return the F-bus taps associated with the stuck HLIU or HSLR to service by typing

>RTS FBUS fbus_no tap_no

and pressing the Enter key.

where

fbus_no
is the number of the F-bus (0 or 1)

tap_no
is the number of the F-bus tap (0 to 11)

Perform this step for both F-bus taps associated with the stuck HLIU or HSLR.

Example of a MAP response:

```
LIM lim_no FBus fbus_no Tap tap_no Return to Service
initiated.
```

If the RTS command	Do
passed	step 28
failed	step 11

11 Access the PM level of the MAP display by typing

>PM

and pressing the Enter key.

12 Post the stuck HLIU or HSLR by typing

>POST HLIU liu_no

and pressing the Enter key.

or

>POST HSLR liu_no

and pressing the Enter key.

where

liu_no
is the number of the stuck HLIU or HSLR (0 to 511)

13 Manually busy the HLIU or HSLR by typing

>BSY

and pressing the Enter key.

14 Confirm the command by typing

>YES

and pressing the Enter key.

Recovering a stuck HLIU or HSLR (continued)

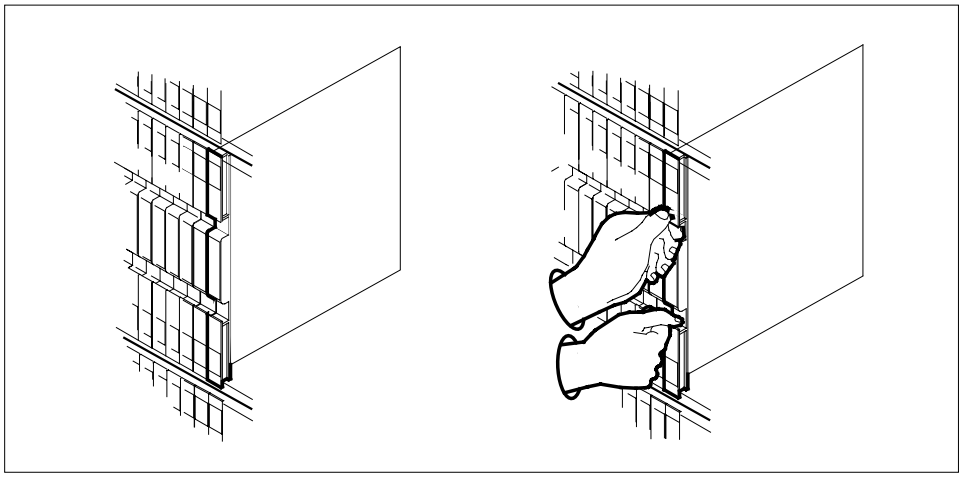
15 Prepare to unseat and reseat the cards belonging to the stuck HLIU or HSLR.

At the ELPP

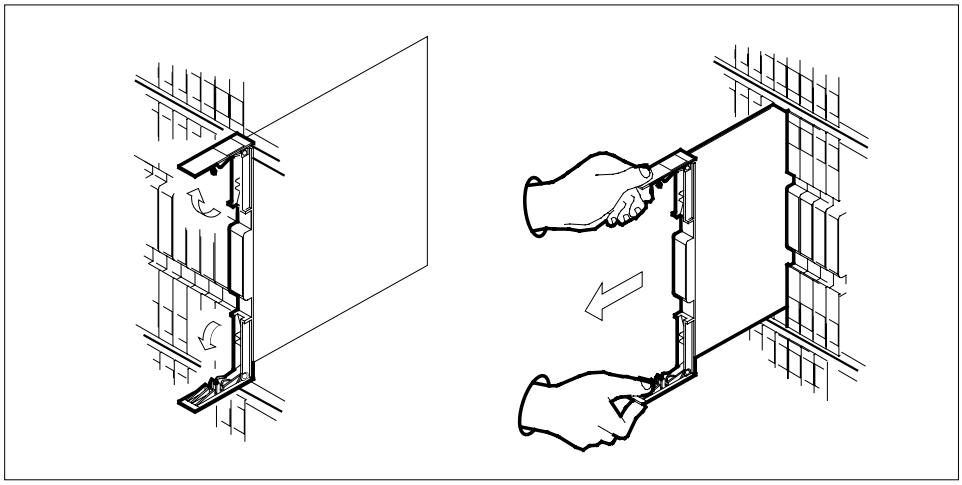
16

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

Locate the NTEX22 card belonging to the stuck HLIU or HSLR.



17 Carefully pull the card 25 mm (1 in.) toward you.



18 Leave the NTEX22 sitting in its slot on the link interface shelf (LIS).

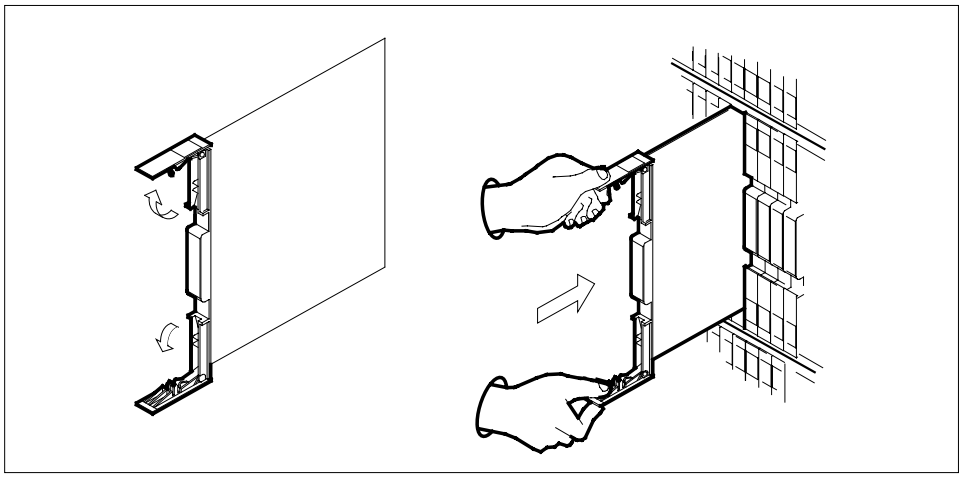
Recovering a stuck HLIU or HSLR (continued)

19 Verify the type of PM.

If the PM is an	Do
HLIU	step 20
HSLR	step 21

20 Repeat steps 16, 17, 18, and 19 for the NTEX76 card belonging to the stuck HLIU. If you have already unseated the NTEX76 card, go to step 21.

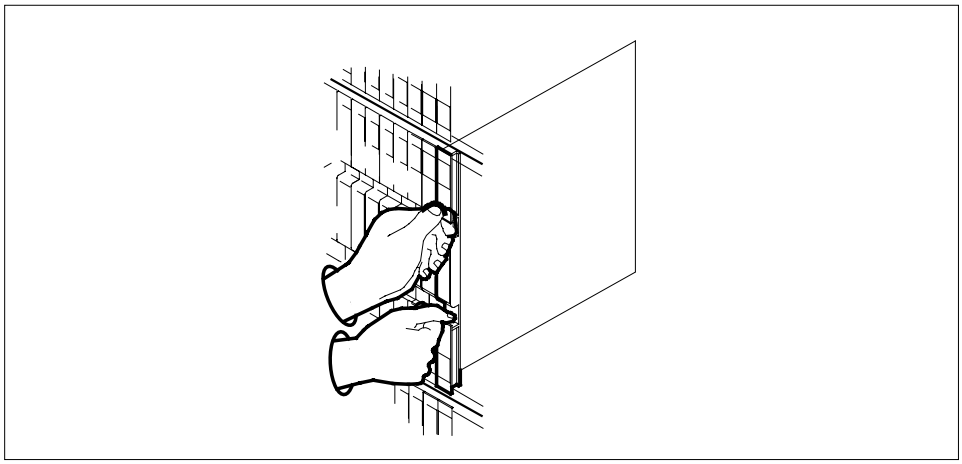
21 Carefully slide the NTEX22 card back into the LIS.



22 Seat and lock the card, as follows:

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

b Close the locking levers.



Recovering a stuck HLIU or HSLR (end)

23 Verify the type of PM.

If the PM is an	Do
HLIU	step 24
HSLR	step 25

24 Repeat steps 21, 22, and 23 for the NTEX76 card that belongs to the stuck HLIU. If you have already reseated both cards, go to step 25.

At the MAP terminal

25 Reload the HLIU or HSLR by typing

>LOADPM

and pressing the Enter key.

If the LOADPM command	Do
passed	step 26
failed	step 27

26 Return the HLIU or HSLR to service by typing

>RTS

and pressing the Enter key.

If the RTS command	Do
passed	step 28
failed	step 27

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

28 You have completed this procedure.

Recovering a stuck two-slot LIU7

Application

Use this procedure to recover a stuck CCS7 link interface unit (LIU7). This procedure applies only to two-slot LIU7s.

Definition

An LIU7 is stuck when both of its F-bus taps are not accessible (NA).

Common procedures

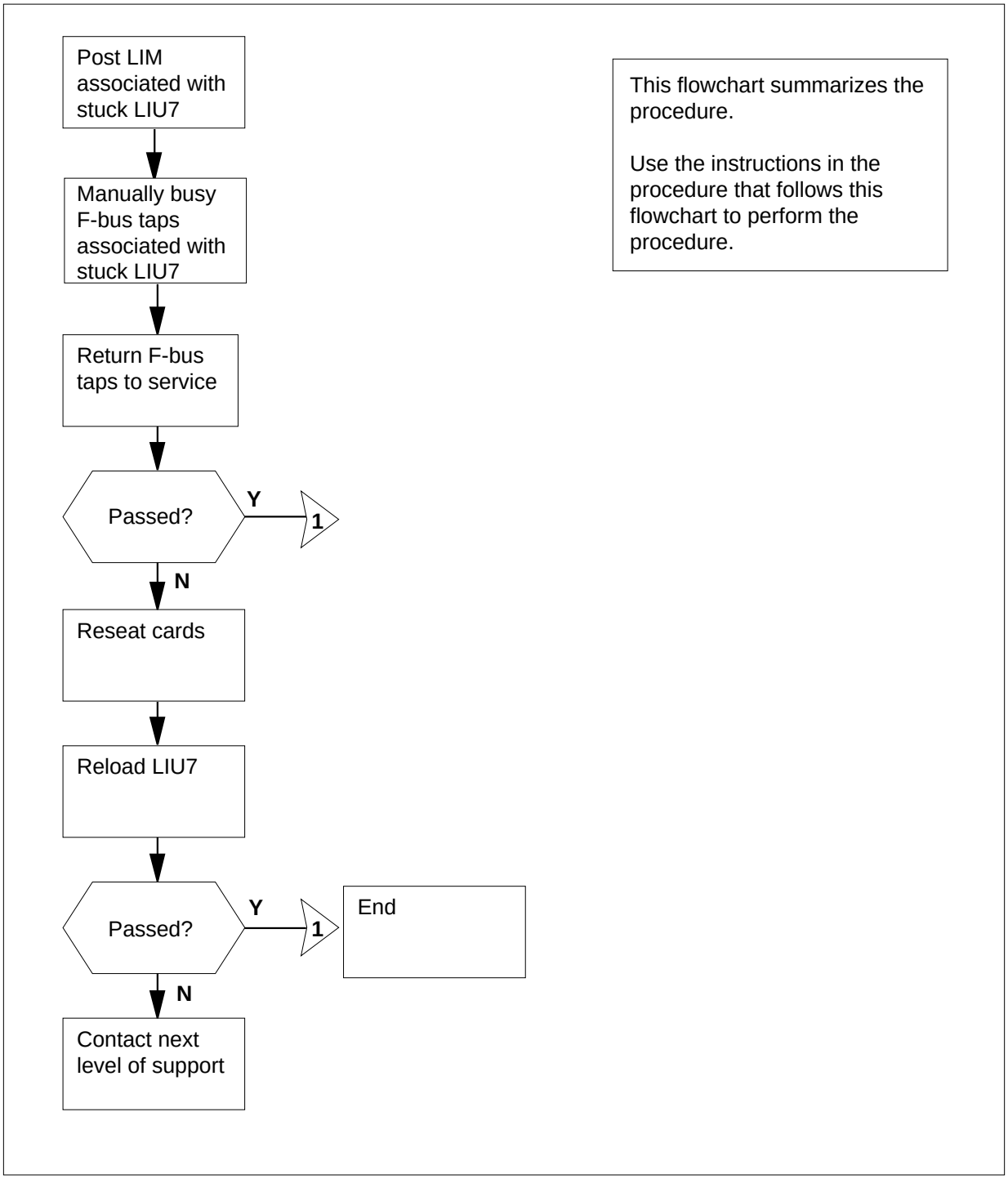
None

Action

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

Recovering a stuck two-slot LIU7 (continued)

Summary of Recovering a stuck two-slot LIU7



Recovering a stuck two-slot LIU7 (continued)

Recovering a stuck two-slot LIU7

At the MAP terminal

1

DANGER
Contact your next level of support
Do not attempt this procedure before contacting your next level of support.

Access the PM level of the MAP display by typing

>MAPCI;MTC;PM

and pressing the Enter key.

2 Post the system-busy not accessible LIU7 by typing

>POST LIU7 SYSB

and pressing the Enter key.

If the state of the LIU7 is	Do
SysB (NA)	step 6
SysB	step 3

3 Display the next system-busy LIU7 by typing

>NEXT

and pressing the Enter key.

4 Repeat step 3 to find the system-busy not accessible LIU7.

5 Determine the location of the LIU7.

6 Determine the LIM associated with the stuck LIU7 by typing

>QUERYPM

and pressing the Enter key.

7 Post the LIM associated with the stuck LIU7 by typing

>POST LIM lim_no

and pressing the Enter key.

where

lim_no
is the number of the LIM (0 or 1)

8 Access the F-bus level of the MAP display by typing

>FBUS

and pressing the Enter key.

Recovering a stuck two-slot LIU7 (continued)

Example of a MAP display:

```
Tap:         0   4   8   12   16   20   24   28     32

FBus0:ISTb(NA) .... .... ...S .... .... .... .... ....
..-.
FBus1:InSv    .... .... ...S .... .... .... .... .....
..-.
```

Note: In the example, S means that F-bus taps are system busy.

9 Determine which F-bus taps are associated with the stuck LIU7 by typing

>TRNSL fbus_no

and pressing the Enter key.

where

fbus_no
is the number of the F-bus (0 or 1)

Example of a MAP response:

```
LIM lim_no FBus fbus_no Tap tap_no is unequipped.
LIM lim_no FBus fbus_no Tap tap_no is on LIU7 liu_no.
LIM lim_no FBus fbus_no Tap tap_no is on LIU7 liu_no.
```

10 Manually busy the F-bus taps associated with the stuck LIU7 by typing

>BSY FBUS fbus_no tap_no

and pressing the Enter key.

where

fbus_no
is the number of the F-bus (0 or 1)

tap_no
is the number of the F-bus tap (0 to 35)

Perform this step for both F-bus taps associated with the stuck LIU7.

11 Return the F-bus taps associated with the stuck LIU7 to service by typing

>RTS FBUS fbus_no tap_no

and pressing the Enter key.

where

fbus_no
is the number of the F-bus (0 or 1)

tap_no
is the number of the F-bus tap (0 to 35)

Perform this step for both F-bus taps associated with the stuck LIU7.

Recovering a stuck two-slot LIU7 (continued)

Example of a MAP response:

```
LIM lim_no FBus fbus_no Tap tap_no Return to Service
initiated.
```

If the RTS command	Do
passed	step 27
failed	step 12

12 Access the PM level of the MAP display by typing

>PM

and pressing the Enter key.

13 Post the stuck LIU7 by typing

>POST LIU7 liu_no

and pressing the Enter key.

where

liu_no
is the number of the stuck LIU7 (0 to 511)

14 Manually busy the LIU7 by typing

>BSY

and pressing the Enter key.

15 Confirm the command by typing

>YES

and pressing the Enter key.

16 Prepare to unseat and reseat the cards that belong to the stuck LIU7.

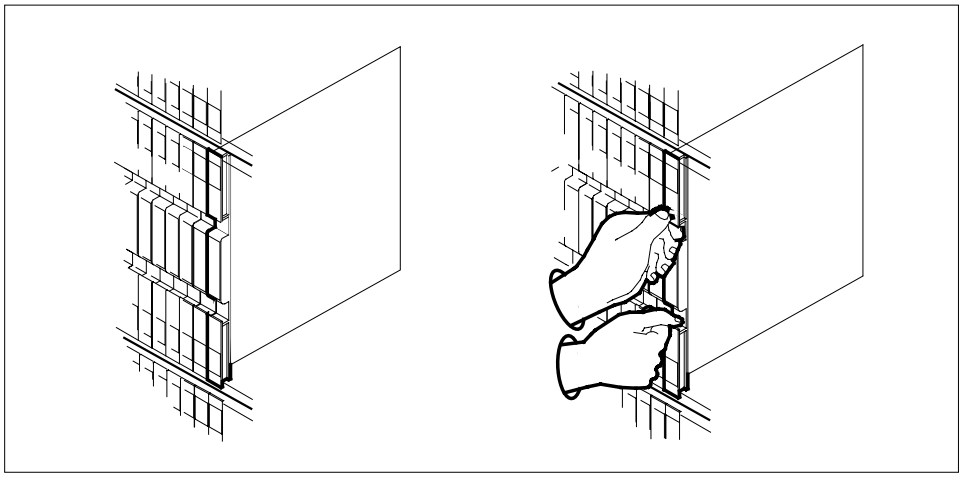
At the LPP

17

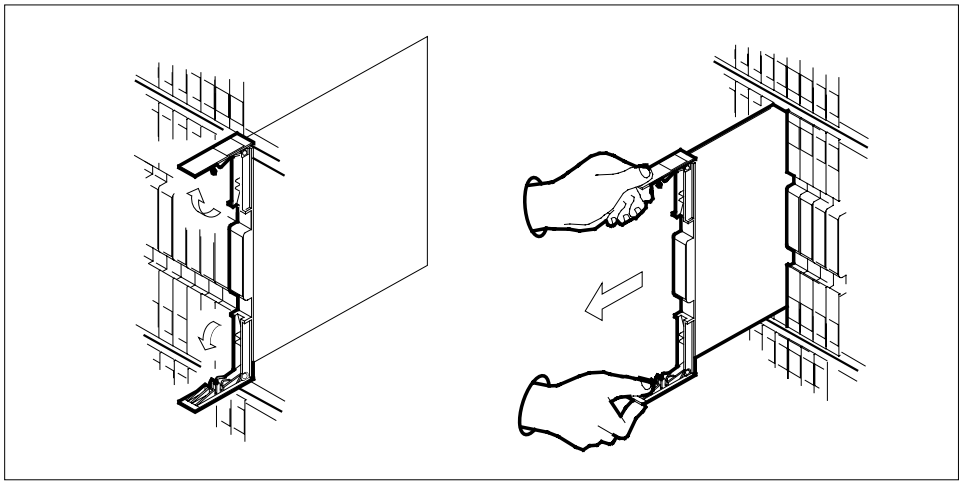
WARNING
Static electricity damage
Wear a wrist strap connected to the wrist-strap grounding point of a frame supervisory panel (FSP) while handling cards. This protects the cards against damage caused by static electricity.

Locate the NTEX22 card that belongs to the stuck LIU7.

Recovering a stuck two-slot LIU7 (continued)



18 Carefully pull the card 25 mm (1 in.) toward you.

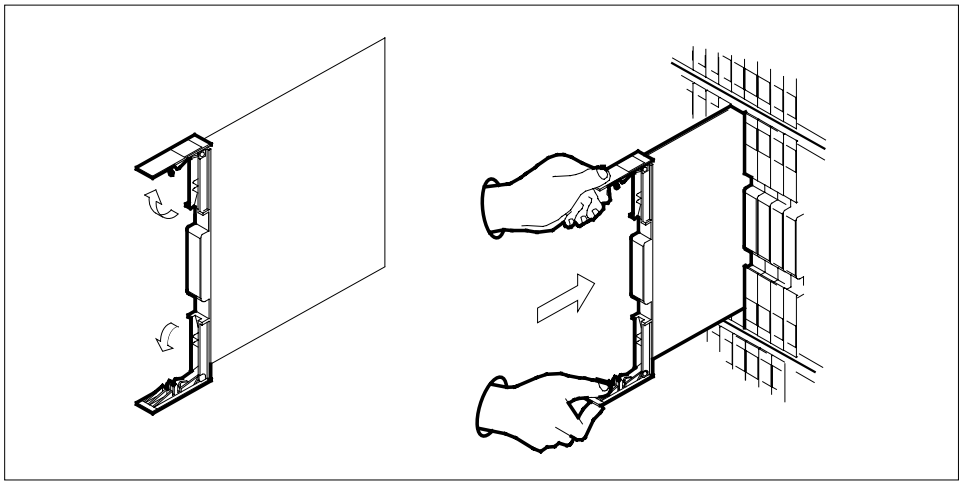


19 Leave the NTEX22 sitting in its slot on the link interface shelf (LIS).

20 Repeat steps 17, 18, and 19 for the NT9X76 card that belongs to the stuck LIU7.

21 Carefully slide the NTEX22 card back into the LIS.

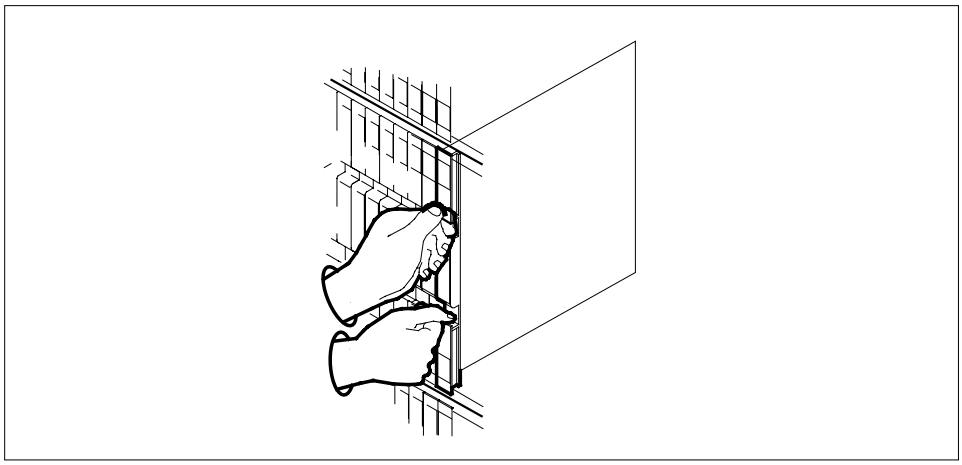
Recovering a stuck two-slot LIU7 (continued)



22 Seat and lock the card, as follows:

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

b Close the locking levers.



23 Repeat steps 21 and 22 for the NT9X76 card that belongs to the stuck LIU7.

At the MAP terminal

24 Reload the LIU7 by typing

>LOADPM

and pressing the Enter key.

If the LOADPM command	Do
passed	step 25
failed	step 26

Recovering a stuck two-slot LIU7 (end)

25 Return the LIU7 to service by typing

>RTS

and pressing the Enter key.

If the RTS command	Do
passed	step 27
failed	step 26

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

27 You have completed this procedure.

Removing an MP position from service (integrated)

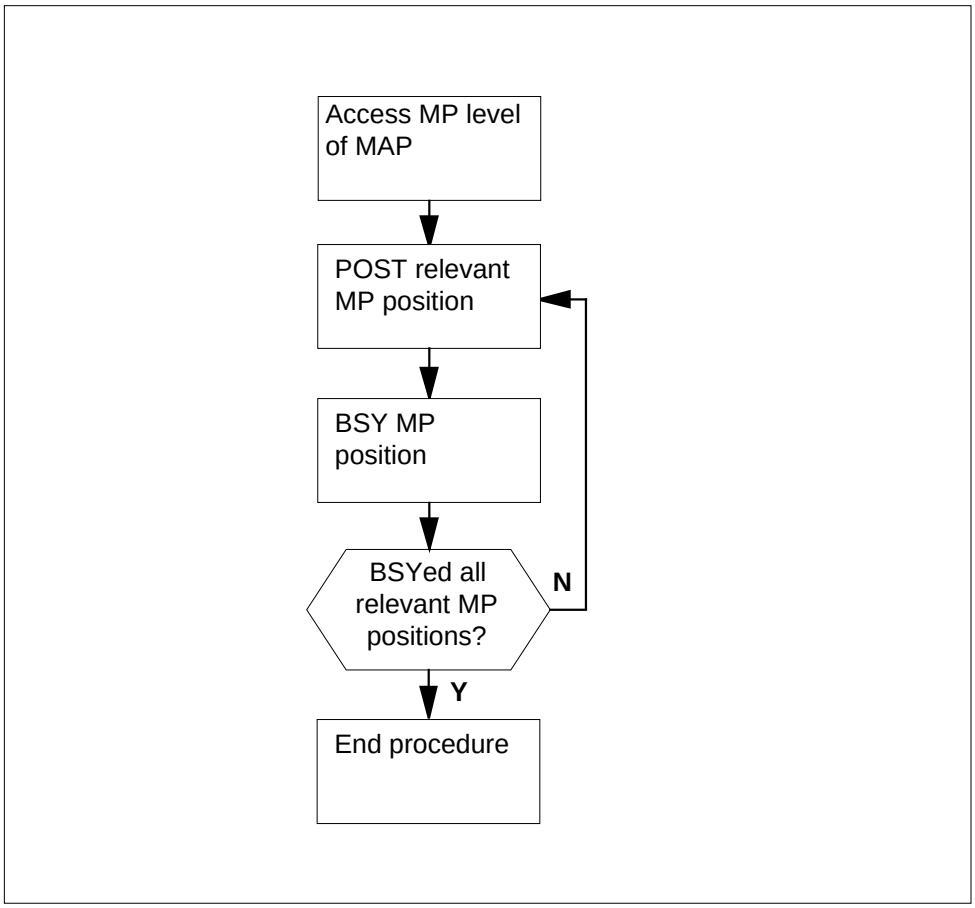
Application

Use this procedure to remove integrated Traffic Operator Position System (TOPS) Multipurpose (MP) positions from service.

Action

This procedure contains a flowchart and a list of steps. The flowchart provides an overview of the procedure. Follow the list of steps to perform this procedure.

Summary of removing an MP position from service (integrated)



Removing an MP position from service (integrated) (continued)

Removing an MP position from service (integrated)

At the MAP

1

ATTENTION

Continue if a step in a maintenance procedure directs you to this procedure. If you use this procedure without direction from a maintenance procedure, equipment damage or service interruption can occur.

To access the MP level, type:

>MAPCI;MTC;PM

and press the Enter key.

>POST TPC x;MP

and press the Enter key.

where

x
is the TOPS position controller (TPC) number

2 To post the relevant MP position, type:

>POST P n

and press the Enter key.

where

n
is the MP position number (0, 1, 2, or 3)

Removing an MP position from service (integrated) (continued)

Example of a MAP response

```
 CM    MS    IOD    Net    PM    CCS    LNS    Trks    Ext    EIO
  .     .      .      .     .     .      .      .       .      .
MP               SysB   ManB   OffL   CBsy   ISTb     InSv
 0  Quit     PM    0      0      10      0     0       130
 2  Post     TPC   0      0       0      0     0         4
 3
 4               TPC 0  InSv
 5  Trnsl
 6  Tst          Status  VTB  SB  MB  PMB  RES  RTRN   INB
 7  Bsy          MP        0   0   1    0    5     0     2
 8  RTS
 9               POS   201   TPC    0   MP   1   RES
10               Size of Post set:         1
11  Disp_
12  Next
13  FRls
14  QueryMP
15
16
17
18
```

MP position number and status

3 To busy the MP position, type:

>BSY

and press the Enter key.

Example of a MAP response

```
 CM    MS    IOD    Net    PM    CCS    LNS    Trks    Ext    EIO
  .     .      .      .     .     .      .      .       .      .
MP               SysB   ManB   OffL   CBsy   ISTb     InSv
 0  Quit     PM    0      0      10      0     0       130
 2  Post     TPC   0      0       0      0     0         4
 3
 4               TPC 0  InSv
 5  Trnsl
 6  Tst          Status  VTB  SB  MB  PMB  RES  RTRN   INB
 7  Bsy          MP        0   0   1    0    5     0     2
 8  RTS
 9               POS   201   TPC    0   MP   1    MB
10               Size of Post set:         1
11  Disp_
12  Next
13  FRls
14  QueryMP
15
16
17
18
```

MP position number and status

Removing an MP position from service (integrated) (end)

4 Determine if all relevant MP positions are removed from service.

If all relevant MP positions	Do
are removed from service	step 5
are not removed from service	step 2

5 This procedure is complete. Return to the main procedure that directed you to this procedure. Continue as directed.

Removing an MP position from service (standalone)

Application

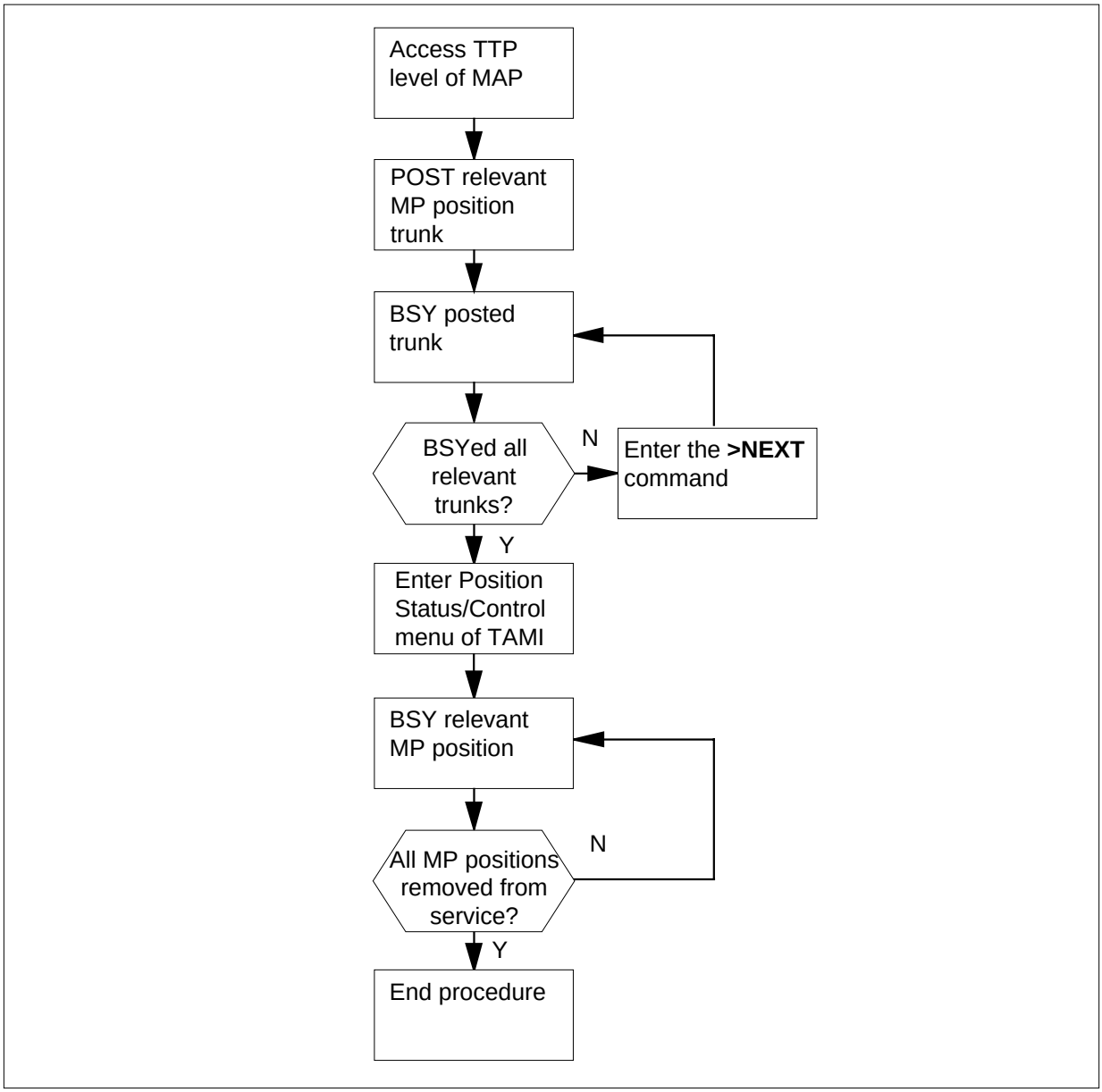
Use this procedure to remove a standalone Traffic Operator Position System (TOPS) Multipurpose (MP) from service.

Action

This procedure contains a flowchart and a list of steps. The flowchart provides an overview of the procedure. Follow the list of steps to perform this procedure.

Removing an MP position from service (standalone) (continued)

Summary of Removing an MP position from service (standalone)



Removing an MP position from service (standalone) (continued)

Removing an MP position from service (standalone)

At the MAP

1

ATTENTION

Continue if a step in the mainenance procedure directs you to this procedure. If you use this procedure without direction from a maintenance procedure, equipment damage or service interruption can occur.

To access the TTP level, type:

>MAPCI;MTC;TRKS;TTP

and press the Enter key.

Example of a MAP response

```
CM    MS    IOD    Net    PM    CCS    Lns    Trks  Ext    EIO
 .     .     .      .      .     .      .      .     .      .
TTP
0 Quit_    POST       DELQ         BUSYQ       DIG
2 Post_    TTP  16
3 Seize_   CKT TYPE  PM NO     COM LANG   STA    S R DOT TE  RESULT
4          DESK     TMS 0 5 18  TOPSPOS  221 STATE  RES
5 Bsy_                                      ID
6 RTS_
7 Tst_
8
9 CktInfo
10 CktLoc
11 Hold
12 Next_
13 Rls_
14 Ckt_
15 TrnslVf_
16 StkSdr_
17 Pads_
18 Level_

User ID
```

2 To post the relevant MP position trunk, type:

>POST G TOPSPOS n

and press the Enter key.

where

n
is the MP position number (0, 1, 2, or 3)

Removing an MP position from service (standalone) (continued)

3 To busy the posted trunk, type:

>BSY

and press the Enter key.

Example of a MAP response

```
 CM    MS    IOD    Net    PM    CCS    Lns    Trks  Ext    EIO
  .     .     .      .      .     .      .      .     .      .
TTP
 0 Quit_    POST  14   DELQ         BUSYQ       DIG
 2 Post_    TTP  6-024
 3 Seize_   CKT TYPE  PM NO.    COM LANG   STA    S R DOT TE  RESULT
 4          DESK     TM8 2 16  TOPSPOS  200 MB
 5 Bsy_
 6 RTS_
 7 Tst_
 8
 9 CktInfo
10 CktLoc
11 Hold
12 Next_
13 Rls_
14 Ckt_
15 TrnslVf_
16 StkSdr_
17 Pads_
18 Level_

 User ID
```

4 Refer to step 3 to determine if all relevant trunks are busy from the MAP.

If all relevant trunks	Do
are busy	step 6
are not busy	step 5

5 To post the next trunk, type:

>NEXT

and press the Enter key. Return to step 3.

At the TAMI

6 To access the Position Status/Control menu from the TAMI main menu, type:

>3

and press the Enter key.

Removing an MP position from service (standalone) (continued)

Example of a TAMI response

```
       POSITION STATUS/CONTROL

    1.  Bsy

    2.  RTS

    3.  OffL

    4.  RTS ALL POSITIONS
POSITION NUMBER          STATUS           CARD PRESENT
   0.                   InSv                 YES
   1.                   InSv                 YES
   2.                   InSv                 YES
   3.                   InSv                 YES

   MAKE CHOICE:
```

7 To busy the relevant MP position, use the following procedure:

a Enter

>1

and press the Enter key.

where

1
is busy

b Enter

>n

and press the Enter key.

where

n
is the MP position number (0, 1, 2, or 3)

c Enter

>Y

and press the Enter key.

where

y
is yes, the position is busied at the MAP

Removing an MP position from service (standalone) (end)

8 Determine if all relevant positions are removed from service from the TAMI.

If all relevant MP positions	Do
are removed from service	step 9
are not removed from service	step 7

9 To return to the TAMI main menu, press the PF3 key.

10 This procedure is complete. Return to the main procedure that directed you to this procedure. Continue as directed.

Removing a TOPS MPX terminal from service
TOPS MPX

Application

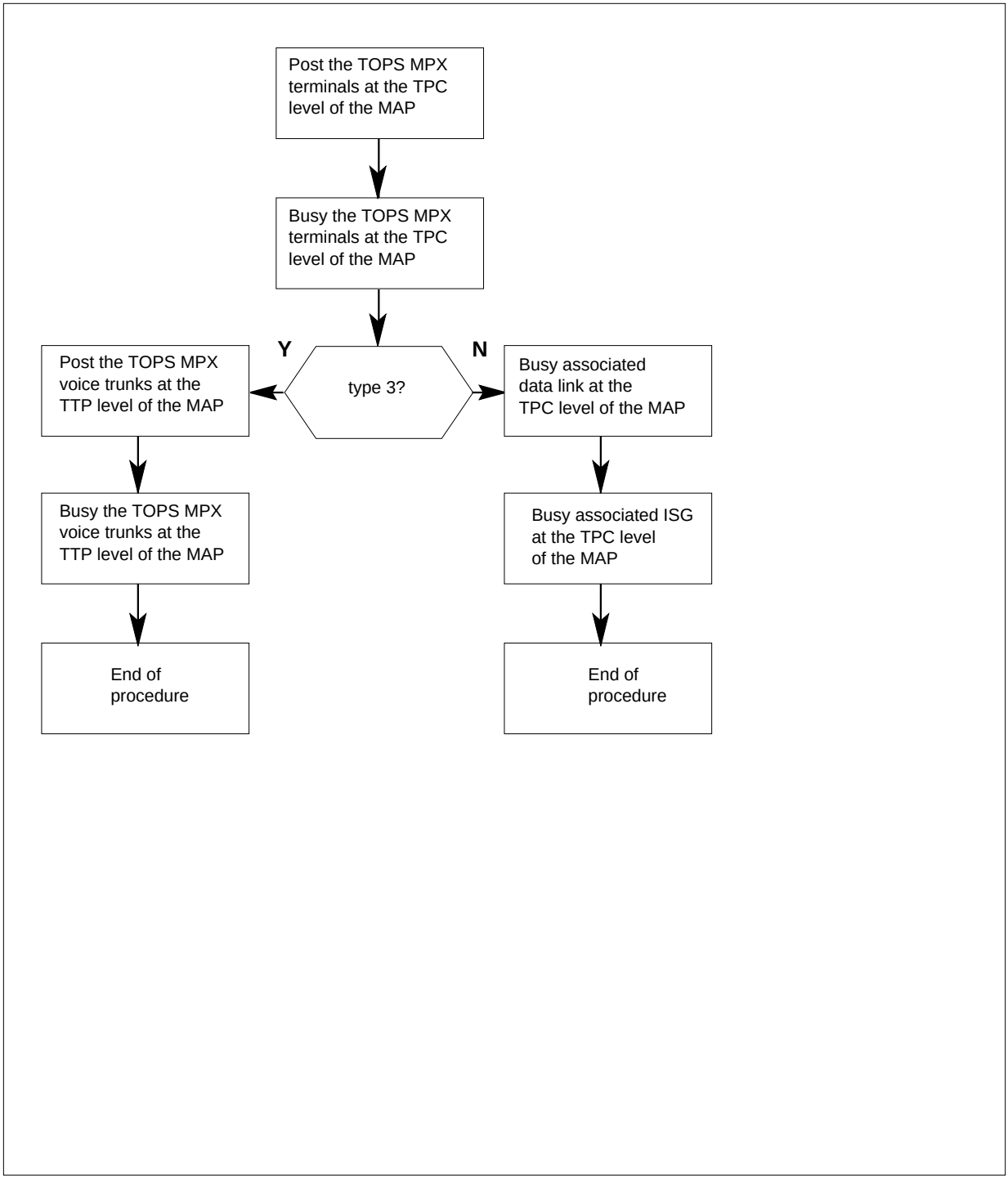
Use this procedure to remove a TOPS MPX terminal from service.

Action

The following flowchart provides a summary of the procedure. To perform this procedure, use the instructions in the list of steps that follows the flowchart.

Removing a TOPS MPX terminal from service
TOPS MPX (continued)

Removing a TOPS MPX terminal from service



Removing a TOPS MPX terminal from service
TOPS MPX (continued)

Removing a TOPS MPX terminal from service

CAUTION
Potential risk to service
When you prepare a TOPS MPX for a test, make sure that the user logged out. The terminal is not in service.

Busy the TOPS MPX position from the MAP before you remove the TOPS MPX.

At the MAP terminal

1 To access the Position Status/Control Menu from the main menu of the MAP, type:

>MAPCI;MTC;PM;POST TPC;MP

and press the Enter key.

Example of a MAP display:

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

MP              SysB  ManB  Offl  CBsy  ISTB  InSv
 0 Quit      PM    0     1     2     0     0    18
 2 Post_     TPC   0     1     0     0     0     0
 3
 4           Status   VTB   SB   MB   PMB   RES   RTRN   INB
 5 Trnsl     MP         0    0    2     0    16      0     0
 6 Tst_
 7 Bsy_      PM:
 8 RTS_      POST:
 9           NO PM POSTED
10           MP:
11 Disp_
12 Next
13 Frls
14 QueryMP
15
16
17
18
```

2 To post the TOPS MPX from the MAP, type:

>POST P n

Removing a TOPS MPX terminal from service
TOPS MPX (continued)

and press the Enter key.

where

n
is number of position

3 To busy the selected position from the MAP, type:

>BSY

and press the Enter key.

Example of a MAP display:
BSY Passed

4 Are all the correct positions busy?

If position busy in step	Do
is a redundant VPC (type 2)	step 5 Examine the status display line to view the associated TPC#. Note the TPC#.
is a type 1 or 3 position	step 9
is a VPC that is not redundant (type 2) busy the TOPS MPX positions that remain in the cluster.	step 2
is last TOPS MPX position to busy in a cluster	step 5 Examine the status display line to view the associated TPC#. Note the TPC#.

5

CAUTION
Both VPCs can go out of service.
DO NOT BUSY the TPC. This action takes both VPCs out of service.

NOTE: You can only busy the TPC if the TPC is not redundant.

To post the TPC that associates with the type 2 position at the TPC level, type:

>PM;POST TPC n

and press the Enter key.

where

Removing a TOPS MPX terminal from service
TOPS MPX (continued)

n
equals TPC#

6 To determine if the position # is MP0 or MP1, type:

>QUERYPM

and press the Enter key.

Example of a MAP display:

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

TPC
                SysB   ManB   OffL   CBsy   ISTb   InSv
 0  Quit        PM   0     0      6      0      0     35
 2  Post_      TPC   0     0      1      0      0      1
 3
 4           TPC   0  InSv
 5  Trnsl
 6  Tst      QueryPM
 7  Bsy      TPC Load File: 0
 8  RTS      PM Type: TPC  Int.No.:    0 Node_No: 132
 9  Offl      Site Flr RPos Bay_id     Shf Description  Slot EqPEC
10                 00  A00 PCE 00      00 TPC: 000
11  Disp_    MP 0:   TOPSPOS     6
12  Next     MP 1:   TOPSPOS     7
13           MP 2:   TOPSPOS     8
14  QueryMP  MP 3:   TOPSPOS     9
15  MP
16
17
18
  ITAS
TIME  11:43
```

Note: In this example, MP0 is position 6 and MP1 is position 7.

7 To determine and note the ISG and Port # along with the TMS # for the appropriate position, type:

>TRNSL

and press the Enter key.

Example of a MAP display:

Note: In the example below, MP0 (Primary VPCs) is the top line of data information and MP1 (Secondary VPCs) is the second line of data information.

Removing a TOPS MPX terminal from service
TOPS MPX (continued)

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

TPC
                SysB   ManB   OffL   CBsy   ISTb   InSv
 0  Quit      PM   0      0      6      0       0     35
 2  Post_    TPC   0      0      1      0       0      1
 3
 4          TPC   0  InSv
 5  Trnsl                TMS#          ISG#       ISG Port#
 6  Tst       Trnsl
 7  Bsy     TMS 0   0   5:  data; ISG  2   5
 8  RTS     TMS 0   0   6:  data; ISG  3   5
 9  Offl    TMS 0   0   1: voice; TOPSPOS    6; MP state:RES ; VT state:RES
10          TMS 0   0   2: voice; TOPSPOS    7; MP state:MB  ; VT state:RES
11  Disp_   TMS 0   0   3: voice; TOPSPOS    8; MP state:RES ; VT state:RES
12  Next    TMS 0   0   4: voice; TOPSPOS    9; MP state:RES ; VT state:RES
13
14  QueryMP
15  MP
16
17
18
  ITAS
TIME  11:47
```

8 To busy the ISG noted in the previous step, type:

>PM; POST TMS n; ISG; POST x; BSY y

and press the Enter key.

where

n
equals TMS#

x
equals ISG#

y
equals ISG Port#

Example of a MAP response:

For VPC that is not redundant.

Removing a TOPS MPX terminal from service
TOPS MPX (continued)

```
"Operator services may be affected.
Please confirm ("Y" or "No")
```

9 To busy the voice trunk, access the TTP level at the MAP and type:

>TRKS;TTP

and press the Enter key.

Example of a MAP response:

```
CM   MS   IOD   Net   PM   CCS   Lns  Trks   Ext  APPL
 .    .     .     .    .    .     .     .     .    .
TTP
0  Quit_       POST   DELQ     BUSYQ     DIG
2  Post_       TTP  6-007
3  Seize_      CKT TYPE PM NO   COM LANG STA  S R DOT TE RESULT
4
5  Bsy_
6  RTS_        TRKS:
7  Tst_        TTP ID IS: 6-007
8              NOCKT: SET IS EMPTY
9  CktInfo     TTP:
10 CktLoc
11 Hold
12 Next_
13 Rls_
14 Ckt_
15 TrnslVf_
16 StkSdr_
17 Pads_
18 Level_
 User ID
```

Note: CktLoc, TrnslVf, StkSdr, and Pads appear in command menus only at offices equipped with these features.

10 To post the TOPS MPX voice trunk from the MAP, type:

>POST T TOPSPOS n

and press the Enter key.

where

n
is number of position

11 To busy the selected TOPS MPX voice trunk from the MAP, type the following:

>BSY

Removing a TOPS MPX terminal from service
TOPS MPX (end)

and press the Enter key.

Example of a MAP response:
BSY state changed.

If the position is not out of service at the MP MAP level, the following message appears.
Request Invalid: Associated MP must be out of service.

12 This procedure is complete. Complete off line maintenance and refer to common procedure *Replacing a TOPS MPX terminal*.

Repairing FAN faults on an LCEI frame; cooling unit replacement

Application

Use this procedure to identify and to correct faults that can cause a FAN FAIL alarm. The alarm can occur when you install an NTBX63AA cooling unit in an ISDN line concentrating equipment (LCEI) frame. The LCEI frame has enhanced line concentrating module (LCME) or ISDN line concentrating module (LCMI) modules.

A FAN FAIL fault in an LCEI frame results from one of the following:

- a dirty filter
- a blown fuse in the front panel of the cooling unit
- a cooling unit has faults

Definition

The FAN FAIL alarm highlights problems in the frame cooling system.

Common procedures

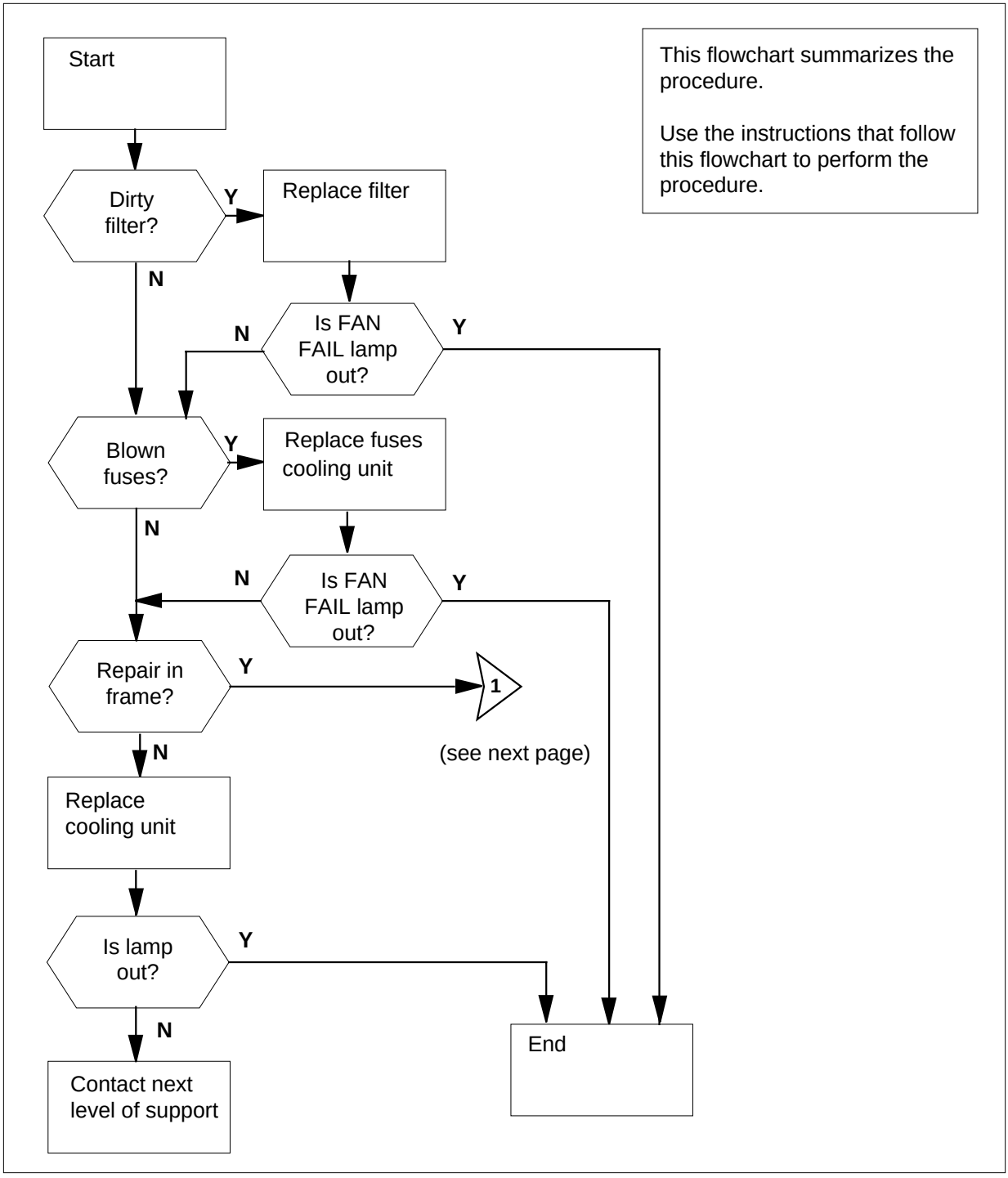
There are no common procedures.

Action

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

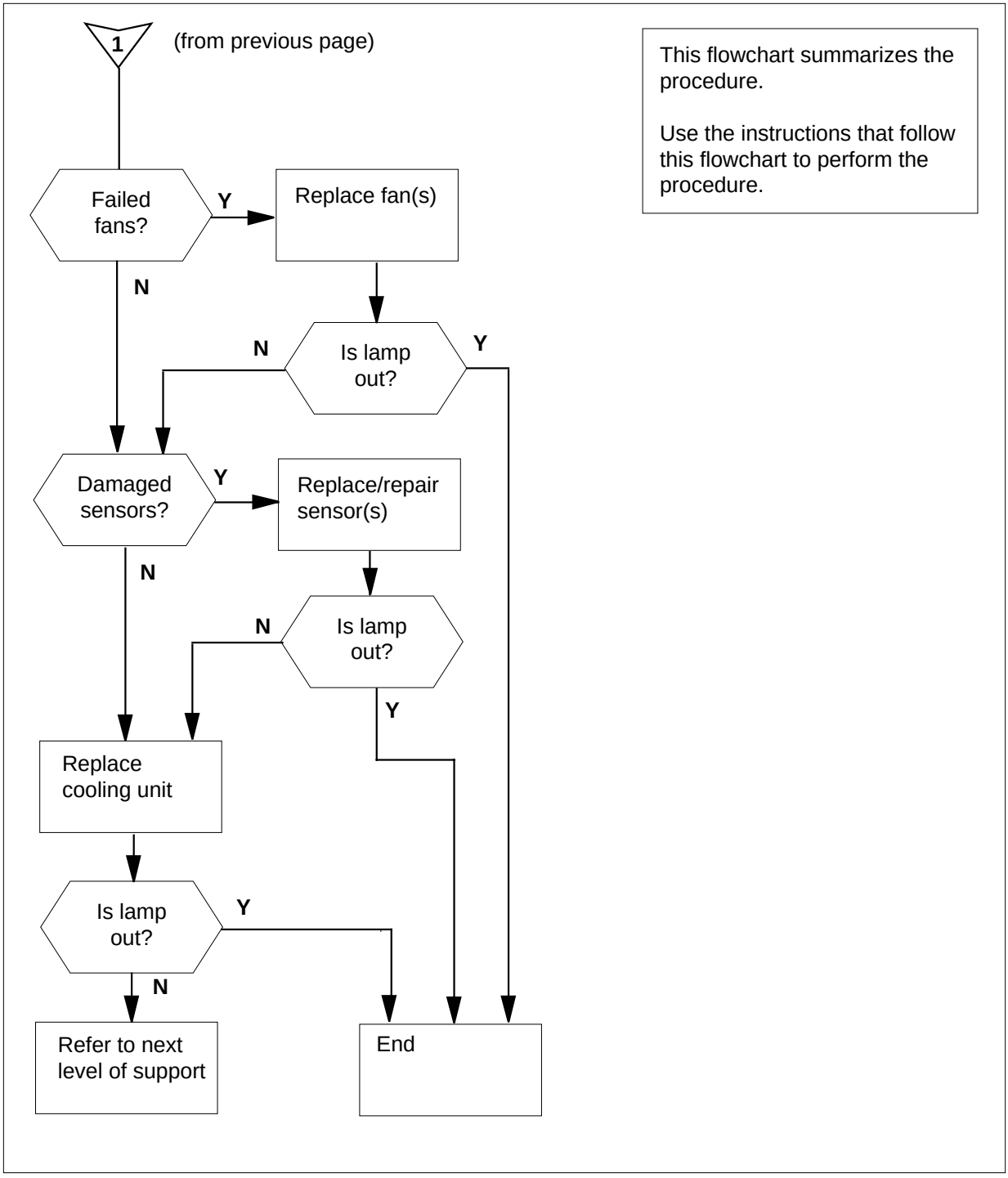
Repairing FAN faults on an LCEI frame; cooling unit replacement (continued)

Summary of Repairing FAN FAIL faults on an LCEI frame



Repairing FAN faults on an LCEI frame; cooling unit replacement (continued)

Summary of Repairing FAN FAIL faults on an LCEI frame (continued)



Repairing FAN faults on an LCEI frame; cooling unit replacement (continued)

Repairing FAN FAIL faults in an LCEI frame

At the front of the frame

1

DANGER
Next level of support
The cooling unit configuration in the frame can differ from the following description. If you encounter an important difference, contact your next level of support.

Determine the location of the problem LCEI frame on the switch.

2 Check for the lit FRAME and FAN FAIL lamps on the frame supervisory panel (FSP).

3 Remove the filter and faceplate assembly NTBX6012 at the bottom of the frame. Inspect the filter.

4 Determine if the FAN FAIL lamp turned off when you removed the filter.

If the FAN FAIL lamp	Do
turned off	step 5
remained on	step 7

Note: If the FAN FAIL lamp turns off when you remove the filter, replacement of the filter is necessary.

5 Slide a replacement filter and faceplate assembly NTBX6012 into the frame. Secure the filter and faceplate in position.

6 Go to step 52.

7 Replace the filter and faceplate assembly into the bottom of the frame.

8

DANGER
Risk of personal injury
Electricity can arc when you remove fan unit fuses. Wear eye protection.

Repairing FAN faults on an LCEI frame; cooling unit replacement (continued)

WARNING
Incorrect fuse values
Always use replacement fuses of the correct rating, or damage to the equipment can result.

Check the fuses in positions one to five at the front of the cooling unit. Replace any blown fuses. The cooling unit is at shelf position 33.

9 Did step 8 clear the FRAME and FAN FAIL alarm lamps?

If alarm lamps	Do
clears	step 52
did not clear	step 10

At the front of the frame

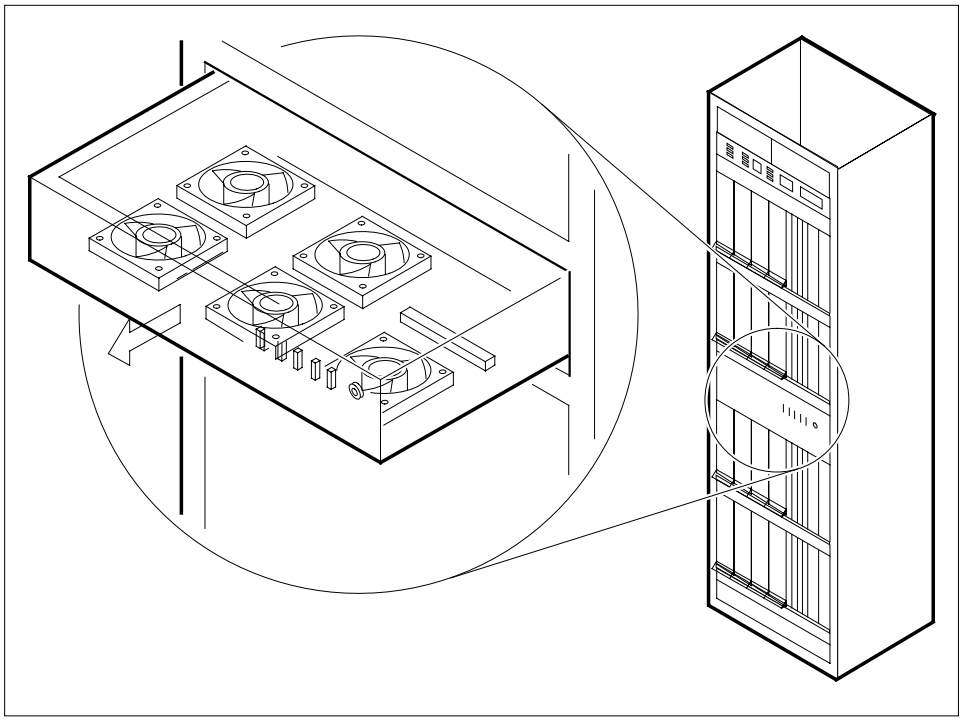
10 To remove the two side trims on the LCE frame, remove the top and bottom screws that secure the trim.

11 Remove the four 5/16-inch bolts that secure the cooling unit brackets (two per side). Ensure that you remove the two center bolts from each side.

At the back of the frame

12 Remove the three mounting screws from the back center of the cooling unit.

Repairing FAN faults on an LCEI frame; cooling unit replacement (continued)



At the front of the frame

13 Slide out the line drawer above the cooling unit.

At the back of the frame

14 Look into the frame of the cooling unit. Note the position of any failed or slow fans.

> ***Note:*** The fault can lie in one of the front three fans, or in the air flow sensors on the fans. If this fault occurs, you can repair the cooling unit without the removal of the unit from the frame. If the fault lies with the two back fans or sensors, you must remove the cooling unit. You must remove the unit because the back fans and sensors are not available while the unit is in the frame. Refer to your company procedures to see if you can attempt repairs. Your company procedures can require you to replace the unit with a new one.

15 Push the line drawer that you pulled out in step 13 back into position.

16 Do you want to repair the cooling unit while the unit is in the frame?

If you	Do
want to repair the cooling unit while the unit is in the frame	step 31

Repairing FAN faults on an LCEI frame; cooling unit replacement (continued)

If you	Do
you do not want to repair the cooling unit while the unit is in the frame	step 17

At the front of the frame

17 Locate the fan fuses in the front of the cooling unit. Remove the 0.5-amp fuses, (numbered 1 through 5).

At the PDC

18 Remove the cooling unit fuses (cooling unit 0 or 1).

At the back of the frame

19

WARNING
Damage to the cooling unit
Instead of a plug, the cooling unit can have leads that end on a terminal strip. If the cooling unit has leads, label the leads before you disconnect them. If you reconnect the leads to the wrong connector, damage to the cooling unit can result.

WARNING
Loss of frame cooling
Disconnection of the cooling unit for an extended period of time can cause the equipment in the frame to overheat.

Disconnect the power plug or power leads at the back of the cooling unit.

At the front of the frame

20 Remove the cooling unit from the frame.

21 Obtain a replacement NTBX63AA cooling unit. Refer to company procedures on repairs to damaged units. The company procedures can direct you to repair the damaged cooling unit in-house. Refer to procedure *Repairing a NTBX63AA cooling unit* in this document.

22 Push the replacement cooling unit into the frame.

At the back of the frame

23 Replace the three mounting screws at the back center of the cooling unit removed in step 12. Secure the screws in position.

Repairing FAN faults on an LCEI frame; cooling unit replacement (continued)

At the front of the frame

24 Replace the four 5/16-inch bolts that secure the cooling unit side brackets (two per side) that you removed in step 11. Secure the brackets in position.

At the back of the frame

25 At the back of the cooling unit, reconnect the power plug or power leads disconnected in step 19.

At the PDC

26 Reinstall the two fuses (cooling unit 0 or 1) removed in step 18.

At the front of the frame

27

DANGER
Risk of personal injury
Electricity can arc when you replace fan unit fuses. Wear eye protection.

At the front of the cooling unit, reinstall the five 0.5-amp fan fuses (numbered 1 through 5) removed in step 17.

28 Check the FAN FAIL lamp on the front panel of the cooling unit.

If the FAN FAIL lamp	Do
is off	step 29
is on	step 46

29 Reinstall the side trim and secure with the top and bottom screws removed in step 10.

30 Go to step 52.

At the front of the frame

31 Pull the cooling unit part way out of the frame. The power cord can be too short to gain access to the front three fans. If the cord is too short, repair the unit on a bench top.

If the power cord	Do
is too short	step 17
is long enough	step 32

Repairing FAN faults on an LCEI frame; cooling unit replacement (continued)

32 Determine if any of the front three fans decreased in speed or failed.

If	Do
one or more damaged fans are present	step 33
no damaged fans are present	step 42

Note: Determine if all fans run, and the FAN FAIL lamp on the front of the cooling unit is on. If the fans run, and the FAN FAIL lamp is on, the problem can be a defective air flow sensor switch.

At the front of the cooling unit

33 Remove the fuse associated with the defective fan from the front panel.

34 Disconnect the power supply wiring to the defective fan.

35 Note the position of the sensor switch on the defective fan.

36 Remove the four screws that secure the fan and the screw that secures the sensor switch.

37 Mount the new fan. Position the fan so that air flows toward the top, as the fan label indicates.

38 Replace the sensor switch. Secure the switch with the mounting screw.

39 Connect the power supply to the new fan.

40 Replace the fuse that you removed in step 33.

41 If necessary, repeat steps 33 to 40 for other damaged fans.

If the FAN FAIL lamp	Do
is off	step 48
is on	step 42

42 Inspect the sails of the air flow sensors. Adjust or replace any sails that appear defective.

If the FAN FAIL lamp	Do
turns off	step 48
remains on	step 42

43 Disconnect the wiring from one of the sensor switches. Note which wire connects to each terminal.

If the FAN FAIL lamp	Do
turns off	step 44

Repairing FAN faults on an LCEI frame; cooling unit replacement (end)

If the FAN FAIL lamp	Do
remains on	step 45

Note: A FAN FAIL lamp that turns off indicates a defective sensor switch.

44 Remove the mounting screw from the air flow sensor. Remove and replace the sensor with a new sensor. Connect the wiring to the new sensor.

If the FAN FAIL lamp	Do
turns off	step 48
remains on	step 45

45 Repeat steps 42 to 44 until you checked all three accessible sensors, or until the FAN FAIL lamp turns off.

If the FAN FAIL lamp is	Do
off	step 48
on	step 17

Note: If the FAN FAIL lamp remains ON, the fault can lie in the two back fans or air flow sensors. In this event, remove the cooling unit from the frame and replace the unit with a new unit. If your company procedures direct you to repair damaged units in-house, refer to "Repairing a NTBX63AA cooling unit" in this document.

46 Contact the next level of support.

47 Go to step 52.

48 Push the cooling unit back into the frame.

At the back of the frame

49 Replace the three mounting screws at the back center of the cooling unit removed in step 12. Secure the screws in position.

At the front of the frame

50 Replace the four 5/16-inch bolts that secure the cooling unit brackets (two per side) removed in step 11. Secure the bolts in position.

51 Reinstall the side trim and secure the trim with the top and bottom screws removed in step 10.

52 The procedure is complete.

Repairing an NTBX63AA cooling unit on the bench top

Application

Use this procedure to repair an NTBX63AA cooling unit on the bench top. Check for a fault with any of the front three fans. Do the check while the unit remains in the ISDN line concentrating equipment (LCEI) frame. If a fault exists, you can repair the unit while the unit remains in the frame. Check the air flow sensors on the front three fans while the unit remains in the frame.

A fault in a NTBX63AA cooling unit results from one of the following:

- a loose or broken wiring harness
- a fan motor has faults
- a switch of the air flow sensor has faults

Definition

The cooling unit provides forced air to cool the cards in the line card drawer.

Common procedures

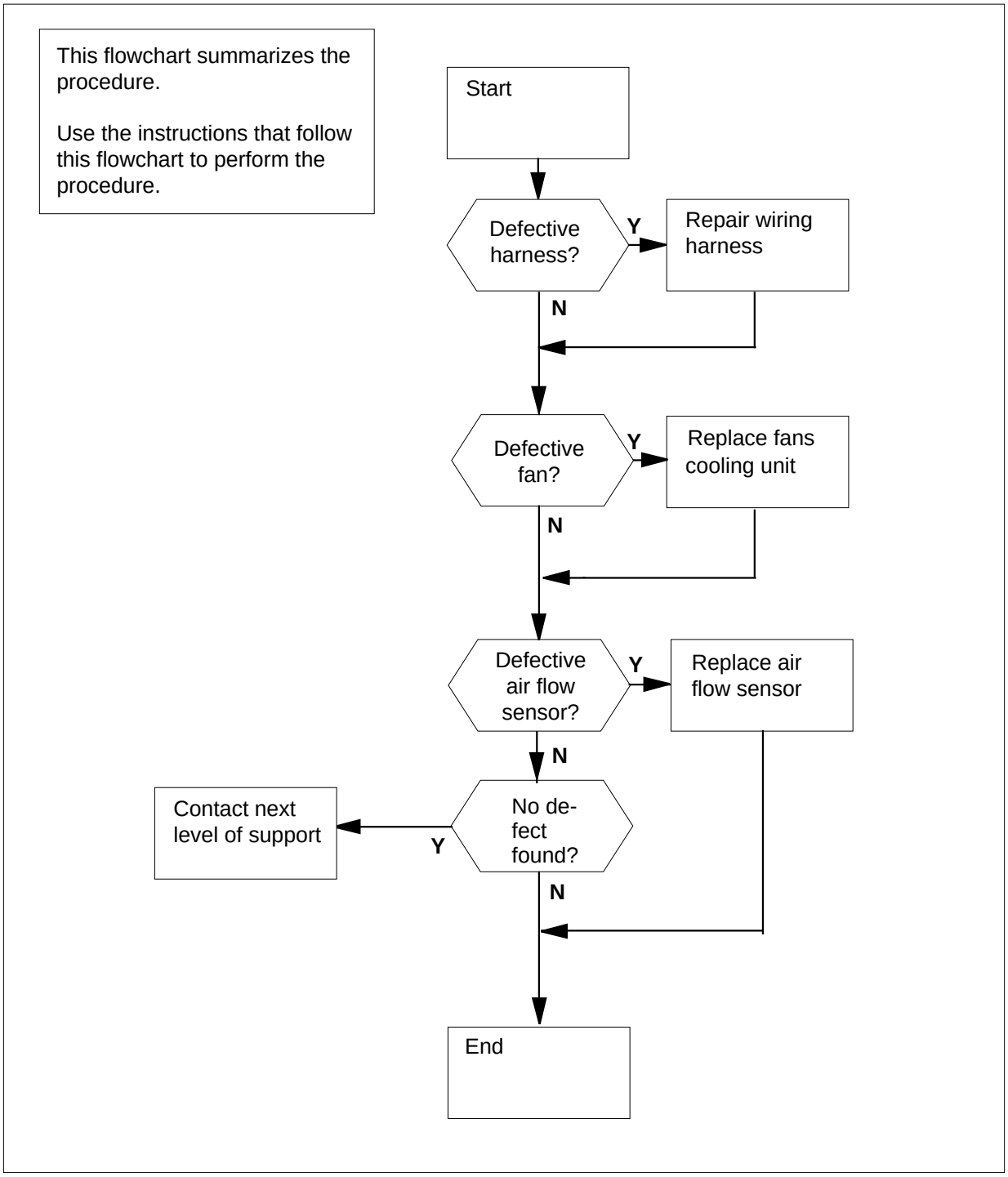
There are no common procedures.

Action

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

Repairing an NTBX63AA cooling unit on the bench top (continued)

Summary of Repairing an NTBX63AA cooling unit on the bench top



Repairing an NTBX63AA cooling unit on the bench top (continued)

Repairing an NTBX63AA cooling unit on the bench top

At your current location

1

ATTENTION

The cooling unit configuration in the frame can differ from the following description. If you encounter an important difference, contact your next level of support.

Place the NTBX63AA cooling unit that has faults on a bench.

2

WARNING

Incorrect fuse values

Always use replacement fuses of the correct rating, or damage to the equipment can result.

Check the five fuses at the front of the unit and replace any blown fuses

3

WARNING

Temporary power supply

Ensure that you have an acceptable power supply to run the unit without damage.

Connect the unit to an acceptable 48 V dc power supply.

4 Inspect the fan operation.

If the fans	Do
work correctly	step 21
do not work correctly	step 5

5 Inspect the unit wiring harness for damage or loose switch connections.

If the harness	Do
is damaged or loose	step 6
is not damaged or loose	step 6

Repairing an NTBX63AA cooling unit on the bench top (continued)

6 Disconnect the power supply.

7 Replace or repair the harness that has faults. Tighten the loose connections.

8 Reconnect the 48 V dc power supply.

9 Inspect the fan operation.

If the fans	Do
work correctly	step 35
do not work correctly	step 10

10 Note the fans that do not work correctly.

11 Disconnect the power supply.

12 Disconnect the power supply wiring to the fan (or fans) that has faults noted in step 10.

13 Note the position of the sensor switch on the fan that has faults.

14 Remove the four screws that secure the fan and the screw that secures the sensor switch.

15 Mount the new fan so that air flows toward the top, as indicated on the label.

16 Replace the sensor switch of the last installation. Secure the sensor with the mounting screw.

17 Reconnect the power supply to the new fan.

18 If necessary, repeat steps 12 to 17 for other fans that havew faults.

19 Turn ON the power switch on the unit.

20 Inspect the fan operation.

If the fans	Do
work correctly	step 35
do not work correctly	step 34

21 Inspect the sensor sails and adjust or replace any sails that appear to have faults.

22 Disconnect the wiring from one of the sensor switches. Note which wire connects to each terminal.

23 Connect an ohm meter to the two connected terminals of the sensor switch.

24 Lift the sail of the air flow sensor.

If the ohm meter	Do
indicates a closed sensor switch	step 25
indicates an open sensor switch	step 26

25 An ohm meter that has a closed circuit with the sail in the up position indicates a sensor has faults. Note the sensor and go to step 27.

Repairing an NTBX63AA cooling unit on the bench top (continued)

26 An ohm meter that has an open circuit with the sail in the up position indicates a sensor operates correctly. Reconnect the wiring to the sensor switch.

27 Repeat steps 22 to 26 to test all sensor switches.

28 Disconnect power to the unit.

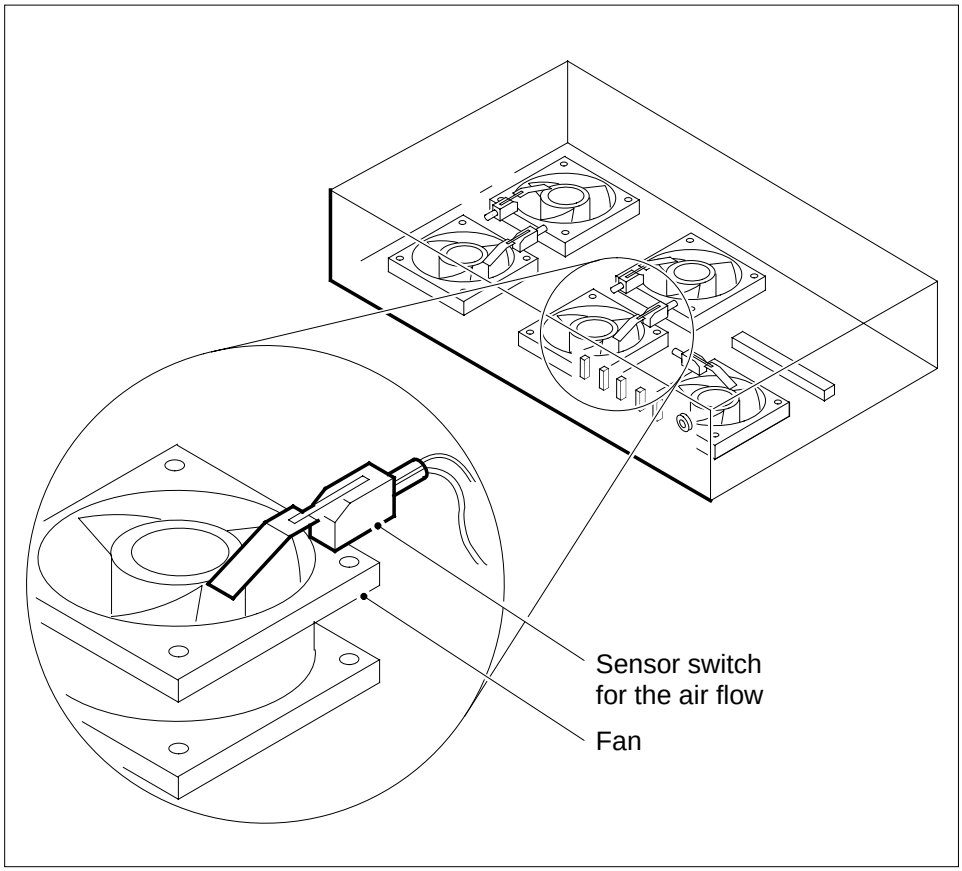
29 Locate any sensor switch (or switches) that has faults, as determined in steps 24 to 27. Note the position of the switch (or switches).

30 Remove the sensor switch that has faults from the switch bracket.

31 Attach the replacement sensor switch to the switch bracket. Secure the sensor in position with screws, nuts, and washers.

32 Reconnect the wiring to the sensor switch, as noted in step 22.

33 Repeat steps 29 to 32 for each sensor switch. Replace any switches that have faults.



Repairing an NTBX63AA cooling unit on the bench top (end)

34 Contact the next level of support.

If you	Do
found no problems with the unit, or that repair to the unit was not possible	step 34
found and repaired the problems	step 35

35 Disconnect the power supply from the cooling unit and store the unit for future use.

36 The procedure is complete.

Repairing and replacing NT3X90AA cooling units

Application

Use this procedure to repair or replace NT3X90AA cooling units in the following frames:

- LGE, DTE, LTE and SME
- ILGE and IDTE
- DSNE
- MS7E, ST6E and ST7E
- SNPC
- CPEI

A fault in a NT3X90AA cooling unit results from one of the following:

- a dirty filter
- a loose or broken wiring harness
- a blown fuse for inverter on PDC frame
- an inverter has faults
- an air flow sensor switch has faults
- a fan motor has faults

Definition

The cooling unit provides forced air to cool the equipment and cards in the frames.

Common procedures

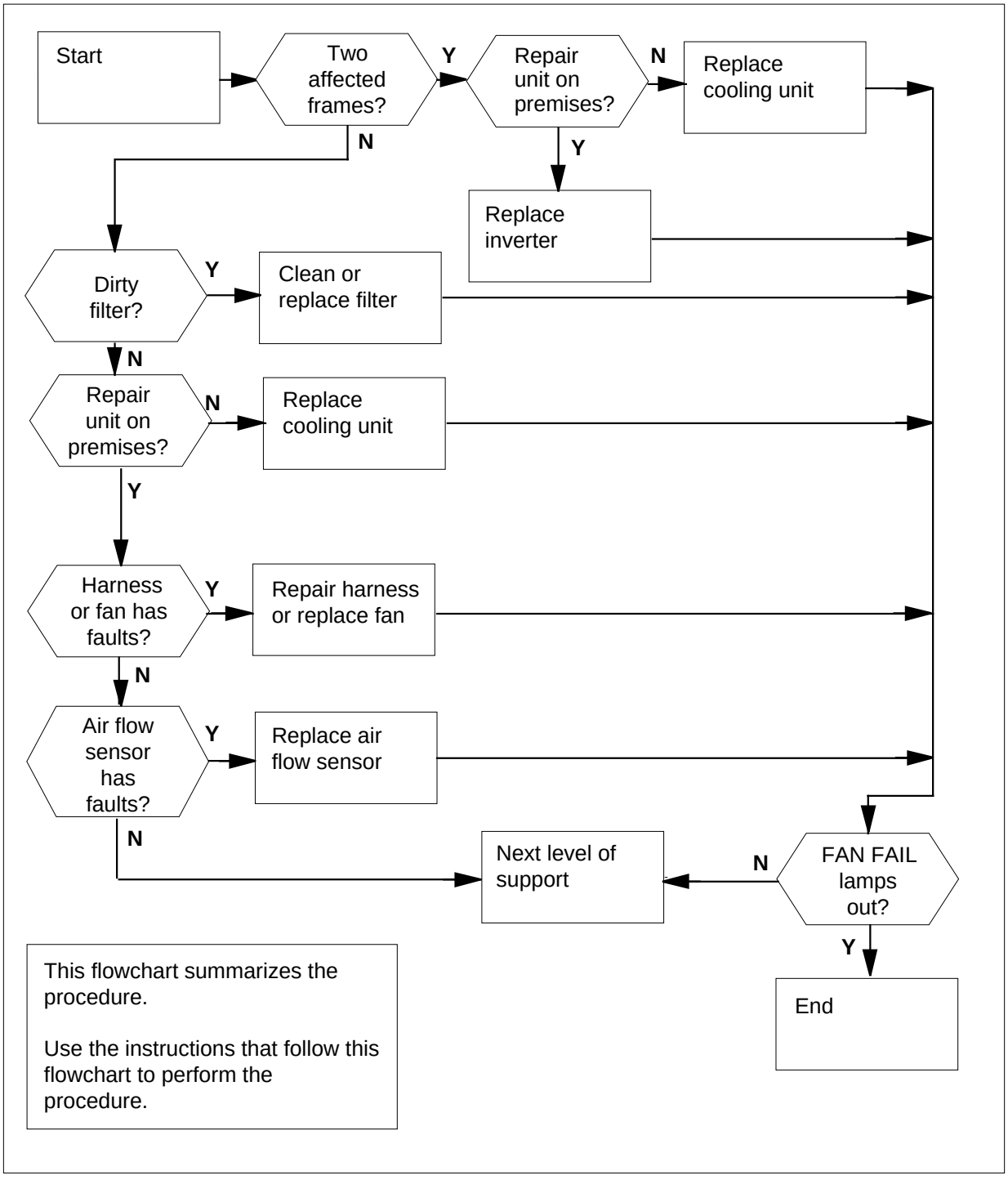
There are no common procedures.

Action

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

Repairing and replacing NT3X90AA cooling units (continued)

Summary of Repairing and replacing NT3X90AA cooling units



Repairing and replacing NT3X90AA cooling units (continued)

Repairing and replacing NT3X90AA cooling units

At the FSP

1

> **ATTENTION**
> The cooling unit configuration in the frame can differ from the following description. If you encounter an important difference, contact your next level of support.

Identify the frame, or the pair of frames, where the lit FAN FAIL lamp is on the Frame Supervisory Panel (FSP).

Note: NT3X90AA power supplies for the cooling unit connect in pairs. A problem in one unit on a pair can cause an interruption in the operation of both units of the pair. Frames that are near each other will house the pairs.

2 To silence the alarm, turn ON the FAN FAIL OVERRIDE switch (or switches).

If the lit FAN FAIL lamp	Do
is on only one frame	step 3
is on two frames	step 39

At the frame

3 Remove the air intake grill and filter assembly from the front of the affected cooling unit.

4 Determine if the FAN FAIL lamp darkened on the Frame Supervisory Panel (FSP) when you removed the filter.

If the FAN FAIL lamp	Do
darkened	step 5
remained on	step 8

5 Remove the filter and intake grill to a location away from the switchroom. To clean the fan air intake, use a dust cloth and vacuum.

6 Vacuum or wash the filter in soap and water, according to the filter type.

7 Replace the filter in the grill and reinstall the grill at the front of the cooling unit.

8 Turn OFF the FAN FAIL OVERRIDE switch.

Go to step vr.

If your company procedures	Do
direct you to do repairs	step 9

Repairing and replacing NT3X90AA cooling units (continued)

If your company procedures	Do
do not direct you to do repairs	step 71

At the front of the cooling unit

9 Remove the screws that secure the side rail covers to the frame.

10 Remove the eight screws that secure the brackets to the sides of the cooling unit. To remove the screws, use a 5/16-inch ratchet and extension.

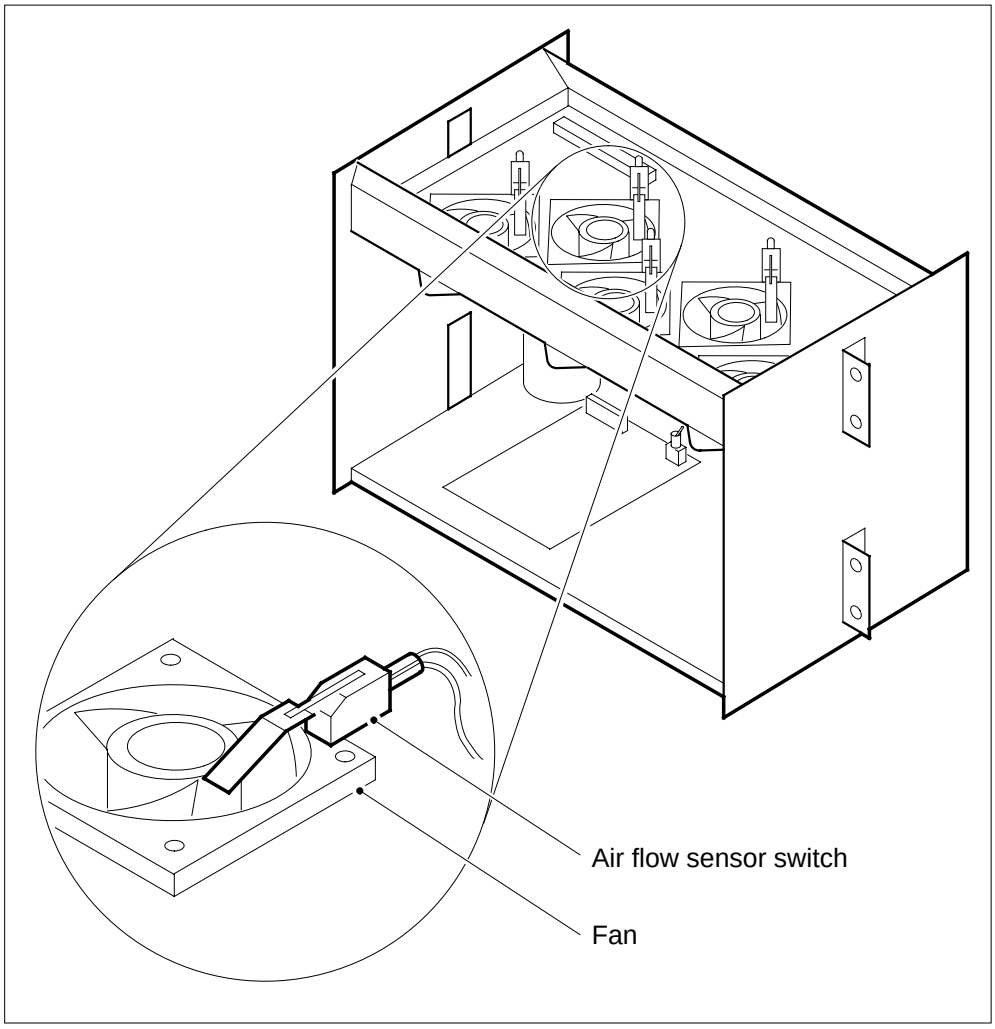
11

WARNING
Loss of frame cooling
Removal of the cooling unit for an extended period of time can cause the equipment in the frame to overheat.

Ease the cooling unit toward you until it is half-way out of the frame.

12 Inspect the fans in the cooling unit. Note any fans that do not work.

Repairing and replacing NT3X90AA cooling units (continued)



If	Do
fans work correctly but FAN FAIL lamp remains on	step 33
one fan does not work	step 13
other than listed above	step 85

Note 1: A fan that does not work indicates a wiring harness, loose connections, or a fan that requires replacement.

Note 2: The operation of all fans with a lit FAN FAIL lamp indicates a air flow sensor that has faults.

13 Inspect the wiring harness for the cooling unit. Look for damage and/or a loose connection at the fans or terminal blocks.

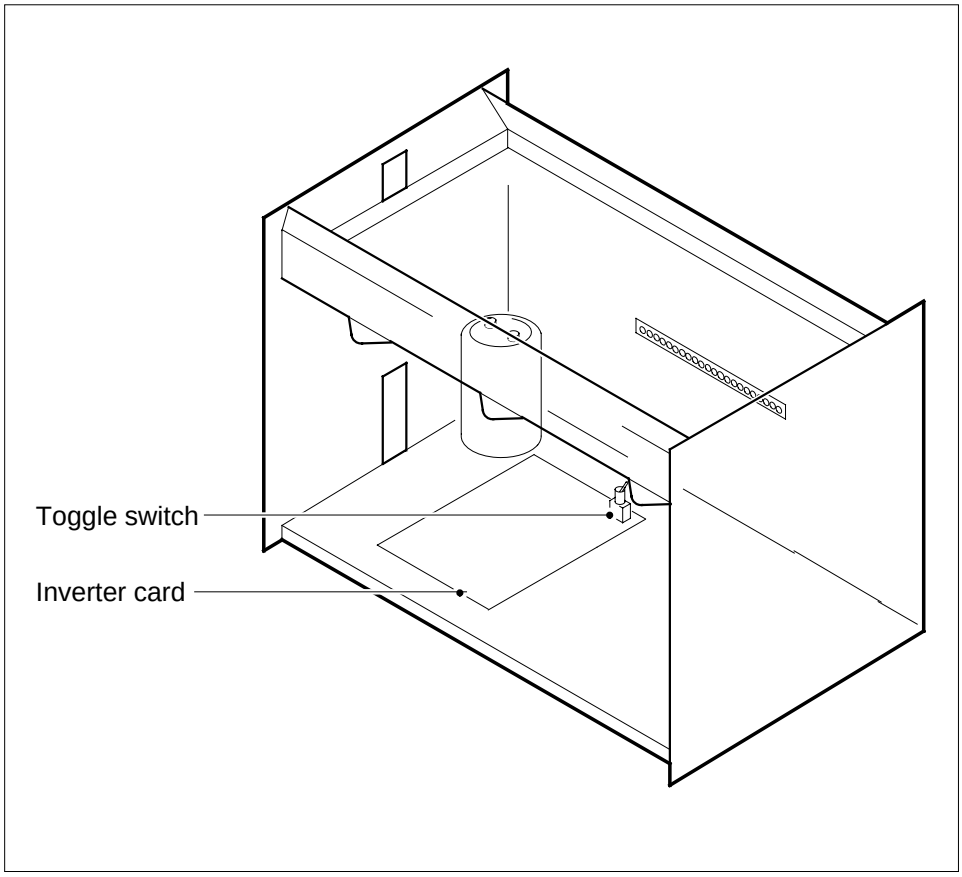
Repairing and replacing NT3X90AA cooling units (continued)

At the back of the frame

14 Unplug the connector at the back of the unit.

At the cooling unit

15 A harness requires replacement. Tighten any loose connections.



At the back of the frame

16 Reconnect the connector at the back of the unit.

At the front of the cooling unit

17 Inspect the fan operation.

If the fan	Do
works correctly, but did not work in step 12	step 62
did not work correctly, and did not work in step 12	step 18

Repairing and replacing NT3X90AA cooling units (continued)

At the back of the cooling unit

18 Unplug the connector at the back of the unit.

At the cooling unit

19 Disconnect the wiring to the airflow sensor switch from the fan. Note the position and color of the wires.

20 Note the position of the air flow switch on the fan.

21 Remove the sensor switch from the switch bracket. Lay the switch to one side.

22 Cut the two tie wraps that secure the power cord to the fan.

23 Remove the four screws, spacers, nuts, and washers that secure the fan to the cooling unit.

24 Disconnect the power cord at the fan terminals.

25 Remove the fan.

26 Plug a new fan into the power cord.

27 Mount the new fan. Ensure that you install the fan to allow air to flow toward the top, as indicated on the label. Secure with screws, spacers, nuts and washers.

28 Secure the power cord to the fan with new tie wraps.

29 Reinstall the wiring to the sensor switch, as noted in step 19.

30 Reinstall the sensor switch to the switch bracket. Secure the sensor in position with screws, nuts, and washers.

At the back of the frame

31 Reconnect the connector at the back of the cooling unit.

32 Inspect the fan operation.

If the fan	Do
works correctly, but did not work in step 12	step 62
did not work correctly, and did not work in step 12	step 85

33 Inspect the sails of the air flow sensors. Replace or repair any sails that appear to have faults.

34 Disconnect the wiring to one of the sensor switches. Note the position and color of the wires.

If the FAN FAIL lamp	Do
remained on when you disconnected the wiring to the air flow sensor	step 37

Repairing and replacing NT3X90AA cooling units (continued)

If the FAN FAIL lamp	Do
did not remain on when you disconnected the wiring to the air flow sensor	step 35

Note: A FAN FAIL lamp that turns OFF when you disconnect the wiring to the sensor indicates a sensor switch that has faults.

35 Remove the sensor switch.

36 Attach the replacement sensor switch to the switch bracket. Secure the switch in position with screws, nuts, and washers.

37 Reconnect the wiring to the sensor switch, as noted in step 34.

38 Repeat steps 34 to 37 to check all sensor switches.

If the FAN FAIL lamp	Do
is off	step 62
is on	step 85

At the PDC frame

39

DANGER
Possible arcing
Electricity can arc when you remove cooling unit fuses. Wear eye protection.

Remove the fuses that power the inverters.

40 Do you have a blown fuse?

If a fuse	Do
is blown	step 41
is not blown	step 44

Repairing and replacing NT3X90AA cooling units (continued)

41

WARNING
Incorrect fuse values
Use replacement fuses of the correct rating, or damage to the equipment may result.

Replace the fuses in the PDC. Replace the blown fuse with a new fuse.

If FAN FAIL lamps at the FSPs	Do
are dark	step 42
are lit	step 44

At the FSPs

42 Turn OFF the FAN FAIL OVERRIDE switches.

43 Go to step 86.

44 Remove the air intake grill and filter assembly from the front of both cooling units.

45 Inspect the fans in both cooling units.

If	Do
a complete row of fans do not work in each cooling unit	step 46
other than listed here	step 85

46 Locate the toggle switches at the back right corner of each inverter.

Note: The toggle switches are the ON/OFF power switches for the inverters.

47 Cycle the toggle switches on both inverters to find the inverter that powers the rows of fans that do not work.

If company procedures	Do
direct you to do repairs	step 50
do not direct you to do repairs	step 48

Note: Each inverter powers the row of three fans. The front of the cooling unit houses the row of fans. Each inverter also powers the row of two fans at the back of the paired unit.

48 Identify the cooling unit with the inverter that powers the fans that do not operate. Replace this cooling unit.

Repairing and replacing NT3X90AA cooling units (continued)

49 Go to step 71.

50 Turn OFF the inverter that powers the row of fans that have faults.

At the PDC frame

51 Remove the fuse for the inverter that powers the fans.

At the frame

52 Disconnect the connector at the back left corner of the inverter.

53 Use a pair of needle-nosed pliers to remove the four plastic mounting pins that hold the inverter card.

54 Lift the inverter out of the cooling unit. Replace the inverter with a new inverter.

55 Mount the new inverter on the four plastic mounting pins.

56 Attach the connector at the back left corner of the new inverter.

At the PDC frame

57 Check the fuse to the inverter. A blown fuse requires a replacement. Replace the fuse in the PDC.

At the frame

58 Turn ON the toggle switch of the new inverter.

If	Do
the fans work correctly and the FAN FAIL lamp is not on	step 59
other than listed here	step 85

59 Install the air intake grill and filter assembly at the front of the cooling unit.

At the FSP

60 Turn OFF the FAN FAIL OVERRIDE switch (or switches).

61 Go to step 86.

62 Ease the cooling unit back completely into the frame.

63 Insert the eight screws that secure the brackets to the sides of the cooling unit. To insert the screws, use a 5/16-inch ratchet and extension.

64 Reinstall the side rail on the front of the frame.

At the PDC frame

65 If you removed the fuse (or fuses) that powers the inverter card (or cards), reinstall it.

66 Locate the toggle switch near the back right side of the inverter card (or cards).

67 If the switches operated during this procedure, ensure that you turn back ON the switches.

Repairing and replacing NT3X90AA cooling units (continued)

68 Reinstall the air intake grill and filter assembly at the at the front of the cooling unit.

69 Turn OFF the FAN FAIL OVERRIDE switch on the FSP.

70 Go to step 86.

At the PDC frame

71 Remove the fuses that power the inverter cards on the cooling unit that requires replacement.

At the back of the cooling unit

72 Disconnect the plug that connects the wiring to the cooling unit.

At the front of the cooling unit

73 Remove the screws that secure the side rail covers to the frame.

74 Remove the eight screws that secure the brackets to the sides of the cooling unit. To remove the screws, use a 5/16-inch ratchet and extension.

75 Ease the cooling unit toward you and out of the frame.

76 Ease the replacement cooling unit into the frame.

77 Insert the eight screws that secure the brackets to the sides of the cooling unit. To insert the Use a 5/16-inch ratchet and extension.

78 Reinstall the side rail on the front of the frame.

At the back of the cooling unit

79 Reconnect the plug that connects the wiring to the cooling unit.

At the PDC frame

80 Reinstall the fuses that power the inverter cards.

At the front of the cooling unit

81 Locate the toggle switches near the back right side of the inverter cards.

82 Ensure that you turn ON the toggle switches.

83 Reinstall the air intake grill and filter assembly at the at the front of the cooling unit.

84 Turn OFF the FAN FAIL OVERRIDE switch (or switches) on the FSP (or FSPs).

85

WARNING
Loss of frame cooling
Do not leave a cooling unit that has faults in the frame. If you cannot repair the cooling unit immediately, go to step 71. Follow the necessary parts of the procedure to replace the unit with one that work correctly.

Repairing and replacing NT3X90AA cooling units (end)

For additional help, contact the next level of support.

86 The procedure is complete.

Repairing and replacing NT3X90AB cooling units

Application

Use this procedure to repair or replace NT3X90AB cooling units in the following frames:

- LGE, DTE, LTE and SME
- ILGE and IDTE
- DSNE
- PMTC
- MS7E, ST6E and ST7E
- RCE
- CPEI

A fault in a NT3X90AB cooling unit results from one of the following:

- a dirty filter
- a loose or broken wiring harness
- a blown fuse for inverter on PDC frame
- a inverter has faults
- a air flow sensor switch has faults
- a fan motor has faults

Definition

The cooling unit provides forced air to cool the equipment and cards in the frames.

Common procedures

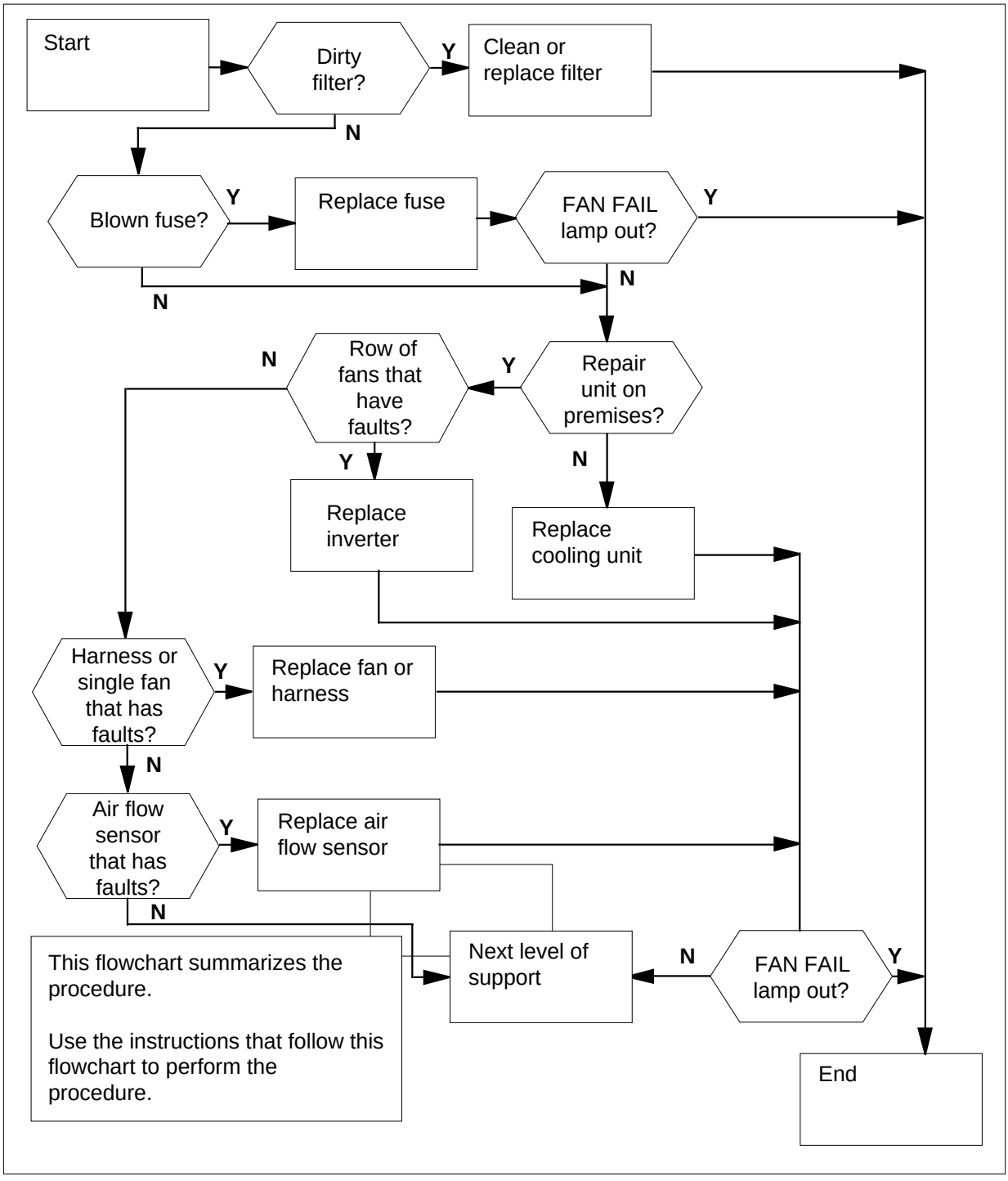
There are no common procedures.

Action

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

Repairing and replacing NT3X90AB cooling units (continued)

Summary of Repairing and replacing NT3X90AB cooling units



Repairing and replacing NT3X90AB cooling units (continued)

Repairing and replacing NT3X90AB cooling units

At the FSP

1

DANGER
Next level of support
The cooling unit configuration in the frame can differ from the following description. If you encounter an important difference, contact your next level of support.

To silence the alarm, turn ON the FAN FAIL OVERRIDE switch.

At the frame

2 Remove the air intake grill and filter assembly from the front of the cooling unit.

3 Determine if the FAN FAIL lamp darkened on the frame supervisory panel (FSP) when you removed the filter.

If the FAN FAIL lamp	Do
darkened	step 4
remained on	step 9

4 Remove the filter and grill to a location away from the switchroom. Use a dust cloth and vacuum to clean the fan air intake.

5 Vacuum or wash the filter in soap and water, according to the filter type.

6 Replace the filter in the grill and reinstall the filter in the cooling unit.

7 Turn OFF the FAN FAIL OVERRIDE switch.

8 Go to step 79.

At the PDC frame

9

DANGER
Possible arcing
Electricity can arc when you remove cooling unit fuses. Wear eye protection.

Remove the fuses that power the inverters.

Repairing and replacing NT3X90AB cooling units (continued)

10 Do you have a blown fuse?

If	Do
yes	step 11
no	step13

At the PDC frame

11

WARNING
Incorrect fuse values
Use replacement fuses of the correct rating, or damage to the equipment can result.

Replace the fuse in the PDC with a new one.

12 Replace the filter in the grill.

If the FAN FAIL lamp is	Do
off	step12
on	step13

13 Turn OFF the FAN FAIL OVERRIDE switch.

Go to step 79.

If your company procedures	Do
direct you to do repairs	step 14
do not direct you to do repairs	step 64

At the front of the frame

14 Remove the screws that secure the side rail covers to the frame.

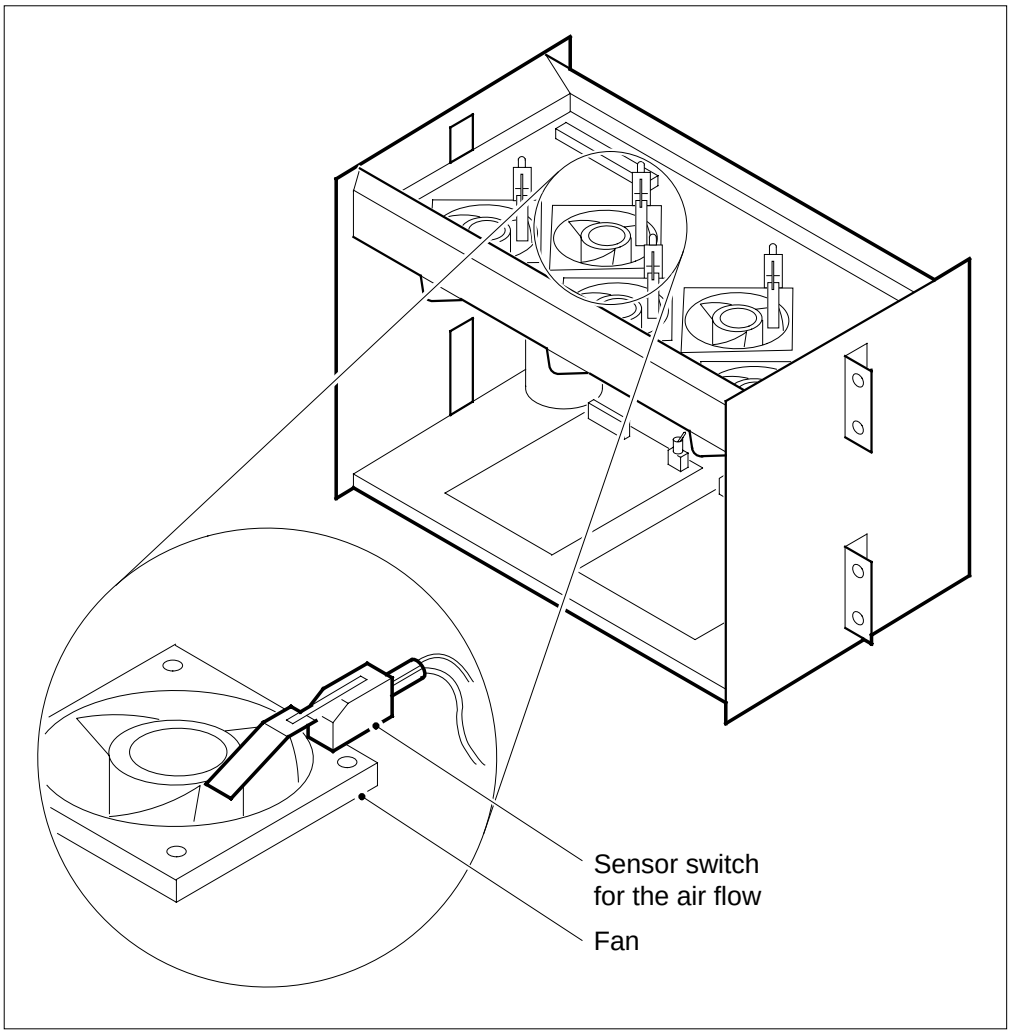
15 Remove the eight screws that secure the brackets to the sides of the cooling unit. To remove the screws, use a 5/16-inch ratchet and extension.

Repairing and replacing NT3X90AB cooling units (continued)

16

WARNING
Loss of frame cooling
Removal of the cooling unit for an extended period of time can cause the equipment in the frame to overheat.

Ease the cooling unit toward you until it is half-way out of the frame.



Repairing and replacing NT3X90AB cooling units (continued)

17 Inspect the fans in the cooling unit. Determine how many fans work.

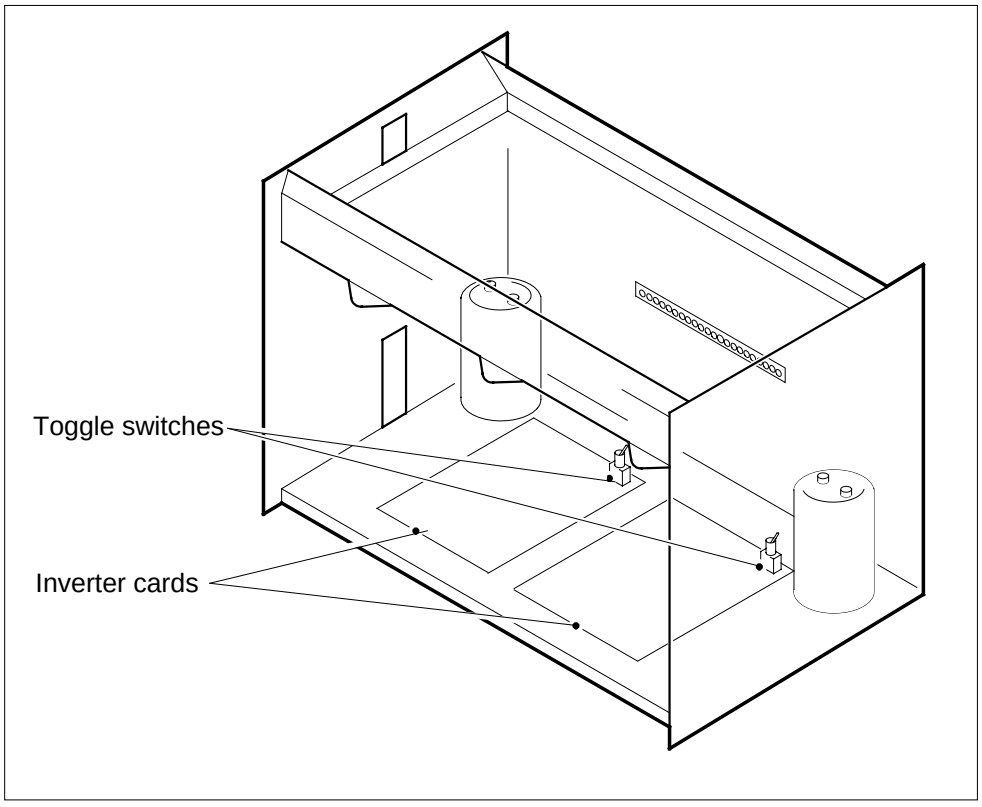
If	Do
fans work correctly but FAN FAIL lamp remains on	step 49
one fan does not work	step 29
both fans in the back row or all three fans in the front row do not work	step 18

Note 1: A complete row of fans that have faults indicates an inverter that powers the row is at fault. The row of fans that have faults also indicates a blown fuse on the PDC frame for the inverter that has faults.

Note 2: One fan that does not operate indicates a damaged wiring harness, loose connections, or a fan that requires replacement.

Note 3: All fans that operate normally with a lit FAN FAIL lamp indicate a air flow sensor that has faults.

18 Locate the toggle switches at the back right corner of each inverter card.



Note: The toggle switches are the ON/OFF power switches for the inverters.

Repairing and replacing NT3X90AB cooling units (continued)

19 Cycle the toggle switches on both inverters until you find the inverter that powers the row of fans that have faults.

20 Switch OFF the inverter that provides power to the row of fans that have faults.

At the PDC frame

21 Remove the fuse for the damaged inverter.

At the frame

22 Disconnect the connector at the back left corner of the inverter.

23 Use a pair of needle-nosed pliers to disconnect the four plastic mounting pins.

24 Lift the old inverter out of the cooling unit. Replace the old inverter with a new inverter.

25 Mount the new inverter on the four plastic mounting pins.

26 Plug the connector into the back left corner of the inverter.

At the PDC frame

27 Examine the fuse to the inverter. If the fuse is a blown fuse, obtain a new fuse. Replace the fuse in the PDC.

At the frame

28 Turn ON the toggle switch of the new inverter.

If	Do
the fans work normally and the FAN FAIL lamp does not turn on	step 55
other than listed here	step 78

29 To turn OFF the inverters, use the toggle switches at the back right corner of the inverters.

30 Inspect the cooling unit wiring harness for damage and/or a loose connection at the fans or terminal blocks.

31 Replace a defective harness. Tighten any loose connections.

32 To turn ON the inverters, use the toggle switches at the back right corner of the inverters.

33 Inspect the fan operation.

If the fan	Do
works correctly, but did not work in step 17	step 55

Repairing and replacing NT3X90AB cooling units (continued)

If the fan	Do
does not work correctly, and did not work in step 17	step 34

34 To turn OFF the inverters, use the toggle switches at the back right corner of the inverters.

35 Disconnect the wiring to the sensor switch from the fan that has faults. Note the position and color of the wires.

36 Note the position of the air flow switch on the fan (or fans) that has faults.

37 Remove the sensor switch from the switch bracket. Lay the switch to one side.

38 Cut the two tie wraps that secure the power cord to the fan.

39 Remove the four screws, spacers, nuts, and washers that secure the fan to the cooling unit.

40 Disconnect the power cord at the fan terminals.

41 Remove the fan.

42 Plug a new fan into the power cord.

43 Mount the new fan. Install the fan so that air flows toward the top, as indicated on the label. Secure the fan with screws, spacers, nuts, and washers.

44 Use new tie wraps to secure the power cord to the fan.

45 Reconnect the wiring to the sensor switch, as noted in step 35.

46 Attach the sensor switch to the switch bracket. Secure the switch in position with screws, nuts, and washers.

47 To switch ON the inverters, use the toggle switches at the back right corner of the inverters.

48 Inspect the fan operation.

If the fan	Do
works correctly, but did not work in step 17	step 55
did not work correctly, and did not work in step 17	step 78

49 Inspect the sails of the air flow sensors. Replace or repair any that appear to have faults.

Repairing and replacing NT3X90AB cooling units (continued)

50 Disconnect the wiring to one of the sensor switches. Note the position and color of the wires.

If the FAN FAIL lamp	Do
remained on when you disconnected the sensor wiring for the air flow	step 53
did not remain on when you disconnected the sensor wiring for the air flow	step 51

Note: A FAN FAIL lamp that turned OFF when you disconnected the sensor wiring indicates a sensor switch that has faults.

51 Remove the defective sensor switch.

52 Attach the replacement sensor switch to the switch bracket. Secure the new sensor in position with screws, nuts, and washers.

53 Reconnect the wiring to the sensor switch, as noted in step 50.

54 Repeat steps 50 to 53 to check all sensor switches.

If the FAN FAIL lamp	Do
turns off	step 55
remains on	step 78

55 Ease the cooling unit completely back into the frame.

56 Insert the eight screws that secure the brackets to the sides of the cooling unit. To insert the screws, use a 5/16-inch ratchet and extension.

57 Reinstall the side rail on the front of the frame.

58 Locate the toggle switch near the back right corner of each inverter card.

59 If the switches worked during this procedure, turn back ON the switches.

At the PDC frame

60 Inspect the fuses that power the inverter cards. Replace any blown fuses.

At the FSP

61 Replace the air intake grill and filter assembly at the front of the cooling unit.

If the FAN FAIL lamp	Do
is off	step 61
is on	step 78

62 Turn OFF the FAN FAIL OVERRIDE switch on the FSP.

63 Go to step 79.

Repairing and replacing NT3X90AB cooling units (end)

At the PDC frame

64 Remove the fuses that power the inverter cards.

At the back of the cooling unit

65 Disconnect the plug that connects the wiring to the cooling unit.

At the front of the cooling unit

66 Remove the screws that secure the side rail covers to the frame.

67 Remove the eight screws that secure the brackets to the sides of the cooling unit. To remove the screws, use a 5/16-inch ratchet and extension.

68 Ease the cooling unit toward you and out of the frame.

69 Ease the replacement cooling unit into the frame.

70 Secure the brackets to the sides of the cooling unit. To secure the brackets, use a 5/16-inch ratchet and extension.

71 Reinstall the side rail on the front of the frame.

At the back of the cooling unit

72 Reconnect the plug that connects the wiring to the cooling unit.

At the PDC frame

73 Insert the fuses that power the inverter cards.

At the front of the cooling unit

74 Locate the toggle switches near the back right corner of the inverter cards.

75 Make sure you turn ON the toggle switches.

76 Reinstall the air intake grill and filter assembly at the front of the cooling unit.

77 Turn ON the FAN FAIL OVERRIDE switch on the FSP.

78

WARNING
Loss of frame cooling
Do not leave a cooling unit that has faults in the frame. If you cannot repair the cooling unit immediately, replace it with a cooling unit that works correctly. Go to step 64 and follow the necessary parts of the procedure.

For additional help, contact the next level of support.

79 The procedure is complete.

Repairing and replacing NT3X90AF cooling units

Application

Use this procedure to replace NT3X90AF cooling unit components in the following frames:

- LGE, DTE, LTE and SME
- LGEI, DTEI, and LTEI
- ILGE and IDTE
- DSNE
- MS6E, MS7E, ST6E and ST7E
- RCE and RCEI
- CPEI

A problem in a NT3X90AF cooling unit results from one of the following:

- a loose or broken wiring harness
- a blown fuse in the front panel of the cooling unit
- a fan motor has faults

Definition

The cooling unit provides forced air to cool the equipment and cards in the frames.

Common procedures

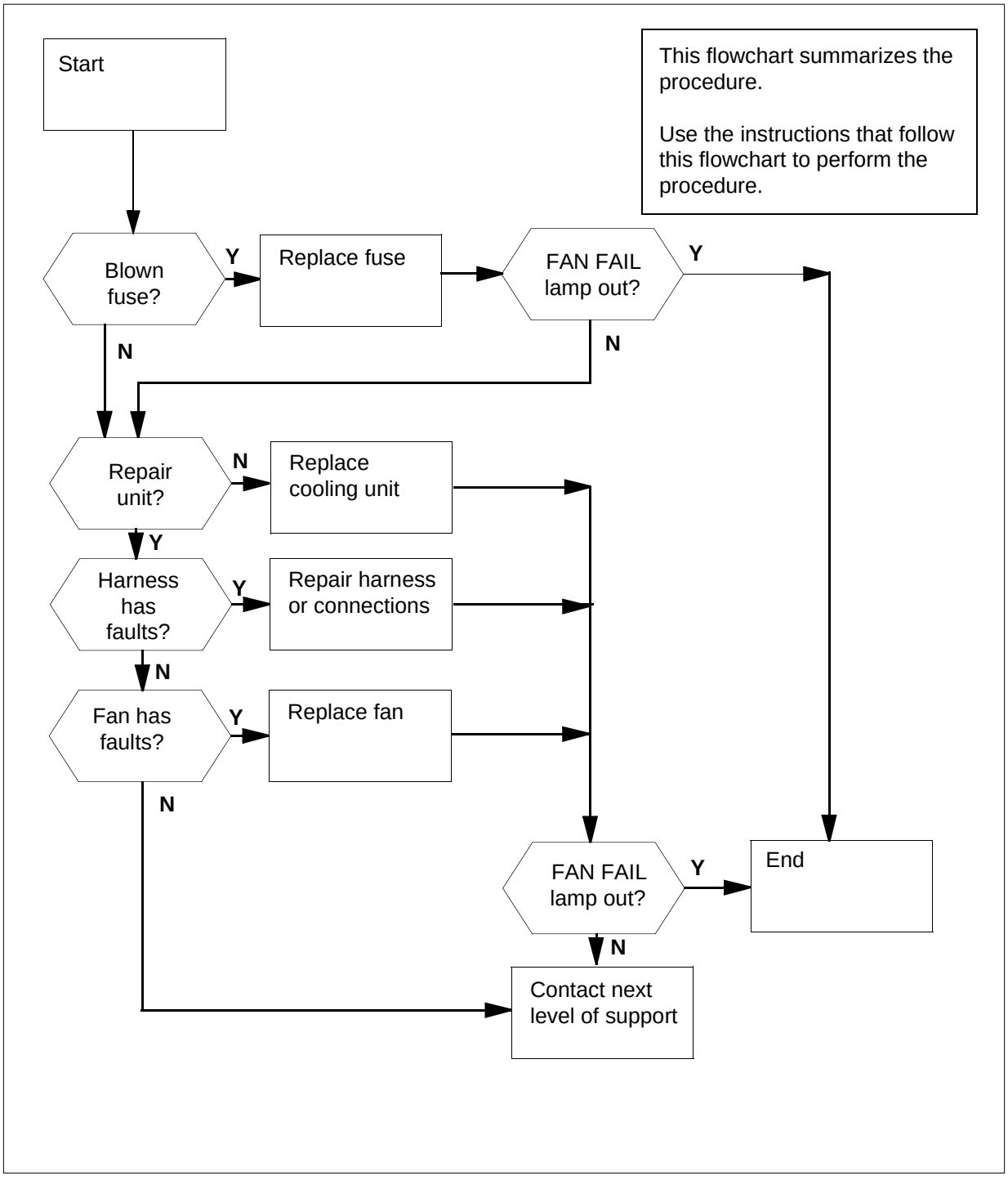
There are no common procedures.

Action

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

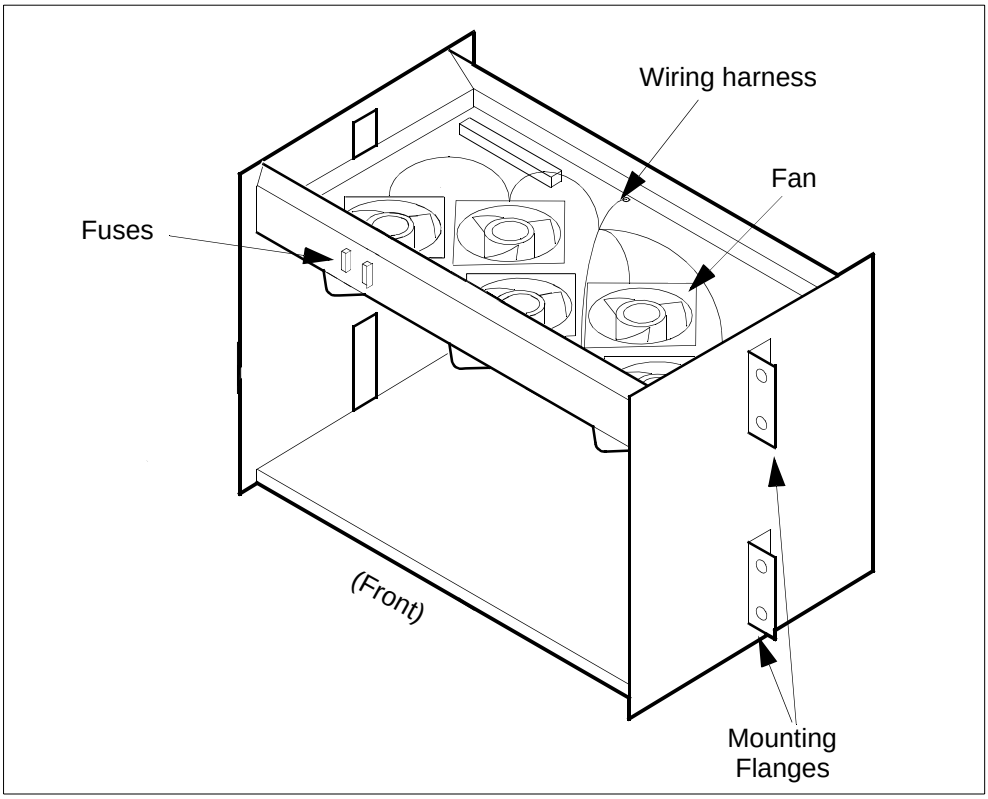
Repairing and replacing NT3X90AF cooling units (continued)

Summary of Repairing and replacing NT3X90AF cooling units



Repairing and replacing NT3X90AF cooling units (continued)

Diagram of cooling unit



Repairing and replacing NT3X90AF cooling units

At the FSP

1

DANGER
Next level of support
The cooling unit configuration in the frame can differ from the following description. If you encounter an important difference, contact your next level of support.

To silence the alarm, turn ON the FAN FAIL OVERRIDE switch.

At the frame

2 Remove the air intake grill and filter assembly from the front of the cooling unit.

Repairing and replacing NT3X90AF cooling units (continued)

At the FSP

3 Locate the two fuses at the front of the cooling unit and check them all.

4

WARNING
Incorrect fuse values
Use replacement fuses of the correct rating, or damage to the equipment can result.

If one or both fuses blow, replace the blown fuses with new fuses.

If the FAN FAIL lamp	Do
darkened when you replaced the fuses	step 5
remained on when you replaced the fuses	step 8

5 Replace the air intake grill and filter assembly at the front of the cooling unit.

At the FSP

6 Turn OFF the FAN FAIL OVERRIDE switch.

7 Go to step 44.

8 Proceed as directed in the following table.

If your company procedures	Do
direct you to do repairs	step 21
direct you to not do repairs	step 9

9 Power down at the PDC.

At the back of the cooling unit

10 Disconnect the lugs that connect the frame wiring to the cooling unit.

At the front of the cooling unit

11 Remove the screws that secure the side rail covers to the frame.

12 Remove the eight screws that secure the mounting flanges on the sides of the cooling unit to the frame. To remove the screws, use a 5/16-inch ratchet and extension.

13 Ease the cooling unit toward you and out of the frame.

14 Ease the replacement cooling unit into the frame.

Repairing and replacing NT3X90AF cooling units (continued)

15 Install the eight screws that secure the mounting flanges on the sides of the cooling unit to the frame. To install the screws, use a 5/16-inch ratchet and extension.

16 Reinstall the side rail covers on the front of the frame.

At the back of the cooling unit

17 Reconnect the lugs that connect the frame wiring to the cooling unit.

At the front of the cooling unit

18 Replace the air intake grill and filter at the front of the unit.

At the FSP

19 Turn OFF the FAN FAIL OVERRIDE switch.

20 Go to step 43.

At the front of the cooling unit

21 Remove the screws that secure the side rail covers to the frame.

22 Remove the eight screws that secure the mounting flanges on the sides of the cooling unit to the frame. To remove the screws, use a 5/16-inch ratchet and extension.

23

WARNING
Loss of frame cooling
Removal of the cooling unit for an extended period of time can cause the equipment in the frame to overheat.

Ease the cooling unit toward you until the unit is half way out of the frame.

24 Inspect the fans in the cooling unit and determine how many fans work.

If	Do
all fans work correctly but the FAN FAIL lamp remains on	step 43
one or more fans do not work	step 25

Note: The failure of one or more fans to work can indicate a wiring harness that has faults or loose connections or that the fan(s) require(s) replacement.

25 Remove the fuses from the front of the cooling unit.

26 Inspect the wiring harness of the cooling unit for damaged and/or a loose connection at the fans or terminal blocks.

Repairing and replacing NT3X90AF cooling units (continued)

27 If you find a bad harness, replace the harness. Tighten any loose connections.

28 Replace the fuses at the front of the cooling unit.

If	Do
all fans work correctly and the FAN FAIL lamp is off	step 37
one or more fans do not work	step 29

29 Cut the two tie wraps that secure the power cord to the fan.

30 Remove the four screws and washers that secure the fan to the cooling unit.

31 Disconnect the power cord at the fan terminals.

32 Remove the fan that has faults.

33 Connect a new fan to the power cord.

34 Mount the new fan. Install the fan so that air flows toward the top, as indicated on the label. Secure the new fan with screws, spacers, nuts, and washers.

35 Use the new tie wraps to secure the power cord to the fan.

36 Inspect the fan operation.

If all fans	Do
work correctly	Step 37
do not work correctly	Step 43

37 Ease the cooling unit completely into into the frame.

38 Install the eight screws that secure the mounting flanges on the sides of the cooling unit to the frame. To insert the screws, use a 5/16-inch ratchet and extension.

39 Reinstall the side rail covers on the front of the frame.

40 Reinstall the air intake grill and filter assembly at the front of the cooling unit.

41 Turn OFF the FAN FAIL OVERRIDE switch on the FSP.

42 Go to step 44.

Repairing and replacing NT3X90AF cooling units (end)

43

WARNING
Loss of frame cooling
Do not leave a cooling unit that has faults in the frame. If you cannot repair the bad cooling unit immediately, replace it with a unit that operates correctly. Go to step 15 and follow the necessary parts of the procedure.

For additional help, contact the next level of support.

44 The procedure is complete.

Replacing a 3.5 in. disk drive unit NTFX32BA

Application

Use this procedure to replace a 3.5 in. (89-mm) disk drive unit (DDU) NTFX32BA.

Contact the next level of support before you start this procedure.

Definition

The DDU is a data storage device on the storage media card NTFX32AA in the input/output module (IOM). The integrated services module (ISM) shelf contains the IOM. Replace any DDU that has a fault. Do not copy files from a DDU that has a fault; backup files are available on the parallel device.

Common procedures

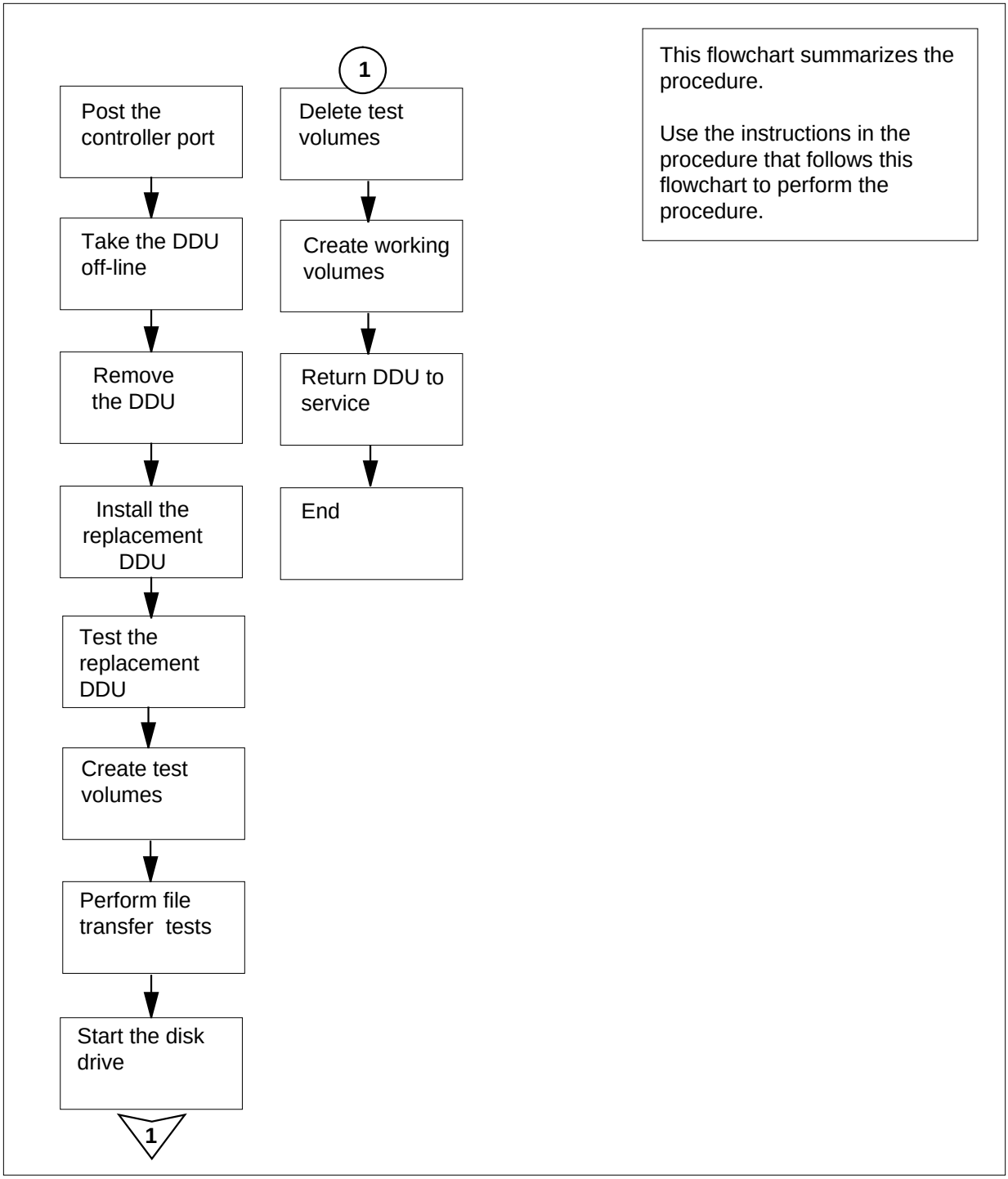
There are no common procedures.

Action

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

Replacing a 3.5 in. disk drive unit NTFX32BA (continued)

Summary of Replacing a 3.5 in. disk drive unit NTFX32BA



Replacing a 3.5 in. disk drive unit NTFX32BA (continued)

Replacing a 3.5 in. disk drive unit NTFX32BA

At the MAP terminal

1

CAUTION
Loss of service
Disk allocation is difficult and dangerous errors are possible. Contact the next level of support before you perform this procedure.

Obtain the following items:

- replacement DDU
- flat-blade screwdriver with 1/4-in. (3-mm) blade

Obtain a shipping carton for the replaced DDUs. When possible, use the carton of the new DDUs.

To access the IOD level of the MAP display, type

>MAPCI;MTC;IOD

and press Enter.

Example of a MAP display:

```
IOD
IOC  0  1  2  3
STAT .  .  .  S

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

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

>IOC ioc_no

and press Enter.

where

ioc_no
is the number of the affected IOM

Example of a IOM MAP display:

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

Replacing a 3.5 in. disk drive unit NTFX32BA (continued)

3 To post the port for the replaced DDU, type

>PORT port_no

and press Enter.

where

port_no
is the port number of the DDU device

Example of a IOM MAP display:

```
Port 16  Unit       0
(SCSI)   User       system      Drive_State
         Status     Ready       On_line
```

4 Record the unit number of the replaced DDU.

Note: In the example in step 3, the number of the DDU is 0.

5 Determine the state of the DDU.

Note: The state of the disk drive is under the Drive_State header on the MAP display.

If the DDU is in	Do
an allocated state	step 6
other than listed here	step 38

6 To determine if open files exist on the DDU, type

>ALLOC

and press Enter.

Example of a MAP display:

```
VOLID VOL_NAME SERIAL_NO BLOCKS ADDR TYPE R/O FILES_OPEN
  0   IMAGE     2800     45000  D000  0    NO      0
  1   XPMLOADS  2801     35000  D000  0    NO      0
  2   RTMLOADS  2802     20000  D000  0    NO      0
   .
   .
   .
  7   SMDR      2807     5000   D000  0    NO      0
  8   AMA1      2808     5000   D000  0    NO      0
  9   TST       2809       50   D000  0    NO      0
 10   AMA2      280A      500   D000  0    NO      0
```

If open files	Do
are present	step 37

Replacing a 3.5 in. disk drive unit NTFX32BA (continued)

If open files	Do
are not present	step 7

7 Record the name and size (in blocks) of all disk volumes.

8 To test the DDU, type

>TST

and press Enter.

Example of a MAP display:

```
Process may take up to 3 min
Failed
Drive is disconnected
   .
Site  Flr  RPos  Bay–Id  Shf Description  Slot  EqPec

HOST  01   A00  ISME 03  32  IOC 0 DDU    04    FX30AA
HOST  01   A00  ISME 03  32  IOC 0 DDU    04    FX31AA
```

If the test	Do
passes	step 32
fails	step 9

9 From the MAP response in step 8, record the location (floor, row, bay, and shelf) of the replaced DDU.

10 Notify all users that there will be an interruption of service for the device. Wait until all users stop use of the device before you proceed to the next step.

11 To manually busy the DDU, type

>BSY

and press Enter.

Example of a MAP display:

```
bsy
OK
```

If the BSY command	Do
passed	step 12
failed	step 38

12 To manually stop the DDU, type

>ST0P

Replacing a 3.5 in. disk drive unit NTFX32BA (continued)

and press Enter.

Example of a MAP display:

```
Disk stop successful
```

Note: When the DDU spins down, proceed to step 13. The status code appears under the Drive_State on the MAP display.

If the STOP command	Do
passed	step 13
failed	step 38

13 To take the DDU off-line, type

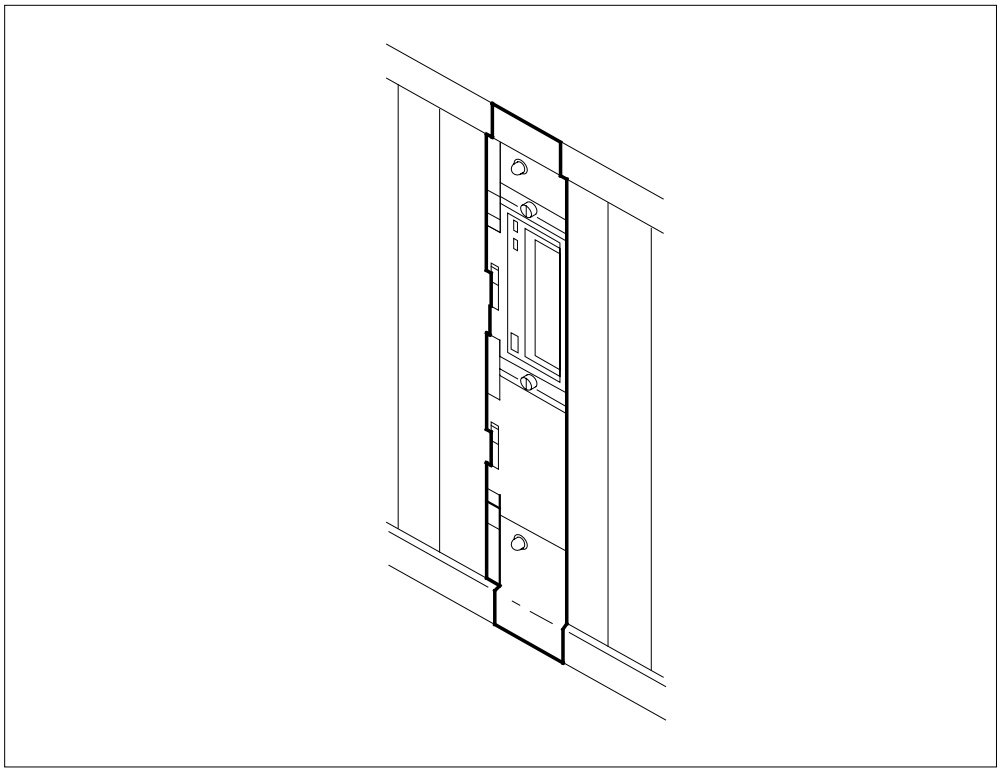
>OFFL

and press Enter.

At the ISM shelf

14 Locate the NTFX32BA DDU that has a fault in the IOM storage media card NTFX32AA in slot 4 of the ISM shelf.

Replacing a 3.5 in. disk drive unit NTFX32BA (continued)



Check the LED on the media card faceplate.

If the LED	Do
is lit	step16
is not lit	step15

15 Perform the correct procedure in *Card Replacement Procedures* to replace the media card NTFX32.

16

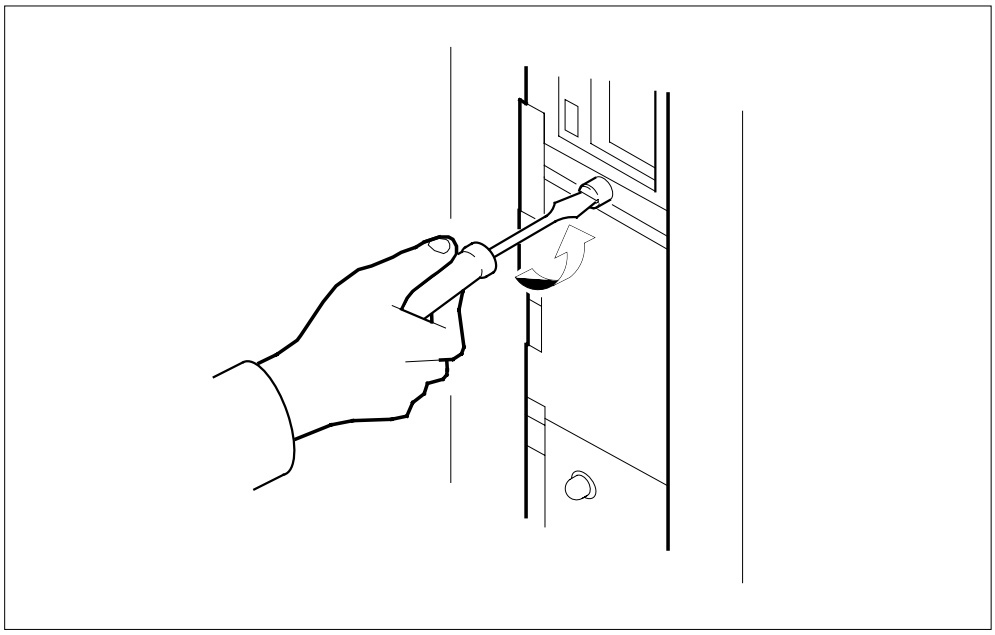
WARNING
Static electricity damage
To handle the DDU, wear a wrist-strap that connects to the wrist-strap grounding point on the modular supervisory panel (MSP). The wrist-strap protects against static electricity damage.

Unscrew the spring loaded lock mechanism on the faceplate of the disk carrier. The disk carrier electrically connects the DDU to the media card.

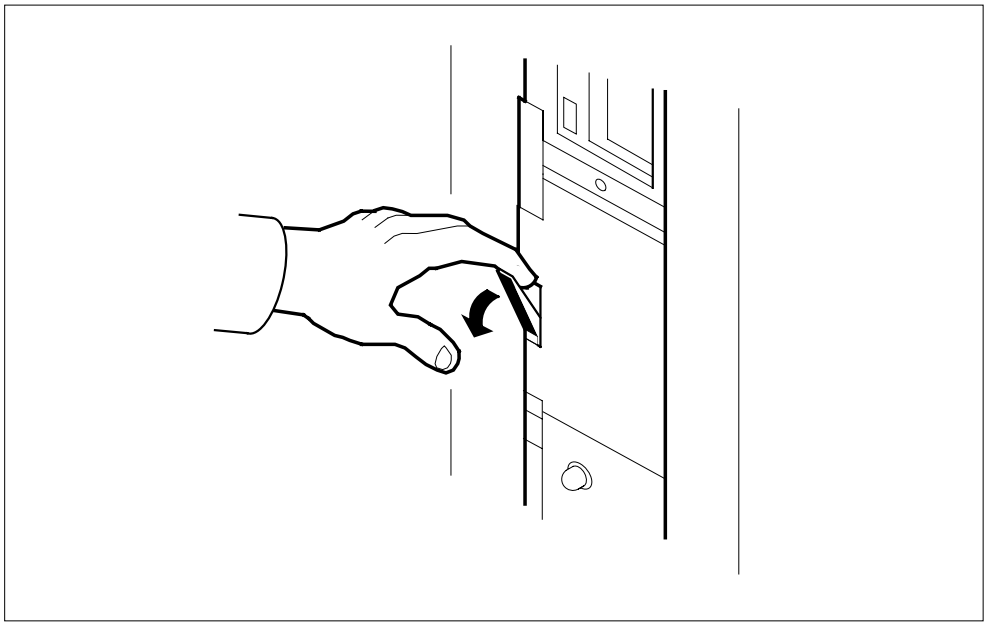
Replacing a 3.5 in. disk drive unit NTFX32BA (continued)

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

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

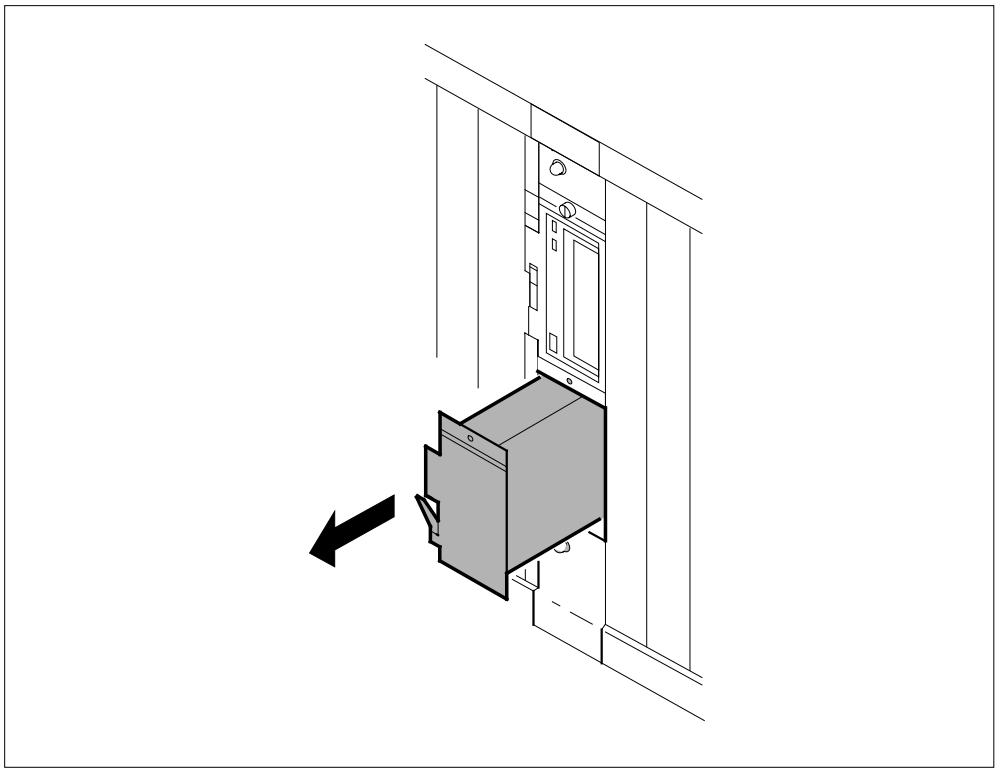


17 Pull down on the ejector to push the DDU carrier away from the media card.



Replacing a 3.5 in. disk drive unit
NTFX32BA (continued)

18 Remove the DDU and the carrier. Pull the DDU and the carrier straight out of the media card.



19

WARNING
Ejector arm damage
Ensure that the ejector arm is flat and in the up position on the faceplate. Insert the DDU in the media card faceplate. Complete this procedure to avoid damage to the ejector arm.

Insert the new DDU through the aperture in the media card faceplate. Ensure that the connector at the end of the unit will plug into the receptacle on the card.

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

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

Replacing a 3.5 in. disk drive unit NTFX32BA (continued)

At the MAP terminal

20 To manually busy the DDU, type

>BSY

and press Enter.

Example of a MAP display:

```
bsy
OK
```

If the BSY command	Do
passed	step 21
failed	step 38

21 To start the DDU, type

>START

and press Enter.

Example of a MAP response:

```
Disk start successful
```

22 To test the DDU, type

>TST

and press Enter.

Example of a MAP display:

```
Process may take up to 3 minutes.
Test OK
```

If the TST command	Do
passed	step 23
failed	step 38

23 To perform volume allocation tests, follow the procedure *Allocating test volumes on 8-in., 5.25-in., or 3.5 in. DDUs* in *Routine Maintenance Procedures*. When the procedure is complete, return to this point.

24 To perform interference and file transfer tests, follow the procedure *Performing DDU interference and file transfer tests* in *Routine Maintenance Procedures*. When the procedure is complete, return to this point.

25 To access the CI level of the MAP display, type

>QUIT ALL

and press Enter.

Replacing a 3.5 in. disk drive unit NTFX32BA (continued)

26 To access the allocation utility, type

>DSKALLOC ddu_no

and press Enter.

where

ddu_no
is the recorded DDU number in step 4.

27 To confirm the command, type

>YES

and press Enter.

28 To add a volume to the DDU, type

>ADD vol_name vol_size; DIRADD vol_name

and press Enter.

where

vol_name
is the recorded volume name in step 7.

vol_size
is the recorded volume size in step 7.

29 Repeat step 28 for each disk volume that remains.

30 To enforce the allocation of the volumes, type

>UPDATE

and press Enter.

Example of a MAP response:

```
WARNING:    A break HX of this process may cause severe
            corruption on the disk that may require it to
            be reformatted.
Writing label of volume IMAGE
Successful
Starting initialization of volume IMAGE
A break HX of this process may cause severe corruption on
this volume that may require reinitialization of all
non-initialized volumes.
Number of bad blocks=0
Successful
Update done
```

31 To quit the allocation utility, type

>QUIT

and press Enter.

32 To post the IOM controller port for the DDU, type

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

and press Enter.

where

ioc_no
is the number of the input/output controller (IOC)

port_no
is the number of the DDU port

33 To return the DDU to service, type

>RTS

and press Enter.

Example of a MAP display:

```
Port 16  Unit       0
(SCSI)   User       system      Drive_State
         Status     BSY         Online
```

If the RTS command	Do
passed	step 34
failed	step 38

34 Pack the replaced DDU in a carton and send it to the correct repair location.

Note: For additional information on the return of equipment, refer to the correct procedure in this document.

35 Record the following information in your office records:

- the date of replacement of the damaged DDU
- the serial number of the damaged DDU
- the indications that prompted the DDU replacement

36 A major or minor alarm can rise under the IOD header of the MAP display at the start of this procedure. Determine if the alarm cleared.

If the alarm	Do
cleared	step 39
did not clear	step 38

37 You cannot busy the IOM controller card when files are open. If you busy the card, loss of billing data can result. For additional help, contact the person responsible for the next level of support.

38 For additional help, contact the person responsible for the next level of support.

39 The procedure is complete.

Replacing an 8-in. or a 5.25-in. disk drive unit

Application

Use this procedure to replace an 8-in. (203-mm) or a 5.25-in. (133-mm) disk drive unit (DDU).

Contact the next level of support before you start this procedure.

Definition

The DDU is a data storage device on the DMS-100 switch. Replace a DDU when faults occur and the device cannot record. Do not copy the files from a DDU that has a fault. Backup files are available on the parallel device.

Common procedures

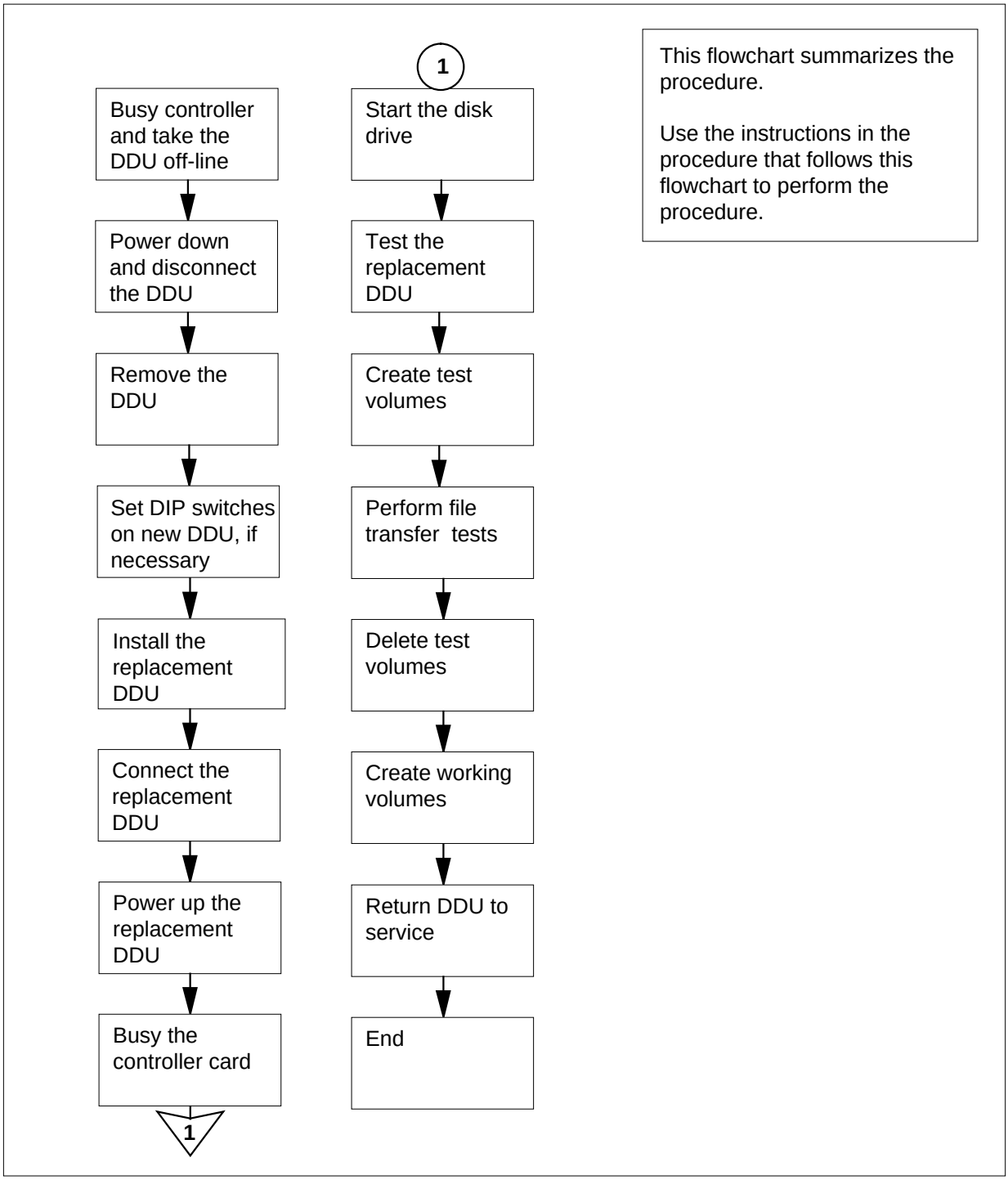
There are no common procedures.

Action

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

Replacing an 8-in. or a 5.25-in. disk drive unit (continued)

Summary of Replacing an 8-in. or a 5.25-in. disk drive unit



Replacing an 8-in. or a 5.25-in. disk drive unit (continued)

Replacing an 8-in. or a 5.25-in. disk drive unit

At the MAP terminal

1

CAUTION
Loss of service
Disk allocation is difficult and dangerous errors are a possibility. Contact the next level of support before you perform this procedure.

Obtain the following items:

- replacement DDU
- flat-bladed screwdriver with 1/4-in. (3-mm) blade
- 5/16-in. (7-mm) Allen wrench

2 Obtain a strong shipping carton for the DDU you will replace. If possible, use the carton of the new DDU.

To access the IOD level of the MAP display, type

>MAPCI;MTC;IOD

and press Enter.

Example of a MAP display:

```
IOD
IOC      0   1
STAT     L   .
```

3 To post the IOC for the replaced DDU, type

>IOC ioc_no

and press Enter.

where

ioc_no
is the number of the input/output controller (IOC) that holds the controller card for the DDU (0 to 9)

Example of a MAP display:

```
IOC CARD    0    1    2    3    4    5    6    7    8
 2  PORT   0123 0123 0123 0123 0123 0123 0123 0123 0123
    STAT   .... .... ---- .--- ---- P--- ---- .--- .---
    TYPE   CONS CONS      MPC       MPC       MPC  DDU
```

4 To post the controller card for the DDU, type

>CARD card_no

and press Enter.

Replacing an 8-in. or a 5.25-in. disk drive unit (continued)

where

card_no
is the number of the controller card (0 to 8)

Note: In the example in step 3, the number of the controller card is 8.

Example of a MAP display:

```
Card 8  Unit    0
        User    SYSTEM  Drive_State
        Status  BSY     spinning
```

5 Record the number of the replaced DDU.

Note: In the example in step 4, the number of the DDU is 0.

6 Determine the state of the disk drive.

Note: The Drive_State header displays the state of the disk drive on the MAP display.

If the disk drive	Do
is `being allocated`	step 68
is other than listed here	step 9

7 To determine if any files are open on the DDU, type

`>ALLOC`

and press Enter.

Example of a MAP response:
VOLID VOL_NAME SERIAL_NO BLOCKS ADDR TYPE R/O FILES_OPEN 0 IMAGE 2800 45000 D000 0 NO 0 1 XPMLOADs 2801 35000 D000 0 NO 0 2 RTMLOADS 2802 20000 D000 0 NO 0 . . . 7 SMDR 2807 5000 D000 0 NO 0 8 AMA1 2808 5000 D000 0 NO 0 9 TST 2809 50 D000 0 NO 0 10 AMA2 280A 500 D000 0 NO 0

If open files	Do
are present	step 67
are not present	step 8

8 Record the name and size (in blocks) of each disk volume.

9 To test the disk drive, type

`>TST`

and press Enter.

Example of a MAP response:

Replacing an 8-in. or a 5.25-in. disk drive unit (continued)

```
Process may take up to 3 minutes.
Failed
Drive is disconnected

Site    Flr RPos    Bay-id  Shf Description Slot    EqPec
HOST    01  A00     IOE 00  04  IOC 0 DDU   02      1X62
HOST    01  A00     IOE 00  04  IOC 0 DDU   22      0X67
```

10 From the MAP response in step 9, record the area (floor, row, bay, and shelf) of the DDU that requires replacement.

11 To manually busy the controller, type

>BSY

and press Enter.

If the BSY command	Do
passed	step 12
failed	step 67

12 To stop the DDU manually, type

>STOP

and press Enter.

Note: Wait until the DDU spins down before you proceed to step 13. The status code `spun_down` appears under the Drive_State header on the MAP display.

If the STOP command	Do
passed	step 13
failed	step 68

13 To off-line the disk drive, type

>OFFL

and press Enter.

Replacing an 8-in. or a 5.25-in. disk drive unit (continued)

At the front of the DDU shelf

14

WARNING
Static electricity damage
To handle the DDU, wear a wrist-strap that connects to a grounding point. Grounding points are on the frame supervisory panel (FSP) or a modular supervisory panel (MSP). The wrist-strap protects against static electricity damage.

Set the power switch on the power converter to the OFF position.

15 Ensure that the converter fail LED on the power converter card lights. The lit fail LED of the power converter card indicates that the power is OFF.

16 Remove the four mounting screws to remove the panel in front of the DDU.

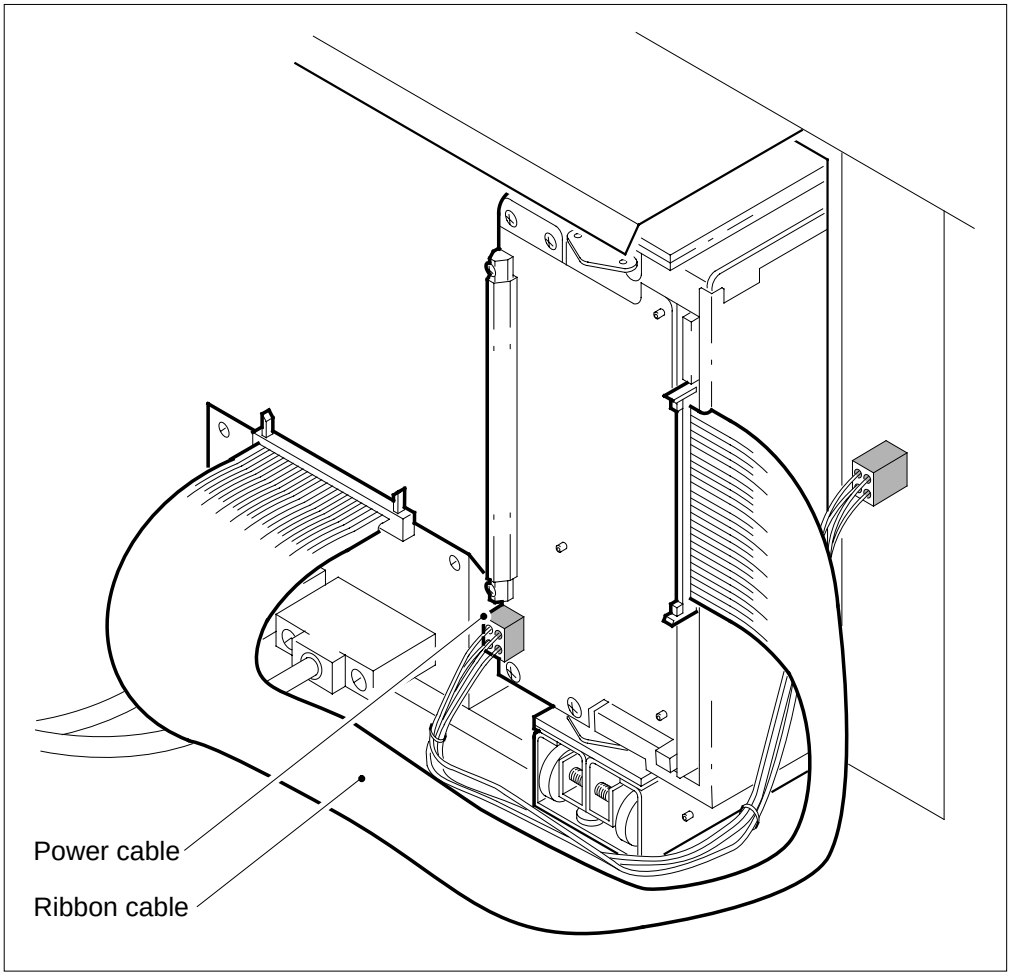
17 The next action depends on the mounting configuration for the DDU.

If the DDU	Do
mounts vertically on tracks	step 18
mounts horizontally on a 14-in. DDU drawer frame	step 38

At the back of the DDU shelf

18 Disconnect the power cable from the back of the DDU.

Replacing an 8-in. or a 5.25-in. disk drive unit (continued)



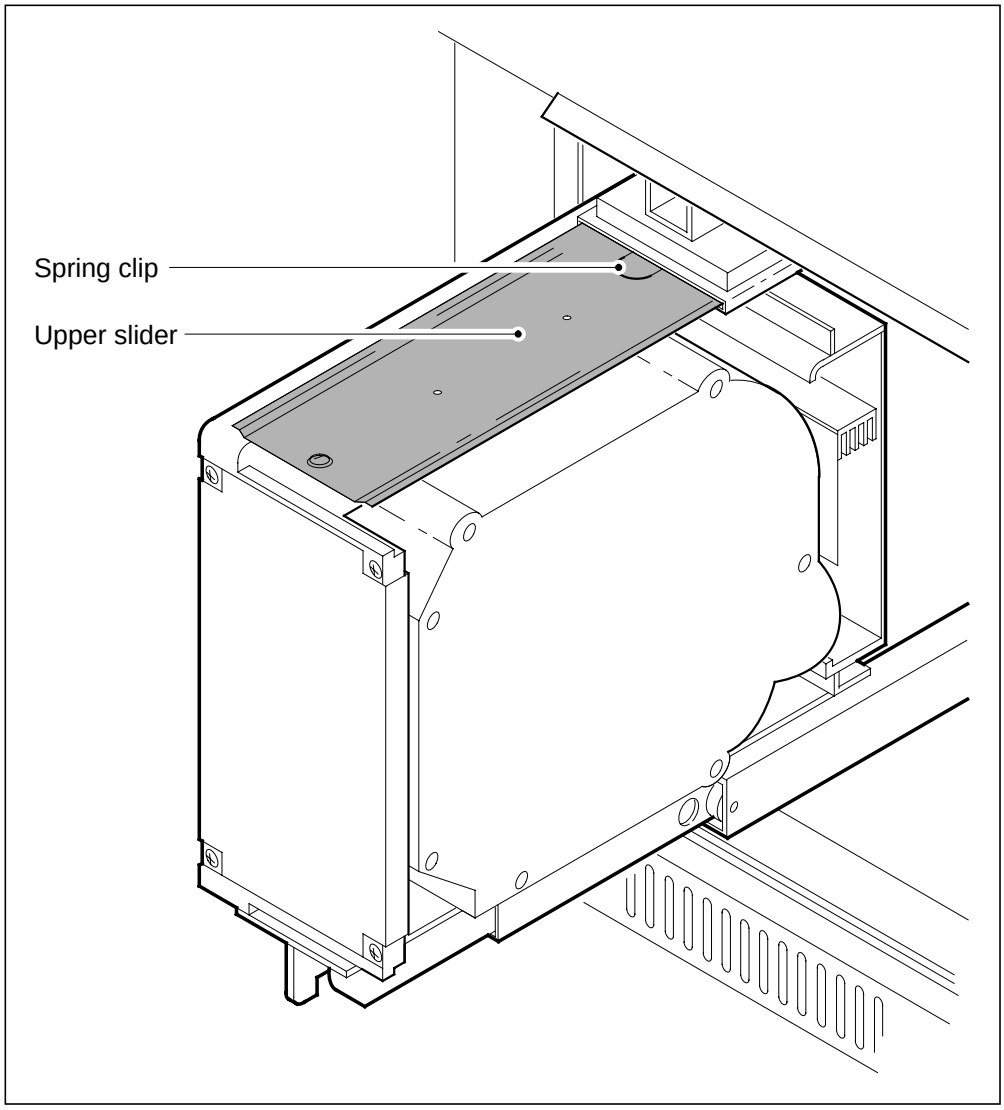
19

WARNING
Equipment damage
Retaining clips holds the ribbon cable in place, and the cable disconnects when the clips release. Do not pull on the cable to disconnect it because you might rip the connector socket away from the disk drive unit.

Release the retaining clips to unplug the connector. This action disconnects the DDU end of the ribbon cable. Refer to the diagram in step 18.

20 Carefully slide the DDU from the frame until the spring clip on the upper slider causes the DDU to stop.

Replacing an 8-in. or a 5.25-in. disk drive unit (continued)



21 Determine if Allen screws are present.

If Allen screws	Do
are present	step 22
are not present	step 23

22 Remove Allen screws with an Allen wrench.

23 Press the spring clip and pull the DDU free of the frame.

Replacing an 8-in. or a 5.25-in. disk drive unit (continued)

At a work table

24 Place the DDU on its front end on a flat surface where room is available to work on two DDUs.

Note: The front end of the DDU is opposite the end that has the power and ribbon cable connectors.

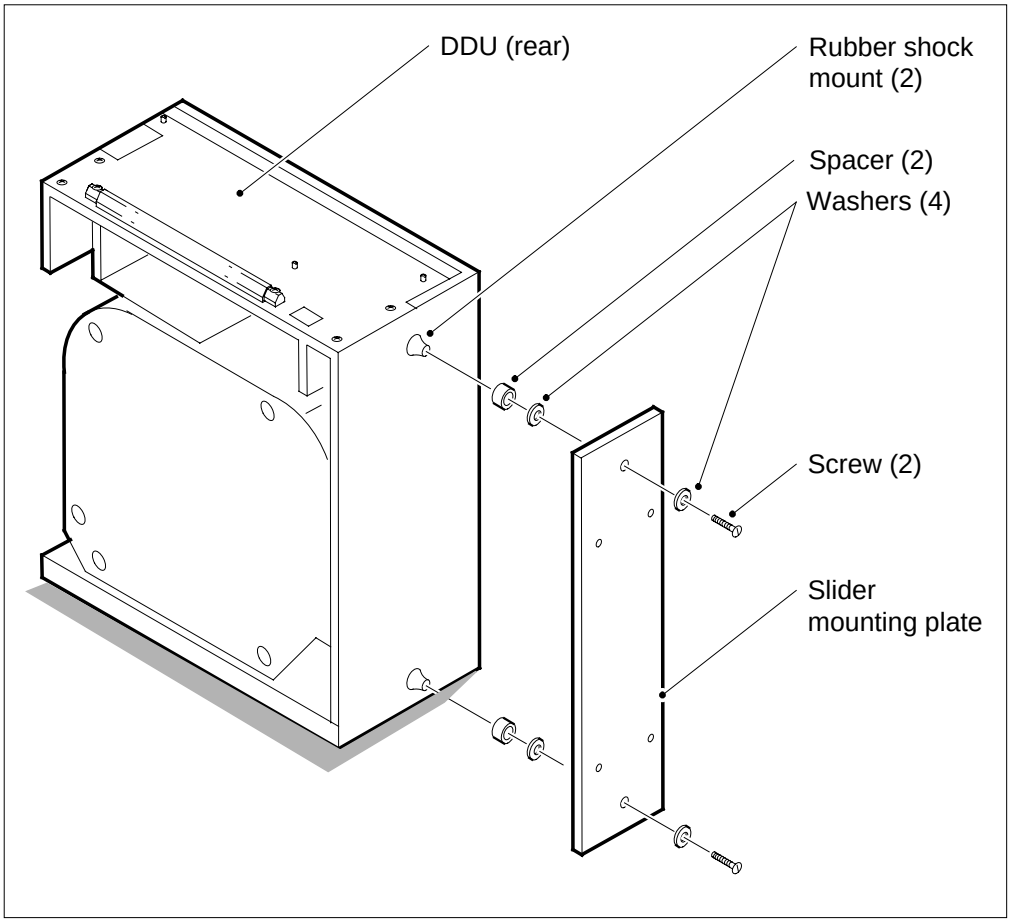
25 Complete a return label and secure it to the removed DDU.

Note: For additional information on the return equipment, refer to the correct procedure in this document.

26 Remove the replacement DDU from the box. Place the DDU on its front end on a flat surface.

27 The replacement DDU can have dip switches. Ensure that you set the dip switches to the same settings as the dip switches on the removed DDU.

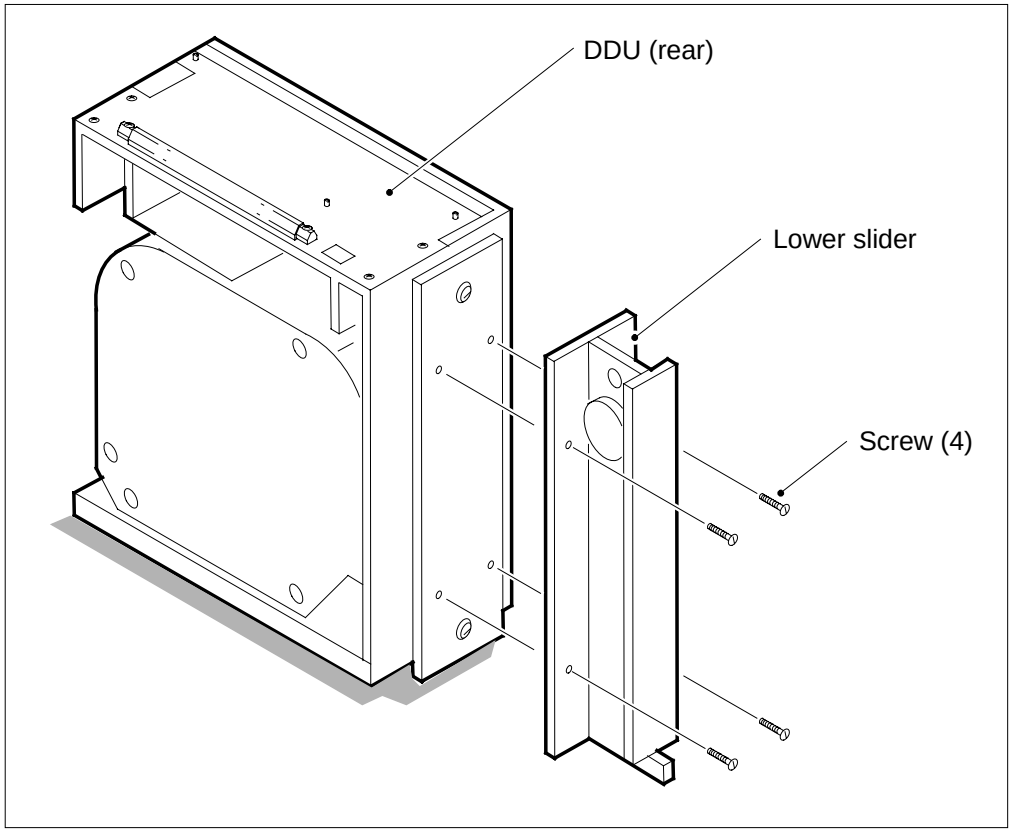
28 To remove the upper slider from the removed DDU, remove the two screws that hold the slider in place.



29 Attach the upper slider to the top of the replacement DDU.

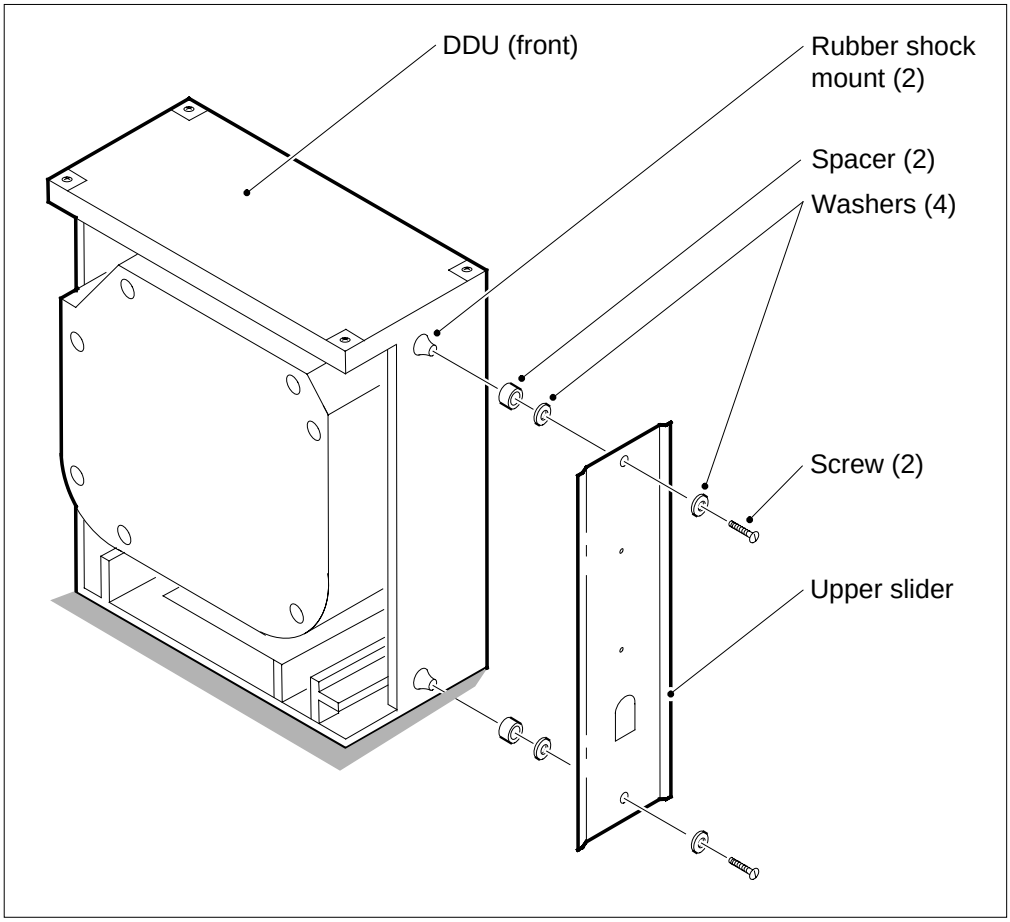
30 To remove the lower slider assembly from the removed DDU, remove the four screws that hold the slider assembly in place.

Replacing an 8-in. or a 5.25-in. disk drive unit (continued)



31 To remove the rectangle-shaped slider mounting plate from the removed DDU, remove the two screws that hold the plate in place.

Replacing an 8-in. or a 5.25-in. disk drive unit (continued)



32 Attach the slider mounting plate to the bottom of the replacement DDU. Refer to the diagram in step 31.

33 Attach the lower slider assembly to mounting plate. Refer to the diagram in step 30.

At the front of the DDU shelf

34 Slide the replacement DDU into the tracks on the frame. Slide the DDU until the spring clip on the upper slider causes the DDU to stop. Refer to the diagram in step 20.

35 Press the spring clip and slide the DDU the rest of the way into the frame.

Replacing an 8-in. or a 5.25-in. disk drive unit (continued)

At the rear of the DDU shelf

36

DANGER
Loss of data
Do not twist the ribbon cable. Failure to route the ribbon cable correctly can result in signal interference, which can cause a loss of data.

To reconnect the ribbon cable, hold the connector in place and snap the retainer clips into place. Refer to the diagram in step 18.

37 Connect the power cable into the back of the DDU.

Go to step 47.

38 Disconnect the power cable from the back of the DDU.

39

WARNING
Equipment damage
The retaining clips hold the ribbon cable in place, and the cable disconnects when the clips release. Do not pull on the cable to disconnect it because you might rip the connector socket away from the disk drive unit.

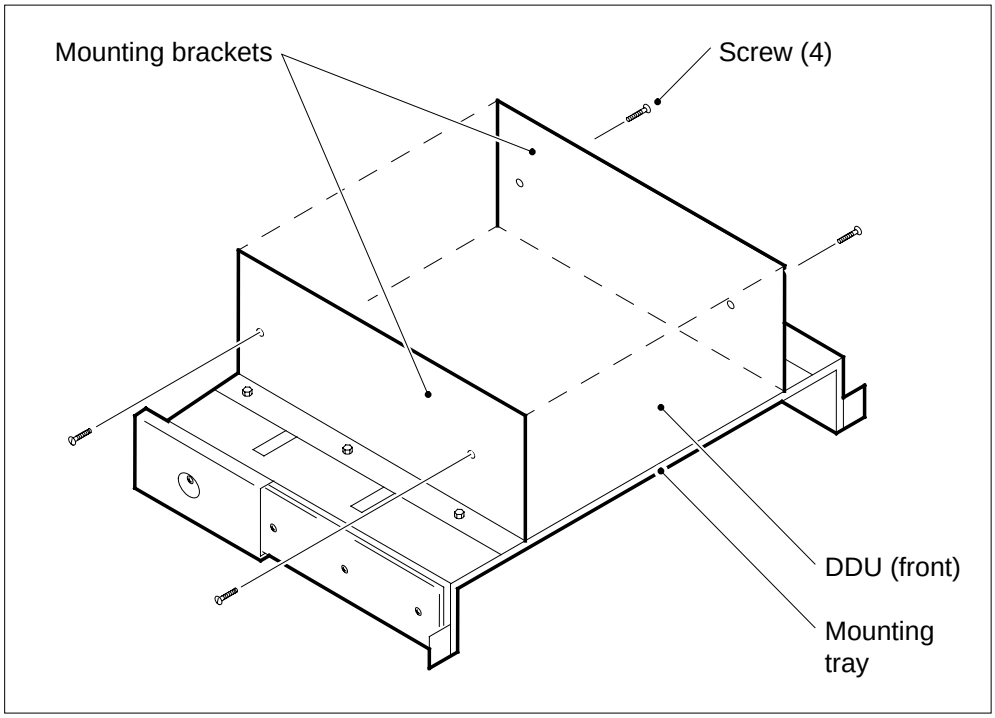
To disconnect the DDU end of the ribbon cable, release the retaining clips to unplug the connector.

At the front of the DDU shelf

40 Carefully slide the DDU out of the frame. Slide the DDU until the spring clips on the sides of sliders cause the DDU to stop.

41 Remove the four screws that mount the DDU to the two mounting brackets on the drawer.

Replacing an 8-in. or a 5.25-in. disk drive unit (continued)



42 Remove the DDU from the drawer.

43 Place the replacement DDU in position between the mounting brackets.

Note: Position the DDU so that the ribbon cable connector is near the top edge of the DDU. Position the DDU so that the connector is at the back of the DDU shelf.

44 Attach the DDU to the mounting brackets. Refer to the diagram in step 41.

45 Press the spring clips on the sliders and slide the DDU back into the frame.

46 Connect the ribbon and power cables.

At the front of the frame

47 Reset the power converter:

- **a** Set the power switch on the converter to ON.
- **b** Press and hold the RESET button on the power converter.
- **c** When the CONVERTER FAIL lamp turns off, release the RESET button.

Replacing an 8-in. or a 5.25-in. disk drive unit (continued)

At the MAP terminal

48 To manually busy the controller, type

>BSY

and press Enter.

If the BSY command	Do
passed	step 49
failed	step 68

49 To start the disk drive motor, type

>START

and press Enter.

MAP response:

```
Disk Start Successful
```

50 To test the disk drive, type

>TST

and press Enter.

Example of a MAP display:

```
Card 8  Unit    0
        User    SYSTEM  Drive_State
        Status  BSY     spinning
```

If the TST command	Do
passed	step 51
failed	step 68

51 To perform volume selection tests, follow the procedure, *Allocating test volumes on 8-in., 5.25-in., or 3.5-in. DDUs* in *Routine Maintenance Procedures*. When the procedure is complete, return to this point.

52 To perform interference and file transfer tests, follow the procedure *Performing DDU interference and file transfer tests* in *Routine Maintenance Procedures*. When the procedure is complete, return to this point.

53 To access the CI level of the MAP display, type

>QUIT ALL

and press Enter.

54 To access the selection utility, type

>ALLOC ddu_no

and press Enter.

Replacing an 8-in. or a 5.25-in. disk drive unit (continued)

where

ddu_no
is the DDU number (0 to 9) recorded in step 5

55 To confirm the command, type

>YES

and press Enter.

56 To add a volume to the disk, type

>ADD vol_name vol_size

and press Enter.

where

vol_name
is the volume name recorded in step 8

vol_size
is the volume size recorded in step 8

57 To add the volume to the root directory, type

>DIRADD vol_name

and press Enter.

where

vol_name
is the volume name recorded in step 8

58 Repeat steps 55 and 57 for each of the remaining disk volumes.

59 To enforce the allocation of the volumes, type

>UPDATE

and press Enter.

Example of a MAP response:

```
WARNING:  A break HX of this process may cause
          severe corruption on the disk that may
          require it to be reformatted.
Writing label of Volume IMAGE
Successful
Starting Initialization of Volume IMAGE
A break HX of this process may cause severe corruption
on this volume that may require reinitialization of all
non initialized volumes.
Number of Bad Blocks = 0
Successful
Update Done
```

60 To quit the allocation utility, type

>QUIT

and press Enter.

Replacing an 8-in. or a 5.25-in. disk drive unit (continued)

61 To post the controller card for the DDU, type

`>MAPCI;MTC;IOD;IOC ioc_no;CARD card_no`

and press Enter.

where

ioc_no
is the number of the input/output controller (IOC) that holds the controller card for the DDU (0 to 9)

card_no
is the number of the controller card (0 to 8)

62 To return the disk drive to service, type

`>RTS`

and press Enter.

Example of a MAP display:

```
Card 8  Unit    0
        User    SYSTEM  Drive_State
        Status  BSY     on-line
```

If the RTS command	Do
passed	step 63
failed	step 68

At the front of the DDU shelf

63 Reinstall the panel in front of the DDU.

At the back of the DDU shelf

64 Pack the DDU that you put in a carton. Send the carton to the correct repair location.

Note: For additional information on the return of equipment, refer to the correct procedure in this document.

65 Record the information below in your office records:

- the date of DDU replacement
- the serial number of the new DDU
- the problems that prompted the DDU replacement

66 A major or minor alarm can rise under the IOD header of the MAP display at the start of this procedure. If an alarm rises, determine if the alarm cleared.

If the alarm	Do
cleared	step 69
did not clear	step 68

Replacing an 8-in. or a 5.25-in. disk drive unit (end)

67 You cannot busy the controller card if files are open. This action can result in loss of billing data.

68 For additional help, contact the person responsible for the next level of support.

69 The procedure is complete.

Replacing a 14-in. disk drive unit

Application

Use this procedure to remove a 14-in. (355-cm) disk drive unit (DDU) and replace it with another 14-in. DDU. Contact your next level of support before you perform this procedure.

Definition

The DDU is a storage device on the DMS-100 switch. Replace a DDU that has faults and cannot record. Do not copy the files from a DDU that has faults. Backup files are available on the parallel device.

Common procedures

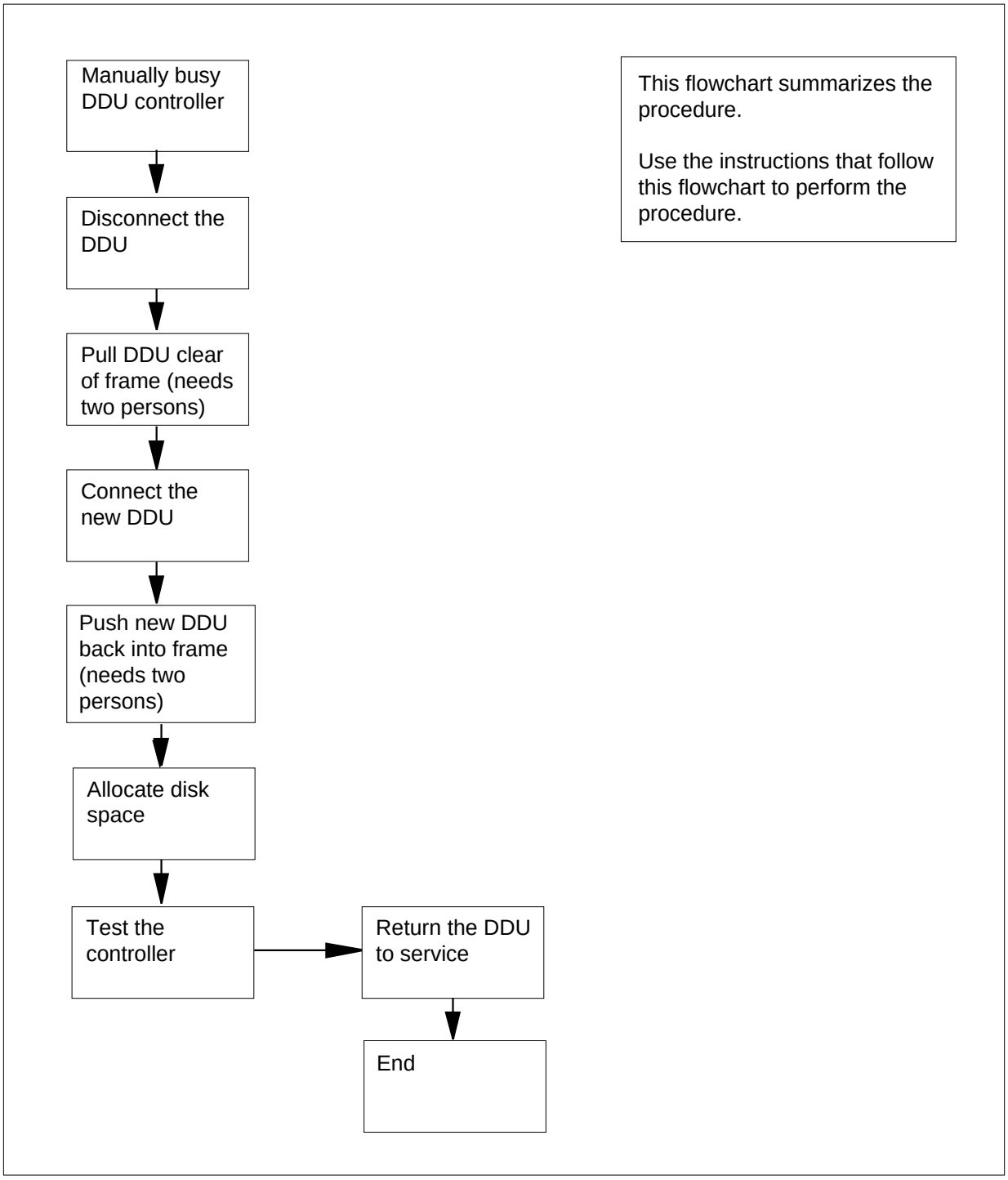
There are no common procedures.

Action

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

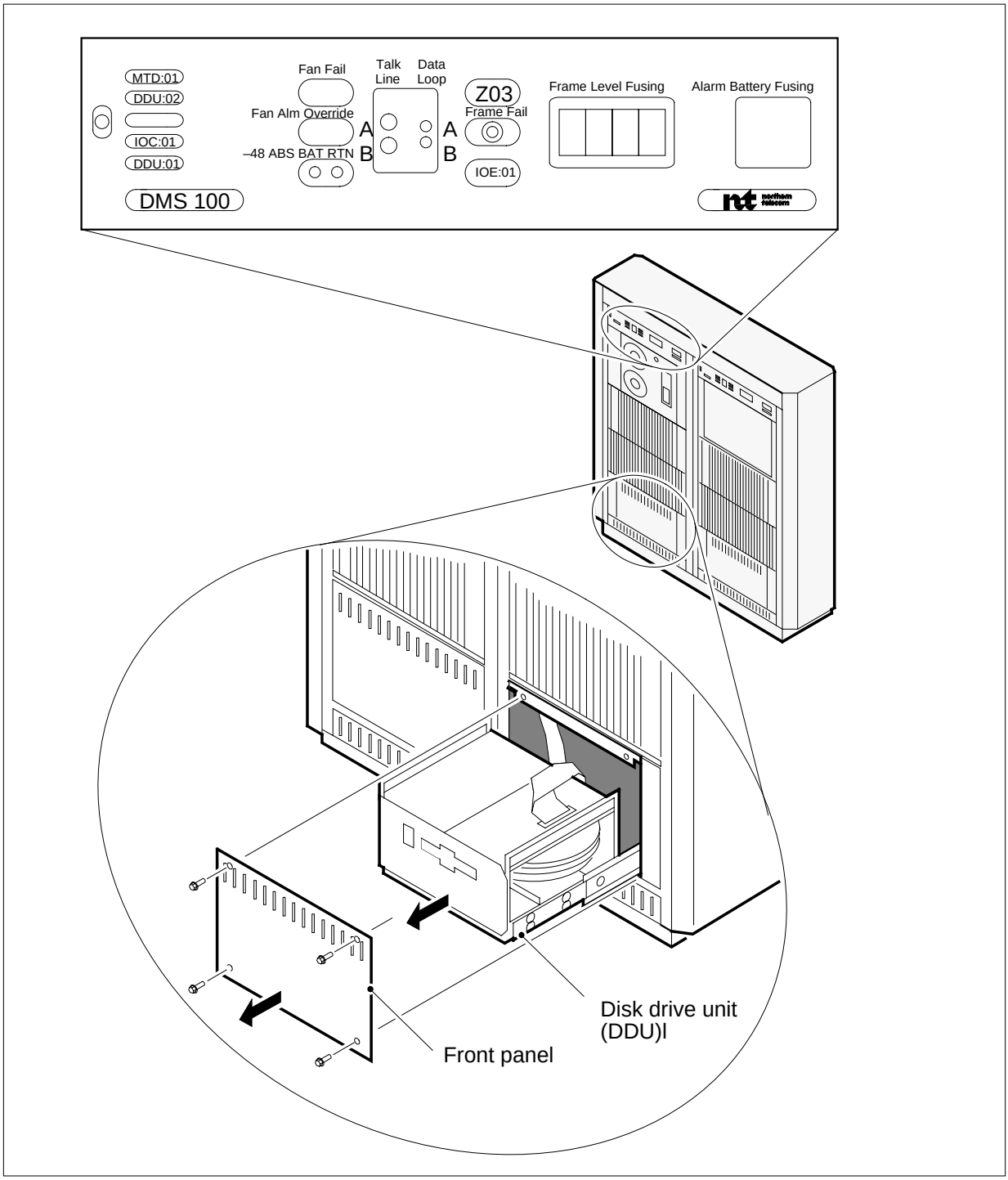
Replacing a 14-in. disk drive unit (continued)

Summary of Replacing a 14-in. disk drive unit



Replacing a 14-in. disk drive unit (continued)

14-in. disk drive unit



Replacing a 14-in. disk drive unit (continued)

Replacing a 14-in. disk drive unit

At your current position

1

CAUTION
Loss of service
Disk allocation is difficult and the possibility for a severe error exists. Contact the next level of support before you perform this procedure.

Obtain the following items:

- a light source
- a mirror
- a set of nut driver
- a 1/4-in. flat-bladed screwdriver
- side cutters
- cable ties

2 Obtain a shipping carton for the DDU that has faults and you will replace. If possible, use the carton that stores the new DDU.

At the MAP terminal

3 To access the IOD level of the MAP display, type

`>MAPCI;MTC;IOD`

and press the Enter key.

Example of a MAP display:

```
IOD
IOC     0   1
STAT    L   .
```

4 Note any alarm under the IOD header and the type of alarm.

5 To post the IOC for the DDU that has faults, type

`>IOC  ioc_no`

and press the Enter key.

where

ioc_no
is the number of the input/output controller (IOC) that holds the controller card for the DDU (0 to 19)

Example of a MAP display:

Replacing a 14-in. disk drive unit (continued)

```
IOC CARD   0    1    2    3    4    5    6    7    8
2   PORT  0123 0123 0123 0123 0123 0123 0123 0123 0123
    STAT  .... .... ---- .--- ---- P--- ---- .--- .---
    TYPE  CONS CONS      MPC       MPC       MPC  DDU
```

6 Record the number of the controller card for the DDU replacement.

7 To post the controller card for the DDU, type

>CARD card_no

and press the Enter key.

where

card_no
is the number of the controller card recorded in step 6

Example of a MAP display:

```
Card 8  Unit    0
        User    SYSTEM  Drive_State
        Status  BSY     spinning
```

8 Record the number of the DDU in use.

Note: In the display example in step 7, the number of the DDU is 0.

9 Find the state of the disk drive recorded in step 8.

If the state of the disk drive	Do
is `being allocated`	step 81
is other than listed here	step 10

10 To determine if open files exist on the DDU, type

>ALLOC

and press the Enter key.

Example of a MAP response:

```
VOLID VOL_NAME SERIAL_NO BLOCKS ADDR TYPE R/O FILES_OPEN
  0   RTMLOADS    2800    50000 D000   0   NO      0
  1   XPMLOADS    2801    65000 D000   0   NO      0
  2   PMLOADS     2802    30000 D000   0   NO      0
```

If files	Do
are open	step 80
are not open	step 11

11 Record the name and size (in blocks) of each volume on the disk.

Replacing a 14-in. disk drive unit (continued)

12 Determine if an alarm is under the IOD header of the alarm banner.

If the IOD header	Do
displays a minor alarm	step 13
displays a major alarm	step 19

13 To test the disk drive controller, type

>TST

and press the Enter key.

Example of a MAP response:

```
Process may take up to 3 minutes.
Failed
Drive is disconnected

Site    Flr RPos    Bay–id  Shf Description Slot    EqPec
HOST    01  A00 IOE 00  04  IOC 0 DDU       02      1X62
HOST    01  A00 IOE 00  04  IOC 0 DDU       22      0X67
```

14 From the MAP response in step 13, record the bay, shelf, and number of the DDU that you will replace.

15 To manually busy the controller card, type

>BSY

and press the Enter key.

Note: Wait until the DDU spins down before you proceed to the next step. When the DDU spins down, the Drive_state header on the MAP display will show `spun_down`.

If the BSY command	Do
passed	step 16
failed	step 81

16 To offline the disk drive, type

>OFFL

and press the Enter key.

Replacing a 14-in. disk drive unit (continued)

At the front of the DDU shelf

17

WARNING
Static electricity damage
When you handle the DDU, wear a wrist strap that connects to a wrist-strap grounding point. A grounding point will be on the frame supervisory panel (FSP) or a modular supervisory panel (MSP). The wrist-strap protects against static electricity damage.

Find the DDU.

If the DDU	Do
is in a packaged-core power module (PCPM) or packaged-core maintenance module (PCMM) frame of a switch package	step 19
is in other than listed here	step 18

18 Turn OFF the power switch on the power converter next to the DDU. Ensure that the LED on the power converter is on. A lit LED indicates that the power switch is OFF.

19

CAUTION
Remove the correct fuse.
Make sure that you remove the correct fuse. If you remove the wrong fuse, loss of service or a shutdown of MAP terminals and printers can result. Loss of recording space for billing information can occur.

Remove the fuse that powers the DDU.

Note: The fuse that powers the DDU is on the frame supervisory panel.

If the DDU	Do
is not a DMS-100P and the DDU is on shelf 04	step 20
is not a DMS-100P and the DDU is on shelf 18	step 21

Replacing a 14-in. disk drive unit (continued)

If the DDU	Do
is not a DMS-100P and the DDU is on shelf 32	step 22
is in a packaged core power module (PCPM) or a packaged core memory module (PCMM) frame on a DMS-100P switch package	step 23

20 Remove fuse F03.

Go to step 25.

21 Remove fuse F02.

Go to step 25.

22 Remove fuse F01.

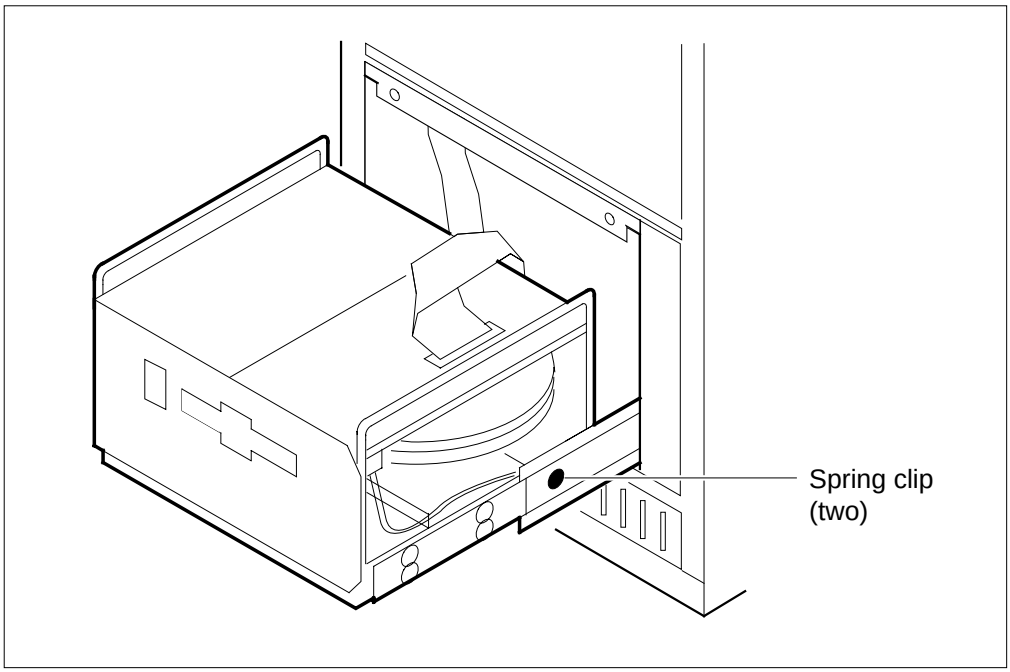
Go to step 25.

23 Contact your next level of support to obtain the correct fuse numbers.

24 Remove the FSP fuse from the PCPM or PCMM.

25 Remove the panel that covers the DDU. To locate the mounting screws, refer to the diagram at the beginning of these instructions.

26 Carefully slide the DDU out of the frame until the DDU stops. Spring clips on the sides of the slide rails cause the DDU to stop.



Replacing a 14-in. disk drive unit (continued)

27

DANGER
Risk of personal injury
Do not touch the parts that rotate on the bottom of the DDU.

Use the flashlight and the mirror. Look under the DDU to determine if the disk rotation continues.

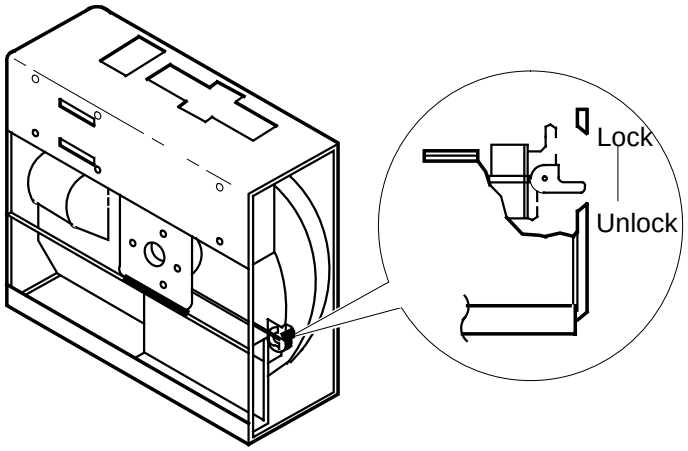
If disk rotation	Do
stops	step 29
continues	step 28

28 Wait until the disk rotation stops.

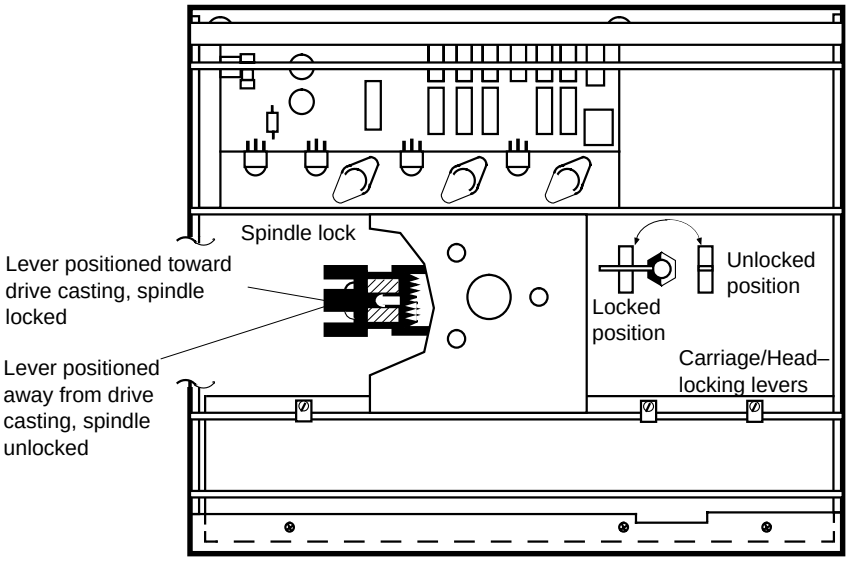
29 To locate the carriage and head-locking levers of the DDU, refer to the following diagrams.

Replacing a 14-in. disk drive unit (continued)

Location of single-lever lock



Location of head and spindle locks



30

WARNING
Damage to the DDU
Make sure that the disk rotation stopped before you lock the carriage and heads. If the disk continues to rotate, damage occurs to the locking mechanism.

Set the lever (or levers) so that the carriage and heads lock.

Replacing a 14-in. disk drive unit (continued)

31 Disconnect the power cable from the DDU.

32

WARNING
Possible equipment damage
Retainer clips hold the ribbon cable in place. The ribbon cable connector releases when the retainer clips release. Do not pull on the ribbon cable to release it. If you pull the cable, you can damage the ribbon cable or the ribbon cable socket on the DDU.

To disconnect the DDU end of the ribbon cable, squeeze the retainer clips.

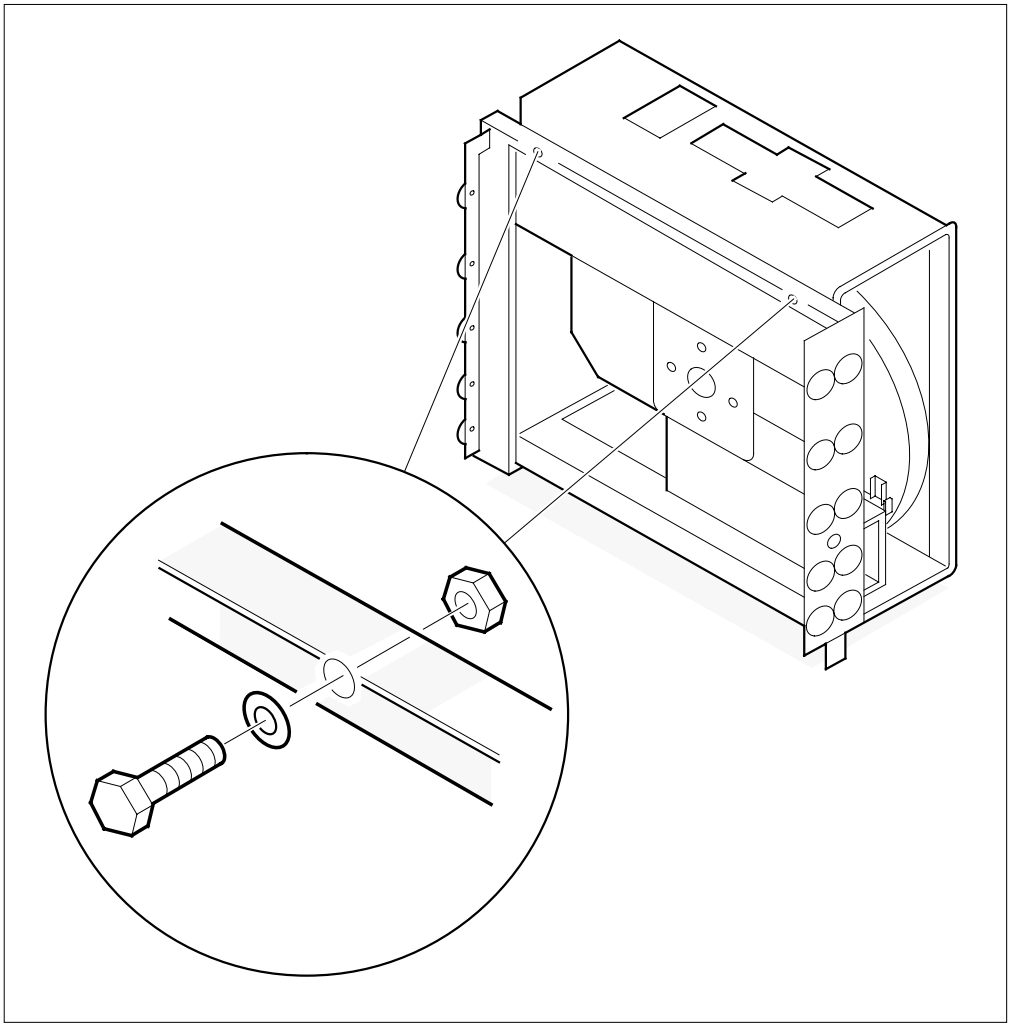
33 Verify that the power cable on the switch is compatible with the power connector on the replacement DDU.

If the power cable	Do
is compatible	step 35
is not compatible	step 34

34 Obtain an adapter from office stores.

35 Remove the two retaining screws that secure the DDU to the slide rails.

Replacing a 14-in. disk drive unit (continued)



36 You need two persons to perform this step. One person stands at the front of the frame, and the other person stands at the back of the frame.

The person at the front grasps the rails of the DDU. The front person tilts the front of the DDU to a 45-degree angle and lifts the DDU forward. The front person slowly pulls the DDU clear of the frame. The person at the back ensures that the hardware in the frame does not catch the cables.

Replacing a 14-in. disk drive unit (continued)

At a work table

37

WARNING
Damage to printed circuit board
If you place the DDU on its sides or its top, you can damage the printed circuit board.

Place the DDU in a vertical position on a flat surface.

38 Obtain a label in order to return the DDU that has faults for repair. Secure the label to the DDU that has faults.

39 Unpack the replacement DDU.

Note: Store the DDU that has faults in the box from the new DDU. The other option is to store the DDU that has faults in the box found in step 2.

40 Use the old DDU as a guide to set the top DIP switches on the new DDU. Match the DIP switches on the new DDU to the DIP switches on the old DDU. The other option is to set the top DIP switches on the new DDU to the settings that follow:

DDU: single-PCB 10K Model 6650-10
split-PCB 1J Model 15450-10

Switch #	Function	Setting
1	unit select 1	on
2	unit select 2	off
3	unit select 3	off
4	unit select 4	off
5	skip defect protection	on
6	write enable	on
7	clock transmit	on
8	clock phase	on

DDU: single-PCB 11K Model 6650-10
split-PCB 9F Model 15450-10

Switch #	Function	Setting
1	1 selector/track	off
2	2 selectors/track	on
3	4 selectors/track	off
4	8 selectors/track	off
5	16 selectors/track	on
6	32 selectors/track	off
7	64 selectors/track	off
8	reserved	

41 Completely extend the DDU slide rails.

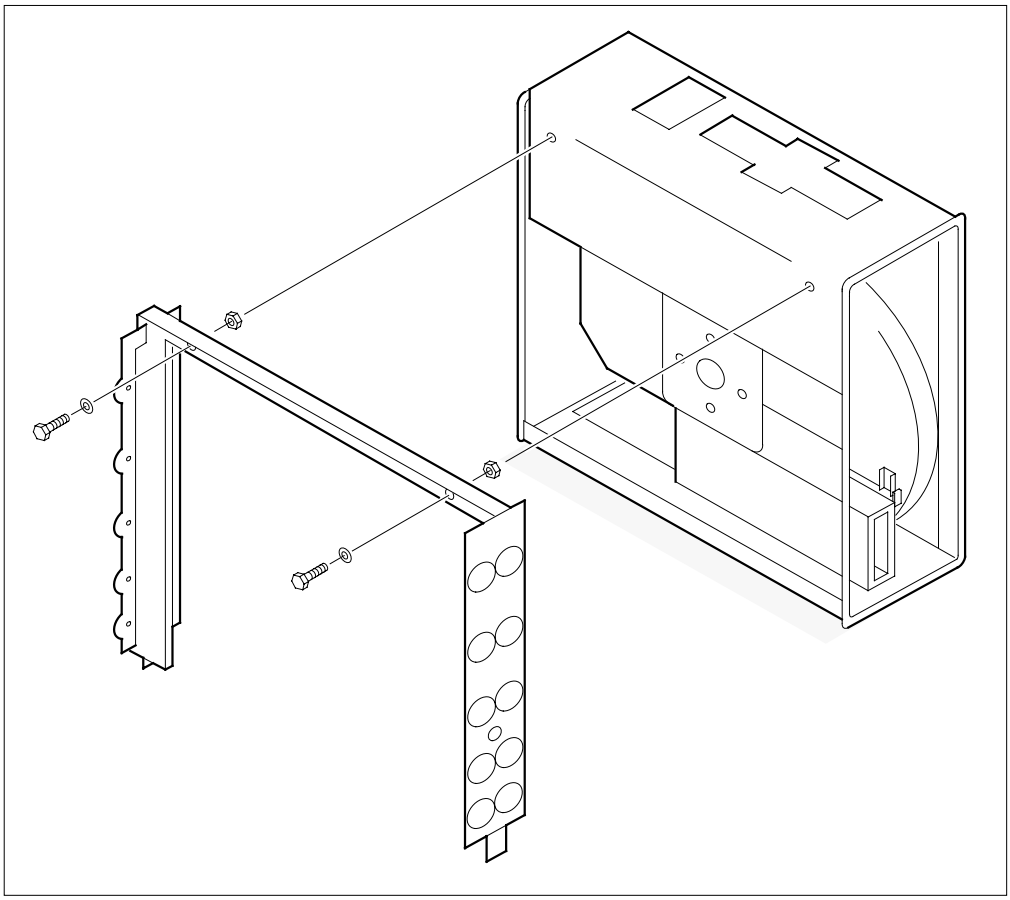
Replacing a 14-in. disk drive unit (continued)

42 You need two persons to perform this step. One person stands at the front of the frame and the other person stands at the back of the frame.

The person at the front tilts the front of the DDU to a 45-degree angle. The person at the back lifts the DDU into place on the slide rails. The back of the DDU frame must butt against the stops of the slide rails.

43 Insert and secure the two retaining screws that hold the front cover of the DDU to the frame.

44 To remove the slider assembly from the DDU that has faults, remove the two screws that secure the slider assembly in place.



45 To mount the slider assembly to the replacement DDU, secure the two mounting screws.

46 Connect the power cable from the power converter to the replacement DDU. To make the connection, plug the end of the power cable with the free ground lead to connector J3. Connector J3 is on the bottom of the main PCB on the DDU.

47 Secure the ground lead to the PCB with the provided hardware.

48 Route the cable toward the back of the DDU. Route the cable along the upper rail of the DDU frame on the coverter side of the DDU.

Replacing a 14-in. disk drive unit (continued)

49 Use three evenly-spaced plastic cable ties to secure the cable to the upper rail of the DDU.

50 Make sure that you position the cable to avoid interference with the frame hardware or converter when the DDU drawer closes.

51 Plug the converter end of the DDU power cable into connector C04 on the back of the power converter.

52 Obtain the model number of the DDU from the label on the inside red of the DDU.

If the model number	Do
is 15450	step 53
is other than listed here	step 54

53 Make sure that you remove the strap at location W3 on the main PCB of the DDU.

54 You need two persons to perform this step. One person stands at the front of the frame and the other person stands at the back of the frame.

The person at the front of the frame presses the release buttons on the DDU slide rails. The front person slowly slides the DDU until it closes. The person at the back makes sure that the hardware in the frame does not catch the cables.

At the back of the frame

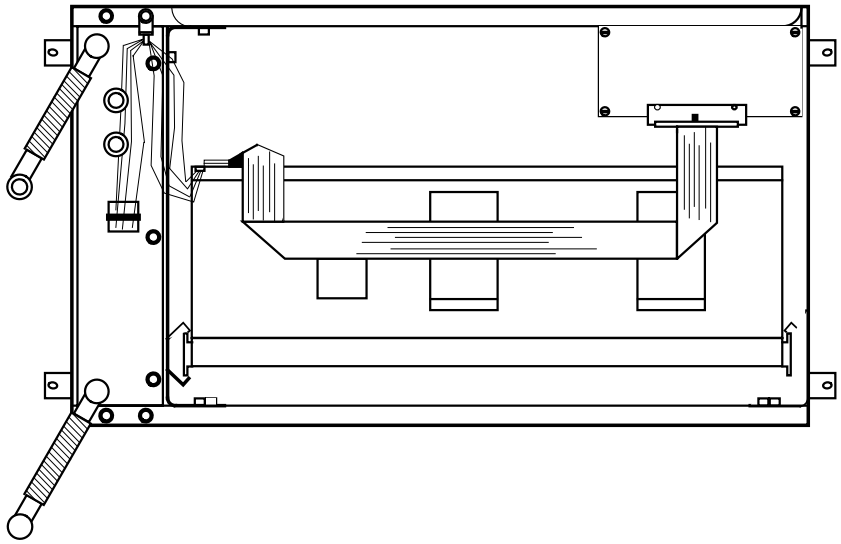
55

CAUTION
Make sure that the ribbon cable is routed correctly.
Route the ribbon cable as shown in the figure that follows. Failure to route the cable correctly can result in loss of information caused by signal interference.

Route the ribbon cable as shown in the following figure.

Replacing a 14-in. disk drive unit (continued)

Position of the ribbon cable



56 Release the carriage and head-locking levers.

57 Insert the fuse removed from the FSP in step 19.

58 Reset the power converter as follows:

- **a** Press and hold the RESET button on the power converter.
- **b** Turn ON the power switch on the converter.
- **c** Release the RESET button.

At the MAP terminal

59 To manually busy the controller card, type

>BSY

and press the Enter key.

If the BSY command	Do
reads passed	step 60
reads failed	step 81

60 To start the disk drive motor, type

>START

and press the Enter key.

MAP response:

```
DISK START SUCCESSFUL
```

Replacing a 14-in. disk drive unit (continued)

61 To test the disk drive controller, type

>TST

and press the Enter key.

Note: The test will fail. Ignore the results.

62 To allocate disk space, type

>DSKALLOC ddu_no

and press the Enter key.

where

ddu_no
is the number of the DDU

63 To confirm the command, type

>YES

and press the Enter key.

64 To perform volume allocation tests, perform the procedure *Allocating test volumes on 14-inch DDUs* in the *Routine Maintenance Procedures.* Complete the procedure and return to this point.

65 Perform interference and transfer tests. To perform these tests, perform the procedure *Performing DDU interference and file transfer tests* in the *Routine Maintenance Procedures.* Complete the procedure and return to this point.

66 Obtain the office records. Determine the names and sizes of the volumes that you will create on the DDU.

67 To add a volume to the disk, type

>ADD volname blocks

and press the Enter key.

where

volname
is the name of the additional volume

blocks
is the number of blocks in the volume

68 Determine if you need to add any more volumes.

If you	Do
need to add more volumes	step 67
do not need to add more volumes	step 69

69 To add the names of the volumes to the directory, type

>DIRADD

and press the Enter key.

Replacing a 14-in. disk drive unit (continued)

70 Determine if you need to add more volumes to the directory.

If you	Do
need to add more volumes	step 69
do not need to add more volumes	step 71

71 To enforce the allocation of the volumes, type

>UPDATE

and press the Enter key.

Example of a MAP response:

```
WARNING:  A break HX of this process may cause severe
corruption on the disk that may require it to be
reformatted.
Writing label of Volume IMAGE
Successful
Starting Initialization of Volume IMAGE
A break HX of this process may cause severe corruption on
this volume that may require reinitialization of all non
initialized volumes.
Number of Bad Blocks = 0
Successful
Update Done
```

72 To quit the software utility for disk allocation, type

>QUIT

and press the Enter key.

73 To test the DDU controller, type

>TST

and press the Enter key.

If the TST command	Do
passed	step 74
failed	step 81

74 To return the DDU to service, type

>RTS

and press the Enter key.

If the RTS command	Do
passed	step 75

Replacing a 14-in. disk drive unit (end)

If the RTS command	Do
failed	step 81

75 Determine if an IOD alarm is present.

If an IOD alarm	Do
is present	step 81
is not present	step 76

At the front of the frame

76 Use the screwdriver to replace the four screws that secure the DDU faceplate to the frame. To locate the mounting screws, refer to to the diagram at the beginning of these instructions.

77 Record the information that follows in your office records:

- The date that you replaced the DDU.
- The serial number of the DDU.
- The problems that prompted the DDU replacement.

78 Return the DDU that has faults to the correct office for repair.

Note: For additional information on the return of equipment, refer to the card return procedure for the correct country in this document.

79 Go to step 82.

80 You cannot busy the controller card if files are open. If you busy the card while files are open, a loss of billing data can result.

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

82 The procedure is complete.

Replacing a bulkhead gasket

Application

Use this procedure to replace a defective bulkhead gasket on model C28 (28-in.) and C42 (42-in.) cabinets.

On a model C28 cabinet, use the bulkhead gasket with the product code P0739662. On a model C42 cabinet, use the bulkhead gasket with the product code P0739662.

Definition

Perform this procedure on a gasket that has faults.

Common procedures

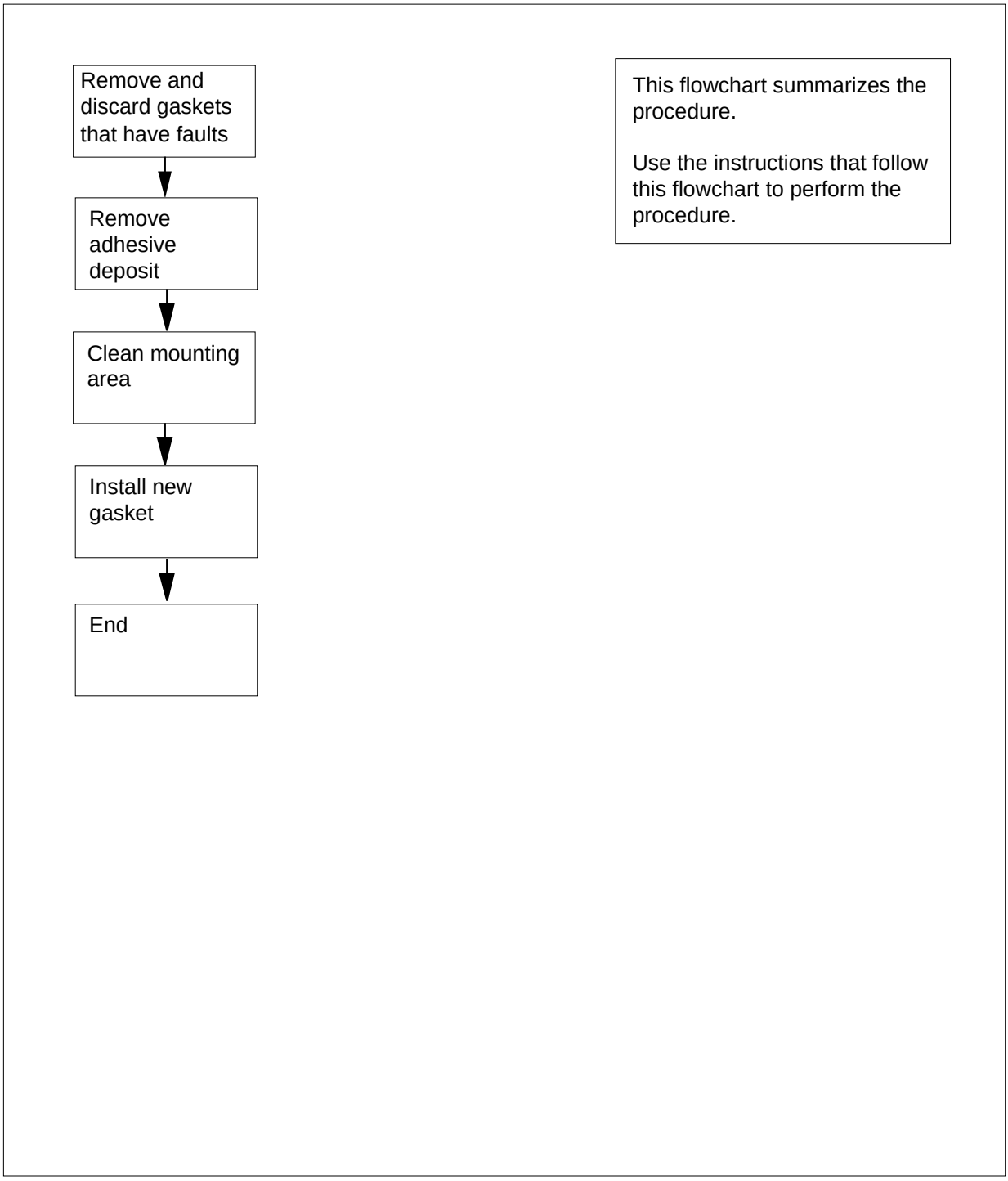
There are no common procedures.

Action

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

Replacing a bulkhead gasket (continued)

Summary of Replacing a bulkhead gasket



Replacing a bulkhead gasket (end)

Replacing a bulkhead gasket

At the front of the cabinet

1 Remove and discard the gasket that has faults.

2 Remove the adhesive deposit from the mounting surface of the bulkhead.

Note: Apply a petroleum-based cleaner with a lint-free industrial wiper.

3 Use a lint-free industrial wiper to clean the mounting area with a degreasing solvent (for example, isopropyl alcohol).

Note: Let the surface dry before you install the new gasket.

4 Peel the release tape from the adhesive backing of the gasket. Install the gasket base in the groove.

Note 1: Press the gasket down to ensure that it adheres correctly to the surface of the bulkhead.

Note 2: Cut off any excess gasket.

5 Close the doors carefully. Allow the adhesive to cure for 24 hours.

6 The procedure is complete.

Replacing a cooling unit assembly in a 42-in. cabinet CPC A0377580, A0382102, A0383322, A0383323

Application

Use this procedure to replace a cooling unit assembly. The cooling unit assembly must have one of the following common product codes (CPC), in a 42-in. (1.07-m) cabinet:

- A0377580
- A0382102
- A0383322
- A0383323

Note: The product engineering codes for a 42-in. cabinet are NT9X95AA, NT9X95BA, NT9X95CU, and NT9X95GU.

The A0383323 version of the cooling unit can replace the A0377580 unit.

Definition

A cooling unit assembly cools the cabinet components.

Common procedures

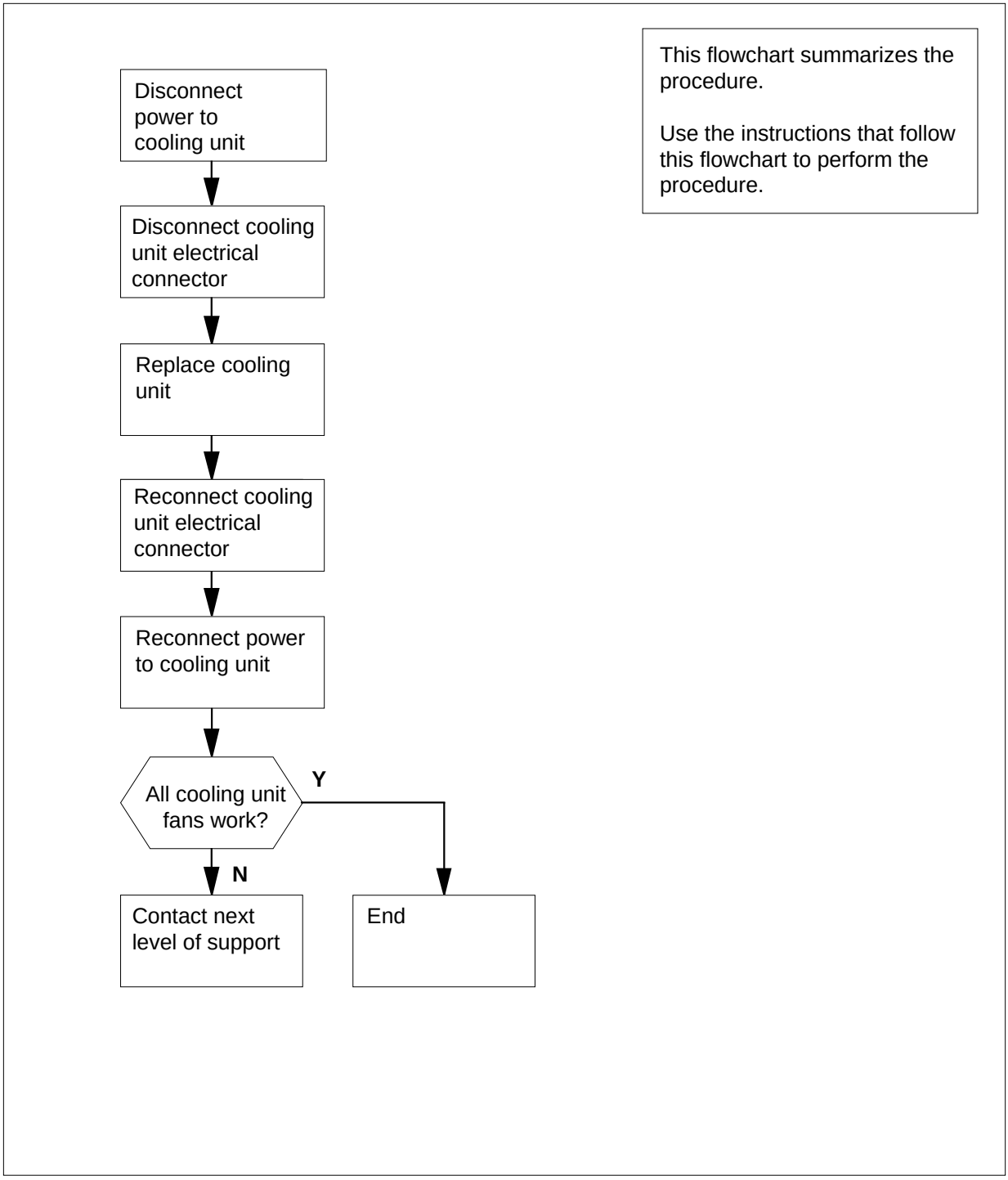
There are no common procedures.

Action

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

Replacing a cooling unit assembly in a 42-in. cabinet CPC A0377580, A0382102, A0383322, A0383323 (continued)

Summary of Replacing a cooling unit assembly in a 42-in. cabinet



Replacing a cooling unit assembly in a 42-in. cabinet CPC A0377580, A0382102, A0383322, A0383323 (continued)

Replacing a cooling unit assembly in a 42-in. cabinet

At your current location:

1

DANGER
Risk of injury or damage to equipment
When you replace a cooling unit, do not wear jewelry (for example, rings, bracelets, or necklaces).

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

Obtain a replacement for the cooling unit assembly.

At the front of the cabinet

2 Record the cabinet number.

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

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

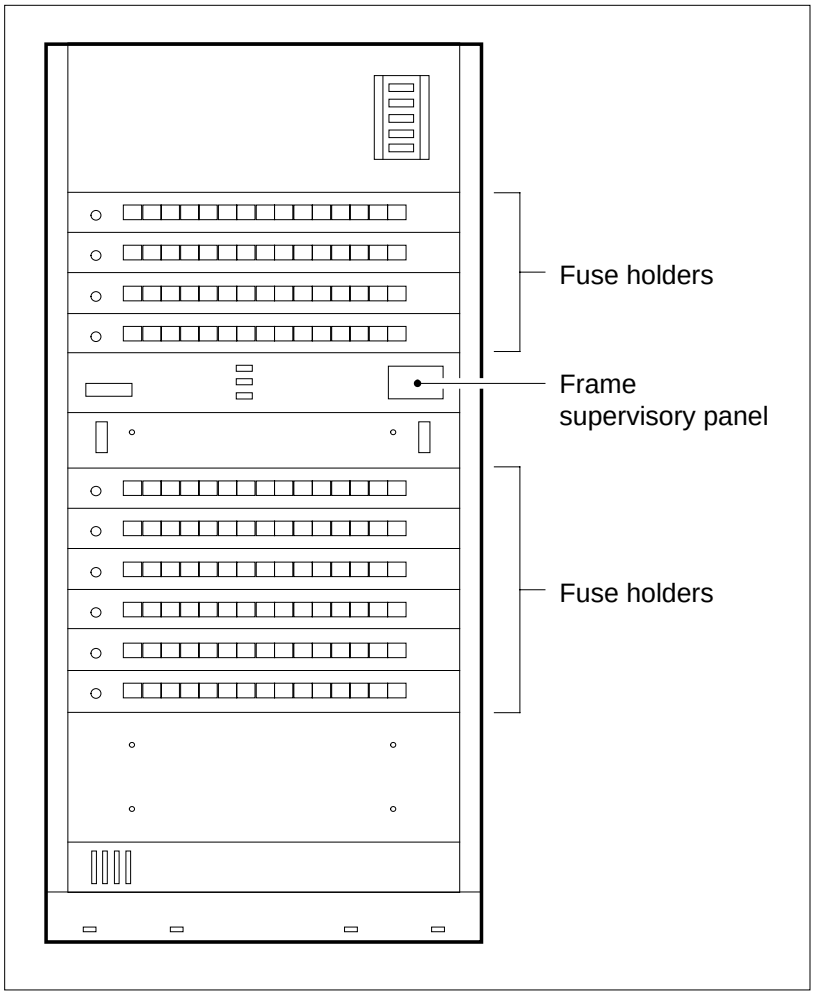
If power to the cooling unit	Do
connects through a PDC	step 4
connects through a CPDC	step 6

At the front of the PDC

4 Locate the cooling unit fuses.

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

Replacing a cooling unit assembly in a 42-in. cabinet CPC A0377580, A0382102, A0383322, A0383323 (continued)



5

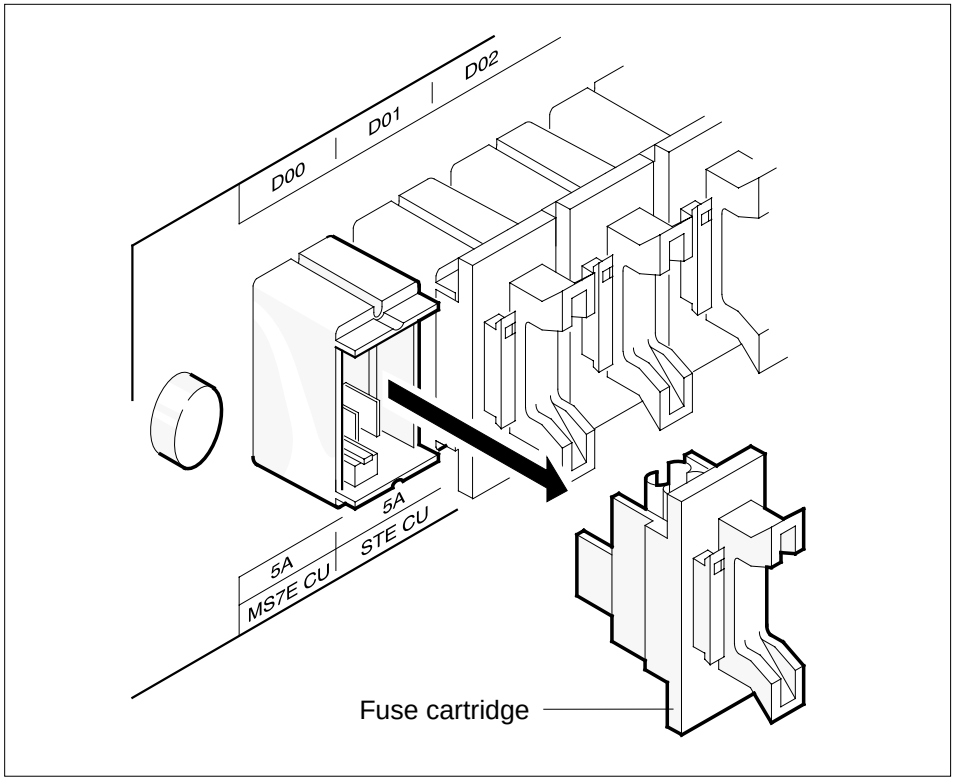
DANGER
Risk of injury
Electricity can arc when you remove a fuse cartridge. Wear eye protection.

Replacing a cooling unit assembly in a 42-in. cabinet CPC A0377580, A0382102, A0383322, A0383323 (continued)

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

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

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

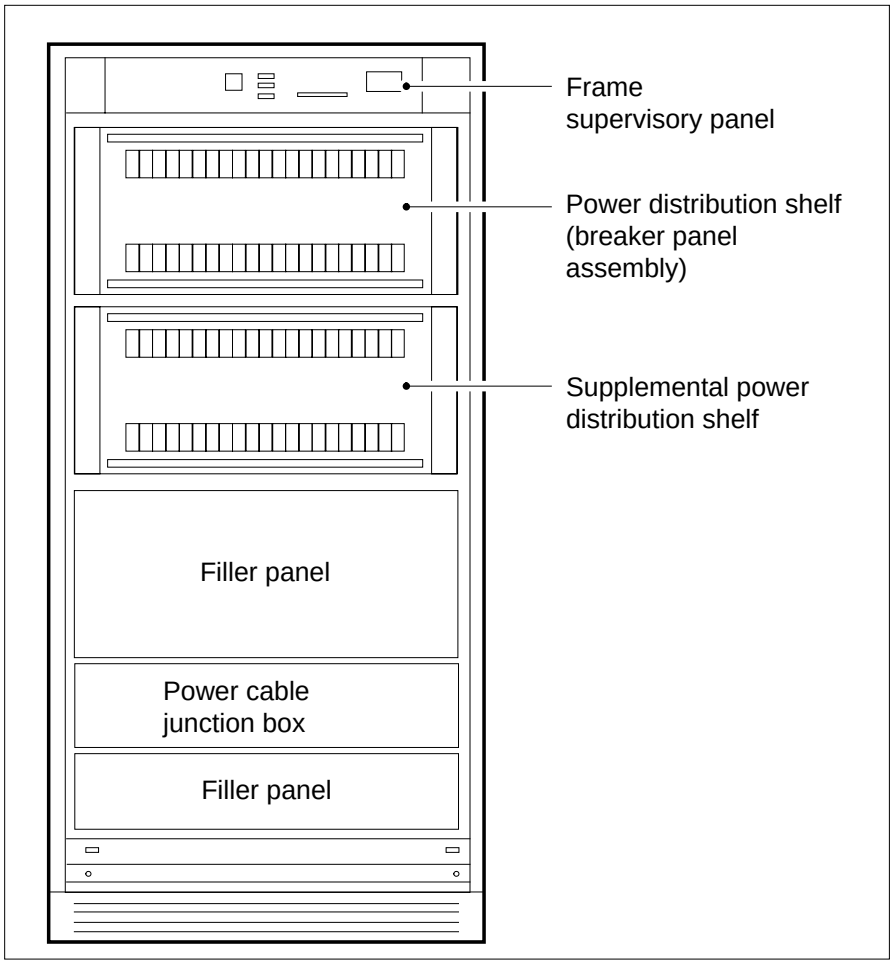


At the front of the CPDC

6 Locate the circuit breaker for the cooling unit.

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

Replacing a cooling unit assembly in a 42-in. cabinet CPC A0377580, A0382102, A0383322, A0383323 (continued)



7

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

Replacing a cooling unit assembly in a 42-in. cabinet CPC A0377580, A0382102, A0383322, A0383323 (continued)

CAUTION
Possible loss of service
Ensure that you disconnect power to the cooling unit before you throw the cooling unit breaker. If you throw the wrong breaker, you can disconnect power to a critical hardware component and cause loss of service.

Throw the circuit breakers for the cooling unit.

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

At the back of the cabinet

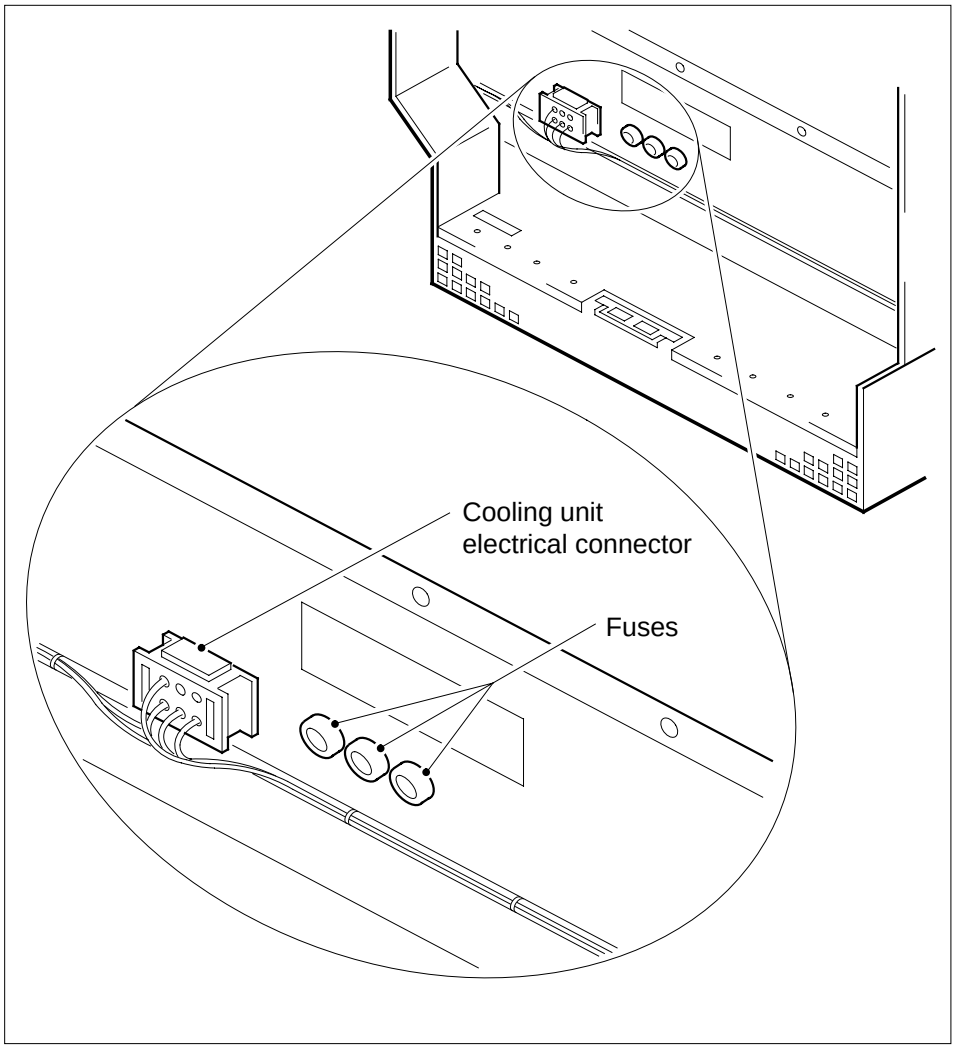
8 Open the cabinet doors.

9

DANGER
Risk of electrocution
Do not touch the cabinet wiring. Contact with wiring can result in electric shock.

Pull out the electrical connector of the cooling unit at the bottom of the cabinet.

Replacing a cooling unit assembly in a 42-in. cabinet CPC A0377580, A0382102, A0383322, A0383323 (continued)

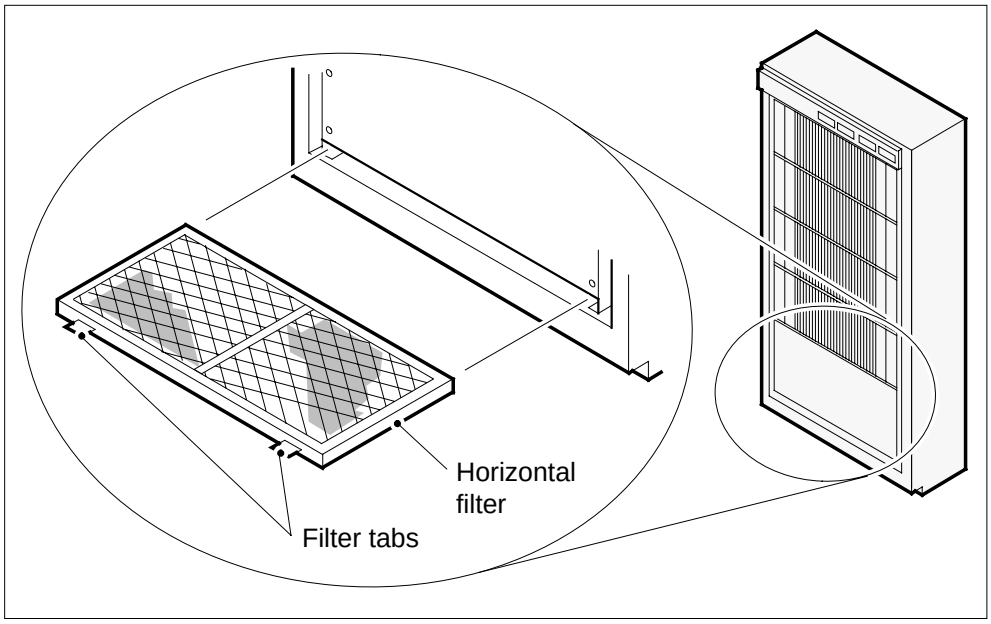


At the front of the cabinet

10 Open the cabinet doors.

11 To remove the filter, pull on the two filter tabs.

Replacing a cooling unit assembly in a 42-in. cabinet CPC A0377580, A0382102, A0383322, A0383323 (continued)

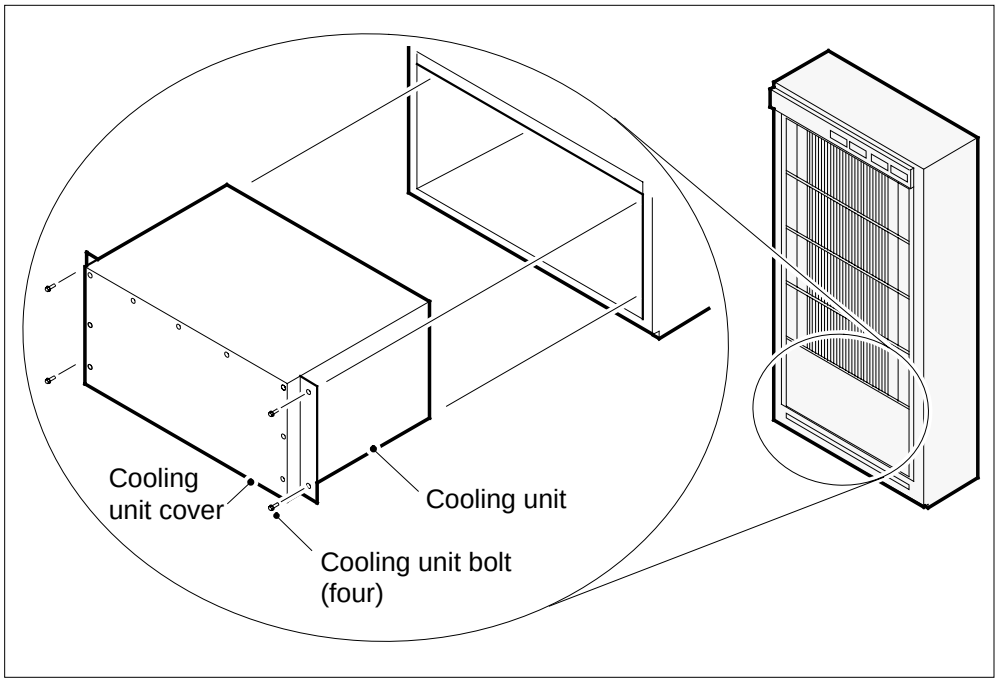


12

DANGER
Risk of injury
The cooling unit weighs approximately 41 kg (90 lbs). To remove or insert the cooling unit requires two or more persons.

Remove the four bolts that fasten the cooling unit assembly to the cabinet.

Replacing a cooling unit assembly in a 42-in. cabinet CPC A0377580, A0382102, A0383322, A0383323 (continued)



13 Slide the cooling unit assembly out of the cabinet.

14 Slide the replacement for the cooling unit assembly into the cabinet.

At the back of the cabinet

15 Reconnect the electrical connector of the cooling unit.

Note: Step 9 shows the location of the connector.

16 Close the cabinet doors.

At the front of the cabinet

17 Use the four mounting bolts to fasten the cooling unit assembly to the cabinet.

Note: Step 12 shows the location of the mounting bolts.

18 Insert the filter, that you removed in step 11, into the replacement cooling unit.

Note: Insert the filter with the arrows on the front that point up.

19 Determine if the power to the cooling unit connects through a PDC or a CPDC.

If the power to the cooling unit	Do
connects through a PDC	step 20
connects through a CPDC	step 21

Replacing a cooling unit assembly in a 42-in. cabinet CPC A0377580, A0382102, A0383322, A0383323 (end)

At the front of PDC

20 To insert the cooling unit fuses, push the fuse cartridges straight into the front panel of the PDC.

Go to step 22.

At the front of CPDC

21

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

Throw the circuit breakers for the cooling unit.

At the front of the cabinet

22 Determine if all cooling unit fans are operating.

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

If	Do
all fans are operating	step 23
any fans are not operating	step 24

23 Close the cabinet doors.

Go to step 25.

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

25 The procedure is complete.

Replacing a cooling unit electronic module CPC A0383326, A0383327, A0383984

Application

Use this procedure to replace a cooling unit electronic module. Use this procedure when an electronic module has one of the following common product codes (CPC), in a 42-in. (1.07-m) DMS cabinet:

- A0383326
- A0383327
- A0383984

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

Definition

An electronic module for the cooling unit provides the external alarm connection. The module also provides power and fusing for the cooling unit fans.

Common procedures

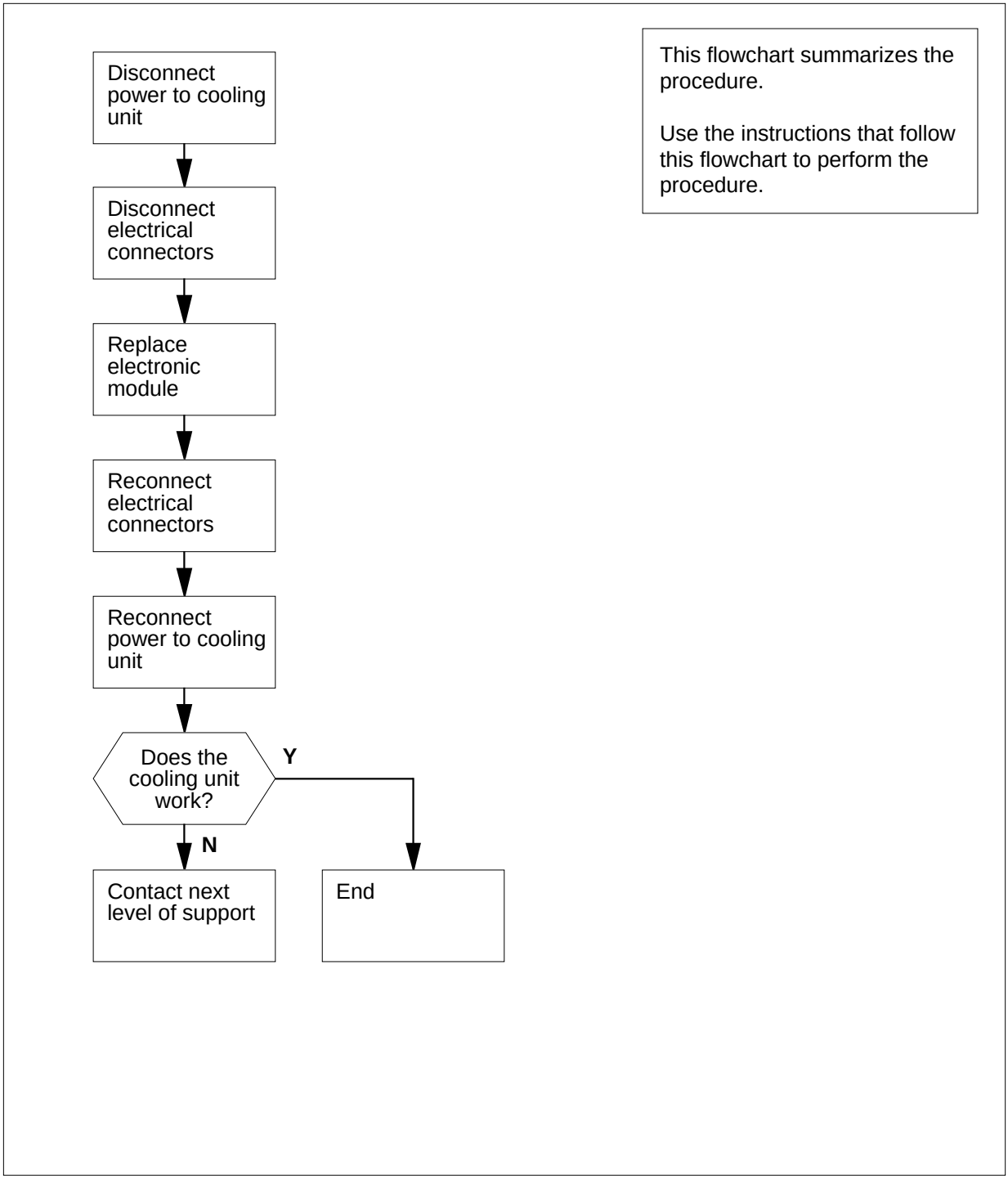
There are no common procedures.

Action

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

Replacing a cooling unit electronic module CPC A0383326, A0383327, A0383984 (continued)

Summary of Replacing a cooling unit electronic module



Replacing a cooling unit electronic module CPC A0383326, A0383327, A0383984 (continued)

Replacing a cooling unit electronic module

At your current location

1

DANGER
Risk of injury or damage to equipment
When you replace an electronic module for the cooling unit, do not wear jewelry (for example, rings, bracelets, or necklaces).

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

Obtain a replacement electronic module for the cooling unit.

At the front of the cabinet

2 Record the cabinet number.

Note: The cabinet number (for example, A10) is on the front of the cabinet, above the doors.

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

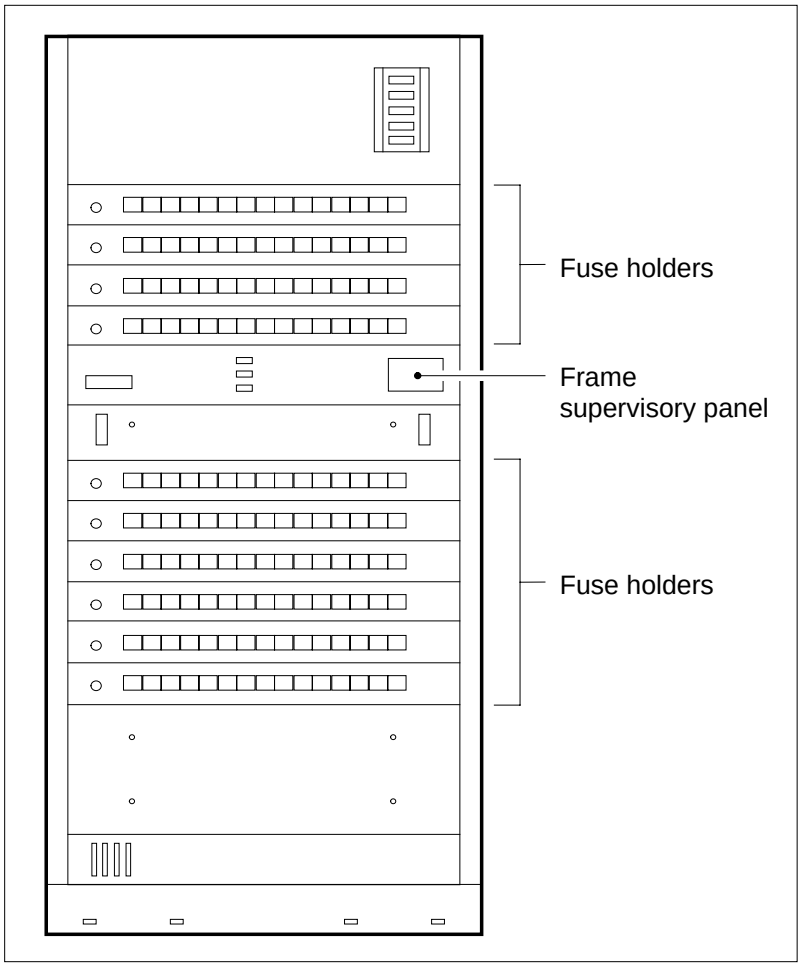
If power to the cooling unit	Do
connects through a PDC	step 4
connects through a CPDC	step 6

At the front of the PDC

4 Locate the two cooling unit fuses.

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

Replacing a cooling unit electronic module CPC A0383326, A0383327, A0383984 (continued)



5

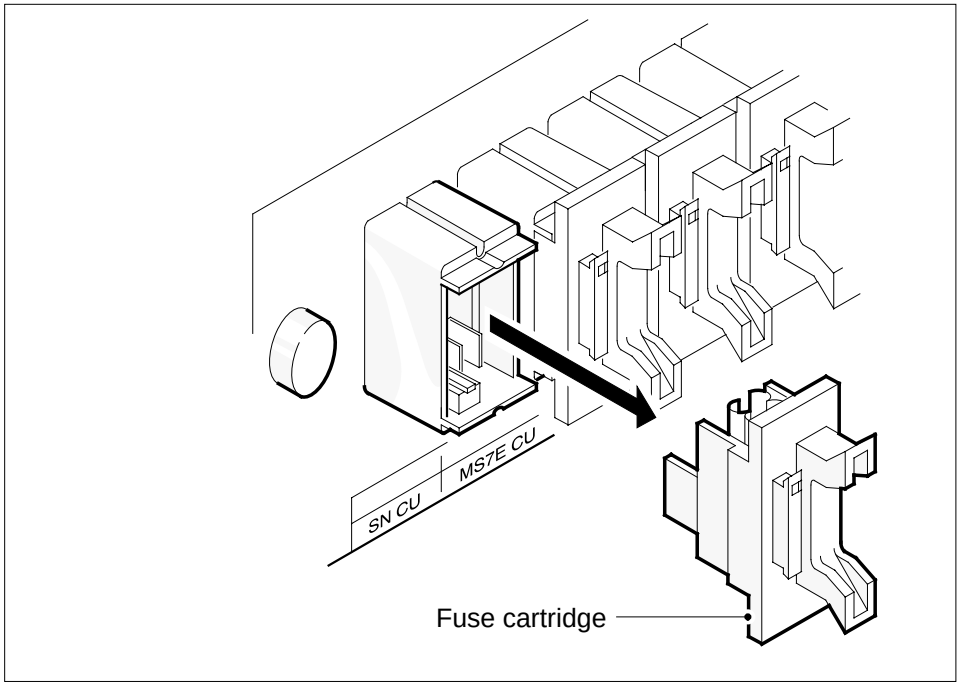
DANGER
Risk of injury
Electricity can arc when you remove a fuse cartridge from the cooling unit. Wear eye protection.

Replacing a cooling unit electronic module CPC A0383326, A0383327, A0383984 (continued)

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

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

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

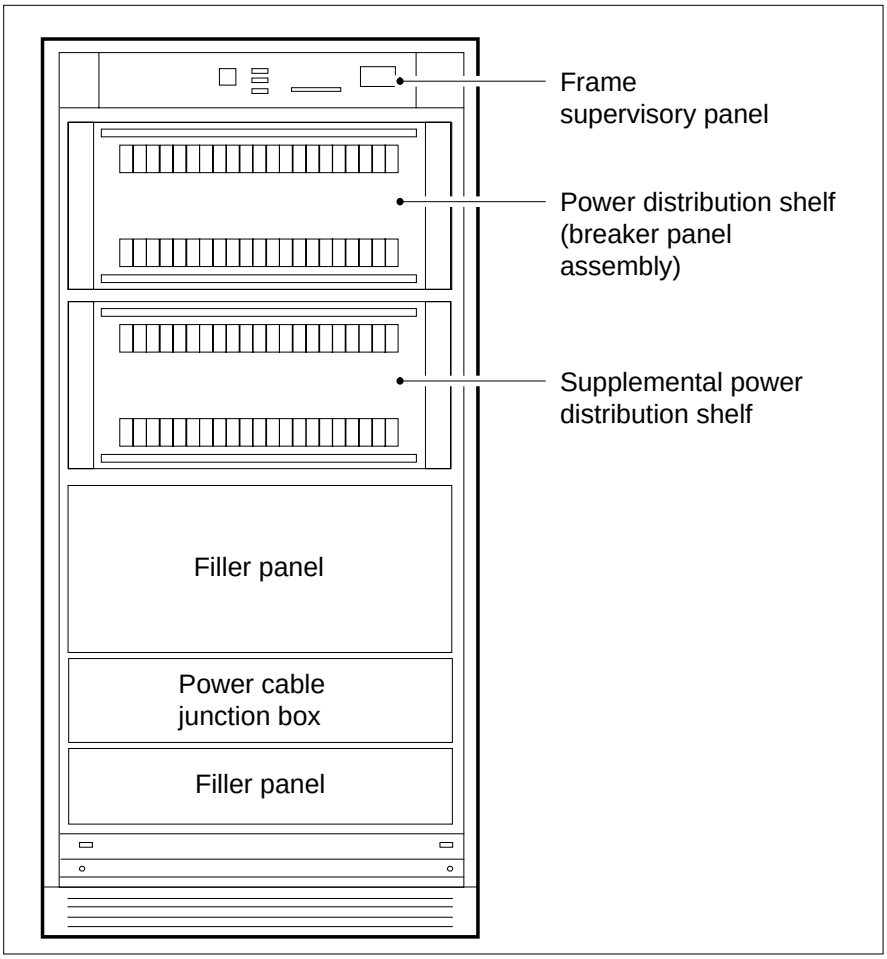


At the front of the CPDC

6 Locate the circuit breakers for the cooling unit.

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

Replacing a cooling unit electronic module CPC A0383326, A0383327, A0383984 (continued)



7

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

Replacing a cooling unit electronic module CPC A0383326, A0383327, A0383984 (continued)

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

Throw the circuit breakers for the cooling unit.

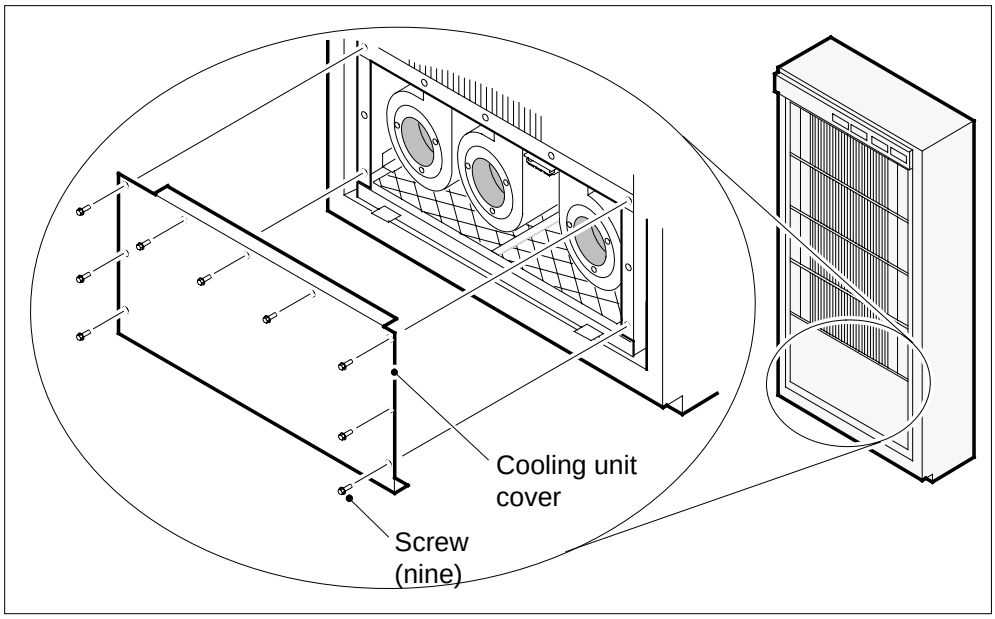
Note: When you throw the circuit breakers, you remove power from the cooling unit. Removal of power from the cooling unit can cause the fan failure lamp to turn ON. The fan failure lamp is at the top of the cabinet between the doors.

At the front of the cabinet

8 Open the cabinet doors.

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

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



Replacing a cooling unit electronic module CPC A0383326, A0383327, A0383984 (continued)

At the back of the cabinet

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

Note: The screws are near the upper left-hand corner of the backplate of the cooling unit.

11 Disconnect the power connector from the electronic module.

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

At the front of the cabinet

12

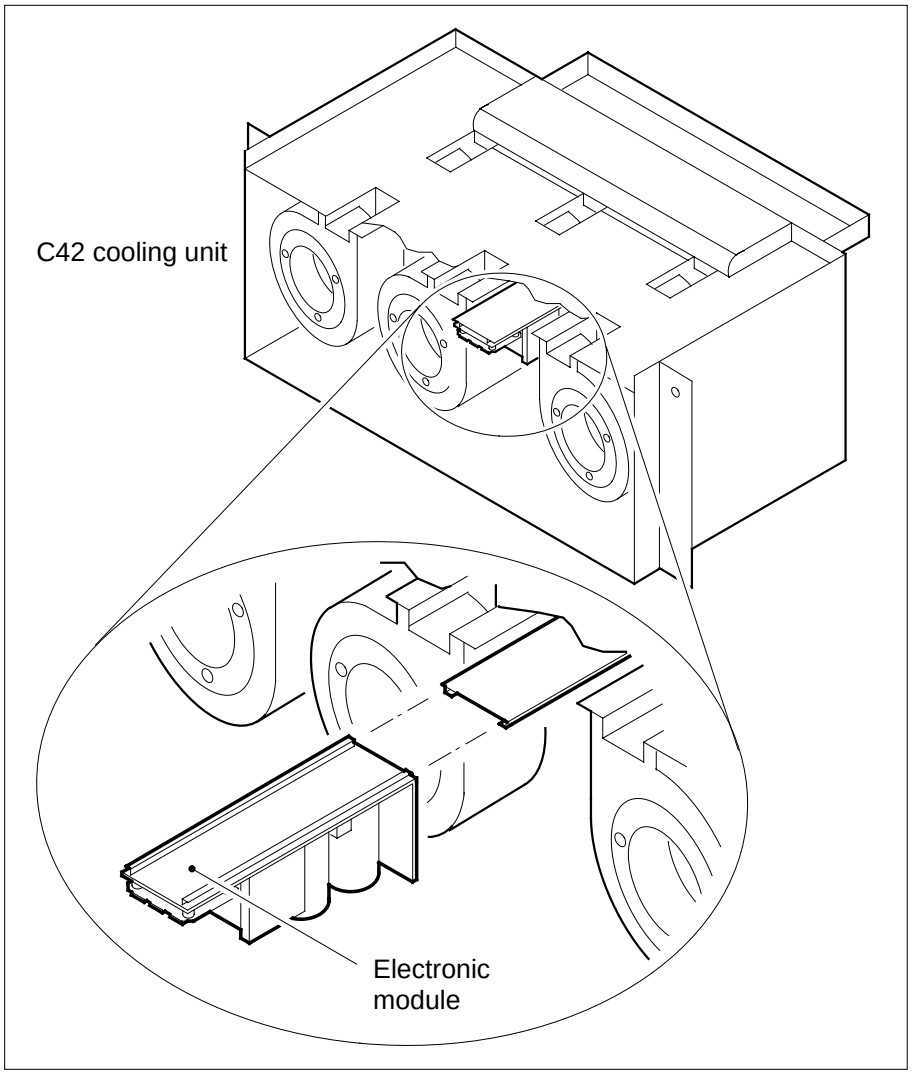
CAUTION
Possible equipment damage or service interruption
Label all electrical connectors before you disconnect them. If you reconnect to the wrong electrical connector, you can cause equipment damage or service interruption.

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

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

13 Slide out cooling unit electronic module.

Replacing a cooling unit electronic module CPC A0383326, A0383327, A0383984 (continued)



14 Slide the replacement cooling unit electronic module until the module touches the cooling unit backplate.

15 Reconnect the four electrical connectors that you removed in step 12.

Note: To reconnect each connector, press the releases on the connector top. Insert the connector bottom until it locks in place. If you cannot insert the connector bottom, turn it one-half turn and try to insert it again.

At the back of the cabinet

16 Insert the screws that fasten the electronic module into the cooling unit assembly. You removed these screws in step 10.

17 Reconnect the power connector that you disconnected in step 11.

Replacing a cooling unit electronic module CPC A0383326, A0383327, A0383984 (end)

At the front of the cabinet

18 Determine if power for the cooling unit connects through a PDC or a CPDC.

If the power for the cooling unit	Do
connects through a PDC	step 19
connects through a CPDC	step 20

At the front of PDC

19 To insert the cooling unit fuses, push the fuse cartridges straight into the front panel of the PDC.

Go to step 21.

At the front of CPDC

20 Throw the circuit breakers for the cooling unit.

At the front of the cabinet

21 Determine if all the cooling unit fans work.

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

If	Do
all fans work	step 22
any fans do not work	step 24

22 To reinstall the cooling unit cover, insert the mounting screws into the cover.

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

23 Close the cabinet doors.

Go to step 25.

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

25 The procedure is complete.

Replacing a cooling unit fan CPC A0345301

Application

Use this procedure to replace a cooling unit fan with the common product codes (CPC) A0345301, in a 42-inch DMS cabinet:

Note: The product engineering codes (PEC) for a 42-inch DMS cabinet are NT9X0104 and NT9X0113.

Definition

Cooling unit fans cool the cabinet components.

Common procedures

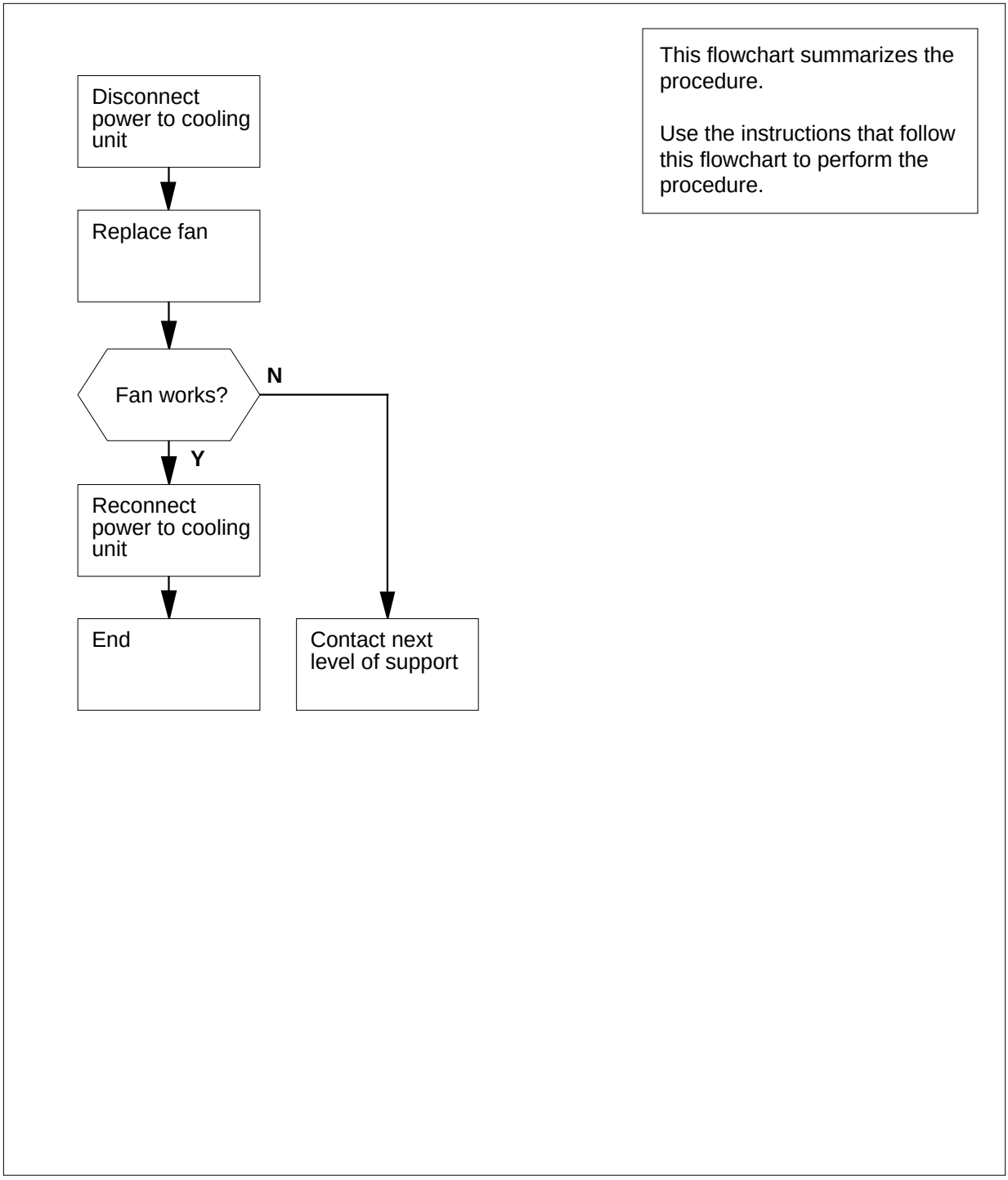
There are no common procedures.

Action

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

Replacing a cooling unit fan
CPC A0345301 (continued)

Summary of Replacing a cooling unit fan



Replacing a cooling unit fan
CPC A0345301 (continued)

Replacing a cooling unit fan

At your current location

1

DANGER
Risk of injury or damage to equipment
When you replace a cooling unit, do not wear jewelry (for example, rings, bracelets, or necklaces).

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

Obtain a replacement for the cooling unit fan.

Record the cabinet number.

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

At the front of the cabinet

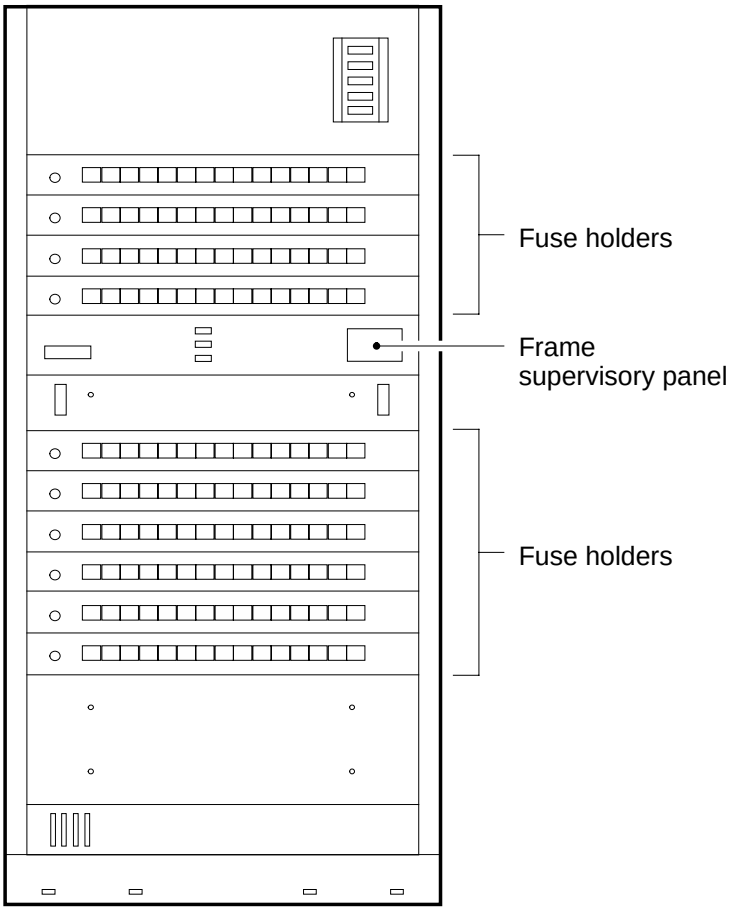
2 Consult office records or operating company personnel. Determine if power to the cooling unit connects through a power distribution center (PDC), or a cabinetized PDC (CPDC).

If power to the cooling unit	Do
connects through a PDC	step 3
connects through a CPDC	step 5

3 Locate the cooling unit fuses.

Note: The cooling unit fuse cartridges are on the front panel of the PDC. The fuse cartridges contain two cooling unit fuses. One fuse is for the side A power feed. The other fuse is for the side B power feed. The cabinet number (recorded in step 1) is above each fuse cartridge. The letters SN CU (SuperNode cooling unit) are below each fuse cartridge.

Replacing a cooling unit fan
CPC A0345301 (continued)



4

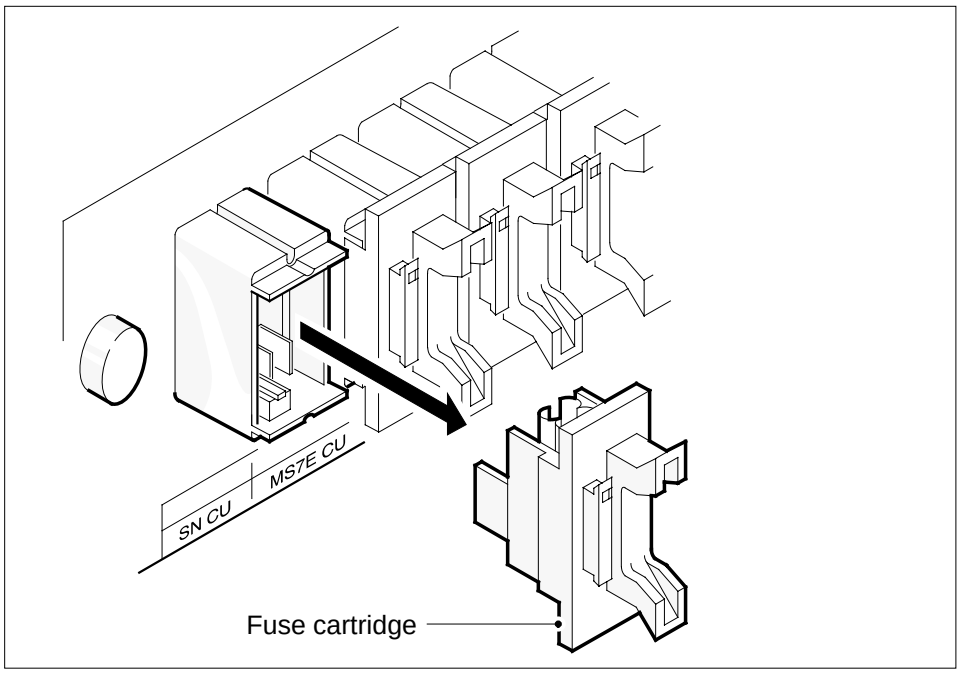
DANGER
Risk of injury
Electricity can arc when you remove the fuse cartridges for the cooling unit. Wear eye protection.

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

Replacing a cooling unit fan
CPC A0345301 (continued)

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

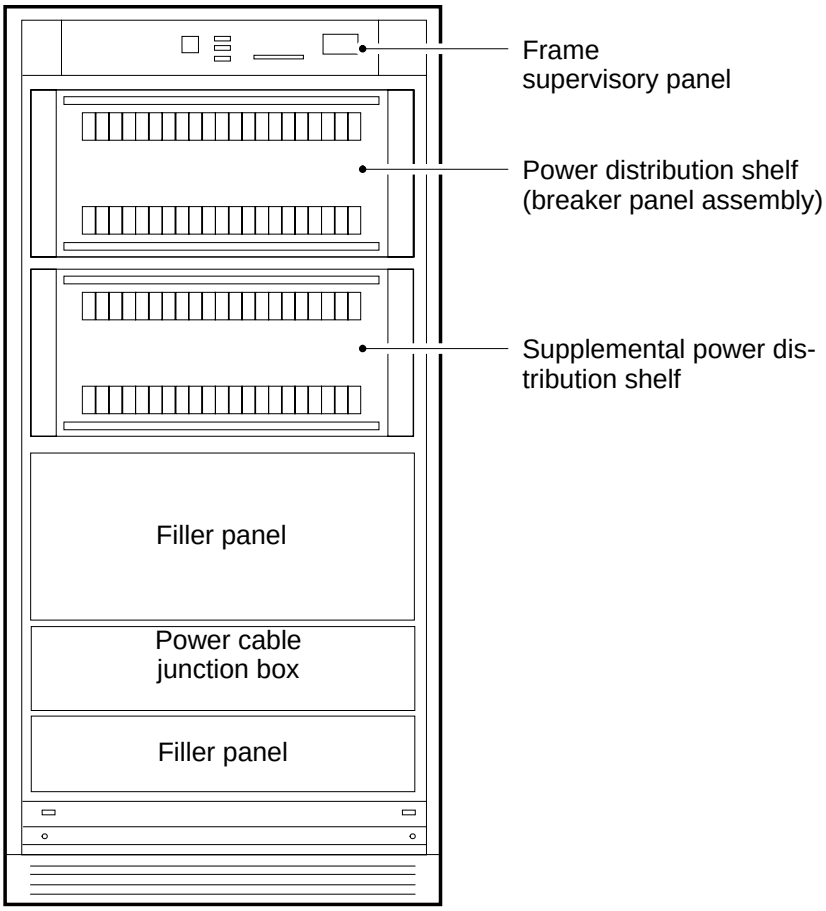
Note: When you remove the fuse cartridges, you remove power from the cooling unit. Removal of power from the cooling unit causes the fan failure lamp to turn ON. The fan failure lamp is at the top of the cabinet between the doors.



5 Locate the cooling unit circuit breakers.

Note: The two cooling unit circuit breakers are on the front panel of the CPDC. One circuit breaker is for the side A power feed. The other circuit breaker is for the side B power feed. The cabinet number (recorded in step 1) is above each breaker. The letters SN CU (SuperNode cooling unit) are below each breaker.

Replacing a cooling unit fan
CPC A0345301 (continued)



6

CAUTION
Possible loss of service
Make sure you remove only the cooling unit fuses before you throw this circuit breaker. Removal of the wrong fuses can disconnect power to a critical hardware component and cause loss of service.

Throw the circuit breaker for the cooling unit.

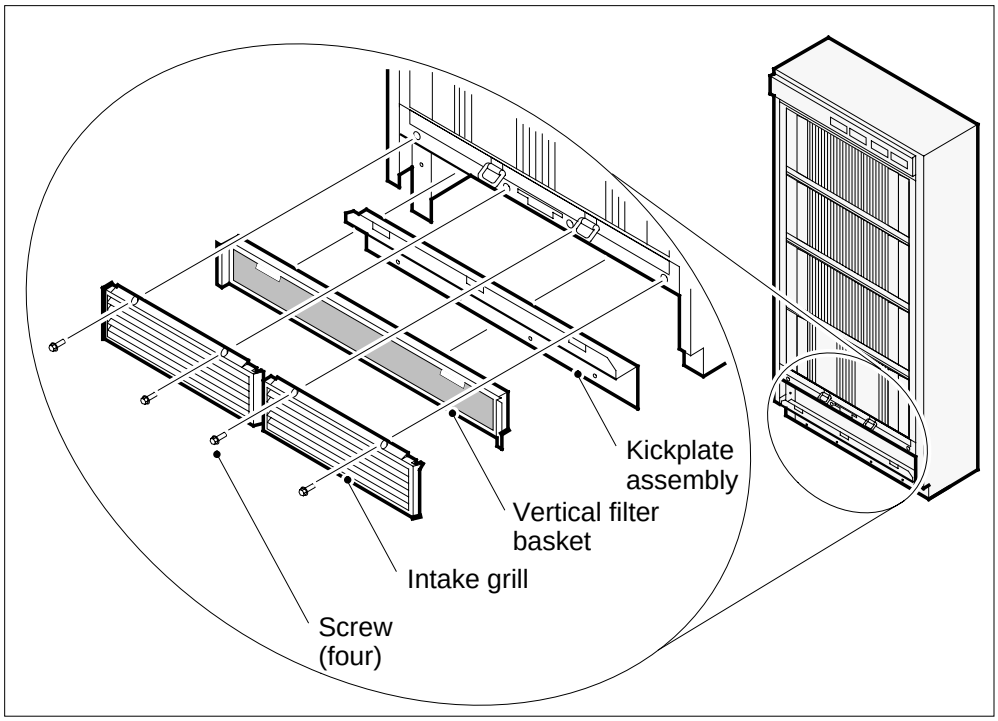
Note: When you throw the circuit breakers, you remove power from the cooling unit. Removal of power from the cooling unit causes the fan failure lamp to turn ON. The fan failure lamp is at the top of the cabinet between the doors.

Replacing a cooling unit fan
CPC A0345301 (continued)

At the front of the cabinet

7 Open the cabinet doors.

8 Remove the two intake grills for the cooling unit at the bottom of the cabinet. To remove the intake grills, remove the four screws that hold the intake grills in place.



9 To remove the filter basket, pull on the handles.

10 To remove the kickplate assembly, remove the mounting screws and mounting bolts that hold the assembly in place.

Note: The four mounting screws are along the bottom of the kickplate. The two mounting bolts are at the sides of the kickplate.

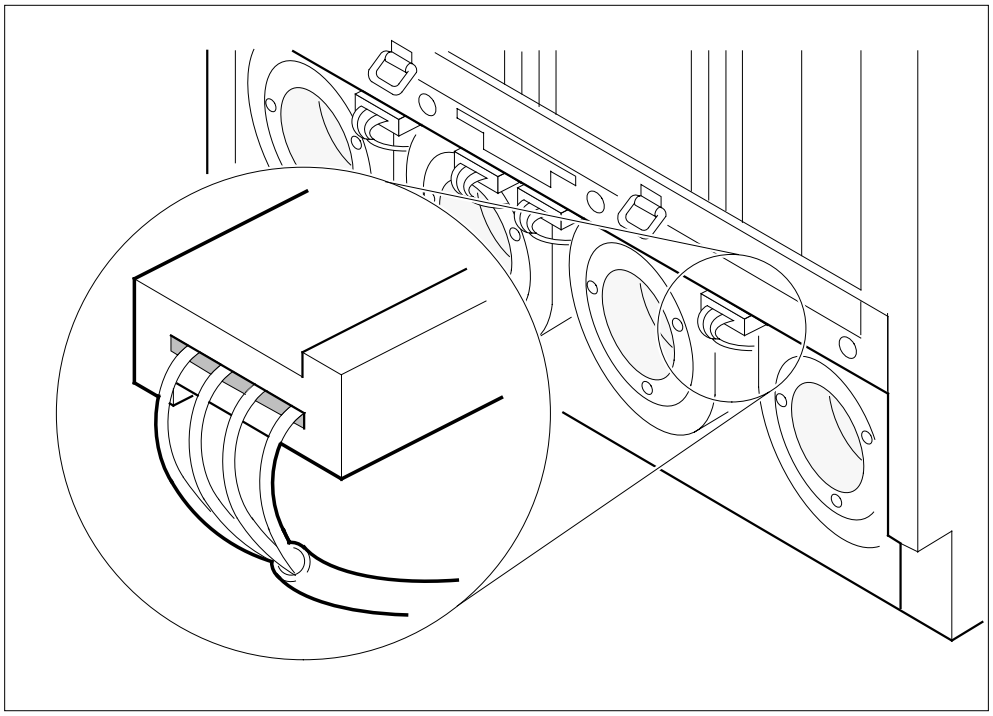
11

DANGER
Electrocution
Avoid contact with the cabinet wiring. Contact with the wiring can result in electric shock.

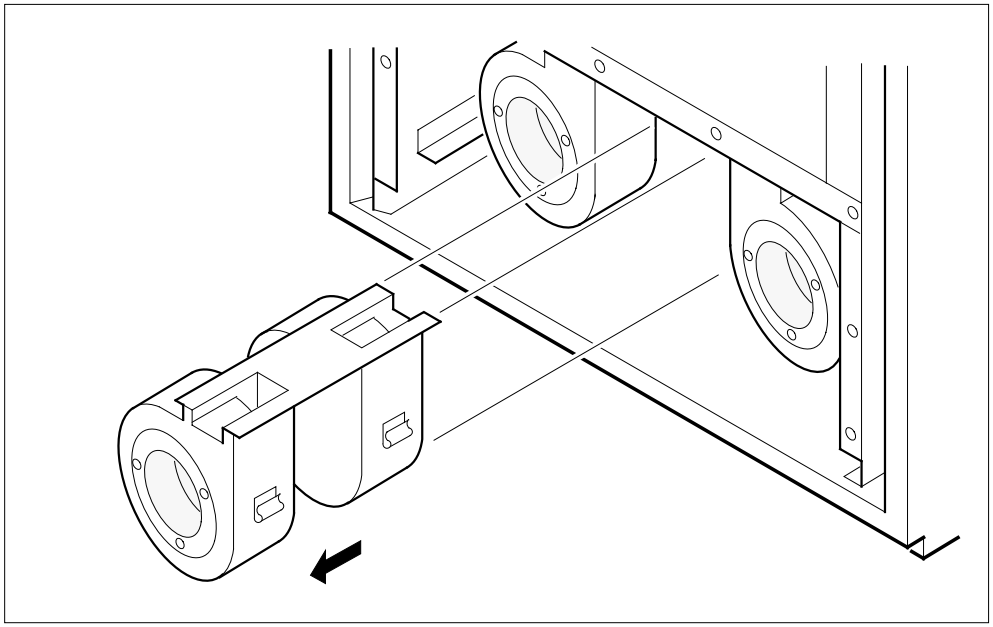
Disconnect the electrical connector of the fan that has faults from the corresponding electrical connector of the cabinet.

Note: The connector for each fan is above the fan.

Replacing a cooling unit fan
CPC A0345301 (continued)



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



13 Slide the replacement fan into the cabinet.

Replacing a cooling unit fan
CPC A0345301 (continued)

14 Connect the electrical connector of the replacement fan to the corresponding electrical connector of the cabinet.

15 Determine if power for the cooling unit connects through a circuit breaker at the CPDC.

If the power for the cooling unit	Do
connects through a PDC	step 16
connects through a CPDC	step 17

At the front of the PDC

16 To insert the cooling unit fuses, push the fuse cartridges straight into the front panel of the PDC.

Go to step 18.

At the front of the CPDC

17

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

Throw the circuit breakers for the cooling unit.

At the front of the cabinet

18 Determine if the replacement fan works.

If the replacement fan	Do
works	step 19
does not work	step 23

19 Reinstall the kickplate assembly.

Note: Step 8 shows the location of the kickplate assembly.

20 Reinstall the filter basket.

Note: Step 8 shows the location of the filter basket.

21 Reinstall the cooling unit intake grill.

Note: Step 8 shows the location of the cover mounting screws for the intake grill.

22 Close the cabinet doors.

Replacing a cooling unit fan
CPC A0345301 (end)

Go to step 24.

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

24 The procedure is complete.

Replacing a cooling unit fan CPC A0381714, A0382103, A0383325

Application

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

- A0381714
- A0382103
- A0383325

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

Definition

Cooling unit fans cool the cabinet parts.

Common procedures

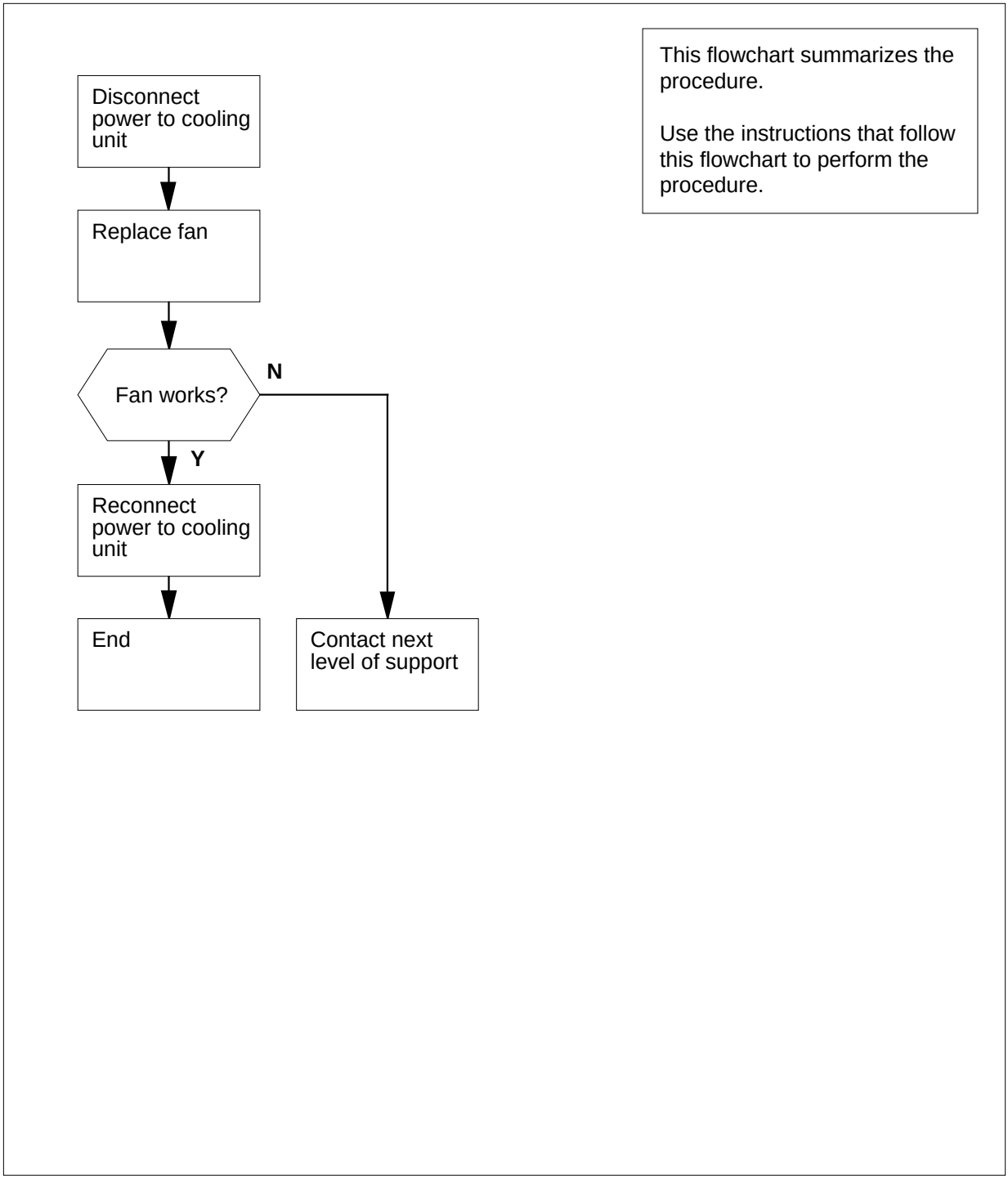
There are no common procedures.

Action

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

Replacing a cooling unit fan
CPC A0381714, A0382103, A0383325 (continued)

Summary of Replacing a cooling unit fan



Replacing a cooling unit fan
CPC A0381714, A0382103, A0383325 (continued)

Replacing a cooling unit fan

At your current location

1

DANGER
Risk of injury or damage to equipment
When you replace a cooling unit, do not wear jewelry (for example, rings, bracelets, or necklaces).

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

Obtain a replacement for the cooling unit fan.

Record the cabinet number.

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

At the front of the cabinet

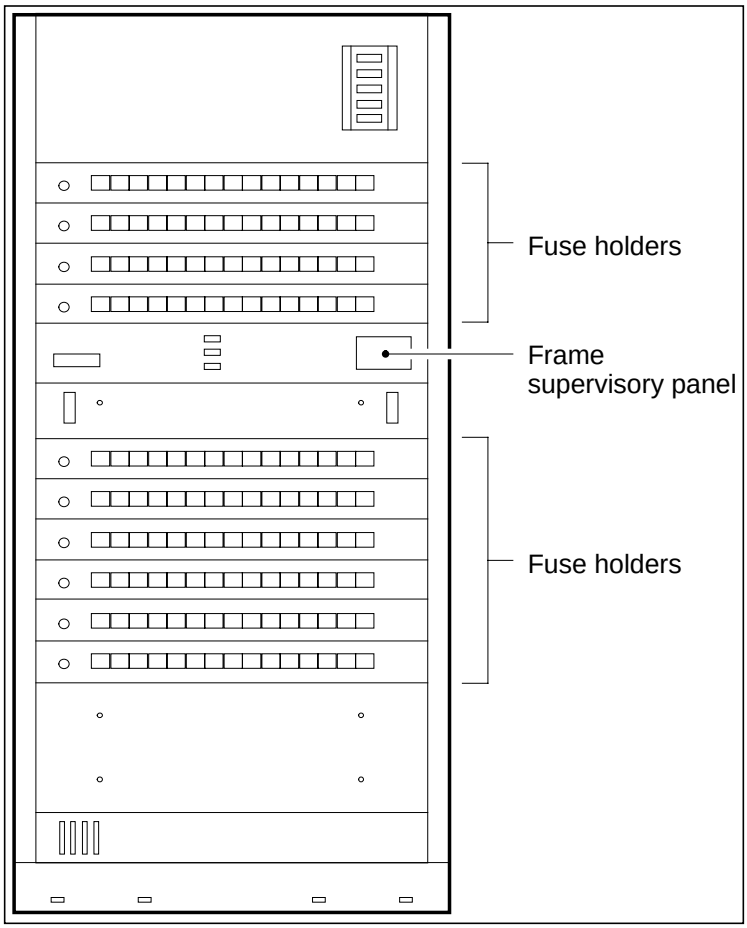
2 Consult office records or operating company personnel. Determine if power to the cooling unit connects through a power distribution center (PDC) or a cabinetized PDC (CPDC).

If power to the cooling unit	Do
connects through a PDC	step 3
connects through a CPDC	step 5

3 Locate the cooling unit fuses.

Note: The cooling unit fuse cartridges are on the front panel of the PDC. The fuse cartridges contain two cooling unit fuses. One fuse is for the side A power feed. The other fuse is for the side B power feed. The cabinet number (recorded in step 1) is above each fuse cartridge. The letters SN CU (SuperNode cooling unit) are below each fuse cartridge.

Replacing a cooling unit fan
CPC A0381714, A0382103, A0383325 (continued)



4

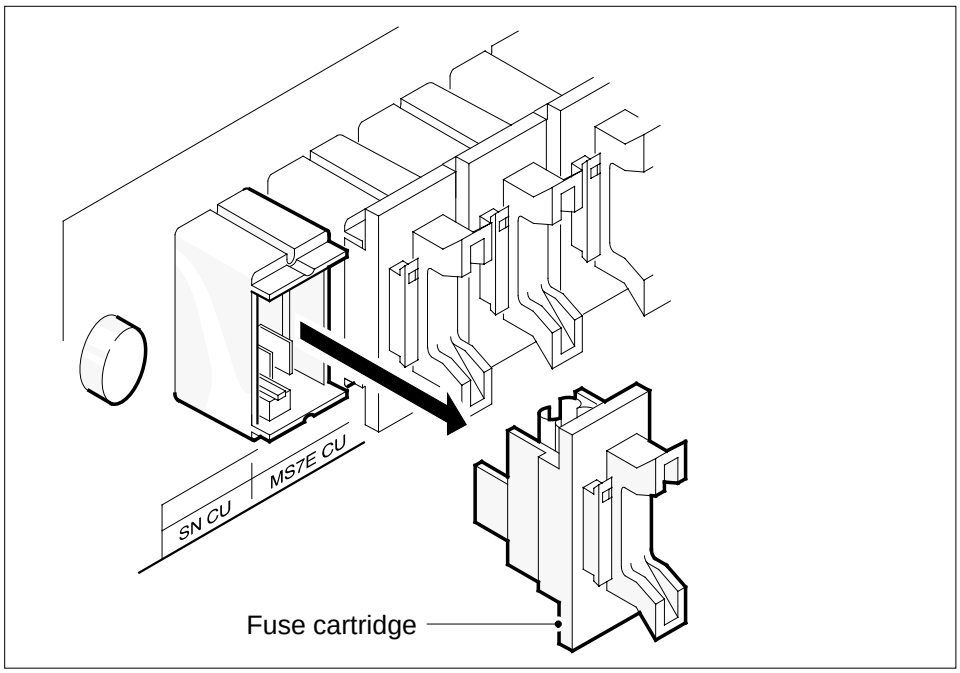
DANGER
Risk of injury
Electricity can arc when you remove a fuse cartridge from the cooling unit. Wear eye protection.

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

Replacing a cooling unit fan CPC A0381714, A0382103, A0383325 (continued)

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

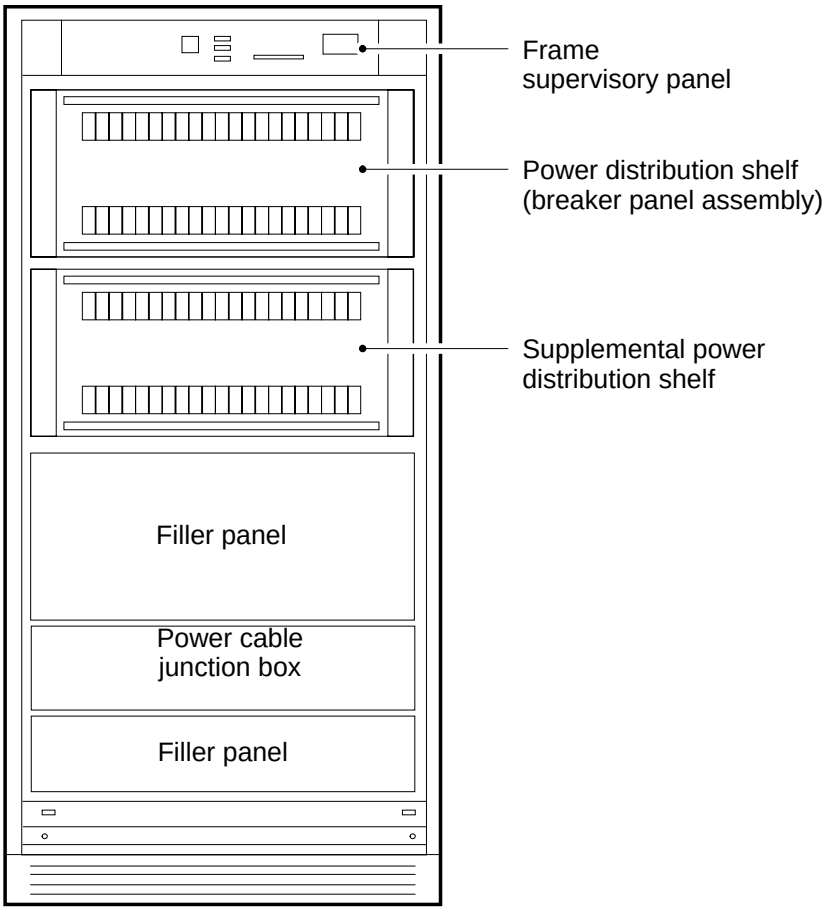
Note: When you remove the fuse cartridges, you remove power from the cooling unit. Removal of power from the cooling unit causes the fan failure lamp to turn ON. The fan failure lamp is at the top of the cabinet between the doors.



5 Locate the circuit breakers for the cooling unit.

Note: The two cooling unit circuit breakers are on the front panel of the CPDC. One circuit breaker is for the side A power feed. The other circuit breaker is for the side B power feed. The cabinet number (recorded in step 1) is above each breaker. The letters SN CU (SuperNode cooling unit) are below each breaker.

Replacing a cooling unit fan
CPC A0381714, A0382103, A0383325 (continued)



6

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

Replacing a cooling unit fan
CPC A0381714, A0382103, A0383325 (continued)

CAUTION
Possible loss of service
Make sure that you remove only the cooling unit fuses before you throw the circuit breakers. Removal of the wrong fuses can disconnect power to a critical hardware component and cause loss of service.

Throw the circuit breaker for the cooling unit.

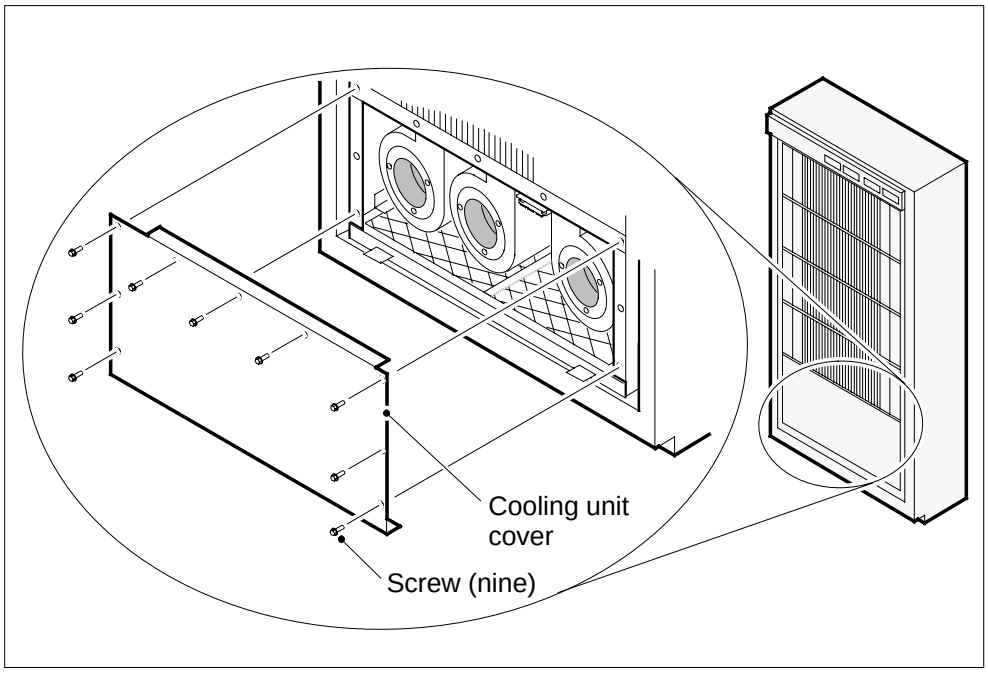
Note: When you throw the circuit breakers, you remove power from the cooling unit. Removal of power from the cooling unit can cause the fan failure lamp to turn on. The fan failure lamp is at the top of the cabinet between the doors.

At the front of the cabinet

7 Open the cabinet doors.

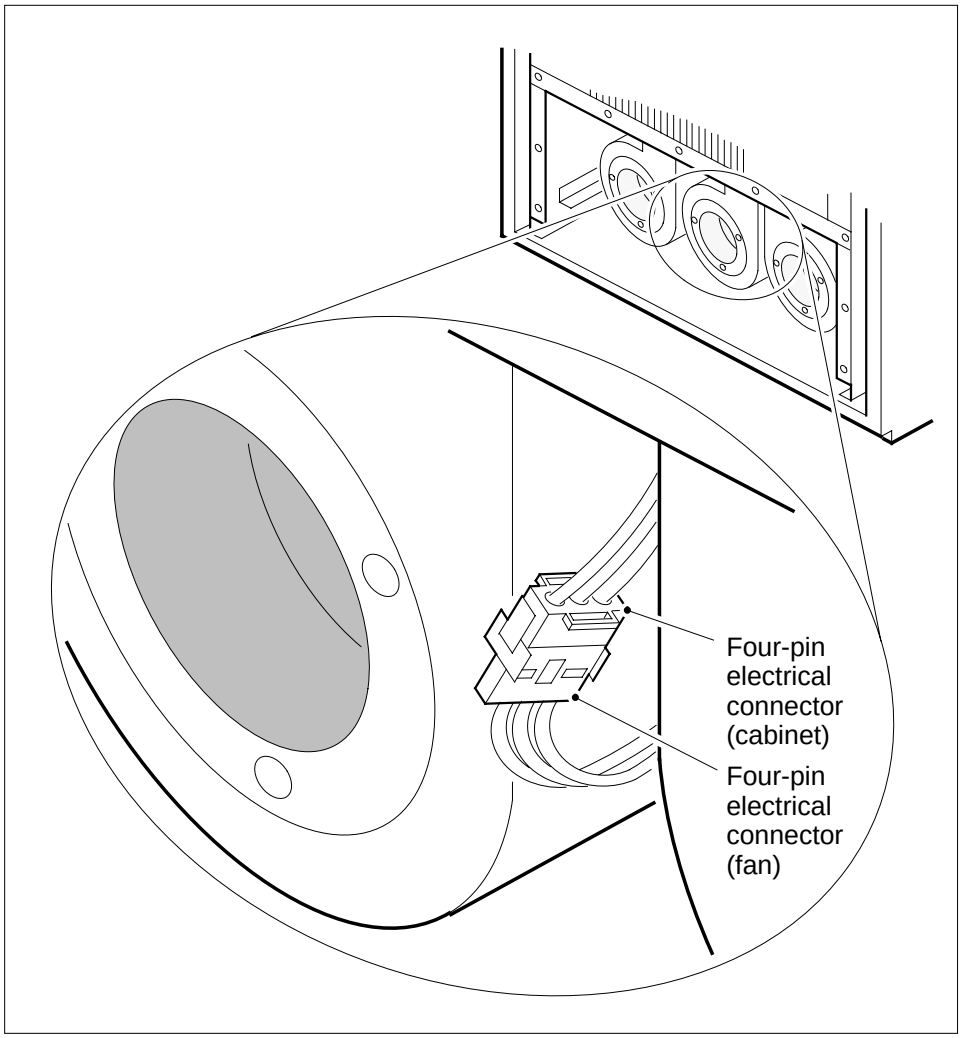
8 The cooling unit cover is at the bottom of the cabinet. To remove the cover, remove the nine mounting screws from the cover.

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



9 Slide the fan that has faults out of the cabinet so that you can disconnect the four-pin electrical connector of the fan.

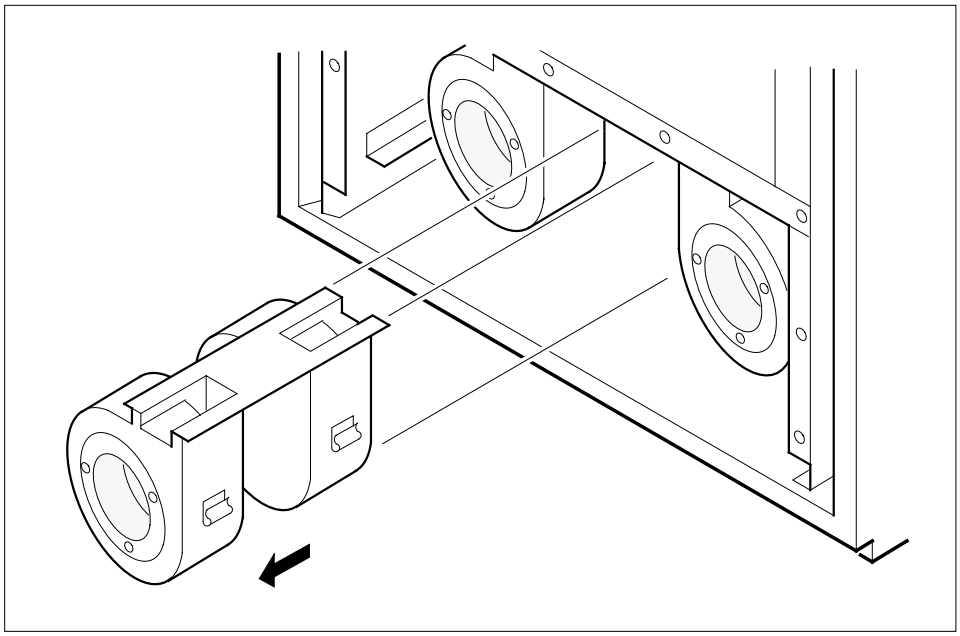
Replacing a cooling unit fan
CPC A0381714, A0382103, A0383325 (continued)



10 Disconnect the four-pin connector of the fan that has faults from the corresponding four-pin connector of the cabinet.

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

Replacing a cooling unit fan
CPC A0381714, A0382103, A0383325 (continued)



12 Slide the replacement fan part way into the cabinet.

13 Connect the four-pin electrical connector of the replacement fan to the corresponding four-pin electrical connector of the cabinet.

Note: Step 9 shows the location of the connector.

14 Slide the replacement fan the rest of the way into the cabinet.

15 Determine if power for the cooling unit connects through a circuit breaker at the CPDC.

If the power for the cooling unit	Do
connects through a PDC	step 16
connects through a CPDC	step 17

At the front of the PDC

16 To insert the cooling unit fuses, push the fuse cartridges straight into the front panel of the PDC.

Go to step 18.

Replacing a cooling unit fan CPC A0381714, A0382103, A0383325 (end)

At the front of the CPDC

17

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

Throw the circuit breakers for the cooling unit.

At the front of the cabinet

18 Determine if the replacement fan works.

If the replacement fan	Do
works	step 19
does not work	step 21

19 Replace the cooling unit cover.

Note: Step 8 shows the location of the cover mounting screws.

20 Close the cabinet doors.

Go to step 22.

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

22 The procedure is complete.

Replacing cooling unit NTRX91AA

Application

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

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

Definition

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

Common procedures

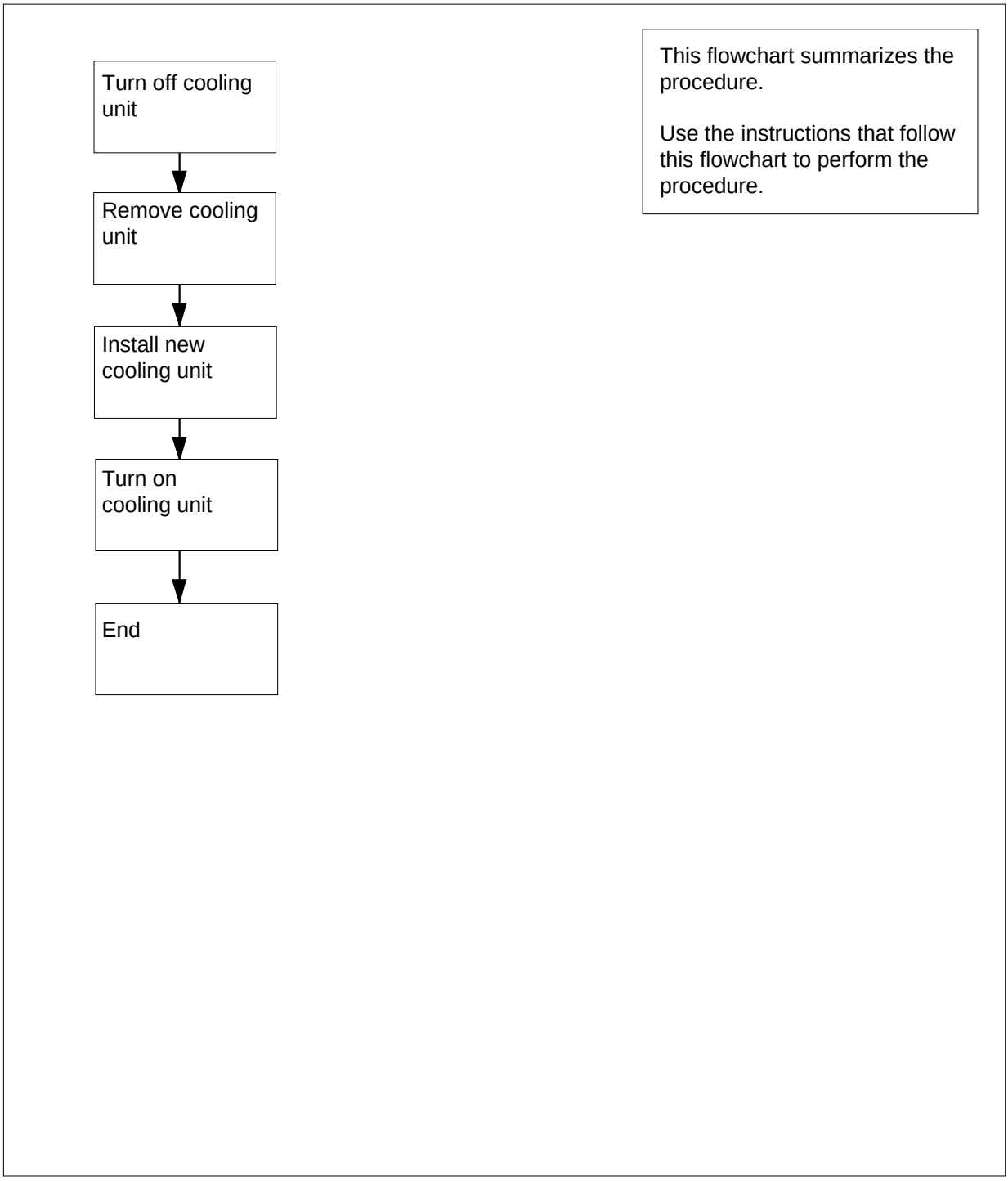
There are no common procedures.

Action

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

Replacing cooling unit NTRX91AA (continued)

Summary of Replacing cooling unit NTRX91AA



Replacing cooling unit NTRX91AA (end)

Replacing cooling unit NTRX91AA

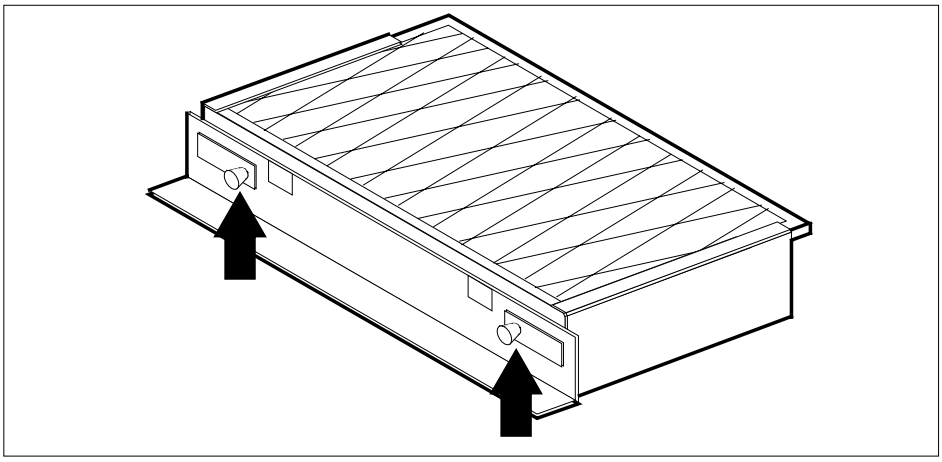
At your current location

1

DANGER
To prevent overheating
Do not turn off the cooling unit for longer than 30 mins.

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

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



3 Slide in the new cooling unit (NTRX91AA) until both sides lock into place.

4 Replace the two fuses that you removed in step 1.

5 The procedure is complete.

Replacing a CU voltage limiter and filter in a 28-in. cabinet

Application

Use this procedure to replace a cooling unit (CU) voltage limiter and filter (NTNX13CA) in a 28-in. (0.711-m) cabinet.

Definition

The CU voltage limiter and filter limits the input voltage to 56 V.

Common procedures

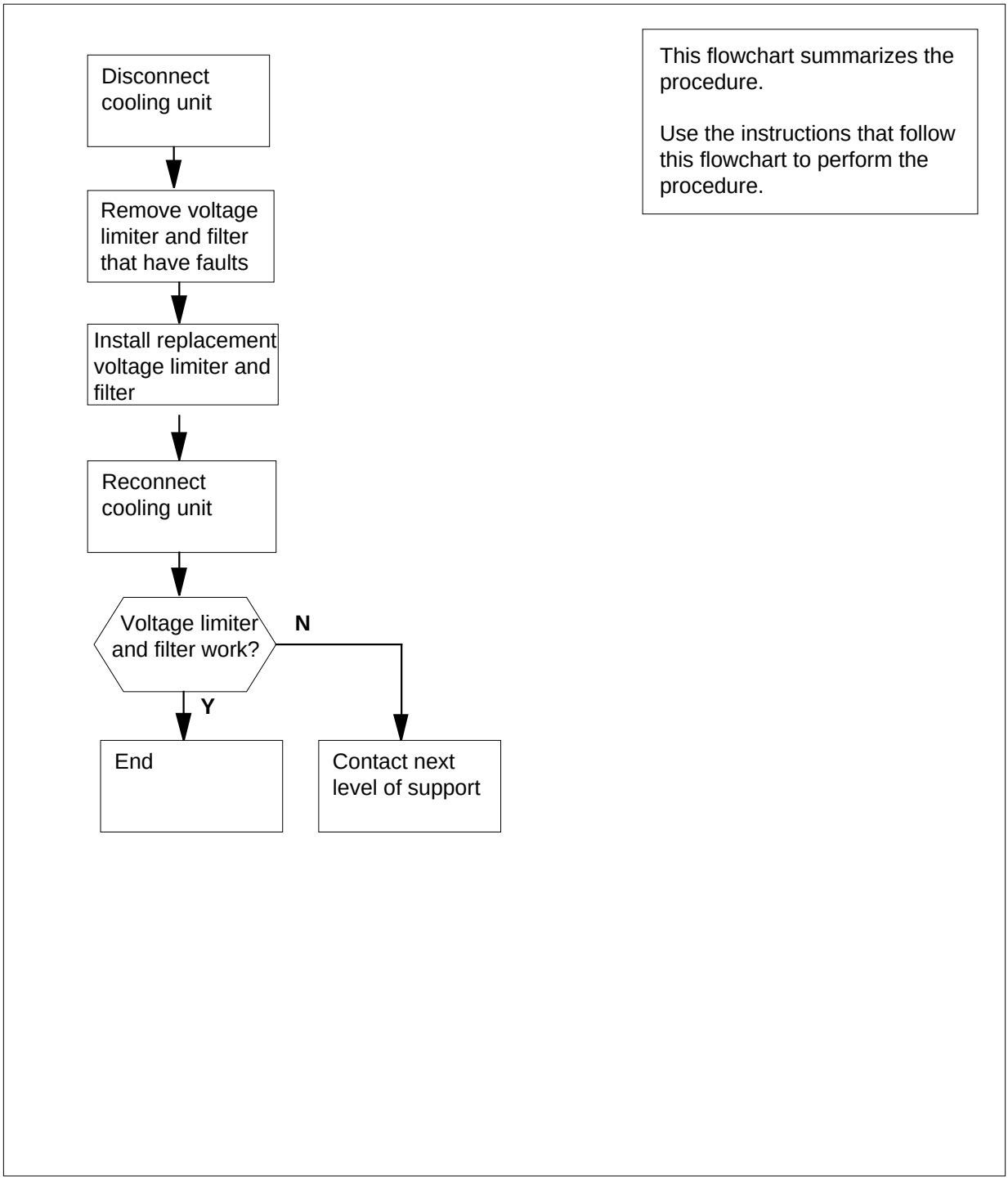
There are no common procedures.

Action

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

Replacing a CU voltage limiter and filter in a 28-in. cabinet (continued)

Summary of Replacing a CU voltage limiter and filter in a 28-in. cabinet



Replacing a CU voltage limiter and filter in a 28-in. cabinet (continued)

Replacing a CU voltage limiter and filter in a 28-in. cabinet

At the rear of the cabinet

1

WARNING
Loss of cabinet cooling
Disconnection of the cooling unit for an extended period of time can cause the equipment in the cabinet to overheat.

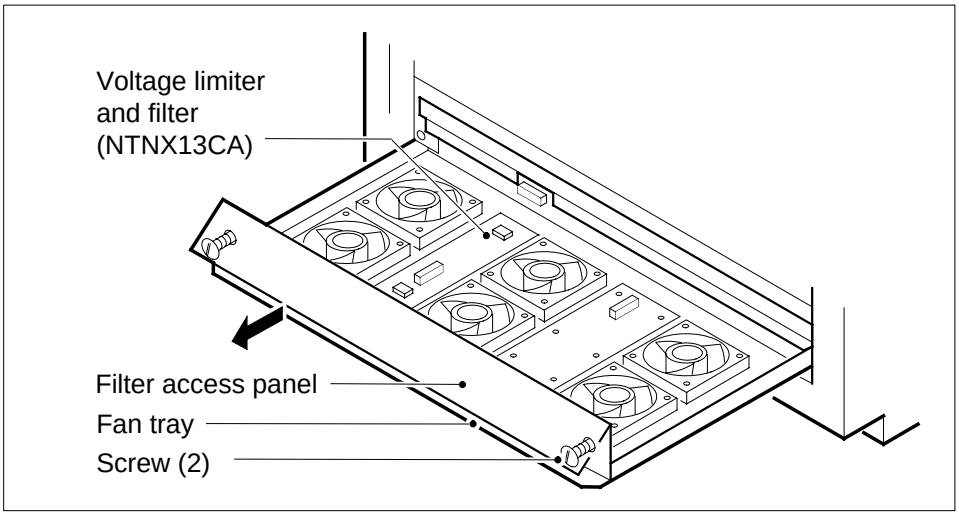
Open the cabinet doors.

2 Disconnect the 15-pin electrical connector of the fan tray from the cabinet. The connector of the fan tray at the bottom of the cabinet corresponds to the 15-pin connector of the cabinet.

At the front of the cabinet

3 Open the cabinet doors.

4 Loosen the two screws that hold the fan tray in place.



5 Slide the fan tray out of the cabinet.

Replacing a CU voltage limiter and filter in a 28-in. cabinet (continued)

6

WARNING
Static electricity damage
To handle circuit cards, wear a wrist strap that connects to a wrist-strap grounding point. A grounding point will be on the modular supervisory panel (MSP), or a frame supervisory panel (FSP). The wrist strap protects against static electricity damage.

Unplug the two connectors on the NTNX13CA card.

7 To remove the NTNX13CA card from the fan tray, pull on the card near each standoff that supports the fan tray. The standoffs have a snapoff tip so that the card pulls off without the requirement of any tools.

8 Align the holes of the new card with the standoffs.

9 Press down on the card near the standoffs until the card snaps into place.

10 Reconnect the two connectors to the replacement NTNX13CA.

11 Slide the fan tray back into the cabinet.

12 Tighten the two screws that hold the fan tray in place.

At the back of the cabinet

13 Reconnect the 15-pin electrical connector of the fan tray.

14 Close the cabinet doors.

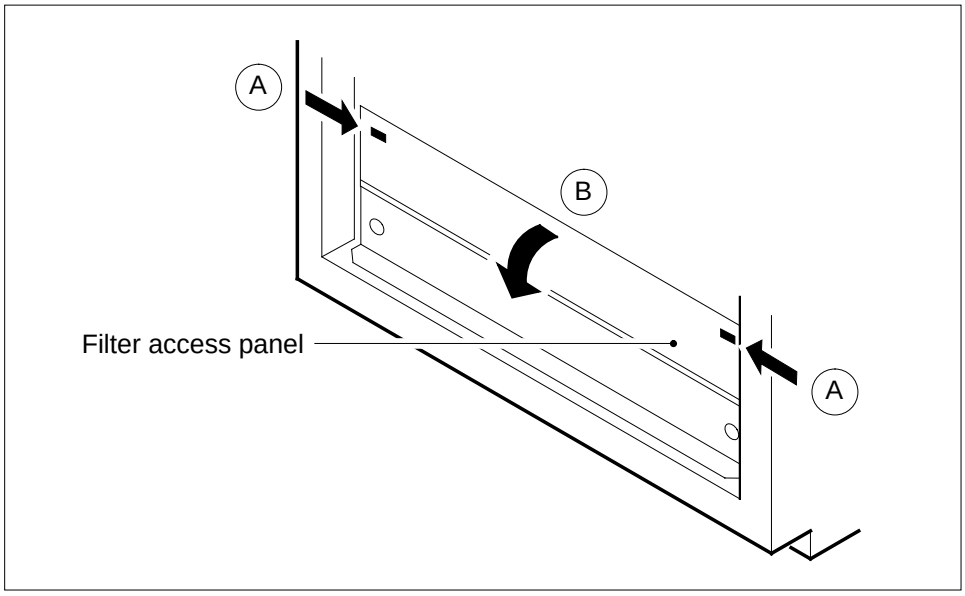
At the front of the cabinet

15

DANGER
Risk of personal injury
Contact with unshielded cabinet wiring can result in electric shock. Do not touch the cabinet wiring.

Open the filter access panel at the bottom of the cabinet. To open the panel, slide the catches toward each other (A) and swing the panel downward (B).

Replacing a CU voltage limiter and filter in a 28-in. cabinet (end)



16 Determine if the replacement NTNX13CA card operates.

Note: The LED on the NTNX13CA card is off, if the unit operates correctly.

If the LED	Do
is off	step 17
is on	step 19

17 Close the filter access panel.

18 Close the cabinet doors. Go to step 20.

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

20 The procedure is complete.

Replacing a digital audio tape (DAT) drive NTFX32CA

Application

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

Definition

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

Common procedures

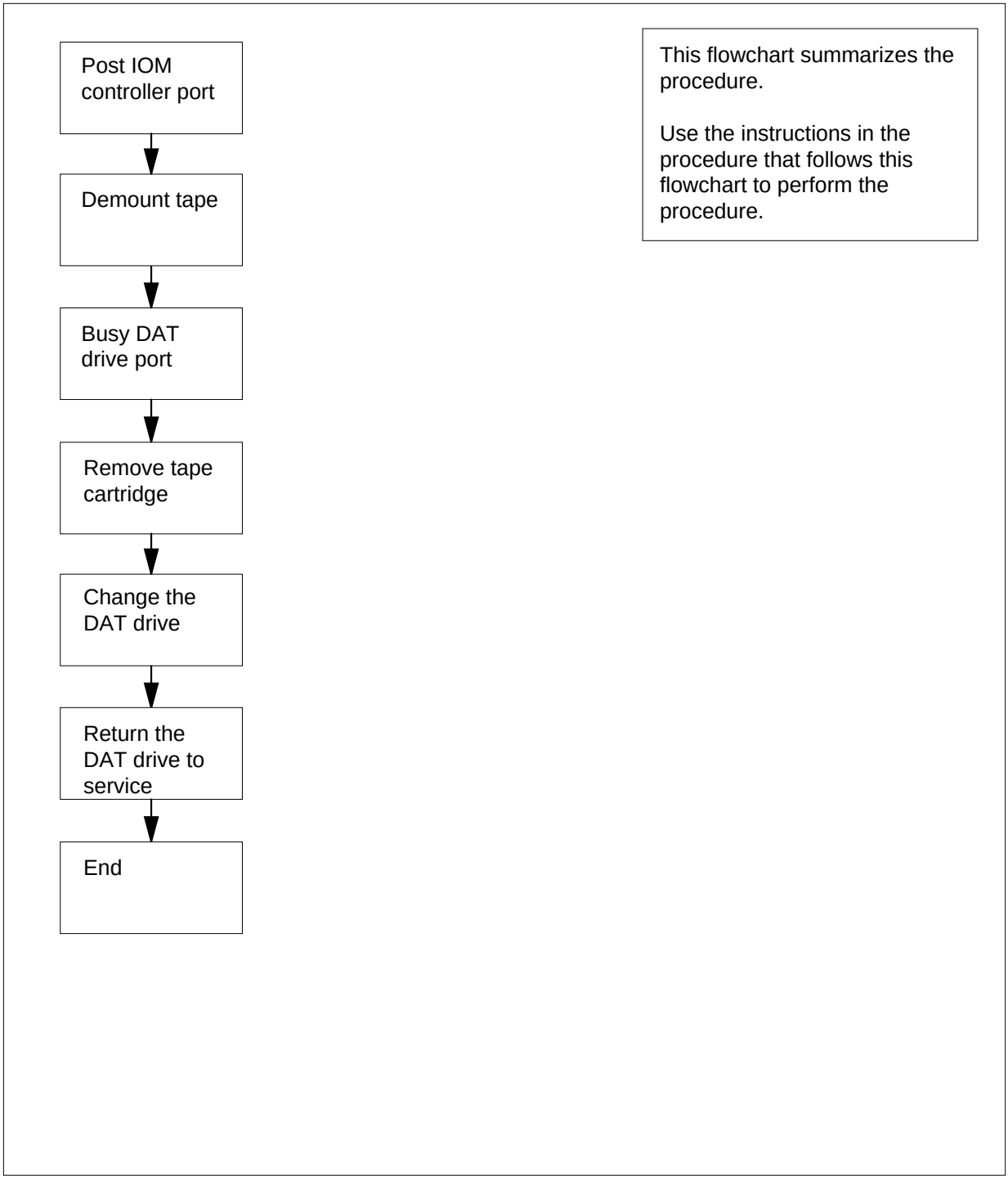
There are no common procedures.

Action

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

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

Summary of Replacing a digital audio tape (DAT) drive



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

Replacing a digital audio tape (DAT) drive

At your current location

1 Obtain the following items:

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

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

To access the IOD level of the MAP display, type

>MAPCI;MTC;IOD

and press Enter.

Example of a MAP display:

```
IOD
IOC  0  2  3
STAT .  .  S

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

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

>IOC ioc_no

and press Enter.

where

ioc_no
is the number of the affected IOM

Example of a MAP display:

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

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

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

>PORT port_no

and press Enter.

where

port_no
is the port number of the DDU device

Example of a MAP display:

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

4 Record the number of the replaced DAT drive.

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

6 To demount a mounted DAT tape, type

>DEMOUNT Tmtd_no

and press Enter.

where

mtd_no
is the number of the affected MTD (DAT)

7 To manually busy the DAT drive port, type

>BSY

and press Enter.

Example of a MAP display:

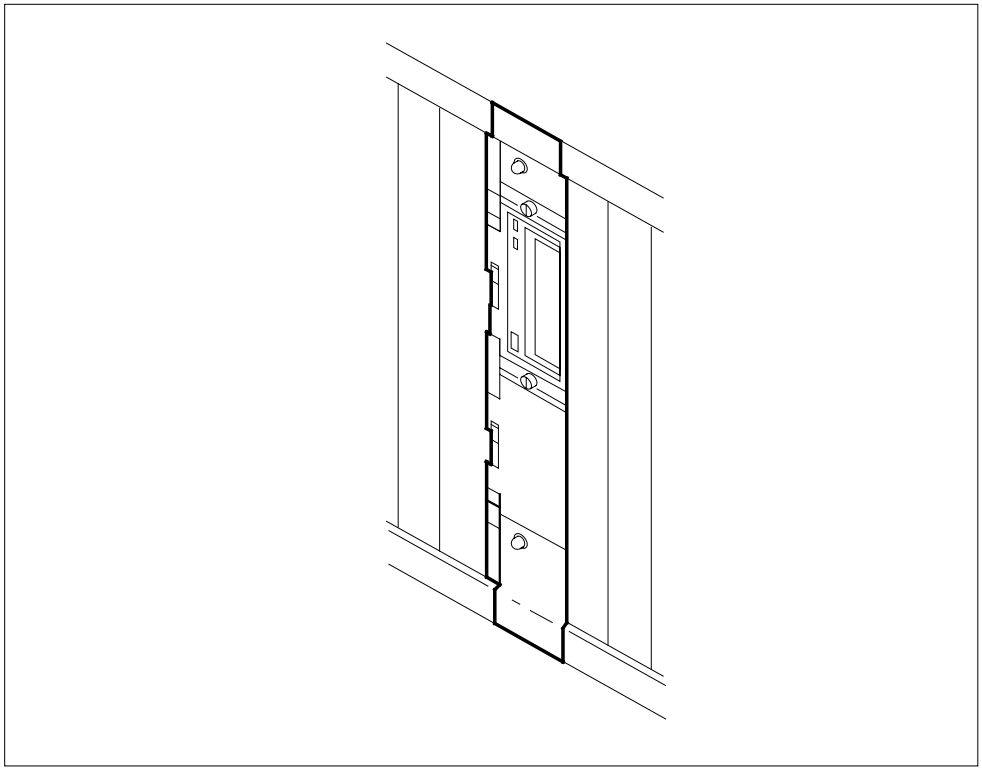
```
bsy
OK
```

If the BSY command	Do
passed	step 8
failed	step 19

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

At the ISM shelf

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



Check the LED on the media card faceplate.

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

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

10

DANGER

Possible loss of data

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

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

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

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

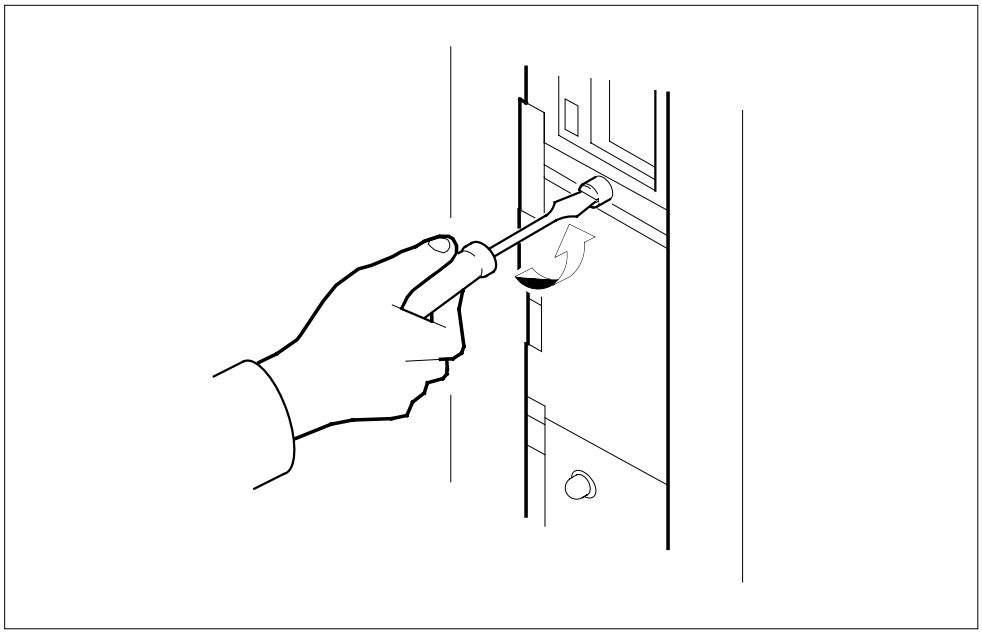
11

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

Unscrew the spring-loaded lock mechanism located on the faceplate of the drive carrier. The drive carrier connects the DAT drive to the media card.

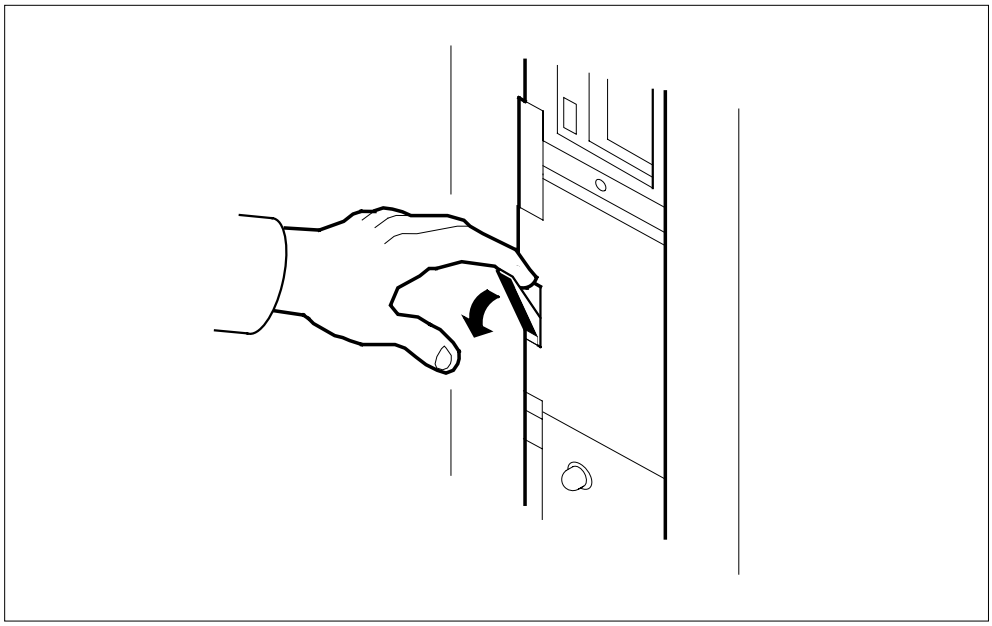
After the drive disconnects, the red LED will be ON and the green LED will be OFF.

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

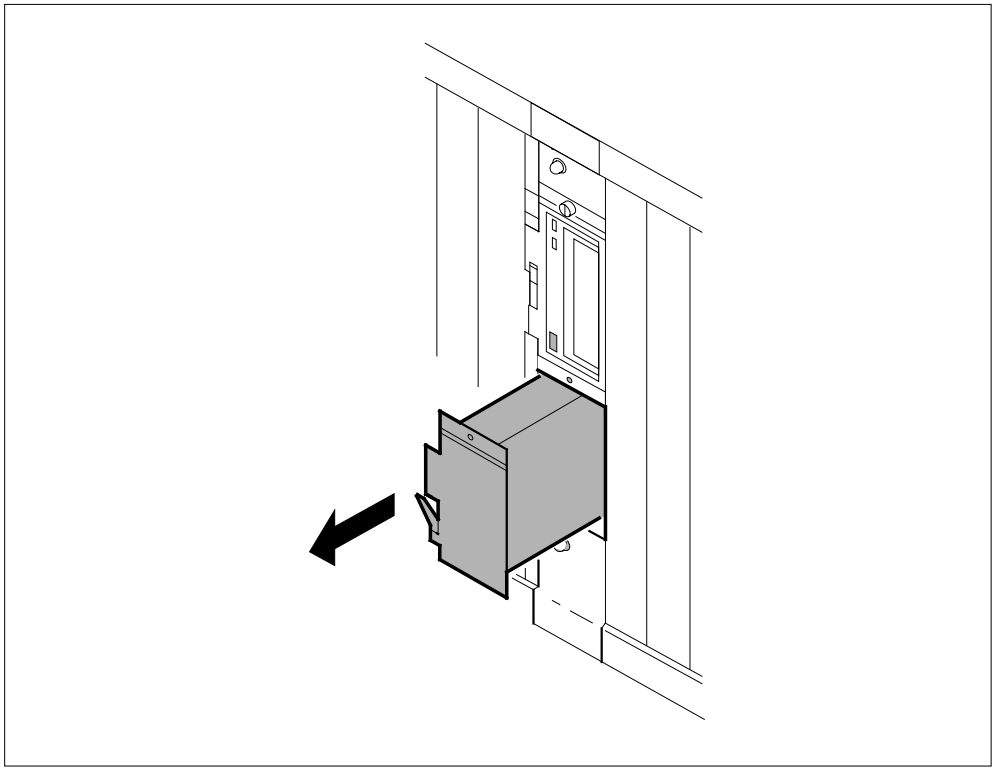


12 Pull down on the lock latch to push the DAT drive carrier away from the media card.

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



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



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

14

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

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

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

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

15

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

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

At the MAP display

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

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

and press Enter.

where

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

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

Example of a MAP display:

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

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

17 To return the DAT to service, type

>RTS

and press Enter.

If the RTS command	Do
passed	step 18
failed	step 19

18 To remount the removed tape, type

>MOUNT mtd_no

and press Enter.

where

mtd_no
is the number of the MTD (DAT)

Go to step 20.

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

20 The procedure is complete.

Replacing a door gasket

Application

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

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

On model A C28 door:

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

On model B C28 door:

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

On model A C42 door:

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

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

Definition

Perform this procedure if a gasket has faults.

Common procedures

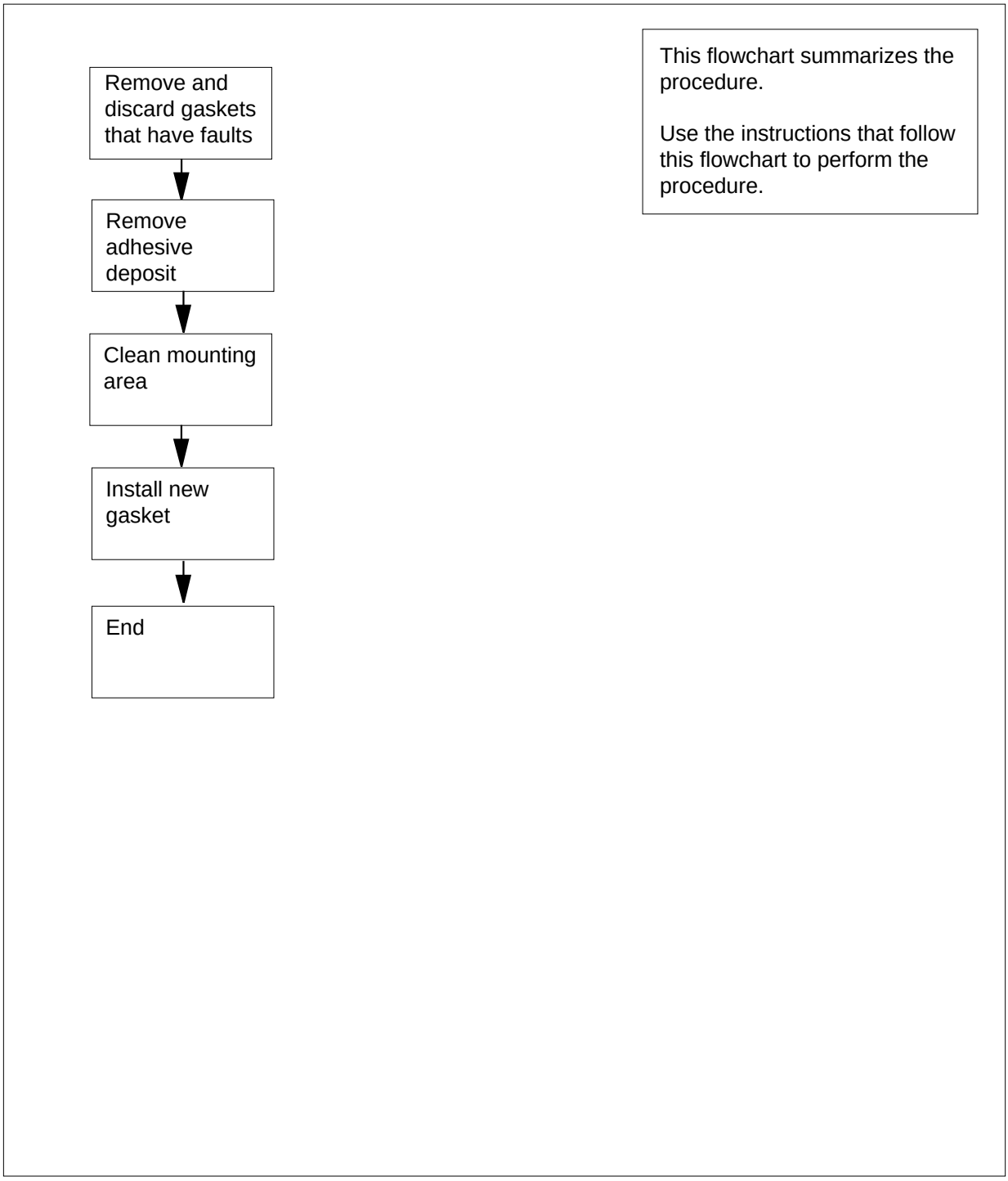
There are no common procedures.

Action

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

Replacing a door gasket (continued)

Summary of Replacing a door gasket



Replacing a door gasket (end)

Replacing a door gasket

At the front of the cabinet

1 Remove and discard the gasket that has faults.

2 Remove the adhesive deposit from the mounting surface of the inside door panel.

Note: Apply a petroleum-based cleaner with a lint-free industrial wiper.

3 Use a lint-free industrial wiper to clean the mounting area with a degreasing solvent (for example, isopropyl alcohol).

Note: Let the surface dry before you install the new gasket.

4 Peel off the release tape from the adhesive backing of the gasket. Install the gasket in place.

Note: Press the gasket down to ensure that it adheres correctly to the surface of the door.

5 Close the doors carefully. Allow the adhesive to cure for 24 hours.

6 The procedure is complete.

Replacing a fan in a 28-in. cabinet

Application

Use this procedure to replace a fan in a 28-in. (0.711-m) cabinet.

Definition

A fan cools the components of the cabinet.

Common procedures

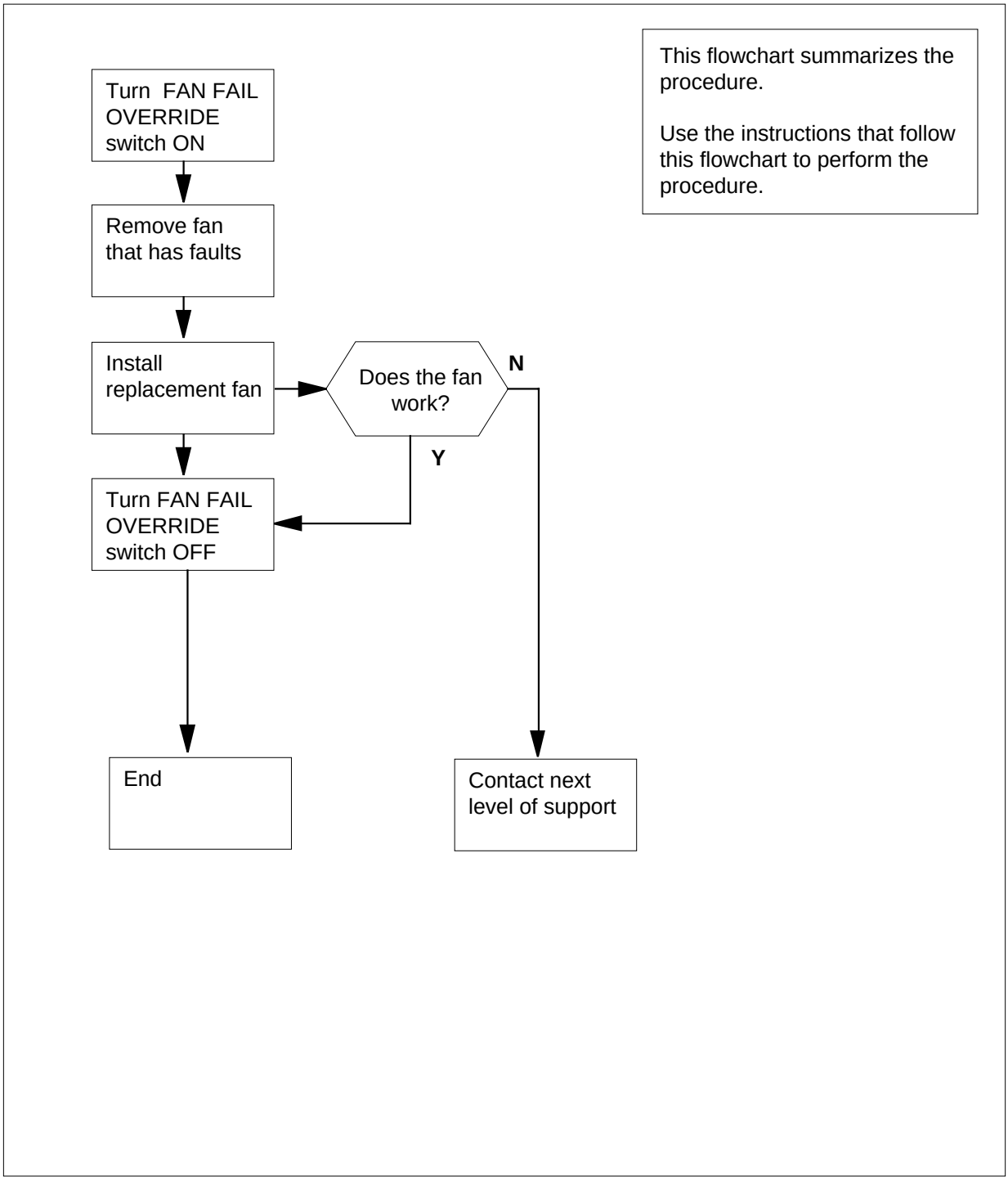
There are no common procedures.

Action

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

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

Summary of Replacing a fan in a 28-in cabinet



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

Replacing a fan in a 28-in. cabinet

At the front of the cabinet

1 Open the cabinet doors.

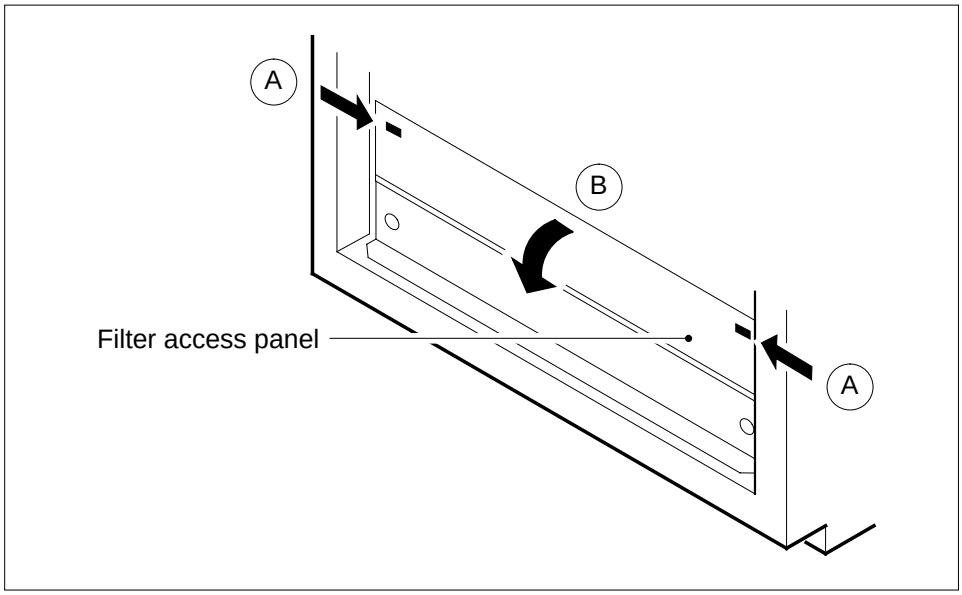
2

DANGER
Risk of personal injury
A risk of electrocution exists. Avoid contact with the cabinet wiring.

DANGER
Risk of personal injury
Avoid contact with the rotating fan blades.

Turn the FAN FAIL OVERRIDE switch ON.

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



4 Record which fan has faults.

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

At the back of the cabinet

5 Open the cabinet doors.

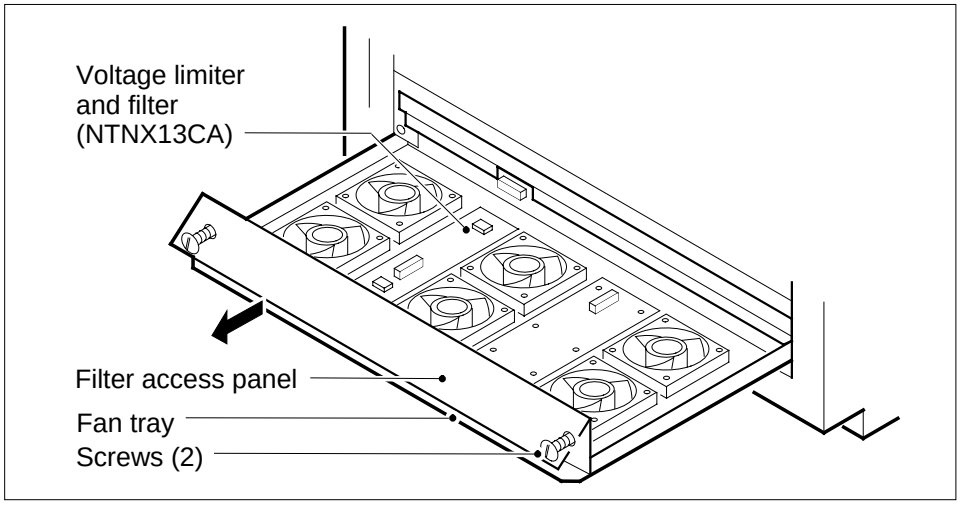
6

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

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

At the front of the cabinet

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



8 Slide the fan tray out of the cabinet.

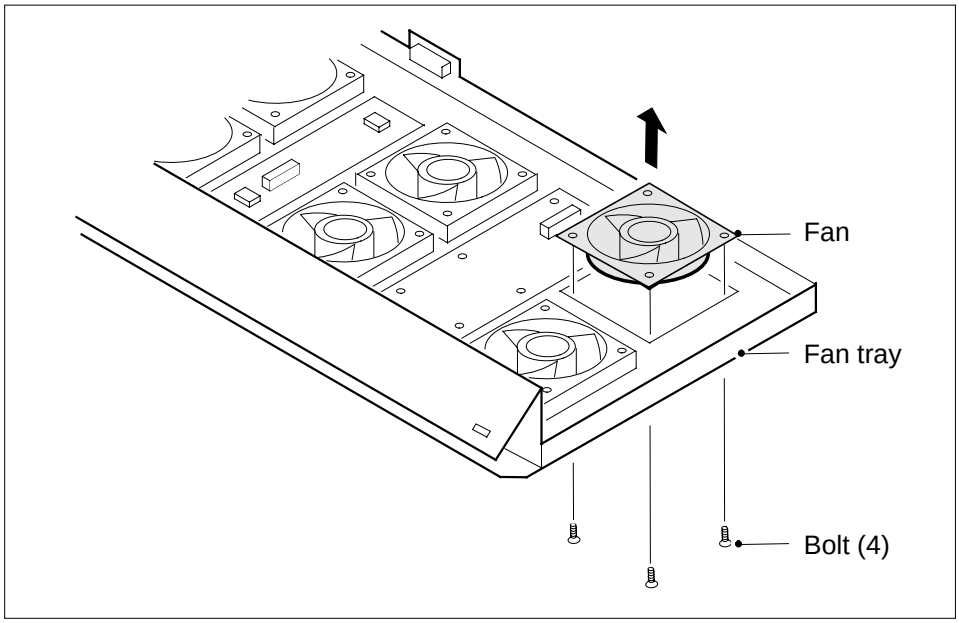
9 Note the positive and negative electrical connections of the fan.

10 Locate the two electrical connectors on the fan tray. Unplug the two electrical connectors on the fan tray from the corresponding connectors on the fan that has faults.

11 Note the position of the fan that has faults (top and bottom, left and right).

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

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



13 Remove the fan that has faults.

14 Position the replacement fan on the fan tray in the same position used for the fan that has faults.

15 Screw the four bolts into the fan from the bottom of the tray.

16 Plug the two electrical connectors on the fan tray into the corresponding connectors on the fan.

17 Slide the fan tray back into the cabinet.

18 Tighten the two screws that hold the fan tray in place.

At the back of the cabinet

19 Connect the ten-pin electrical connector on the fan again.

20 Close the cabinet doors.

At the front of the cabinet

21 Determine if the replacement fan works.

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

22 Close the filter access panel.

23 Turn OFF the FAN FAIL OVERRIDE switch.

24 Close the cabinet doors. Go to step 26.

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

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

26 The procedure is complete.

Replacing a fan in a 28-in. frame

Application

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

Definition

A fan cools the components of a frame.

Common procedures

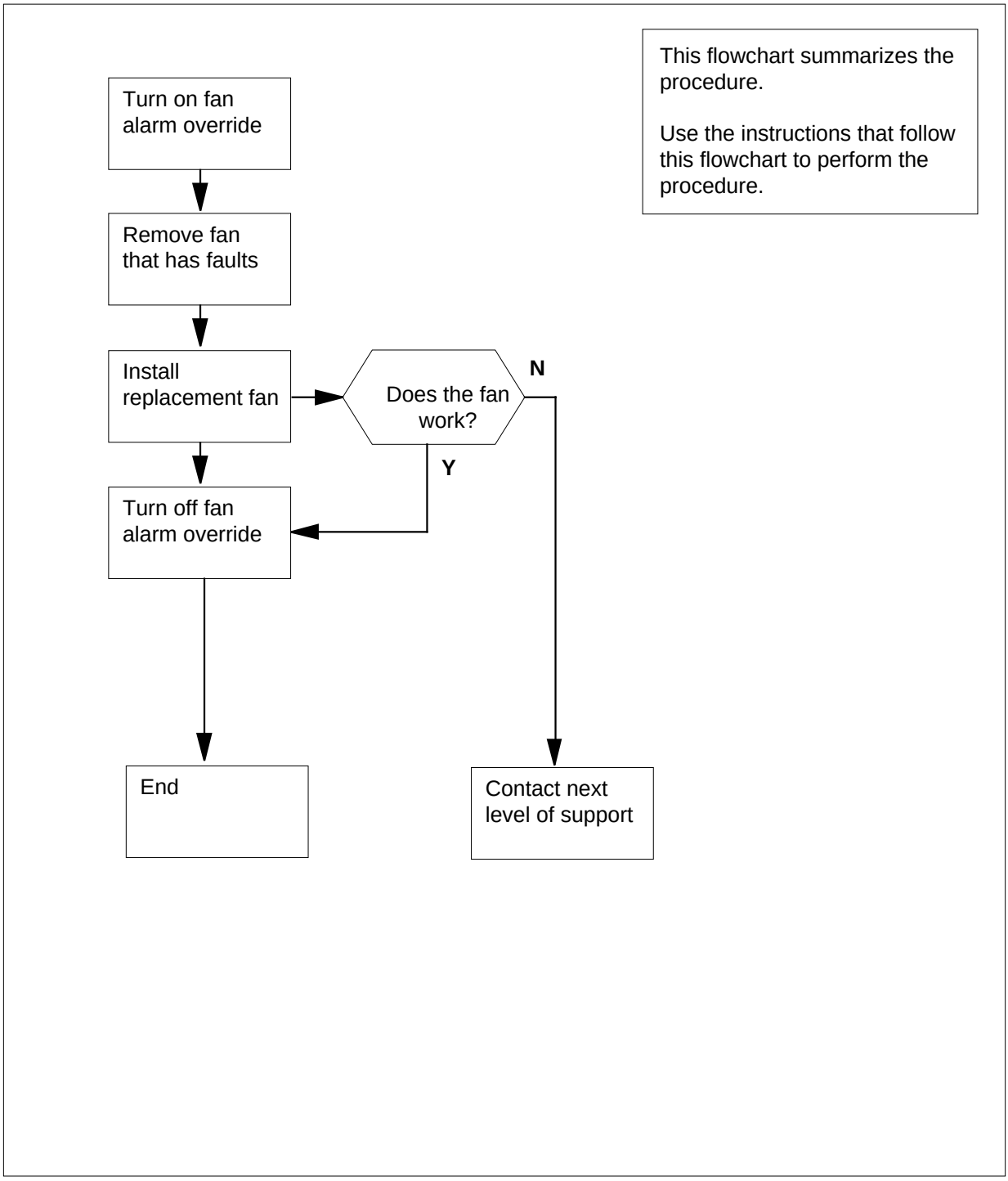
There are no common procedures.

Action

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

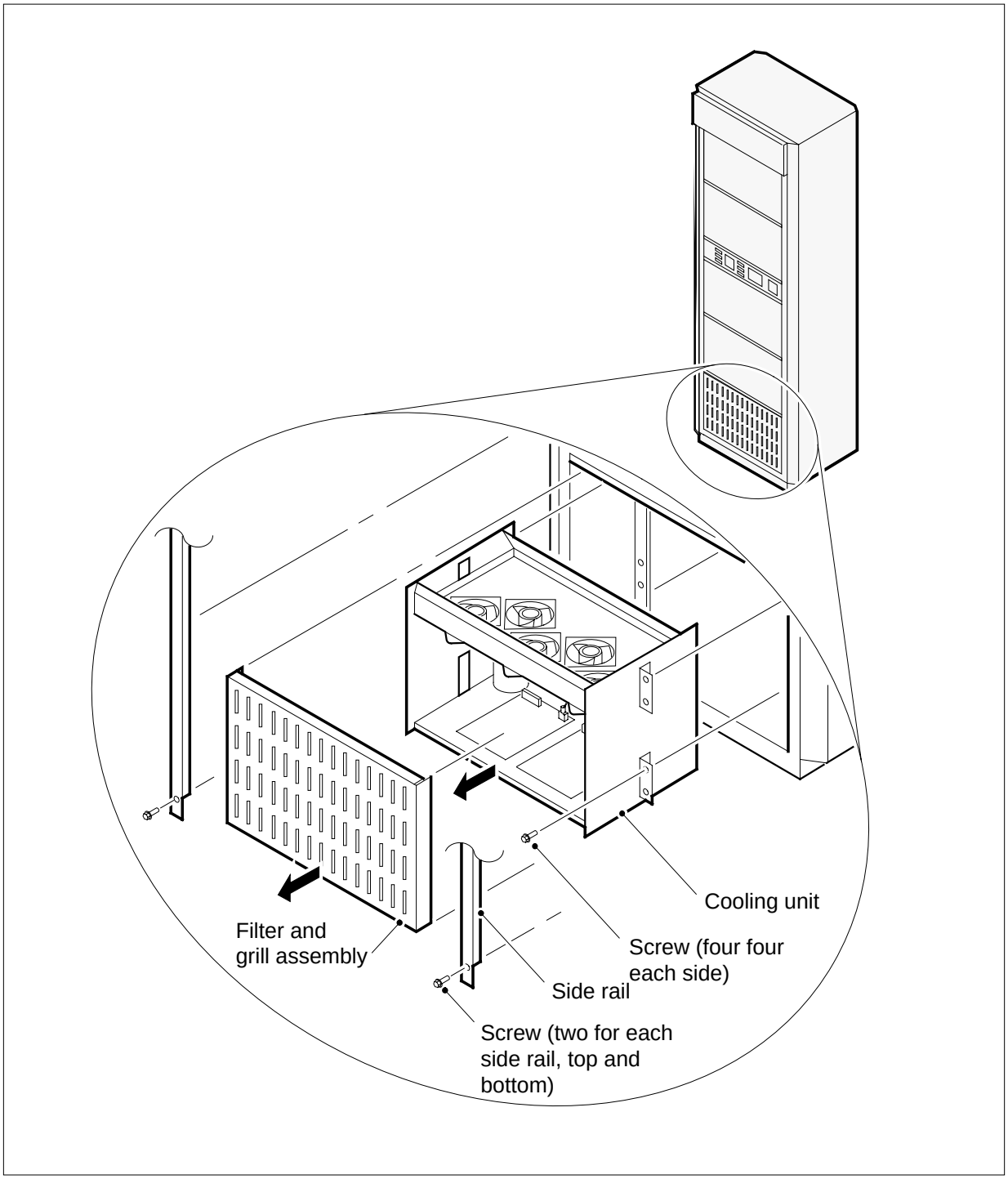
Replacing a fan in a 28-in. frame (continued)

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



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

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



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

Replacing a fan in a 28-in. frame

At the front of the frame

1 Turn ON the override switch for the fan alarm on the frame supervisory panel (FSP).

2 Remove the filter panel at shelf 04.

3 To determine the fan that has faults, look from below the fan tray.

4

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

Remove the side rails on the frame.

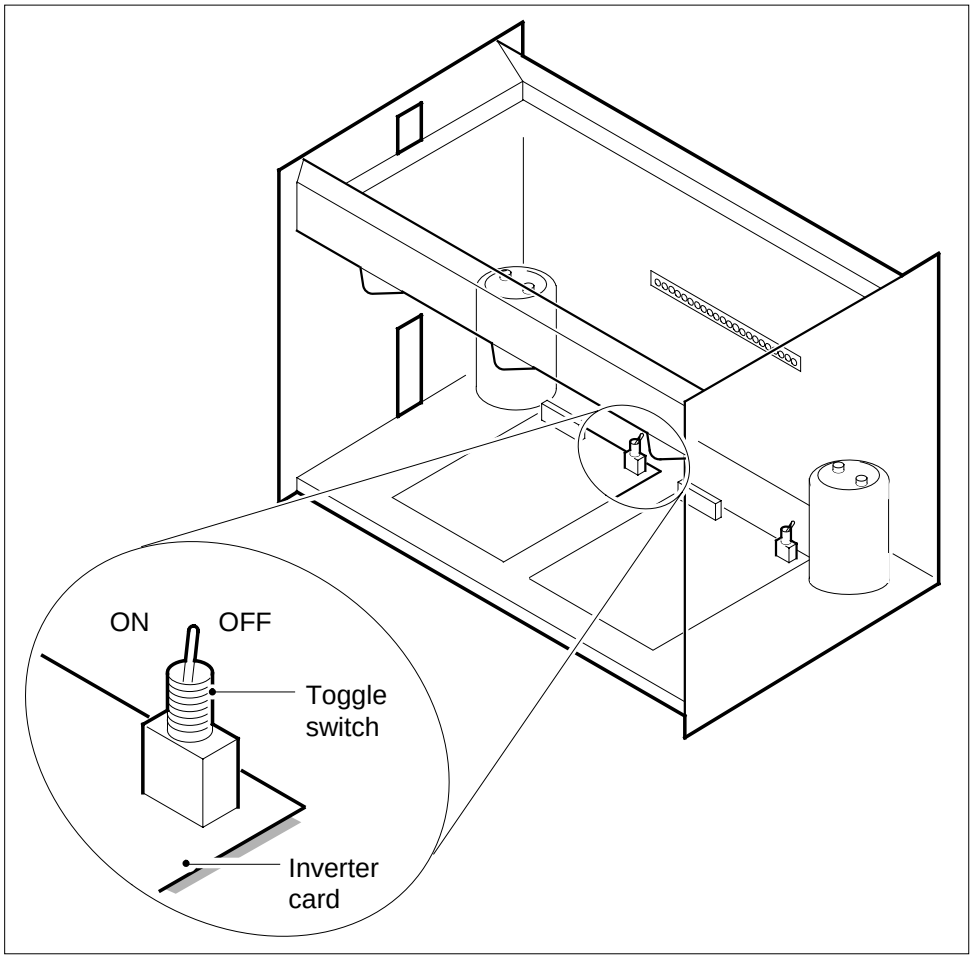
5

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

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

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

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



7 Slide the fan tray out of the frame.

8 Note the positive and negative electrical connections of the fan that has faults.

9 Unplug the electrical connector of the fan that has faults.

10 Unplug the electrical connectors to each of the inverter cards.

11 Note the position of the fan that has faults (top and bottom, left and right).

12 Remove the fan.

13 Position the replacement fan that has faults on the fan tray with the same position as the fan.

14 Screw the four bolts into the fan from the bottom of the tray.

15 Plug the two electrical connectors on the fan tray into the corresponding connectors of the fan.

16 Plug the electrical connector on the fan that has faults.

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

17

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

Plug the electrical connectors into each of the inverter cards.

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

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

19 Turn OFF the switch on the inverter card. Slide the fan tray back into the frame.

20 Turn ON the switches on the two inverter cards.

21 Mount the four screws on each side of the cooling unit.

22 Mount the screws on the side rails of the frame.

23 Turn OFF the override switch for the fan alarm.

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

25 The procedure is complete.

Replacing a fan in a 42-in. cabinet

Application

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

- A0381714
- A0383325
- A0382103

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

Definition

Cooling unit fans cool the cabinet components.

Common procedures

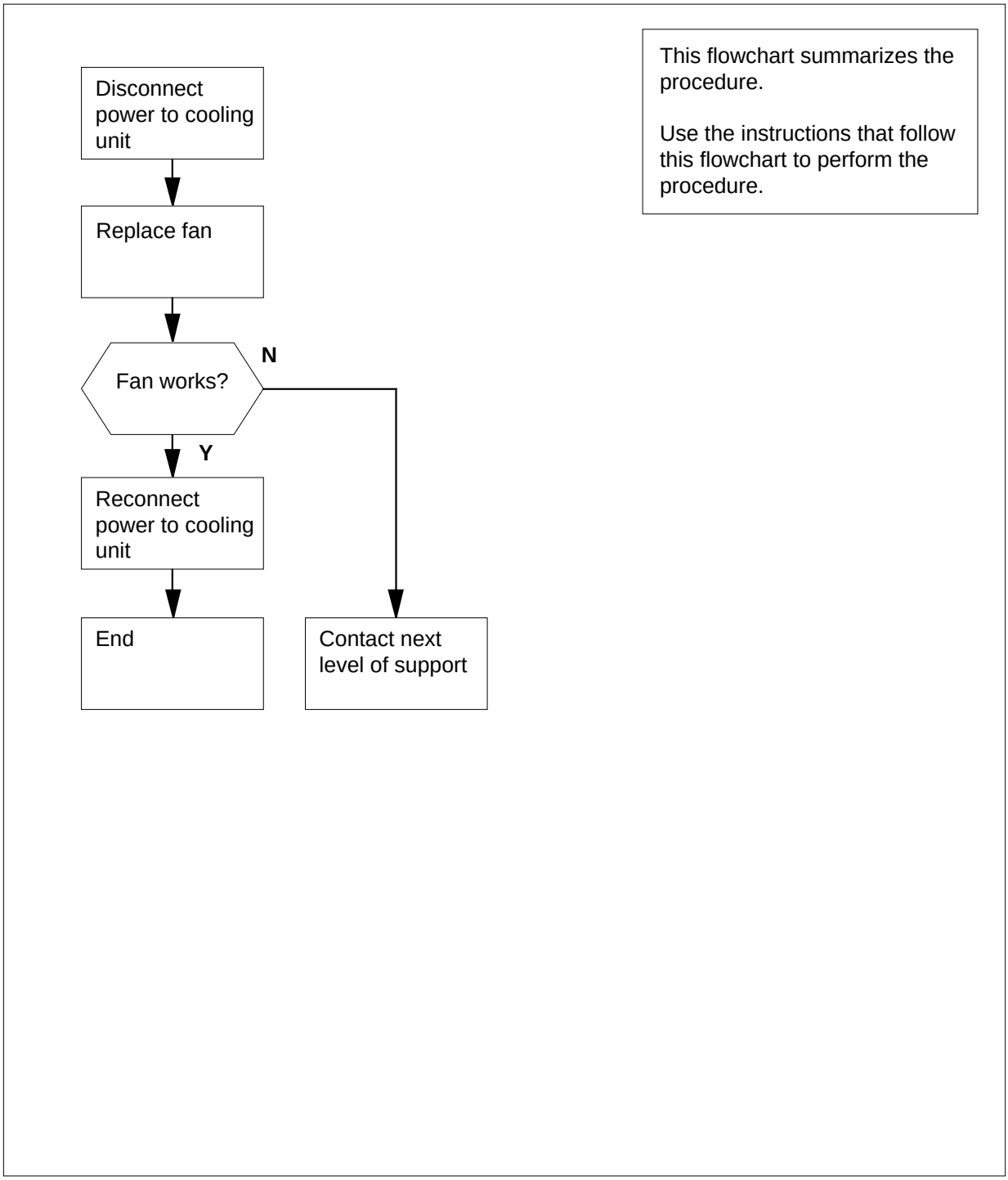
There are no common procedures.

Action

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

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

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



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

Replacing a fan in a 42-in. cabinet

At your current Location

1

DANGER
Risk of injury or damage to equipment
When you replace a cooling unit, do not wear jewelry, (for example, rings, bracelets or necklaces).

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

Obtain a replacement for the cooling unit fan.

At the front of the cabinet

2 Record the cabinet number.

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

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

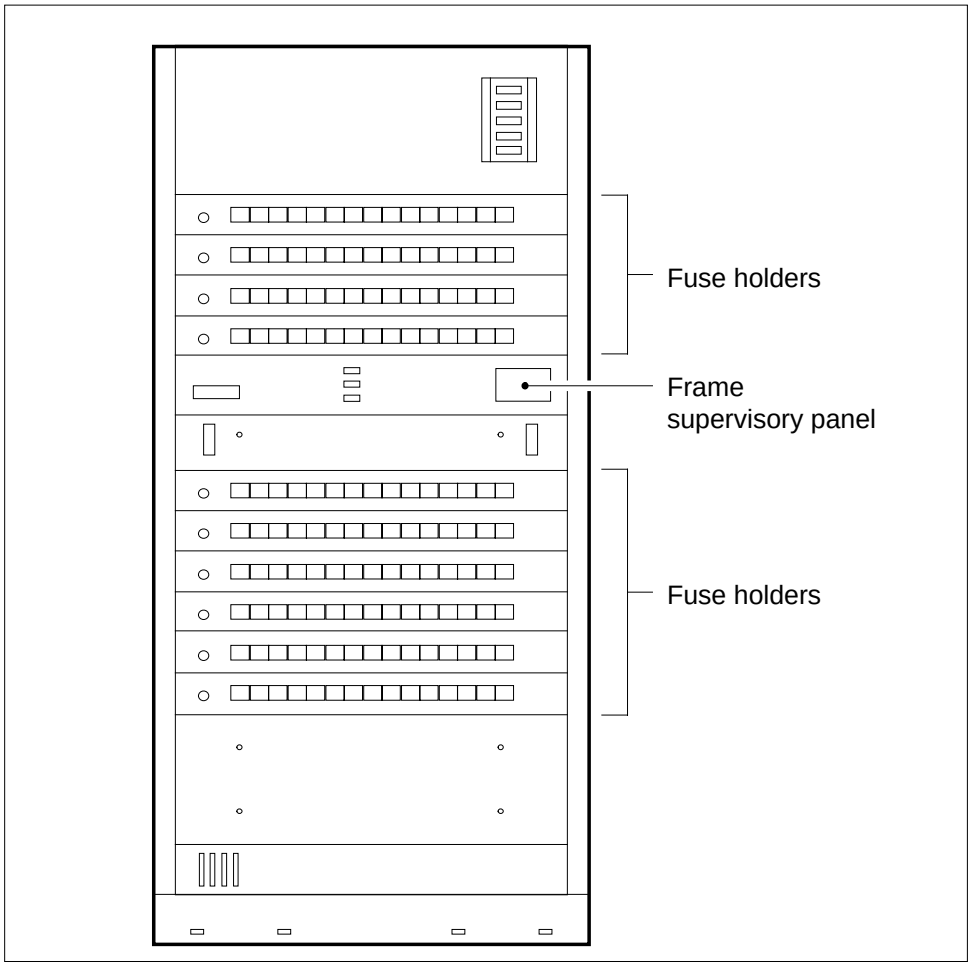
If power to the cooling unit	Do
connects through a PDC	step 4
connects through a CPDC	step 6

At the front of the PDC

4 Locate the cooling unit fuses.

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

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



5

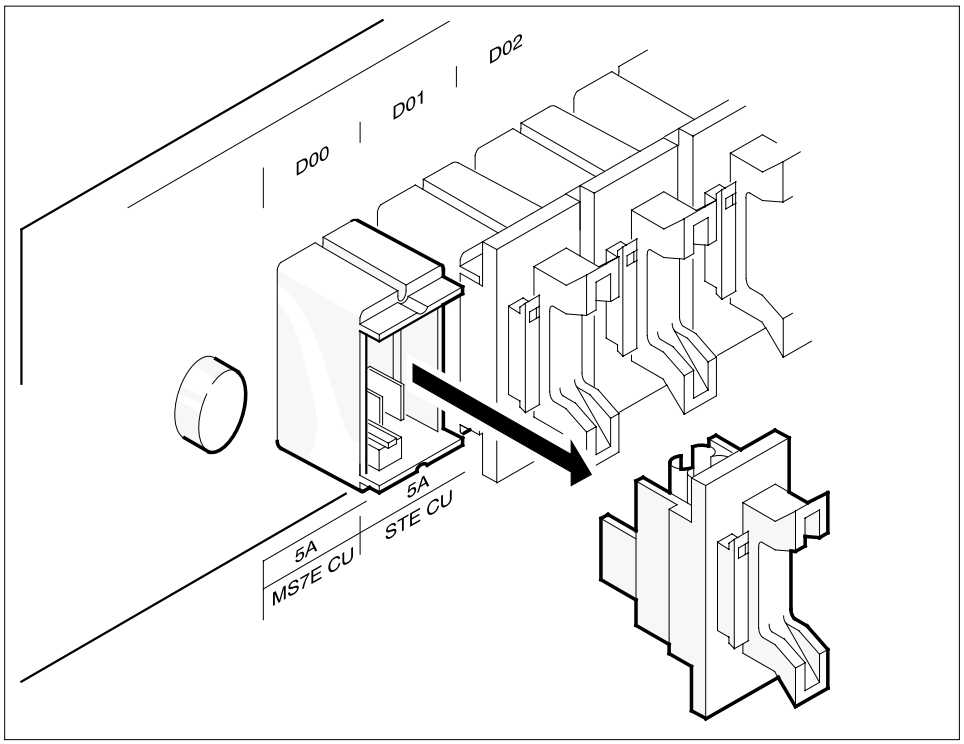
DANGER
Risk of injury
Electricity can arc when you remove a fuse cartridge. Wear eye protection when you remove fuse holders for the cooling unit.

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

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

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

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

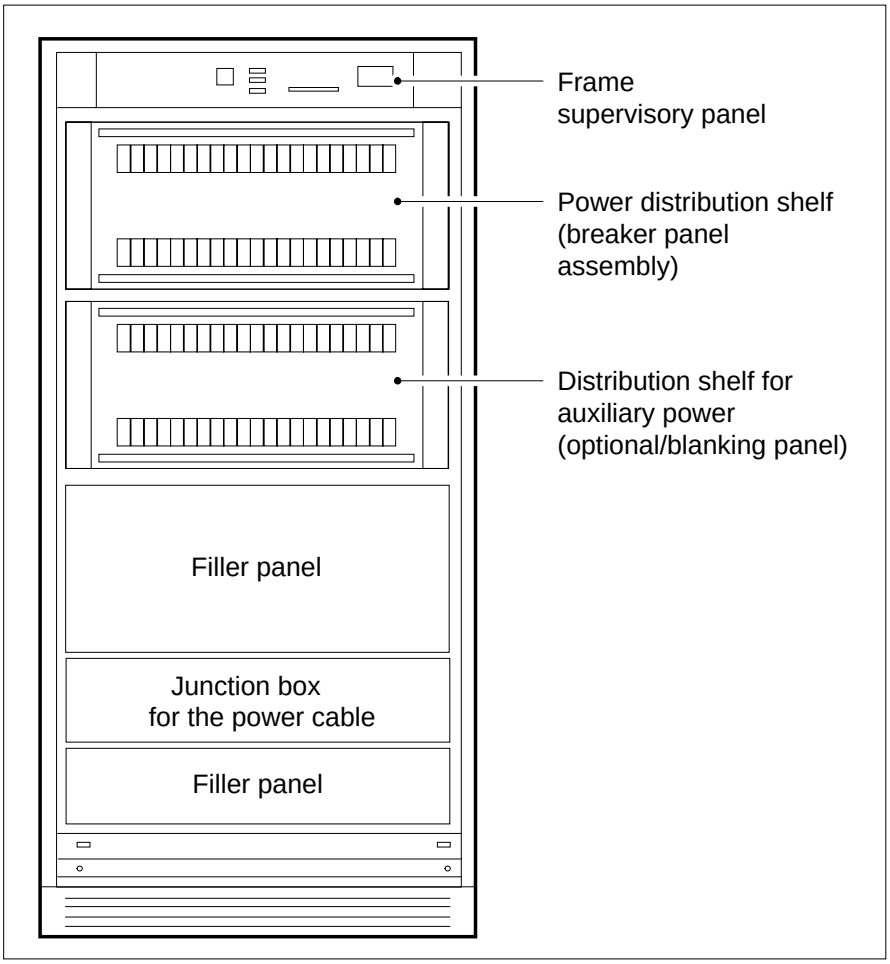


At the front of the CPDC

6 Locate the cooling unit circuit breaker.

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

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



7

DANGER
Risk of injury
Electricity can arc when you throw the breaker. Wear eye protection.

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

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

Throw the cooling unit circuit breakers.

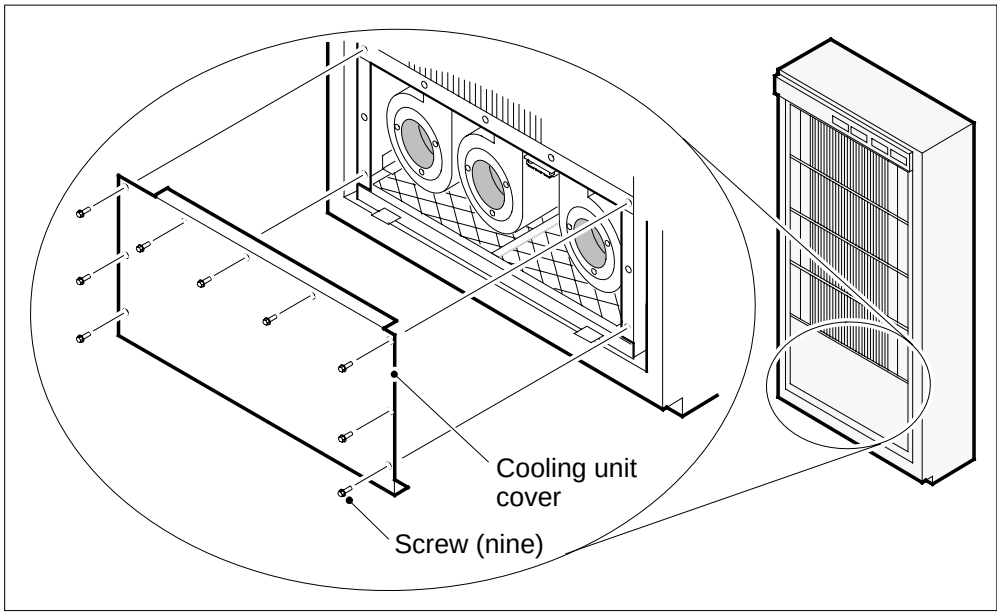
Note: When you throw the circuit breakers, you remove power from the cooling unit. Removal of power from the cooling unit causes the fan failure lamp to turn ON. The fan failure lamp is at the top of the cabinet between the doors.

At the front of the cabinet

8 Open the cabinet doors.

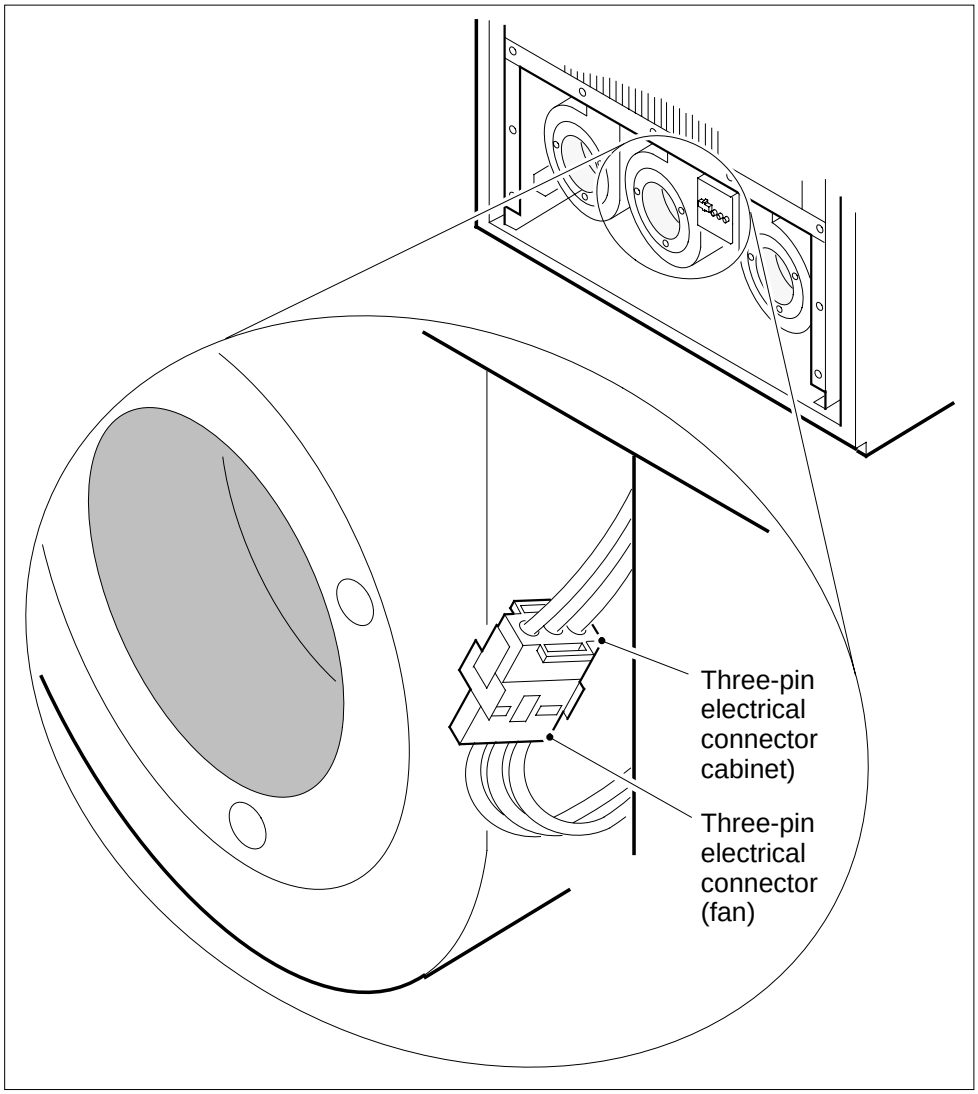
9 To remove the cooling unit cover at the bottom of the cabinet, remove the nine mounting screws from the cover.

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



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

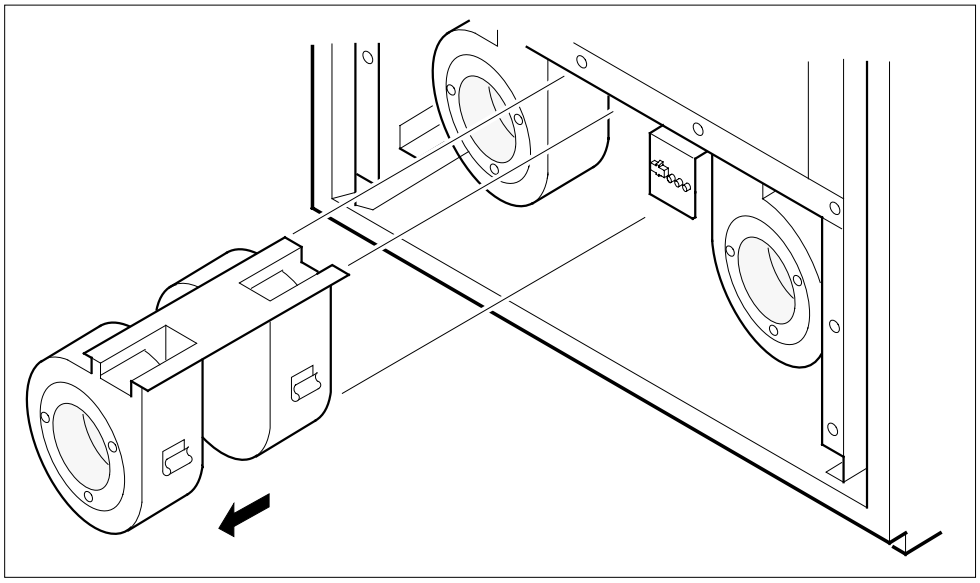
Replacing a fan in a 42-in. cabinet (continued)



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

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

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



13 Slide the replacement fan half-way into the cabinet.

14 Connect the electrical connector on the replacement fan to the corresponding electrical connector on the cabinet.

Note: Step 10 shows the location of the connector.

15 Slide the replacement fan the rest of the way into the cabinet.

16 Determine if power to the cooling unit connects through a circuit breaker at the CPDC.

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

At the front of CPDC

17 To insert the cooling unit fuses, push the fuse cartridges straight into the front panel of the PDC.

Go to step 19.

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

At the front of the PDC

18

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

Throw the cooling unit circuit breaker.

At the front of the cabinet

19 Determine if the replacement fan works.

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

20 Reinstall the cooling unit cover.

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

21 Close the cabinet doors.

Go to step 23.

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

23 The procedure is complete.

Replacing a line card

Task

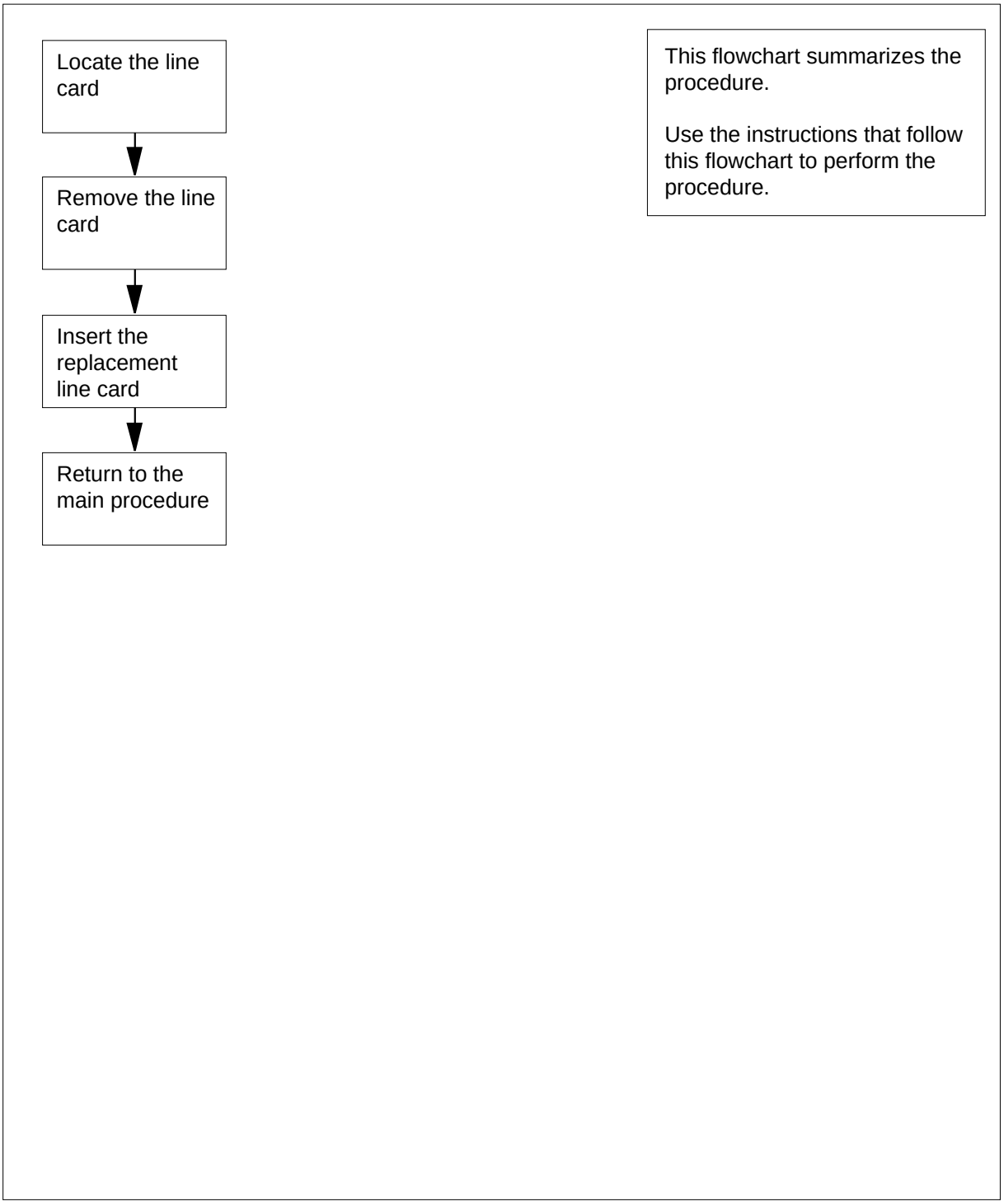
Use this procedure to replace a line card in an ISDN enhanced line concentrating module (LCME).

Action

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

Replacing a line card (continued)

Summary of Replacing a line card



Replacing a line card (continued)

Replacing a line card

At the MAP terminal

1

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

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

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

and press the Enter key.

Example of a MAP display:

```
CI:
>MAPCI  NODISP;  MTC;  PM;  POST  LCME36  0;  QUERYPM
MAPCI:
MTC:
PM:
POST:
PM TYPE: LCME Int. No.: 10 Status index: 5 Node_No: 177
LCME HOST 36 0 Memory Size-Unit 0: 256K, Unit 1: 256K
Loadnames: LCMINV - LCME81BA, Unit0: LCME81BA,
Unit1: LCME81BA
LCM REX is ON; PASSED on TUE. 1997/10/28 at 01:30:05
Node Status: {OK, FALSE}
Unit 0 Status: {OK, FALSE}      /RG: 1
Unit 1 Status: {OK, FALSE}      /RG: 1
Ring Generator Status:
        RG 0 Status: {OK}       Preferred
        RG 1 Status: {OK}       Standby
        RG in Overload : NO
Site Flr RPos Bay_id  Shf Description Slot EqPEC
HOST  03 CC06 LCEI 36  04  LCME 36 0      BX30AB
Services : ISDN Equipped
```

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

Site
in the HOST office

Flr
on the 3rd floor

RPos
in row C that contains the line equipment bay, 01,

Replacing a line card (continued)

Bay_id
in ISDN-line concentrating equipment, bay 01

Shf
on shelf 18

Description
in hardware device LCME, bay 01

Slot
in slot 02, drawer 09

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

2 Record the location and PEC for the line card.

At the shelf

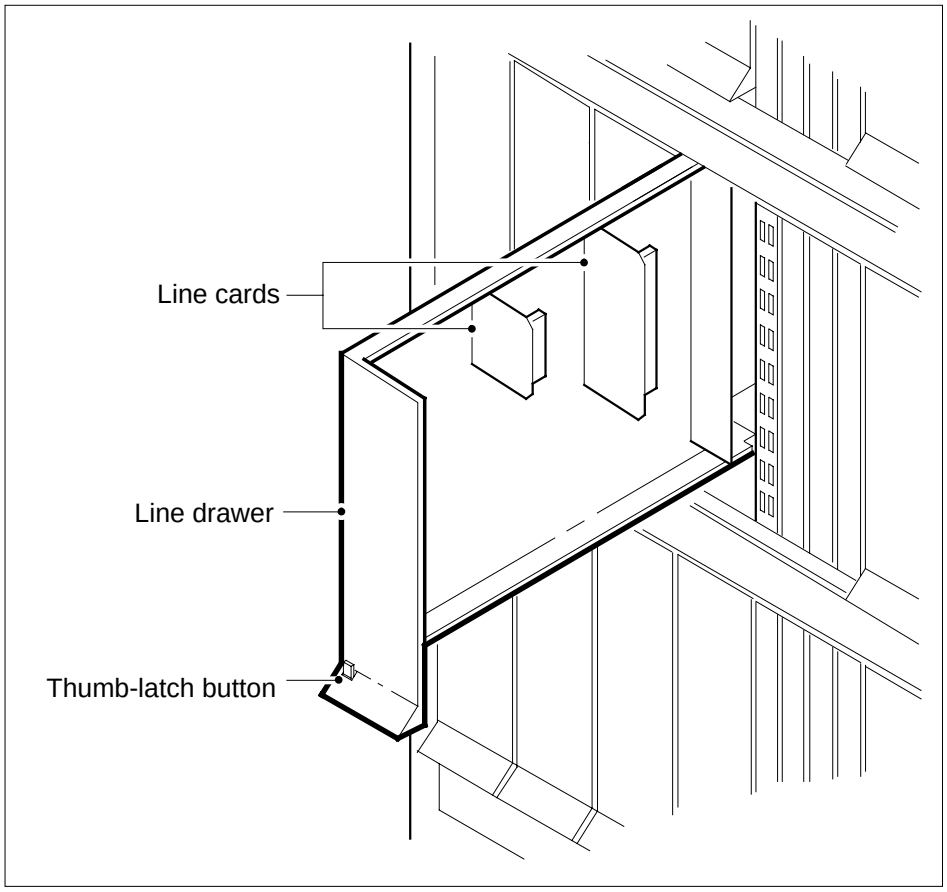
3

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

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

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

Replacing a line card (continued)



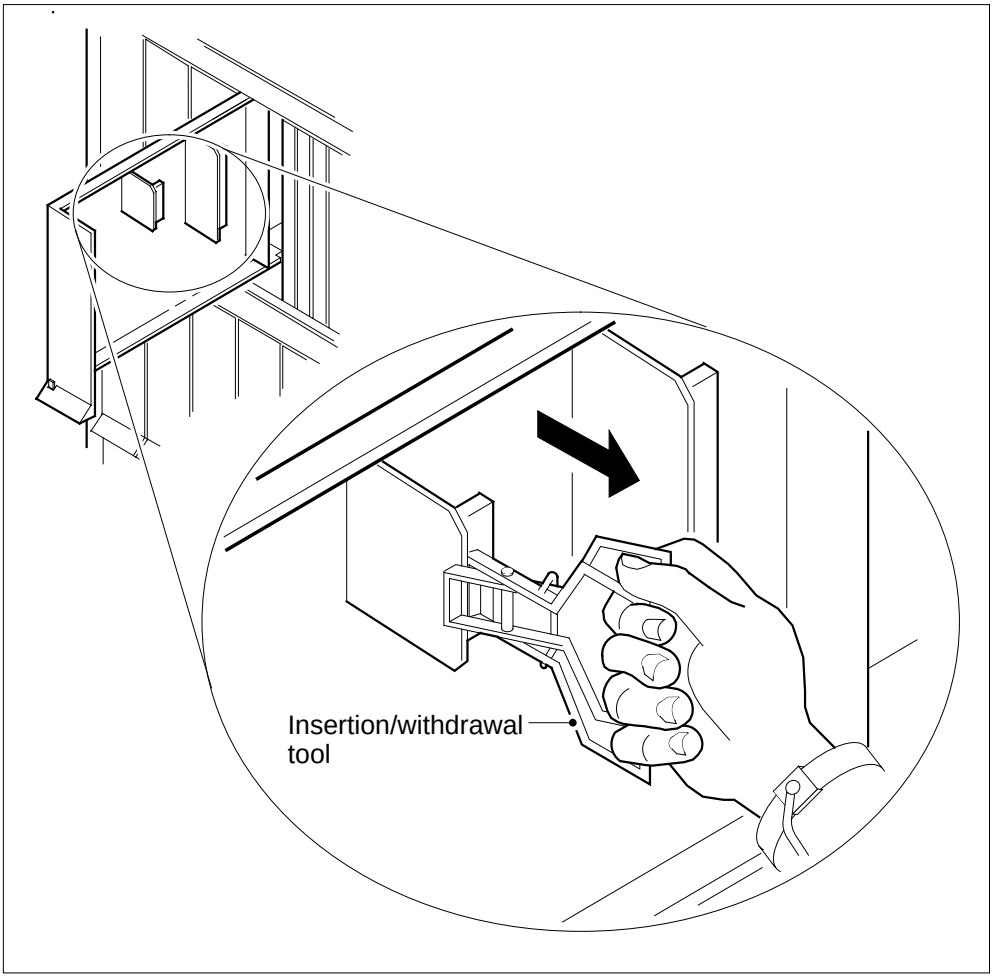
5

DANGER
Risk of personal injury
The large flat rectangular component mounted on the front edge can be very hot. of line cards. To avoid burns to your fingers, use the insertion and withdrawal tool to remove the card as illustrated in step Section 6, "Clamp the insertion and withdrawal tool to the front edge of the card, as illustrated below. Carefully remove the card from the connector pins." on page -220.

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

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

Replacing a line card (end)



7 Place the removed card into an electrostatic discharge (ESD) protective container.

8 Make sure the replacement card has the same PEC and PEC suffix as the removed card.

9 Clamp the insertion and withdrawal tool to the front edge of the replacement card, as shown in step 6. Align the card with the connector pins and carefully insert the card.

10 Make sure the card sits in a secure position.

11 Carefully push the drawer back into the shelf until the thumb-latch button locks.

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

Replacing a missing line card

Application

Use this procedure to replace a missing line card.

Definition

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

Common procedures

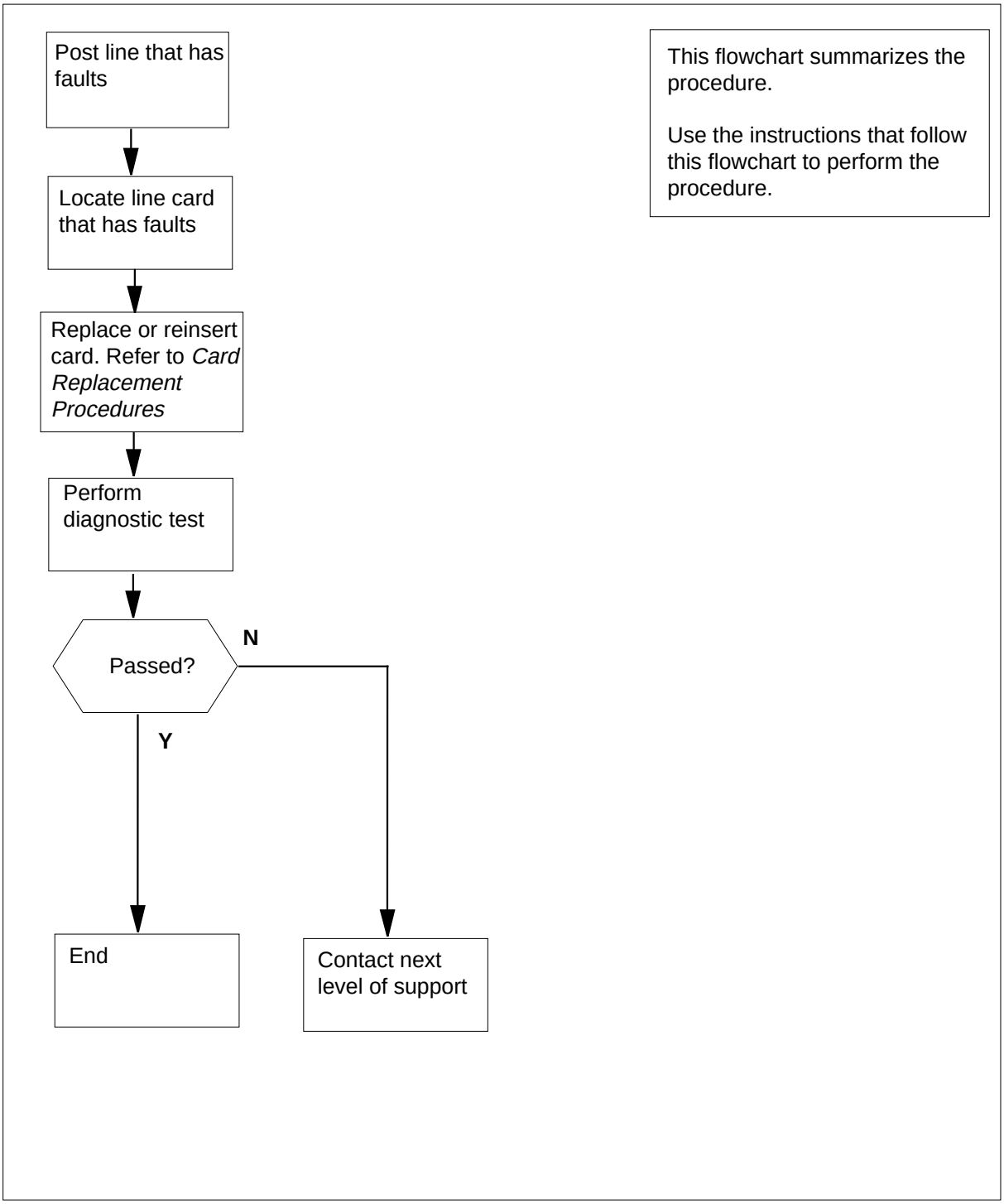
There are no common procedures.

Action

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

Replacing a missing line card (continued)

Summary of Replacing a missing line card



Replacing a missing line card (continued)

Replacing a missing line card

At the MAP terminal

1 To access the LTP level of the MAP display, type

>MAPCI;MTC;LNS;LTP

and press the Enter key.

2 To post the line equipment number (LEN) of the line that has faults, type

>POST L len

and press the Enter key.

where

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

Example input:

>POST L 00 1 00 01

Example of a MAP response

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

3 To locate the missing line card, type

>CKTLOC

and press the Enter key.

Example of a MAP response

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

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

4 Record the product engineering code (PEC), the PEC suffix, and the location of the line card that has faults.

Note: The PEC appears In the MAP response in step 3. The PEC appears under the EqPEC header. The location appears under the Site, Flr, RPos, Bay_id, Sh, Description, and Slot headers.

5 To replace the line card that you recorded in step 4, perform the correct procedure in *Card Replacement Procedures*. Complete the procedure and return to this point.

6 To perform a diagnostic test on the line card that you installed in step 5, type

>DIAG

and press the Enter key.

Example of a MAP response

Replacing a missing line card (end)

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

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

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

8 The procedure is complete.

Replacing an NT9X95 card in a cooling unit

Application

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

- A0383326
- A0383327

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

Definition

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

Common procedures

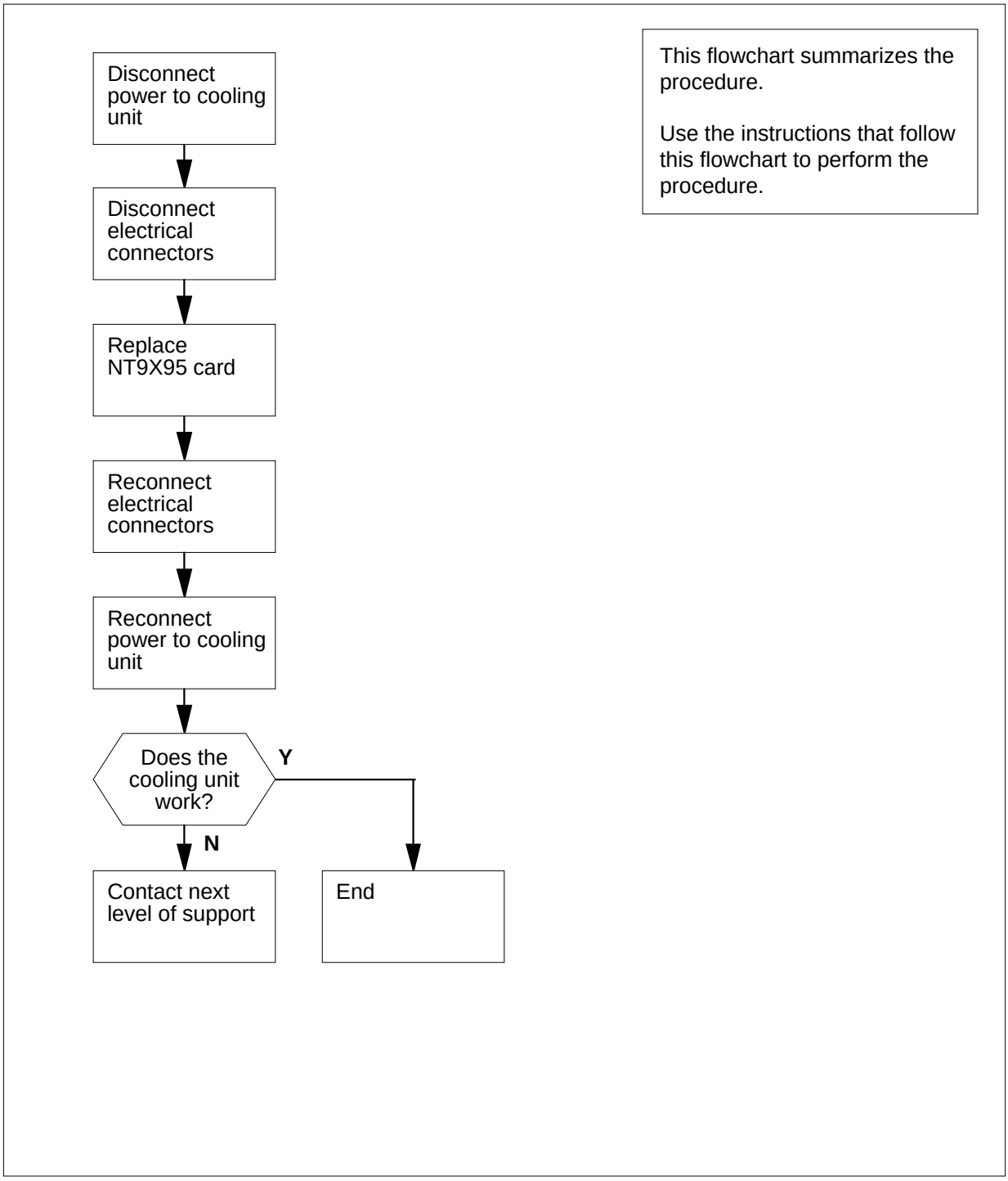
There are no common procedures.

Action

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

Replacing an NT9X95 card in a cooling unit (continued)

Summary of Replacing an NT9X95 card in a cooling unit



Replacing an NT9X95 card in a cooling unit (continued)

Replacing an NT9X95 card in a cooling unit

At your current location

1

DANGER
Risk of injury or damage to equipment
When you replace an electronic module for the cooling unit, do not wear jewelry (for example, rings, bracelets or necklaces).

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

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

At the front of the cabinet

2 Record the cabinet number.

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

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

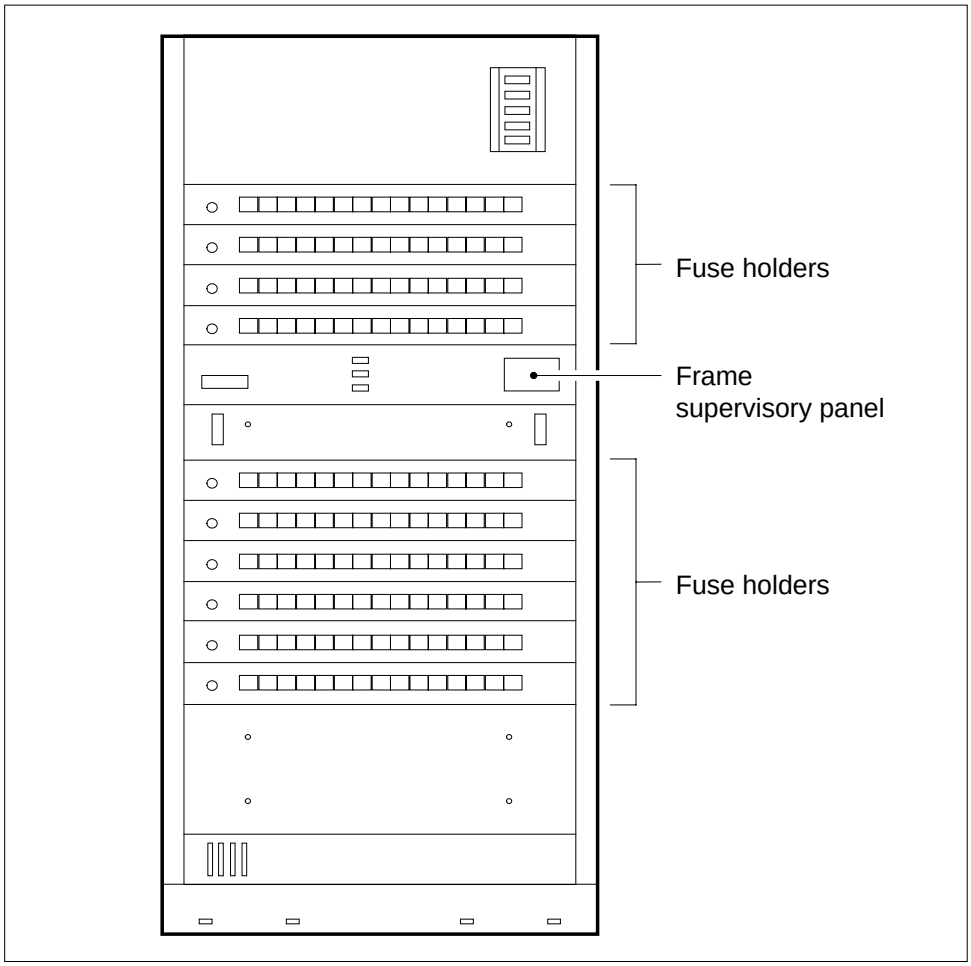
If power for the cooling unit	Do
connects through a PDC	step 4
connects through a CPDC	step 6

At the front of the PDC

4 Locate the cooling unit fuses.

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

Replacing an NT9X95 card in a cooling unit (continued)



5

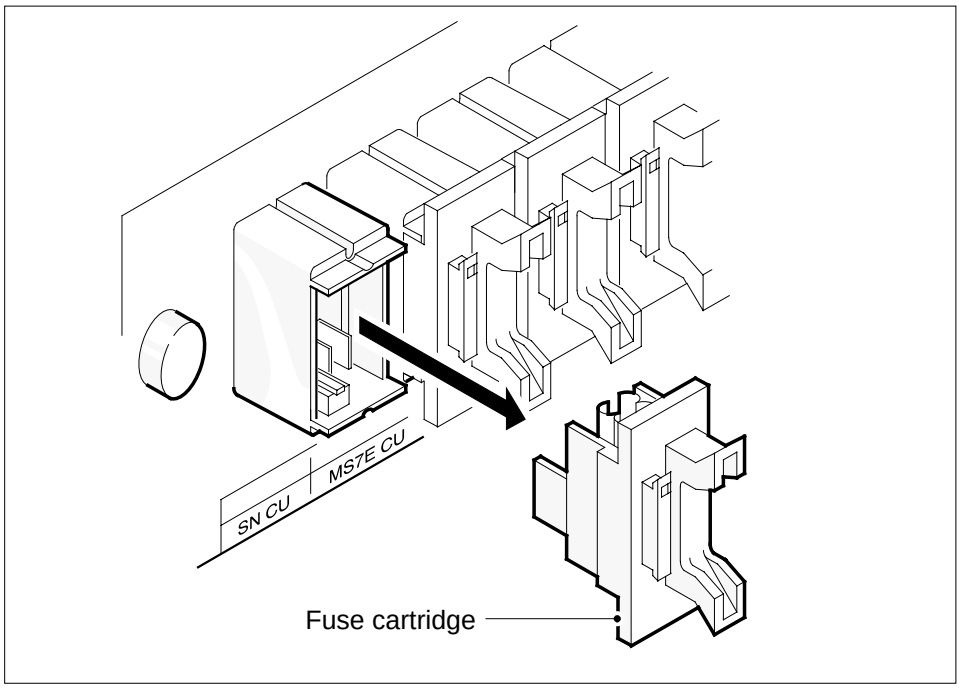
DANGER
Risk of injury
Electricity can arc when you remove a fuse cartridge from the cooling unit. Wear eye protection.

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

Replacing an NT9X95 card in a cooling unit (continued)

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

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

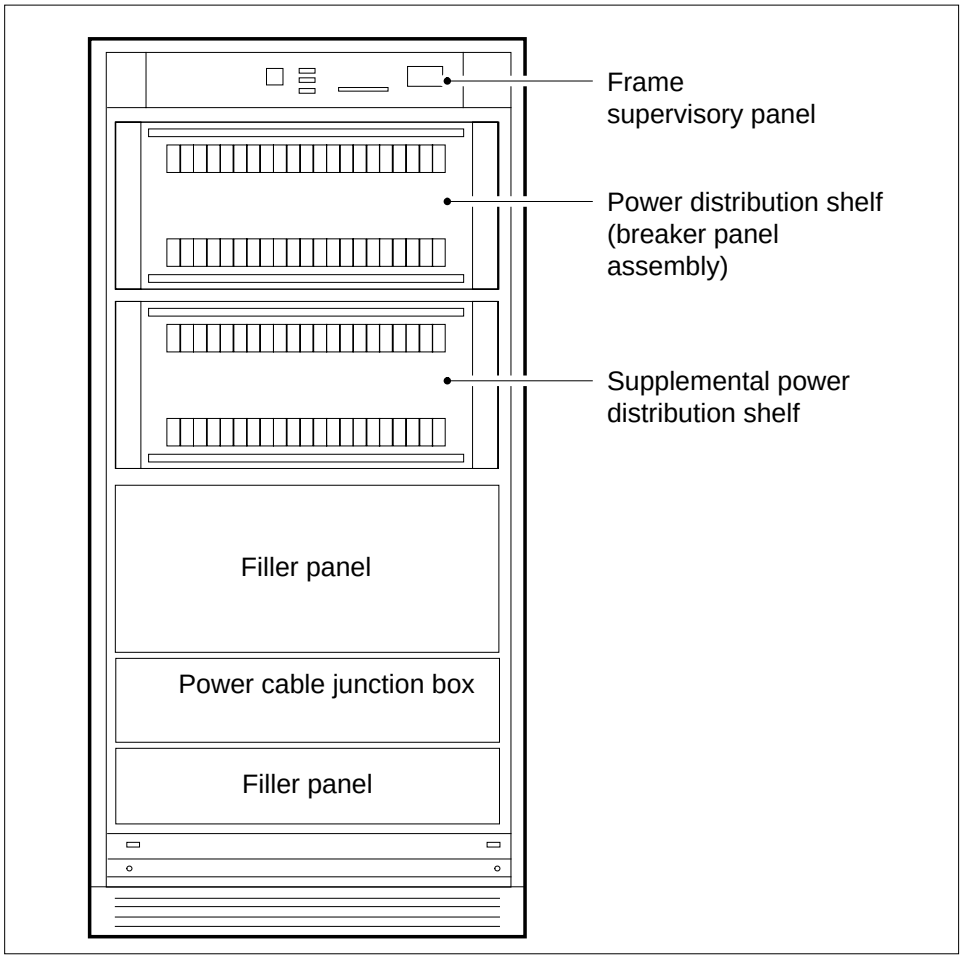


At the front of the CPDC

6 Locate the circuit breakers for the cooling unit.

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

Replacing an NT9X95 card in a cooling unit (continued)



7

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

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

Replacing an NT9X95 card in a cooling unit (continued)

Throw the circuit breakers for the cooling unit.

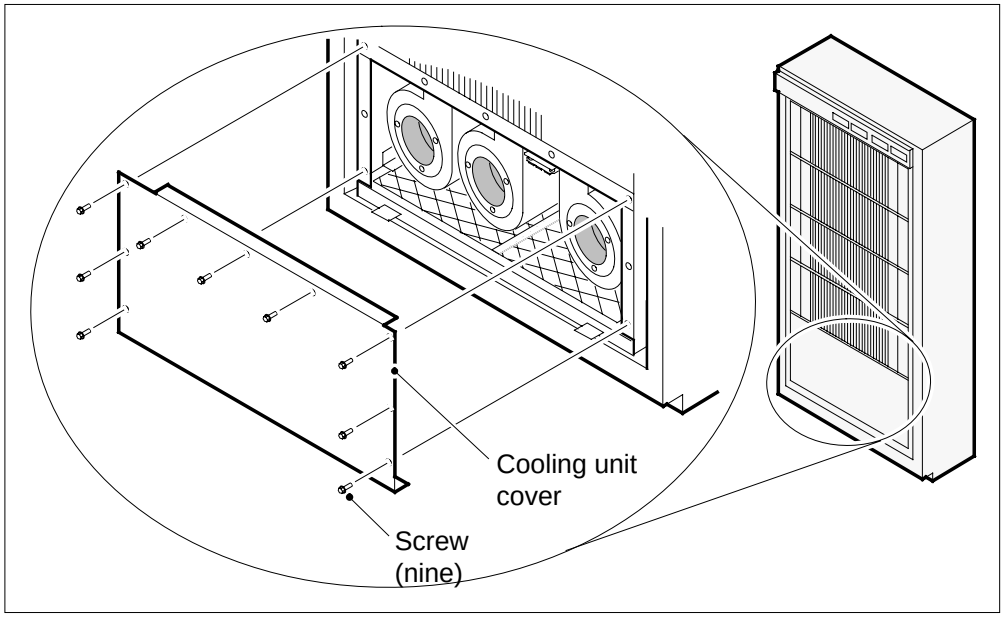
Note: When you throw the circuit breakers, you remove power from the cooling unit. Removal of power from the cooling unit causes the fan failure lamp to turn ON. The fan failure lamp is at the top of the cabinet between the doors.

At the front of the cabinet

8 Open the cabinet doors.

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

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



At the back of the cabinet

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

Note: The screws are near the upper left-hand corner of the back plate of the cooling unit.

11 Disconnect the power connector from the electronic module.

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

Replacing an NT9X95 card in a cooling unit (continued)

At the front of the cabinet

12

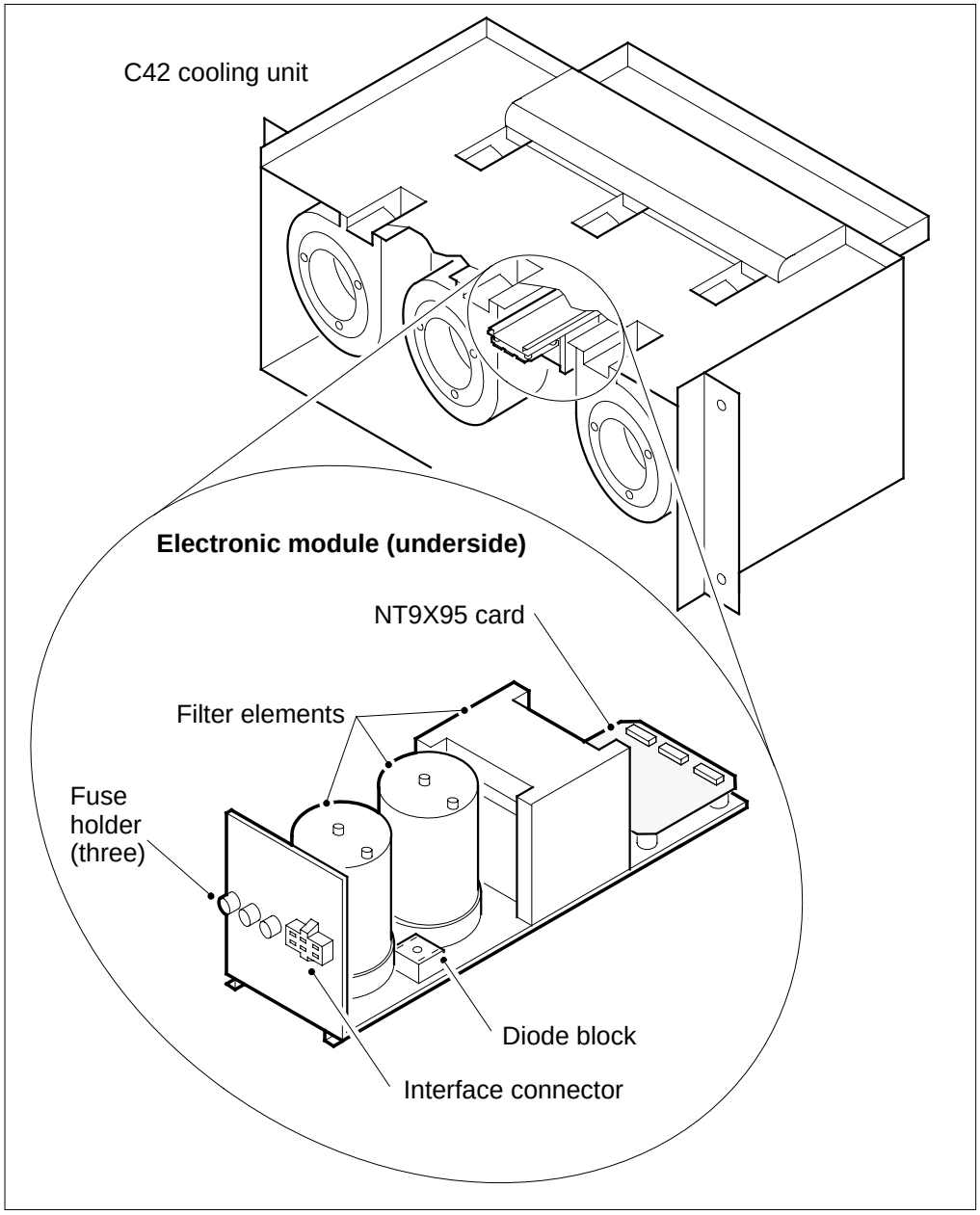
CAUTION
Possible equipment damage or service interruption
Label all electrical connectors before you disconnect them. If you reconnect to the wrong electrical connector, you can cause equipment damage or service interruption.

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

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

13 Slide out the electronic module for the cooling unit.

Replacing an NT9X95 card in a cooling unit (continued)



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

15 To remove the NT9X95 card, remove the four screws that mount the card to the electronic module.

16 To install the replacement NT9X95 card, insert the four screws that mount the card to the electronic module.

17 Reconnect the electrical connector that you disconnected in step 14.

Replacing an NT9X95 card in a cooling unit (continued)

18 Slide the electronic module back in until the module touches the cooling unit backplate.

19 Reconnect the four electrical connectors you disconnected in step 12.

Note: To reconnect each connector, press the releases on the connector top and insert the connector bottom until it locks in place. If you cannot insert the connector bottom, turn it one-half turn and try to insert it again.

At the back of the cabinet

20 Insert the screws that fasten the electronic module back into the cooling unit assembly. You removed these screws in step 10.

21 Reconnect the power connector you disconnected in step 11.

22 Determine if power for the cooling unit connects through a PDC or a CPDC.

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

At the front of PDC

23 Insert the cooling unit fuses into the front panel of the PDC. Push the fuse cartridges straight into the front panel.

Go to step 25.

At the front of CPDC

24

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

Throw the cooling unit circuit breakers.

At the front of the cabinet

25 Determine if all cooling unit fans work.

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

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

Replacing an NT9X95 card in a cooling unit (end)

26 Replace the cooling unit cover.

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

27 Close the cabinet doors.

Go to step 29.

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

29 The procedure is complete.

Replacing an NTFX39 bulkhead splitter unit

Application

Use this procedure to replace a bulkhead splitter unit.

Definition

The bulkhead splitter unit is a connection unit that mounts on the cabinetized integrated services module (CISM) bulkhead. The unit connects the input/output module (IOM) paddle boards on the integrated service module (ISM) shelf to the input/output devices (IOD).

Common procedures

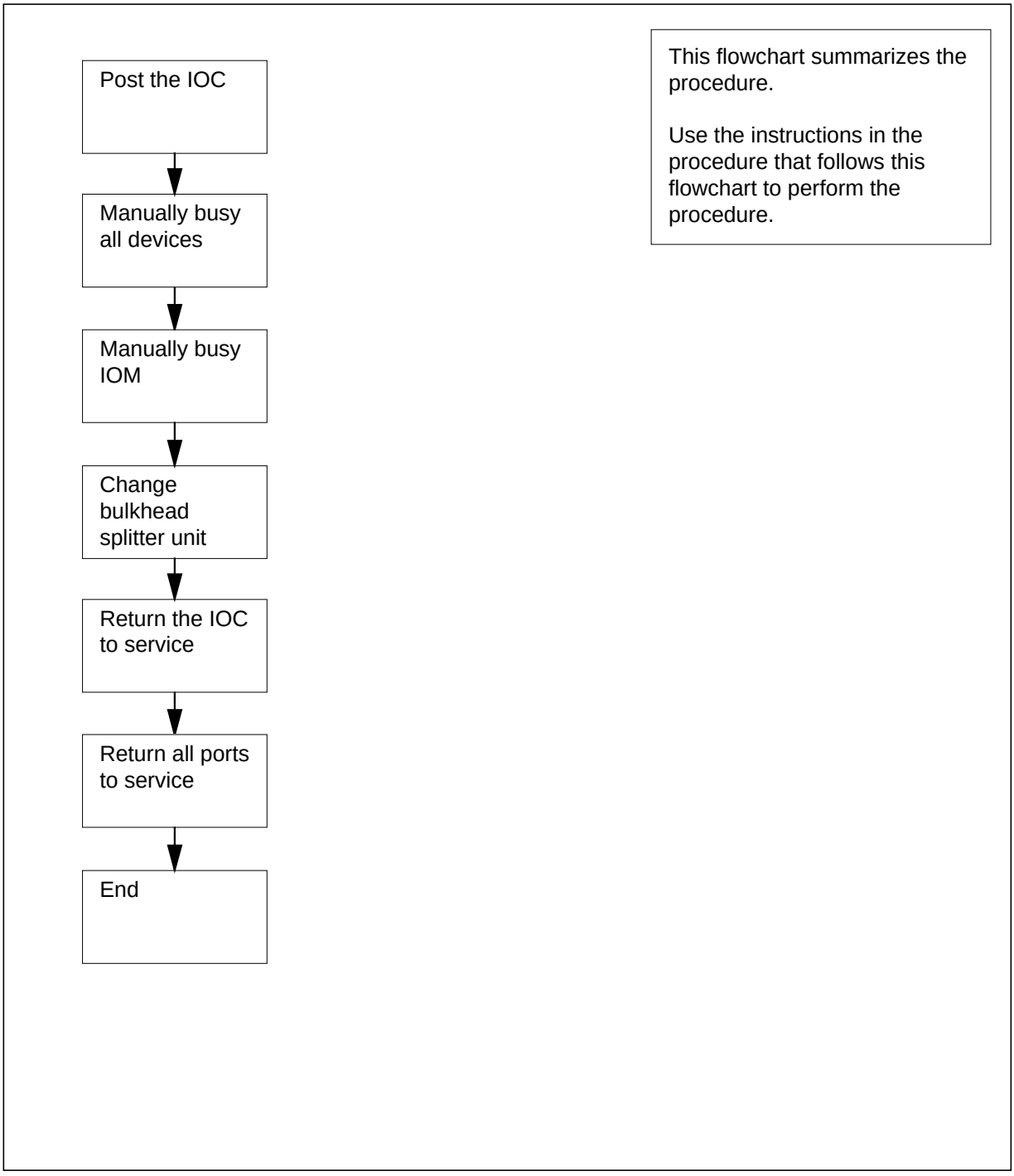
There are no common procedures.

Action

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

Replacing an NTFX39 bulkhead splitter unit (continued)

Summary of Replacing an NTFX39 bulkhead splitter unit



Replacing an NTFX39 bulkhead splitter unit (continued)

Replacing an NTFX39 bulkhead splitter unit

ATTENTION

This procedure includes directions to manually busy the controller card for the IOM. Perform this procedure from a MAP terminal that does not connect to the IOM that has the manual-busy controller card.

CAUTION

Loss of service

This procedure instructs you to disconnect the IOM controller card and the connected devices to replace the splitter unit. Perform this procedure to recover out-of-service components. Perform this procedure during periods of low traffic.

At the MAP terminal

1 Obtain a replacement splitter unit. Ensure that the replacement unit has the same PEC and PEC suffix as the removed unit.

2 To access the IOD level of the MAP display, type

`>MAPCI;MTC;IOD`

and press Enter.

Example of a MAP display:

```
IOD
IOC  0  1  2  3
STAT .  .  .  S

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

3 To post the configured IOM controller, type

`>IOC  ioc_no`

and press Enter.

where

ioc_no
is the IOM identification number

Example of a IOM MAP display:

Replacing an NTFX39 bulkhead splitter unit (continued)

```
IOD
IOC  0  1  2  3
STAT .  .  .  S

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

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

4 Determine if any terminal controller ports are on the shelf.

If terminal controller ports	Do
are on the shelf	step 5
are not on the shelf	step10

5 Note the CONS ID and status for each port.

If	Do
ports are ManBsy	step 9
one or more ports are Offl	step 55
one or more ports are . (dot) in service	step 6
ports are in any other state that is out of service	step 8

6 Inform office personnel of the removal from service of the CONS IDs for the controller card. Wait until all persons cease activity for these CONS IDs.

7 To post the port for the replaced CONS, type

`>PORT  port_no`

and press Enter.

where

port_no
is the port identification number

Example of a IOM MAP display:

```
Port 0  Status      0
        Cons Id     MAP
        ConType     CYB
```

Replacing an NTFX39 bulkhead splitter unit (continued)

8 To manually busy the port, type

>BSY

and press Enter.

where

port_no
is the port identification number

If the BSY command	Do
passed	step 9
failed	step 57

9 Repeat step 8 until you manually busy all CONS ports.

10 The next action depends on any provisioned multiprotocol controller (MPC) ports that are on the controller card.

If provisioned MPC ports	Do
are present	step 11
are not present	step 18

11 To post a port for the MPC, type

>PORT port_no

and press Enter.

where

port_no
is the port identification number

Example of a IOM MAP display:

```
Port 9  Unit        0
         User       SYSTEM  PROTOCOL  LINK
         Status     Ready   X2584     COMACT ENABLED
```

12 Determine the state of the port.

If the port state	Do
is ManB	step 17
is OFFL	step 55
is other than listed here	step 13

13 To display status information on current MPC conversations, type

>QCONV

and press Enter.

Replacing an NTFX39 bulkhead splitter unit (continued)

Example of a MAP response:

```
MPC  L  LCN  STATUS   CCC  SEC  PARDEV  INP  OPEN  OWNER
---  -  ---  ------  ---  ---  ------  ---  ----  -----
 0   3   1   INACTIVE none  none  none   FIL   0   none
 0   3   2   INACTIVE none  none  none   FIL   0   none
```

If	Do
one or more sessions is active	step 14
all sessions are inactive	step 15

14 Notify all users that there will be an interruption in the MPC service. Wait until all sessions are inactive before you proceed. Repeat step 13 to verify MPC session activity.

15 To manually busy the port and the port links, type

>BSY F0RCE

and press Enter.

Example of MAP response:

```
TYPE YES TO VERIFY FORCE, NO TO CANCEL COMMAND
Please confirm ("YES", "Y", "NO", or "N")
```

16 To confirm the command, type

>YES

and press Enter.

Example of MAP response:

```
REQUEST PASSED FOR PORTS
REQUEST PASSED FOR LINKS
```

If the BSY command	Do
passed	step 17
failed	step 57

17 Repeat steps 11 to 16 for each MPC port on the IOM controller card.

18 The next action depends on any provisioned disk drive units (DDU) ports that are on the controller card.

If provisioned DDU ports	Do
are on the shelf	step 19
are not on the shelf	step 24

Replacing an NTFX39 bulkhead splitter unit (continued)

19 To post a port for the DDU, type

>PORT port_no

and press Enter.

where

port_no
is the port identification number

Example of a IOM MAP display:

```
Port 16  Unit       0
(SCSI)       User       system      Drive_State
         Status     Ready       On_line
```

20 Determine the state of the port.

If the port state	Do
is ManB	step 24
is OFFL	step 55
is other than listed here	step 21

21 To determine if open files on the DDU exist, type

>ALLOC

and press Enter.

Example of a MAP display:

```
VOLID VOL_NAME SERIAL_NO BLOCKS ADDR TYPE R/O FILES_OPEN
  0   IMAGE     2800     45000  D000  0    NO      0
  1   XPMLOADS  2801     35000  D000  0    NO      0
  2   RTMLOADS  2802     20000  D000  0    NO      0
   .
   .
   .
  7   SMDR      2807     5000   D000  0    NO      0
  8   AMA1      2808     5000   D000  0    NO      0
  9   TST       2809       50   D000  0    NO      0
 10   AMA2      280A      500   D000  0    NO      0
```

If files	Do
are open	step 56
are not open	step 22

22 To manually busy the port on the controller card, type

>BSY

Replacing an NTFX39 bulkhead splitter unit (continued)

and press Enter.

Example of MAP response:

```
bsy
OK
```

23 Repeat steps 19 to 22 for the second DDU in the occurrence of two provisioned DDUs.

24 The next action depends on any provisioned magnetic tape drive (MTD) ports that are on the controller card.

If provisioned MTD ports	Do
are on the shelf	step 25
are not on the shelf	step 30

25 To post a port for the MTD, type

>PORT port_no

and press Enter.

where

port_no
is the port identification number

Example of a IOM MAP display:

```
Port 5   MTD        0       DevType
         TapeName           User
         Status     Idle
```

26 Determine the state of the port.

If the port state	Do
is ManB	step 30
is OFFL	step 55
is Idle	step 28
is other than listed here	step 27

27 Notify all users that there will be an interruption in service for the device. Wait until all users stop use of the device before you proceed to the next step.

28 To manually busy the port, type

>BSY

and press Enter.

Example of MAP response:

Replacing an NTFX39 bulkhead splitter unit (continued)

```
bsy
OK
```

29 Repeat steps 24 to 28 for all magnetic tape drive ports provisioned on the controller card.

30 To return to the IOC level of the MAP display, type

>QUIT

and press Enter.

31 Determine the state of the IOM.

If the state of the IOM	Do
is M	step 34
is other than listed here	step 32

32 To manually busy the IOM controller card, type

>BSY IOC

and press Enter.

Example of MAP response:

```
bsy
OK
```

33 Repeat steps 3 to 32 for other IOM units configured on the splitter unit.

At the modular supervisory panel

34

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

Put on a wrist strap.

At the rear of the ISM shelf

35 Locate bulkhead splitter unit and disconnect the four cable connectors (C05 to C08) from the harness. Disconnect the shrouded pin unit connections at the rear of the splitter unit.

Note the pin unit positions.

36 Remove the nuts in the back of the splitter unit.

Replacing an NTFX39 bulkhead splitter unit (continued)

37 Replace the splitter unit.

38 Secure the replacement unit with the nuts.

39 Reconnect the four cable connectors (C05 to C08) at the front of the splitter unit. Reconnect the shrouded pin unit connections at the back of the unit.

40 Repeat step 36 for the cable connectors and shrouded pin connections on the second IOM.

41 The next action depends on the reason for the performance of this procedure.

If a maintenance procedure	Do
directed you to this procedure	step 42
did not direct you to this procedure	step 43

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

At the MAP terminal

43 To return an IOM to service, type

`>RTS IOC`

and press Enter.

44 The next action depends on any provisioned consoles, disk drives and magnetic tape drives.

If provisioned consoles, disk drives and magnetic tape drive ports	Do
are present	step 45
are not present	step 48

45 To post the device port, type

`>PORT port_no`

and press Enter.

where

port_no
is the port identification number (0 to 17)

46 To return the device to service, type

`>RTS`

and press Enter.

47 Repeat steps 45 and 46 for all provisioned disk drives, consoles, and magnetic tape drive ports.

Replacing an NTFX39 bulkhead splitter unit (end)

48 The next action depends on any provisioned MPC ports.

If provisioned MPC ports	Do
are present	step 49
are not present	step 50

49 To post the MPC port, type

>PORT port_no

and press Enter.

where

port_no
is the port identification number (0 to 17)

50 To return the MPC to service, type

>RTS

and press Enter.

Example of MAP response:

```
REQUEST PASSED FOR UNIT
REQUEST PASSED FOR LINKS
```

51 Check the status of MPC components

If	Do
the system status is Ready, the port status is COMACT, and the link status is enabled for each provisioned link.	step 52
other than listed here	step 57

52 Repeat steps 49 to 51 for each provisioned port on the shelf.

53 Notify users that MPC service is available.

54 Repeat steps 43 to 53 to put the second IOM back into service.

55 Consult an office person to determine why the component is off-line. Continue as directed by the office person.

56 You cannot busy the controller if files are open. The result can be the loss of billing data. For additional help, contact the person responsible for the next level of support.

57 For additional help, contact the person responsible for the next level of support.

58 The procedure is complete.

Replacing a point-of-use power supply card

Application

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

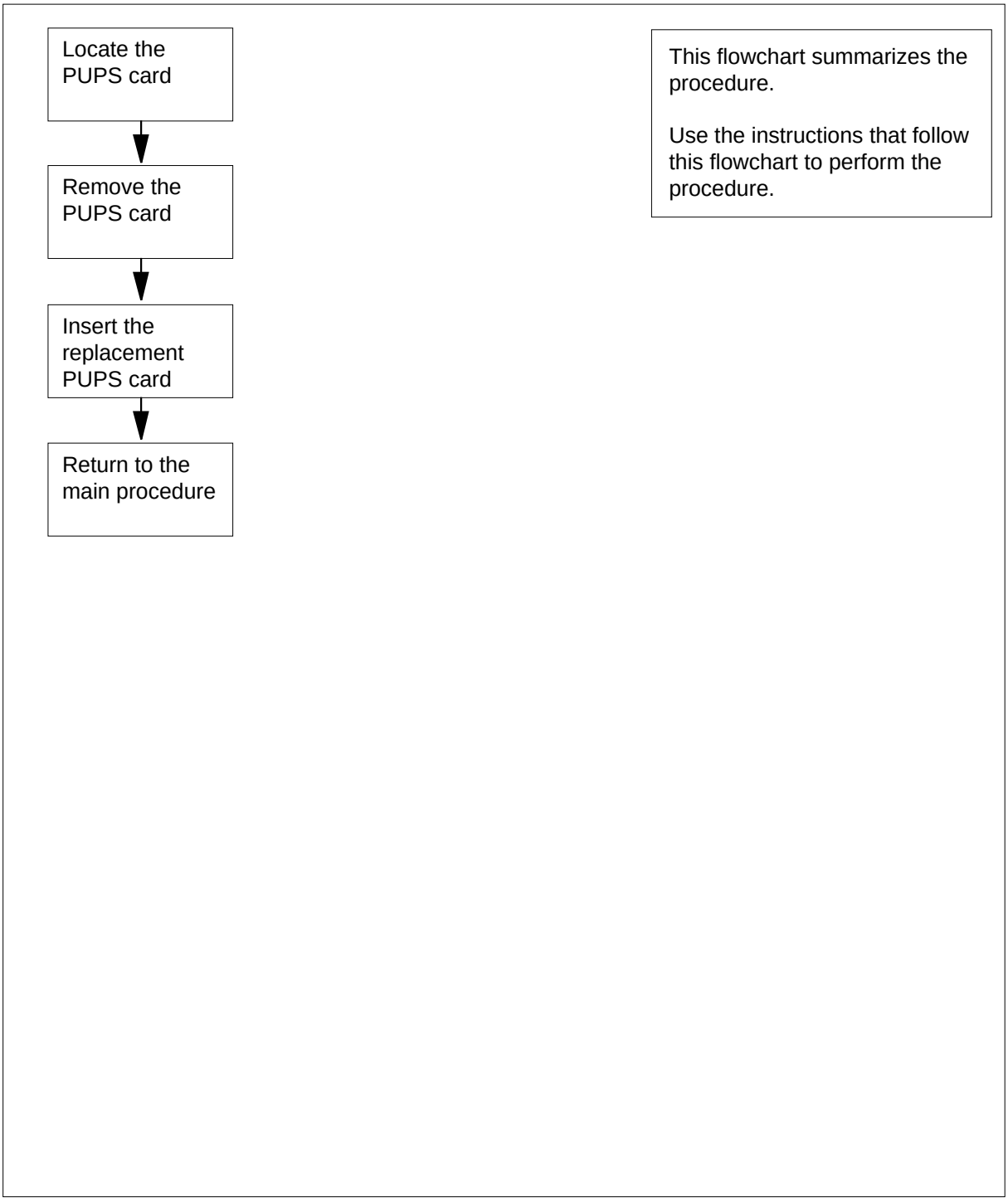
Action

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

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

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

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



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

Replacing a point-of-use power supply card

At the MAP terminal

1

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

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

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

and press the Enter key.

Example of a MAP response:

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

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

Site
in the HOST office

Flr
on the 3rd floor

RPos
in row C, position 04

Bay_id
in ISDN LCME, bay 36 (identifies the type of equipment in the bay)

Shf
on shelf 18

Description
in LCME module 00, unit 01

Slot
in slot 02, logical drawer 09

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

2 Record the location of the line card.

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

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

```
>PM
```

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

and press the Enter key.

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

>POST LCME HOST frame_no module_no

and press the Enter key.

where

frame_no
is the frame number of the LCEI

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

Example of a MAP display:

```
LCME HOST 67 1   SysB   Links OOS: Cside  0
Unit0: SysB
Unit1: SysB                      11  11  11  RG: Uneq
Drwr:  01  23  45  67  89  01  23  45
          ..  ..   ..   ..   ..  ..   ..   ..
```

5

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

To manually busy the drawer, type

>BSY DRWR drawer_no

and press the Enter key.

where

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

Example of a MAP display:

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

6 To confirm the command, type

>YES

and press the Enter key.

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

At the shelf

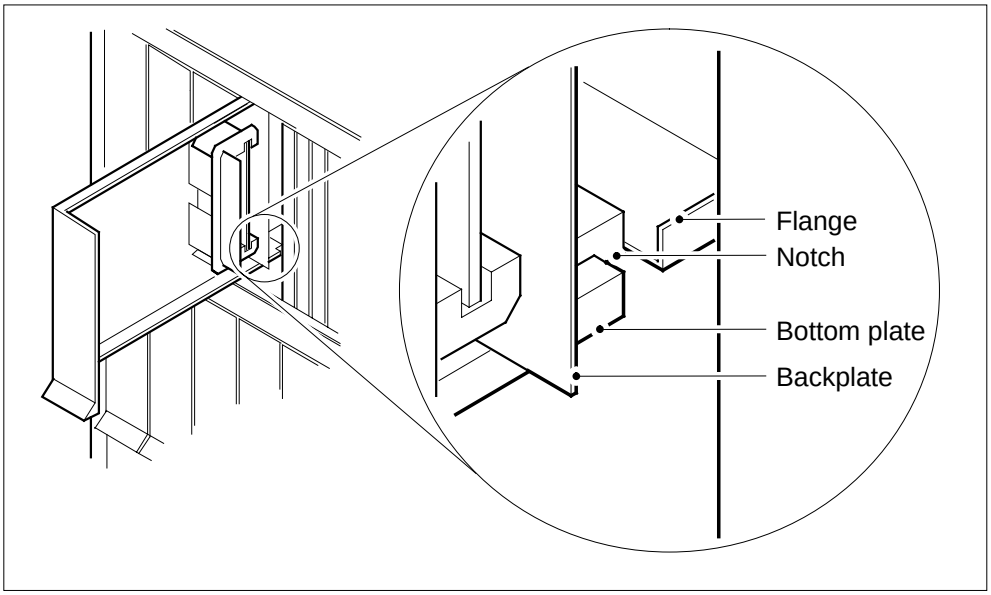
7

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

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

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

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



10

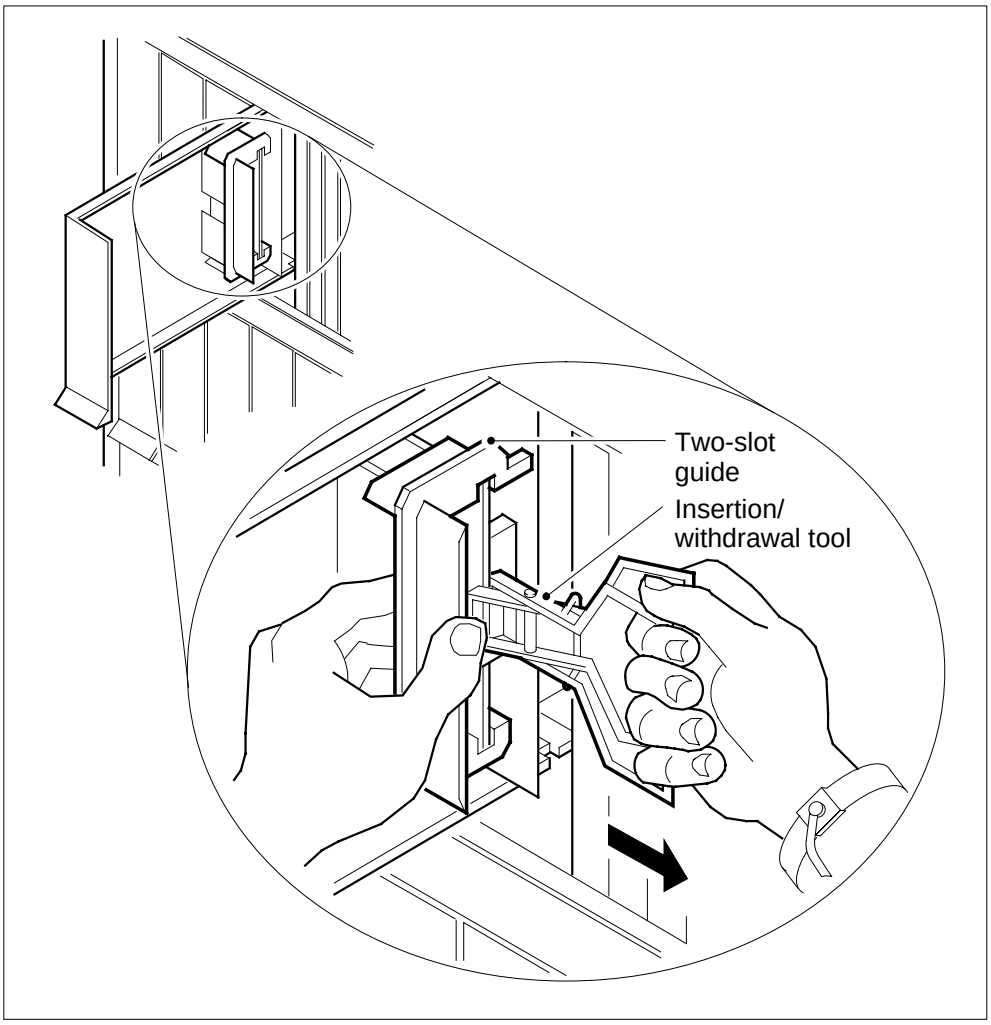
DANGER
Possible loss of device
Drawers 06/07 or 14/15 are near the fuse panels. When you work in these drawers, make sure that you do not snag the projecting fuse blocks as you withdraw the PUPS card. A power outage can result.

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

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

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

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



12 If you use the two-slot guide, hold it in place with your left hand. With your right hand, clamp the insertion and withdrawal tool to the front edge of the PUPS card. Carefully remove the card from the socket (as illustrated in step 11).

13 Leave the two-slot guide tool in place as a guide for the installation of the replacement PUPS card.

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

15 Make sure that the replacement card has the same PEC and PEC suffix as the removed card.

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

16 Clamp the insertion and withdrawal tool to the front edge of the replacement card, as shown in step 11. Align the card with the socket and carefully insert the card.

17 Make sure the card sits in a secure position.

18 Carefully push the drawer back into the shelf until the thumb-latch button locks.

19 To return the drawer to service, type

```
>RTS  DRWR  drawer_no
```

and press the Enter key.

where

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

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

Replacing a TOPS MPX terminal TOPS MPX

Application

Use this procedure to replace the defective TOPS MPX position equipment that you removed, with spare operational TOPS MPX equipment.

Action

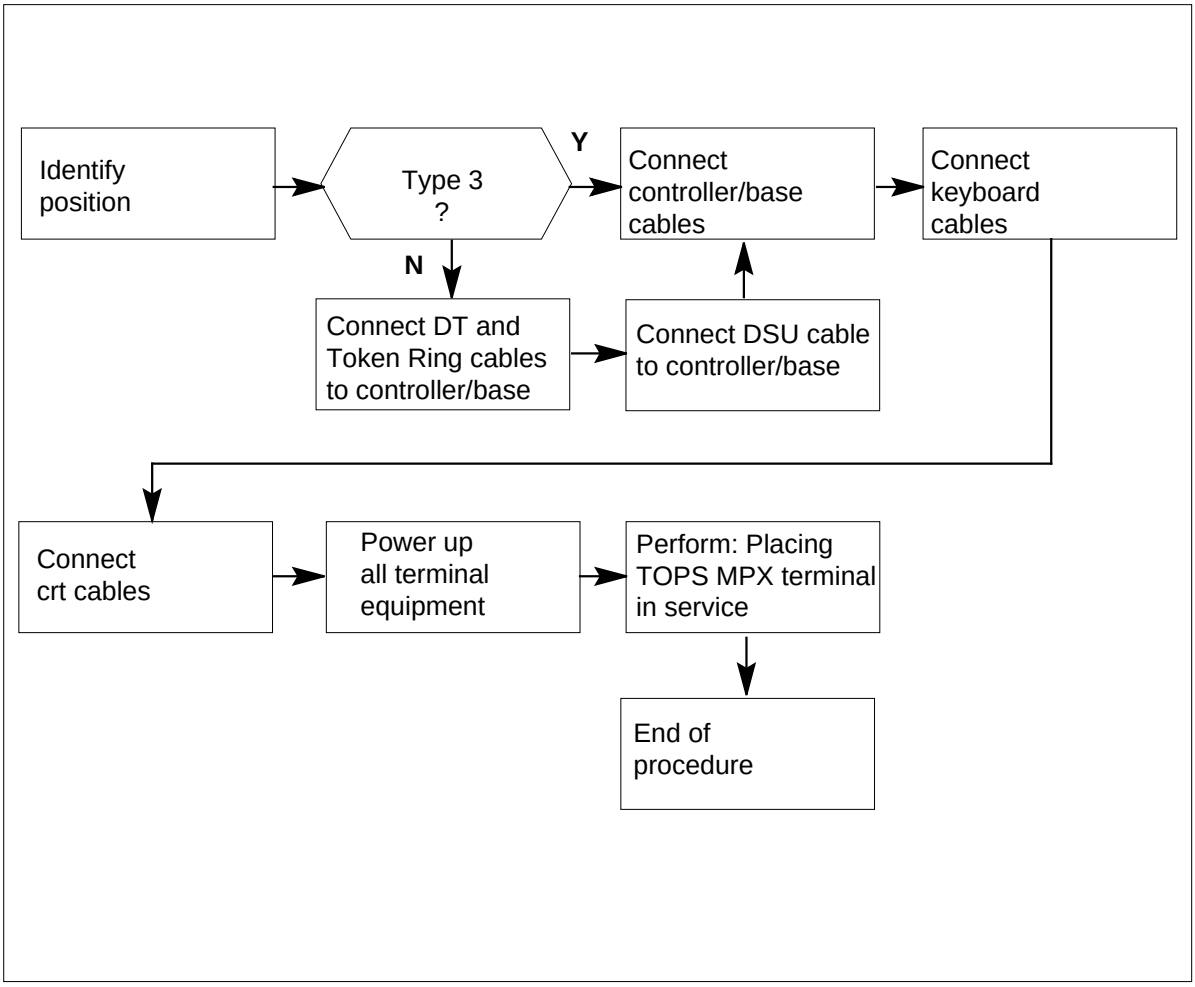
Refer to the following cable list when you remove or replace a TOPS MPX position component.

Nomenclature	From	To	Part No.
Display power cord	Power strip	Monitor	Power strip A0368941
Display signal cable	Base unit display signal cable connector	Monitor	Supplied with work station
Keyboard cable	Keyboard	Base unit keyboard connector	Keyboard equipped
Headset jacks	Headset jack	Base unit FGND, HS1, HS2	NTNX5303
Base unit power	Power strip	Base unit power cord connector	Power strip A0368941
Wiring closet cable	Base unit TR and DT	Wiring closet TR to MAU, DT to BIX block voice teledapt	NTNX36DJ ***Note:*** Use with NTNX51BC or NTNX51BD card
Wiring closet cable	Base unit TR and DT	Wiring closet TR to MAU, DT to BIX block voice teledapt	NTNX36QB ***Note:*** Use with NTNX51BD card only
Wiring closet data cable	DSU DDS connector	Wiring closet to BIX block data teledapt	NTNX36DP
DSU modem cable	DSU DTE connector	Base unit RTIC card connector	NTNX36DM
MAU to MAU	MAU RI	MAU RO	NTNX36DK As token-ring arrangement requires
TSG cable	Misc. frame	TSG	NTNX36DQ
Channel bank	Misc. frame BIX block	Channel bank	NTNX36DN

Replacing a TOPS MPX terminal
TOPS MPX (continued)

The following flowchart summarizes the procedure. Use the instructions that follow this flowchart to perform the procedures.

Summary of Replacing a TOPS MPX terminal



Replacing a TOPS MPX terminal
TOPS MPX (continued)

Replacing a TOPS MPX terminal

WARNING
Potential risk to equipment
After you complete the installation, make sure you completed the following steps on the TOPS MPX:

1. You performed the TOPS MPX diagnostic
2. You installed the TOPS MPX software
3. You installed the position TYPE and NPID
4. You installed the position applications software that the operating company defines.

At the TOPS MPX terminal

1 Determine position type. Use the type recorded when you perform the the procedure Disconnecting a TOPS MPX terminal

type 1
Bisync token-ring access point

type 2
TOPS MPX virtual position controller

type 3
TOPS MPX only

type 3
TOPS MPX with screen server

Record for later use.

2 To replace the TOPS MPX terminal controller/base, complete the following steps:

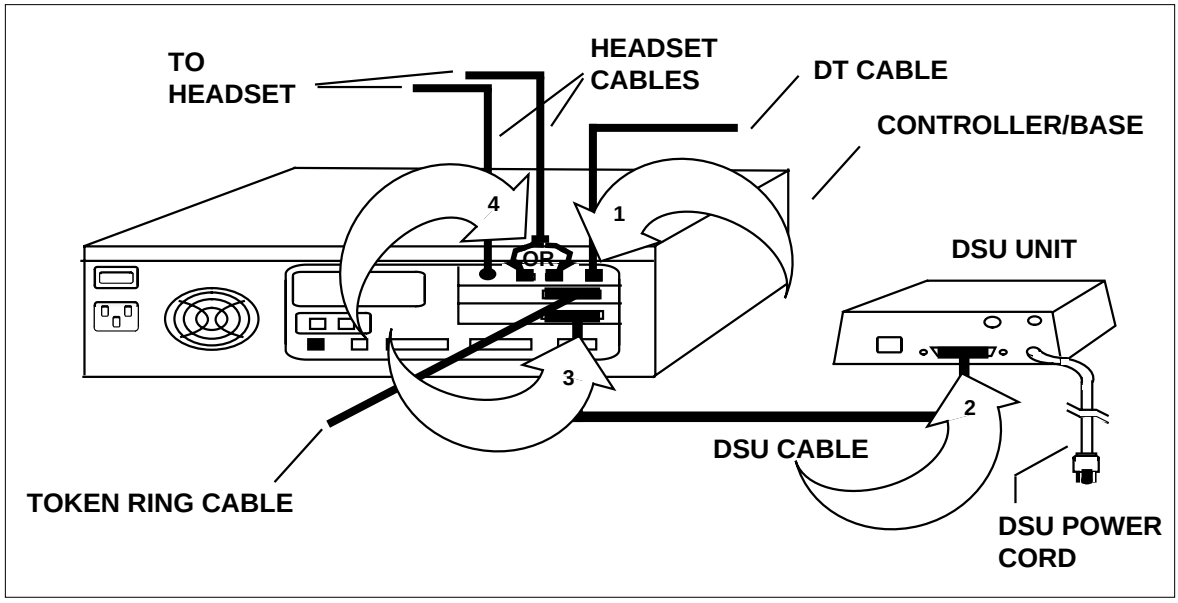
a Connect Token Ring cable and DT cable (1) to the controller/base.

b Connect DSU cable (2) to DSU.

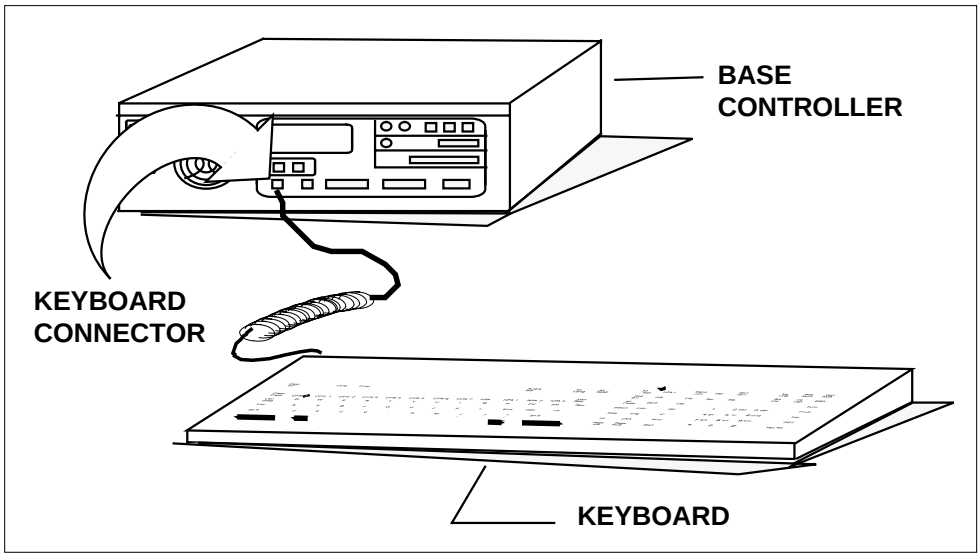
c Connect DSU cables (3) and headset cables (4) to the controller/base.

Note: Connection of DSU cables applies to type 1 or type 2 TOPS MPX positions.

Replacing a TOPS MPX terminal
TOPS MPX (continued)



3 Connect the keyboard connector to replace the TOPS MPX keyboard.



4 Connect power cords and display cables to TOPS MPX crt again.

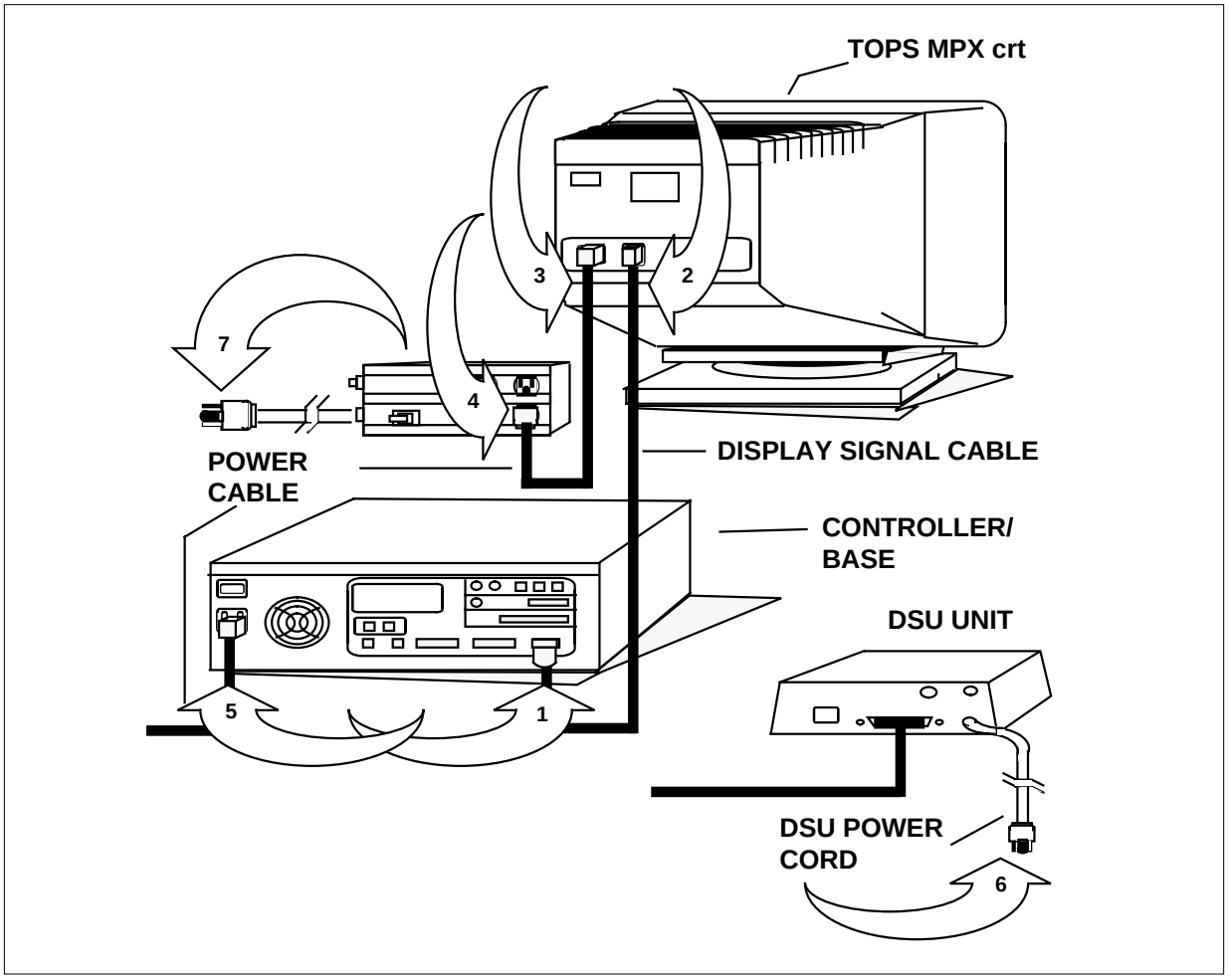
a Connect display cables from controller/base to TOPS MPX crt (1, 2).

b Connect power cords. Connect power strip to TOPS MPX crt (3, 4), DSU and controller/base (5, 6) power cords, and power strip to outlet (7).

Note: Connection of DSU power cord (6) applies to type 1 or type 2 TOPS MPX positions.

c Turn power on for all TOPS MPX position equipment.

Replacing a TOPS MPX terminal
TOPS MPX (end)



5 You completed this procedure correctly. Go to common procedure *Placing a TOPS MPX terminal in service.*

Reseating a line card

Application

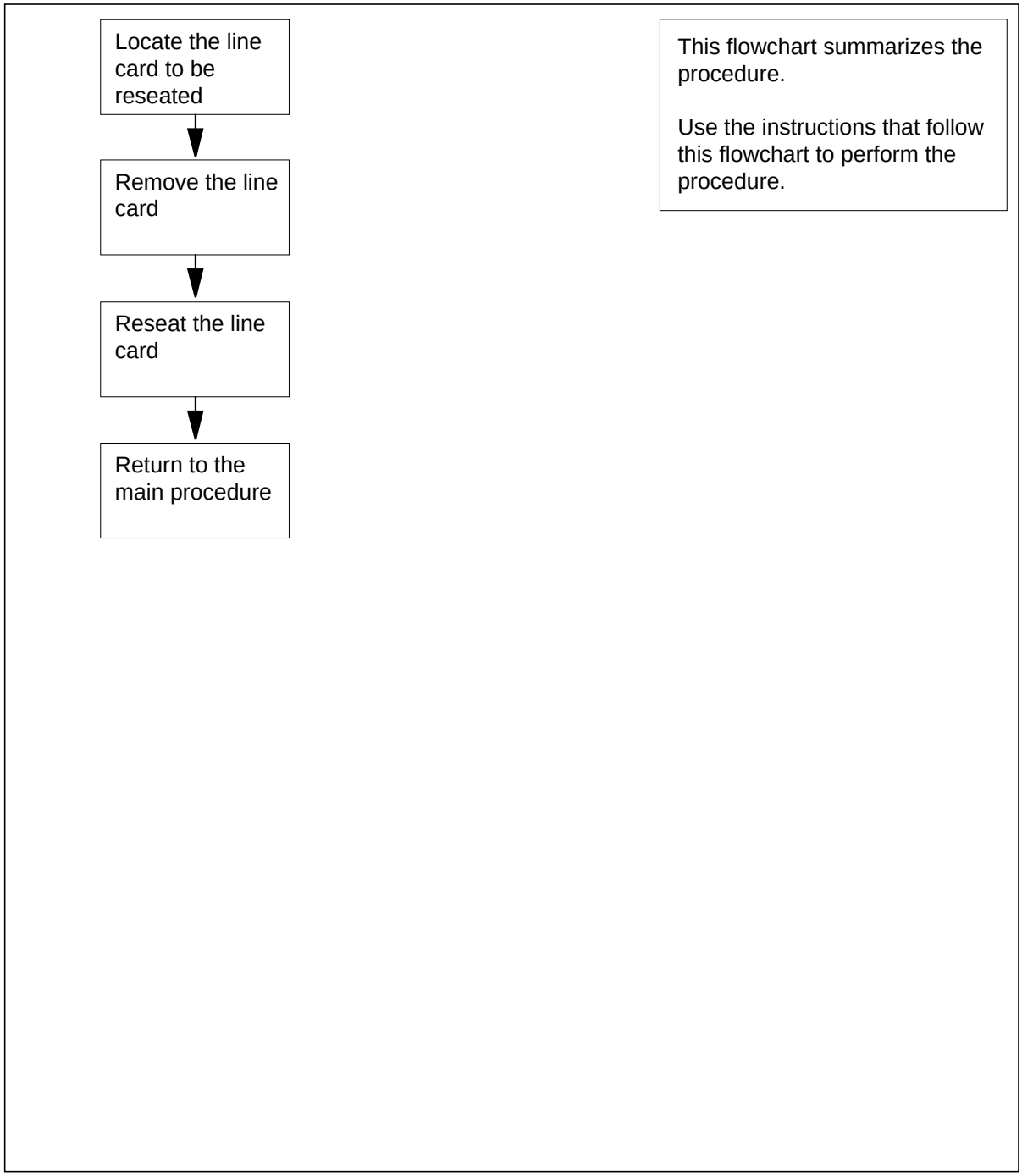
Use this procedure to reseat a line card in an ISDN enhanced line concentrating module (LCME). This procedure ensures the correct electrical connection between the line card and the connector pins on the drawer.

Action

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

Reseating a line card (continued)

Summary of Reseating a line card



Reseating a line card (continued)

Reseating a line card

At the MAP terminal

1

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

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

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

and press the Enter key.

Example of a MAP response:
CKTLOCSite Flr RPos Bay_id Shf Description Slot EqPECHOST 03 C01 LCEI01 18 LCME 01 02:09 BX27AA

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

Site
in the HOST office

Flr
on the 3rd floor

RPos
in row C and in line equipment bay 01

Bay_id
in ISDN line concentrating equipment, bay 01

Shf
on shelf 18

Description
in hardware device LCME, bay 01

Slot
in slot 02, drawer 09

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

2 Record the location of the line card.

Reseating a line card (continued)

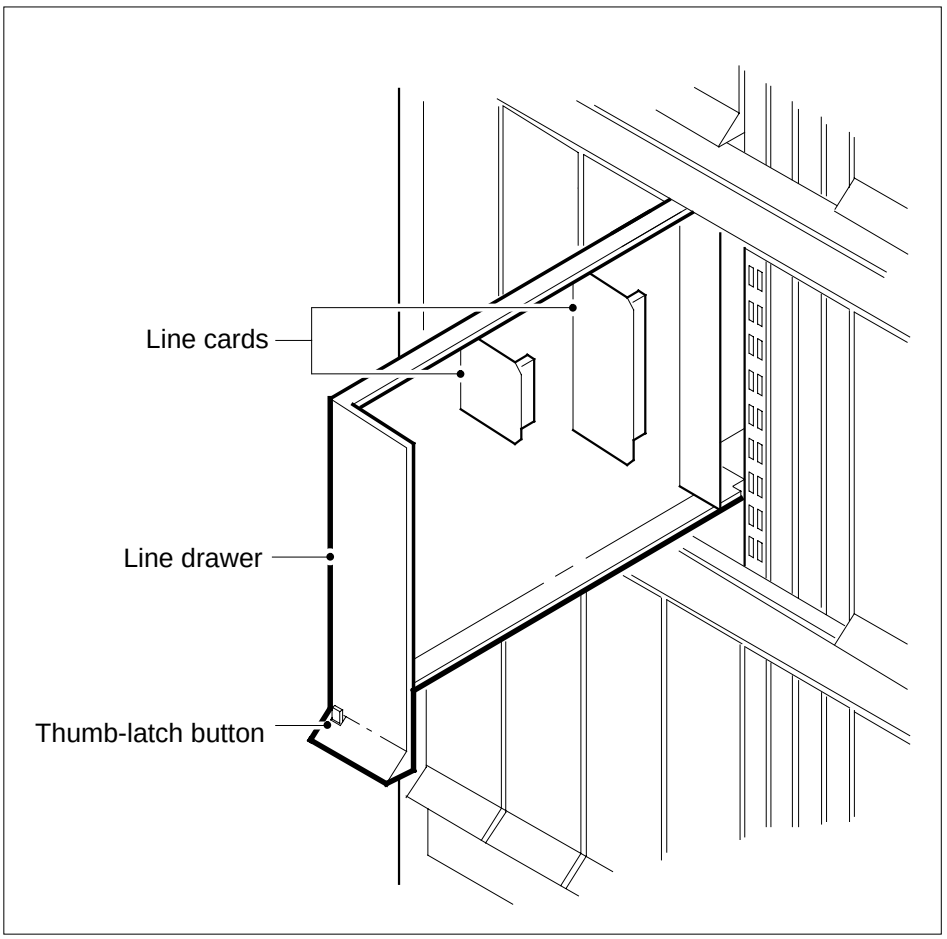
At the shelf

3

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

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

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



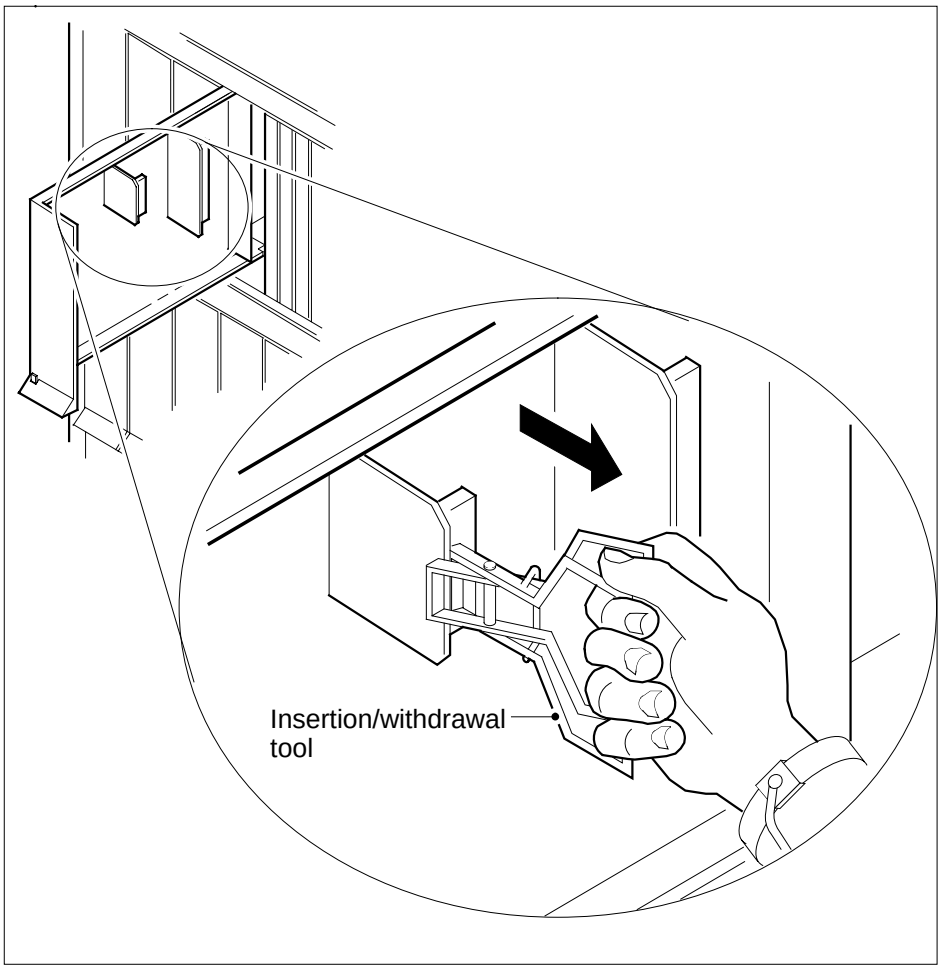
Reseating a line card (continued)

5

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

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

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



7 Align the card with the connector pins and carefully reseat the card.

8 Ensure the card sits in a secure position.

Reseating a line card (end)

9 Carefully push the drawer back into the shelf until the thumb-latch button locks.

10 You have completed this procedure. Return to the main procedure that sent you to this procedure and continue to follow the directions.

Responding to TRMS301 logs

Application

Use this procedure to reply to a TRMS301 log.

Definition

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

Common procedures

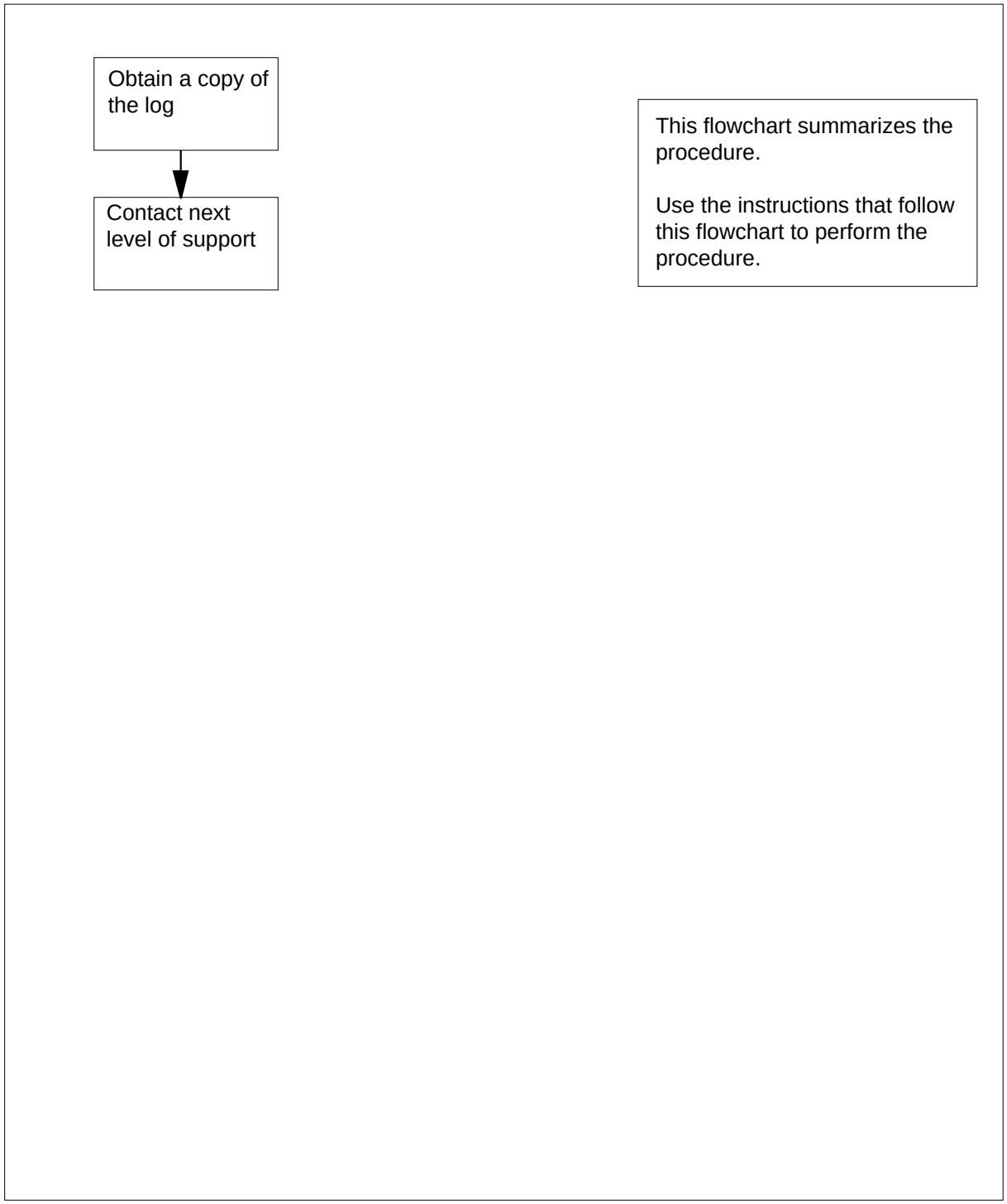
There are no common procedures.

Action

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

Responding to TRMS301 logs (continued)

Summary of Responding to TRMS301 logs



Responding to TRMS301 logs (end)

Responding to TRMS301 logs

At your current location

1 Obtain a copy of the TRMS301 log.

2 Note the information contained in the TRMS301 log that follows:

- the location of the the TRMS failure (for example, FP4)
- the database log name (for example, 800PLUS__SLAVE__0.LOG002)

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

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

Application

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

Definition

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

Common procedures

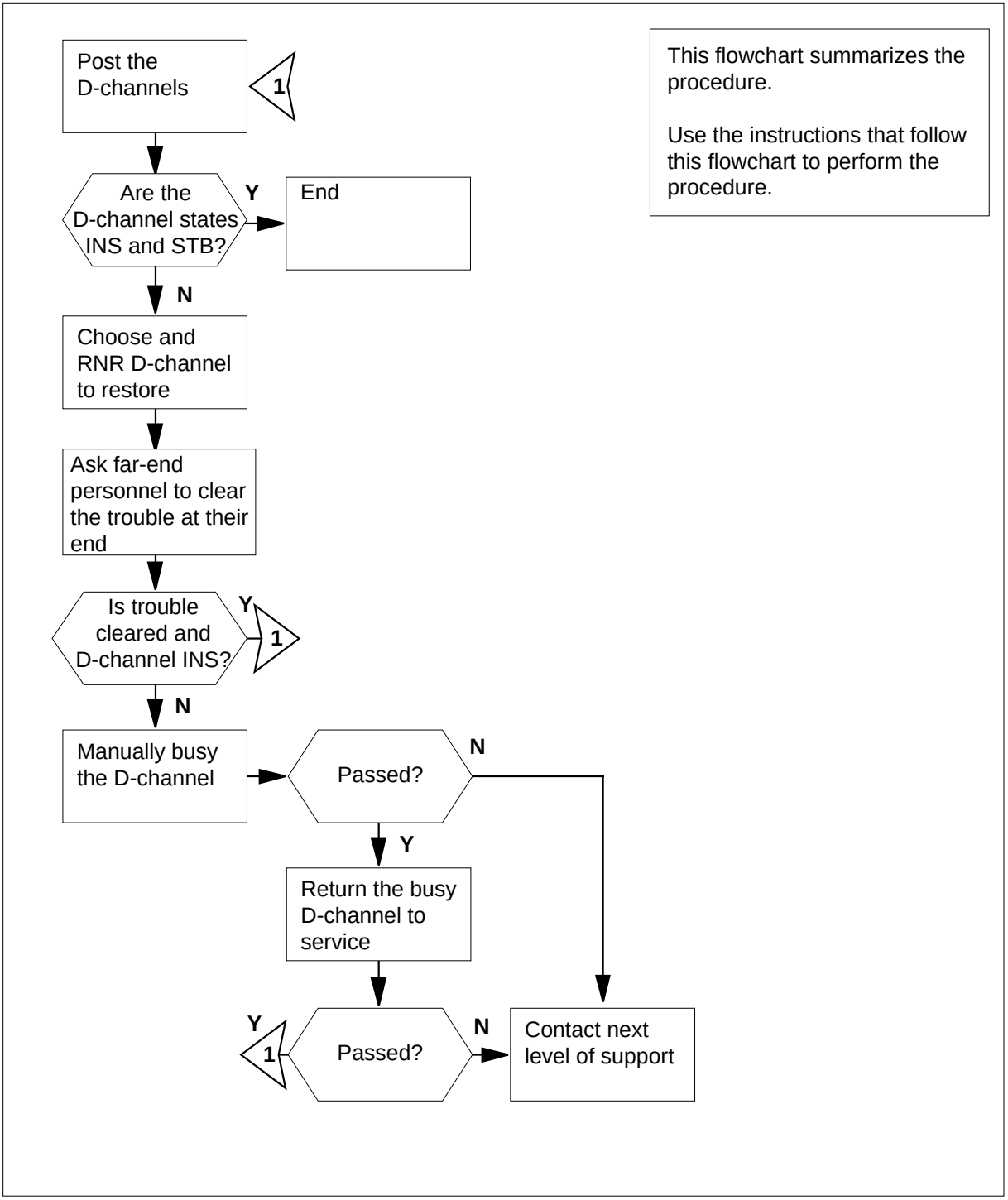
There are no common procedures.

Action

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

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

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



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

Restoring far-end service for a D-channel

At the MAP terminal

1 Determine the name of the trunk group from office records or operating company personnel.

2 Determine your next step.

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

3 To access the PRADCH level of the MAP display, type

>MAPCI;MTC;TRKS;TTP;PRADCH

and press the Enter key.

4 To post the D-channels, type

>POST GD group_name

and press the Enter key.

where

group_name
is the trunk group name

Example input:

>POST GD F5678935PAV

Example of a MAP display:

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

Example of a MAP response:

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

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

5 Determine the states of the D-channels.

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

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

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

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

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

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

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

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

8

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

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

To manually busy the D-channel, type

>BSY d_channel

and press Enter.

where

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

Example of a MAP response:

```
D1: STATE CHANGED
     or
THIS WILL PUT LTC 2 5 24 D2  OUT-OF-SERVICE
Please confirm (”YES”, ”Y”, ”NO”, or ”N”):
```

9 To confirm the command, type

>YES

and press the Enter key.

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

If the BSY command	Do
passed	step 10
failed	step 11

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

>RTS d_channel

where

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

Example of a MAP response:

```
D2: STATE CHANGED
```

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

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

12 The procedure is complete.

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

Application

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

Definition

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

Common procedures

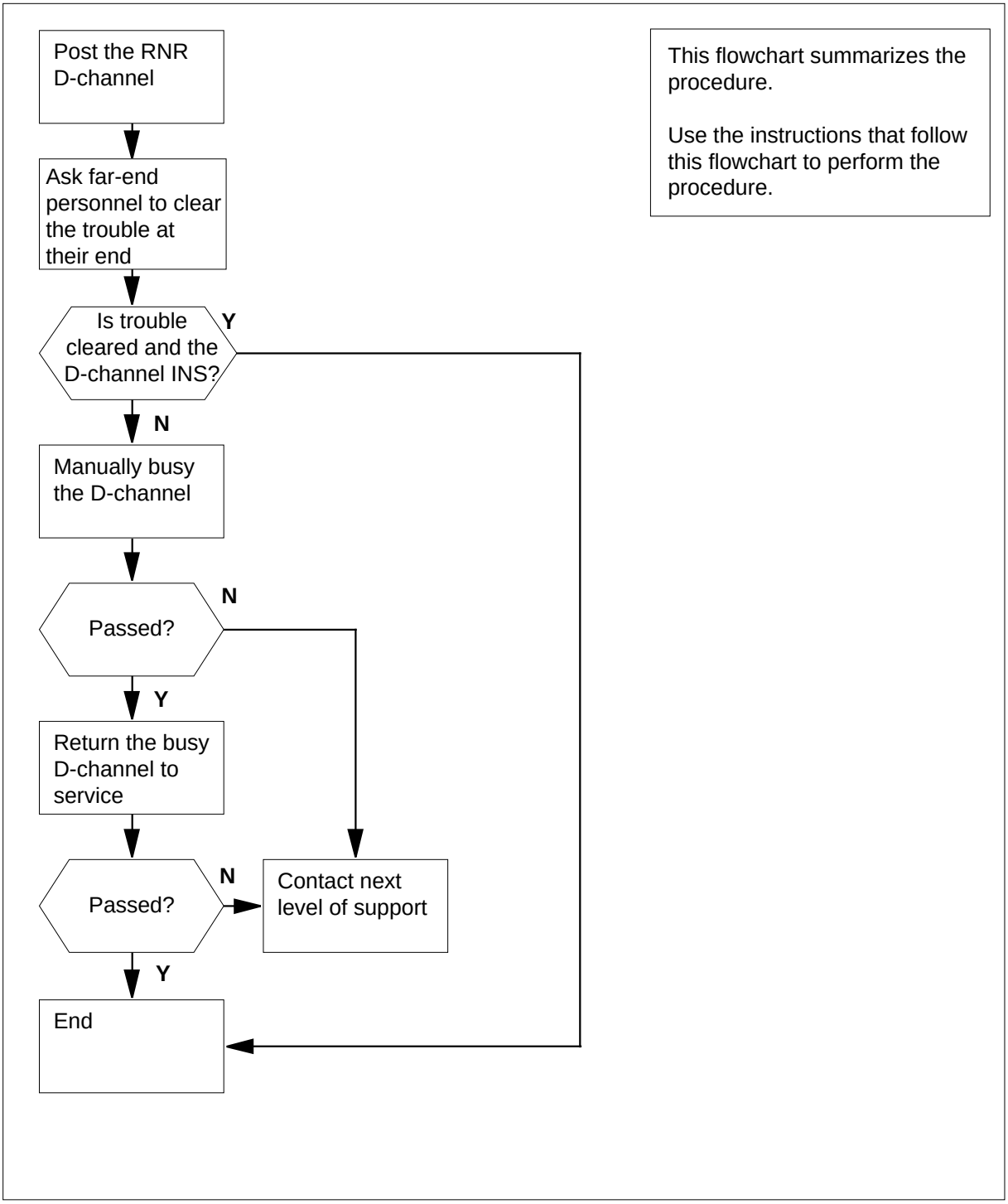
There are no common procedures.

Action

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

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

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



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

Restoring far-end service for a D-channel

At the MAP terminal

1 Determine the name of the trunk group from office records or operating company personnel.

2 Determine your next step.

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

3 To access the PRADCH level of the MAP display, type

`>MAPCI;MTC;TRKS;TTP;PRADCH`

and press the Enter key.

4 To post the RNR D-channel, type

`>POST GD group_name`

and press the Enter key.

where

group_name
is the trunk group name

Example input:

`>POST GD F9876035PRAPRV`

Example of a MAP display:

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

Example of a MAP response:

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

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

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

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

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

6 To manually busy the D-channel, type

>BSY

and press the Enter key.

Example of a MAP response:

```
STATE CHANGED
```

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

If the BSY command	Do
passed	step 7
failed	step 8

7 To return the D-channel to service, type

>RTS

and press the Enter key.

Example of a MAP response:

```
STATE CHANGED
```

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

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

9 The procedure is complete.

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

Application

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

Definition

The D-channel is in

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

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

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

Common procedures

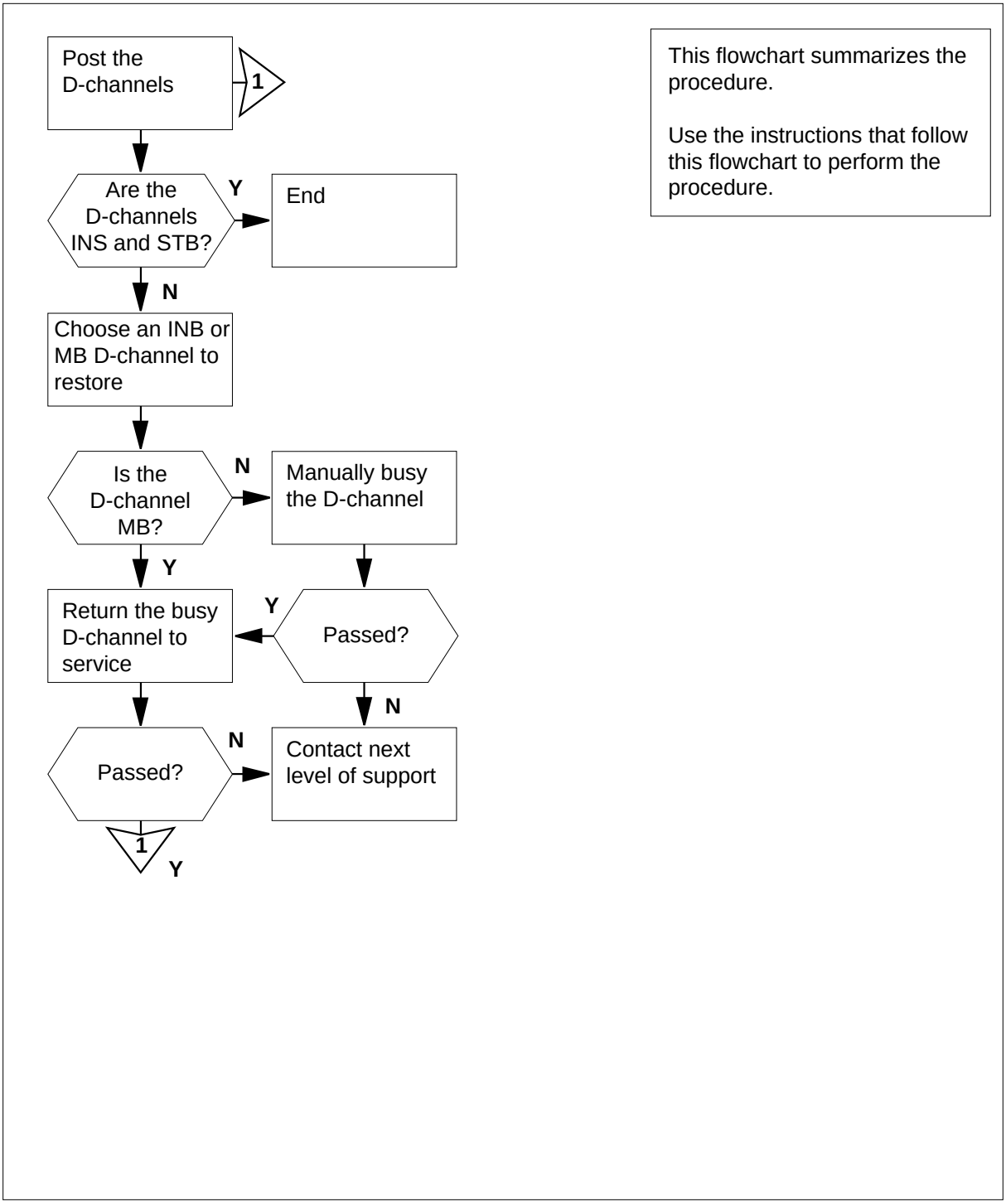
There are no common procedures.

Action

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

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

Summary of Returning a busy D-channel to service



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

Returning a busy D-channel to service

At the MAP terminal

1 Determine the name of the trunk group from office records or operating company personnel.

2 Determine your next step.

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

3 To access the PRADCH level of the MAP display, type

`>MAPCI;MTC;TRKS;TTP;PRADCH`

and press the Enter key.

4 To post the D-channels, type

`>POST GD group_name`

and press the Enter key.

where

group_name
is the name of the trunk group

Example input:

`>POST GD F5678935PAV`

Example of a MAP display:

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

Example of a MAP response:

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

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

5 Determine the state of the D-channel.

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

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

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

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

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

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

If the state of the D-channel	Do
is INB	step 7
is MB	step 8

7

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

To manually busy the D-channel, type

```
>BSY  d_channel
```

and press the Enter key.

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

where

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

Example of a MAP response:

```
D2: STATE CHANGED
```

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

If the BSY command	Do
passed	step 8
failed	step 9

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

>RTS d_channel

and press the Enter key.

where

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

Example of a MAP response:

```
D2: STATE CHANGED
```

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

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

10 The procedure is complete.

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

Application

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

Definition

The D-channel is in

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

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

Common procedures

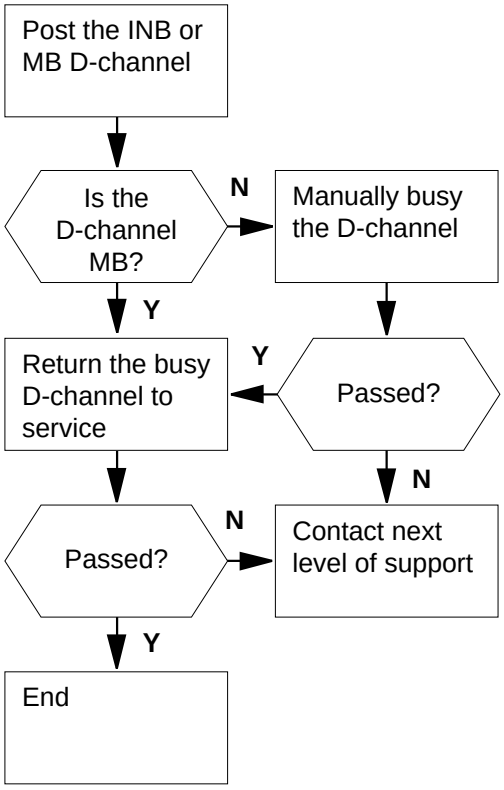
There are no common procedures.

Action

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

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

Summary of Returning a busy D-channel to service



This flowchart summarizes the procedure.

Use the instructions that follow this flowchart to perform the procedure.

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

Returning a busy D-channel to service

At the MAP terminal

1 From office records or operating company persons, determine the name of the trunk group.

2 Determine your next step.

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

3 To access the PRADCH level of the MAP display, type

`>MAPCI;MTC;TRKS;TTP;PRADCH`

and press the Enter key.

4 To post the installation busy or manual busy D-channel, type

`>POST GD group_name`

and press the Enter key.

where

group_name
is the name of the trunk group

Example input:

`>POST GD F9876035PRAPRV`

Example of a MAP display:

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

Example of a MAP response:

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

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

5 Determine the state of the D-channel.

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

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

6 To manually busy the D-channel, type

>BSY

and press the Enter key.

Example of a MAP response:

```
STATE CHANGED
```

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

If the BSY command	Do
passed	step 7
failed	step 8

7 To return the D-channel to service, type

>RTS

and press the Enter key.

Example of a MAP response:

```
STATE CHANGED
```

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

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

9 The procedure is complete.

Returning a busy PRI trunk to service ISDN PRI trunk

Application

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

Definition

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

Common procedures

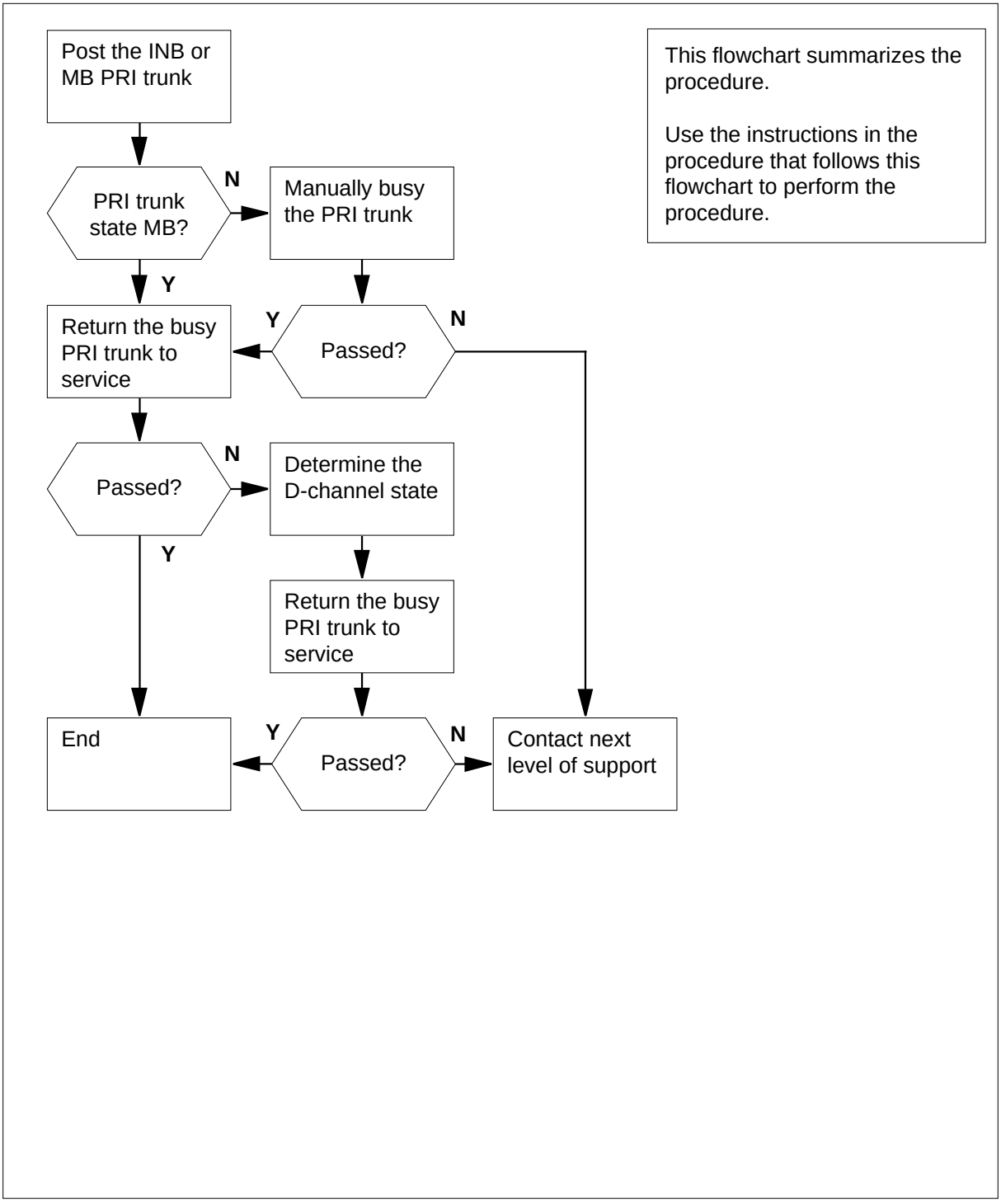
There are no common procedures.

Action

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

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

Summary of Returning a busy PRI trunk to service



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

Returning a busy PRI trunk to service

At the MAP terminal

1 Determine your next step.

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

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

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

>MAPCI;MTC;TRKS;TTP

and press Enter.

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

>POST G group_name

and press Enter.

where

group_name
is the name of the trunk group

Example input:

>POST G F1AAA105IPTLA

Example of a MAP display:

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

Example of a MAP response:

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

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

5 Determine the state of the PRI trunk.

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

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

6 To manually busy the PRI trunk, type

>BSY

and press Enter.

Example of a MAP response:

```
STATE CHANGED
```

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

If the BSY command	Do
passed	step 7
failed	step 11

7 To return the PRI trunk to service, type

>RTS

and press Enter.

Example of a MAP response:

```
STATE CHANGED
```

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

8 Perform the procedure *Determining the D-channel state ISDN PRI single D-channel* in this document. When the procedure is complete, go to step 10.

9 Perform the procedure *D-channels Determining the D-channel state ISDN PRI primary and backup* in this document. When the procedure is complete, return to this point.

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

10 To return the PRI trunk to service, type

>RTS

and press Enter.

Example of a MAP response:

```
STATE CHANGED
```

If the RTS command	Do
passed	step 12
failed	step 11

11 For additional help, contact the person responsible for the next level of support.

12 The procedure is complete.

Returning a card or assembly in Canada

Application

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

Interval

Perform this procedure as required.

Common procedures

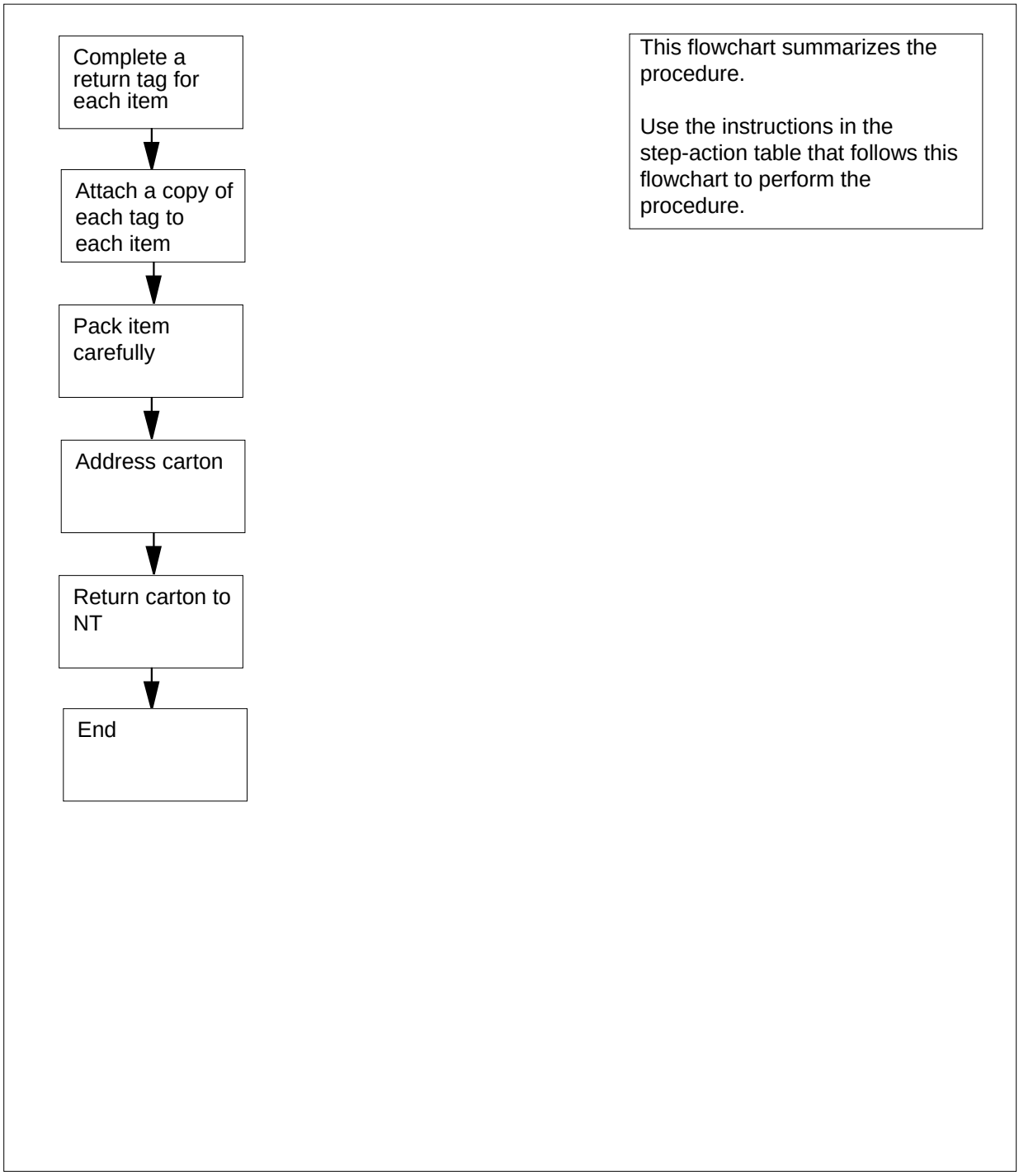
There are no common procedures.

Action

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

Returning a card or assembly in Canada (continued)

Summary of Returning a card or assembly in Canada



Returning a card or assembly in Canada (continued)

Returning a card or assembly in Canada

At your Current Location

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

2 Complete one return label (form 24-115) for each card or assembly that you return.

Ensure that you include the following information:

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

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

3 Call the following number for help to complete the return label:

- days: 416-454-2808, or 1-800-668-5511
- evenings: 416-457-9555

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

5 Keep the other copies of the label for your records.

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

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

Returning a card or assembly in Canada (end)

7 Use any acceptable carton. Ensure that

- packing paper encloses each card or assembly
- bubble pack or foam surrounds each card or assembly
- the carton secures each card or assembly to prevent movement of the contents during shipment

8 Address the carton to:

Northern Telecom Canada LimitedCustomer Service Operationsc/o Wes Bell TransportUnit 3, Door 41630 Trinity RoadMississauga, OntarioL5T 1L6

9 Return the carton to Northern Telecom.

10 The procedure is complete.

Returning a card or assembly in Germany

Application

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

Interval

Perform this procedure as required.

Common procedures

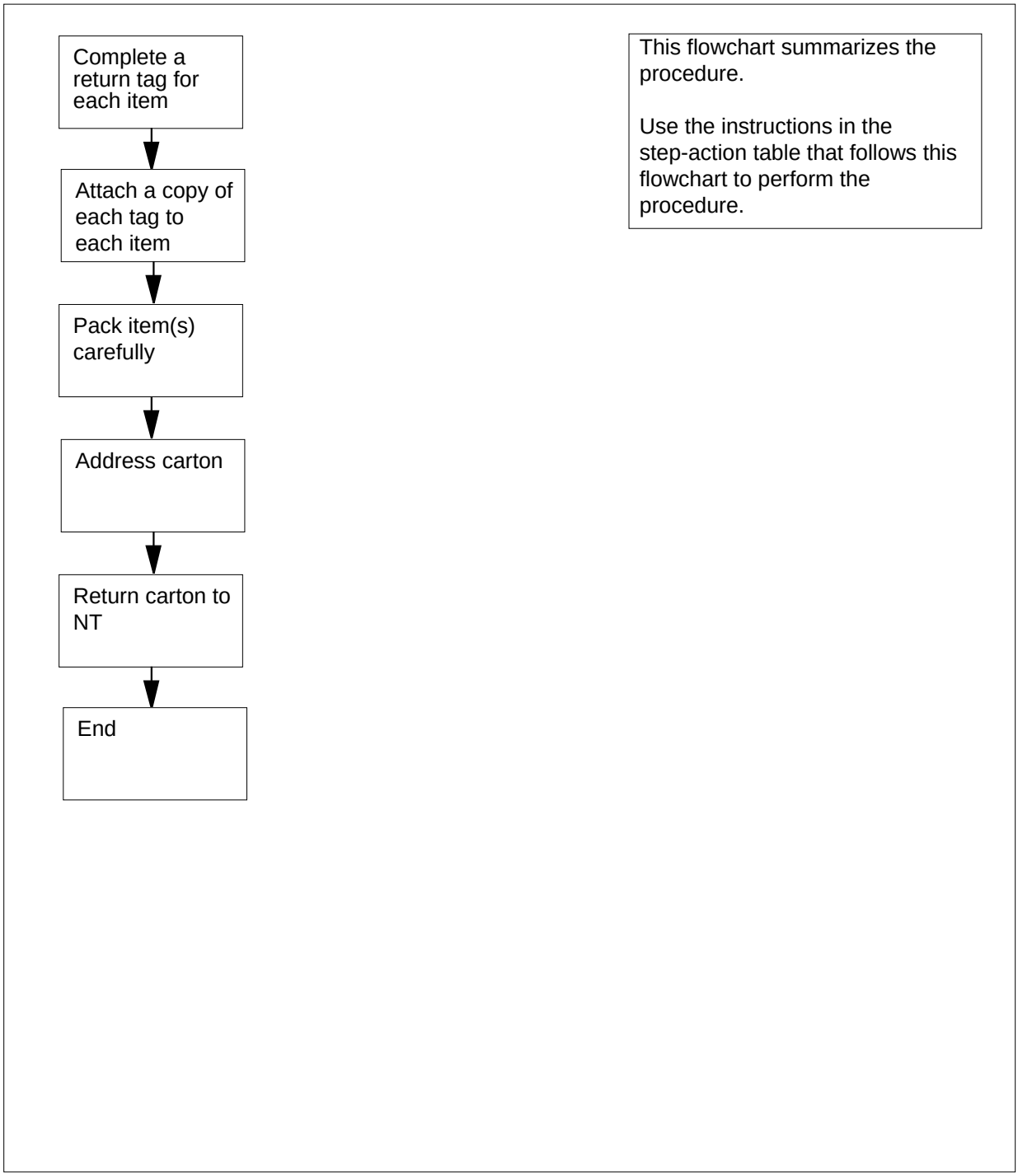
There are no common procedures.

Action

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

Returning a card or assembly in Germany (continued)

Summary of Returning a card or assembly in Germany



Returning a card or assembly in Germany (end)

Returning a card or assembly in Germany

At your Current Location

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

2 Complete one return label (form 24-115) for each card or assembly that you return.

Ensure that you include the following information:

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

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

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

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

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

6 Use any acceptable carton. Ensure that

- packing paper encloses each card or assembly
- bubble pack or foam surrounds each card or assembly
- the carton secures each card or assembly to prevent movement of the contents during shipment

7 Address the carton to:

Northern Telecom GmbHLogistik-ZentrumNeiderhofheimer Str. 56D-6238 Hofheim/Taunus

8 Return the carton to Northern Telecom.

9 The procedure is complete.

Returning a card or assembly in Japan

Application

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

Interval

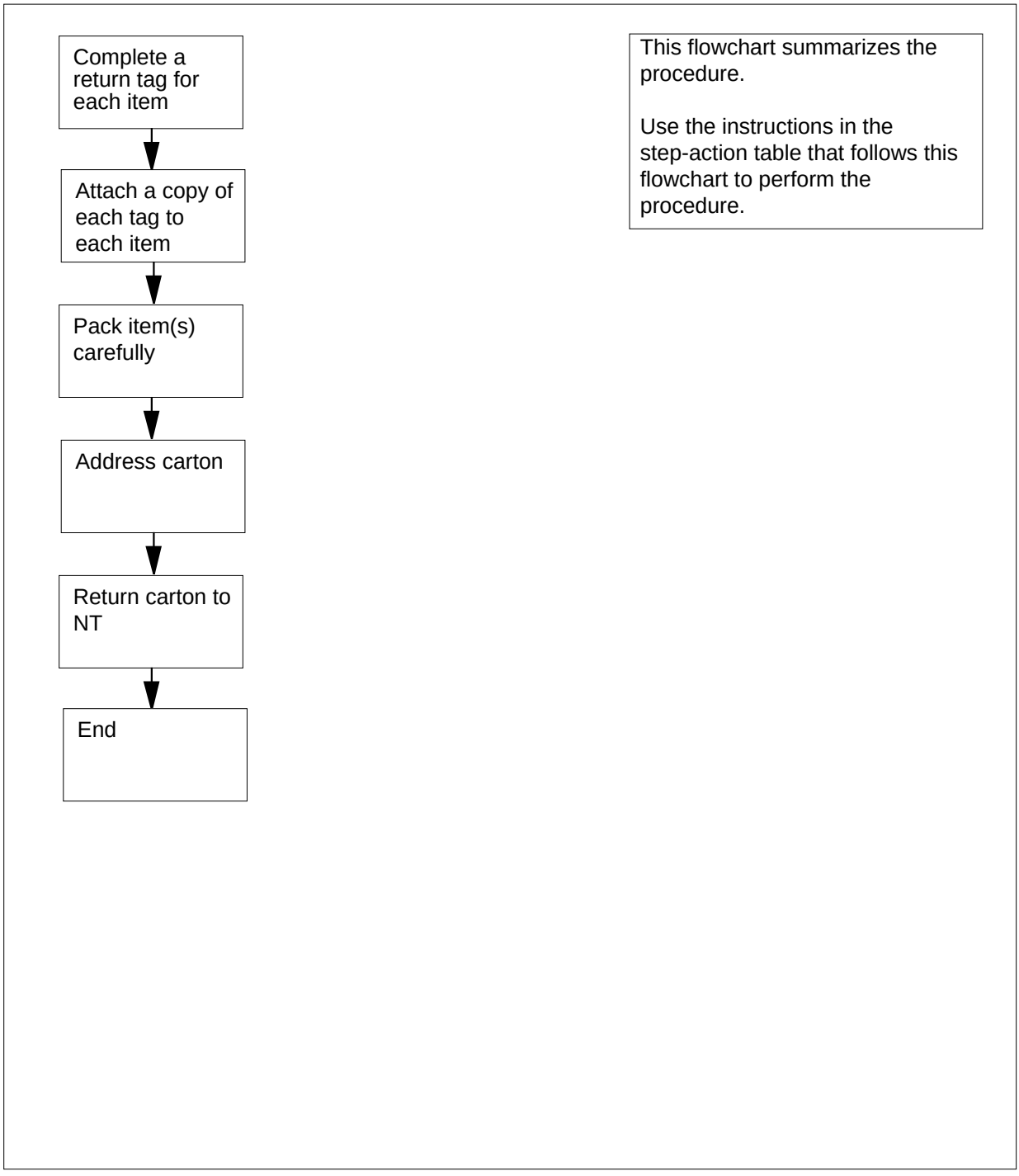
Perform this procedure as required.

Action

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

Returning a card or assembly in Japan (continued)

Summary of Returning a card or assembly in Japan



Returning a card or assembly in Japan (continued)

Returning a card or assembly in Japan

At your current location:

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

2 Complete one return label (form 24-115) for each card or assembly that you return.

Ensure that you include the following information:

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

3 Call the number 03-5696-0302 for help to complete the return label.

4 Attach one copy of the return label.

5 Keep the other copies of the label for your records.

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

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

7 Use any acceptable carton. Ensure that

- packing paper encloses each card or assembly
- bubble pack or foam surrounds each card or assembly
- the carton secures each card or assembly to prevent movement of the contents during shipment

8 Address the carton to:

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

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

9 Return the carton to Northern Telecom.

Returning a card or assembly in Japan (end)

10 The procedure is complete.

Returning a card or assembly in the United States of America

Application

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

Interval

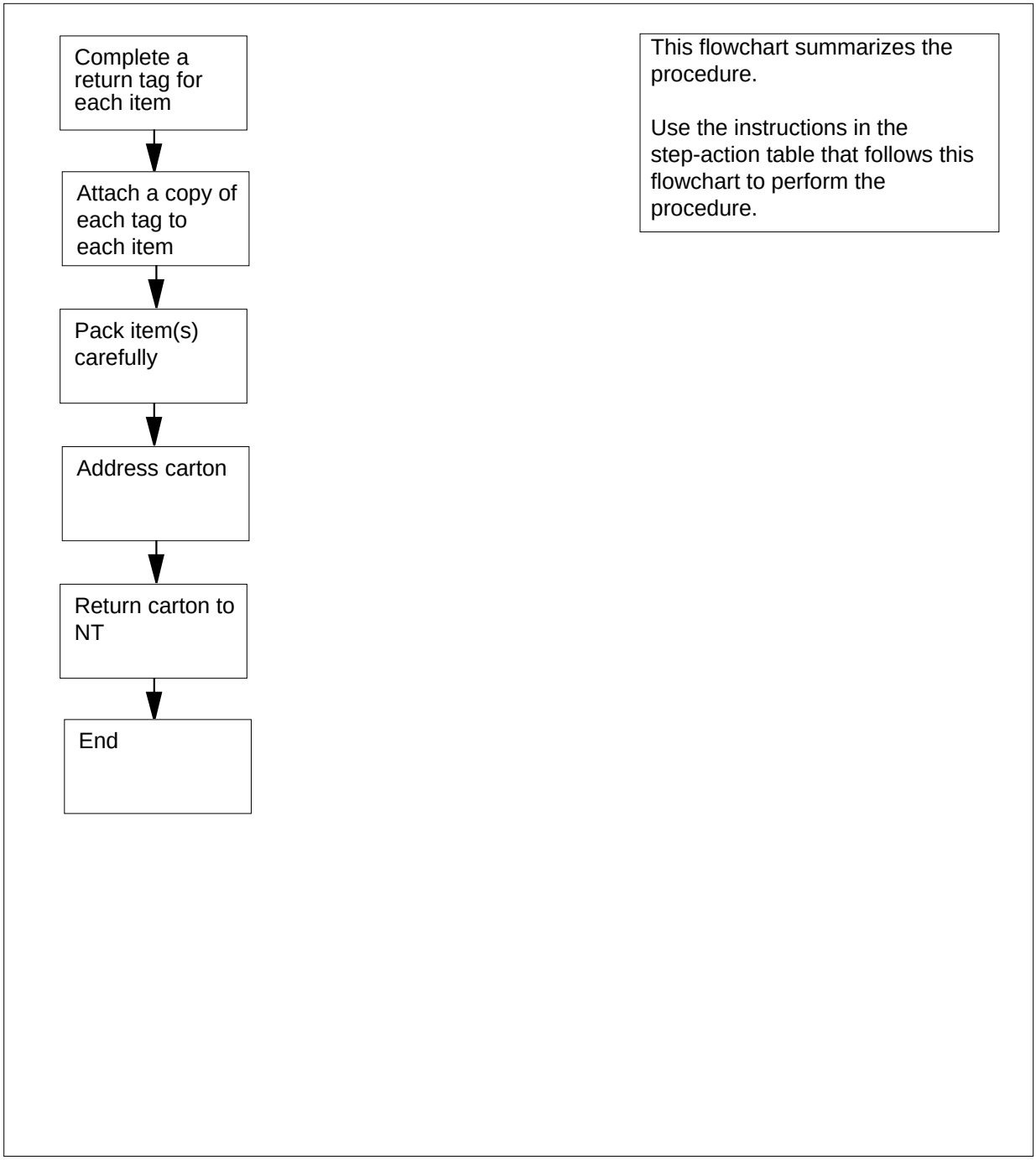
Perform this procedure as required.

Action

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

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

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



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

Returning a card or assembly in the United States of America

At your current location

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

2 Complete one return label (form 24-115) for each card or assembly that you return.

Ensure that you include the following information:

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

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

3 In the USA, call 919-992-3333 or 1-800-347-4850 (repair or return service) for help to complete the return label.

4 Attach one copy of the return label for each item that you return.

5 Keep the other copies of the label for your records.

6 Pack the card or assembly in a NorthernTelecom shipping carton. Seal the carton.

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

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

7 Use any acceptable carton. Ensure that

- packing paper encloses each card or assembly
- bubble pack or foam surrounds each card or assembly
- the carton secures each card or assembly to prevent movement of the contents during shipment

8 Address the carton to:

Northern Telecom Inc.Spare Parts Center4600 Emperor BoulevardMorrisville, NC27560

9 Return the carton to Northern Telecom.

10 The procedure is complete.

Returning an LIM to service

Application

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

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

Definition

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

Common procedures

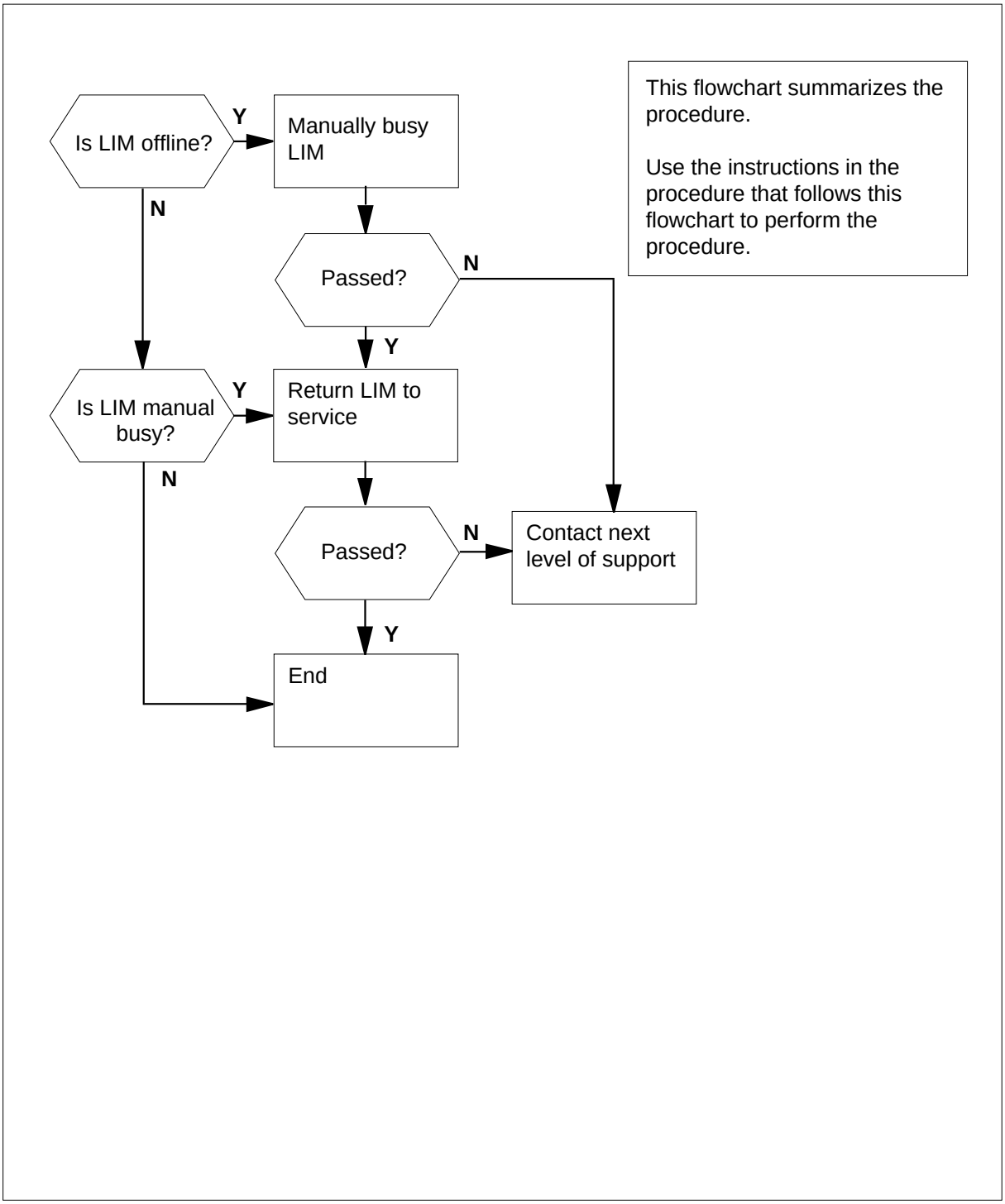
There are no common procedures.

Action

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

Returning an LIM to service (continued)

Summary of Returning a LIM to service



Returning an LIM to service (continued)

Returning a LIM to service

At the MAP terminal

1 To access the PM level of the MAP display, type

>MAPCI;MTC;PM

and press Enter.

Example of a MAP display:

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

2 To determine if offline LIMs are present, type

>POST LIM OFFL

and press Enter.

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

3 Choose an off-line LIM to work on.

4 Determine from office records or an office person the reason that the LIM is offline.

When possible, continue this procedure.

5 To manually busy the offline LIM, type

>BSY PM

and press Enter.

If the BSY command	Do
passed	step 6
failed	step 11

6 To return the LIM to service, type

>RTS PM

and press Enter.

If the RTS command	Do
passed	step 12
failed	step 11

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

>POST LIM MANB

Returning an LIM to service (end)

and press Enter.

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

8 Choose a manual-busy LIM on which to work.

9 Determine from office records or from an office person why the LIM is manual busy.

When possible, continue with the procedure.

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

>RTS PM

and press Enter.

If the RTS command	Do
passed	step 12
failed	step 11

11 For additional help, contact the person responsible for the next level of support.

12 The procedure is complete.

Running a C7BERT

Application

Use this procedure to do the following:

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

Definition

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

Run a C7BERT in the following conditions:

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

Common procedures

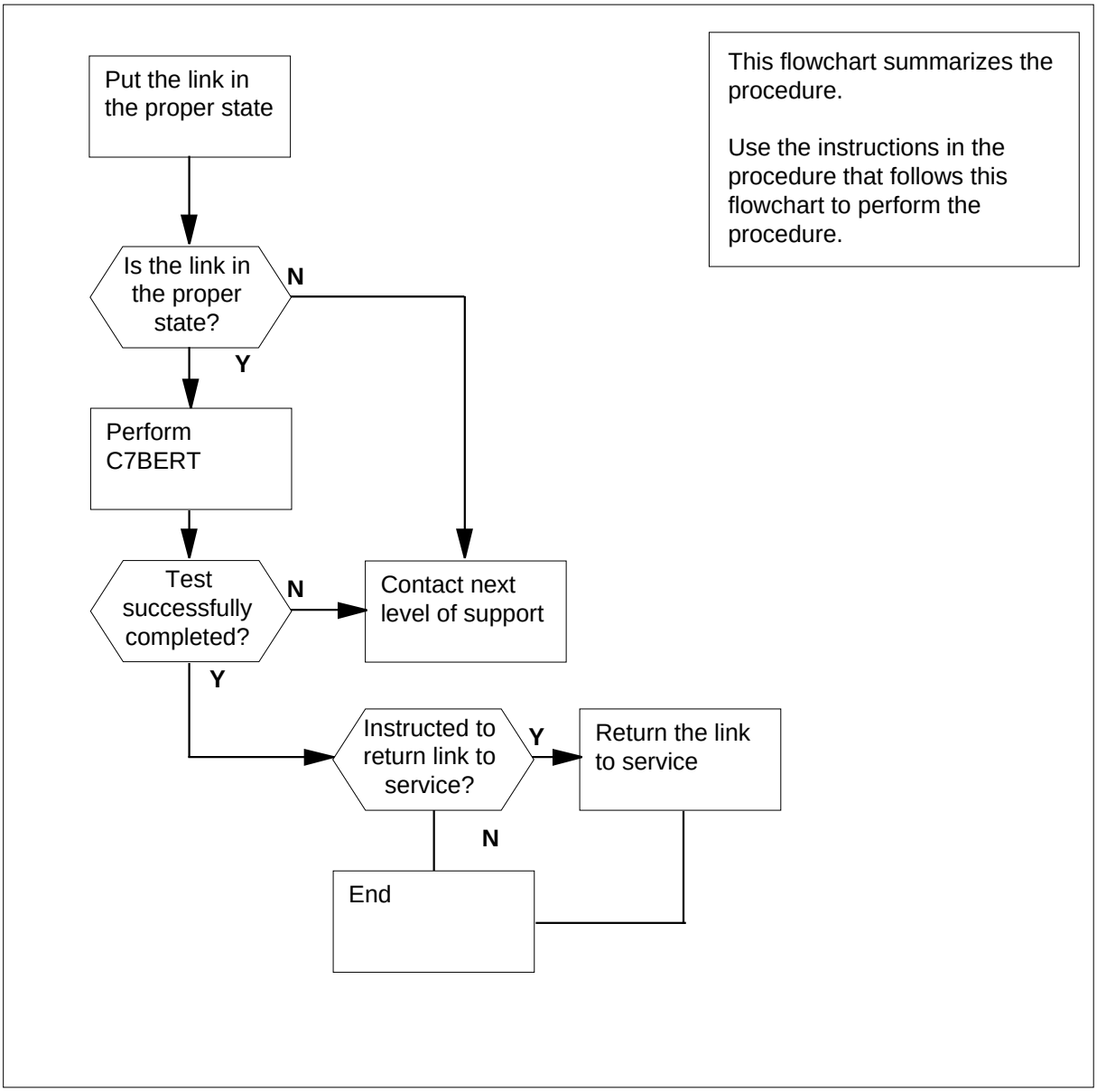
There are no common procedures.

Action

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

Running a C7BERT (continued)

Summary of Running a C7BERT



Running a C7BERT

ATTENTION

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

ATTENTION

If link fault sectionalization (LFS) is activated, an anomaly in the NT9X78BA and NT9X78CA cards can cause latch past to occur. When the last DS0DP is a BA or CA paddle board, LFS may latch past the last DS0DP link.For example, if the fifth and last device in a link is a BA or CA card, LFS may latch the sixth or seventh DS0DP.Before running this procedure, check the number and type of devices on a link. This information helps reduce the link diagnosis time.

At the MAP terminal

1 Contact the next level of support to obtain the following information:

- how the test will stop (manually or automatically), and
- if periodic reports are required, and if so, how many times each hour (1 to 12)

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

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

3 To access the C7LKSET level of the MAP display, type

`>MAPCI;MTC;CCS;CCS7;C7LKSET`

and press Enter.

Example of a MAP response:

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

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

`>POST C linkset_name`

and press Enter.

where

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

Running a C7BERT (continued)

Example of a MAP response:

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

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

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

>NEXT

and press Enter.

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

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

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

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

>PM

and press Enter.

Example of a MAP display:

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

8 To post the LIU7, type

>POST LIU7 liu7_no

and press Enter.

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

where

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

Example of a MAP response:

```
LIU7 13 InSv
```

9 To force the LIU7 to busy, type

>BSY F0RCE

and press Enter.

If the BSY command	Do
passed	step 10
failed	step 66

10 To reset the LIU7, type

>PMRESET

and press Enter.

If the PMRESET command	Do
passed	step 11
failed	step 66

11 To return the LIU7 to service, type

>RTS

and press Enter.

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

12 To access the C7LKSET level of the MAP display, type

>CCS;CCS7;C7LKSET

and press Enter.

Example of a MAP response:

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

Running a C7BERT (continued)

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

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

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

14 To manually busy the link, type

>BSY link_no

and press Enter.

where

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

Example of a MAP response:

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

If the BSY command	Do
passed	step 15
failed	step 66

15 To deactivate the link, type

>DEACT link_no FORCE

and press Enter.

where

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

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

If the DEACT command	Do
passed	step16
failed	step 66

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

>C7BERT

and press Enter.

Running a C7BERT (continued)

17 Determine the purpose of the next step.

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

18 To activate a local loopback, type

`>PMLOOP LOCON link_no`

and press Enter.

where

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

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

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

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

Running a C7BERT (continued)

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

```
>C7BERT
```

and pressing Enter.

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

```
>PMLOOP  RMTON  link_no
```

and press Enter.

where

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

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

Running a C7BERT (continued)

If the response	Do
is other than listed here	step 66

22 PM loop functionality is not available on your switch.

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

23 To stop the C7BERT that exists, type

>STOP link_no

and press Enter.

where

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

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

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

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

25 To determine if a set stop time exists, type

>SETSTOP link_no STATUS

and press Enter.

where

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

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

26 To clear the stop time, type

>SETSTOP link_no CLEAR

and press Enter.

Running a C7BERT (continued)

where

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

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

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

```
>SETSTOP  link_no  SET  day  hours  minutes
```

and press Enter.

where

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

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

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

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

Example input:

```
>SETSTOP  3  SET  MON  10  30
```

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

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

28 Determine if the stop time is correct.

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

29 Wait until the C7BERT stops.

Go to step 45.

Running a C7BERT (continued)

30 To start the C7BERT, type

>START link_no

and press Enter.

where

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

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

31 To display the test results of the C7BERT, type

>QUERY link_no

and press Enter.

where

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

Example of a MAP response:

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

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

Running a C7BERT (continued)

32 Determine the if any transmitted Tx frames exist.

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

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

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

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

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

34 To display C7BERT results, type

```
>QUERY  link_no
```

and press Enter.

where

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

Example of a MAP response:

Running a C7BERT (continued)

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

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

35 Record the number of Rx bit errors.

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

36 To inject bit errors, type

>INJERR link_no

and press the Enter key.

where

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

Example of a MAP response:

```
injerr 1
```

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

37 To display the result of bit error injection, type

>QUERY link_no

and press Enter.

where

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

Example of a MAP response:

Running a C7BERT (continued)

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

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

38 Determine the result of bit error injection.

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

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

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

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

>REPORT link_no STATUS

and press Enter.

where

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

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

41 To clear the last report interval, type

>REPORT link_no OFF

and press Enter.

where

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

MAP response:

```
Link nn: Automatic query reporting has been terminated
```

42 To set the number of reports per hour, type

>REPORT link_no ON number

and press Enter.

where

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

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

Example input:

>REPORT 1 ON 6

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

43 Determine if the report interval is correct.

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

44 Stop the C7BERT that exists, type

>STOP link_no

and press Enter.

where

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

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

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

Running a C7BERT (continued)

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

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

46 Remove the manual loopback across network elements.

47 Your next step depends on the instructions received from your next level of support.

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

48 To deactivate a local loopback, type

`>PMLOOP LOCOFF link_no`

and press Enter.

where

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

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

Running a C7BERT (continued)

49 To deactivate a remote loopback, type

>PMLOOP RMTOFF link_no

and press Enter.

where

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

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

50 To determine if a set stop time exists, type

>SETSTOP link_no STATUS

and press Enter.

where

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

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

51 To clear the stop time, type

>SETSTOP link_no CLEAR

and press Enter.

where

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

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

52 To set the stop time that is new, type

>SETSTOP link_no SET day hours minutes

and press Enter.

Running a C7BERT (continued)

where

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

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

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

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

Example input:

```
>SETSTOP  3  SET  MON  10  30
```

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

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

53 Determine if the stop time is correct.

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

54 Wait until the C7BERT stops.

Go to step 45.

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

```
>QUIT
```

and press Enter.

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

```
>ACT  link_no
```

and press Enter.

where

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

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

57 Determine the synchronization state of the link.

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

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

58 Wait 8 minutes, and continue with the procedure.

59 Determine the synchronization state of the link.

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

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

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

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

Go to step 57.

62 To deactivate the link, type

```
>DEACT  link_no  FORCE
```

and press Enter.

where

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

Running a C7BERT (continued)

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

>ACT link_no

and press Enter.

where

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

If the ACT command	Do
passed	step 64
failed	step 66

64 To return the link to service, type

>RTS link_no

and press Enter.

where

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

If the RTS command	Do
passed	step 65
failed	step 66

65 To unhibit the link, type

>UINH link_no

and press Enter.

where

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

If the UINH command	Do
passed	step 110
failed	step 66

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

67

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

Running a C7BERT (continued)

ATTENTION

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

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

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

To activate link fault sectionalization, type

>LFSLOOP START link_no element_type loopback_type occurrence

and press Enter.

where

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

element_type
is the type of network element that the loopback will use

(DS0DP, OCUDP, CSU, NEI, or DSU)

loopback_type
is if the loopback latches or does not latch (LATCH or

NONLATCH)

occurrence
is the occurrence of the element type where link fault

sectionalization will initiate (1 to 16)

Example input:

>LFSLOOP START 1 DS0DP LATCH 1

68 Your next step depends on the generated response.

If the response	Do
is Link nn: LFS ON complete is Looped back at element mm	step 79
Link nn: LFS ON complete Looped back at element mm WARNING: Physical loop may exist as confirmation byte not received.	step 79

Running a C7BERT (continued)

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

69 PM loop functionality is not available on your switch.

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

70 To remove the link fault sectionalization already applied, type

`>LFSLOOP STOP link_no`

and press Enter.

where

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

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

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

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

The failure occurred for one of the following reasons:

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

Go to step 109.

72 To stop the C7BERT that exists, type

>STOP link_no

and press Enter.

where

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

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

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

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

74 To determine if a stop time is set, type

>SETSTOP link_no STATUS

and press Enter.

where

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

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

75 To clear the stop time, type

>SETSTOP link_no CLEAR

and press Enter.

where

Running a C7BERT (continued)

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

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

76 To set the stop time that is new, type

>SETSTOP link_no SET day hours minutes

and press Enter.

where

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

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

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

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

Example input:

>SETSTOP 3 SET MON 10 30

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

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

77 Determine if the stop time is correct.

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

78 Wait until the C7BERT stops.

Go to step 94.

Running a C7BERT (continued)

79 To start the C7BERT, type

>START link_no

and press Enter.

where

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

If the response	Do
is Link n: C7BERT started	step 80
is Link n:Failed - Link state is invalid for C7BERTLink must be ManB and DAct (or LFS)	step 6
is other than listed here	step 109

80 To display the test results of the C7BERT, type

>QUERY link_no

and press Enter.

where

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

Example of a MAP response:

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

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

81 Determine if any transmitted Tx frames exist.

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

If Transmitted Tx Frames	Do
are present	step 82

Running a C7BERT (continued)

If Transmitted Tx Frames	Do
are not present	step 109

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

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

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

83 To display C7BERT results, type

`>QUERY link_no`

and press Enter.

where

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

Example of a MAP response:

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

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

Running a C7BERT (continued)

84 Record the number of Rx bit errors.

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

85 To inject bit errors, type

`>INJERR link_no`

and press Enter.

where

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

Example of a MAP response:

```
injerr 1
```

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

86 To display the result of bit error injection, type

`>QUERY link_no`

and press Enter.

where

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

Example of a MAP response:

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

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

Running a C7BERT (continued)

87 Determine the result of bit error injection.

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

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

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

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

>REPORT link_no STATUS

and press Enter.

where

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

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

90 To clear the last report interval, type

>REPORT link_no OFF

and press Enter.

where

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

MAP response:

```
Link nn: Automatic query reporting has been terminated
```

91 To set the number of reports per hour, type

>REPORT link_no ON number

and press Enter.

where

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

Running a C7BERT (continued)

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

Example input:

```
>REPORT  1  ON  6
```

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

92 Determine if the report interval is correct.

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

93 To stop the C7BERT, type

```
>STOP  link_no
```

and press Enter.

where

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

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

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

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

If	Do
the link stops on an NT9X77AA or NT9X78BA/CA/DA/DB card, and you just ran a link fault sectionalization. If instructions required you to return the link to service	step 98

Running a C7BERT (continued)

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

95 Remove the manual loopback across network elements.

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

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

97 To remove the link fault sectionalization, type

`>LFSLOOP STOP link_no`

and press Enter.

where

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

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

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

`>QUIT`

and press Enter.

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

`>ACT link_no`

and press Enter.

where

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

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

100 Determine the synchronization state of the link.

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

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

101 Wait 8 minutes, and continue with this procedure.

102 Determine the synchronization state of the link.

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

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

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

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

Go to step 100.

105 To deactivate the link, type

```
>DEACT  link_no  FORCE
```

and press Enter.

where

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

Running a C7BERT (end)

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

>ACT link_no

and press Enter.

where

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

If the ACT command	Do
passed	step 107
failed	step 109

107 To return the link to service, type

>RTS link_no

and press Enter.

where

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

If the RTS command	Do
passed	step 110
failed	step 109

108 To uninhibit the link, type

>UINH link_no

and press Enter.

where

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

If the UINH command	Do
passed	step 110
failed	step 109

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

110 The procedure is complete.

Running a C7BERT for high-speed links

Application

Use this procedure to do the following:

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

Note: Do not use CARLOOP loopback test for HSLs connected to an asynchronous transfer mode (ATM) switch. CARLOOP test for HSLs is only valid over a direct connection.

Definition

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

Run an HSL C7BERT in the following situations:

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

Common procedures

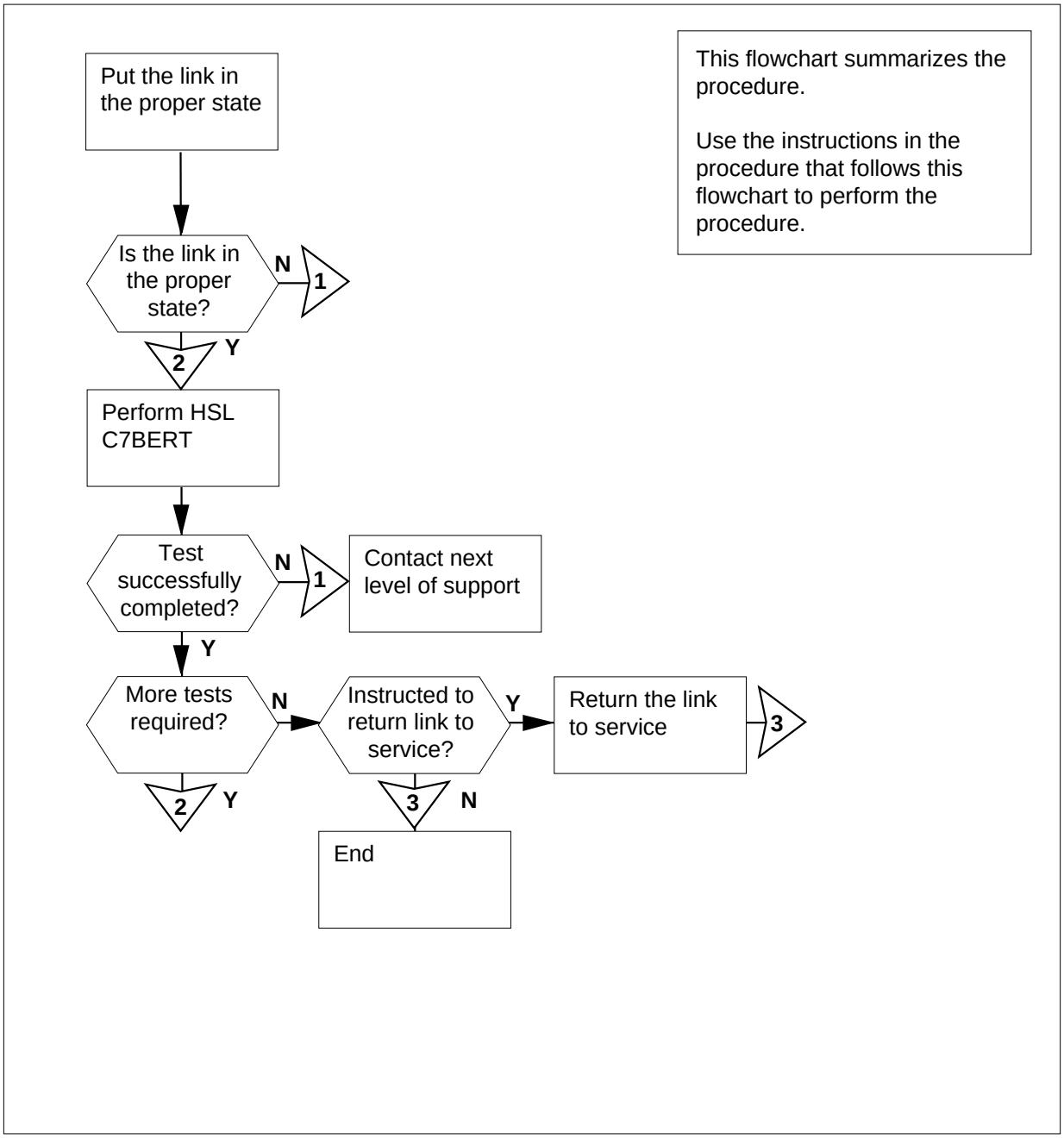
None

Action

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

Running a C7BERT for high-speed links (continued)

Summary of Running a C7BERT for high-speed links



Running a C7BERT for high-speed links (continued)

Running a C7BERT for high-speed links

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

At the MAP terminal

1 Contact the next level of support to obtain the following information:

- how to stop the test (manually or automatically)
- if periodic reports are required and how many times each hour (1 to 12)

2 If you want to perform a remote loopback, inform personnel at the far-end office that

- you want to busy and return the link to service
- they must busy and return the link to service at their end

3 To enter the C7LKSET level of the MAP display, type

`>MAPCI;MTC;CCS;CCS7;C7LKSET`

and press the Enter key.

Example of a MAP response:

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

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

`>POST  C  linkset_name`

and press the Enter key.

where

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

Example of a MAP response:

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

Running a C7BERT for high-speed links (continued)

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

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

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

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

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

>PM

and press the Enter key.

Example of a MAP display:

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

7 To post the HLIU, type

>POST HLIU dliu_no

and press the Enter key.

where

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

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

Example of a MAP response:

```
HLIU 13 InSv
```

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

Running a C7BERT for high-speed links (continued)

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

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

9 To busy the HLIU, type

>BSY

and press the Enter key.

If the BSY command	Do
passed	step 10
failed	step 78

10 To return to service the HLIU, type

>RTS

and press the Enter key.

If the RTS command	Do
passed	step 11
failed	step 78

11 To post the HSLR, type

>POST HSLR dliu_no

and press the Enter key.

where

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

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

Running a C7BERT for high-speed links (continued)

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

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

13 To busy the HSLR, type

>BSY

and press the Enter key.

If the BSY command	Do
passed	step 15
failed	step 78

14 To return the HSLR to service, type

>RTS

and press the Enter key.

If the RTS command	Do
passed	step 15
failed	step 78

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

>MAPCI;MTC;CCS;CCS7;C7LKSET

and press the Enter key.

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

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

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

Running a C7BERT for high-speed links (continued)

If the traffic and synchronization states are in the sequence given	Do
SysB SysB	step 20
anything else	step 19

17 To busy the link, type

>BSY link_no

and press the Enter key.

where

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

If the BSY command	Do
passed	step 19
failed	step 78

18 To return the link to service, type

>RTS link_no

and press the Enter key.

where

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

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

If the RTS command	Do
passed	step 22
failed	step 78

19 To inhibit the link you want to test, type

>INH link_no

and press the Enter key.

where

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

If the INH command	Do
passed	step 20
failed	step 78

Running a C7BERT for high-speed links (continued)

20 To manually busy the link, type

>BSY link_no

and press the Enter key.

where

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

If the BSY command	Do
passed	step 21
failed	step 78

21 To return the link to service, type

>RTS link_no

and press the Enter key.

where

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

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

If the RTS command	Do
passed	step 22
failed	step 78

22 To enter the C7BERT level of the MAP display, type

>C7BERT

and press the Enter key.

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

Running a C7BERT for high-speed links (continued)

If you want to	Do
perform an intermediate loop-back C7BERT test	step 38

23 To activate a local loopback, type

>PMLOOP LOCON link_no

and press the Enter key.

where

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

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

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

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

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

25 To activate a remote loopback, type

>PMLOOP RMTON link_no

and press the Enter key.

where

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

Running a C7BERT for high-speed links (continued)

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

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

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

`>PMLOOP RMTOFF link_no`

and press the Enter key.

where

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

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

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

`>PM`

and press the Enter key.

Running a C7BERT for high-speed links (continued)

28 To post the HLIU, type

>POST HLIU dliu_no

and press the Enter key.

29 To clear the loopback state, type

>LOOPBK C

and press the Enter key.

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

30 To enter the C7LKSET level of the MAP display, type

>MAPCI;MTC;CCS;CCS7;C7LKSET

and press the Enter key.

31 To enter the C7BERT level of the MAP display, type

>C7BERT

and press the Enter key.

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

32 To stop the existing HSL C7BERT, type

>STOP link_no

and press the Enter key.

where

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

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

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

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

Running a C7BERT for high-speed links (continued)

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

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

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

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

```
>CARLOOP  START  link_no  loopback_type
```

and press the Enter key.

where

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

loopback_type
indicates if the loopback is line (R) or payload (P)

Example input:

```
>CARLOOP  START  1  R
```

35 Your next step depends on the response.

If the response is	Do
Link nn: DS-1 EFT Loop ON complete Carrier line loopback at far-end paddleboard	step 39
Link nn: Failed - C7BERT already active on this link	step 36
Link 1: Failed - Far-end DS-1 ESF already active on this link	step 37
Link nn: Failed - Has not gone into loopback.	step 78
anything else	step 78

36 To stop the existing HSL C7BERT, type

```
>STOP  link_no
```

and press the Enter key.

where

link_no
is the number of the link you entered in step 34

Running a C7BERT for high-speed links (continued)

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

If the response is	Do
Link 1: C7BERT stopped	step 34
anything else	step 78

37 To remove the far-end DS-1 ESF loopback already applied, type

`>CARLOOP STOP link_no`

and press the Enter key.

where

link_no
is the number of the link you entered in step 34

If the response is	Do
CARLoop stop n Link n: DS-1 ESF OFF complete	step 34
anything else	step 78

38 Contact personnel at the intermediate point and request a loopback.

39 To start the HSL C7BERT, type

`>START link_no`

and press the Enter key.

where

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

If the response is	Do
Link n: C7BERT started	step 40
Link n:Failed - Link state is invalid for HSL C7BERT Link must be SysB/DAct or SysB/CAR	step 16
anything else	step 78

40 To display the test results of the HSL C7BERT, type

`>QUERY link_no PR`

and press the Enter key.

where

Running a C7BERT for high-speed links (continued)

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

Example of a MAP response:

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

If the response is	Do
a display of HSL C7BERT statistics	step 41
anything else	step 78

41 Determine if any Tx frames were transmitted.

Note: The number of frames transmitted appears to the right of the Tx Frames header of the MAP display. In the example in step 40, the number of frames transmitted is 19 016.

If	Do
any Tx frames were transmitted	step 42
no Tx frames were transmitted	step 78

42 The test is running correctly.

Test results generate when:

- the periodic reporting function is active
- operating company personnel stop the test manually
- the test stops automatically at a pre-set time

Note: If the switch restarts when an HSL C7BERT is running on a link, the test stops automatically. The test also stops automatically if the HLIU associated with the link fails.

If	Do
you want to request periodic reports	step 54
you want to stop the test manually	step 58

Running a C7BERT for high-speed links (continued)

If	Do
you want to stop the test automatically at a pre-set time	step 43
you want to inject bit errors	step 48

43 To determine if a stop time has been set, type

>SETSTOP link_no STATUS

and press the Enter key.

where

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

If the response is	Do
Link nn: Stop time set at: time	step 44
Link nn: No stop time has been set	step 45
anything else	step 78

44 To clear the stop time, type

>SETSTOP link_no CLEAR

and press the Enter key.

where

link_no
is the number of the link on which the HSL C7BERT is running

If the response is	Do
Stop time cleared	step 45
anything else	step 78

45 To set the new stop time, type

>SETSTOP link_no SET day hours minutes

and press the Enter key.

where

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

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

Running a C7BERT for high-speed links (continued)

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

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

Example input:

```
>SETSTOP  3  SET  MON  10  30
```

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

If the response is	Do
Link nn: Stop time set at: 19xx/yy/zz hh:mm:00.000 ddd	step 46
anything else	step 78

46 Determine if the stop time is correct.

If the stop time is	Do
correct	step 47
incorrect	step 44

47 Wait until the stop time.

Go to step 59.

48 To display HSL C7BERT results, type

```
>QUERY  link_no  PR
```

and press the Enter key.

where

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

Example of a MAP response:

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

If the response is	Do
a display of test statistics	step 49
anything else	step 78

Running a C7BERT for high-speed links (continued)

49 Record the number of Rx bit errors.

Note: In the example in step 48, the number of bit errors received appears to the right of Rx bit errors.

50 To inject bit errors, type

`>INJERR link_no`

and press the Enter key.

where

link_no
is the number of the link you tested in step 39

Example of a MAP response:

```
injerr 1
```

If the response is	Do
Link 1: INJECT ERROR completed	step 51
Link n:Failed - C7BERT is not active on this link	step 39
anything else	step 78

51 To display the result of injecting bit errors, type

`>QUERY link_no PR`

and press the Enter key.

where

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

Example of a MAP response:

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

If the response is	Do
a display of test statistics	step 52
anything else	step 78

Running a C7BERT for high-speed links (continued)

52 Determine the result of injecting bit errors.

Note: In the example in step 51, the number of bit errors received appears to the right of Rx Bit Errors.

53 Subtract the result of the HSL C7BERT recorded in step 49 from the result obtained in step 51. This action checks for correct bit error rate (BER) circuit operation.

If the difference is	Do
1	step 42
anything else	step 78

54 To determine if periodic reports have been requested, type

>REPORT link_no STATUS

and press the Enter key.

where

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

If the response is	Do
Link nn: Automatic query reporting active at: mm times per hour	step 55
Link nn: Automatic query reporting is not active	step 56
anything else	step 78

55 To clear the previous report interval, type

>REPORT link_no OFF

and press the Enter key.

where

link_no
is the number of the link on which the HSL C7BERT is running

MAP response:

```
Link nn: Automatic query reporting has been terminated
```

56 To set the number of reports per hour, type

>REPORT link_no ON number

and press the Enter key.

where

Running a C7BERT for high-speed links (continued)

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

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

Example input:

```
>REPORT  1  ON  6
```

If the response is	Do
Link nn: Report interval set at: nn times per hour	step 57
anything else	step 78

57 Determine if the report interval is correct.

If the interval is	Do
correct	step 42
not correct	step 55

58 To stop the HSL C7BERT, type

```
>STOP  link_no
```

and press the Enter key.

where

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

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

If the response is	Do
Link 1: C7BERT stopped	step 59
anything else	step 78

59 Give the results to the personnel responsible for the next level of support. Your next step depends on the instructions received from your next level of support.

If	Do
the far-end DS-1 loopback is established	step 61
the local loopback is established	step 60

Running a C7BERT for high-speed links (continued)

If	Do
an intermediate loopback is established	step 62

60 To remove the local loopback, type

>PMLOOP LOCOFF link_no

and press the Enter key.

where

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

If the response is	Do
`pmloop off` and more tests are required	step 22
`pmloop off` and you want to exit from C7BERT	step 68
anything else	step 78

61 To remove the far-end DS-1 ESF loopback, type

>CARLOOP STOP link_no

and press the Enter key.

where

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

If the response is	Do
`Link n: DS-1 ESF OFF complete` and more tests are required	step 22
`Link n: DS-1 ESF OFF complete` and you want to exit C7BERT	step 68
anything else	step 78

62 Tell personnel at the intermediate point to remove the intermediate loopback.

If you want to	Do
run more tests	step 22

Running a C7BERT for high-speed links (continued)

If you want to	Do
exit from C7BERT	step 68

63 To enter the PM level of the MAP display, type

>PM

and press the Enter key.

64 To post the HLIU, type

>POST HLIU dliu_no

and press the Enter key.

65 To enable the HST to scan for control codes, type

>LOOPBK E

and press the Enter key.

If the response is	Do
`loopbk passed`	step 66
anything else	step 78

66 Wait for the far end to finish testing. When far-end testing is complete, clear the loopback state. Type

>LOOPBK C

and press the Enter key.

If the response is	Do
`loopbk passed`	step 67
anything else	step 78

67 To enter the C7LKSET level of the MAP display, type

>MAPCI;MTC;CCS;CCS7;C7LKSET

and press the Enter key.

If	Do
more tests are required	step 22
you want to exit C7BERT	step 68

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

>QUIT

and press the Enter key.

69 To activate the link on which the HSL C7BERT was running, type

>ACT link_no

Running a C7BERT for high-speed links (continued)

and press the Enter key.

where

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

If the ACT command	Do
passed	step 70
failed	step 78

70 Determine the synchronization state of the link.

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

If the synchronization state is	Do
Sync	step 77
anything else	step 71

71 Wait 8 min, then continue the procedure.

72 Determine the synchronization state of the link.

If the synchronization state is	Do
SysB, and you have not asked the far-end office to activate the link	step 74
SysB, and you have asked the far-end office to activate the link	step 73

73 Use office records to determine which far-end office connects to the linkset posted in step 4.

74 Contact the far-end office. Tell the personnel there that you will reactivate the link.

75 Tell personnel at the far-end office to activate the link.

76 To activate the link from your end, type

>ACT link_no

and press the Enter key.

where

link_no
is the number of the link you activated in step 69

If the ACT command	Do
passed	step 77

Running a C7BERT for high-speed links (end)

If the ACT command	Do
failed	step 78

77 To uninhibit the link, type

`>UINH link_no`

and press the Enter key.

where

link_no
is the number of the link you activated in step 69

If the UINH command	Do
passed	step 79
failed	step 78

78 For additional help, contact the personnel responsible for the next level of support.

79 You have completed this procedure.

Saving key, screen, status messages, command privileges and option definitions

Application

Use this procedure to save the following:

- current key
- screen
- Status messages
- command privileges
- option descriptions

Save these elements on diskette before you first load, reinstall or change the TOPS MPX position software. To install or save these elements on a disk, perform the procedure Installing key and option definitions. Do not continue the save procedure.

Action

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

Tools

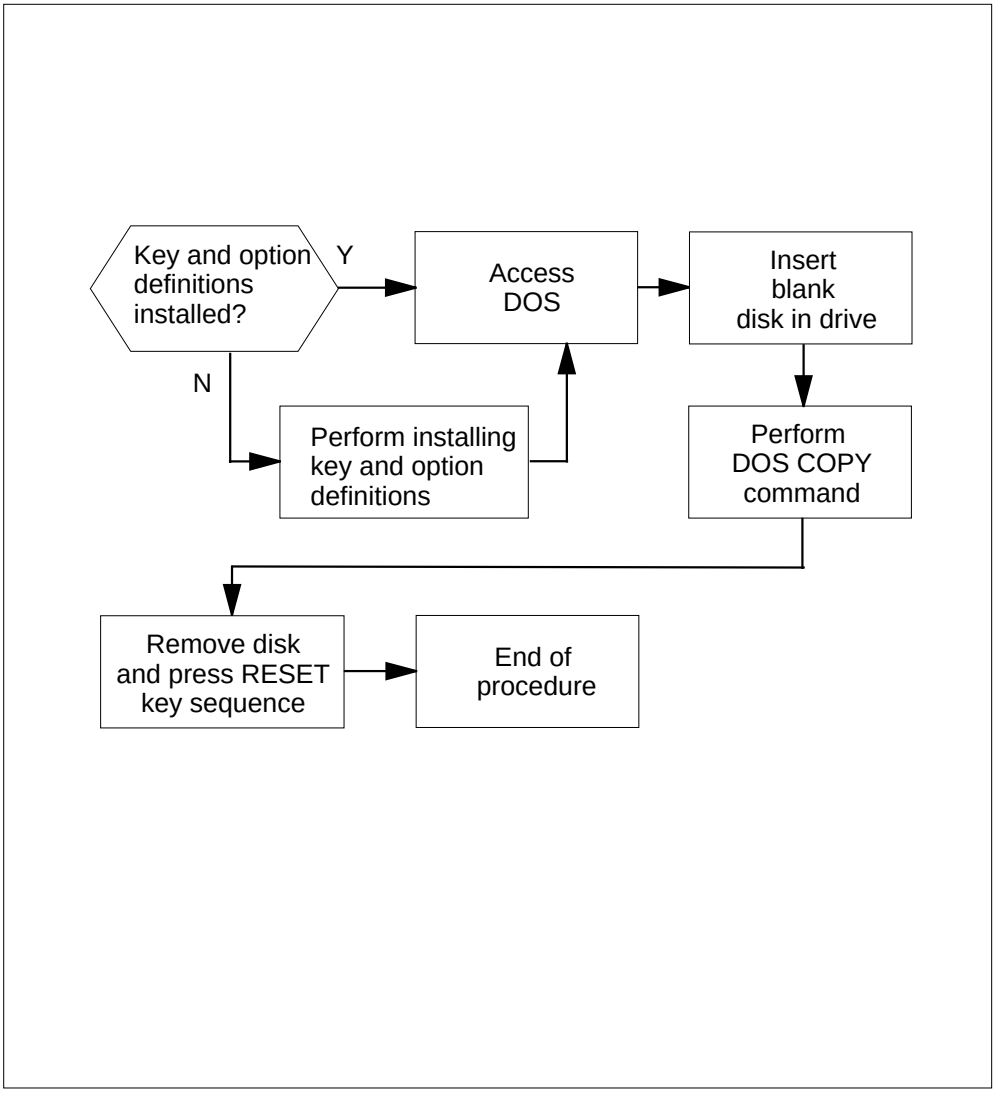
This procedure requires one blank formatted disk.

> ***Note:*** The TOPS MPX release MPX00200 contains a large number of new terminal options. The DEFOPT utility defines the terminal options. The DAS.OPT file stores the options. The DAS.OPT file from versions that precede MPX00200 cannot propagate to MPX00200. The steps in this procedure do not apply to the DAS.OPT file. References to the DAS.OPT file remain.

After you install the terminal with the MPX00200 software, you must execute the DEFOPT utility to generate a new DAS.OPT file. You can copy the DAS.OPT file to a disk, as this procedure describes. Use the procedure Saving key, screen, status messages, command privileges and option defintions to copy the file to other positions.

Saving key, screen, status messages, command privileges and option definitions (continued)

Summary of Saving key, screen, Status messages, command privileges and option definitions



Saving key, screen, status messages, command provileges and option

Saving key, screen, status messages, command privileges and option definitions (continued)

definitions

At your current location

1

DANGER
Loss of previous key, screen, status messages, command privileges or option definitions
The first installation procedure destroys any previous key or option definitions. You must save keys and options defined on a disk before you perform the installation procedure.

Key and option definitions.

If	Do
The user did not install key, screen, Status messages, command privileges, or option definitions.	Go to Installing key, screen, status messages, command privileges, and option definitions procedure to make these definitions.
The user installed TOPS MPX. The user did not save the current key, screen, Status messages, command privileges, and option definitions on a disk.	Step 2

2 At the TOPS MPX, access DOS at the C:\> prompt.

Note: Perform this file copy procedure on a disk for OPR positions. Perform this procedure again for SA positions.

If	Do
TOPS MPX software runs	Turn TOPS MPX power off. Insert system disk. Turn TOPS MPX power on.
the A:\ prompt shows	Remove diskette in Drive A and type C:
the C:\ prompt does not appear	Step 3.

3 Type the following to access the root directory of the hard drive:

***>CD ***

Saving key, screen, status messages, command privileges and option definitions (end)

and press the DOS-ENTER key.

The system displays the prompt:

```
>C:\>
```

4 Copy the following files to a disk:

- DAS.KEY - keyboard layout file
- DAS.SCR - screen layout file
- DAS.OPT - options file
- DAS.CMD - command privileges file
- DAS.STA - Status message file
- DAS.SAV - screen server file (If you copied this file to your disk, use the DOS DEL command to delete the file from the disk. This file must be on the hard disk of ONLY ONE screen server position for each token ring.)

Insert a blank formatted disk in Drive A:

Type the following string:

```
>COPY  DAS.*  a:
```

and press the DOS-ENTER key.

*To save all 20 (max.) screen files type the following:

```
>COPY *.SCR A:
```

and press the DOS-ENTER key.

After you complete this copy process for all the files, remove the disk and store for future use.

The following table provides TOPS MPX keys/sequences for IBM keys the user can request through the DOS application.

KEYS/SEQUENCE	IBM Keyboard	TOPS MPX Keyboard
DOS-ENTER KEY	<--- Enter	Bus
DAS CMD KEY	F3	DAS Cmd
TOPS DAS-ENTER KEY	F4	DAS Enter
RESET KEY SEQUENCE	Press and hold Ctrl, Alt and Del keys	Press and hold <-- and Word <-- keys. Press Clg key
ESC KEY	Esc	Clear Field

Scheduling an automatic REx test

Application

Use this procedure to schedule a routine exercise (REx) test for a link interface module (LIM).

Definition

The REx test schedule must include the LIMs that are new in the system.

Common procedures

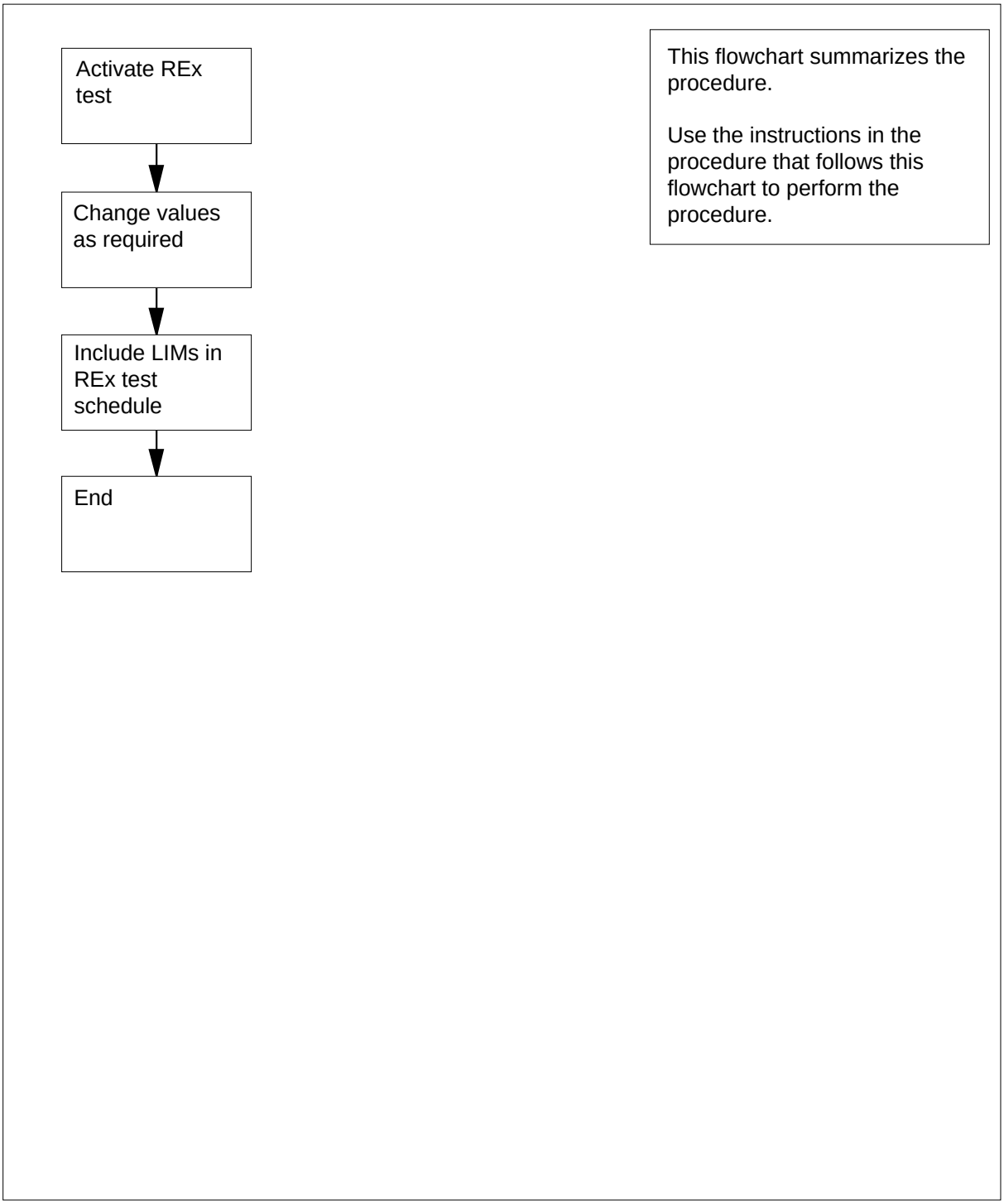
There are no common procedures.

Action

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

Scheduling an automatic REx test (continued)

Summary of Scheduling an automatic REx test



Scheduling an automatic REx test (continued)

Scheduling an automatic REx test

At the MAP terminal

1 To access table OFCVAR, type

>TABLE OFCVAR

and press Enter.

2 To position on office parameter NODEREXCONTROL, type

>POSITION NODEREXCONTROL

and press Enter.

Example of a MAP response:

```
NODEREXCONTROL Y 1 30 3 30
```

Note: In the example, Y indicates the activation of the REx test. 1 30 is the start time of the REx test on the 24-h clock. 3 30 is the end time of the REx test on the 24-h clock.

3 To display the fields and tuples, type

>LIST

and press Enter.

Example of a MAP response:

PARMNAME	PARMVAL
NODEREXCONTROL	Y 1 30 3 30

4 To specify that you want to change office parameter NODEREXCONTROL, type

>CHANGE

and press Enter.

MAP response:

```
ENTER Y TO
CONTINUE PROCESSING
OR N TO QUIT
```

5 To continue to process, type

>Y

and press Enter.

Example of a MAP response:

```
PARMVAL: Y 1 30  3 30
```

6 To activate automatic REx testing, and enter a new value for office parameter NODEREXCONTROL, type

>Y h1 m1 h2 m2

and press Enter.

where

h1 m1
is the start time of the REx test on the 24 h clock, for example, 02 30

h2 m2
is the end time of the REx test on the 24 h clock, for example, 04 30

Note: The value in NODEREXCONTROL must allow enough time to test all the LIMs that you want to test. Add 30 minutes to the parameter of all LIMs.

Example input:

```
>Y 02  30  04  30
```

Example of a MAP response:

```
TUPLE TO BE CHANGED:
NODEREXCONTROL       Y 02 30 04 30
ENTER Y TO CONFIRM, N TO REJECT, OR E TO EDIT.
```

7 To confirm the change, type

```
>Y
```

and press Enter.

Example of a MAP response:

```
TUPLE CHANGED
```

8 To quit from the table editor and return to the CI level of the MAP display, type

```
>QUIT
```

and press Enter.

9

CAUTION
Possible loss of service
Do not isolate nodes on the F-bus of the LIM you are testing. If you isolate any of the nodes on the F-bus of the LIM you are testing, the REx test will not proceed.

To post the LIM that you want to include in the REx test, type

```
>MAPCI;MTC;PM;POST  LIM  lim_no
```

and press Enter.

where

lim_no
is the number of the first LIM that you will post (0 to 16)

Scheduling an automatic REx test (end)

10 To include the posted LIM in the REx test schedule, type

>REX ON

and press Enter.

Example of a MAP response:

```
LIM x UNIT y has been included in the REX Schedule.
```

11 The procedure is complete.

Scheduling ISUP trunk audits

Application

Use the following procedure to schedule ISDN user part (ISUP) trunk audits.

Definition

ISUP trunk audits switch units with CCS7 and trunk test position (TTP) improvements for trunks that use CCS7 signaling (ISUP trunks). To correct state mismatches, the trunk audit runs on all ISUP trunks one time a day. In table OFCENG, office parameter CIRCUIT_QUERY_AUDIT_START_TIME specifies ISUP trunk audit time.

Common procedures

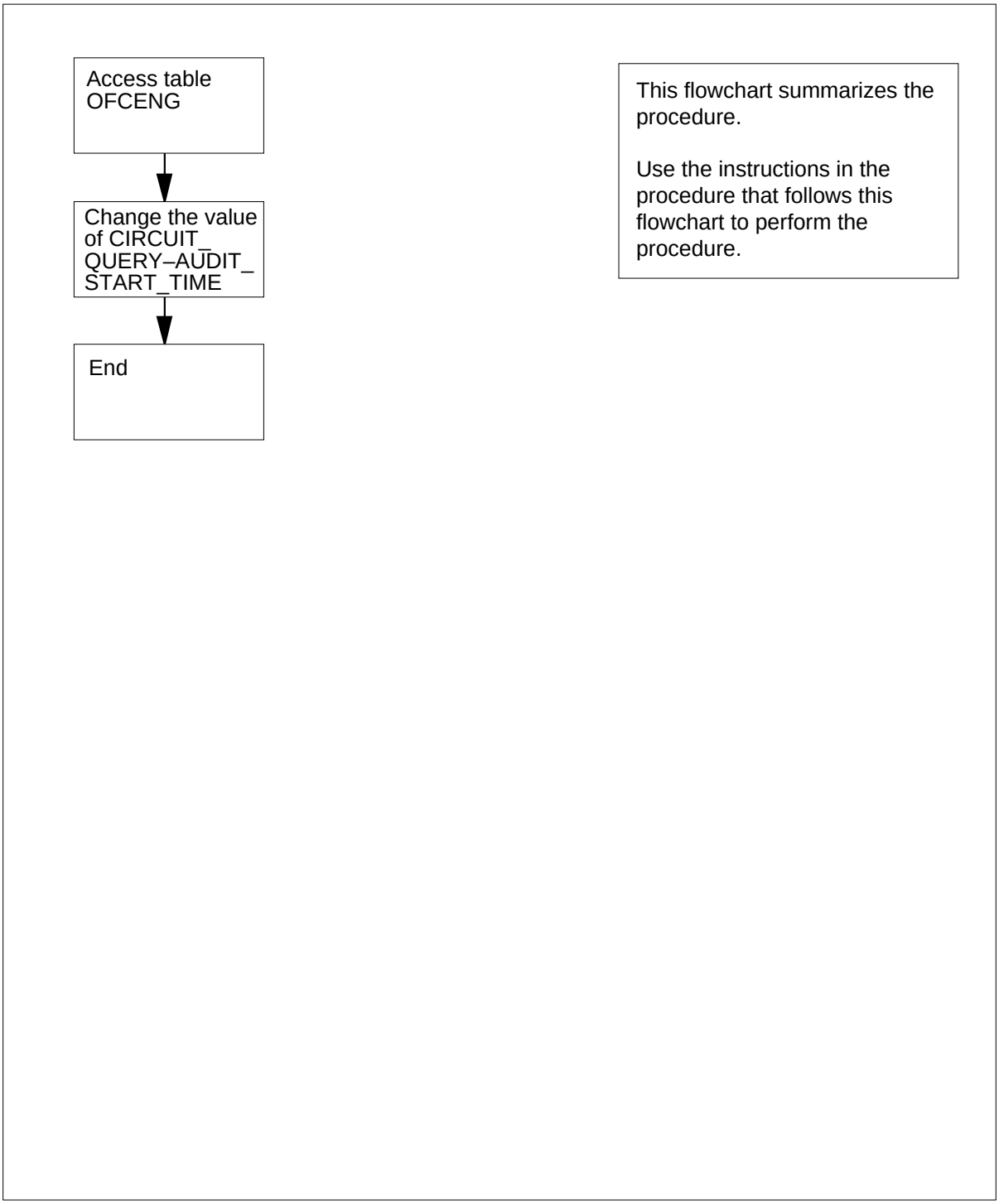
There are no common procedures.

Action

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

Scheduling ISUP trunk audits (continued)

Summary of Scheduling ISUP trunk audits



Scheduling ISUP trunk audits (continued)

Scheduling ISUP trunk audits

At the MAP terminal

1

CAUTION
Possible loss of service
Ensure table TRKSGRP is datafilled to include the ISUP trunks on which you want to perform the audit before you run the ISUP audit. For more information on table TRKSGRP, refer to the data schema section of the *Translations Guide*.

To access table OFCENG, type

>TABLE OFCENG

and press Enter.

Example of a MAP response:

```
TABLE: OFCENG
```

Note: Access to table OFCENG is restricted. If access is denied, contact your next level of support.

2 To position on office parameter CIRCUIT_QUERY_AUDIT_START_TIME, type

>POSITION CIRCUIT_QUERY_AUDIT_START_TIME

and press Enter.

Example of a MAP response:

```
CIRCUIT_QUERY_AUDIT_START_TIME  2 0
```

3 To display the tuple with headers, type

>LIST

and press Enter.

Example of a MAP response:

```
PARMNAME                    PARMVAL
CIRCUIT_QUERY_AUDIT_START_TIME  2 0
```

Note: In the MAP example, 2 0 is the current ISUP trunk audit start time in hours (0 to 23) and minutes (0 to 59).

4 Decide if you want to change the ISUP trunk audit start time.

If the ISUP trunk audit start time	Do
does not require change	step 8

Scheduling ISUP trunk audits (end)

If the ISUP trunk audit start time	Do
requires change	step 5

5

CAUTION
Possible loss of service or system degradation
Ensure the new ISUP trunk audit start time is set during off-peak hours. The audit can generate many CCS7 messages that can result in degraded service.

To enter a new ISUP trunk audit start time, type

>CHANGE 2 new_value

and press Enter.

where

new_value
is the time you want the ISUP trunk audit to start. Use the format hh mm (hours and minutes), where hh is a number from 0 to 23 and mm is a number from 0 to 59.

Example of a MAP response:

```
TUPLE TO BE CHANGED:
    CIRCUIT_QUERY_AUDIT_START_TIME   2 15
 ENTER Y TO CONFIRM, N TO REJECT OR E TO EDIT.
```

6 To confirm the change, type

>Y

and press Enter.

Example of a MAP response:

```
TUPLE CHANGED
```

Note: The value will apply when the audit that uses the old value runs one time. In other words, the next audit will run at the old time; the new time is for the audit of the next day.

7 To quit from the table, type

>QUIT

and press Enter.

8 The procedure is complete.

Setting up an ISUP per-call continuity test

Application

Use this procedure to install an ISDN user part (ISUP) per-call continuity test.

Definition

A per-call continuity test validates the speech part of a trunk that has CCS7 signaling.

Note: The change to table TRKSGRP does not occur until the trunk busies and returns to service.

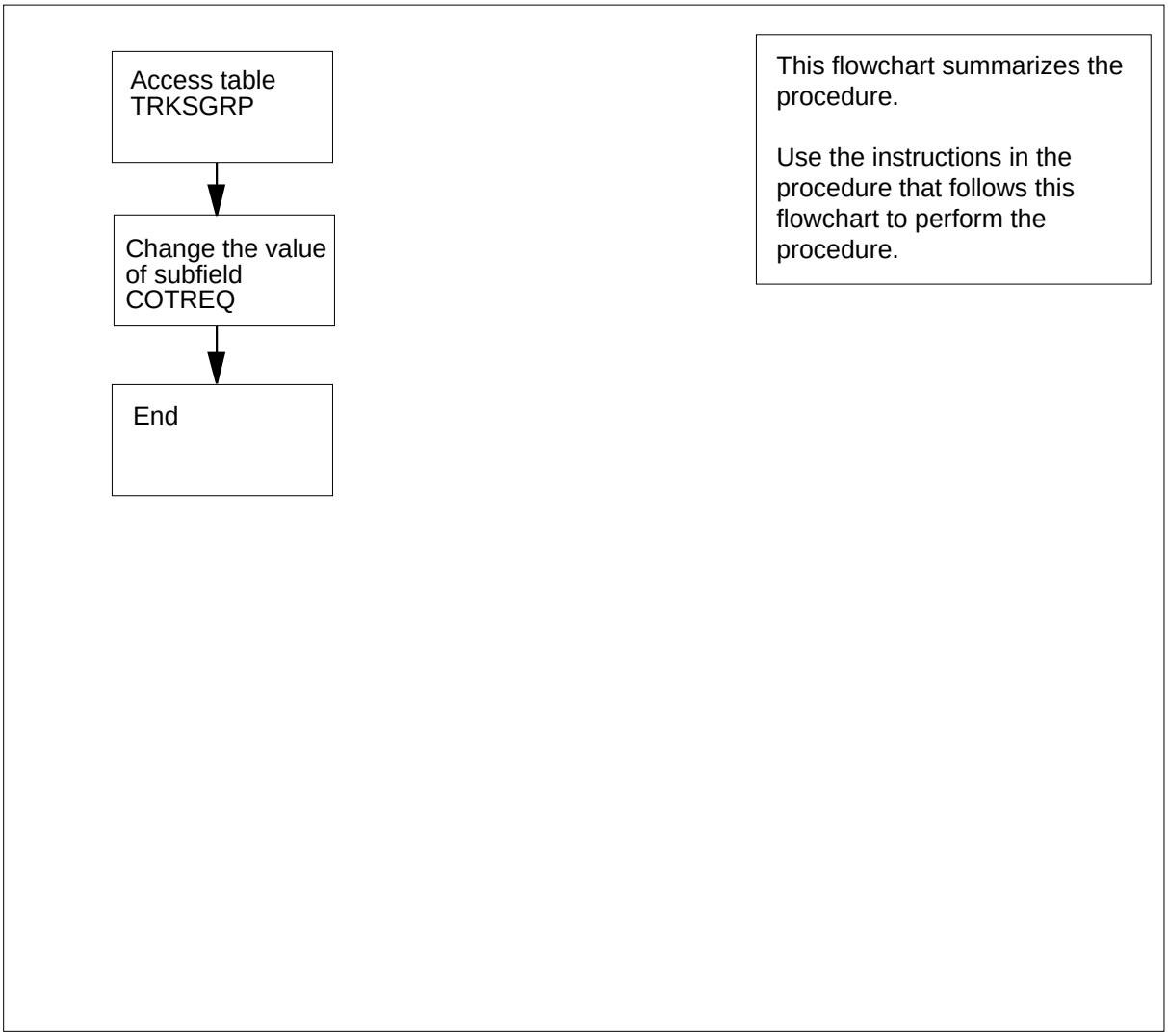
Common procedures

There are no common procedures.

Action

Setting up an ISUP per-call continuity test (continued)

Summary of Setting up an ISUP per-call continuity test



Setting up an ISUP per-call continuity test

CAUTION
Possible loss of service
Ensure that table TRKSGRP is datafilled to include the ISUP trunks needed to perform the audit. Run the ISUP audit. For more information on table TRKSGRP, refer to the data schema section of the *Translations Guide*.

Setting up an ISUP per-call continuity test (continued)

At the MAP terminal

1 To access table TRKSGRP, type

>TABLE TRKSGRP

and press Enter.

2 To position on the trunk subgroup that you want to install the ISUP per-call continuity test, type

>POSITION subgroup_name subgroup_no

and press Enter.

where

subgroup_name
is the common-language location identifier (CLLI) name of the subgroup

subgroup_no
is the number of the subgroup (0 or 1)

Example of a MAP response:

```
    BRABRAEOIS 0     DS1SIG
C7UP OG N N UNEQ NONE Q764 THRH 100 DMSNODE NIL $
```

3 To indicate that you want to change the tuple, type

>CHANGE

and press Enter.

Example of a MAP response:

```
CARDCODE:   DS1SIG
```

4 Press Enter until the MAP response is COTREQ.

Example of a MAP response:

```
COTREQ: 0
```

5 To specify the percentage of calls that you want performed for the per-call continuity test, type

>new_value

and press Enter.

where

new_value
is the percentage of calls on this trunk that the ISUPper-call continuity test will perform (0 to 100)

6 Press Enter until the MAP response is OPTION.

MAP response:

```
OPTION:
```

Setting up an ISUP per-call continuity test (end)

7 To indicate that you changed the tuple, type

>$

and press Enter.

Example of a MAP response:

```
TUPLE TO BE CHANGED:
    BRABRAEOIS 0         DS1SIG
 C7UP OG N N UNEQ NONE Q764 THRL 50 DMSNODE NIL $
 ENTER Y TO CONFIRM, N TO REJECT OR E TO EDIT.
```

8 To confirm the change, type

>Y

and press Enter.

9 To quit from the table, type

>QUIT

and press Enter.

10 The procedure is complete.

Setting up the signaling link marginal performance report

Application

The signaling link marginal performance report (SLMPR) is present in offices that have the CCS7-MTP/SCCP feature (functionality group NTX041AB).

Definition

The SLMPR identifies signaling links in which the following faults occurred in the last hour:

- signaling unit errors
- negative acknowledgements
- automatic changeovers to alternate signaling links

This report also lists links with faults that exceed the threshold set in table OFCVAR.

To produce the SLMPR, the system software obtains peg counts from registers C7SUERR, C7NACKRX, and C7AUTOCO. The peg counts are in operational measurements (OM) group C7LINK1. The software prints the peg counts in log report CCS198.

The report indicates if faults exceed one of the thresholds set in table OFCVAR. If office parameter C7_SLMPR_ALARM_ON of table OFCVAR is ON, a linkset small alarm raises for the link. The location of the link is the CCS level of the MAP display.

Note: If the report will include a signaling link, the link must assign option SLMPR through datafill in table C7LINK, field LINKOPT. Refer to the *Translations Guide* for more information.

Example data from the SLMPR appears below. In the example, the numbers under the SU header are the signaling unit errors. The numbers under NACK are the negative acknowledgements. The numbers under AUTOCOV are the changeovers to alternate signaling links. The numbers with an asterisk (*) exceeded the threshold set in table OFCVAR.

```
CCS198  Apr 10  19:00:00  2636  INFO
   Signaling Link Marginal Performance Report
   Link             SU      NACK    AUTOCOV
   C7LKSET1 1       120     403*    2
   C7LKSET1 3       570*    169     1
   C7LKSET2 2       168     65      1
```

Setting up the signaling link marginal performance report (continued)

Common procedures

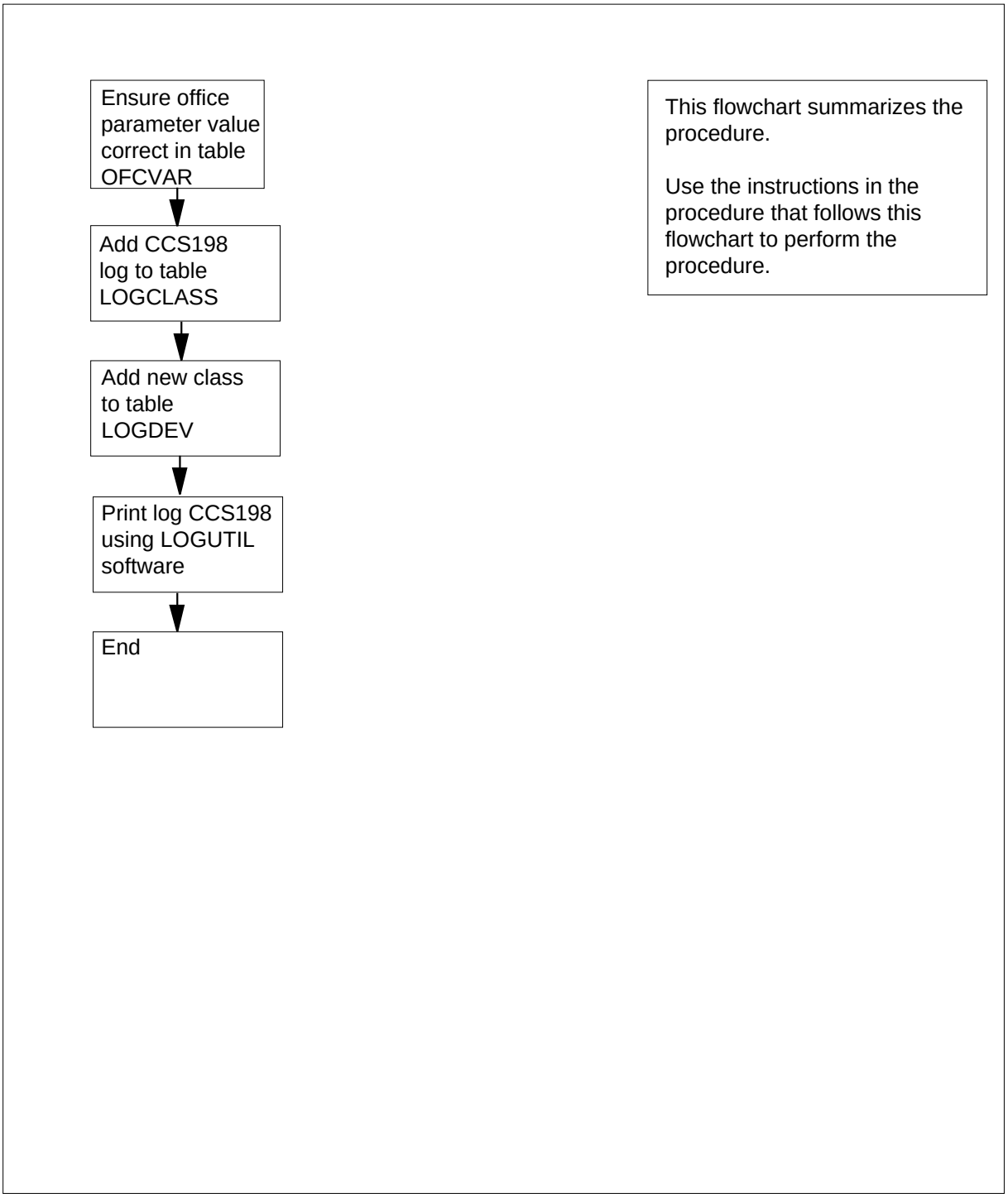
There are no common procedures.

Action

This procedure contains a flowchart and a list of steps required to perform the procedure.

Setting up the signaling link marginal performance report (continued)

Summary of Setting up the signaling link marginal performance report



Setting up the signaling link marginal performance report (continued)

Setting up the signaling link marginal performance report

At the MAP terminal

1 To access the CM level of the MAP display, type

>MAPCI;MTC;CM

and press Enter.

2 Determine if the computing modules (CM) have a synchronized status.

3 To quit from the CM level of the MAP, type

>QUIT ALL

and press Enter.

4 To access table OFCVAR, type

>TABLE OFCVAR

and press Enter.

5 To position on the office parameter C7_SLMPR_ALARM_ON, type

>POSITION C7_SLMPR_ALARM_ON

and press Enter.

Example of a MAP response:

```
C7_SLMPR_ALARM_ON        N
```

6 Determine the value of the office parameter.

If the value	Do
is Y	step 9
is N	step 7

7 To change the value of the field to Y, type

>CHANGE 2 Y

and press Enter.

Example of a MAP response:

```
TUPLE TO BE CHANGED:
C7_SLMPR_ALARM_ON        Y
ENTER Y TO CONFIRM, N TO REJECT or E TO EDIT.
```

8 To confirm the command, type

>Y

and press Enter.

Example of a MAP response:

```
TUPLE CHANGED
```

Setting up the signaling link marginal performance report (continued)

9 To quit from table OFCVAR, type

>QUIT

and press Enter.

10 To create OM class C7SLMPR, type

>OMCLASS C7SLMPR SINGLE

and press Enter.

11 To add group C7LINK1 to class C7SLMPR, type

>OMACCGRP C7SLMPR ADD GROUP C7LINK1

and press Enter.

12 To delete all registers from group C7LINK1, type

>OMACCFLD C7SLMPR C7LINK1 DELETE ALL

and press Enter.

13 To add field C7SUERR, type

>OMACCFLD C7SLMPR C7LINK1 ADD FIELD C7SUERR

and press Enter.

14 To add field C7NACKRX, type

>OMACCFLD C7SLMPR C7LINK1 ADD FIELD C7NACKRX

and press Enter.

15 To add field C7AUTOCO, type

>OMACCFLD C7SLMPR C7LINK1 ADD FIELD C7AUTOCO

and press Enter.

16 To access table OMACC, type

>TABLE OMACC

and press Enter.

17 To position on tuple C7SLMPR to read the class schedule, type

>POSITION C7SLMPR

and press Enter.

18 To display the tuple with headers, type

>LIST

and press Enter.

Example of a MAP response:

```
CLASS        ENABLED     WHEN
--------------------------
C7SLMPR        N         AUTO
```

Setting up the signaling link marginal performance report (continued)

19 Determine the value of field ENABLED.

If the value of field ENABLED	Do
is Y	step 20
is N	step 21

20 If each hour CCS198 log reports are necessary, then the WHEN field needs to change. Change the REP subfield from AUTO to HOURLY. The STARTUP subfield will be C00.

Example of a MAP response:

```
CLASS        ENABLED     WHEN
----------------------------
C7SLMPR        Y      HOURLY C00
```

To confirm the editing of the tuple, type

>Y

and press Enter.

Example of a MAP response:

```
TUPLE CHANGED:
```

Go to step 24.

21 To change the value to Y, type

>CHANGE 2 Y

and press Enter.

Example of a MAP response:

```
ENTER Y TO CONFIRM, N TO REJECT OR E TO EDIT.
```

22 To confirm the command, type

>Y

and press Enter.

Example of a MAP response:

```
TUPLE CHANGED:
```

23 To quit from table OMACC, type

>QUIT

and press Enter.

24 To access table LOGCLASS, type

>TABLE LOGCLASS

Setting up the signaling link marginal performance report (continued)

and press Enter.

25 To go to the end of the table LOGCLASS, type

>BOTTOM

and press Enter.

Example of a MAP response:

```
DPAC    102 0   0   N   –1  Y
```

26 To determine the number of the last class in the table, type

>LIST

and press Enter.

Example of a MAP response:

```
REPNAME CLASS   THRESHLD    SUPPRESS    TUNITS  SYSLOG
-------------------------------------------------------
DPAC 102    0       0           N           –1      Y
```

Note: In the MAP response, the number of the last class is the last number in the CLASS column.

27 To add the CCS198 log to a new class in the table, type

>ADD

and press Enter.

Example of a MAP response:

```
REPNAME:
```

28 To enter the log name and report number, type

>CCS198 0

and press Enter.

Example of a MAP response:

```
CLASS:
```

29 To enter the new class number (1 greater than the last class listed in the table, as noted in step 26), type

>new_class_number

and press Enter.

where

new_class_number
is the number of a new class

Example of a MAP response:

```
THRESHLD:
```

Setting up the signaling link marginal performance report (continued)

30 To enter the threshold number for the messages that will print, type

>0

and press Enter.

Example of a MAP response:

```
SUPPRESS:
```

31 To specify that the log or report output is free from suppression, type

>N

and press Enter.

Example of a MAP response:

```
TUNITS:
```

32 To enter the time units for a threshold report, type

>0

and press Enter.

Example of a MAP response:

```
SYSLOG:
```

33 To respond to the MAP prompt, type

>N

and press Enter.

Example of a MAP response:

```
TUPLE TO BE ADDED:
 CCS    198       1        0         N        0        N
ENTER Y TO CONFIRM, N TO REJECT OR E TO EDIT.
```

34 To confirm the changes, type

>Y

and press Enter.

35 To quit from the table, type

>QUIT

and press Enter.

36 To access table LOGDEV, type

>TABLE LOGDEV

and press Enter.

Example of a MAP response:

```
TABLE: LOGDEV
```

Setting up the signaling link marginal performance report (continued)

37 To specify that you want to add a new class to a printer, type

>ADD

and press Enter.

Example of a MAP display:

```
DEV:
```

38 To specify the printer that the log will travel to, type

>printer

and press Enter.

where

printer
is the name of the printer that will print the log.

Note: The name assigned in table TERMDEV must identify the printer.

Example of a MAP response:

```
ALT:
```

39 To specify an alternate printer in case the printer specified in step 38 fails, type

>printer2

and press Enter.

where

printer2
is the name of an alternate printer that will print the log

Note: If an alternate printer is not available, enter NIL.

Example of a MAP response:

```
CLASSES:
```

40 To specify a new class (1 greater than the last class listed in the table as noted in step 26), type

>`(new_class_number)'

and press Enter.

where

new_class_number
is the number of a new class

Example input:

`(1)'

Example of a MAP display:

```
FORMAT:
```

Setting up the signaling link marginal performance report (continued)

41 To specify standard log format, type

>STD

and press Enter.

Example of a MAP response:

```
PRIORITY:
```

42 To specify that message priority is not important, type

>N

and press Enter.

Example of a MAP response:

```
GUAR:
```

43 To specify that a guaranteed device is not necessary, type

>N

and press Enter.

Example of a MAP response:

```
TUPLE TO BE ADDED:
STD N   N   RP061   NIL   (1)
ENTER Y TO CONFIRM, N TO REJECT OR E TO EDIT.
```

44 To confirm the changes, type

>Y

and press Enter.

45 To quit from table LOGDEV, type

>QUIT

and press Enter.

46 To access the LOGUTIL software, type

>LOGUTIL

and press Enter.

47 To start to print log CCS198 on the printer, type

>STARTDEV printer_name

and press Enter.

where

printer_name
is the printer you specified in table LOGDEV in step 38 or step 39

48 To quit from the LOGUTIL software, type

>QUIT

and press Enter.

Setting up the signaling link marginal performance report (end)

Go to step 49.

49 The procedure is complete.

Softkey information does not download to the ADSI set

Application

Use this procedure to determine why softkey information does not download to the subscriber set.

Definition

A complaint indicates that the Analog Display Services Interface (ADSI) set of the subscriber does not contain downloaded softkey definitions. As a result, the softkeys on the set do not function correctly.

Common procedures

There are no common procedures.

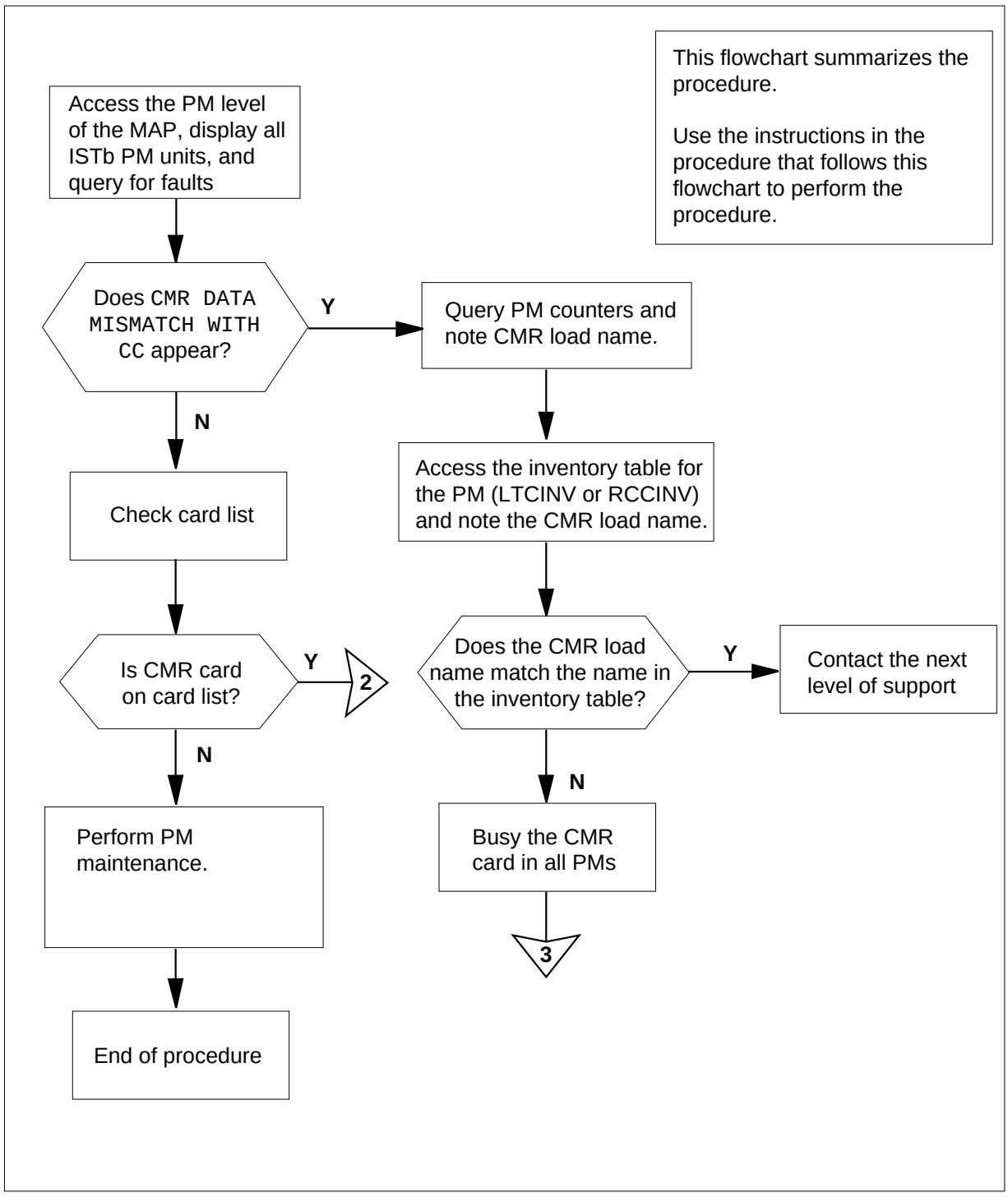
Action

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

Note: The CLASS modem resource (CMR) card NT6X78 can go out of service in the active unit. If the card goes out of service, the operating company personnel can busy, replace, load, and return the card to service. The operating company personnel do not need to execute these operations on the whole unit.

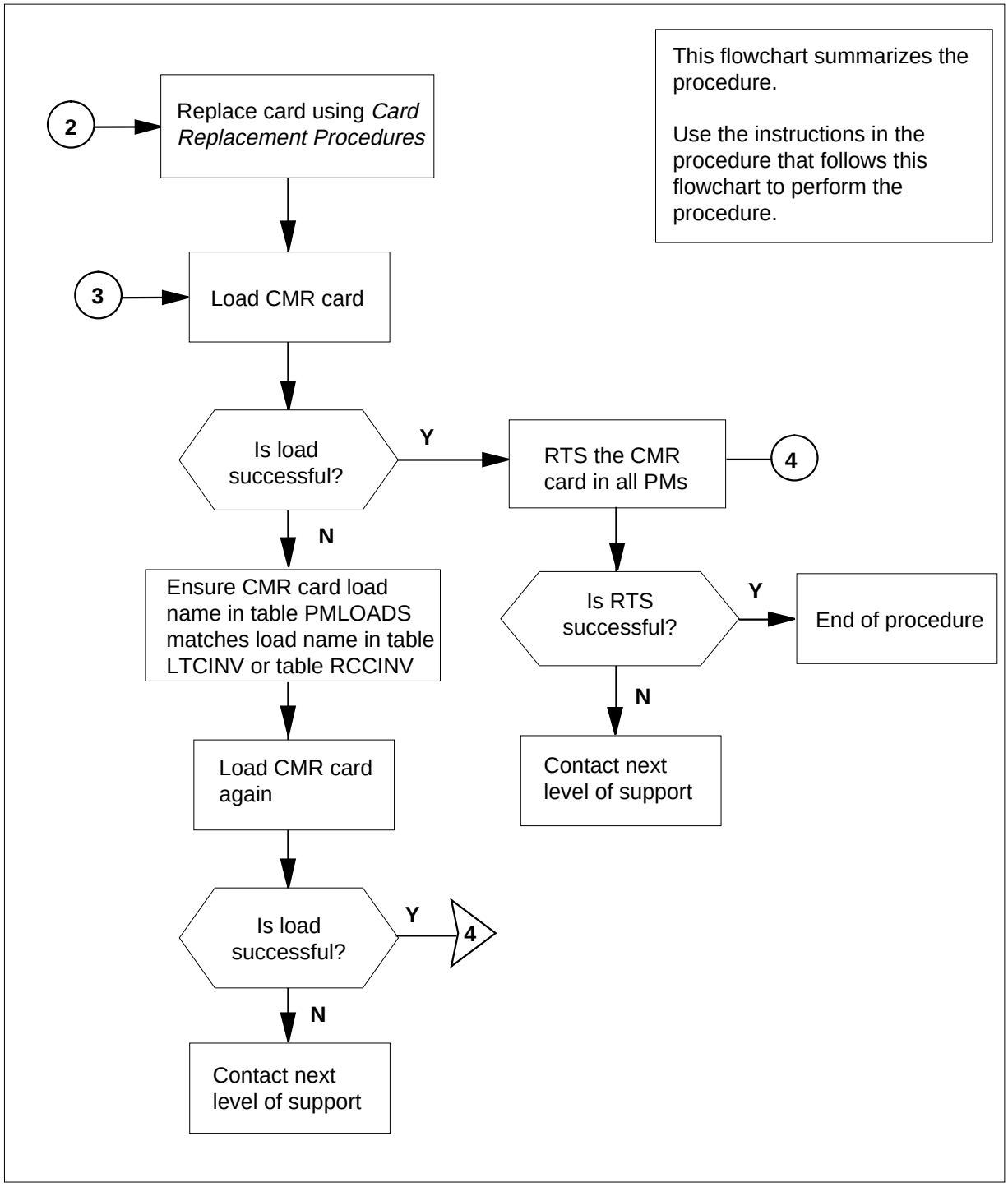
Softkey information does not download to the ADSI set (continued)

Summary of how Softkey information does not download to the ADSI set



Softkey information does not download to the ADSI set (continued)

Summary of Softkey information does not download to the ADSI set (continued)



Softkey information does not download to the ADSI set (continued)

Softkey information does not download to the ADSI set

At the MAP terminal:

1 To access the PM level of the MAP display, type

>MAPCI;MTC;PM

and press Enter.

2 To display all the ISTb PMs, type

>POST **ISTB**

and press Enter.

3 To check for fault indicators, type

>QUERYPM FLT

and press Enter.

If response	Do
is CLASS MODEM RESOURCE CARD NT6X78 OUT OF SERVICE	step 4
CMR DATA MISMATCH WITH CC	step 8
CMR LOAD MISMATCH WITH INVENTORY TABLE	step 11
is other than listed here	step 18

4 Check the card list for the CMR card.

The following card list is a standard message that refers to a CMR card that is out of service.

```
        QUERYPM FLT
        CLASS MODEM RESOURCE CARD NT6X78
        OUT OF SERVICE
        Replace the Cards in the Card List
        and applicable Paddleboards (i.e. 6X12) :
Site Flr RPos Bay_id  Shf  Description    Slot   EqPEC
HOST  01  D02 LGE  00  18  LGC : 000      13     6X78
```

5 Check the card list for the CMR card.

If CMR card	Do
is on card list	step 6
is not on card list	step 7

6 Use the *Card Replacement Procedures* manual to replace the CMR card.

7 Perform PM maintenance.

Softkey information does not download to the ADSI set (continued)

8 Use the QUERYPM CNTRS command to determine the CMR load name.

>querypm CNTRS

and press Enter.

Example of a MAP response:

```
Unsolicited MSG limit = 250, Unit 0 = 0, Unit 1 = 0.
Unit 0:
RAM Load: ECL05AY
EEPRom Version: AC01
EEPRom Load: Loadable: MX77NF02, Executable: MX77NF02
CMR LOAD: CMR03A
UP: MX77AA
Unit 1:
RAM Load: ECL05AY
EEPRom Version: AC01
EEPRom Load: Loadable: MX77nf02, Executable: MX77NF02
CMR LOAD: CMR03A
UP: MX77AA
```

Note: In this example, the CMR load name is CMR03A.

9 To access the inventory table for the PM (LTCINV or RCCINV), type

>Table LTCINV

and press Enter.

10 Compare the CMR load name in the PM and the CMR load name in the inventory table.

If CMR load name in PM	Do
matches the CMR load name in the inventory table	step 18
does not match the CMR load name in the inventory table	step 11

11

CAUTION
Loss of Service
A BSY of the CMR card on the active unit of the PM affects CLASS services. CLASS services that use the card cannot function.

To busy the CMR card, type

>bsy **UNIT unit_no CMR**

and press the Enter key.

where

Softkey information does not download to the ADSI set (continued)

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

Note: CMR is an optional parameter that means to busy only the CMR card

12 To load the CMR card, type

`>LOADPM UNIT unit_no CC CMR`

and press Enter.

where

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

Note: CMR is an optional parameter that means to load only the CMR card.

Follow the directions in the table.

If	Do
the loading completes correctly	step 13
CMR FAILED TO LOAD. TASK ABORTED WHILE LOADING CMR	step13
CMR FILE CMRXXX NOT FOUND ON DEVICE INDICATED IN TABLE PMLOADS *Note:*CMRXXX is the CMR load name.	step 13
FAILED TO OPEN CORRECTLY	step 13

13 Verify that the CMR card can load. To use the QUERYPM CNTRS command to determine the CMR load name, type

`>QUERYPM CNTRS`

and press Enter.

Example of a MAP response:

Softkey information does not download to the ADSI set (continued)

```
Unsolicited MSG limit = 250, Unit 0 = 0, Unit 1 = 0.
Unit 0:
RAM Load: ECL05AY
EEPRom Version: AC01
EEPRom Load: Loadable: MX77NF02, Executable: MX77NF02
CMR LOAD: CMR03A
UP: MX77AA
Unit 1:
RAM Load: ECL05AY
EEPRom Version: AC01
EEPRom Load: Loadable: MX77nf02, Executable: MX77NF02
CMR LOAD: CMR03A
UP: MX77AA
```

Note: In this example, the CMR load name is CMR03A.

14 Ensure that the CMR card load name in table PMLOADS matches the load name in table LTCINV or table RCCINV.

15 To load the CMR card again, type

`>LOADPM UNIT unit_no CC CMR`

and press Enter.

where

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

If load	Do
passes	step 16
fails	step 18

Note: CMR is an optional parameter that means to load only the CMR card.

16 To return the CMR card to service, type

`>RTS UNIT unit_no CMR`

and press Enter.

where

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

CMR
is an optional parameter that means to return to service only the CMR card

The following card list is a standard message for a CMR card failure.

Softkey information does not download to the ADSI set (end)

```
        RTS Failed, TESTALL
        Diagnostic TESTALL failed.
        Fail message received from PM
        Replace the Cards in the Card List
        and applicable Paddleboards (i.e. 6X12) :
Site Flr RPos Bay_id  Shf  Description    Slot   EqPEC
HOST  01  D02 LGE  00  18  LGC : 000      13     6X78
```

If RTS	Do
passes	step 19
fails and the CMR card is on the card list	step 17

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

If	Do
a first-time replacement of the CMR card	step 6
replaced CMR card already	step 18

18 For additional help, contact the person responsible for the next level of support.

19 The procedure is complete

Test the DS-1 carrier states

Application

Use this procedure to test the DS-1 carrier states during the Common Channel Signaling 7 (CCS7) bit error rate test (C7BERT) for high-speed links (HSL).

Perform this procedure when you run C7BERT.

Definition

Test the DS-1 carrier transmit and receive ports on the HSL DS-1 paddle board (NTEX78AA) to check the carrier states at the local and remote office.

The DS-1 carrier can be in one of the following states:

- InSv (in service), which indicates that the carrier is not broken, the framing of the signal is correct, and the DS-1 cards receive idle asynchronous transfer mode (ATM) cells
- LOS (loss of signal), which indicates that the cards do not receive the DS-1 carrier signal
- LOF (loss of framing), which indicates that the cards receive the DS-1 carrier signal, but the framing of the signal is corrupted
- LCD (loss of cell delineation), which indicates that the DS-1 cards do not receive any ATM cells
- AIS (alarm indication signal), which indicates that a DS-1 carrier failure occured
- RAI (remote alarm indication), which indicates that a DS-1 carrier failure occured
- OOS (out of service), which indicates that a DS-1 carrier is not in service because of peripheral module (PM) failure or because the PM is not configured to bring the carrier into service

Common procedures

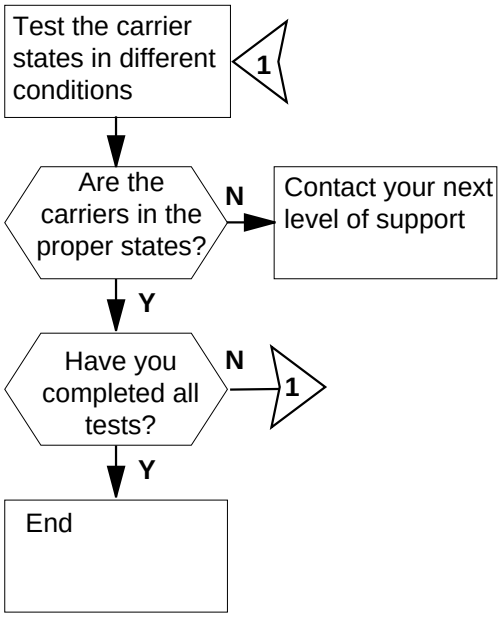
None

Action

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

Test the DS-1 carrier states (continued)

Summary of Test the DS-1 carrier states



This flowchart summarizes the procedure.

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

Test the DS-1 carrier states (continued)

Test the DS-1 carrier states

At the MAP display

1 Monitor the DS-1 carrier states at the C7BERT level. If the transmit (Tx) and receive (Rx) cables connect correctly to the DS-1 paddle board at the local and remote end, the carrier state for both cards should be InSv.

If the carrier states are	Do
InSv at the local end and InSv at the remote end	step 2
anything else	step 7

2 Pull the Tx cable at the local end and check the carrier states.

If the carrier states are	Do
RAI at the local end and LOS at the remote end	step 3
anything else	step 7

3 Pull the Rx cable at the local end and check the carrier states.

If the carrier states are	Do
LOS at the local end and LOS at the remote end	step 4
anything else	step 7

4 Plug in the Rx and Tx cables and pull out the Tx cable at the outgoing channel bank at the local end. Check the carrier states.

If the carrier states are	Do
RAI or any other alarm indicator for the local end and LCD at the remote end	step 5
anything else	step 7

Test the DS-1 carrier states (end)

5 Pull out the Rx cable at the incoming channel bank at the local end. Check the carrier states.

If the carrier states are	Do
LCD at the local end and LCD at the remote end	step 6
anything else	step 7

6 Plug in the cables and check the carrier states.

If the carrier states are	Do
InSv at the local end and InSv at the remote end	step 8
anything else	step 7

7 For help, contact your next level of support.

8 You have completed this procedure. Return to the “Running a C7BERT for high-speed links" procedure.

Testing an SPM carrier

Application

Use this procedure to test the DMS-Spectrum Peripheral Module (SPM) carrier connection using the MAP procedures.

Definition

Perform the specific steps located in the action section to test a faulty SPM carrier.

Common procedures

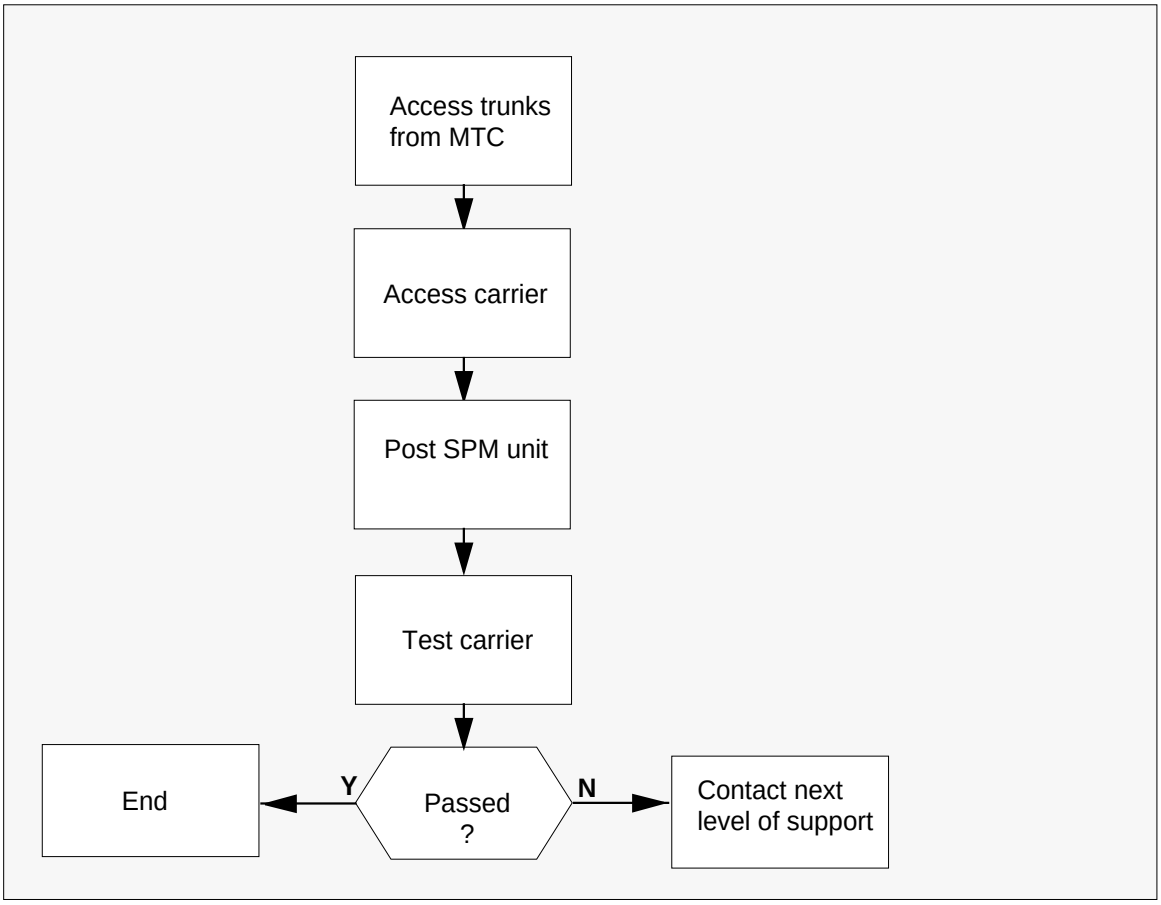
None

Action

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

Testing an SPM carrier (continued)

Summary of how to activate a test of the SPM carrier



How to activate a test of the SPM carrier

At the MAP terminal

1 Access the PM screen level of the MAP display by typing

`>MAPCI;MTC;PM`

and pressing the Enter key.

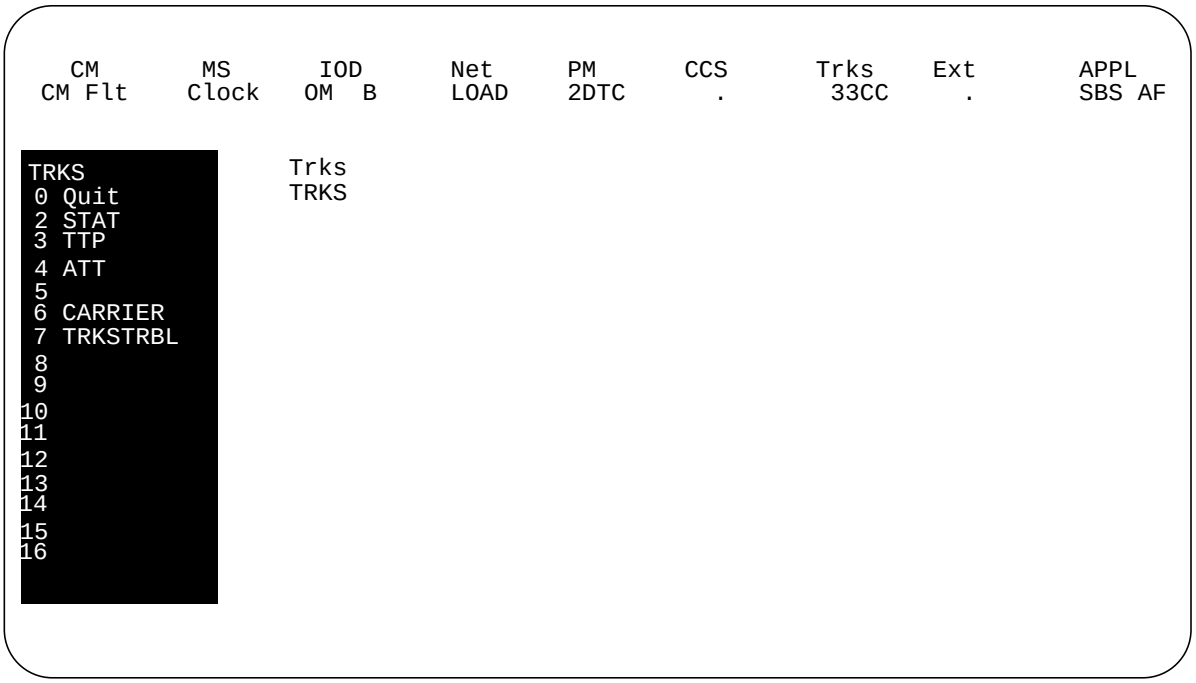
2 Access the trunks level by typing

`>TRKS`

and pressing the Enter key.

The following is an example of an TRKS screen.

Testing an SPM carrier (continued)



3 Select the carrier by typing

>CARRIER

and pressing the Enter key.

The following is an example of a Carrier screen.

Testing an SPM carrier (continued)

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


CARRIER            CLASS  ML  OS  ALM  SYSB  MANB  UNEQ  OFFL  CBSY  PBSY  INSV
 0 Quit            TRUNKS  4   0   17   13    22     0    100     9     0    38
 2 Post            TIMING  2   0   2    0     0      0     0      0     0     2
 3
 4
 5                 CARRIER
 6
 7
 8
 9
10
11 Disp
12
13
14
15
16
17
18

    14:12 >
```

4 Access the SPM screen by typing

>POST SPM spm_no

and pressing the Enter key.

where

spm_no
is the number of the SPM (0 to 63)

The following is an example of a posted screen.

Testing an SPM carrier (continued)

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


POST            CLASS  ML  OS  ALRM  SysB  ManB  UNEQ  OFFL  CBSY  PBSY  INSV
 0 Quit         TRUNKS  0   0   0     0     0     0     0     0     0     1254
 2 Post         TIMING  2   0   2     0     0     0     0     0     0        2
 3              HSCARR  0   0   0     0     0     0     0     0     0      358
 4               OC3S
 5 Loop          N  CLASS   SITE  SPM  OC3RM  OC3S  STS3L  CKT  STATE  TR  MA
 6 Tst_          0  HSCARR  HOST    0    0     0       –     1   INSV   ..  ..
 7 Bsy_          1  HSCARR  HOST    0    1     0       –     2   INSV   ..  ..
 8 RTS_
 9 Offl_          SIZE OF POSTED SET  :  94              MORE...
10
11 Disp
12 Next
13
14 Detail
15 ListAlm_
16
17 Perfmon
18

    14:17 >
```

Alternatively, if you know the SPM carrier circuit number, you can post it directly by typing

>POST SPM spm_no ckt_no

and pressing the Enter key.

where

spm_no
is the number of the SPM (0 to 63)

ckt_no
is the number of the circuit (0 to 181)

5 Test the carrier by typing the following:

>TST carrier_no

and pressing the Enter key.

where

carrier_no
is the number of the carrier (0 to 4)

The following is an example of a posted screen with the test results.

Testing an SPM carrier (end)

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


POST            CLASS  ML  OS  ALRM  SysB  ManB  UNEQ  OFFL  CBSY  PBSY  INSV
 0 Quit         TRUNKS  0   0   0     0     0     0     0     0     0     1254
 2 Post         TIMING  2   0   2     0     0     0     0     0     0        2
 3              HSCARR  0   0   0     0     0     0     0     0     0      358
 4               OC3S
 5 Loop          N  CLASS   SITE  SPM  OC3RM  OC3S  STS3L  CKT  STATE  TR  MA
 6 Tst_          0  HSCARR  HOST    0    0     0       –     1   INSV   ..  ..
 7 Bsy_          1  HSCARR  HOST    0    1     0       –     2   INSV   ..  ..
 8 RTS_
 9 Offl_          SIZE OF POSTED SET  : 4
10
11 Disp
12 Next
13              Tst
14 Detail       HSCARR 0 Test : Request has been submitted
15 ListAlm_     HSCARR 0 Test : Test passed.
16
17 Perfmon
18

    14:17 >
```

6 If the carrier did not pass the test, contact the personnel responsible for the next level of support.

7 You have completed this procedure. Return to the CI level of the MAP screen by typing

>QUIT ALL

and pressing the Enter key.

Testing an SPM CEM

Application

Use this procedure to test the NTLX82BA common equipment module (CEM) for the DMS-Spectrum Peripheral Module (SPM) using the MAP procedures.

Definition

Perform the specific steps located in the action section to test a faulty CEM.

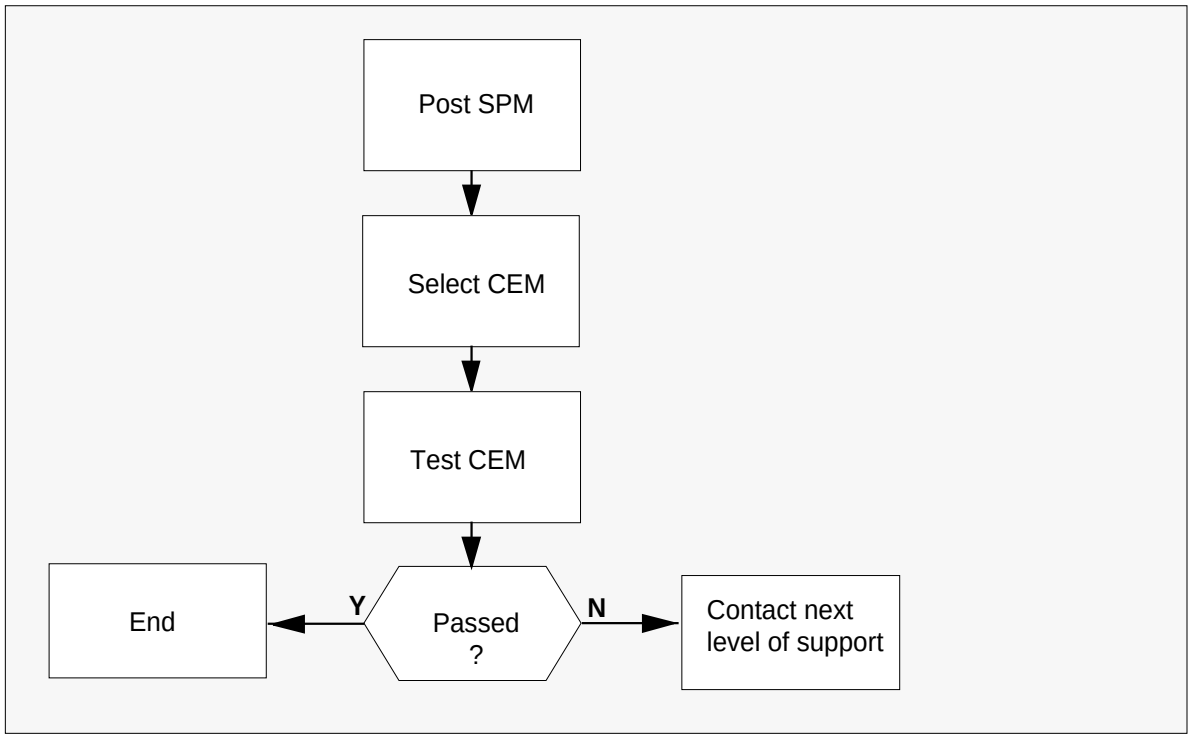
Common procedures

None

Action

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

Summary of how to test the SPM CEM



Testing an SPM CEM (continued)

How to test the SPM CEM

At the MAP terminal:

1 Access the PM screen level of the MAP display by typing

>MAPCI;MTC;PM

and pressing the Enter key.

2 Access the SPM screen by typing

>POST SPM spm_no

and pressing the Enter key.

where

spm_no
is the number of the SPM (0 to 63)

The following is an example of an SPM screen. This example may not reflect your SPM screen.

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


SPM                          SysB    ManB    OffL    CBsy    ISTb    InSv
 0 Quit          PM            0       0       0       0       0       1
 2 Post_         SPM           0       0       0       0       0       1
 3 ListSet
 4 ListRes     SPM 11 INSV  Loc: Site HOST Floor 2 Row A  FrPos 0
 5 Trnsl
 6             Shlf0 SL A Stat  Shlf0 SL A Stat  Shlf1 SL A Stat  Shlf1 SL A Stat
 7             DSP 2  1 A Insv  CEM 1  8 I Insv  VSP 2  1 A Insv  --- -  8 - ----
 8             DSP 0  2 A Insv  OC3 0  9 A Insv  --- -  2 - ----  VSP 6  9 A Insv
 9             DSP 1  3 I Insv  OC3 1 10 I Insv  --- -  3 - ----  --- - 10 - ----
10             DSP 3  4 I Insv  --- - 11 - ----  --- -  4 - ----  --- - 11 - ----
11 Disp_       --- -  5 - ----  --- - 12 - ----  --- -  5 - ----  --- - 12 - ----
12 Next        --- -  6 - ----  VSP 4 13 A Insv  --- -  6 - ----  --- - 13 - ----
13 Select_     CEM 0  7 A Insv  VSP 5 14 A Insv  --- -  7 - ----  --- - 14 - ----
14 QueryPM
15 ListAlm_
16
17
18

   14:12 >
```

3 Access the CEM card by typing

>SELECT cem_no

and pressing the Enter key.

where

cem_no
is the number of the CEM card (0 or 1)

The following is an example of a CEM screen:

Testing an SPM CEM (continued)

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


CEM                          SysB     ManB     OffL     CBsy     ISTb     InSv
 0 Quit          PM            0        0        0        0        0        1
 2               SPM           0        0        0        0        0        1
 3 Listset        CEM          0        0        0        0        0        1
 4
 5 Trnsl      SPM 11    CEM 0  Act  INSV
 6 Tst
 7 Bsy        Loc : Row C FrPos 4 ShPos 6 ShId 0 Slot 7
 8 RTS        Default Load: SPMLOAD
 9 Offl       Clock:
10 LoadMod    Input Ref: Internal     Source: C Side 0   Current Mode: Acquire
11
12 Next
13 Select_
14 QueryMod
15 ListAlm
16 Prot
17
18

    14:12 >
```

4 Start the CEM test by typing

>TST

and pressing the Enter key.

The following example shows a CEM screen with the test results.

Testing an SPM CEM (end)

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


CEM                                SysB    ManB    OffL    CBsy    ISTb    InSv
 0 Quit          PM                  0       0       0       0       0       1
 2               SPM                 0       0       0       0       0       1
 3 Listset        CEM                0       0       0       0       0       1
 4
 5 Trnsl       SPM 11    CEM 0  Act  INSV
 6 Tst
 7 Bsy         Loc : Row C FrPos 4 ShPos 6 ShId 0 Slot 7
 8 RTS         Default Load: SPMLOAD
 9 Offl        Clock:
10 LoadMod     Input Ref: Internal     Source: C Side 0   Current Mode: Acquire
11             Tst
12 Next        SPM 11 CEM 0 Test :  Request has been submitted.
13 Select_     SPM 11 CEM 0 Test :  Test passed.
14 QueryMod
15 ListAlm
16 Prot
17
18

    14:12 >
```

5 If the CEM did not pass the test, contact the personnel responsible for the next level of support.

6 You have completed this procedure. Return to the CI level of the MAP screen by typing

>QUIT ALL

and pressing the Enter key.

Testing an SPM DSP RM

Application

Use this procedure to test the NTLX63BA digital signal processor (DSP) resource module (RM) for the DMS-Spectrum Peripheral Module (SPM) using the MAP procedures.

Definition

Perform the specific steps located in the action section to test a faulty DSP RM.

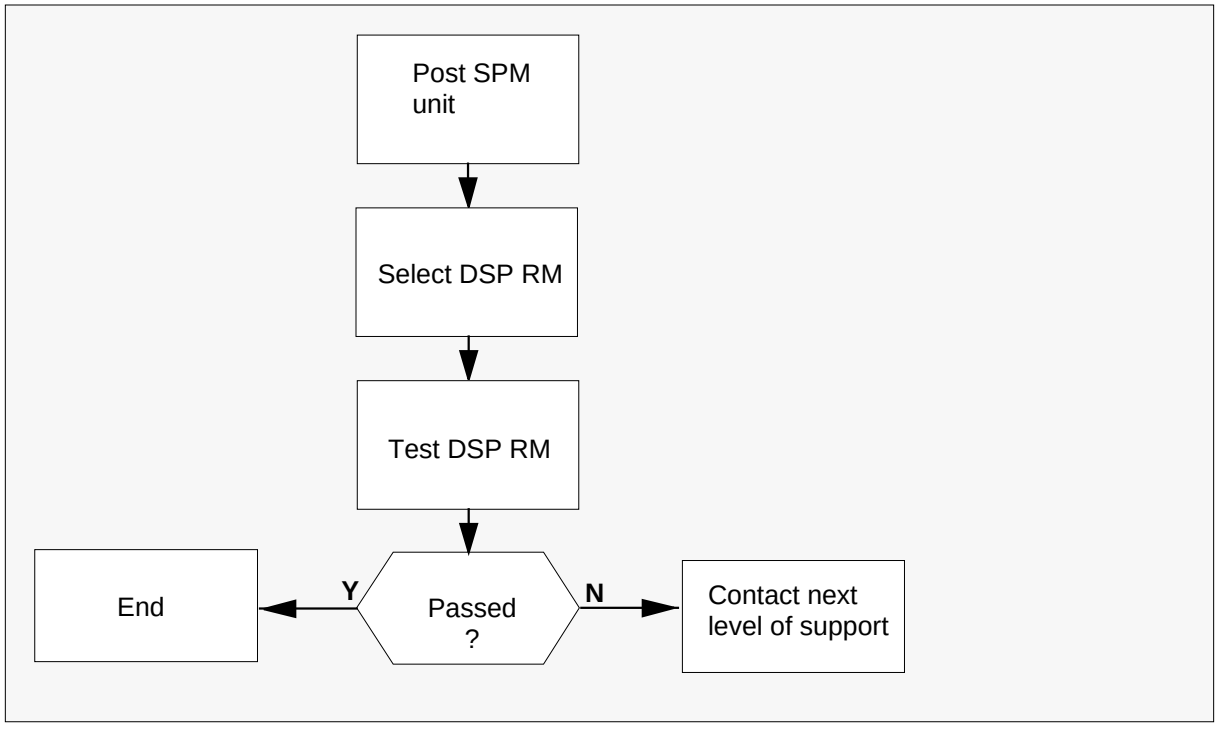
Common procedures

None

Action

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

Summary of how to activate a test of the SPM DSP RM



Testing an SPM DSP RM (continued)

How to activate a test of the SPM DSP RM

At the MAP terminal:

1 Access the PM screen level of the MAP display by typing

>MAPCI;MTC;PM

and pressing the Enter key.

2 Access the SPM screen by typing

>POST SPM spm_no

and pressing the Enter key.

where

spm_no
is the number of the SPM (0 to 63)

The following is an example of an SPM screen. This example may not reflect your SPM screen.

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


SPM                                SysB    ManB    OffL    CBsy    ISTb    InSv
 0 Quit          PM                  0       0       0       0       0       1
 2 Post_         SPM                 0       0       0       0       0       1
 3 ListSet
 4 ListRes    SPM 11 INSV  Loc: Site HOST Floor 2 Row A  FrPos 0
 5 Trnsl
 6            Shlf0 SL A Stat  Shlf0 SL A Stat  Shlf1 SL A Stat  Shlf1 SL A Stat
 7            DSP 2  1 A Insv  CEM 1  8 I Insv  VSP 2  1 A Insv  --- -  8 - ----
 8            DSP 0  2 A Insv  OC3 0  9 A Insv  --- -  2 - ----  VSP 6  9 A Insv
 9            DSP 1  3 I Insv  OC3 1 10 I Insv  --- -  3 - ----  --- - 10 - ----
10            DSP 3  4 I Insv  --- - 11 - ----  --- -  4 - ----  --- - 11 - ----
11 Disp_      --- -  5 - ----  --- - 12 - ----  --- -  5 - ----  --- - 12 - ----
12 Next       --- -  6 - ----  VSP 4 13 A Insv  --- -  6 - ----  --- - 13 - ----
13 Select_    CEM 0  7 A Insv  VSP 5 14 A Insv  --- -  7 - ----  --- - 14 - ----
14 QueryPM
15 ListAlm_
16
17
18

   14:12 >
```

3 Access the DSP card by typing

>SELECT DSP dsp_no

and pressing the Enter key.

where

dsp_no
is the number of the DSP (0 to 27)

Testing an SPM DSP RM (continued)

The following is an example of a DSP screen:

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


DSP                                  SysB     ManB     OffL     CBsy     ISTb     InSv
 0 Quit            PM                 0        0        0        0        0        1
 2                 SPM                0        0        0        0        0        1
 3 ListSet           DSP              0        0        0        0        0        1
 4 ListRes
 5               SPM 11    DSP 0  Act  INSV
 6 Tst
 7 Bsy           Loc : Row A FrPos 0 ShPos 20 ShId 0 Slot 2  Prot Grp : 1
 8 RTS           Default Load: DSPLOAD                       Prot Role: Working
 9 Offl
10 LoadMod
11
12 Next
13 Select_
14 QueryMod
15 ListAlm
16 Prot
17
18

    14:12 >
```

4 Test the DSP by typing

>TST

and pressing the Enter key.

The following is an example of a DSP RM screen with the test submitted.

Testing an SPM DSP RM (end)

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


DSP                                  SysB    ManB    OffL    CBsy    ISTb    InSv
 0 Quit          PM                    0       0       0       0       0       1
 2               SPM                   0       0       0       0       0       1
 3 ListSet         DSP                 0       0       0       0       0       1
 4 ListRes
 5               SPM 11    DSP 0  Act  INSV
 6 Tst
 7 Bsy           Loc : Row A FrPos 0 ShPos 20 ShId 0 Slot 2  Prot Grp : 1
 8 RTS           Default Load: DSPLOAD                       Prot Role: Working
 9 Offl          Tst
10 LoadMod
11               SPM 11 DSP 0 Test   :  Request has been submitted.
12 Next          SPM 11 DSP 0 Test   :  Test passed.
13 Select_
14 QueryMod
15 ListAlm
16 Prot
17
18

   14:12 >
```

5 If the DSP RM did not pass the test, contact the personnel responsible for the next level of support.

6 You have completed this procedure. Return to the CI level of the MAP screen by typing

>QUIT ALL

and pressing the Enter key.

Testing an SPM OC3 interface module

Application

Use this procedure to test the DMS-Spectrum Peripheral Module (SPM) NTLX71BA OC3 interface module using the MAP procedures.

Definition

Perform the specific steps located in the action section to test a faulty OC3 interface module.

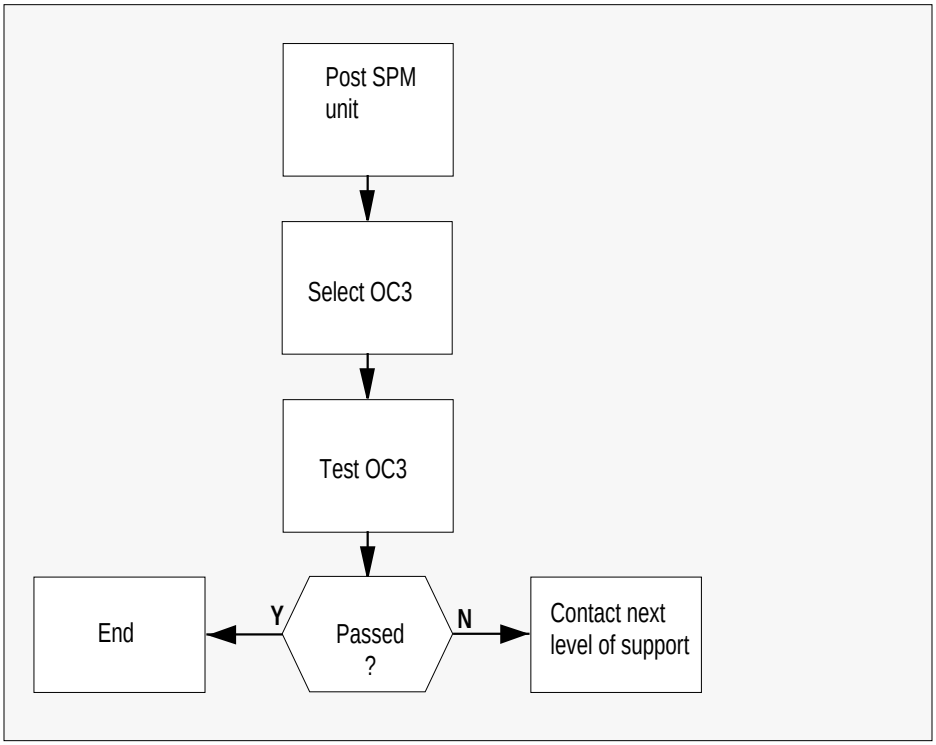
Common procedures

None

Action

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

Summary of testing an SPM OC3 interface module



Testing an SPM OC3 interface module (continued)

Testing an SPM OC3 interface module

At the MAP terminal:

1 Access the PM screen level of the MAP display by typing

>MAPCI;MTC;PM

and pressing the Enter key.

2 Access the SPM screen by typing

>POST SPM spm_no

and pressing the Enter key.

where

spm_no
is the number of the SPM (0 to 63)

The following is an example of an SPM screen. This example may not reflect your SPM screen.

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


SPM                                SysB     ManB     OffL     CBsy     ISTb     InSv
 0 Quit          PM                   0        0        0        0        0        1
 2 Post_         SPM                  0        0        0        0        0        1
 3 ListSet
 4 ListRes     SPM 11 INSV  Loc: Site HOST Floor 2 Row A  FrPos 0
 5 Trnsl
 6             Shlf0 SL A Stat  Shlf0 SL A Stat  Shlf1 SL A Stat  Shlf1 SL A Stat
 7             DSP 2  1 A Insv  CEM 1  8 I Insv  VSP 2  1 A Insv  --- -  8 - ----
 8             DSP 0  2 A Insv  OC3 0  9 A Insv  --- -  2 - ----  VSP 6  9 A Insv
 9             DSP 1  3 I Insv  OC3 1 10 I Insv  --- -  3 - ----  --- - 10 - ----
10             DSP 3  4 I Insv  --- - 11 - ----  --- -  4 - ----  --- - 11 - ----
11 Disp_       --- -  5 - ----  --- - 12 - ----  --- -  5 - ----  --- - 12 - ----
12 Next        --- -  6 - ----  VSP 4 13 A Insv  --- -  6 - ----  --- - 13 - ----
13 Select_     CEM 0  7 A Insv  VSP 5 14 A Insv  --- -  7 - ----  --- - 14 - ----
14 QueryPM
15 ListAlm_
16
17
18

   14:12 >
```

3 Access the OC3 card by typing

>SELECT oc3_no

and pressing the Enter key.

where

oc3_no
is the number of the OC3 card (0 or 1)

The following is an example of an OC3 screen.

Testing an SPM OC3 interface module (continued)

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


OC3                                  SysB     ManB     OffL     CBsy     ISTb     InSv
 0 Quit          PM                    0        0        0        0        0        1
 2               SPM                   0        0        0        0        0        1
 3 ListSet        OC3                  0        0        0        0        0        1
 4
 5             SPM 11    OC3 0  Act  INSV
 6 Tst
 7 Bsy         Loc : Row A FrPos 0 ShPos 6 ShId 0 Slot 9  Prot Grp : 1
 8 RTS         Default Load: OC3LOAD                      Prot Role: Working
 9 OffL
10 LoadMod
11
12 Next
13 Select_
14 QueryMod
15 ListAlm
16 Prot
17
18

    14:12 >
```

4 Test the OC3 by typing

>TST

and pressing the Enter key.

The following example shows an OC3 interface module screen with the test results.

Testing an SPM OC3 interface module (end)

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


OC3                                SysB    ManB    OffL    CBsy    ISTb    InSv
 0 Quit         PM                   0       0       0       0       0       1
 2              SPM                  0       0       0       0       0       1
 3 ListSet       OC3                 0       0       0       0       0       1
 4
 5            SPM 11    OC3 0  Act  INSV
 6 Tst
 7 Bsy        Loc : Row A FrPos 0 ShPos 6 ShId 0 Slot 9  Prot Grp : 1
 8 RTS        Default Load: OC3LOAD                    Prot Role: Working
 9 OffL       Tst
10 LoadMod    SPM 11 OC3 0 Test : Request has been submitted.
11            SPM 11 OC3 0 Test : Test passed.
12 Next
13 Select_
14 QueryMod
15 ListAlm
16 Prot
17
18

    14:12 >
```

5 If the OC3 interface module did not pass the test, contact the personnel responsible for the

next level of support.

6 You have completed this procedure. Return to the CI level of the MAP screen by typing

>QUIT ALL

and pressing the Enter key.

Testing the operation of ANI and COIN voltages

Application

The LCM COVREX command is used to test the proper operation of the ANI and COIN voltages. There can be 2 LCMs in a LCE bay. The ANI /COIN voltages are provided by the 2 ring generators (RG) packs. RG 0 provides ANI / COIN voltages to unit 0 of both LCMs. RG 1 provides ANI / COIN voltages to unit 1 of both LCMs. The voltages are wired from the RGs to the power converters in the corresponding LCM units.

The line card in drawer 0 slot 0 of the LCM is used in the COVREX test. A MTU or LTU is connected to this line card via the test access bus so it can measure the ANI / COIN voltages

Note: If available, a MTU will always be used.

This is accomplished by the operation of relays in the power converter pack to "cut-thru" the different voltages to the line card one at a time so that the MTU can measure them. The LCM processor pack in the unit controls the operation of the relays in the same unit's power converter.

With both units of a LCM in service, unit 1 has no access to the line card in drawer 0 slot 0. Therefore, the first thing that happens in the COVREX is that unit 0 goes SYSB so that unit 1 has access to the line card in drawer 0 slot 0. After the voltages from unit 1 have been tested, unit 0 is returned to service. Unit 0 then has access to the line card in drawer 0 slot 0 and the voltages for unit 0 are tested.

There are five different tests per LCM unit that are run as a part of the COVREX test. They are listed below in the order in which they are performed:

- Powercard-short
- Ring-generator
- Powercard-open
- Coin collect
- Coin return

If one of the five tests fails on LCM Unit 1, no more tests are run Unit 1. The tests begin again on LCM Unit 0. Four asterisks are used to indicate a test has not been run because a previous COVREX test failed. COVREX test results can be seen by posting a LCM at the **MAPCI;MTC;PM** level and typing the command **TST COVREX QUERY**. The **TST COVREX QUERY** command will display the results of each of the 5 tests that are performed as a part of the COVREX test along with the expected voltage range for each test.

Testing the operation of ANI and COIN voltages (continued)

Common procedures

There are no common procedures.

Action

This procedure contains a list of steps. Follow the steps to perform the procedure.

Testing the operation of ANI and COIN voltages using an LCM COVREX test

At the MAP

1 Access the PM level of the MAP by typing

`MAPCI;MTC;PM`

and pressing the Enter key.

2 Post the LCM to test by typing

`POST LCM HOST <frame> <unit>`

and pressing the Enter key.

where

frame
is the frame number (00 to 99)

unit
is the frame pair number (0 to 1)

3 Perform the test by typing

`>TST COVREX QUERY`

and pressing the Enter key.

Example response for passing test

```
LCM HOST 00 0 COVREX test is ON.
   Recent LCM COVREX Results:
                Unit0 Unit1
                ----- -----
   PWR CRD SHORT:   -7   -7 EXPECTED :  -12 to    0
   RING GEN     :  -48  -48 EXPECTED :  -55 to  -38
   PWR CRD OPEN :   49   49 EXPECTED :   38 to   55
   COIN COLLECT :  130  128 EXPECTED :  115 to  140
   COIN RETURN  : -129 -129 EXPECTED : -140 to -115
   Last LCM COVREX test was MON. 2001/11/05 at 16:11:48;
PASSED.
   Prior LCM COVREX failure was MON. 2001/11/05 at
14:19:51
   1st pass following prior failure was MON. 2001/11/05
at 16:11:48
```

Example response for a failing test

```
LCM HOST 00 0 COVREX test is ON.
   Recent LCM COVREX Results:
                Unit0 Unit1
                ----- -----
```

Testing the operation of ANI and COIN voltages (continued)

```
PWR CRD SHORT:   -7   -7 EXPECTED :  -12 to    0
RING GEN      :  -48  -48 EXPECTED :  -55 to  -38
PWR CRD OPEN :   14   14 EXPECTED :   38 to   55
COIN COLLECT : **** **** EXPECTED :  115 to  140
COIN RETURN  : **** **** EXPECTED : -140 to -115
Last LCM COVREX test was MON. 2001/10/29 at 16:25:16
FAILED.
```

4 Determine if the test passed.

If the test	Do
passed	Step 6
failed	Step 5

Testing the operation of ANI and COIN voltages (continued)

5 Using the table below, determine why the test failed.

Testing the operation of ANI and COIN voltages (continued)

Unit	PWR CRD SHORT 0 V	RING GEN -48 V	PWR CRD OPEN +48V	COIN COLLECT +130 V	COIN RETURN -130 V	Failure most likely to occur here:
0 1	0 0	F F	*** ***	*** ***	*** ***	Common test path: TAC, LD-0, LD-0 Cable, LC 0-0, BIC-0, RG1 Ground
0 1	-7 F	-48 ***	+48 ***	+130 ***	-130 ***	Either 6X53
0 1	-7 0	-48 F	+48 ***	+130 ***	-130 ***	RG1, RG1 Cable (RG1-29, U1-47B), RG1 Ground, BP to BP wiring (Unit 1 55B-59B to Unit 0 50B-54B), shorted BP pins (same as BP to BP pins, plus U0-47B)
0 1	-7 -7	-48 -48	+48 F	+130 ***	-130 ***	RG1, RG1 Cable (RG1-32, U1-48B), shorted BP pin (U1-48B)
0 1	-7 -7	-48 -48	+48 +48	+130 F	-130 ***	RG1, RG1 cable (RG1-36, U1-48A), shorted BP pin (U1-48A)
0 1	-7 -7	-48 -48	+48 +48	+130 +130	-130 F	RG1, RG1 cable (RG1-34, U1-47A), shorted BP pin (U1-47A)
0 1	F -7	*** -48	*** +48	*** +130	*** -130	6X53s, shorted BP pins (U0 50B-59B and U1 50B-59B)
0 1	-7 -7	F -48	*** +48	*** +130	*** -130	RG0, RG0 cable (RG0-29 U0-47B), RG0 Ground, shorted BP pins (U0-47B)
0 1	-7 -7	-48 -48	F +48	*** +130	*** -130	RG0, RG0 cable (RG0-32 U0 48B), shorted BP pins (U0-48B)
0 1	-7 -7	-48 -48	+48 +48	F +130	*** -130	RG0, RG0 cable (RG0-34 U0 48A), shorted BP pins (U0-48A)
0 1	-7 -7	-48 -48	+48 +48	+130 +130	F -130	RG0, RG0 cable (RG0-36 U0-47A), shorted BP pin (U0-47A)

Testing the operation of ANI and COIN voltages (end)

Note 1: Due to daisy chaining of ring generator outputs, problems with lower LCM of LCE or CLCE may be caused by problems on upper LCM backplane (pins 47A, 47B, 48A, & 48B) of unit 0 or unit 1.

Note 2: Asterisks for all test results (****) indicates the COVREX test failed as incomplete. Essentially, the test started, but never made it to the point where it collected voltage readings. Incomplete tests can occur for a number of reasons such as the test equipment (LTU or MTU) was already being used by another process or incorrect data fill, etc. In the event this occurs, simply re-run the test.

Key

```
F = Fail
LD = Line Drawer
LC = Line Card
BP = Backplane
RG = Ring Generator
TAC = Test Access
BIC = Bus Interface Card (NT6X54AA)
BP pins are all associated with 6X53 BP pins.
U0 = Unit 0 Backplane Pins
U1 = Unit 1 Backplane Pins
```

Ring Gen Signal	PINS RLCM/OPM/OPAC	LCE
-52VDC	53A	29
+52VDC	55A	32
-130VDC	56B	34
+130VDC	58B	36

6 You have completed this procedure.

TOPS IWS Operator complaint
Clearing database access trouble

Application

Use this Clearing TOPS IWS operator database system (DBS) access trouble procedure to check the external links to the database.

Definition

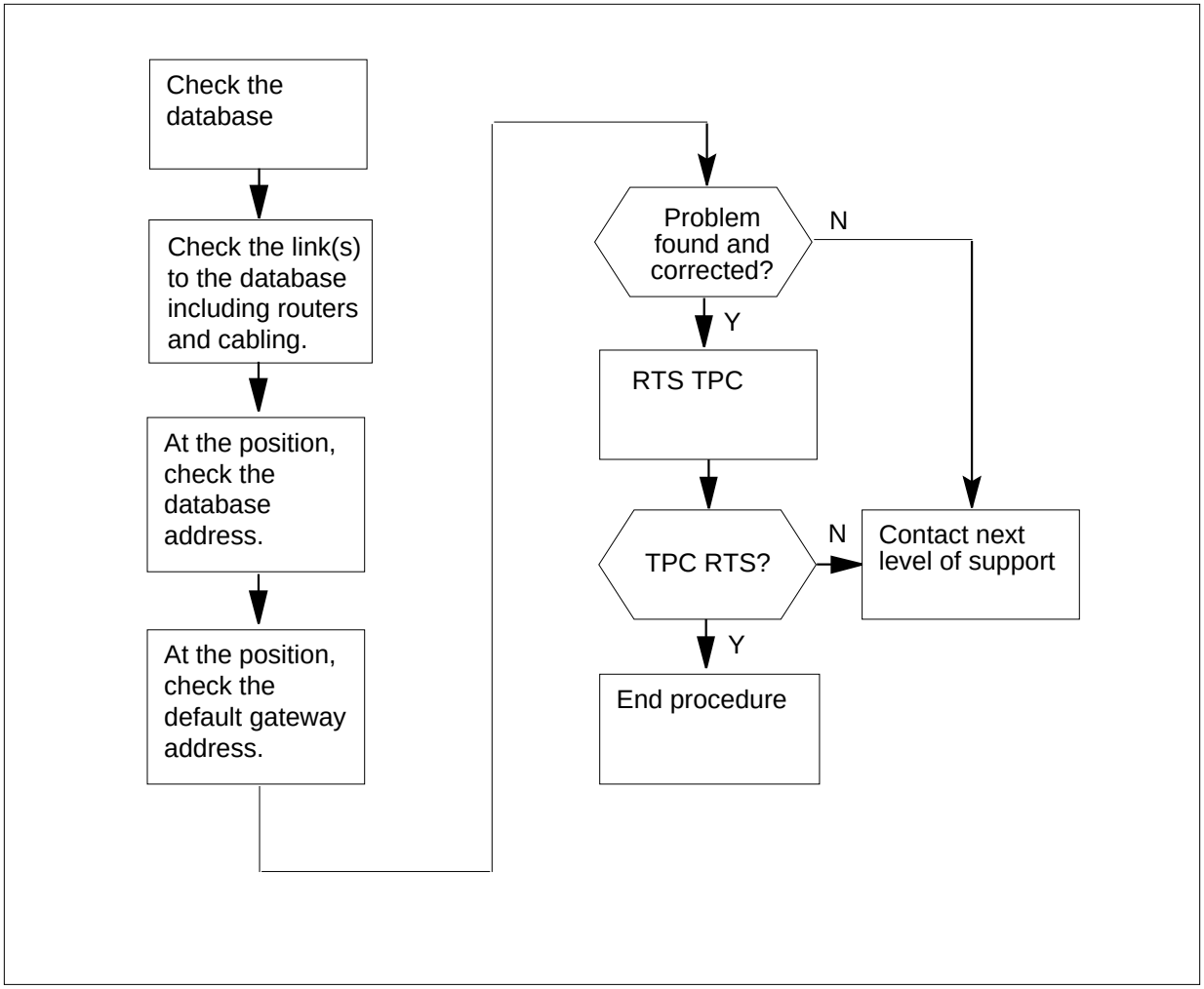
A PM TPC minor alarm or major alarm occurs for an SHI link to the database. In IWS Rls06, the TOPS IWS NTDA application was able to request an alarm for an external database link. As of Rls09, IWS NTDA is the only application that can generate this link alarm.

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.

TOPS IWS Operator complaint
Clearing database access trouble (continued)

Summary of clearing database access trouble



Clearing database access trouble

At the database

1 Check the database. For a link alarm, the problem is not expected to be on the position or the IWS LAN. The reason is because the position and LAN must be functioning to generate the alarm. Check the database for proper operation using the documentation for that database. The following are example items to check:

- The database power is on.
- The database IP address is correct or recently changed.
- The database application software has not failed.
- The databse datafill has changed or is not correct.

TOPS IWS Operator complaint
Clearing database access trouble (continued)

2 For the Nortel NTDA database, refer to Helmsman disk *Directory One*, HLM-5001-001. This disk contains the following documents that may be helpful:

- Directory One System Troubleshooting Manual, 203-5001-503
- Directory One System Hardware Installation, 203-5001-201 (contains procedures to validate operation of the database and link)
- Directory One Lite System Troubleshooting Manual, 203-5041-503
- LION Troubleshooting Guide, 203-3061-503
- NT DA Access IWS Installation and User Guide, 203-3171-300 (contains the database IP address and references to router documents)

At the link, including the router(s)

3 Check the connectivity between the position LAN and the database that includes any associated routers. As necessary, use network analysis tools at the database, routers, and, or, the position. For network tools for IWS positions, refer to the *IWS Base Platform Guide*, 297-2251-010. An example of a useful tool in this guide is the ping utility.

The Directory One System Troubleshooting Manual contains information on the link and routers. The following are example items to check:

- The router(s) power is on.
- The router(s) software has not failed.
- The cabling has a problem.

At the position

4 At the position, verify that the database IP address is correct. For an IWS position connected to an IWS NTDA database, use the NTDA MPX Setup datafill utility. Refer to the *IWS NTDA Application Guide*, 297-2251-017. Note that the NTDA MPX Setup tool name changed to NTDA Setup in IWS Rls08. The database IP address may not be correct because the database address changed.

5 At the position, verify that the default gateway address is correct. For an IWS position, use the Wollongong Pathway PWSETUP tool. Refer to the *IWS Base Platform Guide*, 297-2251-010, for information on using PWSETUP and network communication settings. Note, the company name of Wollongong changed to Attachmate, but the current documentation refers to Wollongong. Also note in IWS Rls11, the Wollongong Pathway package is no longer used for network communications. This change is because of the move from the Windows 3.11 platform to either the Window 95 or Windows 98 platform.

6 Consider the results of troubleshooting.

If problem	Do
found and corrected	step 7
not found and corrected	step 8

TOPS IWS Operator complaint
Clearing database access trouble (end)

7 Attempt to return the TPC to service, type

>RTS

press the Enter key.

If TPC	Do
returns to service	step 9
does not return to service	step 8

8 Contact the next level of support for additional help.

9 This procedure is complete.

TOPS MP Operator complaint (integrated) Clearing MP keyboard trouble

Application

Use this Clearing MP keyboard trouble procedure to clear Traffic Operator Position System (TOPS) Multipurpose (MP) keyboard trouble.

Definition

Submit this complaint when there are problems with a keyboard.

Common procedures

The following common procedures are referenced:

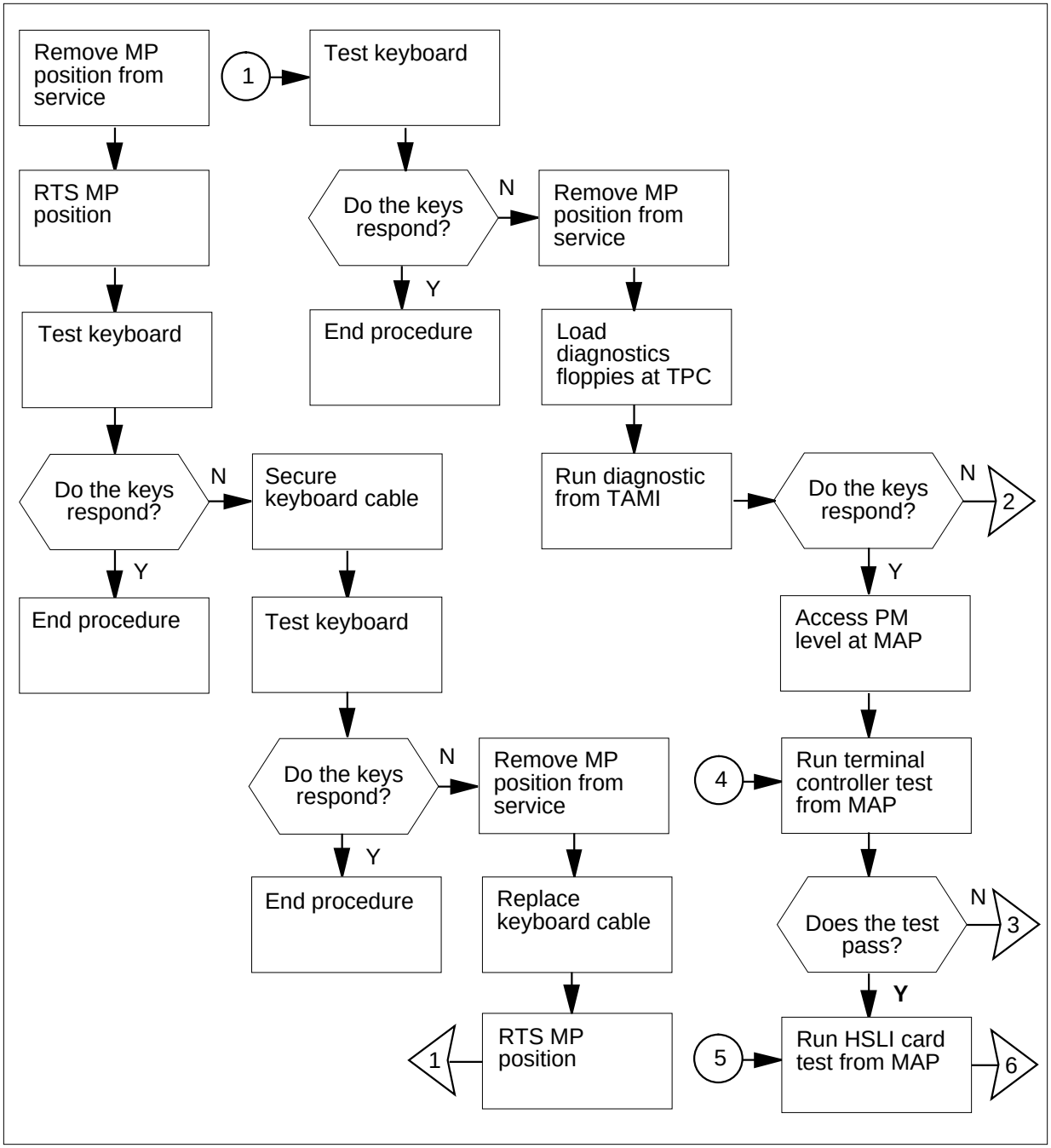
- Removing the MP position from service (integrated)
- Placing the MP position in service (integrated)

Action

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

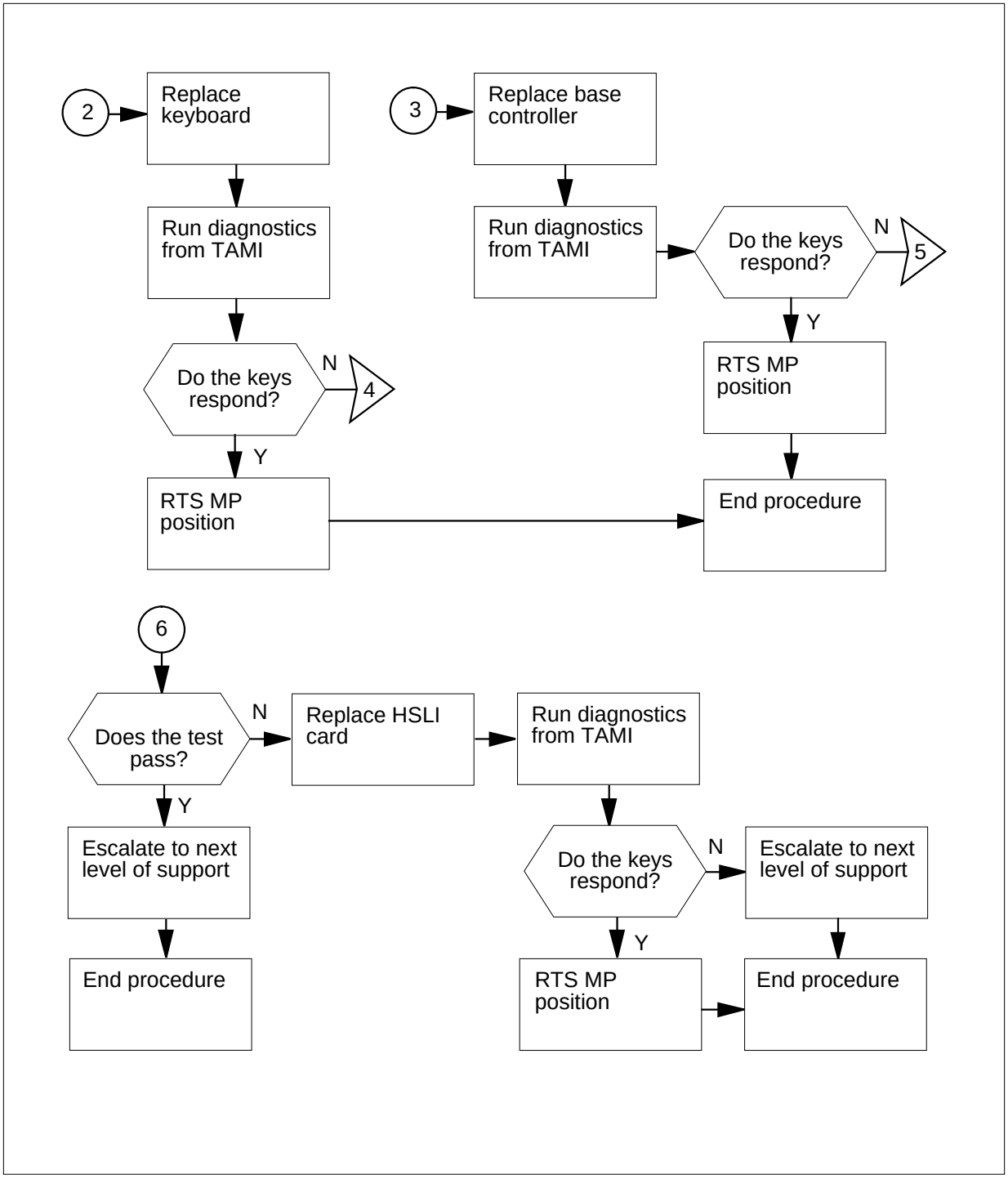
TOPS MP Operator complaint (integrated)
Clearing MP keyboard trouble (continued)

Summary of clearing MP keyboard trouble



TOPS MP Operator complaint (integrated) Clearing MP keyboard trouble (continued)

Summary of clearing MP keyboard trouble (continued)



TOPS MP Operator complaint (integrated)
Clearing MP keyboard trouble (continued)

Clearing the MP keyboard trouble

At your current position

1 Perform the common procedure *Removing the MP position from service (integrated).*

2 Perform the common procedure *Placing MP position from service (integrated).*

3 Test the keyboard to determine if the keys respond.

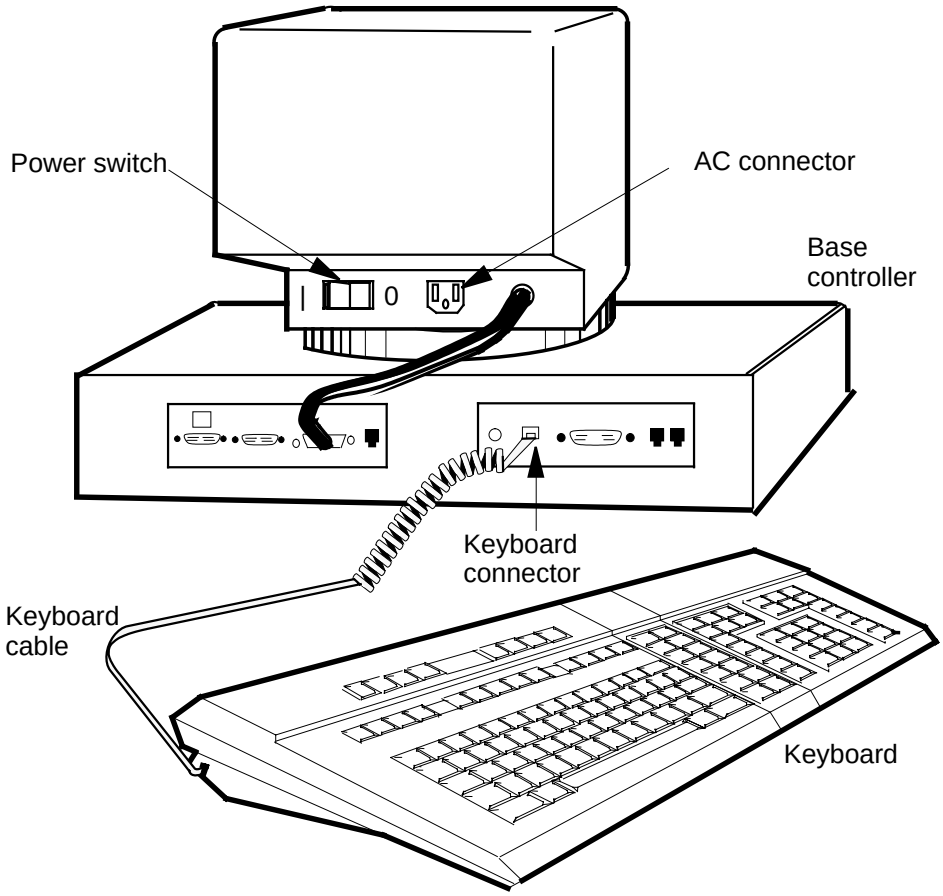
If the keys	Do
respond	step 30
do not respond	step 4

At the affected MP position

4 Secure the MP keyboard cable to the base controller.

TOPS MP Operator complaint (integrated)
Clearing MP keyboard trouble (continued)

Rear view MP position



5 Test the keyboard again to determine if the keys respond.

If the keys	Do
respond	step 30
do not respond	step 6

6 Perform the common procedure *Removing the MP position from service (integrated).*

TOPS MP Operator complaint (integrated)
Clearing MP keyboard trouble (continued)

7 Replace the keyboard cable.

8 Perform the common procedure *Placing the MP position from service (integrated)*.

9 Test the keyboard again to determine if the keys respond.

If the keys	Do
respond	step 30
do not respond	step 10

10 Perform the common procedure *Removing the MP position from service (integrated)*.

Note: Remove from service all of the positions associated with the TPC.

At the TPC

11 Insert the Diagnostic Boot floppy drive of the TPC and push the lever to lock the floppy diskette in place.

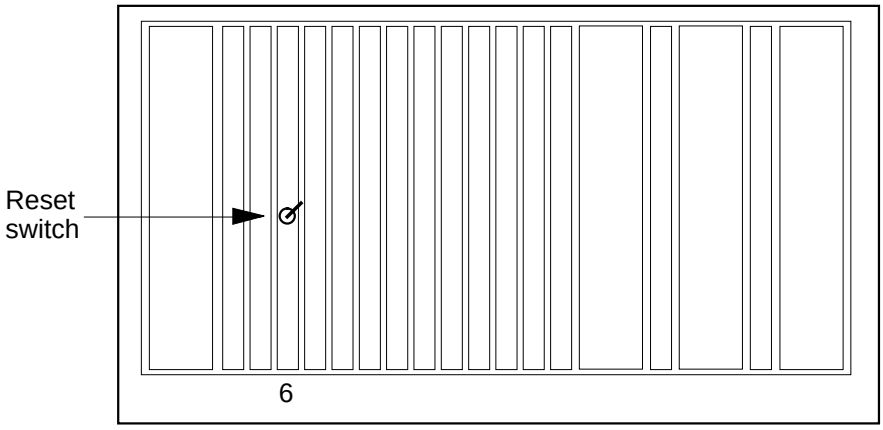
Note: Make sure the edge with the notch is at the top and the label faces the hard disk.

12

CAUTION
Service interruption
The reset switch will take all MP positions associated with the TPC out of service. At the end of this procedure, make sure you return all MP positions associated with this TPC to service.

To reset the TPC, move the switch on the SBC card in slot 6 down, return the switch to the up position.

TOPS MP Operator complaint (integrated)
Clearing MP keyboard trouble (continued)



TPC packfill SBC card

13 Remove the Diagnostic Boot floppy and insert the Diagnostic Run floppy. Leave the Diagnostic Run floppy in the disk drive unit. The system will indicate when to remove the disk.

At the TAMI

14 To run the diagnostic test on the keyboard, type:

`>POSDIAG n MANKEY`

and press the Enter key.

where

n
is the position number (0, 1,2, or 3)

15 Press every key on the MP keyboard. Verify that the system highlights the keys on the MP display. Follow the prompts to exit the diagnostic.

If	Do
test passes	step 19
any key fails	step 16

16 Replace the keyboard. Refer to *Card Replacement Procedures* and return to this point.

17 To run the diagnostic test on the keyboard, type:

`>POSDIAG n MANKEY`

and press the Enter key.

where

n
is the position number (0, 1,2, or 3)

TOPS MP Operator complaint (integrated)
Clearing MP keyboard trouble (continued)

18 Press every key on the MP keyboard. Verify that the system highlights the keys on the MP display. Follow the prompts to exit the diagnostic.

If	Do
test passes	step 29
any key fails	step 19

19 To access the PM level of the MAP, use the procedure that follows:

a Enter

>MAPCI;MTC;PM;POST TPC x

and press the Enter key.

where

x
is the TPC number

b Enter

>MP;POST P n

and press the Enter key.

where

n
is the MP position number (0, 1, 2, or 3)

20 To run the terminal controller test from the MAP, type:

>TST TERM

and press the Enter key.

If test	Do
passes	step 24
fails	step 21

21 Replace the position base. Refer to *Card Replacement Procedures* and return to this point.

At the TAMI

22 To run the diagnostic test on the keyboard, type:

>POSDIAG n MANKEY

and press the Enter key.

where

n
is the MP position number (0, 1, 2, or 3)

TOPS MP Operator complaint (integrated)
Clearing MP keyboard trouble (continued)

23 Press every key on the MP keyboard. Verify that the system highlights the keys on the MP display. Follow the prompts to exit the diagnostic.

If the keys	Do
respond	step 29
do not respond	step 24

At the MAP

24 To run the HSLI test, type:

`>TST HSLI`

and press the Enter key.

`>QUIT ALL`

and press the Enter key.

If test	Do
passes	step 28
fails	step 25

25 Replace the HSLI card. Refer to *Card Replacement Procedures* and return to this point.

At the TAMI

26 To run the diagnostic test on the keyboard, type:

`>POSDIAG n MANKEY`

and press the Enter key.

where

n
is the MP position number (0, 1, 2, or 3)

27 Press every key on the MP keyboard. Verify that the system highlights the keys on the MP display. Follow the prompts to exit the diagnostic.

If keys	Do
respond	step 29
do not respond	step 28

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

TOPS MP Operator complaint (integrated)
Clearing MP keyboard trouble (end)

29 Perform the common procedure *Placing the MP position in service (integrated)*.

Note: Return to service all of the positions associated with the TPC.

30 The procedure is complete.

TOPS MP Operator complaint (integrated) Clearing voice communication path trouble

Application

Use this procedure to clear Traffic Operator Position System (TOPS) Multipurpose (MP) voice communication path trouble.

Definition

Submit this complaint when the system loses voice communication.

Common procedures

This procedure contains the following references:

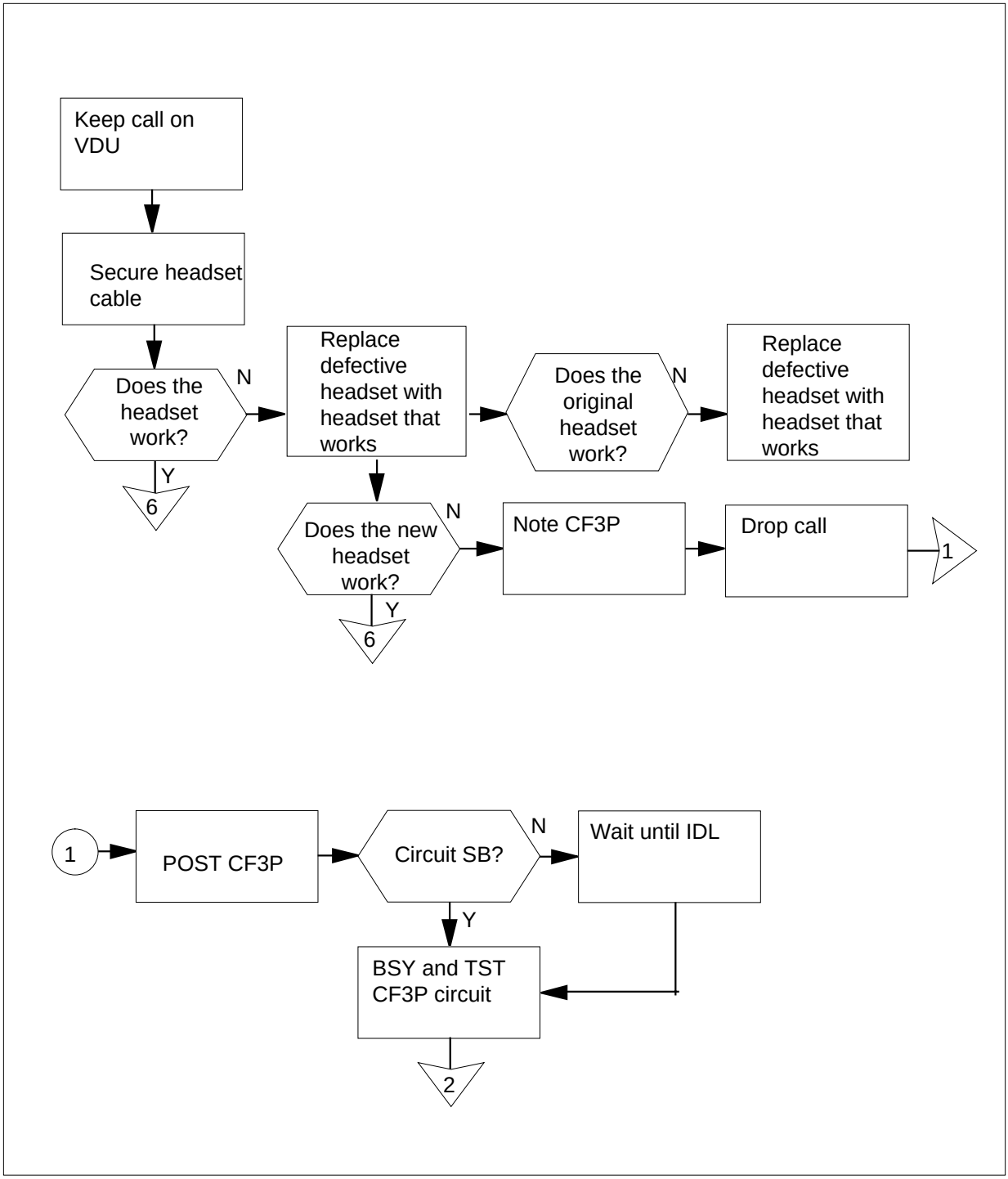
- Placing the MP position in service (integrated)
- Removing the MP position from service (integrated)

Action

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

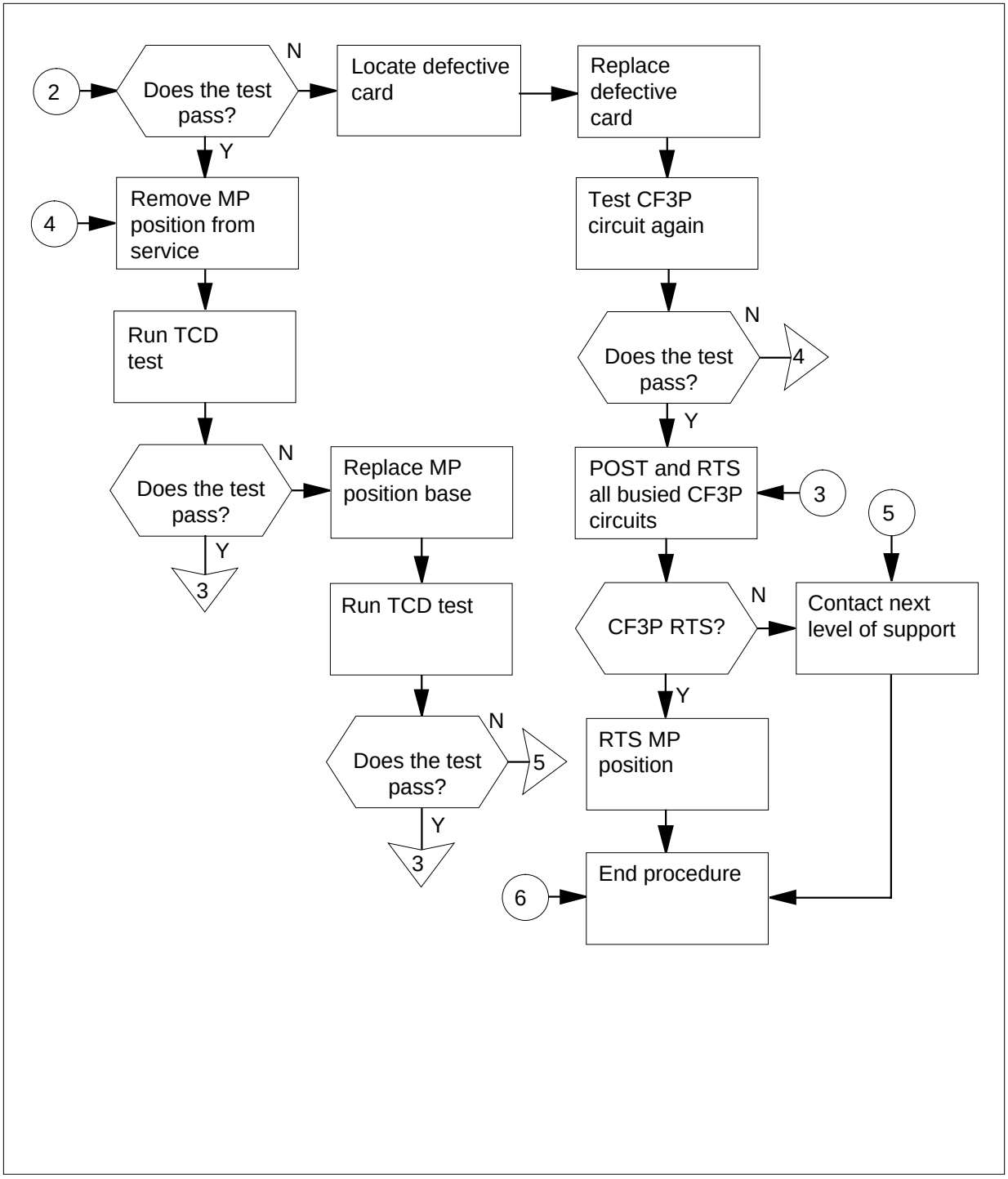
TOPS MP Operator complaint (integrated)
Clearing voice communication path trouble (continued)

Summary of clearing voice communication path trouble



TOPS MP Operator complaint (integrated)
Clearing voice communication path trouble (continued)

Summary of clearing voice communication path trouble (continued)



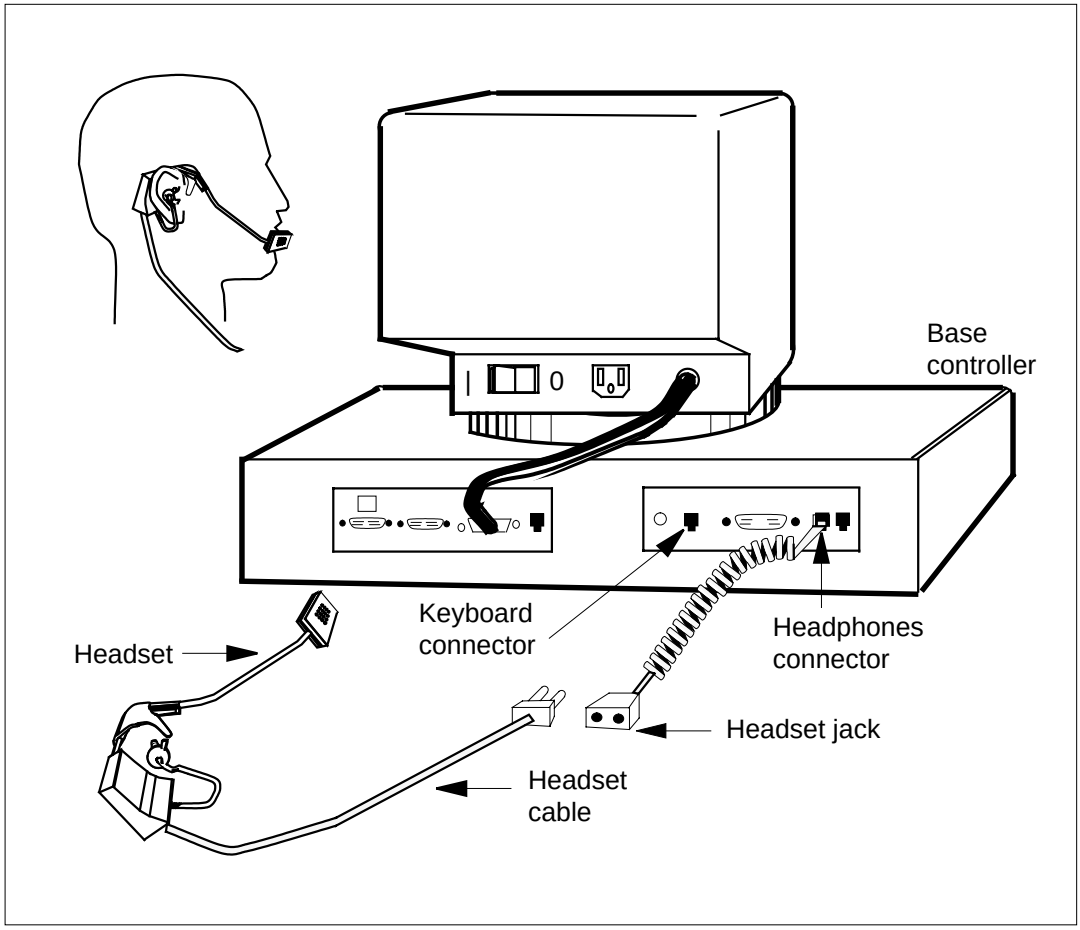
TOPS MP Operator complaint (integrated)
Clearing voice communication path trouble (continued)

Clearing voice communication path trouble

At the affected MP position

1 Keep the call on the VDU.

2 Secure the headset cable to the headset jack. Secure the headset jack to the headphones connector.



3 Confirm that the headset works.

If headset	Do
works	step 19
does not work	step 4

4 Replace the defective headset with a headset that works.

TOPS MP Operator complaint (integrated) Clearing voice communication path trouble (continued)

5 Determine if the headset works.

If the	Do
replaced headset works	step 19
replaced headset does not work	step 6
original headset does not work at the other position	Replace with a headset that works. Follow local procedure for defective equipment.

At the MAP

6 To note which CF3P is in use, type:

>MAPCI;MTC;TRKS;TTP

and press the Enter key.

>POST G TOPSPOS nnn

and press the Enter key.

where

nnn
is the position number

Example of a MAP response

```
 CM    MS    IOD    Net    PM    CCS    Lns    Trks    Ext    EIO
  .     .      .      .     .     .      .      .       .      .
TTP
 0  Quit_     POST   DELQ     BUSYQ     DIG
 2  Post_     TTP   6-025
 3  Seize_    CKT TYPE   PM NO   COM LANG    STA S R DOT TE RESULT
 4            DESK   TM8 2 16   TOPSPOS 200  CPB    CF3P          1
 5  Bsy_
 6  RTS_
 7  Tst_
 8
 9  CktInfo_
10  CktLoc_
11  Hold_
12  Next_
13  Rls_
14  Ckt_
15  TrnslVf_
16  StkSdr_
17  Pads_
18  Level_
```

CF3P number

TOPS MP Operator complaint (integrated)
Clearing voice communication path trouble (continued)

At the affected MP position

7 To drop the call, press the Pos Rls key.

At the MAP

8 To post the CF3P circuit, type:

>POST G CF3P n

and press the Enter key.

where

n
is the CF3P noted in the MAP display from step 6

Example of a MAP response

```
 CM    MS    IOD    Net    PM    CCS    Lns    Trks    Ext    EIO
  .     .      .      .     .      .      .       .      .      .
TTP
 0  Quit_       POST     DELQ    BUSYQ     DIG
 2  Post_       TTP  6-025
 3  Seize_      CKTTYPE  PM NO.  COM LANG   STA S R DOT TE RESULT
 4              CONF3   TM8 0 26 CF3P  1    CPB
 5  Bsy_                                    P_IDL
 6  RTS_
 7  Tst_
 8
 9  CktInfo_
10  CktLoc_
11  Hold_
12  Next_
13  Rls_
14  Ckt_
15  TrnslVf_
16  StkSdr_
17  Pads_
18  Level_
```

If the circuit is	Do
CPB	wait until IDL and go to step 9
SB	step 9

9 To busy and test the posted CF3P circuit, type:

>BSY

and press the Enter key.

>TST

TOPS MP Operator complaint (integrated) Clearing voice communication path trouble (continued)

and press the Enter key.

If test	Do
passes	step 13
fails	step 10

10 To locate the circuit card that has faults, type:

>CKTLOC

and press the Enter key.

11 Replace the conference circuit card. Refer to *Card Replacement Procedures* and return to this point.

12 To test the posted CF3P circuit again, type:

>TST

and press the Enter key.

If test	Do
passes	step 16
fails	step 13

13 Perform the common procedure *Removing the MP position from service (integrated)*.

At the MAP

14 To run the position component diagnostics (TCD) test, type:

>TST TERM

and press the Enter key.

Example of a MAP response

```
Performing ROM position Component Diagnostic...
Performing CPU position Component Diagnostic...
Performing Exceptions position Component Diagnostic...
Performing RAM position Component Diagnostic...
Performing HSLI Port position Component Diagnostic...
Performing UART position Component Diagnostic...
Performing Keyboard position Component Diagnostic...
Performing Telephony position Component Diagnostic...
```

If test	Do
passes	step 16

TOPS MP Operator complaint (integrated) Clearing voice communication path trouble (end)

If test	Do
fails	step 15
fails with base controller replaced	step 17

At the affected MP position

15 Replace base controller. Refer to the *TOPS MP Card Replacement Procedures* and return to step 14.

At the MAP

16 To return to service, the busy CF3P from step 9, type

>POST G CF3P n

and press the Enter key.

where

n
is the busy CF3P from step 9

>RTS

and press the Enter key.

If the CF3P	Do
returns to service	step 18
does not return to service	step 17

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

18 Perform the procedure *Placing an MP position in service (integrated)*.

19 The procedure is complete.

TOPS MP Operator complaint (standalone) Clearing link trouble

Application

Use this Clearing link trouble procedure to clear Traffic Operator Position System (TOPS) Multipurpose (MP) link problems.

Definition

Submit this problem when the MP VDU message `Link problems encountered` appears and the operator cannot log on to the MP position. When this message appears, a fault is present on the data link between the VDU controller and the DMS.

Common procedures

This procedure contains the following references:

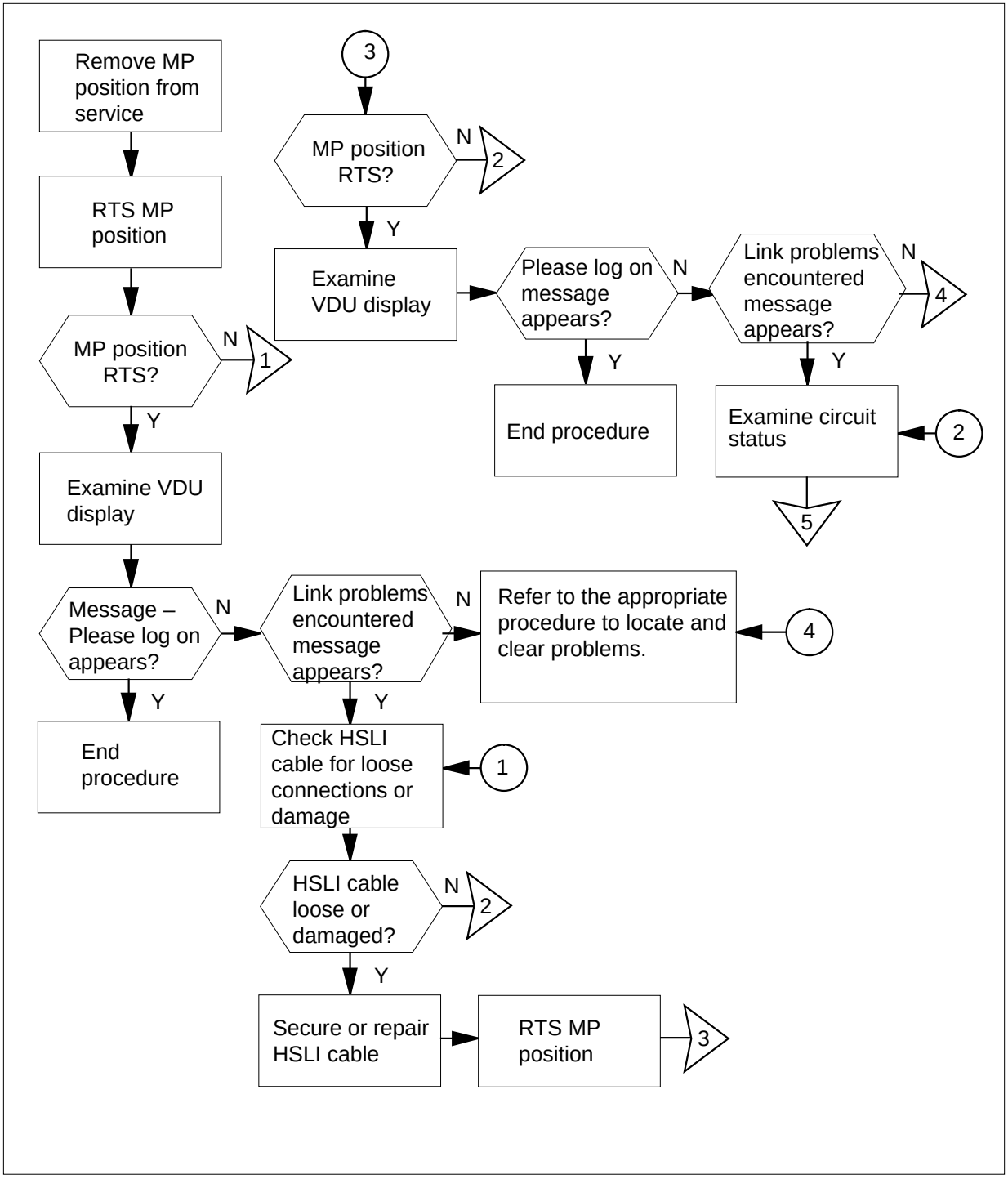
- Removing MP position from service (standalone)
- Placing MP position in service (standalone)

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.

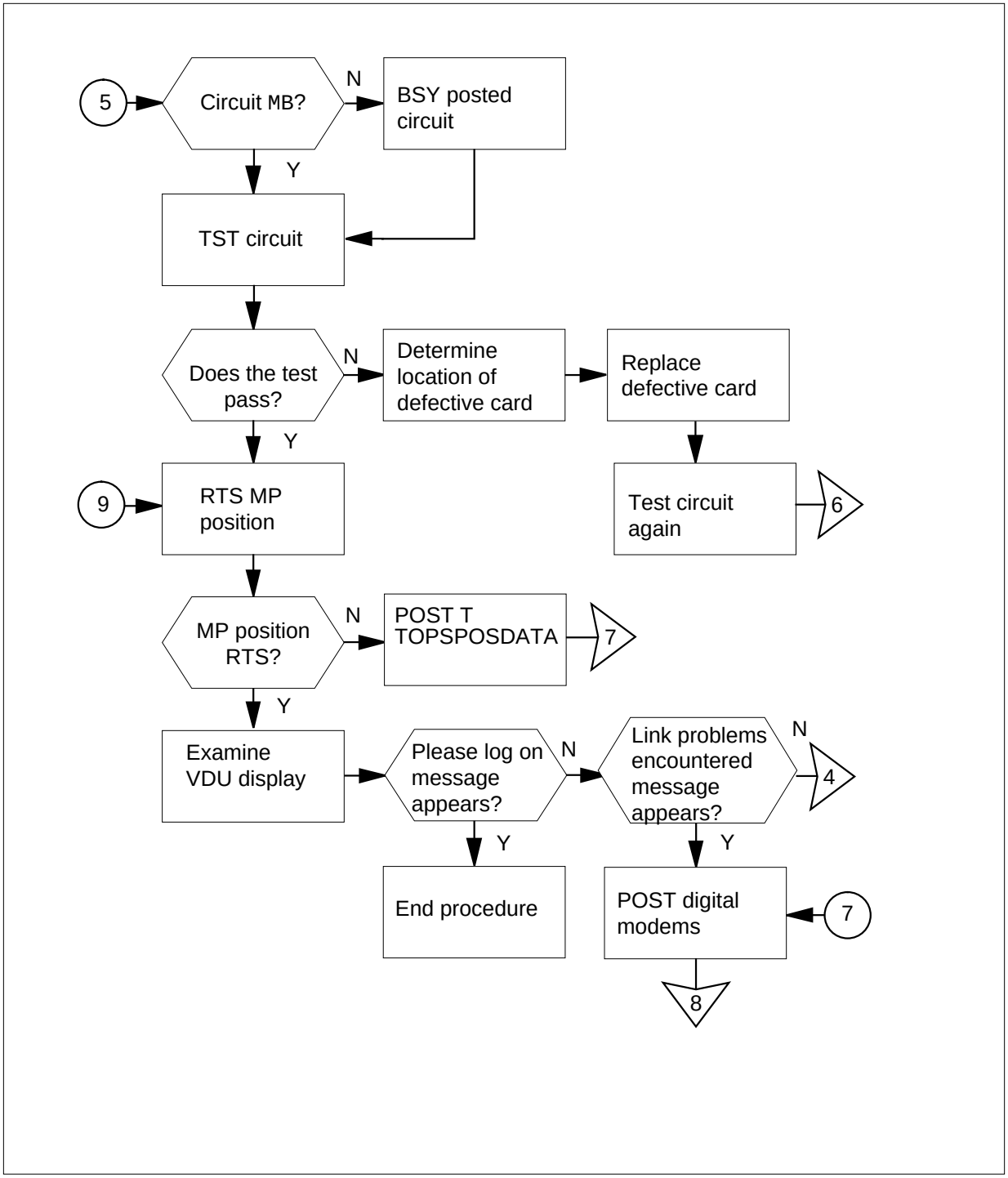
TOPS MP Operator complaint (standalone)
Clearing link trouble (continued)

Summary of Clearing link trouble



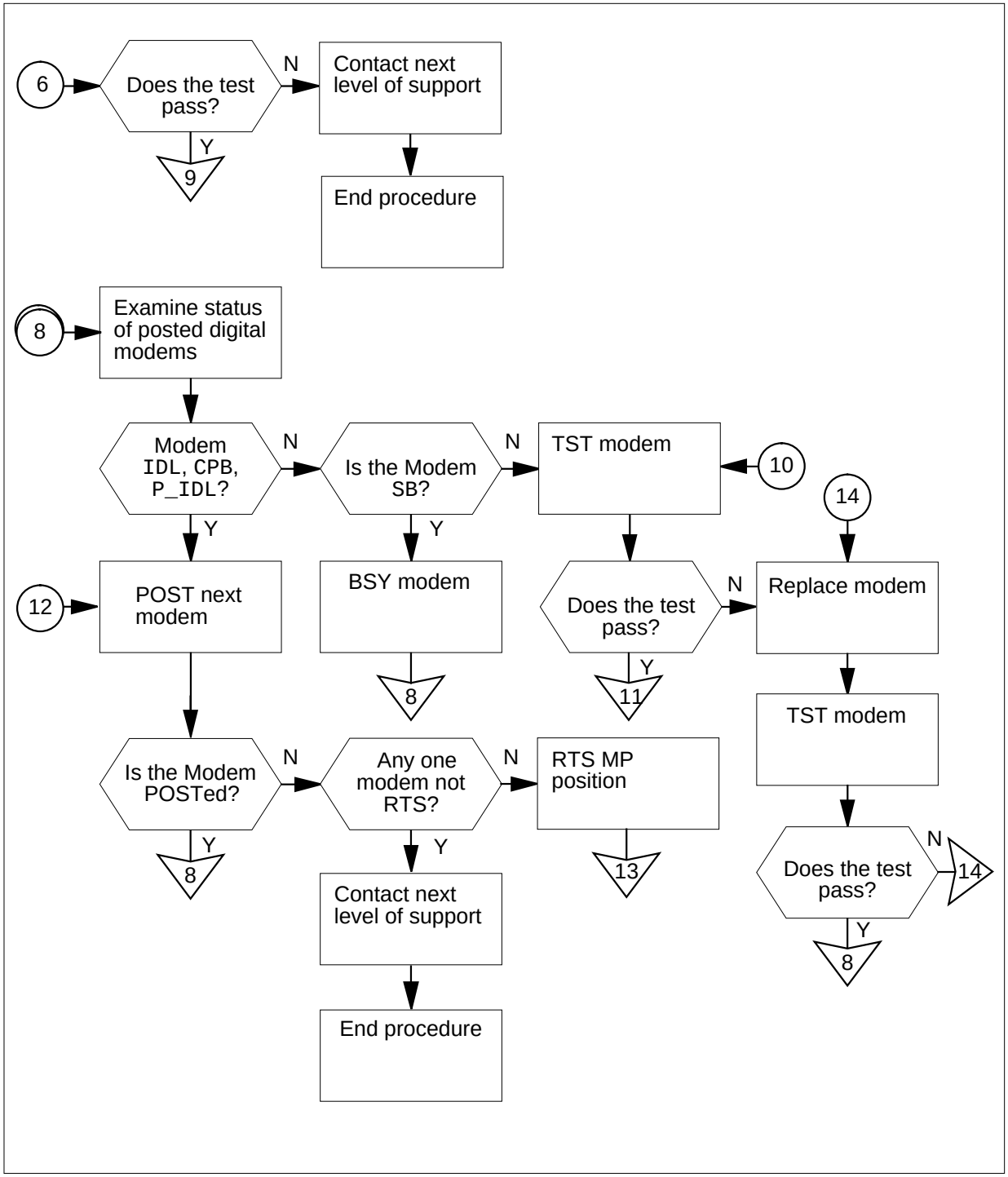
TOPS MP Operator complaint (standalone)
Clearing link trouble (continued)

Summary of Clearing link trouble (continued)



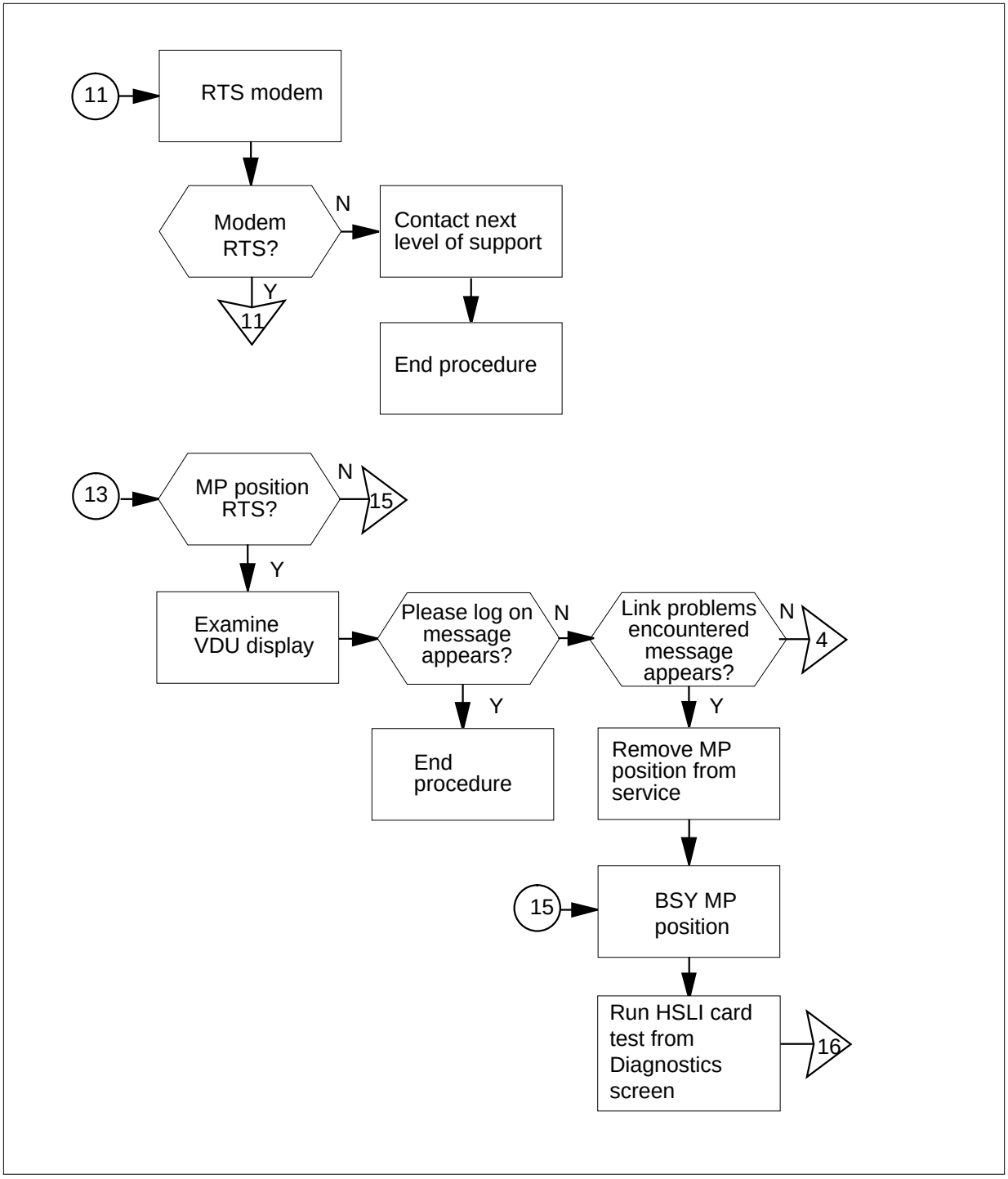
TOPS MP Operator complaint (standalone)
Clearing link trouble (continued)

Summary of Clearing link trouble (continued)



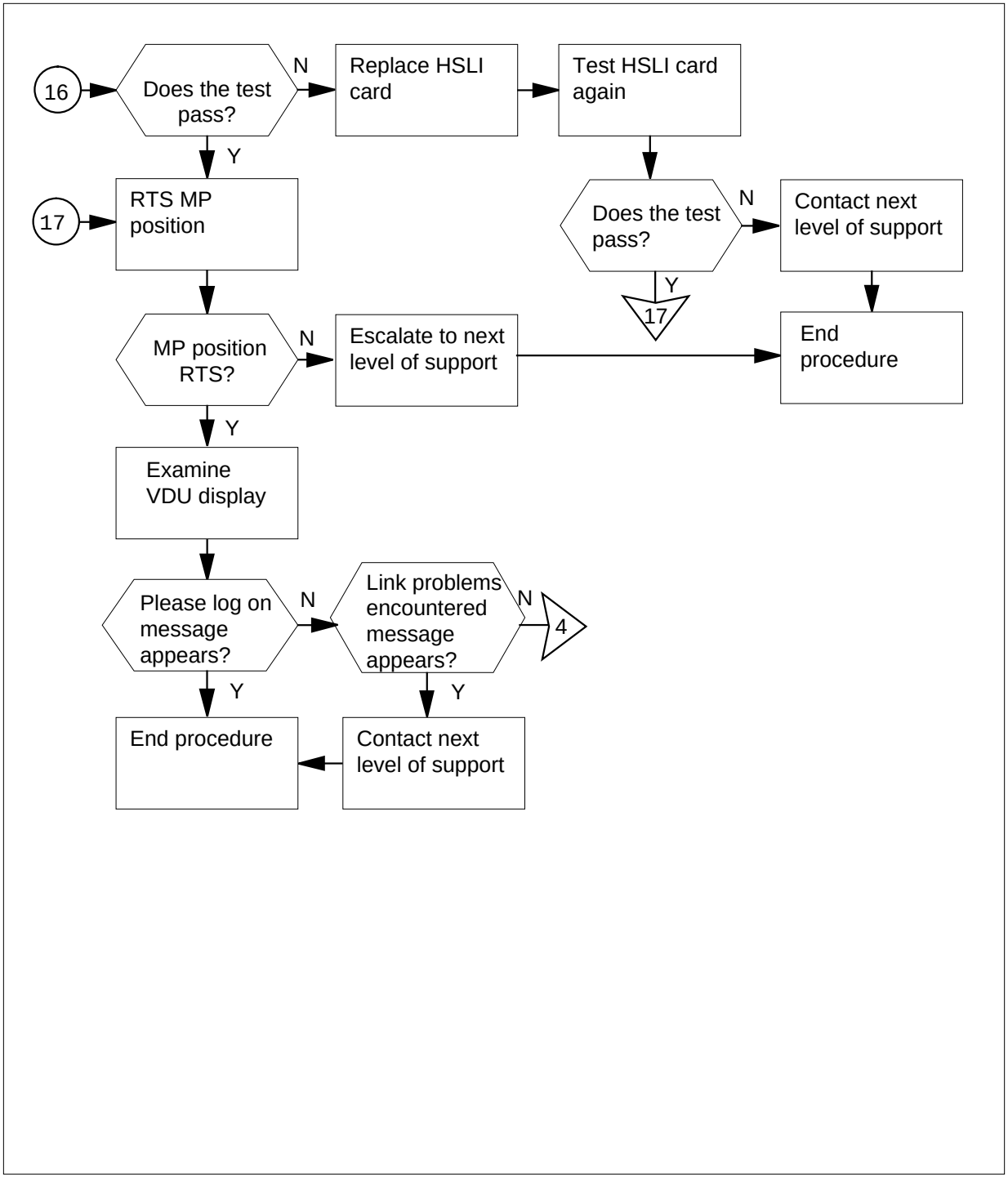
TOPS MP Operator complaint (standalone) Clearing link trouble (continued)

Summary of Clearing link trouble (continued)



TOPS MP Operator complaint (standalone)
Clearing link trouble (continued)

Summary of Clearing link trouble (continued)



TOPS MP Operator complaint (standalone) Clearing link trouble (continued)

Clearing link trouble (standalone)

At your current location

1 Perform the common procedure *Removing the MP position from service (standalone)*.

2 Perform the common procedure *Placing the MP position in service (standalone)*.

3 Determine if the MP position returns to service.

If the MP position	Do
returns to service and RES appears	step 4
fails return to service	step 5

At the affected MP position

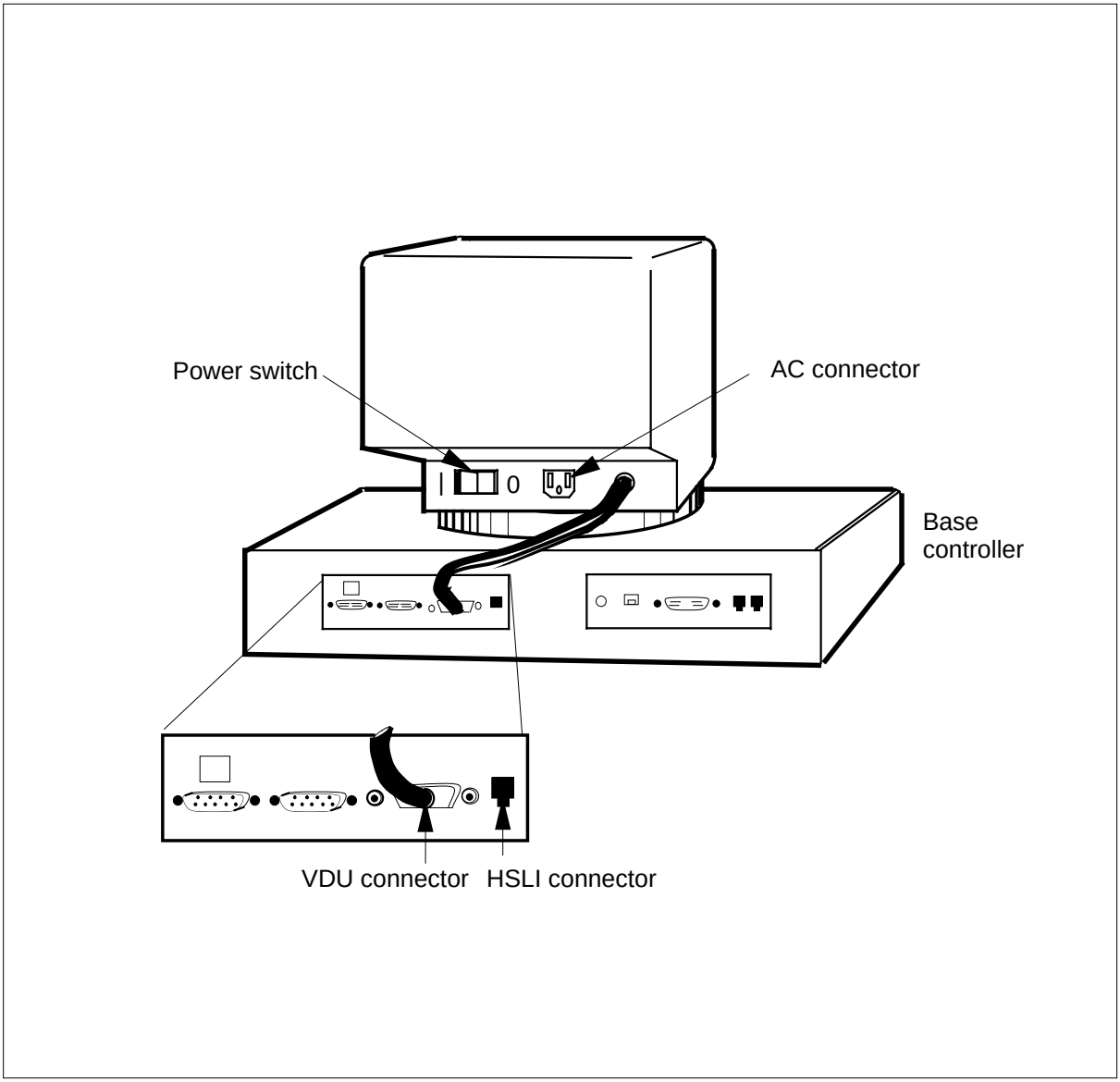
4 Examine the VDU display.

If the message from MP VDU	Do
is `Please log on`	step 38
is `Link problems encountered`	step 5
is other than listed here	step 37

5 Check the HSLI cable for loose connections or damage.

TOPS MP Operator complaint (standalone)
Clearing link trouble (continued)

Rear view MP position



If the HSLI cable	Do
is loose or damaged	secure or repair the cable and go to step 6
is not loose or damaged	step 9

6 Perform the common procedure *Placing the MP position in service (standalone).*

TOPS MP Operator complaint (standalone) Clearing link trouble (continued)

7 Determine if the MP position returns to service.

If the MP position	Do
returns to service with RES displayed	step 8
fails to return to service	step 9

8 Examine the VDU screen.

If the MP VDU message	Do
is `Please log on`	step 38
is `Link problems encountered`	step 9
is other than listed here	step 37

At the MAP

9 Examine the circuit status display for the TOPSPOS circuit.

If the circuit status	Do
is SB	step 10
is MB	step 11
is RES	step 10

10 Perform the common procedure *Removing the MP position from service (standalone)*.

11 To test the circuit, enter:

>TST

and press the Enter key.

If test	Do
passes	step 14
fails	step 12
fails with card replaced	step 36

12 To determine the location of the card that has faults, type:

>CKTLOC

TOPS MP Operator complaint (standalone)
Clearing link trouble (continued)

and press the Enter key.

13 Replace faulty circuit card. Refer to the *Card Replacement procedures* and return to step 11.

14 Perform the common procedure *Placing the MP position in service (standalone)*.

If TOPSPOS circuit	Do
returns to service and RES appears	step 15
fails to return to service	step 16

At the affected MP position

15 Examine the VDU display.

If MP VDU message	Do
is `Please log on`	step 38
is `Link problems encountered`	step 16
is other than listed here	step 37

16 Determine if the system allocated a digital modem to the data trunk. To post the MP position data trunk, type:

`>POST T TOPSPOSDATA nnn`

and press the Enter key.

where

nnn
is the position number

TOPS MP Operator complaint (standalone) Clearing link trouble (continued)

Example of a MAP response

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

TTP
 0  Quit_ POST      DELQ           BUSYQ         DIG
 2  Post_ TTP  6-025
 3   Seize_    CKT TYPE   PM NO.         COM LANG    STA S R DOT TE RESULT
 4             DESK    TM8   2 17  TOPSPOSDATA 200     CPB   MODEM      19
 5  Bsy_                                        P_IDL
 6  RTS_
 7  Tst_
 8
 9  CktInfo_
10  CktLoc_
11  Hold_
12  Next_
13  Rls_
14  Ckt_
15  TrnslVf_
16  StkSdr_
17  Pads_
18  Level_
```

Digital modem and number

If digital modem	Do
is allocated	step 28
is not allocated	step 17

At the MAP

17 To post the digital modem group, type:

`MAPCI;MTC;TRKS;TTP`

and press the Enter key.

`POST G DMODEM`

and press the Enter key.

TOPS MP Operator complaint (standalone)
Clearing link trouble (continued)

Example of a MAP response

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

TTP
 0  Quit_ POST      DELQ           BUSYQ         DIG
 2  Post_ TTP  6-025
 3   Seize_    CKT TYPE   PM NO.         COM LANG    STA S R DOT TE RESULT
 4             DATA    MTM   4   7  DMODEM       19  CPB   TOPSPOSDATA 200
 5  Bsy_                                         P_IDL
 6  RTS_
 7  Tst_
 8
 9  CktInfo_
10  CktLoc_
11  Hold_
12  Next_
13  Rls_
14  Ckt_
15  TrnslVf_
16  StkSdr_
17  Pads_
18  Level_
```

18 Examine the status of the posted digital modem in group.

If the status of digital modem	Do
is IDL, CPB, or P_IDL	step 19
is SB	step 20
is MB	step 21

19 To post the digital modem group, type:

>NEXT

and press the Enter key.

If the status of digital modem is	Do
posted	step 18
the message NO CKT, SET IS EMPTY appears and a modem from step 22 cannot RTS (IDL on MAP)	step 36

TOPS MP Operator complaint (standalone) Clearing link trouble (continued)

If the status of digital modem is	Do
the message `NO CKT, SET IS EMPTY` appears, and all modems from step 22 are RTSed (IDL on MAP)	step 25

20 To busy the posted digital modem group, type:

>BSY

and press the Enter key.

21 To test the posted digital modem, type:

>TST

and press the Enter key.

If test	Do
passes	step 22
fails	step 23

22 To return the posted digital modem to service, type:

>RTS

and press the Enter key.

If digital modem	Do
returns to service	step 19
does not return to service	Record the number of the modem for later use. Go to step 19.

23 Record the posted digital modem number and replace the defective DMS digital modem circuit card. Refer to the *Card Replacement Procedures* and return to this point.

At the MAP

24 To test the posted digital modem, type:

>TST

and press the Enter key.

If test	Do
passes	step 19

TOPS MP Operator complaint (standalone)
Clearing link trouble (continued)

If test	Do
fails	Record its number for later use and go to step 36

25 Perform the common procedure *Placing the MP position in service (standalone)*.

26 Determine if the MP position returns to service.

If the MP position	Do
returns to service and RES appears	step 27
fails return to service	step 30

At the affected MP position

27 Examine the VDU display.

If MP VDU message	Do
is `Please log on`	step 38
is `Link problems encountered`	step 28
is other than listed here	step 37

28 Perform the common procedure *Removing the MP position from service (standalone)*.

At the TAMI

29 To access the Diagnostics screen from the TAMI menu, type:

>5

and press the Enter key.

TAMI response

```
Enter TPC Diagnostics command:
```

30 Make sure that the MP position is busy. To run the HSLI card test from the Diagnostics screen, type:

>POSDIAG nnn HSLI

and press the Enter key.

where

nnn
is the position number

TOPS MP Operator complaint (standalone) Clearing link trouble (continued)

TAMI response

```
Downloading MP.
Performing HSLI Loopback Diagnostic
```

If test	Do
passes	step 36
fails	step 31
passes with card replaced	step 32
fails with card replaced	step 36

31 Replace HSLI card. Refer to *Card Replacement Procedures* and return to step 30.

At the TAMI

32 To quit the Diagnostics screen, type:

`>QUIT`

and press the Enter key.

33 Perform the common procedure *Placing the MP position in service (standalone)*.

34 Determine if the MP position returns to service.

If the MP position	Do
returns to service and RES appears	step 35
fails return to service	step 36

At the affected MP position

35 Examine the VDU display.

If MP VDU displays	Do
`Please log on`	step 38
`Link problems encountered`	step 36
any other message	step 37

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

TOPS MP Operator complaint (standalone)
Clearing link trouble (end)

37 Refer to the appropriate trouble locating and clearing procedure for the indicated trouble.

38 You have completed this procedure.

TOPS MP Operator complaint (standalone) Clearing MP keyboard trouble

Application

Use this Clearing MP keyboard trouble procedure to clear Traffic Operator Position System (TOPS) Multipurpose (MP) keyboard trouble.

Definition

Operators submit this trouble after the operators experience problems with a keyboard.

Common procedures

The following common procedures are referenced:

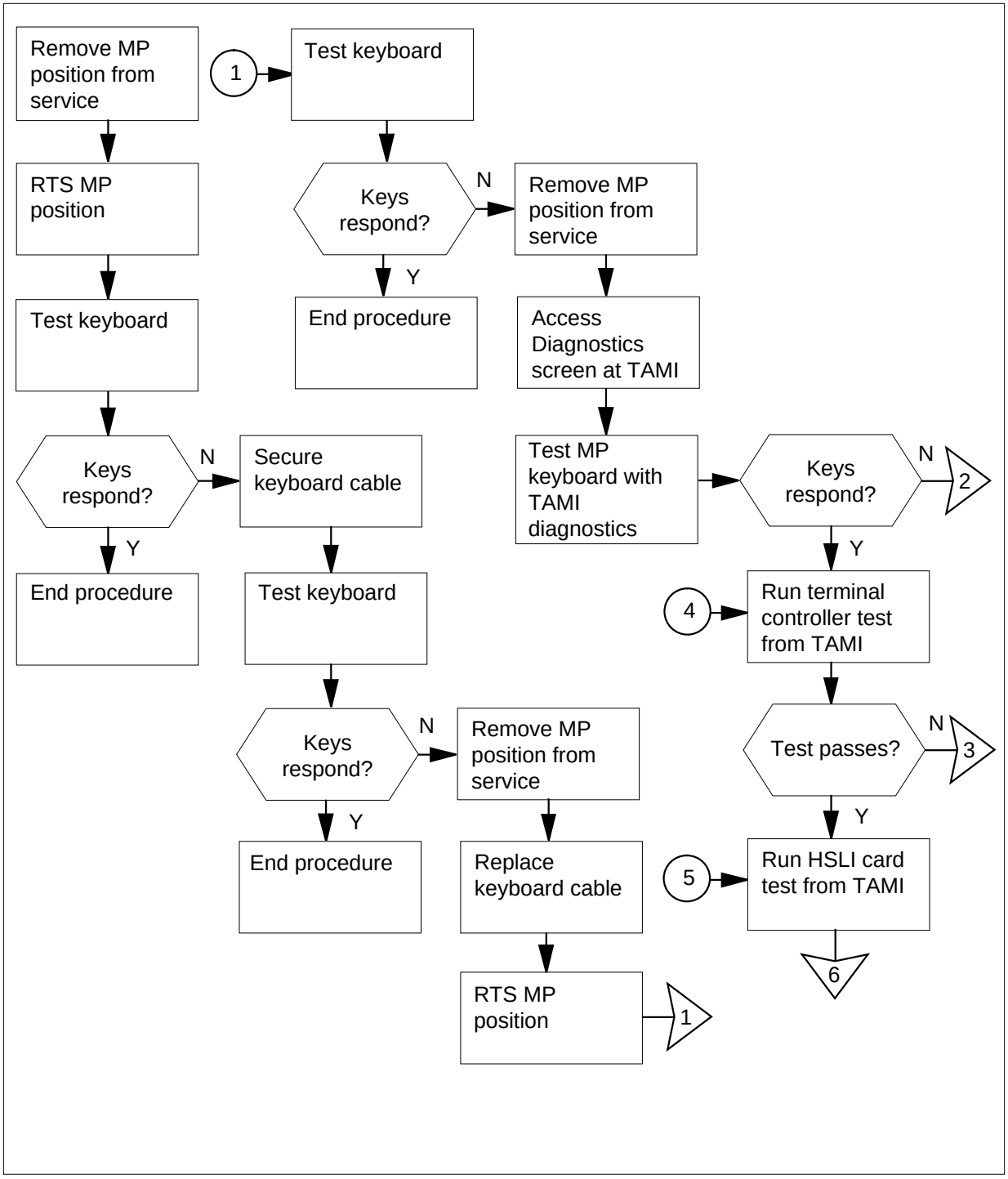
- Removing MP position from service (standalone)
- Placing MP position in service (standalone)

Action

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

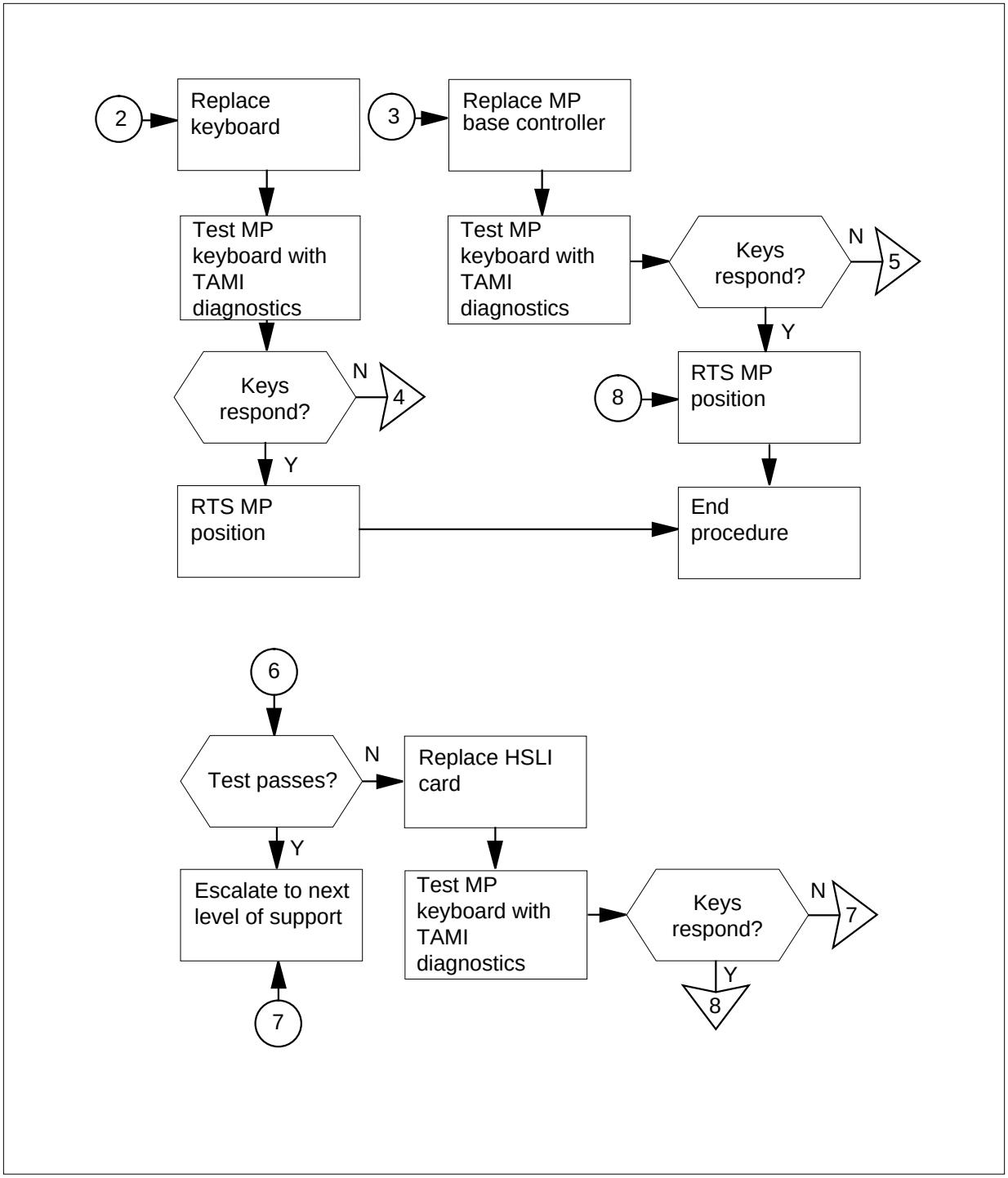
TOPS MP Operator complaint (standalone)
Clearing MP keyboard trouble (continued)

Summary of Clearing MP keyboard trouble



TOPS MP Operator complaint (standalone) Clearing MP keyboard trouble (continued)

Summary of Clearing MP keyboard trouble (continued)



TOPS MP Operator complaint (standalone)
Clearing MP keyboard trouble (continued)

Clearing MP keyboard trouble

At your current location

1 Perform the common procedure *Removing MP position from service (standalone)*.

2 Perform the common procedure *Placing MP position from service (standalone)*.

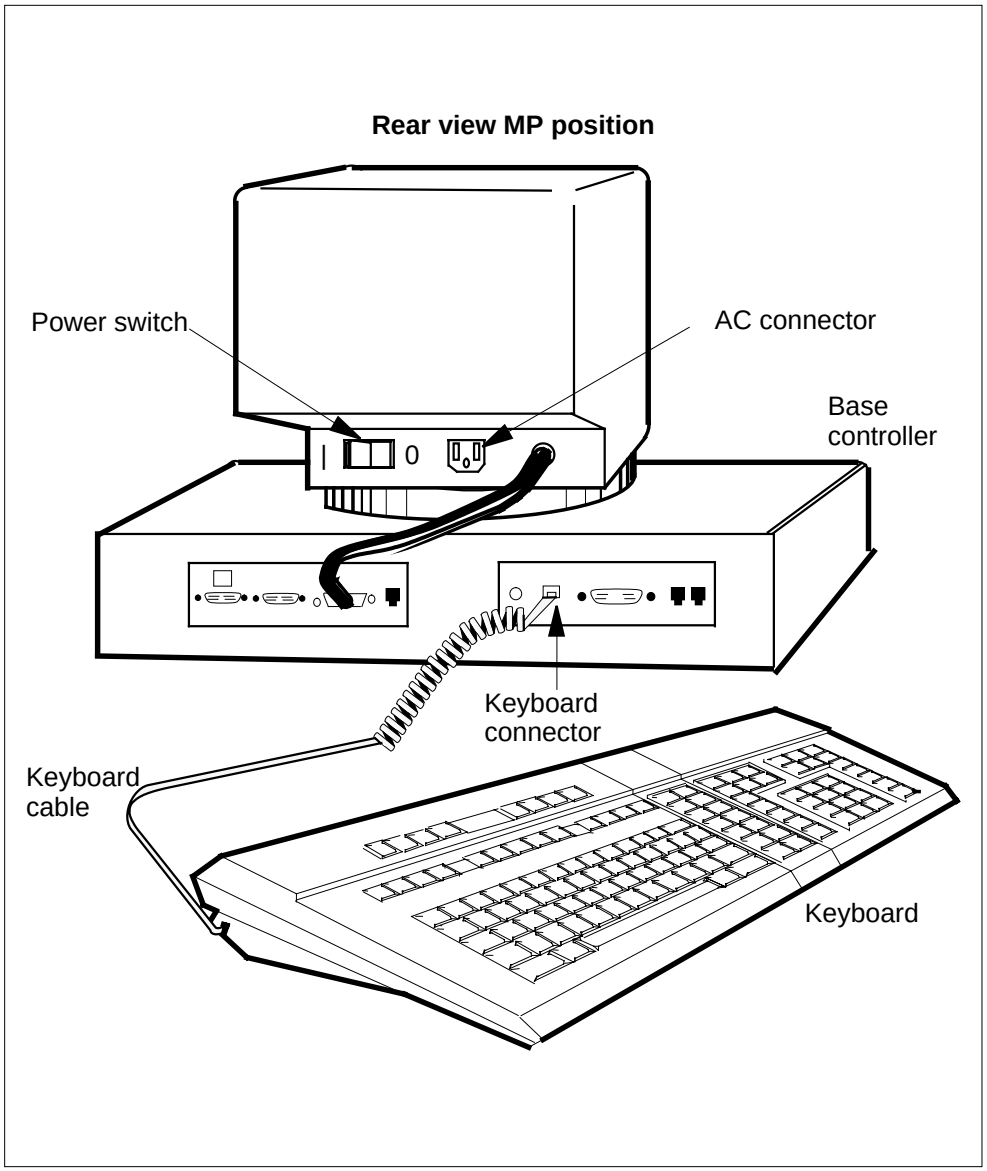
3 Test to see if the keys respond on the keyboard.

If the keys	Do
respond	step 27
do not respond	step 4

At the affected MP position

4 Secure the MP keyboard cable to the base controller.

TOPS MP Operator complaint (standalone)
Clearing MP keyboard trouble (continued)



5 Test again to see if the keys respond on the keyboard..

If the keys	Do
respond	step 27
do not respond	step 6

6 Perform the common procedure *Removing MP position from service (standalone)* in this document.

TOPS MP Operator complaint (standalone)
Clearing MP keyboard trouble (continued)

7 Replace the keyboard cable.

8 Perform the common procedure *Placing MP position from service (standalone)*.

9 Test again to see if the keys respond on the keyboard.

If the keys	Do
respond	step 27
do not respond	step 10

10 Perform the common procedure *Removing MP position from service (standalone)*.

At the TAMI

11 To access the Diagnostics screen from the TAMI main menu, enter:

>5

and press the Enter key.

TAMI response

```
Enter TPC Diagnostics command:
```

12 To run the diagnostic test on the keyboard, enter:

>POSDIAG n MANKEY

and press the Enter key.

where

n
is the position number (0, 1,2, or 3)

Note: The user can only select ManB positions.

13 Press every key on the MP keyboard and check that the keys are highlighted on the MP display. Follow the prompts to exit the diagnostic.

If	Do
test passes	step 17
any key fails	step 14

14 Replace the keyboard. Refer to *Card Replacement Procedures* and return to this point.

TOPS MP Operator complaint (standalone) Clearing MP keyboard trouble (continued)

At the TAMI

15 To run the MP manual keyboard test, enter:

>POSDIAG n MANKEY

and press the Enter key.

where

n
is the position number (0, 1,2, or 3)

Note: The user can only select ManB positions.

16 Press every key on the MP keyboard and check that the keys are highlighted on the MP display. Follow the prompts to exit the diagnostic.

If	Do
test passes	step 26
any key fails	step 17

17 To run the terminal controller test from the Diagnostics screen of the TAMI, enter:

>POSDIAG n TCD

and press the Enter key.

where

n
is the position number (0, 1,2, or 3)

If test	Do
passes	step 21
fails	step 18

18 Replace the MP position base. Refer to *Card Replacement Procedures* and return to this point.

At the TAMI

19 To run the MP manual keyboard test, enter:

>POSDIAG n MANKEY

and press the Enter key.

where

n
is the position number (0, 1,2, or 3)

Note: The user can only select ManB positions.

TOPS MP Operator complaint (standalone)
Clearing MP keyboard trouble (continued)

20 Press every key on the MP keyboard and check that the keys are highlighted on the MP display. Follow the prompts to exit the diagnostic.

If test	Do
passes	step 26
fails	step 21

21 To run the HSLI card test from the Diagnostics screen of the TAMI, enter:

>POSDIAG n CARD

and press the Enter key.

where

n
is the position number (0, 1,2, or 3)

TAMI response

```
Performing ROM Terminal Component Diagnostic...
Performing CPU Terminal Component Diagnostic...
Performing Exceptions Terminal Component Diagnostic...
Performing RAM Terminal Component Diagnostic...
Performing HSLI Port Terminal Component Diagnostic...
Performing UART Terminal Component Diagnostic...
Performing Keyboard Terminal Component Diagnostic...
Performing Telephony Terminal Component Diagnostic.
```

If test	Do
passes	step 25
fails	step 22

22 Replace the HSLI card. Refer to *Card Replacement Procedures* and return to this point.

At the TAMI

23 To run the MP manual keyboard test, enter:

>POSDIAG n MANKEY

and press the Enter key.

where

n
is the MAP position number (0, 1,2, or 3)

Note: The user can only select ManB positions.

TOPS MP Operator complaint (standalone) Clearing MP keyboard trouble (end)

24 Press every key on the MP keyboard and check that the keys are highlighted on the MP display. Follow the prompts to exit the diagnostic.

If keys	Do
respond	step 26
do not respond	step 25

25 Contact the next level of support for more help.

26 Perform the common procedure *Placing MP position from service (standalone)*.

Note: Make sure you return all positions associated with the TPC to service.

27 You have completed this procedure.

TOPS MP Operator complaint (standalone) Clearing position failure - cannot reboot TPC

Application

Use this procedure to clear Traffic Operator Position System (TOPS) Position Controller (TPC) reboot trouble.

Definition

An operator submits TOPS TPC reboot trouble when the operator cannot reboot the TPC. The TPC Administration and Maintenance Interface (TAMI) video dispay unit (VDU) displays an asterisk (*), autobooting or 1 meg of memory.

Common procedures

Refer to the following common procedures:

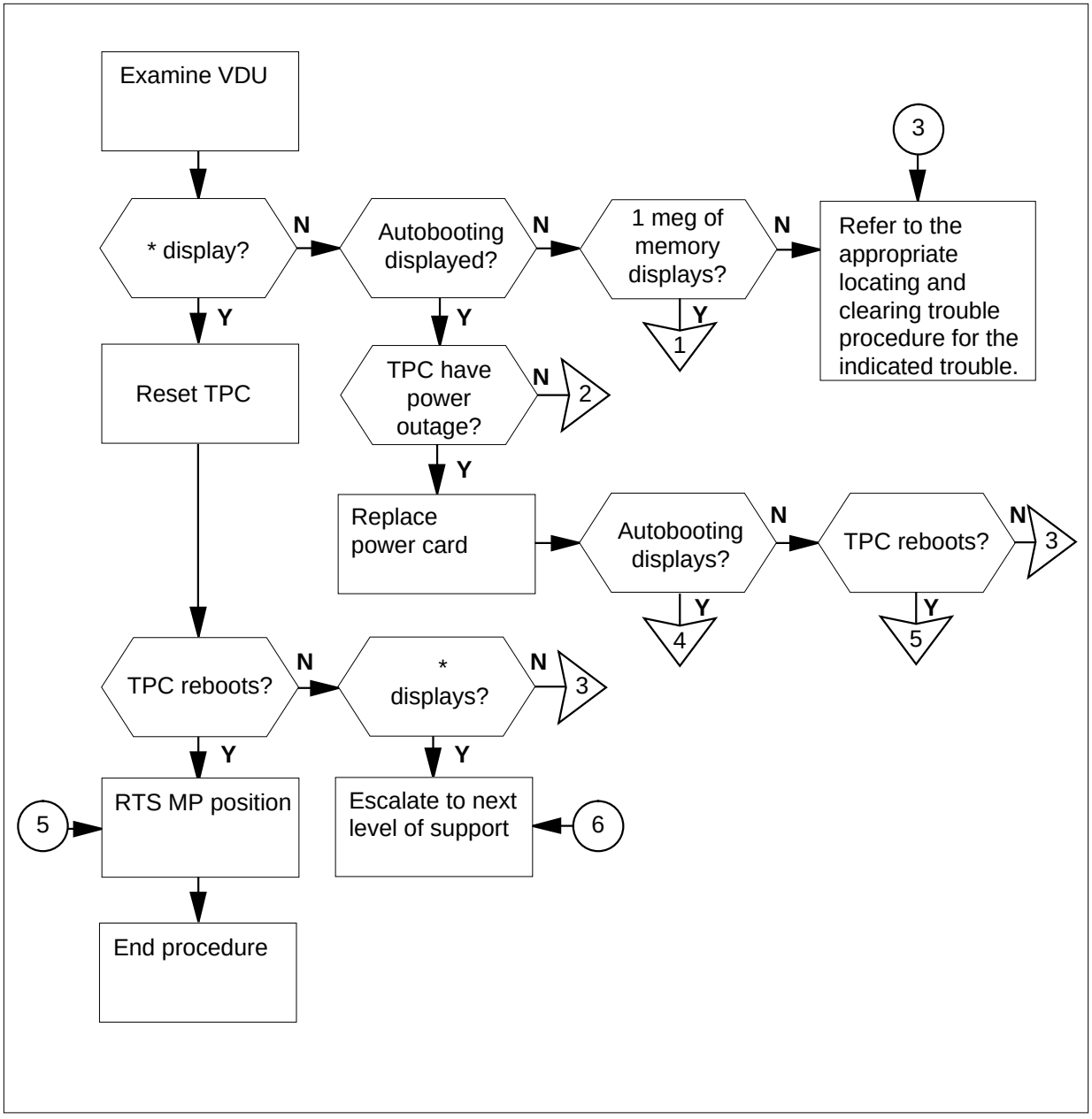
- Placing an MP position in service (standalone)
- Removing an MP position from service (standalone)

Action

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

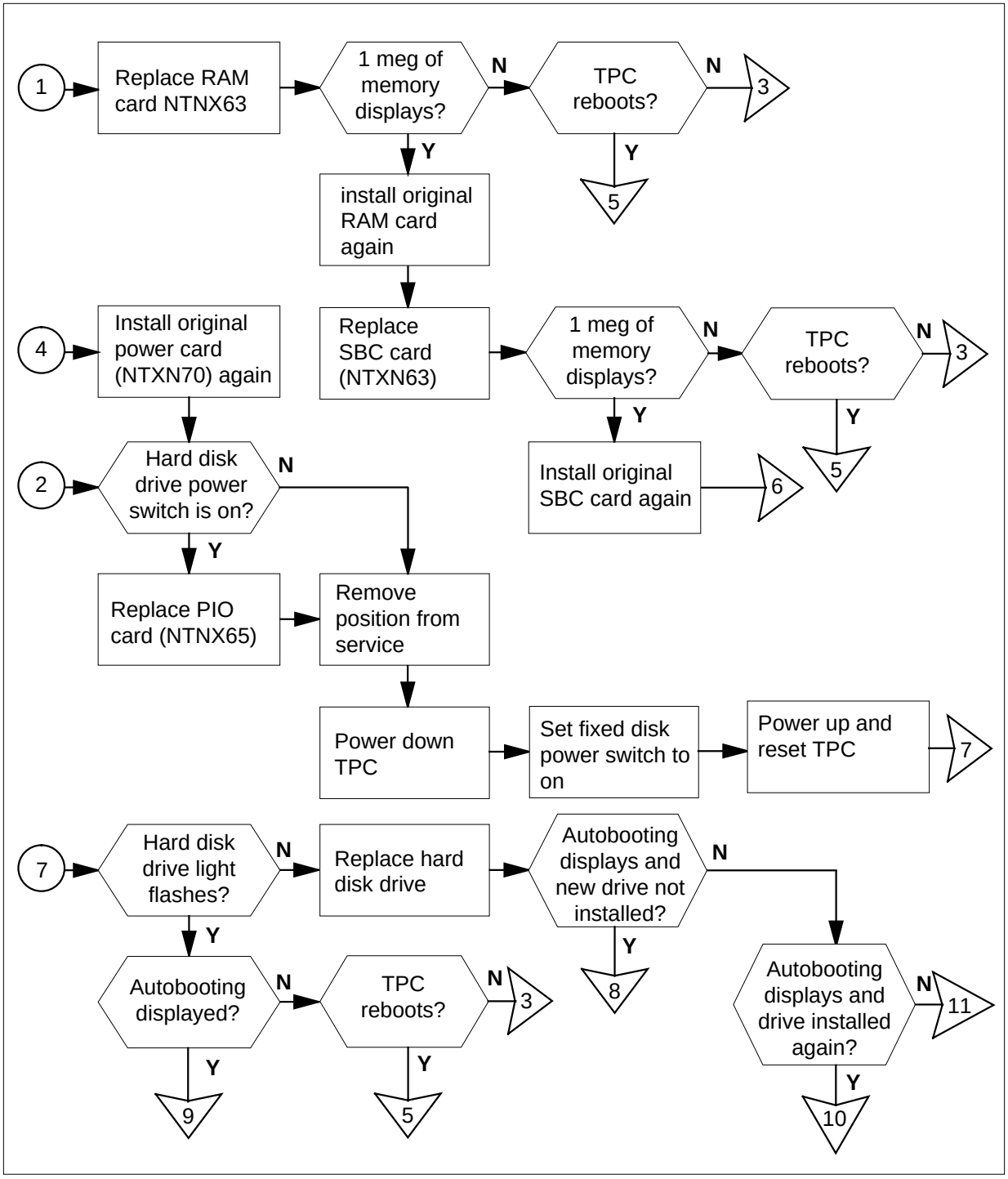
TOPS MP Operator complaint (standalone)
Clearing position failure - cannot reboot TPC (continued)

Summary of Clearing position failure - cannot reboot TPC



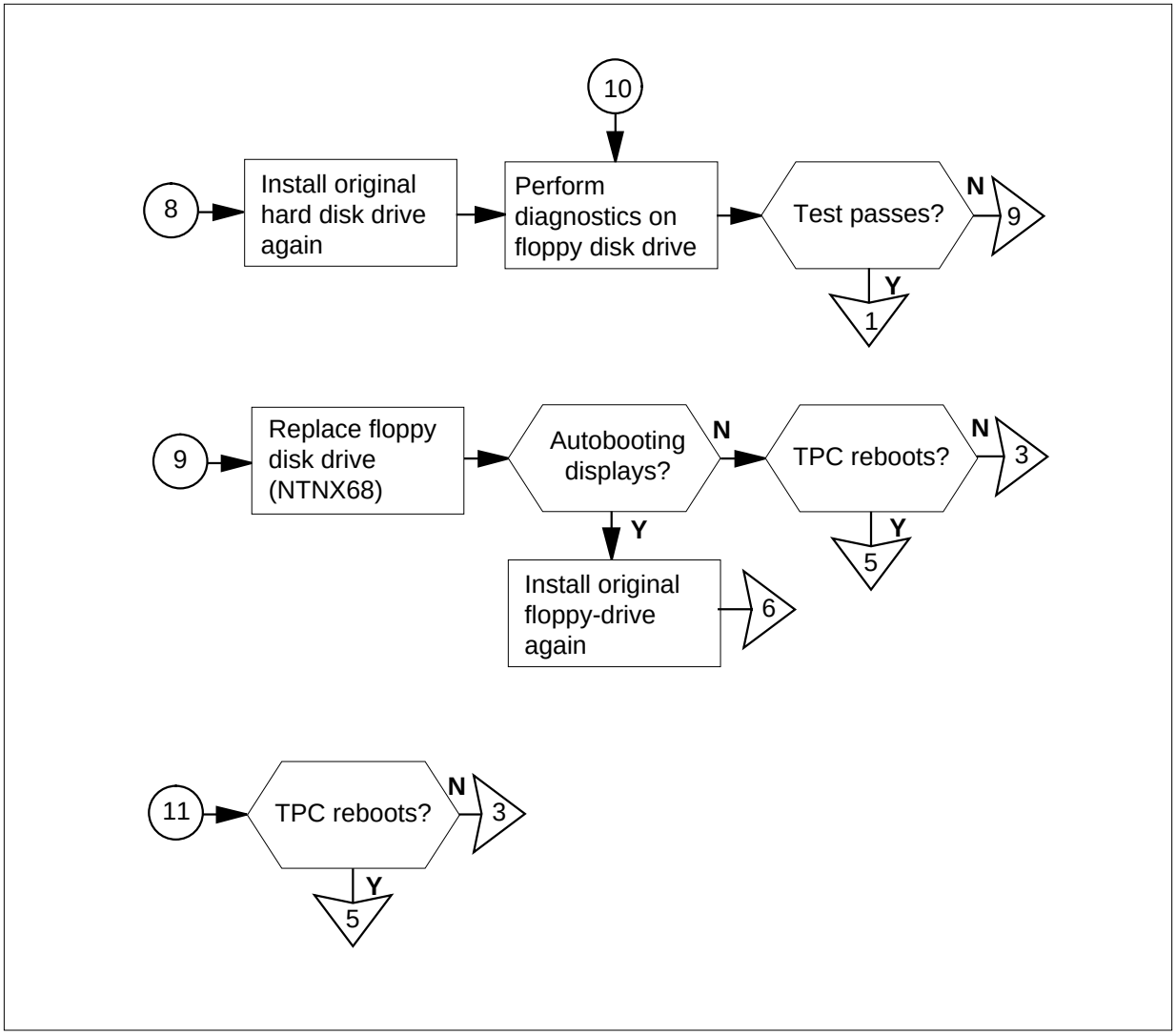
TOPS MP Operator complaint (standalone)
Clearing position failure - cannot reboot TPC (continued)

Summary of Clearing position failure - cannot reboot TPC (continued)



TOPS MP Operator complaint (standalone)
Clearing position failure - cannot reboot TPC (continued)

Summary of Clearing position failure - cannot reboot TPC (continued)



Clearing position failure - cannot reboot TPC

At the affected MP position

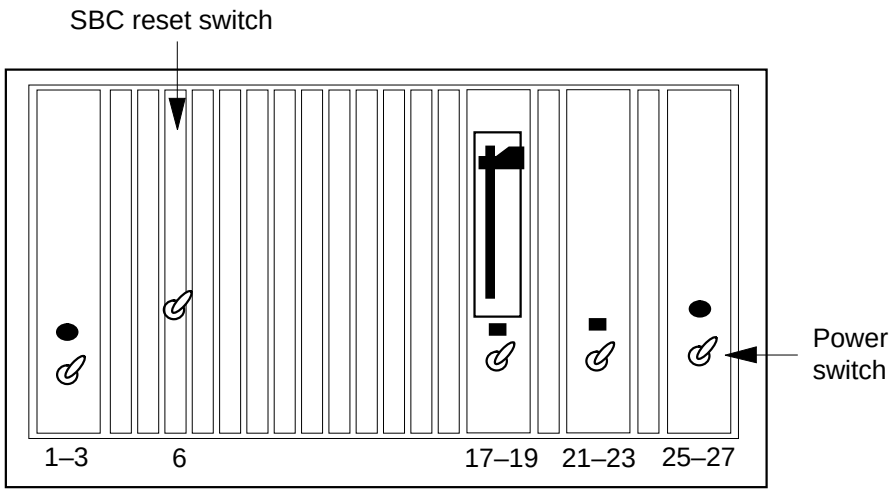
1 Determine the error message that appears on the MP VDU.

If the error message is	Do
an asterisk (*)	step 2
autobooting...	step 3

TOPS MP Operator complaint (standalone)
Clearing position failure - cannot reboot TPC (continued)

If the error message is	Do
1 meg of memory	step 20
any other message	Refer to the correct locating and clear trouble procedure for the indicated trouble.

2 To set the TPC again, lower and lift the single-board computer (SBC) reset switch.

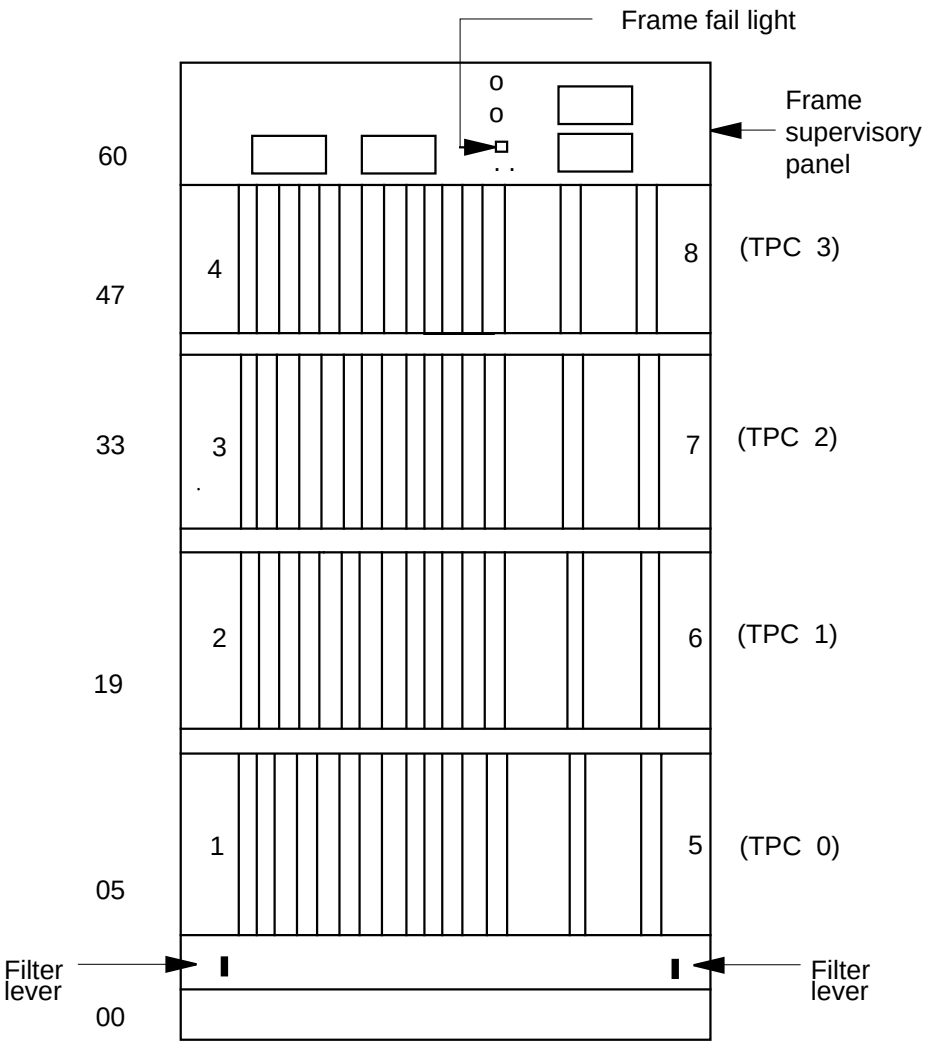


Disk drives and switch locations on the TPC

If	Do
the TPC reboots	step 25
the VDU displays an asterisk (*)	step 24
the VDU displays any other message	Refer to the correct locating and clear trouble procedure for the indicated trouble.

3 To determine if the TPC has a power outage, check the frame fail light on the frame supervisory panel (FSP).

TOPS MP Operator complaint (standalone)
Clearing position failure - cannot reboot TPC (continued)



If a power outage	Do
occurs	step 4
does not occur	step 6

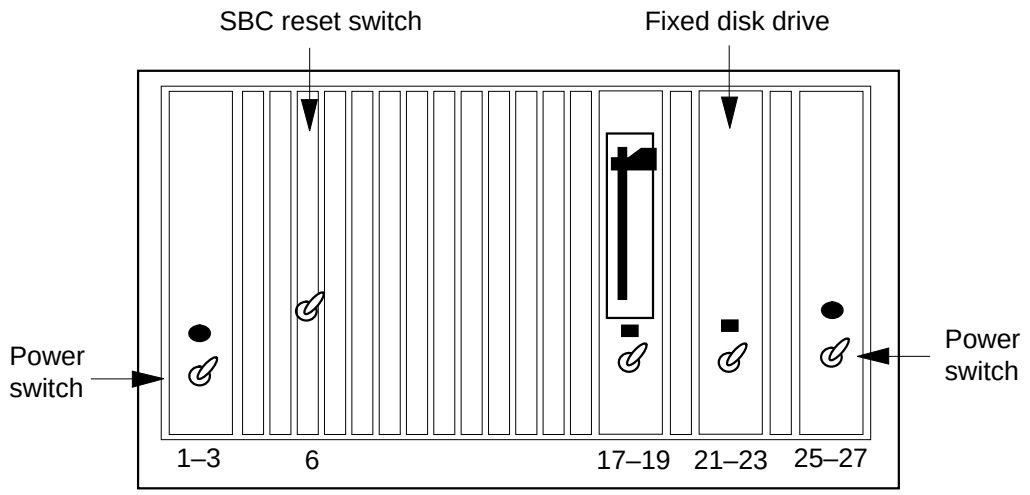
TOPS MP Operator complaint (standalone)
Clearing position failure - cannot reboot TPC (continued)

4 Replace the power card in slot 25. Refer to *Card Replacement Procedures* and return to this step.

If	Do
autobooting... continues to appear	step 5
the TPC reboots	step 25
any other message appears	Refer to the correct locating and clear trouble procedure for the indicated trouble.

5 Replace the new power card with the power card removed in step 4. Refer to *Card Replacement Procedures* and return to step 6.

6 Determine if the hard disk drive is on.



Disk drives and switch locations on the TPC

If the hard disk drive power switch is	Do
set to the on position	step 7
set to the off position	step 9

TOPS MP Operator complaint (standalone) Clearing position failure - cannot reboot TPC (continued)

7 Replace the PIO card. Refer to *Card Replacement Procedures* and return to step 8.

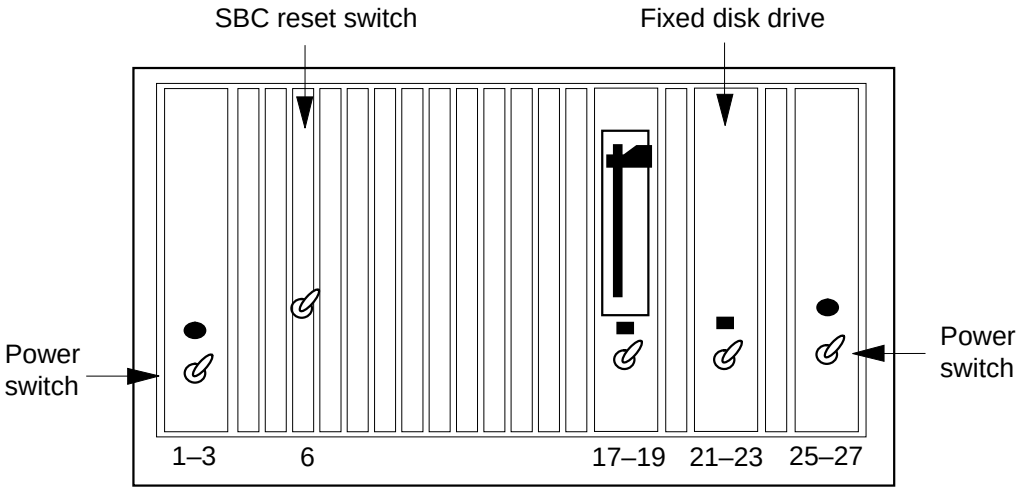
8 Perform the common procedure *Removing an MP position from service (standalone)*.

Note: Remove all MP positions for the TPC from service.

9

WARNING
Equipment damage
Turn off power to the TPC when you replace cards in the TPC. If you do not turn power off, equipment damage can occur.

To power down the TPC, turn the switches on the power converters in slots 1-3 and slots 25-27 to the down position.



Disk drives and switch locations on the TPC

10 Set the hard disk drive power switch in slots 21-23 to the up (on) position.

11 To power up the TPC, turn the switches on the power converters in slots 1-3 and slots 25-27 to the up position.

12 To set the TPC again, lower and lift the SBC reset switch in slot 6.

TOPS MP Operator complaint (standalone)
Clearing position failure - cannot reboot TPC (continued)

13 Determine if the hard disk drive light flashes.

If the hard disk drive light	Do
flashes	step 14
does not flash	step 15

14 Examine the VDU display.

If	Do
autobooting... continues to appear	step 18
the TPC reboots	step 25
any other message appears	Refer to the correct locating and clearing trouble procedure for the indicated trouble.

15 Replace the hard disk drive. Refer to *Card Replacement Procedures* and return to this step.

If	Do
autobooting... continues to appear	step 16
autobooting... continues to appear and the original hard disk drive is installed again	step 17
the TPC reboots	step 25
any other message appears	Refer to the correct locating and clearing trouble procedure for the indicated trouble.

16 Replace the new hard disk drive with the original hard disk drive removed in step 15. Refer to *Card Replacement Procedures* and return to step 18.

TOPS MP Operator complaint (standalone) Clearing position failure - cannot reboot TPC (continued)

At the TAMI

17 To perform diagnostics on the floppy disk drive, type:

```
>FDISK DIAG
```

and press the Enter key.

Note: Place a floppy diskette in the floppy disk drive before you enter the FDISK command.

If the test	Do
passes	step 20
fails	step 18

18 Replace the floppy disk drive (NTNX68). Refer to *Card Replacement Procedures* and return to this step.

If	Do
autobooting... continues to appear	step 19
the TPC reboots	step 25
any other message appears	Refer to the correct locating and clearing trouble procedure for the indicated trouble.

19 Replace the new floppy disk drive with the original floppy disk drive removed in step 18. Refer to *Card Replacement Procedures* and go to step 24.

20 Replace the RAM card in slot 5. Refer to *Card Replacement Procedures* and return to this step.

If	Do
1 meg of memory continues to appear	step 21
the TPC reboots	step 25
any other message appears	Refer to the correct locating and clearing trouble procedure for the indicated trouble.

21 Replace the new RAM card with the original RAM card removed in step 20. Refer to *Card Replacement Procedures* and return to step 22.

TOPS MP Operator complaint (standalone)
Clearing position failure - cannot reboot TPC (end)

22 Replace the SBC card. Refer to *Card Replacement Procedures* and return to this procedure.

If	Do
1 meg of memory continues to appear	step 23
the TPC reboots	step 25
any other message appears	Refer to the correct locating and clearing trouble procedure for the indicated trouble.

23 Replace the new SBC card with the original SBC card removed in step 22. Refer to *Card Replacement Procedures* and go to step 24.

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

25 Perform the procedure *Placing MP position in service (standalone)*.

26 This procedure is complete.

TOPS MP Operator complaint (standalone) Clearing position failure - cannot RTS position

Application

Use this procedure to clear Traffic Operator Position System (TOPS) Multipurpose (MP) position Return to Service (RTS) trouble.

Definition

Submit TOPS MP RTS trouble when the Tops Position Controller (TPC) is booted and the MP position fails to RTS. The Position Status/Control menu displays the MP position status as system busy (Sysb) or initializing MP appears.

Common procedures

Refer to the following common procedures:

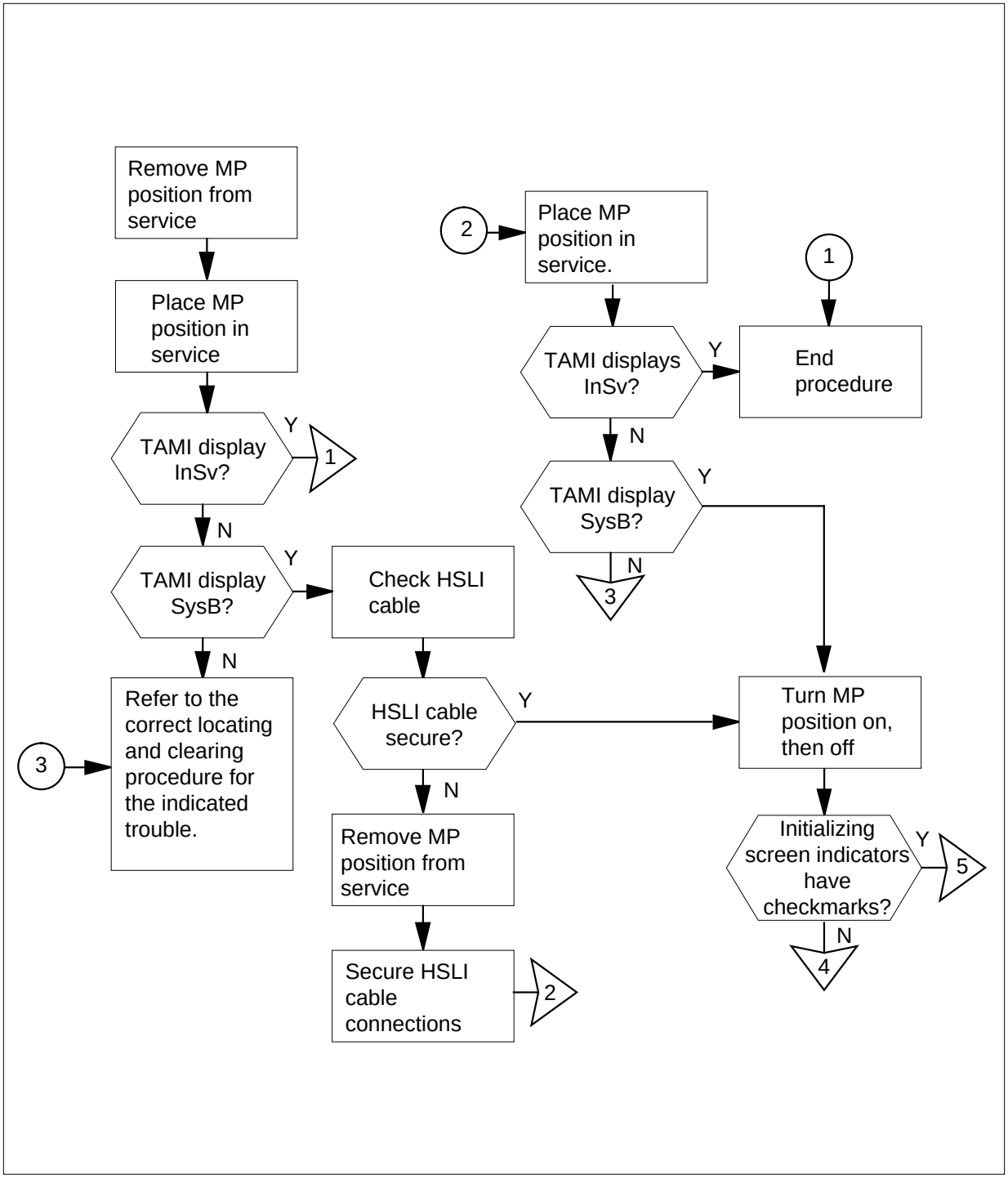
- Placing an MP position in service (standalone)
- Removing an MP position from service (standalone)

Action

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

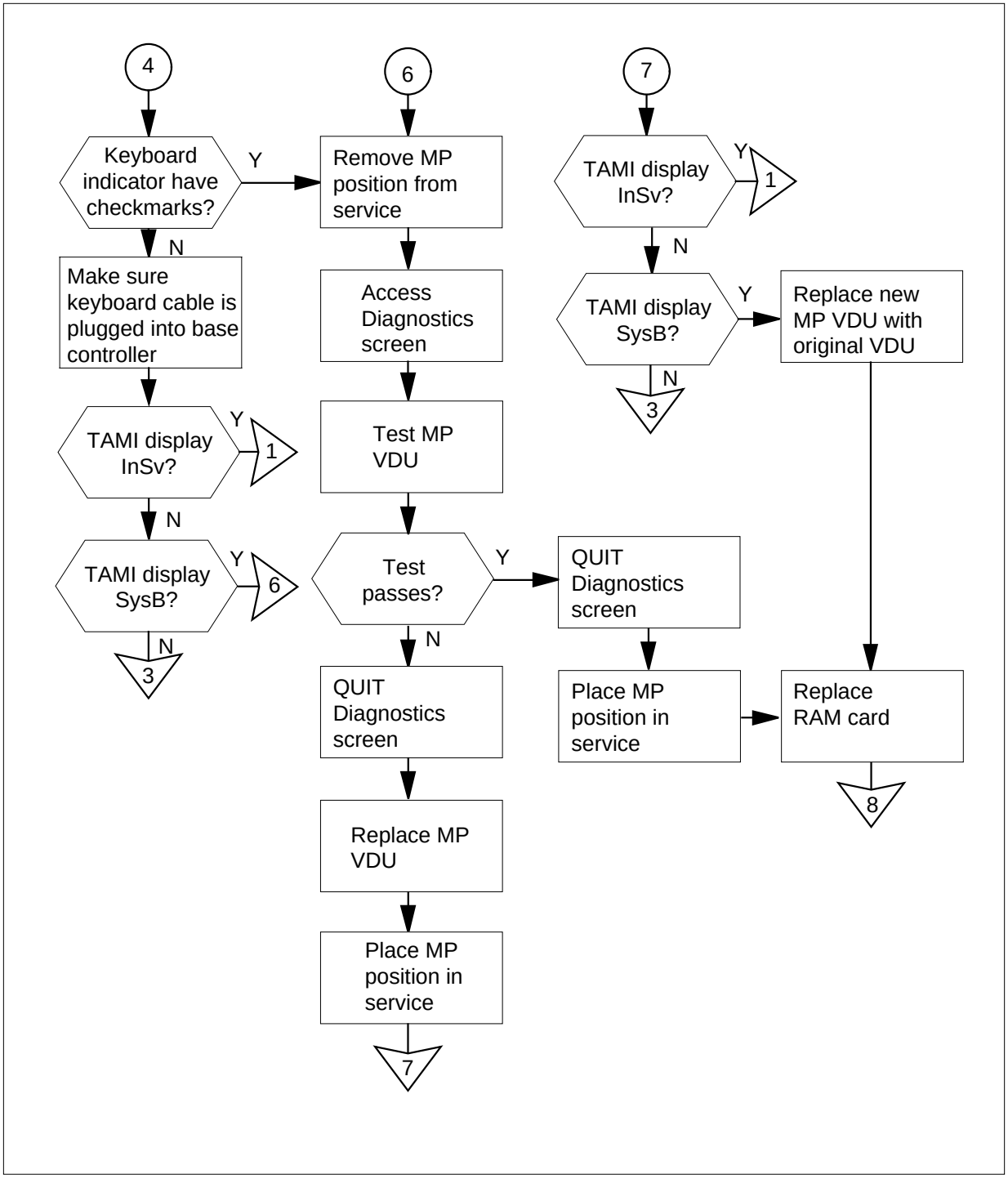
TOPS MP Operator complaint (standalone)
Clearing position failure - cannot RTS position (continued)

Summary of Clearing position failure - cannot RTS position



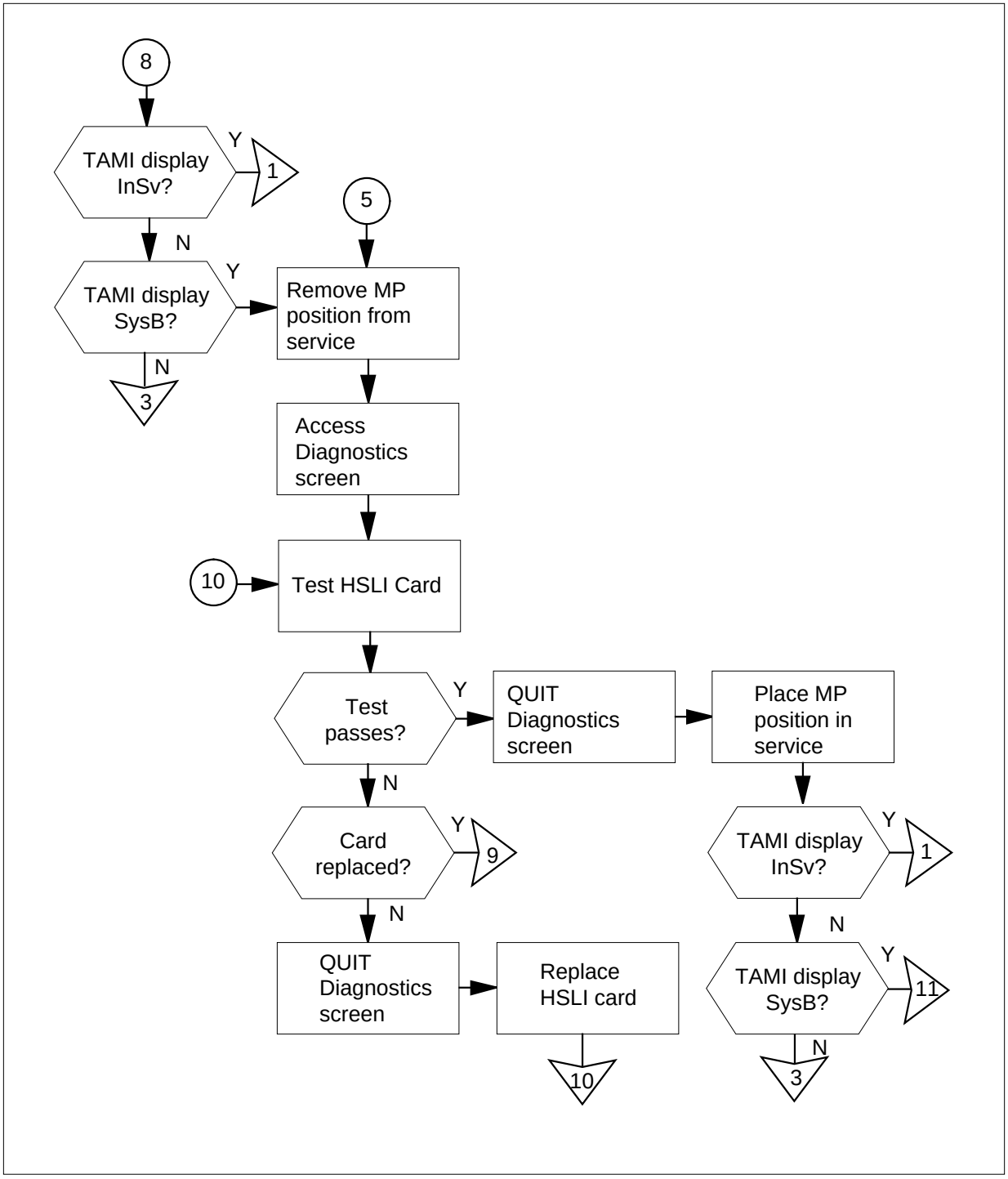
TOPS MP Operator complaint (standalone)
Clearing position failure - cannot RTS position (continued)

Summary of Clearing position failure - cannot RTS position (continued)



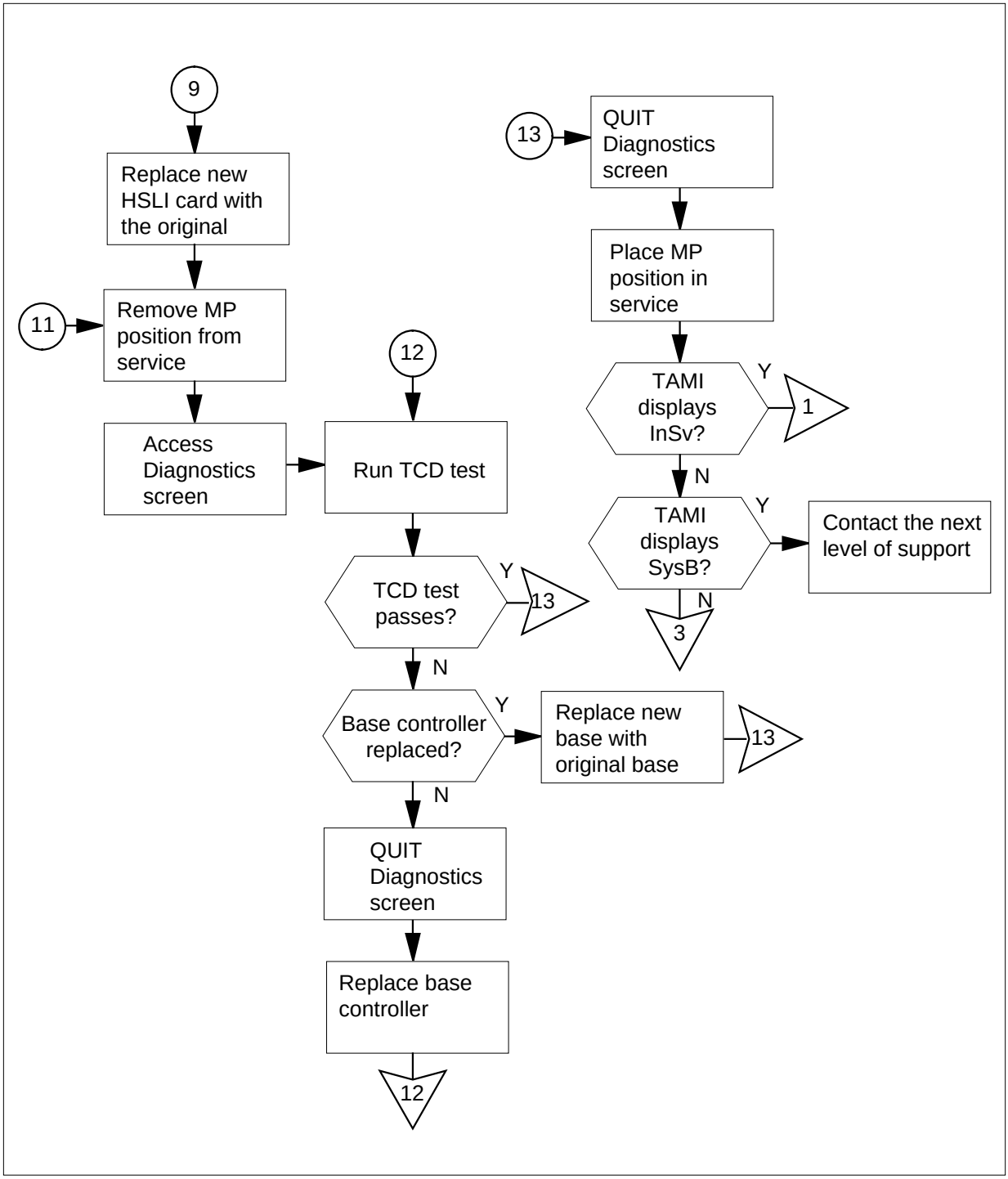
TOPS MP Operator complaint (standalone)
Clearing position failure - cannot RTS position (continued)

Summary of Clearing position failure - cannot RTS position (continued)



TOPS MP Operator complaint (standalone)
Clearing position failure - cannot RTS position (continued)

Summary of Clearing position failure - cannot RTS position (continued)



TOPS MP Operator complaint (standalone)
Clearing position failure - cannot RTS position (continued)

Clearing position failure - cannot RTS position

At your current position

1 Perform the common procedure *Removing an MP position from service (standalone)*.

2 Perform the common procedure *Placing an MP position in service (standalone)*.

At the TAMI

3 Examine the Position Status/Control menu.

If the VDU displays	Do
InSv	step 45
SysB	step4
any other message	Refer to the correct locating and clearing trouble procedure for the indicated trouble.

At the affected MP position

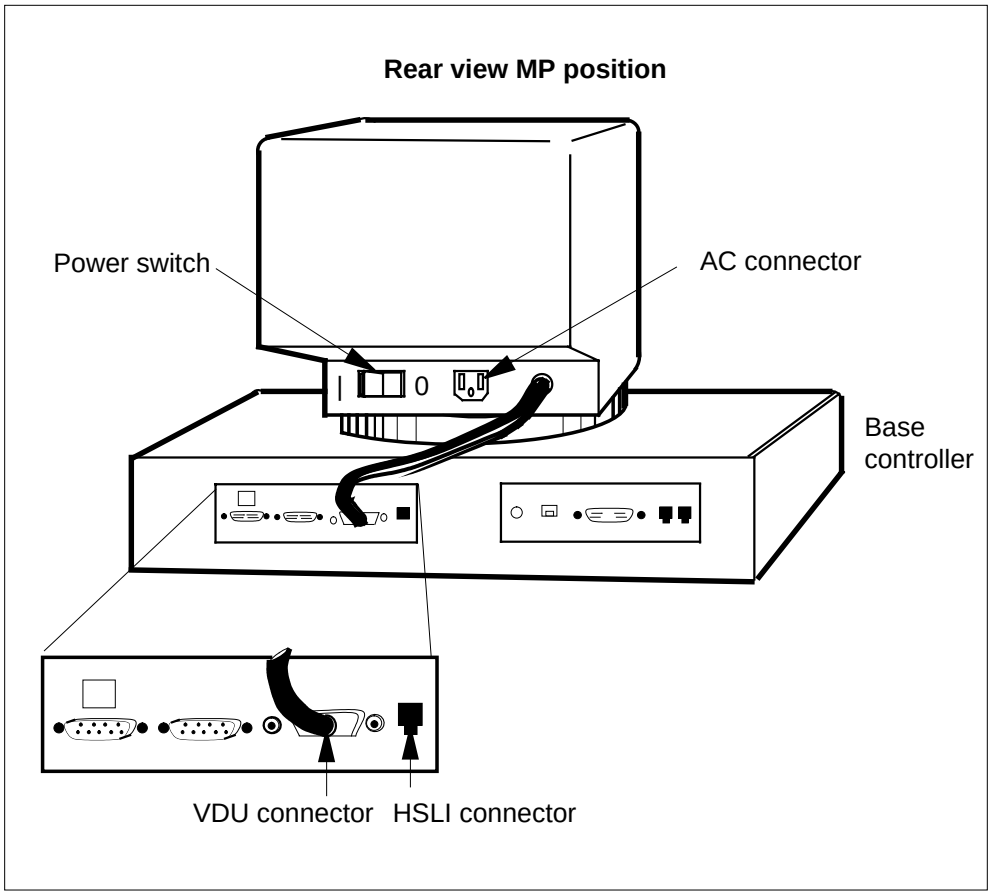
4 Check the HSLI cable. Make sure that the HSL cable is secure.

If the HSLI cable connections are	Do
secure	step 9
not secure	step 5

5 Perform the common procedure *Removing an MP position from service (standalone)*.

6 Secure the HSLI cable connections on the MP position, BIX box, and TPC.

TOPS MP Operator complaint (standalone)
Clearing position failure - cannot RTS position (continued)



7 Perform the common procedure *Placing an MP position in service (standalone)*.

At the TAMI

8 Check the Position Status/Control menu.

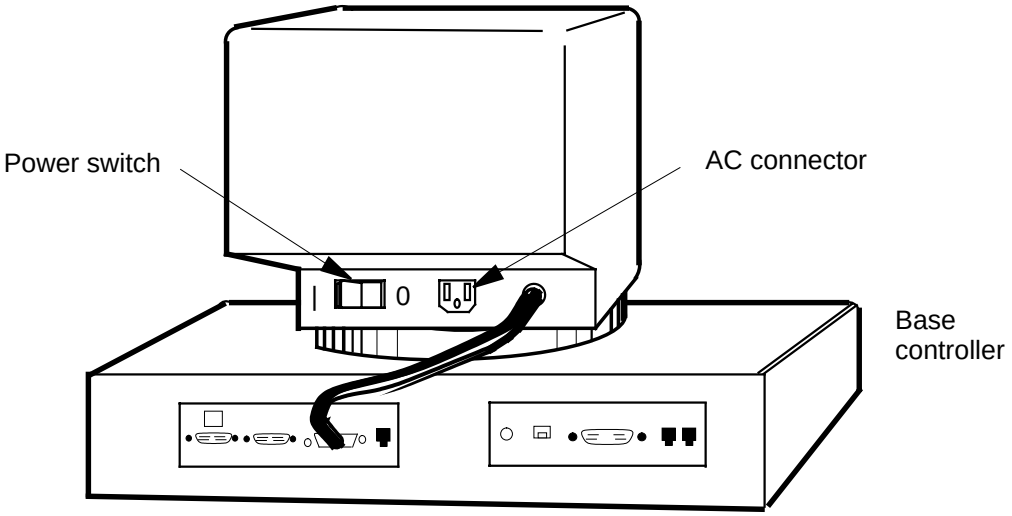
If the VDU displays	Do
InSv	step 45
SysB	step 9
any other message	Refer to the correct locate and clear trouble procedure for the indicated trouble.

TOPS MP Operator complaint (standalone)
Clearing position failure - cannot RTS position (continued)

At the affected MP position

9 To turn the MP position on and off, move the power switch on the MP VDU. Move the power switch on the MP VDU to the off (0) position and then to the on (|) position. Refer to the figure below.

Rear view MP position



10 Check the four icon indicators on the initializing screen of the MP VDU.

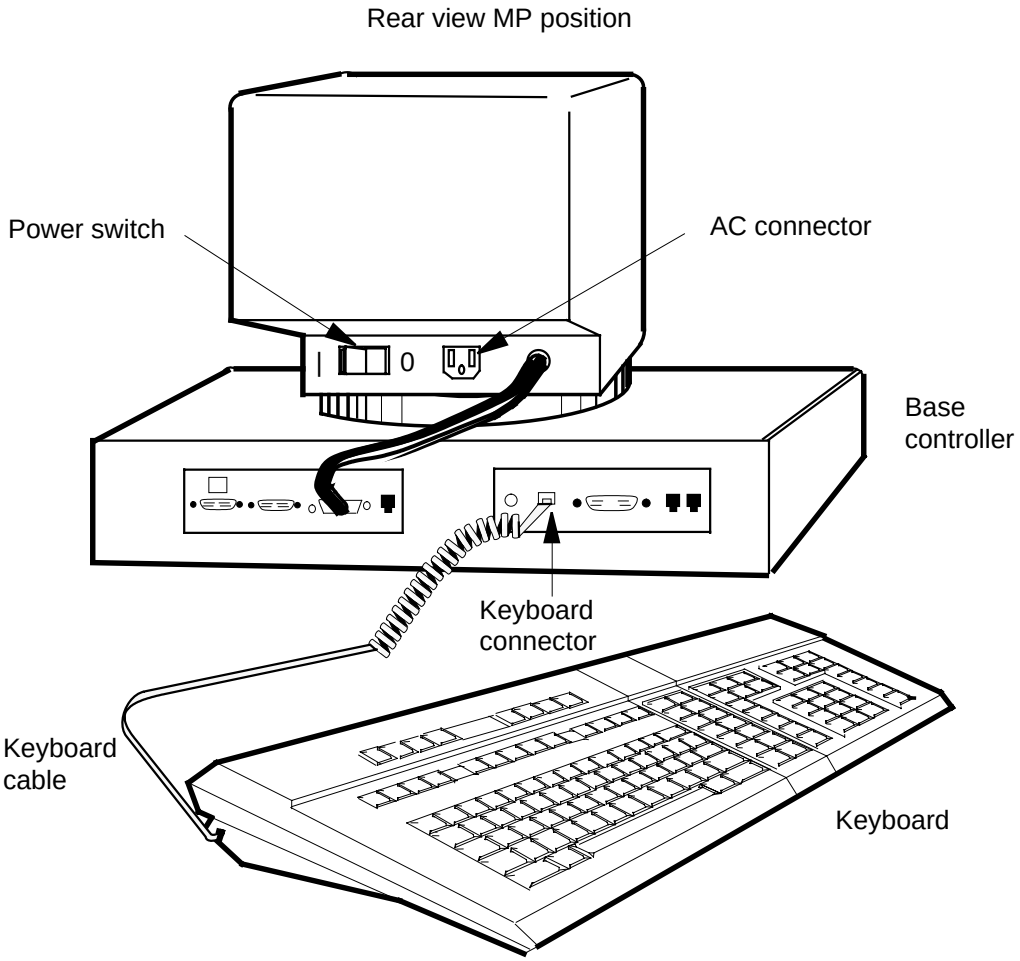
If initializing screen indicators	Do
have checkmarks ( )	step 26
are not correct	step 11

11 Check the keyboard indicator.

If the keyboard indicator is	Do
a checkmark ( )	step 14
not a checkmark	step 12

12 Make sure the keyboard cable plugs in the base controller.

TOPS MP Operator complaint (standalone)
Clearing position failure - cannot RTS position (continued)



At the TAMI

13 Examine the Position Status/Control menu.

If the VDU displays	Do
InSv	step 45
SysB	step 14

TOPS MP Operator complaint (standalone)
Clearing position failure - cannot RTS position (continued)

If the VDU displays	Do
any other message	Refer to the correct locating and clearing trouble procedure for the indicated trouble.

14 Perform the common procedure *Removing an MP position from service (standalone)*.

15 To access the Diagnostic screen from the TAMI main menu, type:

>5

and press the Enter key.

Example of a TAMI response

```
Enter TPC Diagnostics command:
```

16 To test the MP position VDU, type:

>POSDIAG n SCREEN

and press the Enter key.

where:

n
is the MP position number (0, 1, 2, or 3)

If screen diagnostics test	Do
passes	step 22
fails	step 17

17 To exit the Diagnostics screen, type:

>QUIT

and press the Enter key.

At the affected MP position

18 Replace the MP VDU. Go to *Card Replacement Procedures* and return to the next step.

19 Perform the common procedure *Placing an MP position in service (standalone)*.

TOPS MP Operator complaint (standalone) Clearing position failure - cannot RTS position (continued)

At the TAMI

20 Check the Position Status/Control menu.

If the VDU displays	Do
InSv	step 45
SysB with new MP VDU	step 21
any other message	Refer to the correct clearing and locating trouble procedure for the indicated trouble.

At the affected MP position

21 Replace the new MP VDU with the original MP VDU removed in step 18. Go to *Card Replacement Procedures* and return to step 24.

At the TAMI

22 To exit the Diagnostics screen, type:

>QUIT

and press the Enter key.

23 Perform the common procedure *Placing an MP position in service (standalone)*.

At the TPC

24 Replace the RAM card in slot 7. Go to *Card Replacement Procedures* and return to the next step.

At the TAMI

25 Check the Position Status/Control menu.

If the VDU displays	Do
InSv	step 45
SysB	step 26
any other message	Refer to the correct locating and clearing trouble procedure for the indicated trouble.

26 Perform the common procedure *Removing an MP position from service (standalone)*.

27 Press the PF3 key to exit the Position Status/Control menu and enter the TAMI main menu. To access the Diagnostics screen, type:

>5

TOPS MP Operator complaint (standalone)
Clearing position failure - cannot RTS position (continued)

and press the Enter key.

Example of a TAMI response

```
Enter TPC Diagnostics command:
```

28 To test the HSLI card, type:

>POSDIAG n CARD

and press the Enter key.

where:

n
is the card position on the TPC (0, 1, 2, or 3)

Example of a TAMI response

```
Performing CBT Port Register Test...
Performing CC Port Register Test...
Performing CBT Port Internal Loopback Test...
Performing CC Port Internal Loopback Test...
Performing HSLI Port Register Test...
Performing HSLI Port Ram Test...
```

If card diagnostics test	Do
passes	step 31
fails	step 29
fails with HSLI card replaced	step 34

Note: You can select ManB positions only.

29 To exit the Diagnostics screen, type:

>QUIT

and press the Enter key.

30 Replace the HSLI card. Go to *Card Replacement Procedures* and return to step 28.

31 To exit the Diagnostics screen, type:

>QUIT

and press the Enter key.

32 Perform the common procedure *Placing an MP position in service (standalone)*.

TOPS MP Operator complaint (standalone) Clearing position failure - cannot RTS position (continued)

At the TAMI

33 Examine the Position Status/Control menu.

If the VDU displays	Do
InSv	step 45
SysB	step 35
any other message	Refer to the correct locating and clearing trouble procedure for the indicated trouble.

34 Replace the new HSLI card with the original HSLI card removed in step 30. Go to *Card Replacement Procedures*, and return to step 37.

35 Perform the common procedure *Removing an MP position from service (standalone)*.

36 To exit and the Position Status/Control menu and enter the TAMI main menu, press the PF3 key. To access the Diagnostics screen, type:

>5

and press the Enter key.

Example of a TAMI response

```
Enter TPC Diagnostics command:
```

37 To run the terminal controller diagnostics (TCD) test, type:

>POSDIAG n TCD

and press the Enter key.

where:

n
is the MP number on the TPC (0,1, 2, or 3)

Note: You can only select ManB positions.

TOPS MP Operator complaint (standalone)
Clearing position failure - cannot RTS position (continued)

Example of a TAMI response

```
Performing ROM position Component Diagnostic...
Performing CPU position Component Diagnostic...
Performing Exceptions position Component Diagnostic...
Performing RAM position Component Diagnostic...
Performing HSLI Port position Component Diagnostic...
Performing UART position Component Diagnostic...
Performing Keyboard position Component Diagnostic...
Performing Telephony position Component Diagnostic...
```

If TCD diagnostics test	Do
passes	step 41
fails	step 38
fails with base controller replaced	step 40

38 To exit the Diagnostics screen, type:

>QUIT

and press the Enter key.

39 Replace the base controller. Go to *Card Replacement Procedures* and return step 37.

40 Replace the new base controller with the original base controller replaced in step 39. Go to *Card Replacement Procedures* and return to the next step.

41 To exit the Diagnostics screen, type:

>QUIT

and press the Enter key.

42 Perform the common procedure *Placing MP positions in service (standalone)*.

At the TAMI

43 Examine the Position Status/Control menu.

If the VDU displays	Do
InSv	step 45
SysB	step 44

TOPS MP Operator complaint (standalone) Clearing position failure - cannot RTS position (end)

If the VDU displays	Do
any other message	Refer to the correct locating and clearing trouble procedure for the indicated trouble.

44 For additional help, contact the next level of support.

45 This procedure is complete.

TOPS MP Operator complaint (standalone) Clearing screen trouble

Application

Use this procedure to repair Traffic Operator Position System (TOPS) Multipurpose (MP) screen trouble.

Definition

An operator submits TOPS MP screen trouble when the MP position screen is dark. Press the spacebar to make sure the screen saver is not on before use of this procedure.

Common procedures

Refer to the following common procedures:

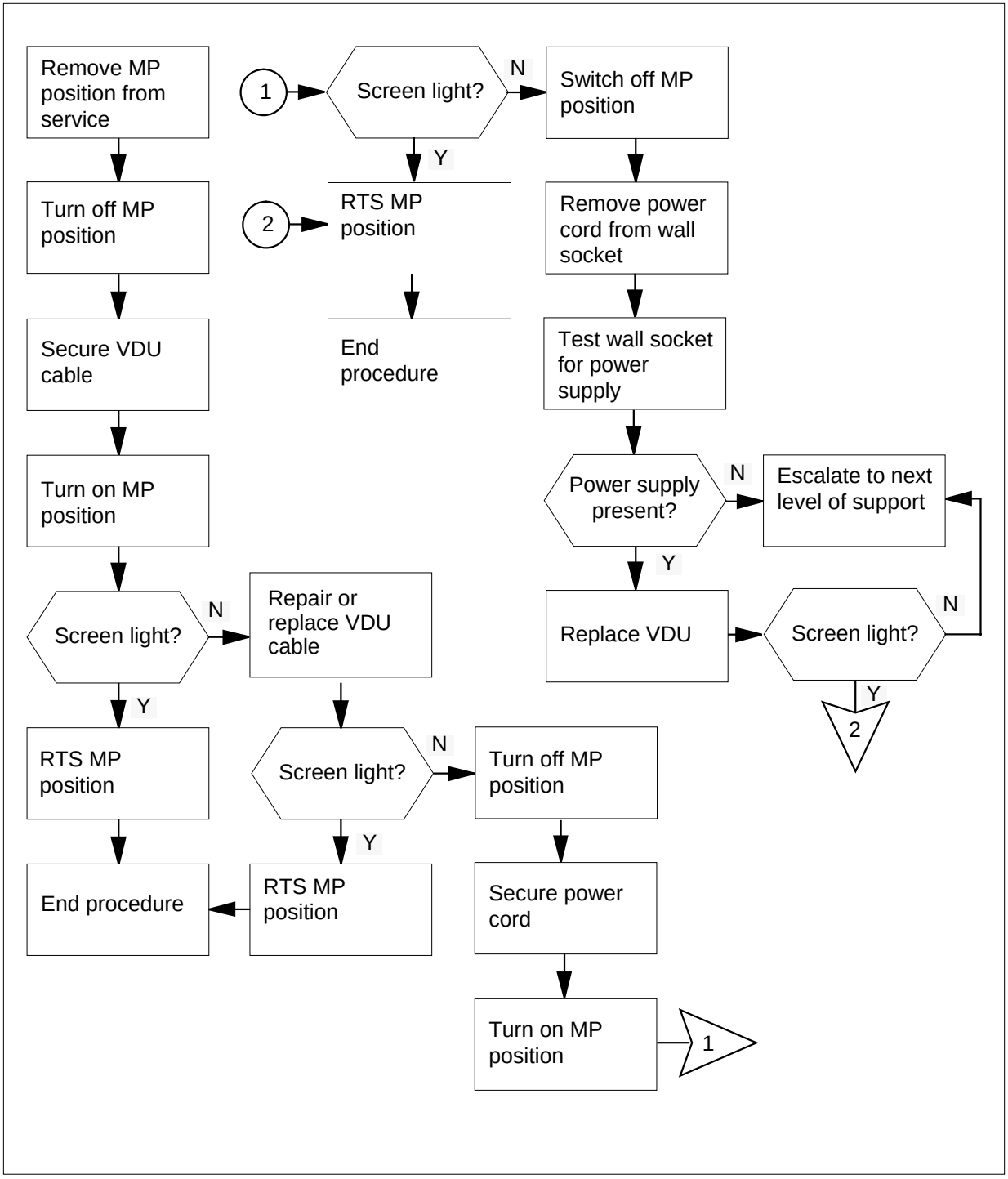
- Placing an MP position in service (standalone)
- Removing an MP position from service (standalone)

Action

This procedure contains a flowchart and a list of steps. Use this flowchart to review this procedure. Follow the steps to perform this procedure.

TOPS MP Operator complaint (standalone) Clearing screen trouble (continued)

Summary of clearing screen trouble TOPS MP Operator complaint (standalone)



TOPS MP Operator complaint (standalone)
Clearing screen trouble (continued)

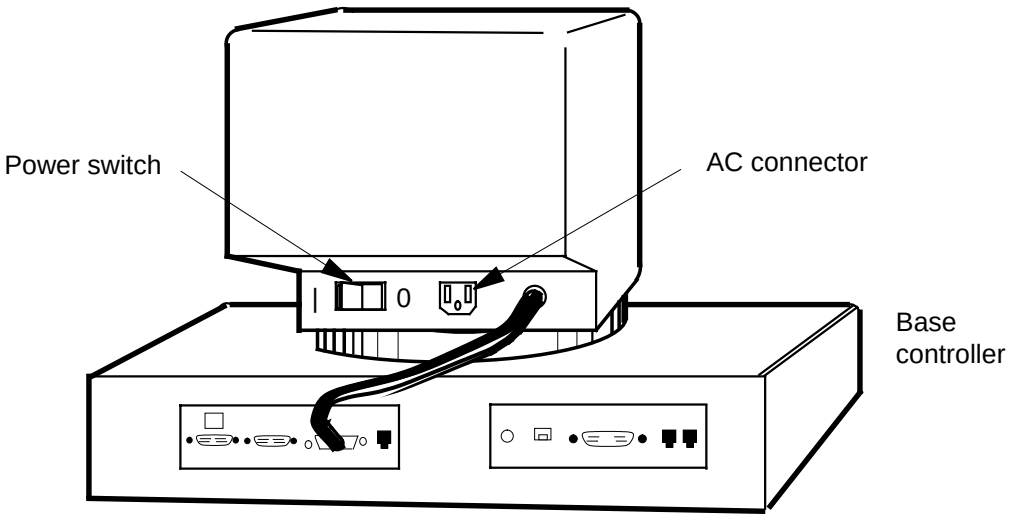
Clearing screen trouble TOPS MP Operator complaint (standalone)

At your current location

1 Perform the common procedure *Removing an MP position from service (standalone)*.

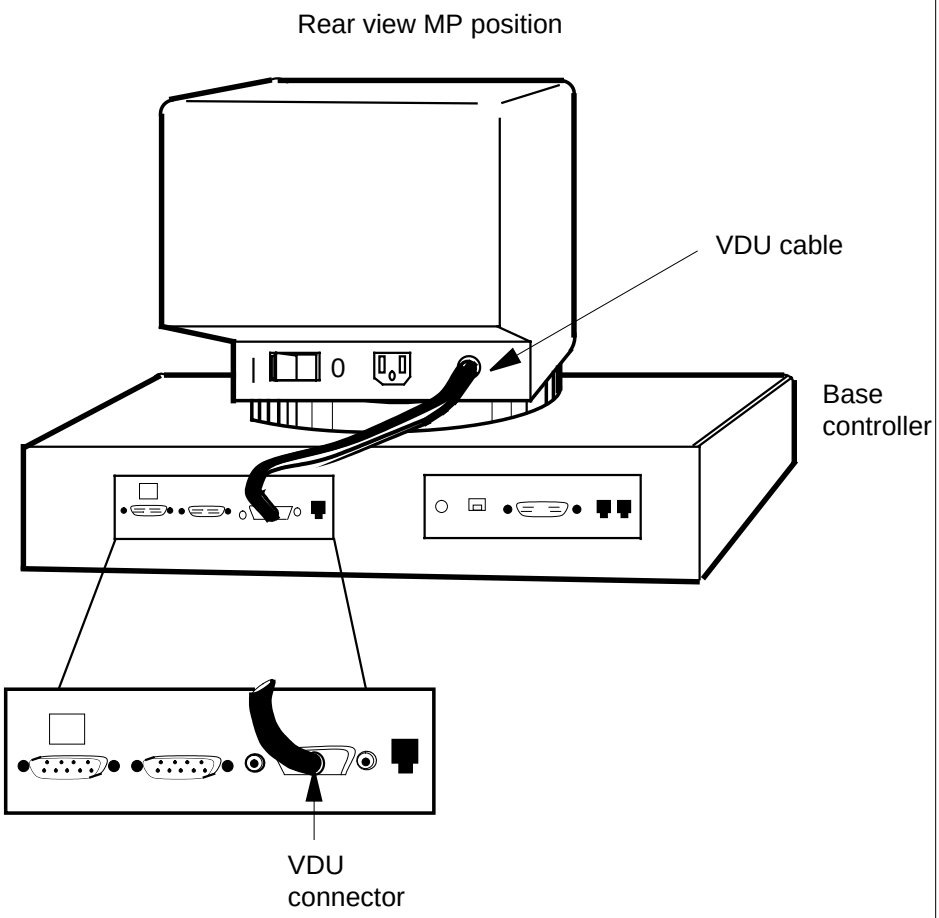
2 To turn off the MP position, move the power switch on the MP VDU to the off (0) position.

Rear view MP position



3 Secure the MP VDU cable to the base controller.

TOPS MP Operator complaint (standalone)
Clearing screen trouble (continued)



4 To turn on the MP position, move the power switch on the MP VDU to the on (|) position. Refer to the figure in step 2.

If the VDU screen	Do
lights	step 14
stays dark	step 5

5 Repair or replace the MP VDU cable. Refer to the figure in step 3.

If the VDU screen	Do
lights	step 14

TOPS MP Operator complaint (standalone)
Clearing screen trouble (end)

If the VDU screen	Do
stays dark	step 6

6 Turn off the MP position.

7 Secure the MP VDU power cord to the AC connector. Refer to the figure in step 2.

8 Turn on the MP position.

If the VDU screen	Do
lights	step 14
stays dark	step 9

9 Turn off the MP position.

10 Remove the MP VDU power cord from the wall socket.

11 Test the wall socket for power supply.

If power is	Do
present	step 12
not present	step 13

12 Replace MP VDU. Refer to *Card Replacement Procedures* and return to this point.

If the VDU screen	Do
lights	step 14
stays dark	step 13

13 For additional help, contact the next level of support.

14 Perform the common procedure *Placing an MP position in service (standalone)*.

15 This procedure is complete.

TOPS MP Operator complaint (standalone) Clearing voice communication path trouble

Application

Use this procedure to clear Traffic Operator Position System (TOPS) Multipurpose (MP) voice communication path trouble.

Definition

An operator submits TOPS MP voice communication path trouble when the operator loses voice communication.

Common procedures

Refer to the following common procedures:

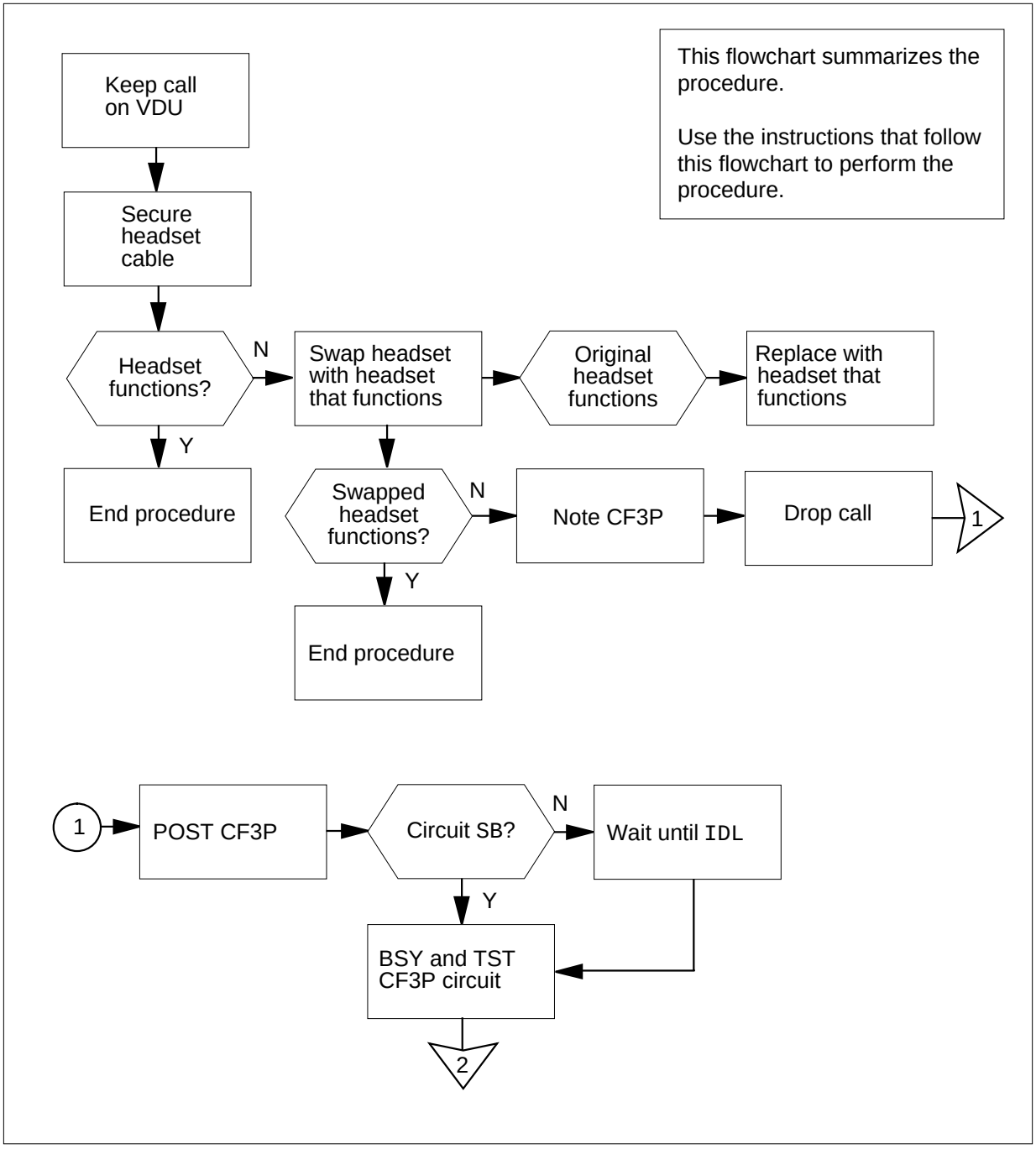
- Removing an MP position from service (standalone)
- Placing an MP position in service (standalone)

Action

This procedure contains a summary flowchart and a list of steps. Use the flowchart to review of the procedure. Follow the steps to perform the procedure.

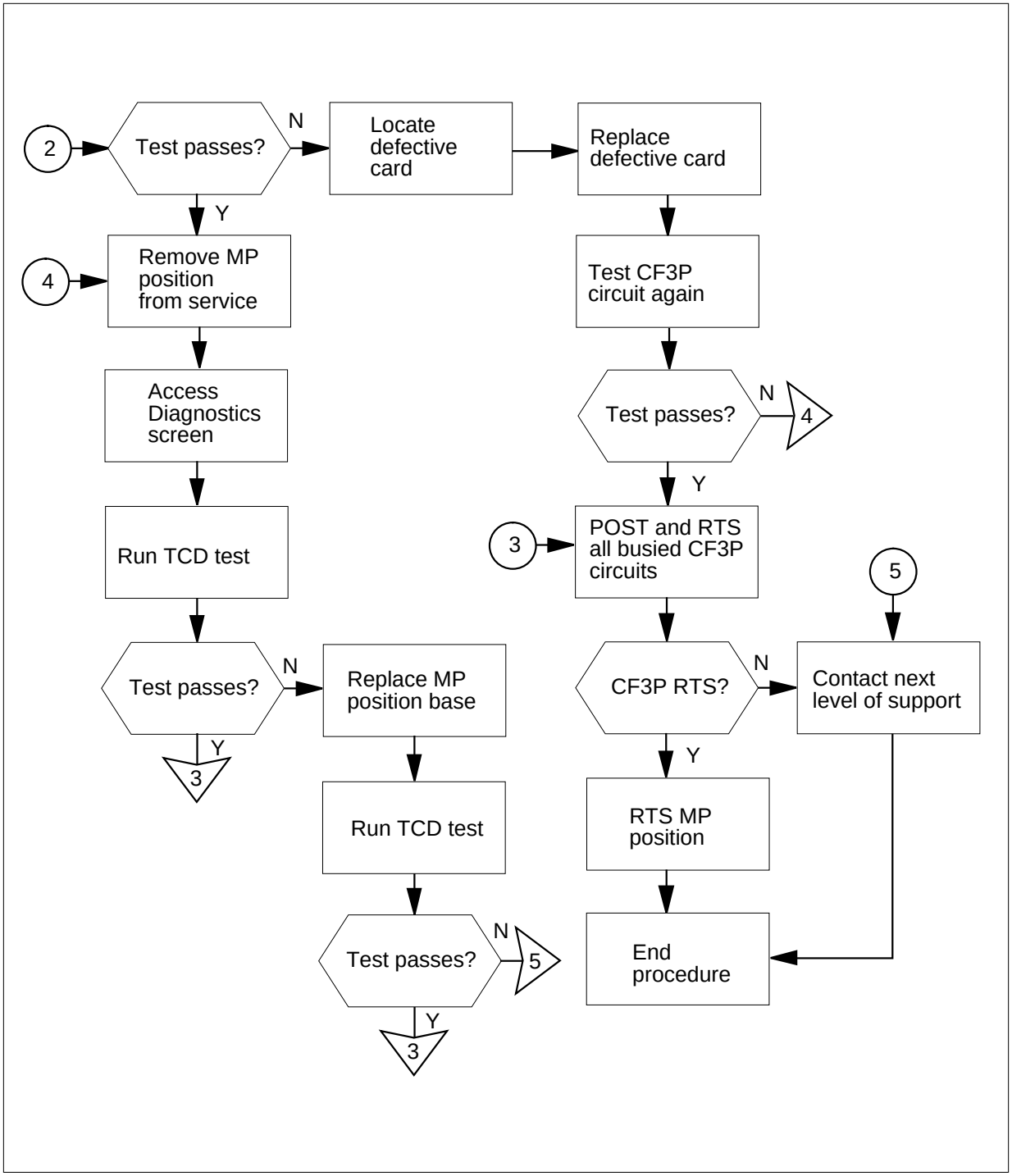
TOPS MP Operator complaint (standalone)
Clearing voice communication path trouble (continued)

Summary of Clearing voice communication path trouble



TOPS MP Operator complaint (standalone)
Clearing voice communication path trouble (continued)

Summary of Clearing voice communication path trouble (continued)



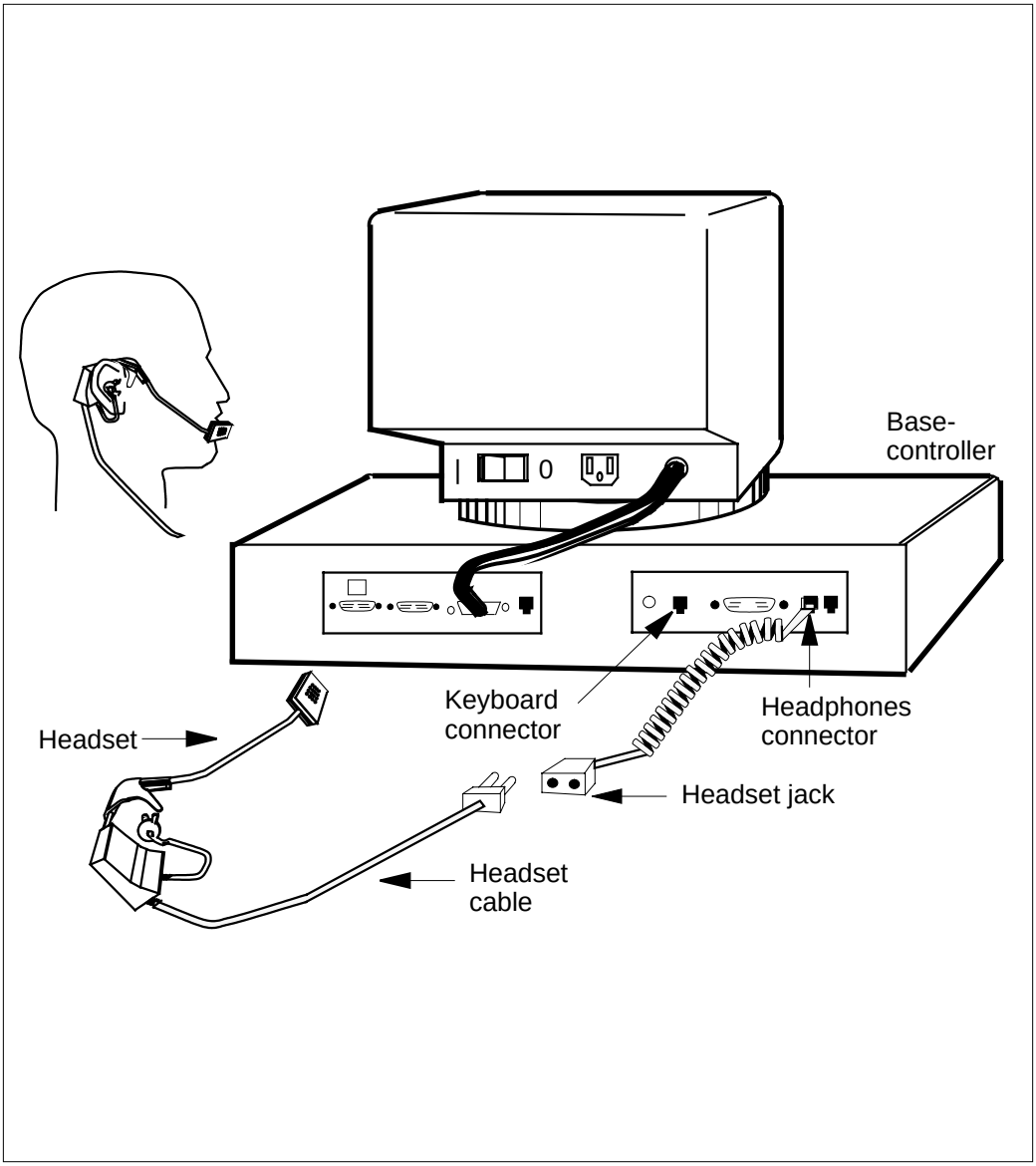
TOPS MP Operator complaint (standalone)
Clearing voice communication path trouble (continued)

Clearing voice communication path trouble

At the affected MP position

1 Keep the call on the VDU.

2 Secure the headset cable to the headset jack. Secure the headset jack to the headphones connector.



TOPS MP Operator complaint (standalone) Clearing voice communication path trouble (continued)

3 Determine if the headset functions.

If headset	Do
functions	step 20
does not function	step 4

4 Replace the headset with a headset that functions.

5 Determine if the headsets functions.

If the	Do
changed headset functions	step 20
changed headset does not function	step 6
original headset does not function at the other position	Replace with a headset that functions. Follow local procedure for defective equipment

At the MAP

6 To note the CF3P that the operator uses, type:

`>MAPCI;MTC;TRKS;TTP`

and press the Enter key.

`>POST G TOPSPOS nnn`

and press the Enter key.

where

nnn
is the position number

TOPS MP Operator complaint (standalone)
Clearing voice communication path trouble (continued)

Example of a MAP response

```
CM      MS     IOD     Net     PM     CCS     Lns     Trks     Ext    EIO
.       .       .       .      .       .       .        .       .      .

TTP
 0  Quit_ POST      DELQ           BUSYQ         DIG
 2  Post_ TTP  6-025
 3   Seize_    CKT TYPE   PM NO.     COM LANG  STA S R DOT TE     RESULT
 4             DESK     TM8  2 16    TOPSPOS      200  CPB    CF3P     1
 5  Bsy_                                                        |
 6  RTS_                                                        |
 7  Tst_                                                        |
 8                                                    CF3P number
 9  CktInfo_
10  CktLoc_
11  Hold_
12  Next_
13  Rls_
14  Ckt_
15  TrnslVf_
16  StkSdr_
17  Pads_
18  Level_
```

At the affected MP position

7 To drop the call, press the Pos RIs key.

At the MAP

8 To post the CF3P circuit, type:

`>POST G CF3P n`

and press the Enter key.

where

n
is the CF3P noted in the MAP display from step 6

TOPS MP Operator complaint (standalone) Clearing voice communication path trouble (continued)

Example of a MAP response

```
CM      MS     IOD     Net     PM     CCS     Lns     Trks     Ext    EIO
.       .       .       .      .       .       .        .       .      .

TTP
 0  Quit_ POST      DELQ           BUSYQ         DIG
 2  Post_ TTP  6-025
 3   Seize_    CKT TYPE   PM NO.         COM LANG      STA S R DOT TE RESULT
 4             CONF3    TM8   0  26   CF3P        1    CPB
 5  Bsy_                                          P_IDL
 6  RTS_
 7  Tst_
 8
 9  CktInfo_
10  CktLoc_
11  Hold_
12  Next_
13  Rls_
14  Ckt_
15  TrnslVf_
16  StkSdr_
17  Pads_
18  Level_
```

If the circuit is	Do
CPB	wait until IDL and go to step 9
SB	step 9

9 To busy and test the posted CF3P circuit, type:

>BSY

and press the Enter key.

>TST

and press the Enter key.

If test	Do
passes	step 13
fails	step 10

10 To locate the defective circuit card, type:

>CKTLOC

and press the Enter key.

TOPS MP Operator complaint (standalone)
Clearing voice communication path trouble (continued)

11 Replace the conference circuit card. Refer to *Card Replacement Procedures* and return to this step.

12 To test the posted CF3P circuit again, type:

>TST

and press the Enter key.

If test	Do
passes	step 17
fails	step 13

13 Perform the common procedure *Removing an MP position from service (standalone)*.

At the TAMI

14 To access the Diagnostics screen from the TAMI main menu, type:

>5

and press the Enter key.

Example of a TAMI response

```
Enter TPC Diagnostics command:
```

15 To run the position component diagnostics (TCD) test, type:

>POSDIAG n TCD

and press the Enter key.

where

n
is the MP position number (0,1, 2, or 3)

TOPS MP Operator complaint (standalone) Clearing voice communication path trouble (continued)

Example of a TAMI response

```
Performing ROM position Component Diagnostic...
Performing CPU position Component Diagnostic...
Performing Exceptions position Component Diagnostic...
Performing RAM position Component Diagnostic...
Performing HSLI Port position Component Diagnostic...
Performing UART position Component Diagnostic...
Performing Keyboard position Component Diagnostic...
Performing Telephony position Component Diagnostic...
```

If test	Do
passes	step 17
fails	step 16
fails with base controller replaced	step 18

At the affected MP position

16 Replace the base controller. Refer to *Card Replacement Procedures* and return to step 15.

At the MAP

17 To return the CF3P busied in step 9 to service, type:

>POST G CF3P n

and press the Enter key.

where

n
is the CF3P busied in step 9

>RTS

and press the Enter key.

If the CF3P	Do
returns to service	step 19
does not return to service	step 18

18 For additional help, contact the next level of support.

19 Perform the common procedure *Placing an MP position in service (standalone)*.

TOPS MP Operator complaint (standalone)
Clearing voice communication path trouble (end)

20 This procedure is complete.

TOPS MP Operator complaint (standalone/integrated) Clearing DA access trouble

Application

Use this Clearing directory assistance (DA) access trouble procedure to replace the high-speed data access (HSDA) card.

Definition

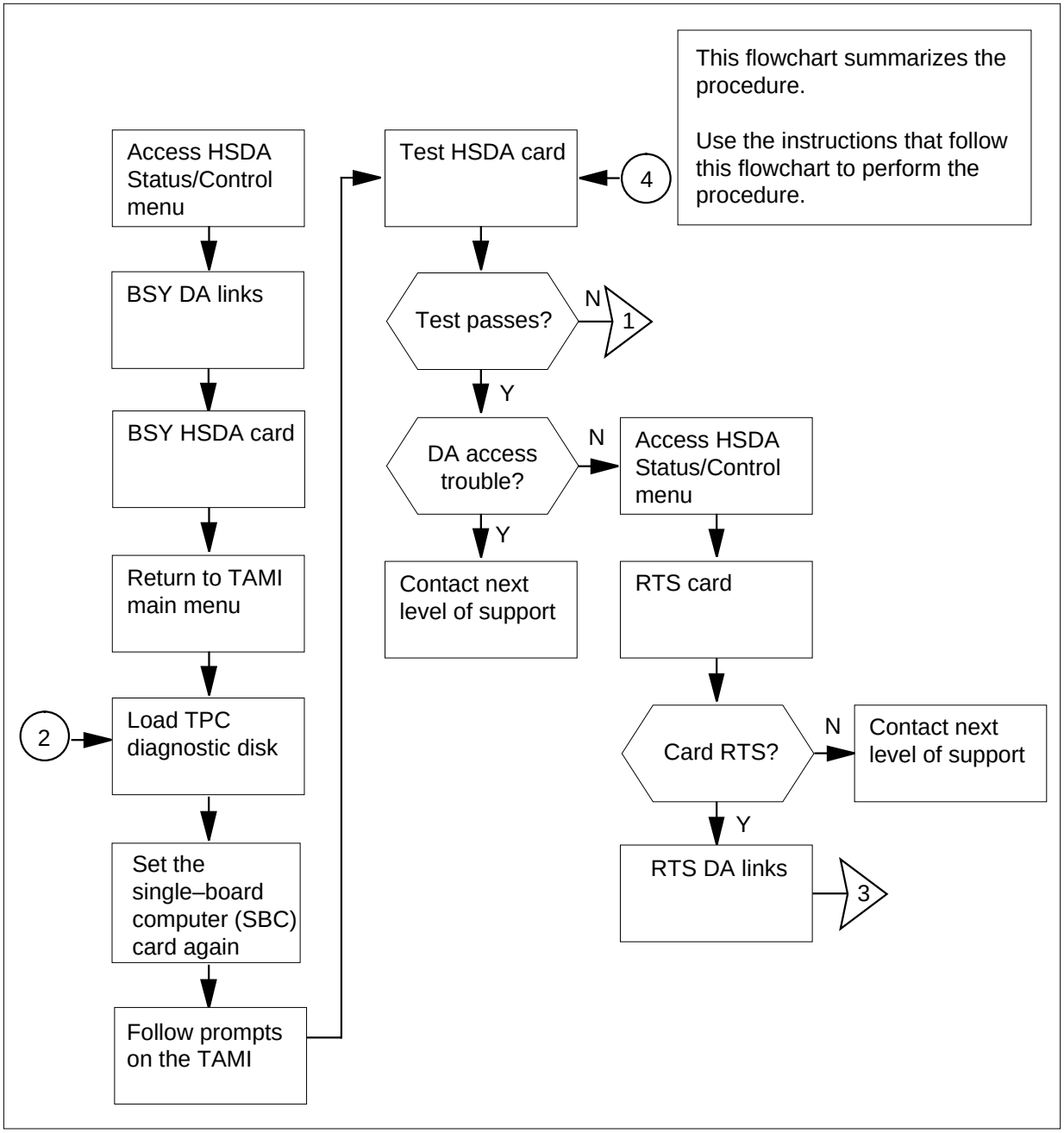
An operator submits DA access trouble after `NO DA` appears on the MP position screen.

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.

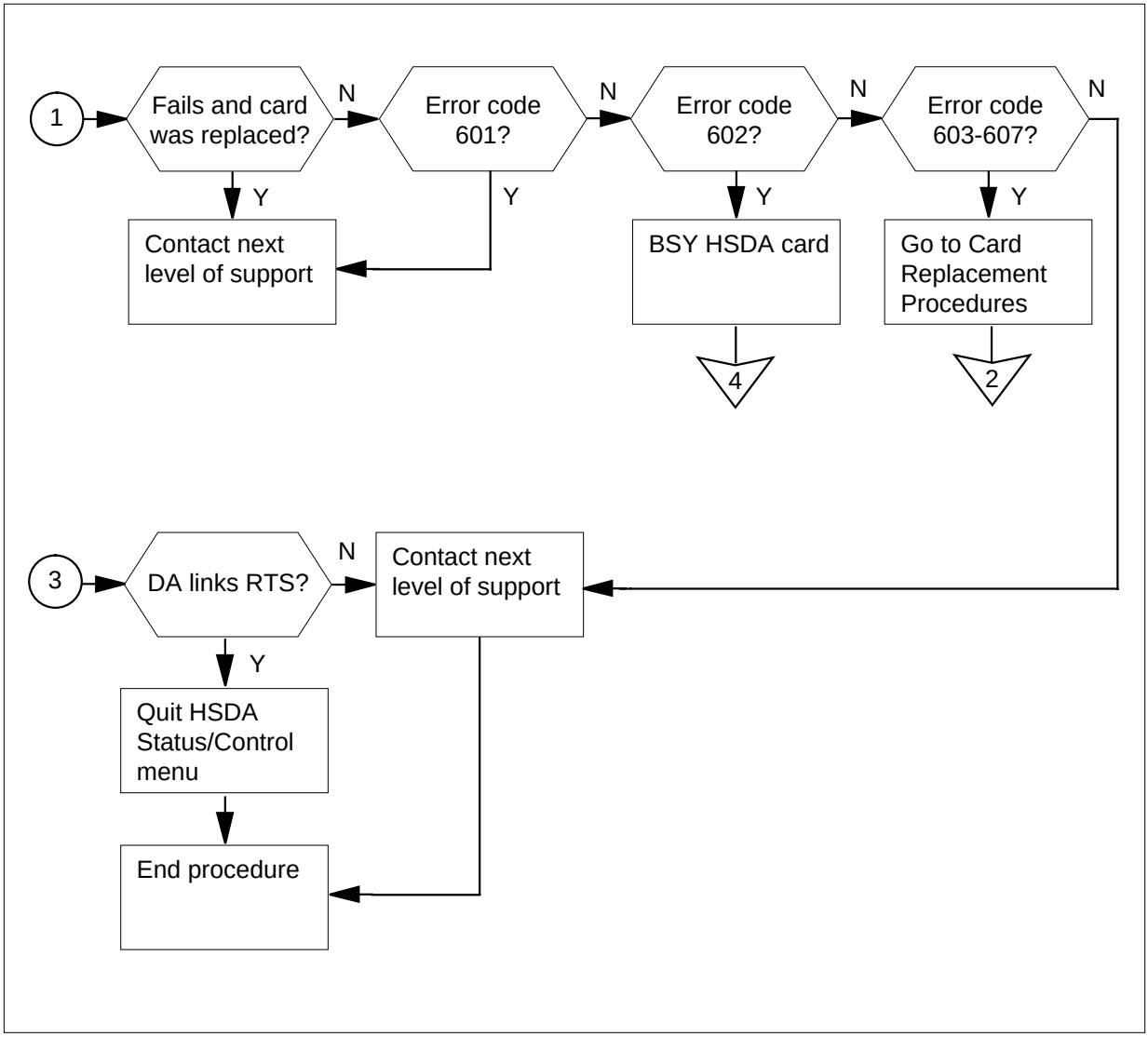
TOPS MP Operator complaint (standalone/integrated) Clearing DA access trouble (continued)

Summary of clearing DA access trouble



TOPS MP Operator complaint (standalone/integrated) Clearing DA access trouble (continued)

Summary of clearing DA access trouble (continued)



Clearing DA access trouble

At the TAMI

1 To access the HSDA Status/Control menu from the TOPS position controller (TPC) Administration and Maintenance (TAMI) main menu type:

>3

Press the Enter key.

TOPS MP Operator complaint (standalone/integrated) Clearing DA access trouble (continued)

Example of a TAMI response:

```
                    HSDA  STATUS/CONTROL
                          for card 1
  1. Bsy Card                              5. Bsy Link

  2. RTS Card                              6. RTS Link

  3. OffL Card                             7. OffL Link

  4. Frls Card                             8. Next Card

CARD STATUS  CARD SUBSTATUS  APPLID LINK 0 STATUS  LINK 0 STATUS

  InSv         Comact        HSDA3386       InSv        InSv

   MAKE CHOICE:
```

Note: If you suspect that card 0 has faults in Dual HSDA configuration, choose selection 8 (Next Card) before this step. This action causes card 0 status to display.

2 To busy the DA links, use the following procedure:

a Type

>5

Press the Enter key.

where

5
is BSY link

b Type

>0

Press the Enter key.

where

0
is the link number

c Type

>5

Press the Enter key.

where

5
is BSY Link

d Type

>1

TOPS MP Operator complaint (standalone/integrated) Clearing DA access trouble (continued)

Press the Enter key.

where

1
is the link number

Example of a TAMI response

```
CARD STATUS  CARD SUBSTATUS  APPLID LINK 0 STATUS  LINK 0 STATUS
  InSv          Comact       HSDA3386      ManB          ManB
```

3 To busy the HSDA card, type:

>1

Press the Enter key.

Example of a TAMI response

```
CARD STATUS  CARD SUBSTATUS  APPLID LINK 0 STATUS  LINK 0 STATUS
   ManB         Comact       HSDA3386      ManB          ManB
```

4 To return to the TAMI main menu, press the PF3 key one time.

At the TPC

5 To test the HSDA card, load the diskettes into the disk drive of the TPC. Insert the Diagnostic Boot diskette into the disk drive of the TPC and push the lever to lock the diskette in place.

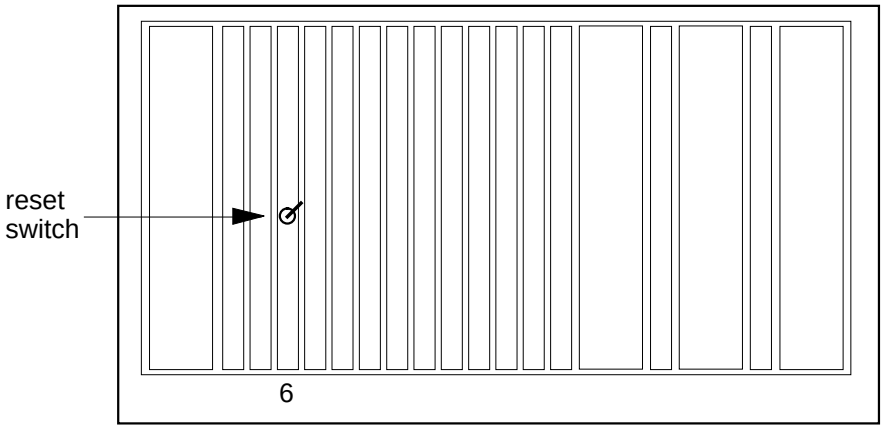
Note: Make sure the edge that has notches is at the top and the label faces the hard disk.

6

CAUTION
Service interruption
Use of the reset switch takes all MP positions associated with the TPC out of service. Make sure you return to service all MP positions associated with this TPC at the end of the procedure.

To set the TPC again, move the switch on the SBC card in slot 6 to the down position. Return the switch to the up position.

TOPS MP Operator complaint (standalone/integrated) Clearing DA access trouble (continued)



TPC packfill SBC card

7 Remove the Diagnostic Boot diskette and insert the Diagnostic Run diskette. Leave the Diagnostic Run diskette in the disk drive until the system requests you to remove it.

8 To run the diagnostic tests on the HSDA card, type:

>HSDADIAG n

Press the Enter key

where

n
is the card number

Example of a TAMI response

```
Performing Basic HSDA Diagnostic (Circuit Pack Reset)
Performing Basic HSDA Diagnostic (Query Status)
Performing Basic HSDA Diagnostic (SBC-HSDA Loopback)
Performing Extensive HSDA Diagnostic (System Memory,
this is long test)
Performing Extensive HSDA Diagnostic (Timers and
Interrupts)
Performing Extensive HSDA Diagnostic (Data
Communication)
HSDA Diagnostic Passed
```

9 Determine if the test passes.

If test	Do
passes	step 12

TOPS MP Operator complaint (standalone/integrated) Clearing DA access trouble (continued)

If test	Do
passes and No DA displays	step 10
fails and HSDA card replaced	step 10
fails and error code is 601	step 10
fails and error code is 602	Busy the card. Perform step 8.
fails and error code is 603-607	step 11

10 For additional help, contact the next level of support.

At the TPC

11

CAUTION
Service interruption
When you replace an HSDA card in the TPC, all four operator positions cannot process calls.

Replace HSDA card in slot 13 (or slot 8 in the optional Dual HSDA configuration). Refer to *Card Replacement Procedures*. Return to step 5.

At the TAMI

12 To access the HSDA Status/Control menu from the TAMI main menu, type:

>3

Press the Enter key.

TOPS MP Operator complaint (standalone/integrated) Clearing DA access trouble (continued)

Example of a TAMI response

```
                    HSDA  STATUS/CONTROL
                          for card 1
  1. Bsy Card                              5. Bsy Link
  2. RTS Card                              6. RTS Link
  3. OffL Card                             7. OffL Link
  4. Frls Card                              8. Next Card

CARD STATUS  CARD SUBSTATUS  APPLID  LINK 0 STATUS  LINK 0 STATUS
    ManB          Contact       HSDA3386         ManB         ManB

    MAKE CHOICE:
```

Note: This menu includes the Dual HSDA option. If card 0 has faults in Dual HSDA configuration, choose selection 8 (Next Card) before this step. This action causes card status to display.

13 To return the card to service, type:

>2

Press the Enter key.

Example of a TAMI response

```
CARD STATUS  CARD SUBSTATUS  APPLID  LINK 0 STATUS  LINK 0 STATUS
  InSv          Comact       HSDA3386      ManB           ManB
```

If card	Do
returns to service	step 14
does not return to service	step 10

14 To return the DA links to service, use the following procedure:

a Type

>6

Press the Enter key.

where

6
is RTS

TOPS MP Operator complaint (standalone/integrated) Clearing DA access trouble (end)

b Type

>0

Press the Enter key.

where

0
is the link number

c Type

>6

Press the Enter key.

where

6
is RTS

d Type

>1

Press the Enter key.

where

1
is the link number

Example of a TAMI response

```
CARD STATUS  CARD SUBSTATUS  APPLID LINK 0 STATUS  LINK 0 STATUS
  InSv          Comact       HSDA3386       InSv          InSv
```

15 Determine link status.

If links	Do
return to service	step 16
do not return to service	step 10

16 To quit the HSDA Status/Control menu, press the PF3 key.

17 This procedure is complete.

TOPS MP Operator complaint (standalone/integrated) Clearing ORDB access trouble

Application

Use this Clearing operator reference database (ORDB) access trouble procedure when the high speed data access (HSDA) card has faults. Use this procedure if you must replace the HSDA card.

Definition

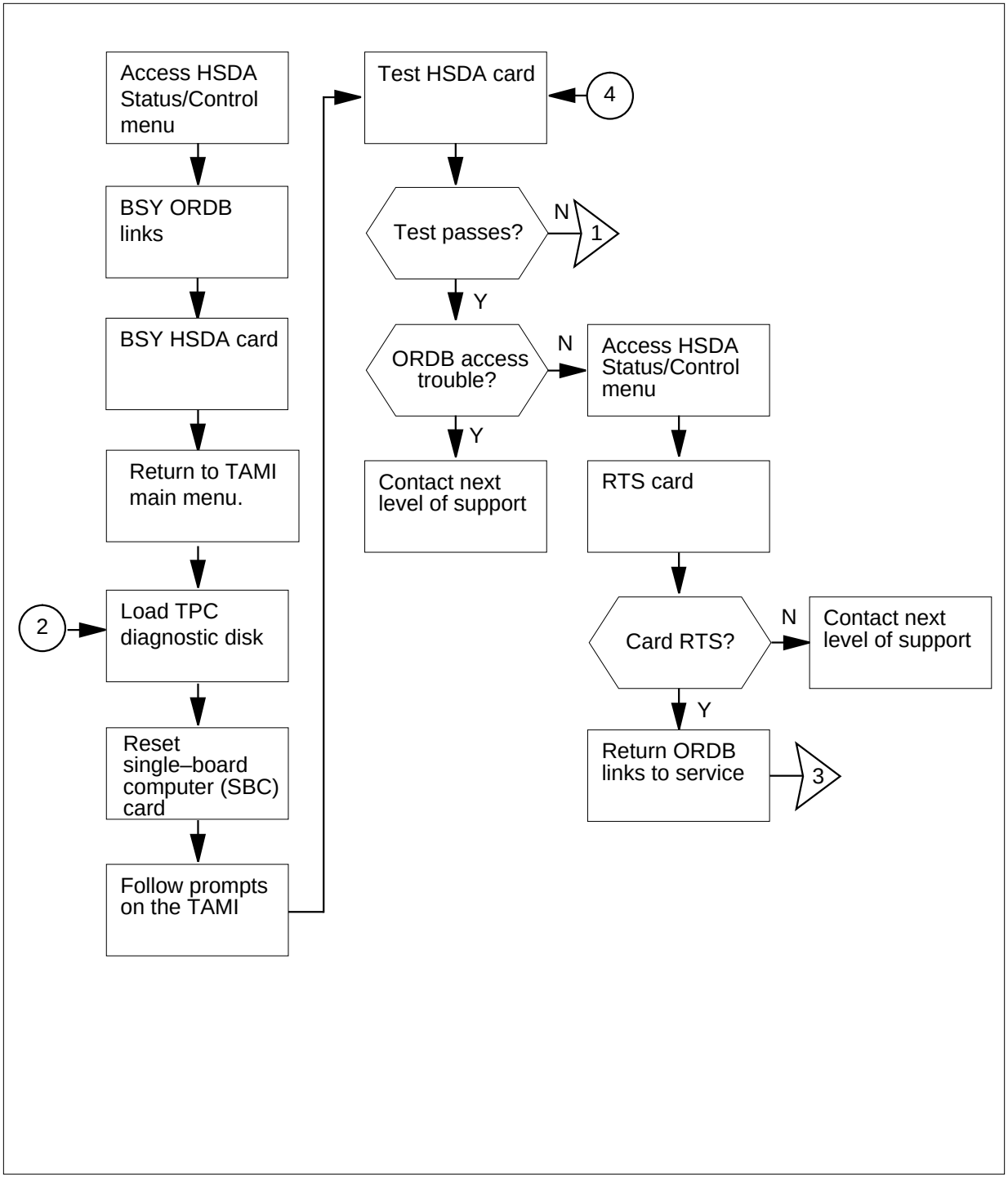
An operator submits ORDB access trouble after `NO ORDB` appears on the TOPS multipurpose (MP) position screen.

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.

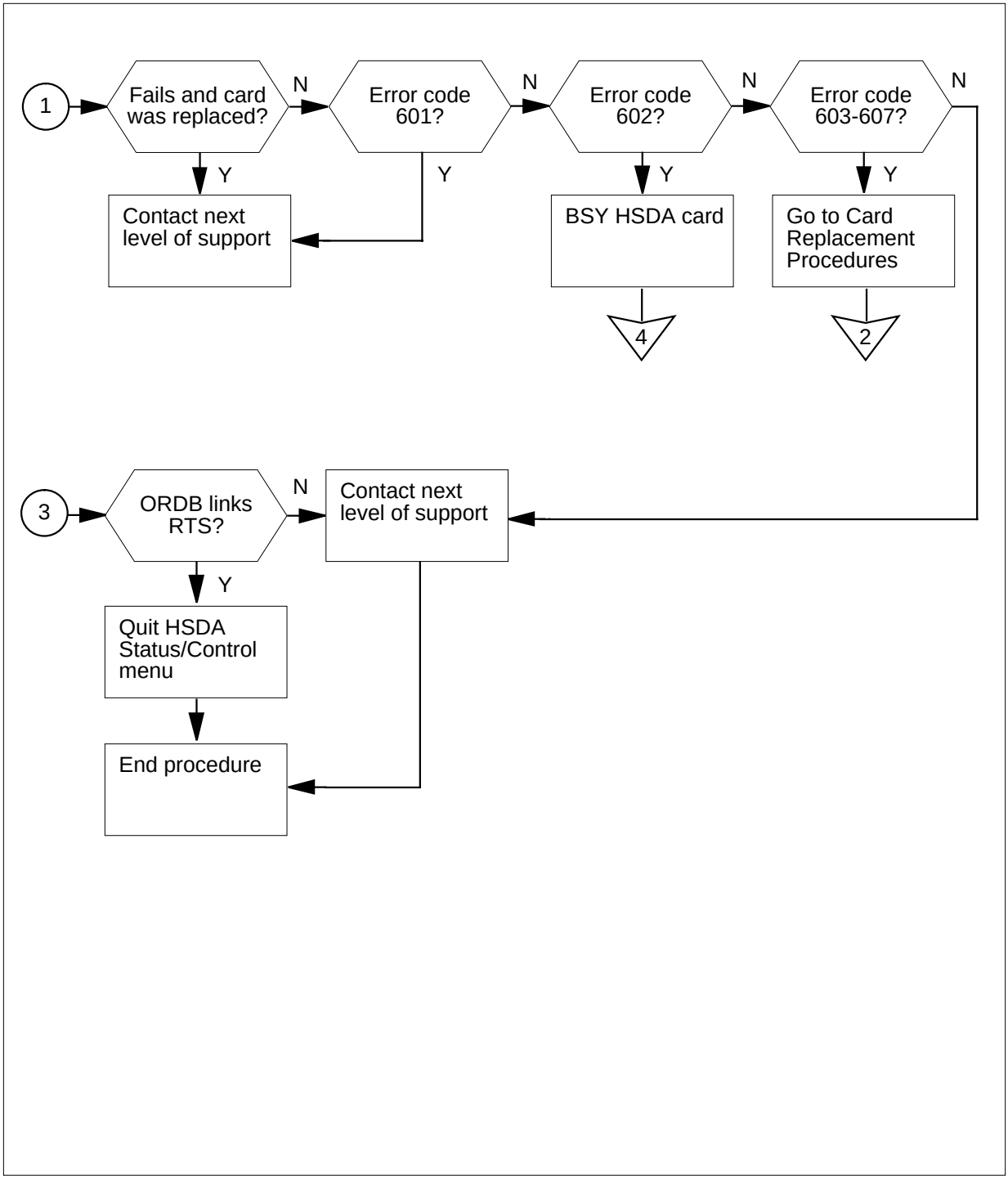
TOPS MP Operator complaint (standalone/integrated) Clearing ORDB access trouble (continued)

Summary of clearing ORDB access trouble



TOPS MP Operator complaint (standalone/integrated) Clearing ORDB access trouble (continued)

Summary of clearing ORDB access trouble (continued)



TOPS MP Operator complaint (standalone/integrated) Clearing ORDB access trouble (continued)

Clearing ORDB access trouble

At the TAMI

1 To access the HSDA Status/Control menu from TAMI main menu type:

>3

press the Enter key.

Example of TAMI Response

```
                        HSDA  STATUS/CONTROL
                             for card 1
       1. Bsy Card                              5. Bsy Link
       2. RTS Card                              6. RTS Link
       3. OffL Card                             7. OffL Link
       4. Frls Card                             8. Next Card

CARD STATUS  CARD SUBSTATUS   APPLID    LINK 0 STATUS  LINK 0 STATUS
 InSv           Comact       HSDA3386       InSv             InSv
        MAKE CHOICE:
```

Note: If in stand alone arrangement, enter selection 8 (Next Card) before this step. This action causes card 0 status to display.

2 To busy the ORDB links, use the following procedure:

a Type

>5

press the Enter key.

where

5
is BSY link

b Type

>0

press the Enter key.

where

0
is the link number

c Type

>5

TOPS MP Operator complaint (standalone/integrated) Clearing ORDB access trouble (continued)

press the Enter key.

where

5
is BSY link

d Type

>1

press the Enter key.

where

1
is the link number

Example of TAMI Response

```
CARD STATUS  CARD SUBSTATUS  APPLID LINK 0 STATUS  LINK 0 STATUS
  InSv          Comact       HSDA3386      ManB          ManB
```

3 To busy the HSDA card, type:

>1

press the Enter key.

Example of TAMI Response

```
CARD STATUS  CARD SUBSTATUS  APPLID LINK 0 STATUS  LINK 0 STATUS
   ManB          Comact       HSDA3386      ManB          ManB
```

4 To return to the TAMI main menu, press the PF3 key one time.

At the TPC

5 To test the HSDA card, load the diskette in the disk drive of the TPC. Insert the Diagnostic Boot diskette in the disk drive of the TPC. Push the lever to lock the diskette in place.

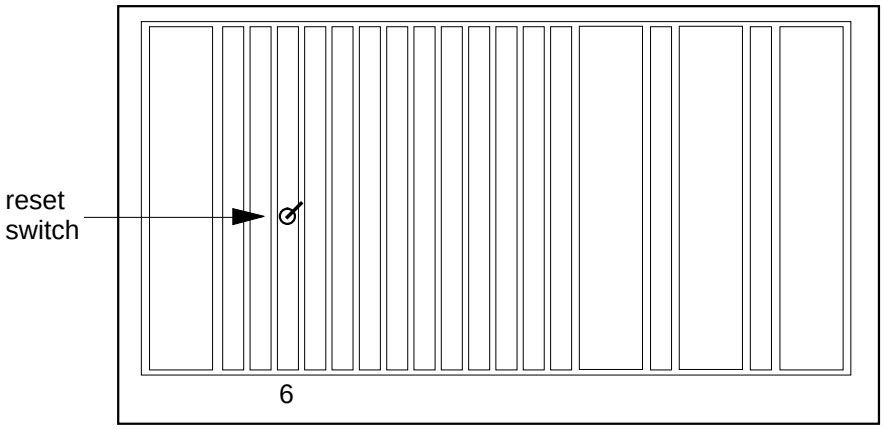
Note: Make sure the edge that has notches is at the top and the label faces the hard disk.

TOPS MP Operator complaint (standalone/integrated) Clearing ORDB access trouble (continued)

6

CAUTION
Service interruption
Use of the reset switch takes all MP positions associated with the TPC out of service. Make sure you return to service all MP positions associated with this TPC at the end of the procedure.

To set the TPC again, move the switch on the SBC card in slot 6 to the down position. Return the switch to the up position.



TPC packfill SBC card

7 Remove the Diagnostic Boot diskette and insert the Diagnostic Run diskette. Leave the Diagnostic Run diskette in the disk drive until the system requests you to remove it.

8 To run the diagnostic test on the HSDA card type:

```
>HSDADIAG n
```

press the Enter key.

where

n
is the card number

TOPS MP Operator complaint (standalone/integrated) Clearing ORDB access trouble (continued)

Example of TAMI Response

```
Performing Basic HSDA Diagnostic (Circuit Pack Reset)
Performing Basic HSDA Diagnostic (Query Status)...
Performing Basic HSDA Diagnostic (SBC-HSDA Loopback)...
Performing Extensive HSDA Diagnostic (System Memory, this
is long test)
Performing Extensive HSDA Diagnostic (Timers and
Interrupts)
Performing Extensive HSDA Diagnostic (Data Communication)
HSDA Diagnostic Passed
```

9 Determine if the test passes.

If test	Do
passes	step 12
passes and No ORDB displays	step 10
fails and HSDA card replaced	step 10
fails and error code is 601	step 10
fails and error code is 602	Busy the card. Perform step 8
fails and error code is 603-607	step 11

10 For additional help, contact the next level of support.

At the TPC

11

CAUTION
Service interruption
When you replace an HSDA card in the TPC, all four operator positions cannot process calls.

Replace the HSDA card in slot 13 (integrated) or 8 (standalone). Refer to *Card Replacement Procedures* and return to step 5.

TOPS MP Operator complaint (standalone/integrated) Clearing ORDB access trouble (continued)

At the TAMI

12 To access the HSDA Status/Control menu from the TAMI main menu, type:

>3

press the Enter key.

Example of TAMI Response

```
                    HSDA  STATUS/CONTROL
                         for card 1
      1. Bsy Card                          5. Bsy Link
      2. RTS Card                          6. RTS Link
      3. OffL Card                         7. OffL Link
      4. Frls Card                         8. Next Card

CARD STATUS  CARD SUBSTATUS  APPLID    LINK 0 STATUS  LINK 0 STATUS
 ManB           Comact      HSDA3386       ManB            ManB
        MAKE CHOICE:
```

Note: If in stand alone arrangement, enter selection 8 (Next Card) before this step. This action causes card 0 status to display.

13 To return the card to service, type:

>2

press the Enter key.

where

2
is RTS

Example of TAMI Response

```
CARD STATUS  CARD SUBSTATUS  APPLID  LINK 0 STATUS  LINK 0 STATUS
  InSv          Comact      HSDA3386      ManB           ManB
```

If card	Do
returns to service	step 14
does not return to service	step 10

TOPS MP Operator complaint (standalone/integrated) Clearing ORDB access trouble (end)

14 To return the ORDB links to service, use the following procedure:

a Type

>6

press the Enter key.

where

6
is RTS

b Type

>0

press the Enter key.

where

0
is the link number

c Type

>6

press the Enter key.

where

6
is RTS

d Type

>1

press the Enter key.

where

1
is the link number

Example of TAMI Response

```
CARD STATUS  CARD SUBSTATUS  APPLID LINK 0 STATUS  LINK 0 STATUS
  InSv          Comact       HSDA3386       InSv          InSv
```

If links	Do
return to service	step 15
do not return to service	step 10

15 To quit the HSDA Status/Control menu, press the PF3 key.

16 This procedure is complete.

TOPS MP TAMI trouble (integrated)
Clearing TAMI response failure

Application

Use this procedure to troubleshoot a problem when the Tops Position Controller (TPC) Administration and Maintenance Interface (TAMI) fails to respond.

Definition

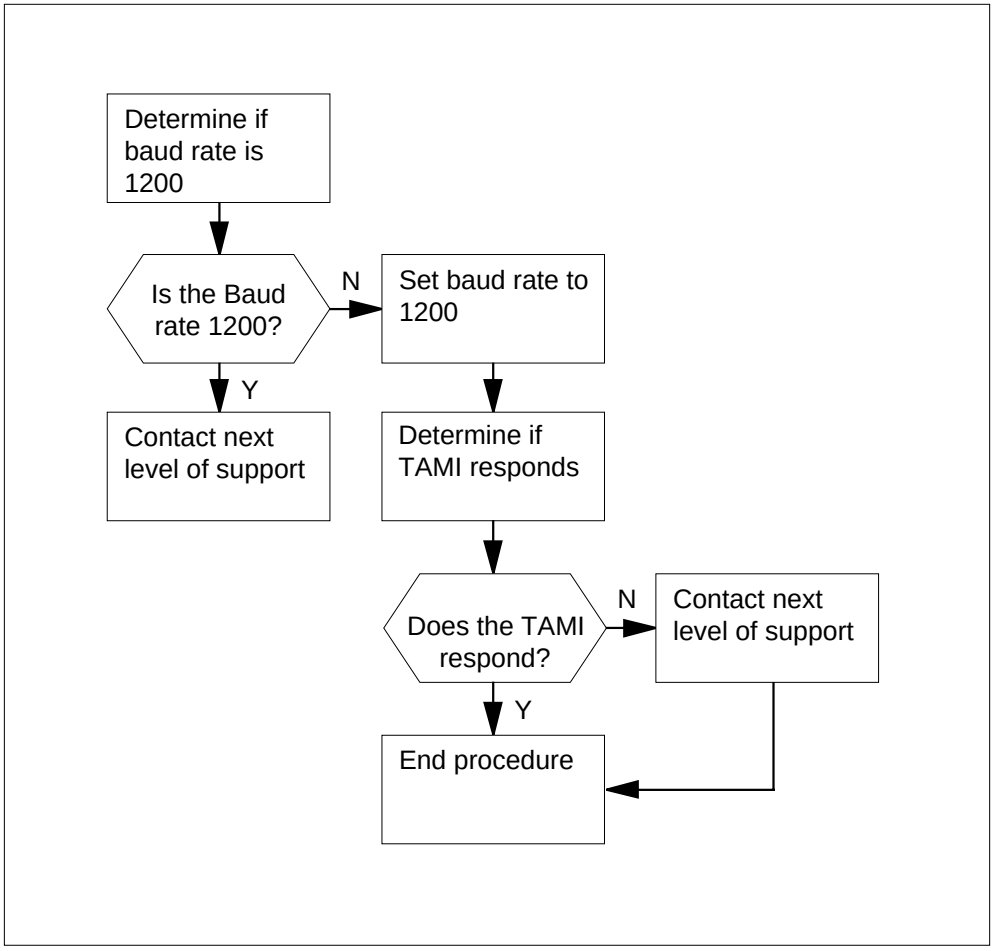
Submit this problem when the TAMI does not respond and the MP positions do not have problems.

Action

This procedure contains a flowchart and a list of steps. Use the flowchart to review the procedure. Follow the steps to perform this procedure.

TOPS MP TAMI trouble (integrated)
Clearing TAMI response failure (continued)

Summary of Clearing TAMI response failure



Clearing TAMI a response failure

At the TAMI

1 To determine if the TAMI baud rate is set at 1200 baud, refer to the appropriate documentation. The vendor supplies the documentation.

If TAMI baud rate	Do
is 1200	step 4
is not 1200	step 2

2 To set the baud rate to 1200, use the documentation from the vendor.

TOPS MP TAMI trouble (integrated)
Clearing TAMI response failure (end)

3 Determine if TAMI responds.

If TAMI	Do
responds	step 5
does not respond	step 4

4 For additional help, contact the personnel responsible for the next level of support.

5 The procedure is complete.

TOPS MP TAMI trouble (standalone)
Clearing TAMI response failure

Application

Use this Clearing TAMI response failure procedure to troubleshoot when the Tops Position Controller (TPC) Administration and Maintenance Interface (TAMI) does not respond.

Definition

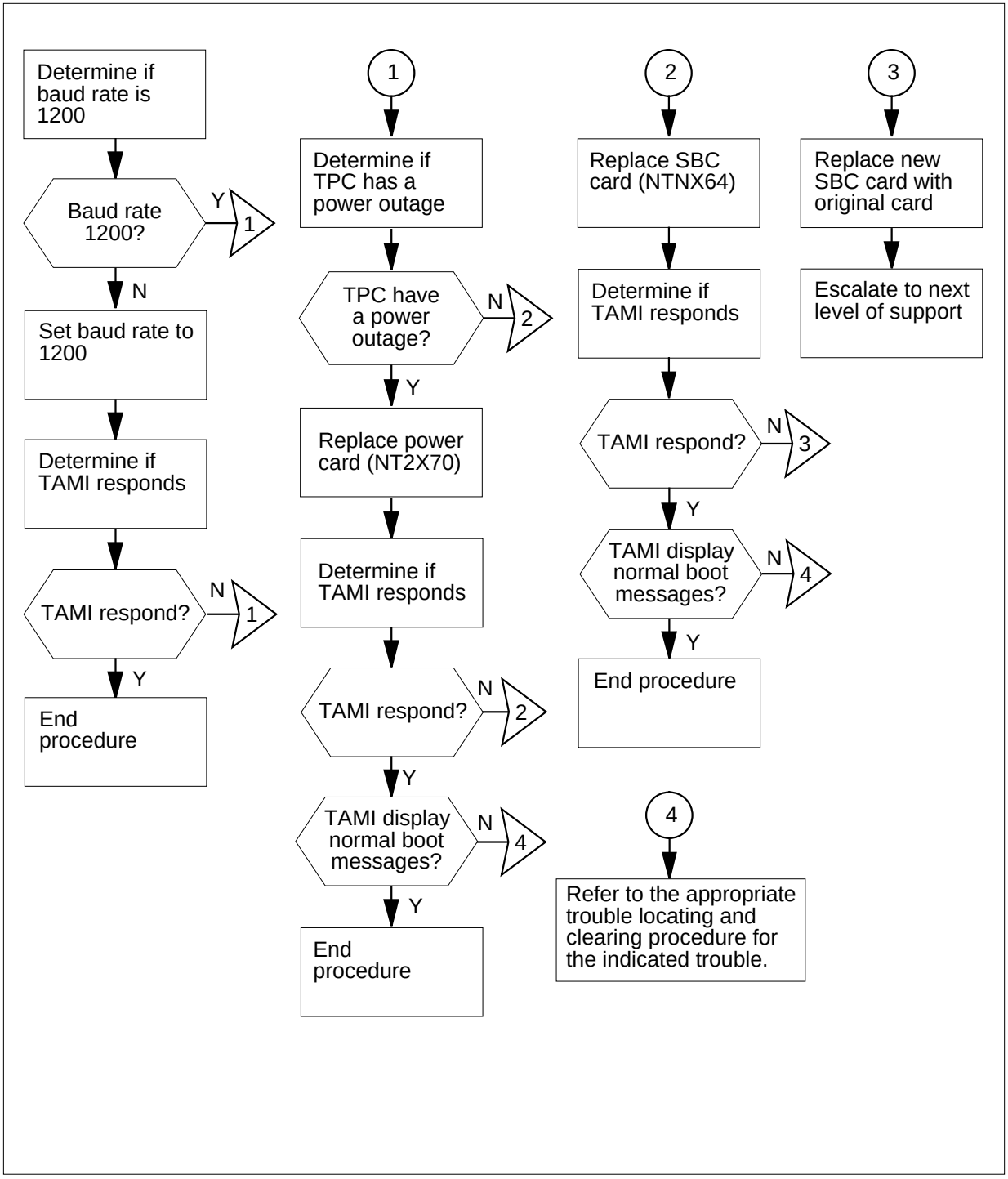
The system reports this trouble when the TAMI does not respond.

Action

This procedure contains a summary flowchart and a list of steps. Use the flowchart as an overview of the procedure. Follow the steps to perform the procedure.

TOPS MP TAMI trouble (standalone)
Clearing TAMI response failure (continued)

Summary of Clearing TAMI response failure



TOPS MP TAMI trouble (standalone)
Clearing TAMI response failure (continued)

Clearing TAMI response failure

At your current location

1 Use the documentation of the manufacturer to determine if the TAMI baud rate is set at 1200 baud.

If TAMI baud rate is	Do
1200	step 4
not 1200	step 2

2 Use the documentation of the manufacturer to set the baud rate to 1200.

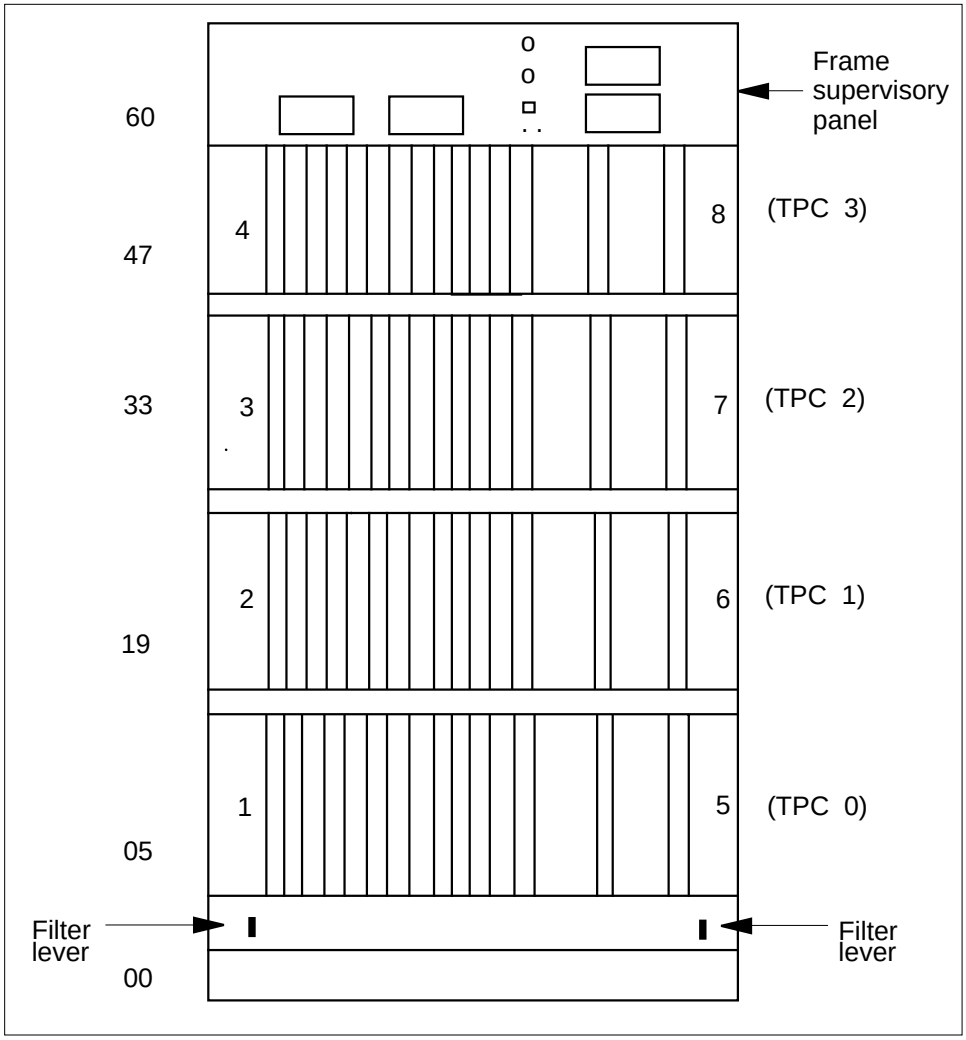
3 Determine if TAMI responds.

If TAMI	Do
responds	step 9
does not respond	step 4

4 Check the frame fail light on the frame supervisory panel (FSP) to determine if the TPC has a power outage.

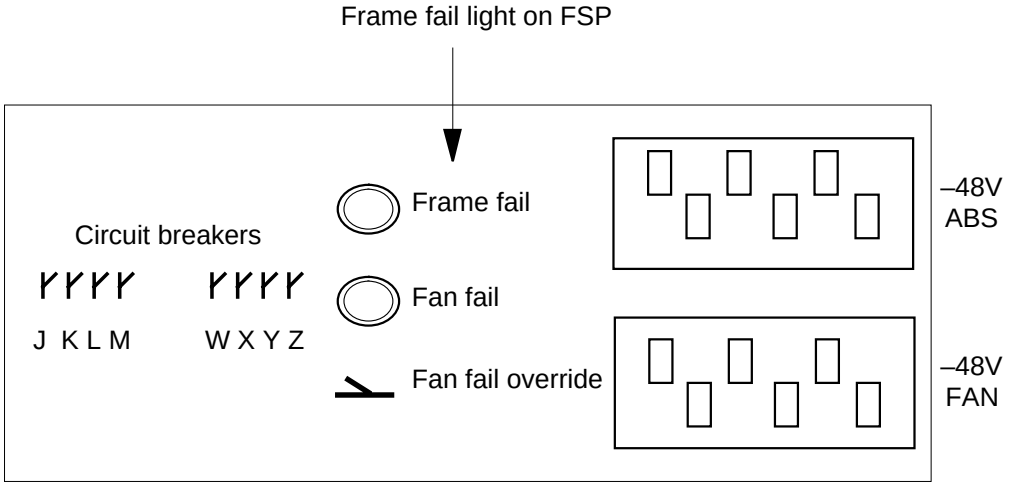
TOPS MP TAMI trouble (standalone)
Clearing TAMI response failure (continued)

TPC cabinet



TOPS MP TAMI trouble (standalone)
Clearing TAMI response failure (continued)

FSP panel



If a power outage	Do
has occurred	step 5
has not occurred	step 6

5 Replace the power card in slots 1-3. Refer to *Card Replacement Procedures* and return to this point.

If TAMI	Do
responds with normal boot messages	step 9
does not respond	step 6
displays any other message	Refer to the correct clearing trouble procedure.

6 Replace the SBC card. Refer to *Card Replacement Procedures* and return to this point.

If TAMI	Do
responds with normal boot messages	step 9
does not respond	step 7

TOPS MP TAMI trouble (standalone) Clearing TAMI response failure (end)

If TAMI	Do
displays any other message	Refer to the correct clearing trouble procedure.

7 Replace the new SBC card with the original SBC card removed in step 6. Refer to *Card Replacement Procedures* and return to step 8.

8 For additional help, contact the personnel responsible for the next level of support.

9 This procedure is complete.

TOPS MPX Operator complaint audio/headset malfunction

Application

Use this procedure to determine an audio fault or headset malfunction that an operator reports.

Definition

An unsolicited operator complaint of audio trouble is a trouble report that an operator submits after the operator experiences trouble with a terminal.

Common procedures

You must NOT go to common procedures unless the step-action procedures direct you to.

The following common procedures support the removal and replacement of a Traffic Operator Multipurpose Extended (TOPS MPX) position. When you must replace a TOPS MPX position, perform the following procedures in the order given.

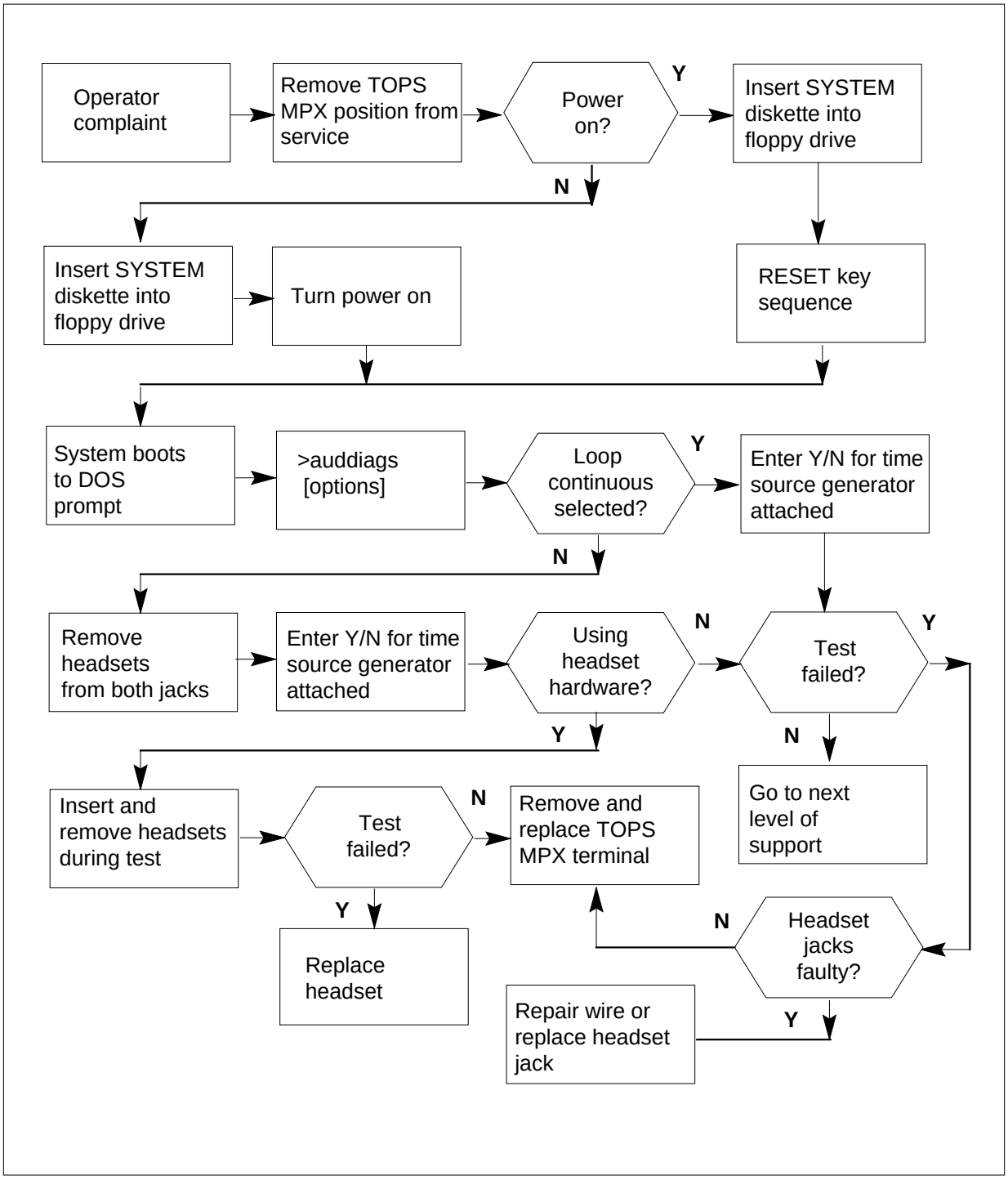
1. Remove a TOPS MPX terminal from service.
2. Disconnect a TOPS MPX terminal.
3. Replace a TOPS MPX terminal.
4. Place a TOPS MPX terminal in service.
5. Install, reinstall, or change TOPS MPX software.
6. Save key, screen, status messages, command privileges, and option definitions.
7. Install key and option definitions.
8. Update TOPS MPX software.

Action

This procedure contains a summary flowchart and a list of steps. Use the flowchart as an overview of the procedure. Follow the steps to perform the procedure.

TOPS MPX Operator complaint audio/headset malfunction (continued)

Summary of operator compliant - audio/headset malfunction



TOPS MPX Operator complaint audio/headset malfunction (continued)

Operator complaint - audio/headset malfunction

At your current location

1

CAUTION
Potential risk to service
If a voice trunk in the CPB state is force released while a call is the attached to its associated TOPS MPX position, the call will be lost.

Use a known operating spare headset to replace the headset that you suspect is malfunctioning.

If	Do
malfunction clears	End of procedure.
malfunction does not clear	Perform common procedure to remove a TOPS MPX from service and return to this procedure and begin with step 2.

2 You must be entering this procedure from common procedure to remove a TOPS MPX terminal from service procedure.

3 Turn power off.

4 Insert System Disk in floppy drive.

5 Turn power on.

6 The system boots to DOS prompt display as appears below:

TOPS MPX System Diskette successfully booted

Services available:

AUDDIAGS - MPX Audio Card Diagnostics
DFIRUN - Token Ring Diagnostics

To run one of these services, type the indicated name at the DOS prompt, followed by the ENTER key. Most of the standard DOS commands are available on this diskette. For a detailed description of all the commands available, type the command 'INFO' followed by the ENTER key.

A:\>

Note: At this point several commands are available. To execute a command, type the command name and press the DOS ENTER key. You can follow the command name with a space and any parameters.

TOPS MPX Operator complaint audio/headset malfunction (continued)

For detailed descriptions of DOS internal commands, refer to your DOS manual. The following DOS and nonDOS external commands are available:

INFO
Describes commands. Run INFO for this list, or run INFO <command> for help on a correct command.

ATTRIB
DOS command to change file attributes.

CHKDSK
DOS command to verify and restore accuracy of the file system.

COMP
DOS command to compare two files.

DISKCOMP
DOS command to compare two diskettes.

DISKCOPY
DOS command to make a copy of a diskette.

FDISK
DOS command to read and set hard disk partition table.

FORMAT
DOS command to format hard disks and floppy diskettes.

LABEL
DOS command to set volume labels.

MEM
DOS command to report amount of available memory.

MODE
DOS command to set screen mode, redirect printer, etc.

PRINT
DOS print spooler.

SYS
DOS command to make a diskette bootable.

TREE
DOS command to display directories and subdirectories.

XCOPY
DOS extended copy command.

AUDDIAGS
Diagnostics for TOPS MPX audio card.

7 To select audio diagnostics, type the following command:

```
>AUDDIAGS [OPTIONS]
```

and press the DOS ENTER key.

where

TOPS MPX Operator complaint audio/headset malfunction (continued)

options
equals “e" or “l" or “e l"

e = extended error descriptions if a failure occurs during a test.

Note: Select the e (extended option) or do not select an option to check out the headset detection circuitry on the audio card. Select an option also to check out the circuitry on the audio path to and from the headset jacks. This action checks for faults in the headset wiring and headset jacks. When you use the headsets with a volume adjustment, set the level to the mid-range. You must use the headset hardware option for each new installation.

l = for loop continuous and stop on first failure.

Note: Select the l (loop continuous option) to check out the headset detection circuitry on the audio card. This action does not check faults in the headset wiring from the TOPS MPX to the headsets.

8 System prompts removal of headsets from both jacks.

Remove headsets from both jacks

and press the DOS ENTER key.

9 System queries if composite clock is attached:

Answer yes if the digital audio cable is attached and the composite clock in the time source generator is operational.

If you answer yes, the system asks you during testing to insert and remove headsets to/from the headset jacks. This action tests the headset detection circuitry on the audio card. This action also tests the wiring from the TOPS MPX to the headsets. Type

>Y

and press the DOS ENTER key.

or

Answer no if the digital audio cable is NOT attached or the composite clock in the time source generator is NOT operational.

If you answer no, the diagnostics use the onboard loopback relays to check the headset detection circuitry. Type

>N

and press the DOS ENTER key.

After you answer Y or N, the screen prompts as follows:

"Do you want to use your headset hardware to test? [Y/N]"

Answer prompts until all tests are complete.

TOPS MPX Operator complaint audio/headset malfunction (end)

10 System test report identifies defective components.

If	Do
audio card test failed, and the failure is on eof the Headset in Detect tests	Perform the following steps: 1. Verify that the headset jacks on the position are operational (e.g. broken wire on jack). 2. If problem is not found in the headset jacks, use common procedures to replace TOPS MPX terminal
audio card test failed	Perform the following steps: 1. Verify cable to digital telephony card is connected and operational. 2. If you find and correct a problem with the digitial telephony card cable, return to step 7. 3. If you do not find a problem with the digital telephony card cable, use common procedures to replace TOPS MPX terminal
audio card test passes	step 11
the headset or audio card are not defective	Go to the next level of support

11 This procedure is complete and successful. Remove the system disk from the drive and return to common procedures to place a TOPS MPX terminal in service.

TOPS MPX Power-on self test

Application

Perform the power-on self test when a failure of the Traffic Operator Position System Multipurpose Extended (TOPS MPX) position hardware occurs.

Definition

This procedure performs the power-on self test of the TOPS MPX terminal. This procedure includes error messages and recommended actions to correct the failure.

Action

This procedure contains a summary flowchart and a list of steps. Use the flowchart as an overview of the procedure. Follow the steps to perform the procedure.

Key Equivalents

Some DOS applications execute on a TOPS MPX and require the user to press exact keys on an IBM keyboard. If you use the TOPS MPX keyboard, you must press the TOPS MPX key that is equivalent to the requested IBM key. The necessary key equivalents appear in the following table:

(Sheet 1 of 2)

IBM DOS KEY	EQUIVALENT TOPS MPX KEY
ENTER	Bus.
Backspace	Nes Req
Ctrl	<------
\	OGT
Cursor Left	Rls Cld
Cursor Right	ORDB
Cursor Down	Ca Call
Cursor Up	Key directly above Ca Call
Page Down	Sta
Page Up	Key directly above Sta
Delete	Clg
Insert	Key directly above Clg

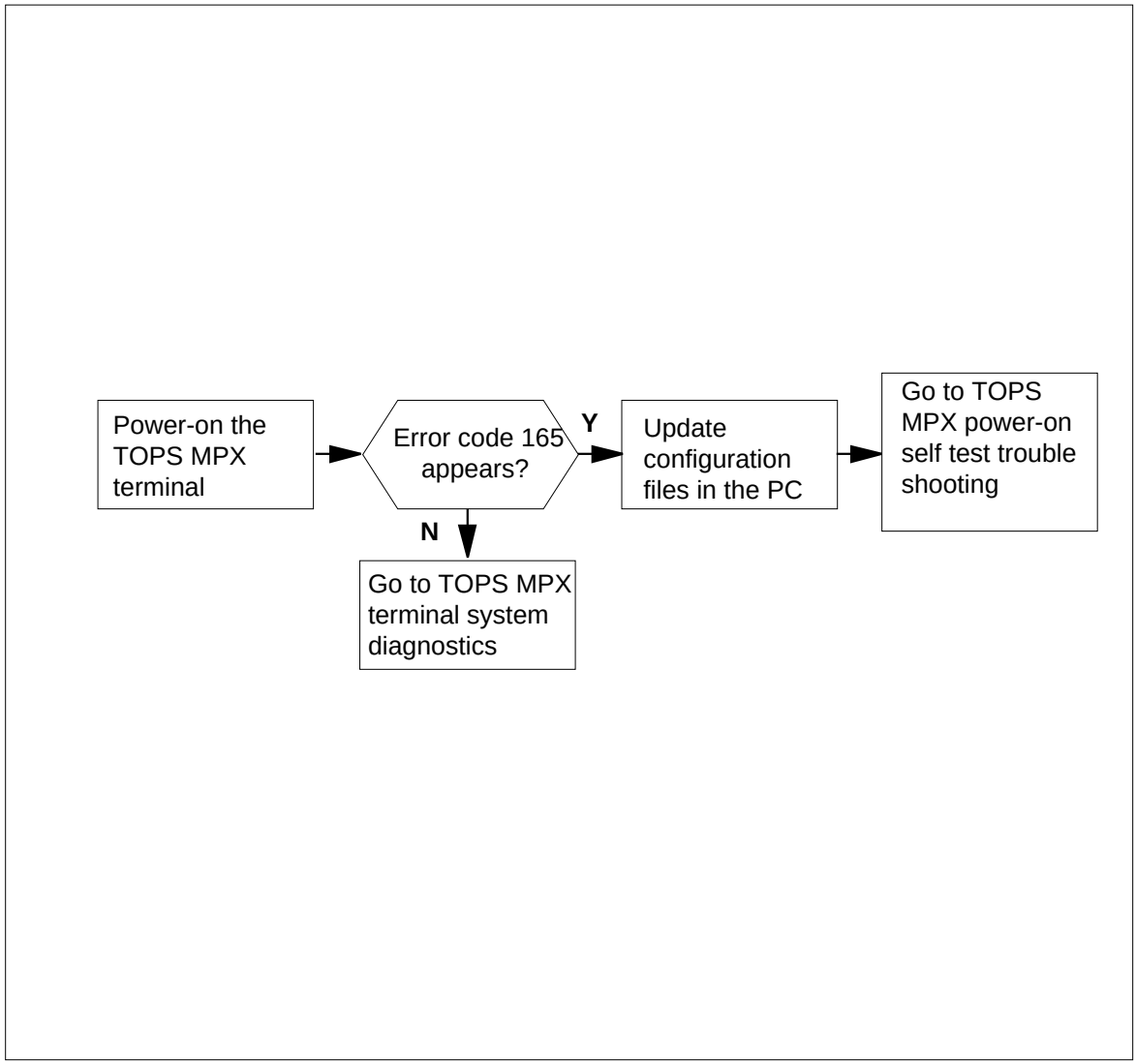
TOPS MPX Power-on self test (continued)

(Sheet 2 of 2)

IBM DOS KEY	EQUIVALENT TOPS MPX KEY
End	Per
Home	Key directly above Per
Esc	Clear Field
F1	Key directly above Clear Field
F3	CMD
F4	ENTER

TOPS MPX Power-on self test (continued)

Summary of TOPS MPX terminal power-up self test



TOPS MPX Power-on self test (continued)

TOPS MPX terminal power-on self test

At the TOPS MPX terminal

1 Begin the power-on self test.

If	Do
power is already on	Activate the POWER OFF switch on the front of the controller to turn the TOPS MPX off. Wait 5 s. Turn the power on. Go to step 2.
power is off	Activate the POWER ON switch on the front of the controller to turn the TOPS MPX on. Go to step 2.

2 Observe the upper left hand corner of the screen.

As the system unit and memory are tested, the memory size appears in the upper left corner of the screen.

Note: If an error occurs, a three to five digit error code number will appear in the upper left corner of the display.

If	DoThen
no error code appeared and the system beeped once	The test is complete. Go to TOPS MPX terminal system diagnostic procedure.
MPX Initialization Failure: Function 3	Indicates that no composite clock is present on the digital telephony card. Check the digital telephony card cable and the time source generator. If cable and TSG are operational, go to the common procedure to remove and replace a TOPS MPX terminal
error code 165 appears and the screen is blank	Go to step 3.

TOPS MPX Power-on self test (end)

If	DoThen
error code other than 165 appears and the screen is blank,or-no error codes appear with a combination of beeps and the screen is blank	Go to the TOPS MPX Power-on self test troubleshooting procedure.

3 Insert Hardware Reference Diskette.

4 Run Automatic Configuration

Explanation: A 165 error indicates an unidentified adapter in the PC.

Press F1 to continue the booting process.

5 Access the configuration menu.

The IBM logo screen appears on the terminal.

Press ENTER to continue.

The configuration menu appears with the following choices:

- View Configuration
- Change Configuration
- Backup Configuration
- Restore Configuration
- Run Automatic Configuration

6 Update the Configuration files in the PC.

Select Run Automatic Configuration from the configuration menu.

The PC will read the adaptor IDs from the reference diskette and update the configuration files in the PC.

7 The update of the configuration files in the PC is correct and the power-on self test is complete. You can follow the sequence of tests that the system goes through to further test the TOPS MPX. To perform this action, go to TOPS MPX terminal system diagnostics.

TOPS MPX Power-on self-test troubleshooting

Application

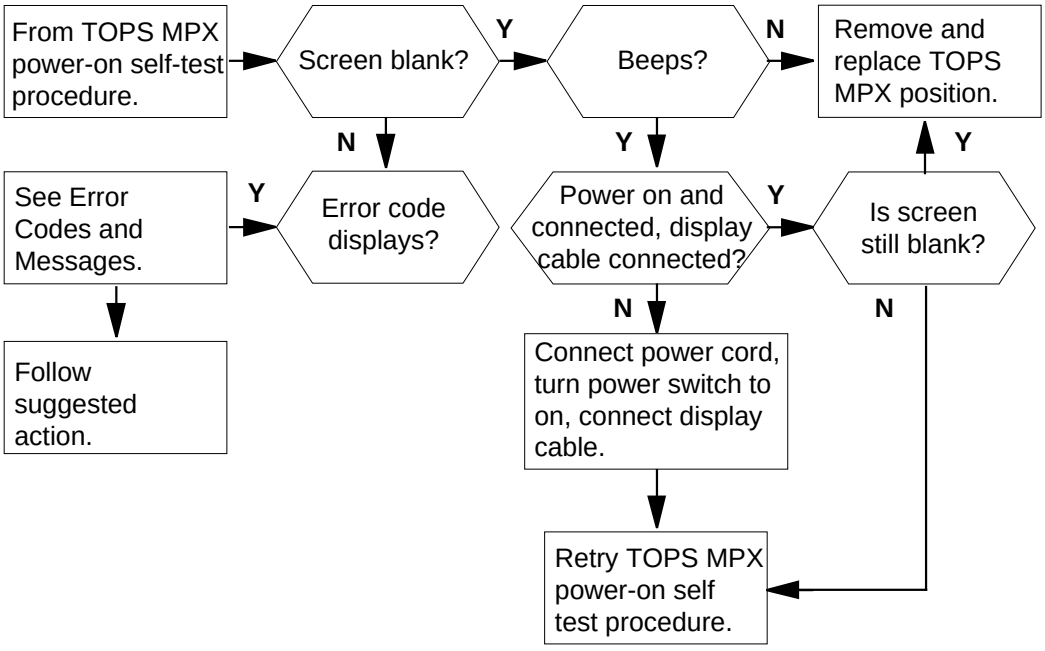
Perform this troubleshooting procedure after a failure during the TOPS MPX power-on procedure.

Action

This procedure contains a summary flowchart and a list of steps. Use the flowchart as an overview of the procedure. Follow the steps to perform the procedure.

TOPS MPX Power-on self-test troubleshooting (continued)

Summary of TOPS MPX power-on self-test troubleshooting



TOPS MPX Power-on self-test troubleshooting (continued)

TOPS MPX power-on self-test troubleshooting

At your current location

1 Continue if a step in a maintenance procedure directs you to this procedure. The use of this procedure without direction of a maintenance procedure, can cause equipment damage or service interruption.

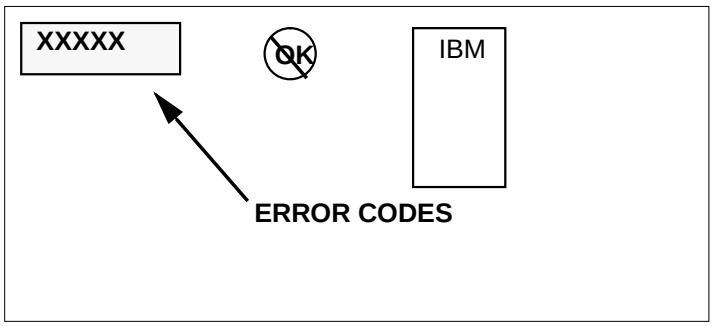
2 After you attempt the power-on self-test and:

If	Do
you do not understand the beeps.	Turn the system off and on again
screen is blank plue one beep.	Check to see: - If the display power cord plugs into an electrical outlet that works and into the system unit. - If the display is turned on and the brightness and contrast controls are turned up. - If the display signal cable plugs into the correct connector on the system unit. - If the power switch is on. - If the above items are correct and screen remains blank, go to step 4.
After you attempt the power-on	self test and, (continued)
If	Do
Screen is blank and there are no beeps.	Check to see: **- If the system unit power cord is plugged into an electrical outlet that works and into the system unit.** - If cables connected to the system are tight. - If the power switch is on. - If the above items are correct and screen remains blank, go to step 4.
Screen is bland plus two or more beeps.	step 4.
Only the cursor "_" displays.	step 4.
You cannot read the screen and the screen is distorted.	step 4.
Wrong characters display on the screen.	step 4.

3 The internal self-test of the system finds an error with a code that is not 165.

TOPS MPX Power-on self-test troubleshooting (continued)

Error Prompt displays on the screen. Consult the error codes and messages table on the last pages of this procedure.



If	Do
The internal self-test of the system finds an error.	Perform the following steps: 1. Write down the error number. 2.Compare error number with Error Codes and Messages chart and follow Suggested Action. 3. If you cannot see the IBM portion of the screen go to step 4.

4 Replace the unit with the common procedures sequence of removing and replacing a TOPS MPX terminal. To begin, go to *Removing a TOPS MPX terminal from service*. If the TOPS MPX position is replaced and the problem persists, contact the next level of maintenance.

Error Codes and Messages (Sheet 1 of 3)

Error Code	Description of Failure or Error	Suggested Action
101	Interrupt failure	1
102	Timer failure	1
103	Timer interrupt failure	1
104	Protected mode failure	1
105	Keyboard controller command failure	1
107	Hot NMI test	1
108	Timer bus test	1
109	Memory select	1
110	System board parity	1

TOPS MPX Power-on self-test troubleshooting (continued)

Error Codes and Messages (Sheet 2 of 3)

Error Code	Description of Failure or Error	Suggested Action
111	I/O parity	1
112	Watchdog time-out	1
113	DMS arbitration time-out	1
114	External ROM checksum	1
160	System board ID recognized	1
161	Bad battery or configuration	1
162	CMOS checksum or adapter ID mismatch	1
163	Date and time not set	2
164	Memory size mismatch	1
165	Adapter ID mismatch	3
166	Card busy	1
167	System clock does not update	1
201	Memory miscompare or parity	1
202	Memory address line error (address line 00-15)	1
203	Memory address line error (address line 00-15)	1
211	Memory Base 64K on system board fails	1
215	Memory Base 64K on daughter/SIP 2 fails	1
216	Memory Base 64K on daughter/SIP 1 fails	1
221	ROM to RAM copy	1
225	Wrong speed memory on system board	1
301	Keyboard interface	4

TOPS MPX Power-on self-test troubleshooting (continued)

Error Codes and Messages (Sheet 3 of 3)

Error Code	Description of Failure or Error	Suggested Action
303	Keyboard or system board	4
304	Keyboard clock failure	1
305	Keyboard +5v error	1
601	Diskette drive or controller	1
602	Diskette boot record	5
1101	Async error	1
2401	System board video	1
8601	Mouse time-out	1
8602	Mouse interface	1
8603	Mouse interrupt	1
10480	Drive C seek failure	1
10481	Drive D seek failure	1
10482	Drive failed controller test	1
10483	Drive controller did not reset	1
10490	Drive C read failure	1
10491	Drive D read failure	1
12901	Processor board test fails	1
12902	Cache portion of processor board test fails	1

If Suggest Action is	Do
1	Power off the PC and try the procedure again. If the problem persists, go to step 4.
2	This indicates the user has not loaded the system software. Load system software or the hardware reference diskette and try the procedure again.

TOPS MPX Power-on self-test troubleshooting (end)

If Suggest Action is	Do
3	This indicates that the unit detects an adapter board that identifies to the system configuration. Go to *TOPS MPX power on self test* and perform Automatic Configuration.
4	This indicates a problem the keyboard interface. - Make sure the keyboard is plugged into the correct port on the back of the unit. - Check for keys on the keyboard that are pressed or stuck down. If this action does not correct the problem, try another keyboard and cable. - If the problem persists, go to step 4.
5	This indicates a problem with the diskette in the A drive is present. - To load the diskette again turn off the power to the PC, wait 10 s and power back on. - If the error occurs again, try another diskette.

TOPS MPX terminal system diagnostic
TOPS MPX

Application

This procedure follows the sequence of tests that the system performs to complete system diagnostics.

Requirement

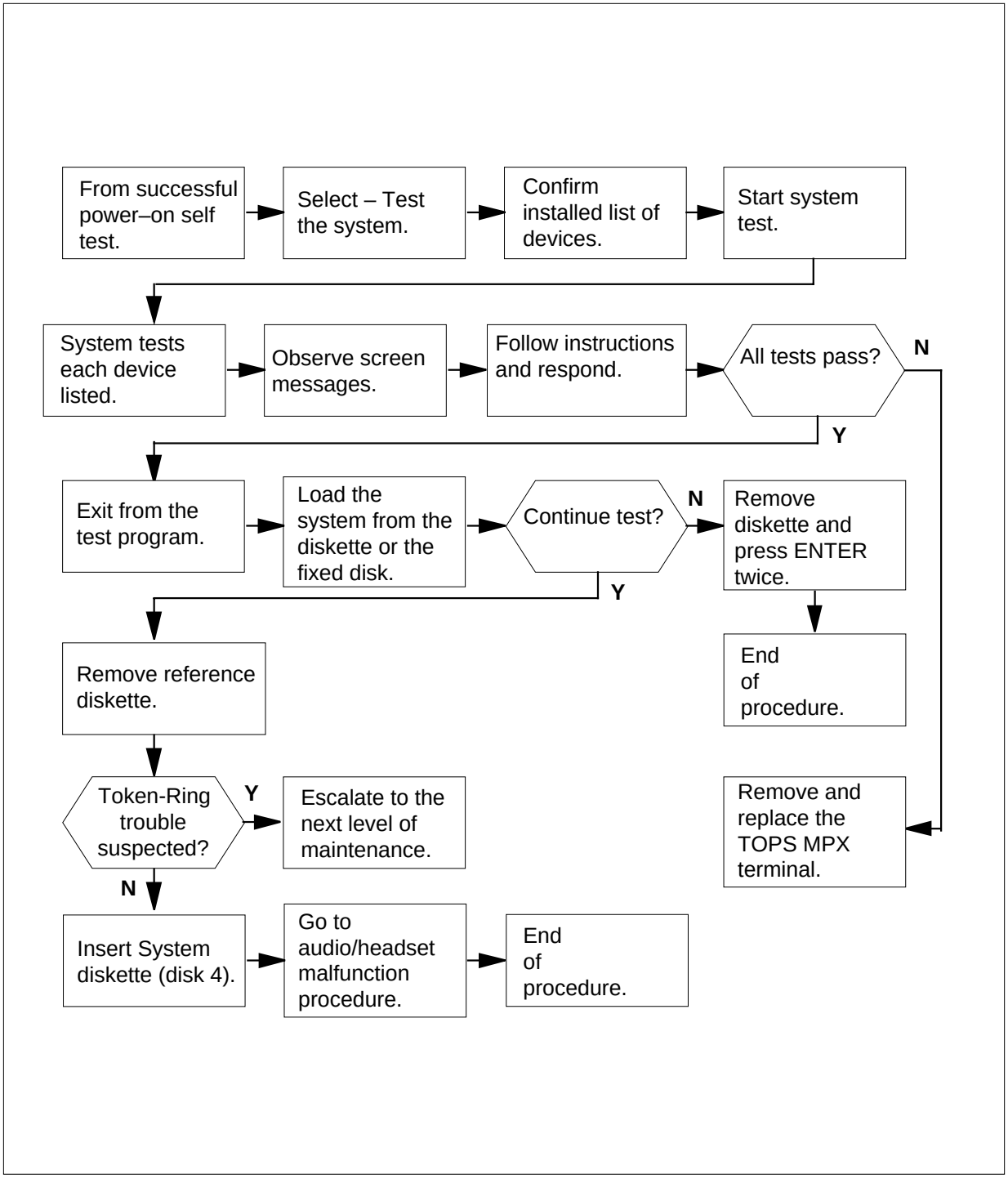
Do not perform this procedure unless the TOPS MPX power-on self-test completes.

Action

This procedure contains a summary flowchart and a list of steps. Use the flowchart as an overview of the procedure. Follow the steps to perform the procedure.

TOPS MPX terminal system diagnostic
TOPS MPX (continued)

Summary of TOPS MPX terminal system diagnostic



TOPS MPX terminal system diagnostic
TOPS MPX (continued)

TOPS MPX terminal system diagnostic

At the TOPS MPX terminal

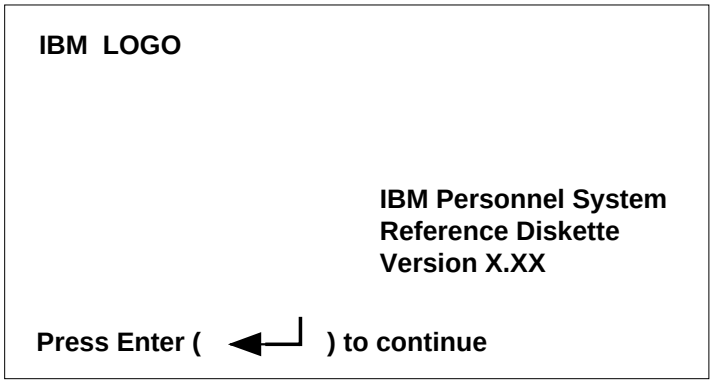
1 Begin the terminal system diagnostic.

If	Do
Power is on	To turn the TOPS MPX off, activate the POWER OFF switch on the front of the controller. Wait 5 s. Go to step 2.
Power is off	Go to step 2.

2 Insert Hardware Reference Diskette.

3 To turn power on, activate the POWER ON switch on the front of the controller.

4 After the self-test completes, the screen that follows displays:



5 To access the main menu, press

ENTER

The main menu appears on the screen.

TOPS MPX terminal system diagnostic
TOPS MPX (continued)

```
MAIN MENU

1)  Learn about the system
2)  Backup the reference diskette
3)  Set configuration
4)  Set features
5)  Copy (merge) an Option Diskette
6)  Move the system
7)  Test the system


Use the arrow keys to select.  Press ENTER
ESC = Quit      F1 = Help
```

6 Test the system.

With the Ca Call (Cursor Down) key, select 7 -Test the system and

Press ENTER

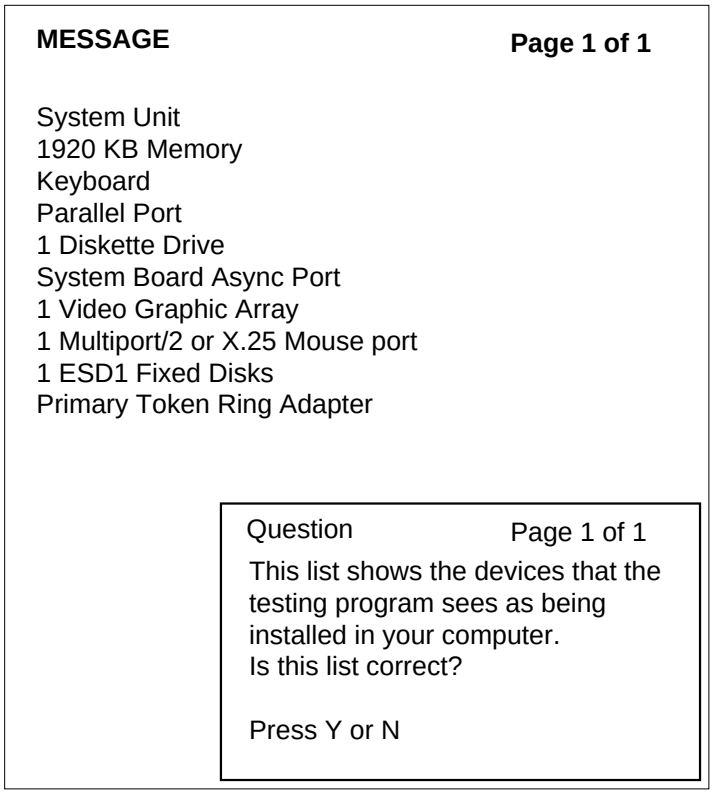
The message screen that follows displays:

```
MESSAGE                                  Page 1 of 1


The tests are being loaded.  Please
standby....
```

7 Confirm the list of devices is the same list the test program sees installed in your computer.

When the tests are loaded, the message screen that follows displays:

TOPS MPX terminal system diagnostic
TOPS MPX (continued)



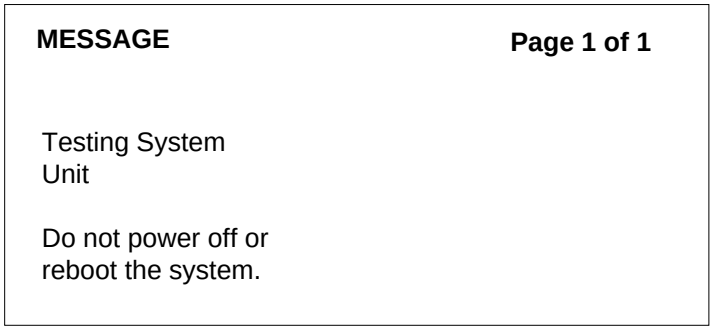
8 Start the system test. The system tests each device, in sequence, as shown in step 4.

`Press Y`

and then

`Press ENTER`

The screen displays that follow indicate the beginning and the completion of the tests:



TOPS MPX terminal system diagnostic
TOPS MPX (continued)

MESSAGE **Page 1 of 1**

COMPLETED

System Test 1

MESSAGE **Page 1 of 1**

1920 KB Memory

To terminate test, press 'CTRL C'.

MESSAGE **Page 1 of 1**

This test can take up to 5 minutes.
Please standby....

MESSAGE **Page 1 of 1**

Testing Keyboard

Do not press any key until requested.

TOPS MPX terminal system diagnostic
TOPS MPX (continued)

9 Test keyboard keys.

A keyboard picture displays. When the keyboard picture appears, press each key on the keyboard. A character that identifies the key appears on the key that matches, in the picture.

TOPS MPX terminal system diagnostic
TOPS MPX (continued)

MESSAGE **Page 1 of 1**

Complete -

Keyboard 3

MESSAGE **Page 1 of 1**

Testing Parallel Port.

To terminate tests, press CTRL C.

MESSAGE **Page 1 of 1**

Completed Testing

Parallel Port.

INSTRUCTIONS **Page 1 of 1**

Please insert a scratch, high density diskette
into Drive A.

ENTER = Continue

To test the typematic function, hold the key and the character blinks.

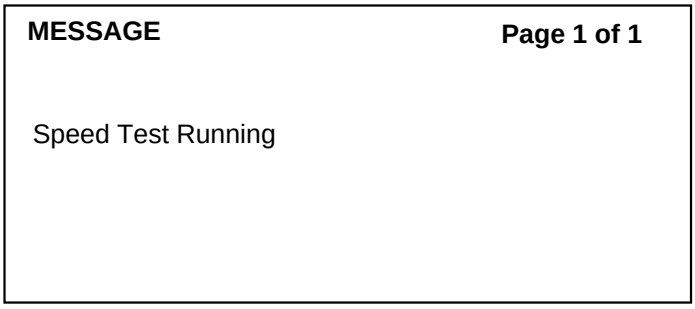
TOPS MPX terminal system diagnostic
TOPS MPX (continued)

After you test each key:

If	Do
Keyboard test passes	Press P and Enter.
Keyboard test fails	Press F and Enter.

10 Remove Diskette 4 of 4, Hardware Reference Diskette from Drive A and insert a scratch, high density diskette into Drive A.

`Press ENTER to continue.`



11 To format the diskette takes 3 min.

12 This test takes 5 min.

TOPS MPX terminal system diagnostic
TOPS MPX (continued)

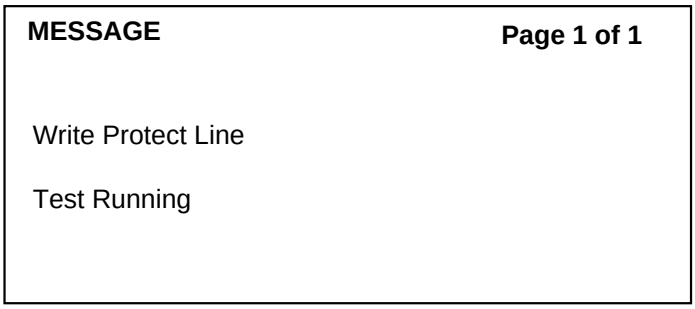
```
MESSAGE                                    Page 1 of 1


Write Protect Line

Test Running
```

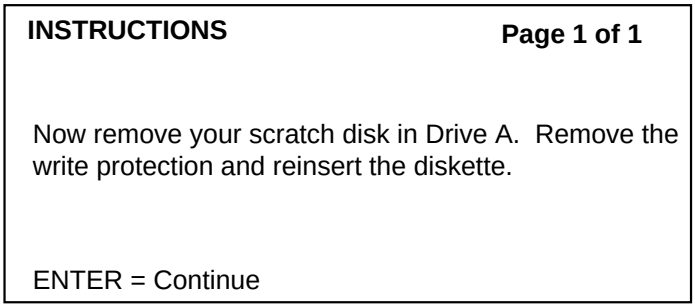
```
INSTRUCTIONS                               Page 1 of 1


Take out your scratch disk in Drive A, write protect the
diskette and reinsert the diskette in the drive.


ENTER = Continue
```

13 Take the scratch disk out of Drive A. Flip the write protect tab on back of the diskette to down position to see through the tab (write protect position). Insert the scratch disk in Drive A again.

```
Press ENTER to continue
```

TOPS MPX terminal system diagnostic
TOPS MPX (continued)





14 Take the scratch disk out of Drive A. Flip the write protect tab on back of the diskette to the up position, so you cannot see through the opening (write enable position). Insert the scratch disk in Drive A again.

`Press ENTER to continue`

TOPS MPX terminal system diagnostic
TOPS MPX (continued)

MESSAGE **Page 1 of 1**

Completed Testing of Diskette Drives - 6

MESSAGE **Page 1 of 1**

Completed testing of System
Board Async Port

MESSAGE **Page 1 of 1**

Running Controller Tests

MESSAGE **Page 1 of 1**

Running Seek Tests

15 This action test takes 2 min.

TOPS MPX terminal system diagnostic
TOPS MPX (continued)

MESSAGE	**Page 1 of 1**
Running Read Tests	

MESSAGE	**Page 1 of 1**
Running Video Graphic Test	

16 The screen is blank for 7 s. A picture of all characters the keyboard can accept appears.

MESSAGE	**Page 1 of 1**
Does your screen show all characters that can be entered from the keyboard and the grey & white bar? Press 'Y' or 'N'	

17 Display problem?

QUESTION	**Page 1 of 1**
Does your display have a problem? Press Y or N	

TOPS MPX terminal system diagnostic
TOPS MPX (continued)

MESSAGE **Page 1 of 1**

Completed Video Graphic Array - 24

MESSAGE **Page 1 of 1**

Testing Multiport/2 or X.25/2 tests

If	Do
A display problem is present.	Press Y and press ENTER.The test terminates.Remove and replace the defective unit.Mark the defective unit with the failed test.Replace the defective unit and begin the test sequence with the *TOPS MPX terminal power up self test*.
A display is not present.	Press N and press ENTER.Test continues.

18 This test takes 2 min.

TOPS MPX terminal system diagnostic
TOPS MPX (continued)

MESSAGE **Page 1 of 1**

X.25/2 tests are running

QUESTION **Page 1 of 1**

Do you want to use a wrap plug to test the X.25/2 adapter in slot 1?

(To answer 'Y', you must have an IBM cable and wrap plug, and you must disconnect from the network.)

Press 'Y' or 'N'

Press N

and

Press ENTER

TOPS MPX terminal system diagnostic
TOPS MPX (continued)

MESSAGE **Page 1 of 1**

Slot #1 Adapter reset in progress....

MESSAGE **Page 1 of 1**

Testing - Mouse Port

Do not use keyboard or mouse until requested.

QUESTION **Page 1 of 1**

Is a mouse attached to the computer?

Press 'Y' or 'N'

Press N
and
Press ENTER

TOPS MPX terminal system diagnostic
TOPS MPX (continued)

MESSAGE **Page 1 of 1**

Completed Testing
- Mouse Port A

MESSAGE **Page 1 of 1**

Testing ESD1 Fixed Disk C is configured as a 30mb drive

Is this correct?
Note: It is possible that the disk is configured at 40mb.

Press 'Y' or 'N'

Press Y

and

Press ENTER

TOPS MPX terminal system diagnostic
TOPS MPX (continued)

```
MESSAGE                                    Page 1 of 1

Running ESD1 Seek Test
```

```
MESSAGE                                    Page 1 of 1

Running Read Write Test
```

```
MESSAGE                                    Page 1 of 1

Running Read Verify Test
```

19 This test takes 3 min.

TOPS MPX terminal system diagnostic
TOPS MPX (continued)

MESSAGE **Page 1 of 1**

Testing - Primary Token Ring Adapter

To terminate Press CTRL- C

MESSAGE **Page 1 of 1**

Primary Adapter Select Cable Type

1. Token Ring Network Adapter Cable

2. Type 3 Media Filter Cable
To terminate Press CTRL- C

Use 'CA Call' key to select 1. Token Ring Network Adapter Cable.
Press ENTER
ESC = Quit F1 = Help

INSTRUCTIONS **Page 1 of 2**

If not already done, disconnect the Primary adapter cable from the network.

Make sure the other end still connects to the Primary Token ring network adapter. remove the cable from the adapter board will result in a “16691 error” (Open Phase Test Failure).

Press 'ENTER'

TOPS MPX terminal system diagnostic
TOPS MPX (continued)

INSTRUCTIONS **Page 2 of 2**

You must compare the contents of the following screen with the parameters you recorded while viewing the configuration of the token ring adapter. If you did not configure the Token Ring Adapter, record the address of the adapter on the TOPS MPX Configuration Worksheet. Use the field labeled TOKEN RING ADAPTER ID. Also record any other information known about this terminal in the appropriate fields.

Press ENTER then the STA key to move to the second page of the adapter information. Record the address of the Token Ring Adapter on the TOPS MPX Configuration Worksheet.
Press ENTER

MESSAGE **Page 1 of 1**

Testing - Primary Token Ring Adapter

Please wait, this test takes up to 2 min.

INSTRUCTIONS **Page 1 of 1**

All tests passed.

You should now connect the Primary Token Ring Adapter cable to the network.

ENTER = Continue

TOPS MPX terminal system diagnostic
TOPS MPX (continued)

INSTRUCTIONS **Page 1 of 1**

Remove the diskette in drive A. The computer hardware tests are complete. If testing found errors and you continue to have problems with the computer, refer to What If Testing Cannot Find the Problem in your Quick Reference manual.

ENTER = Continue

INSTRUCTIONS **Page 1 of 1**

You are leaving the testing program. If you want to start your operating system from diskette, remove the diskette in drive A and insert the system diskette. If you want to start your operating system from the fixed disk, remove the diskette in drive A.

20 Reference Diskette test complete.

If	Do
There is no additional test required.	Remove the reference diskette from Drive A. Press ENTER twice. System now boots.

TOPS MPX terminal system diagnostic
TOPS MPX (end)

If	Do
Additional test is necessary.	Remove the reference diskette, and insert the System disk (disk # 4 of 4). Press ENTER twice for `A:>' to appear on screen. Go to audio/headset malfunction procedure.
Token Ring LAN diagnostics are necessary.	Go to Token Ring LAN trouble-shooting procedure.

TOPS MPX Token Ring LAN troubleshooting

Error codes

Ring Diagnostic output error codes (166nn) (Sheet 1 of 2)

Error Code	Meaning	Action
16689	Microcode download failure The adapter microcode download fails.	Make sure the adapter is firmly seated in the adapter slot. Make sure the adapter microcode is loaded to the correct disk or diskette. Run the diagnostics again. If the failure continues to occur, follow the remove and replace procedures for the TOPS MPX position. This procedure is located in the common procedures section of this manual.
16690	Adapter card test failure The diagnostics detect a failure during initialization of the adapter.	Make sure the adapter is firmly seated in the adapter slot. Check the established configuration. If necessary run the automatic configuration procedure. Run the diagnostics again. If the failure continues to occur, follow the remove and replace procedures for the TOPS MPX position. These procedures are located in the common procedures section of this manual.
16691	Open phase test failure	Replace the adapter cable with a spare working cable until the problem is fixed. Run the diagnostics again. If the failure continues to occur, follow the remove and replace procedures for the TOPS MPX position. These procedures are in the common procedures section of this manual. If the failure does not occur again, the adapter cable is defective. Replace the damaged cable.

TOPS MPX Token Ring LAN troubleshooting (continued)

Ring Diagnostic output error codes (166nn) (Sheet 2 of 2)

Error Code	Meaning	Action
16692	Computer problem The computer detects an error.	Use the test on the Reference diskette to run the diagnostics on the computer. Follow the instructions the diagnostics provide.
16693	Transmit/receive test failure	Replace the adapter cable with a spare working cable until the problem is fixed. Run the diagnostics again. If the failure continues to occur, follow the remove and replace procedures for the TOPS MPX position. These procedures are in the common procedures section of this manual. If the failure does not occur again, the adapter cable is defective. Replace the damaged cable.
16699	General error The diagnostics detect a failure during initialization of the adapter.	Make sure the adapter is firmly seated in the adapter slot. Check the established configuration. If necessary, run the automatic configuration procedure. Run the diagnostics again. If the failure continues to occur, follow the remove and replace procedures for the TOPS MPX position. These procedures are in the common procedures section of this manual.

The Ring Diagnostic

Description

The Ring Diagnostic analyzes events on the ring and displays information about the ring. The Ring Diagnostic determines if the ring works and determines problems on the ring. The Ring Diagnostic only views events on the ring attached to the terminal that runs the software. To view other Token Rings, load the Ring Diagnostic on a terminal attached to the ring you want to view.

The Ring Diagnostic output appears on the screen. The Ring Diagnostic can send the data area messages to a printer. To use the print feature, a locally

TOPS MPX Token Ring LAN troubleshooting (continued)

attached printer is configured and installed. Install the printer on the TOPS MPX position that is running the Ring Diagnostic.

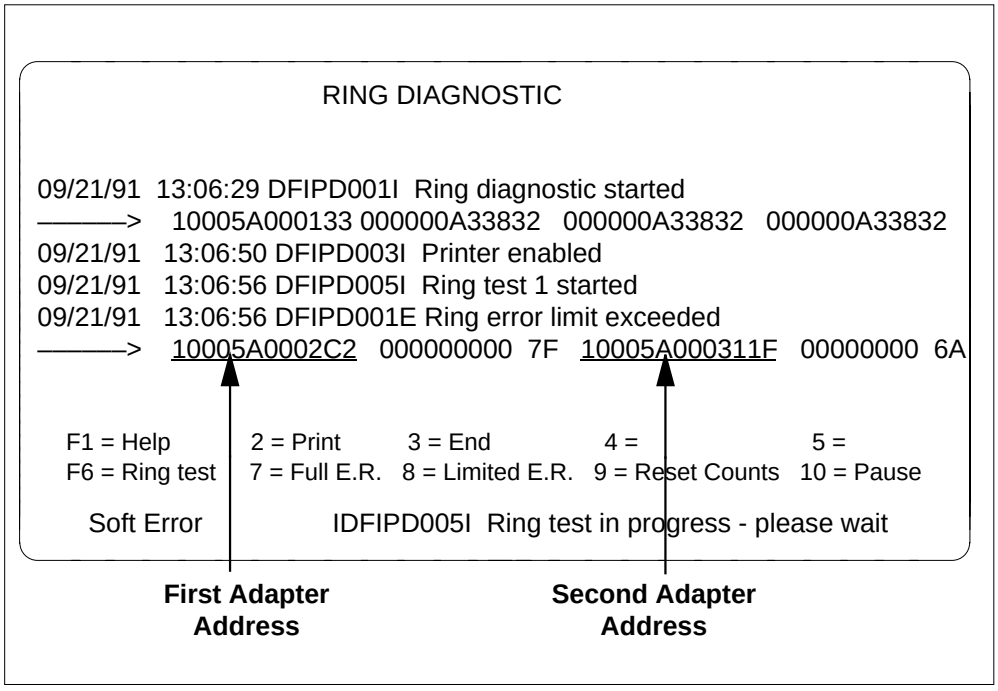
The Ring Diagnostic displays the information in three categories. Each category appears in a separate area of the screen. Data Area Messages appear in the upper portion of the screen. Ring Status and Ring Diagnostic Status appear on the bottom line of the screen. A vertical bar (|) separates Ring Status and Diagnostic Status information.

Ring Status: The most important information is Ring Status. The Ring Status indicates the different conditions of the ring. These conditions range from normal ring operation to a wire fault.

Ring Diagnostic Status: This information indicates the operating status of the Ring Diagnostic.

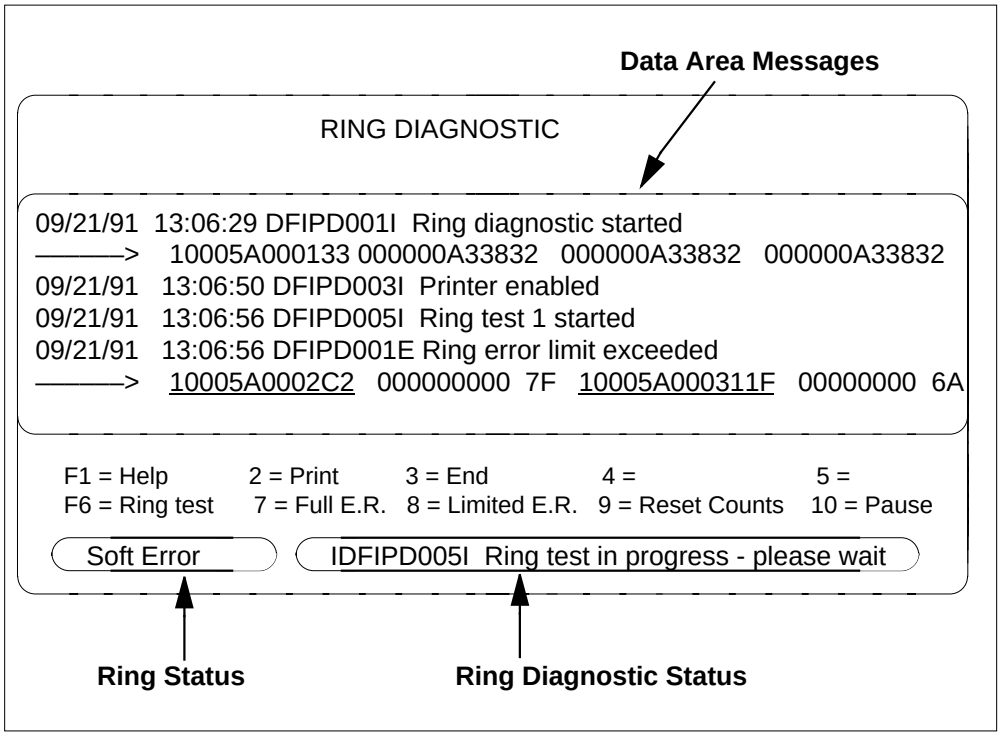
Data Area Messages: The most detailed information supplied by the Ring Diagnostic is Data Area Messages. The Ring Diagnostic supplies this information to find a problem on the ring.

Ring Diagnostic screen



TOPS MPX Token Ring LAN troubleshooting (continued)

Ring Diagnostic screen

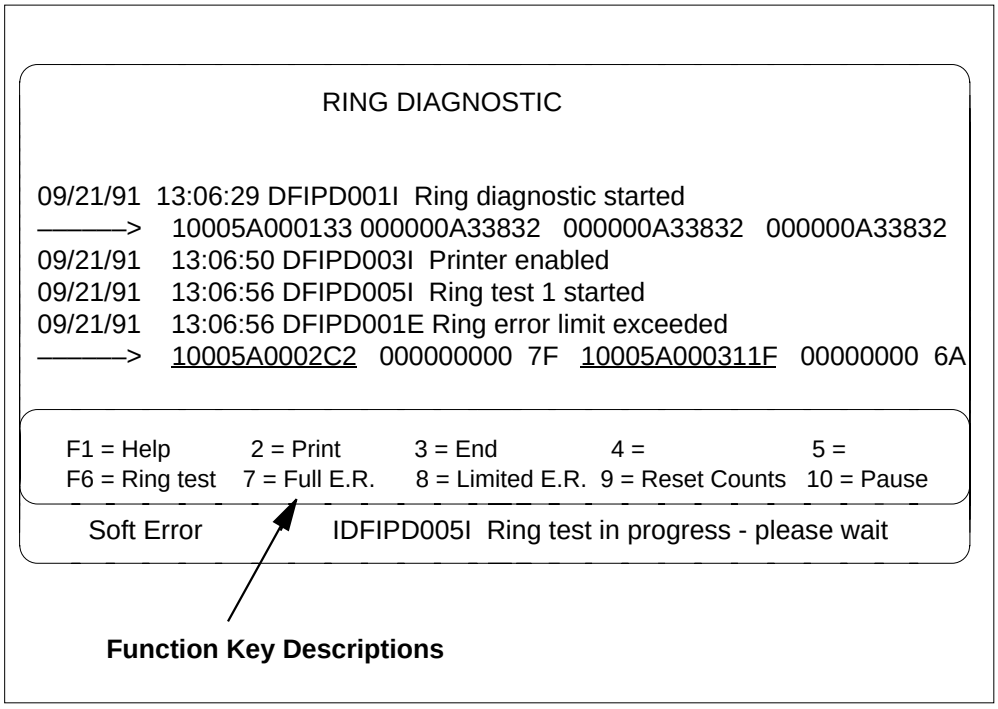


The Function Keys

The function keys are the only active Ring diagnostic keys. The PC beeps if any other keys are pressed.

TOPS MPX Token Ring LAN troubleshooting (continued)

Ring Diagnostic screen



TOPS MPX Token Ring LAN troubleshooting (continued)

Ring Diagnostic Function Keys (Sheet 1 of 2)

Key	Description
F1 Help Key	To view Help, press F1. The Help panels provide a description of the function keys. The Help panels display the address of the adapter that runs the ring Diagnostic and the code level of the adapter. The Help panel also displays the Adapter Support Interface and the Ring Diagnostic. After each Help panel appears, the screen is in the Pause mode. When you view the Help panels, two functions are available and appear on the screen: • F3 (End) • F10 (Pause) To view the next Help panel, press F10 (Pause) to cancel Pause. To cancel Help and return to the Ring Diagnostic mode in use before you used the Help function, press F3 (End).
F2 Print	To print all Data Area Messages. When Data Area Messages appear, press F2. To cancel printing, press F2 again. Data area messages continue to appear when the Print function is active. The function key 2 = Print is highlighted when the Print function is active. If the printer is not ready, F4 (Retry Print) is displayed.
F3 End	To end the Ring Diagnostic and return to DOS, press F3. To cancel Help and return to the Ring Diagnostic mode in use before you used the Help function, press F3 (End).
F4 Retry Print	This key appears when a printer error occurs. To start the printer after you remove the cause of the printer error, press F4 (Printer Retry).
F5 Dump	This key appears if an error occurs when you attempt to start the Ring Diagnostic. This key also appears if an error does not allow the Ring Diagnostics to continue. To save the dumped computer memory information, insert a blank, formatted diskette in A Drive. To access the prompt messages to write a portion of the computer memory to a diskette, press F5 (Dump).

TOPS MPX Token Ring LAN troubleshooting (continued)

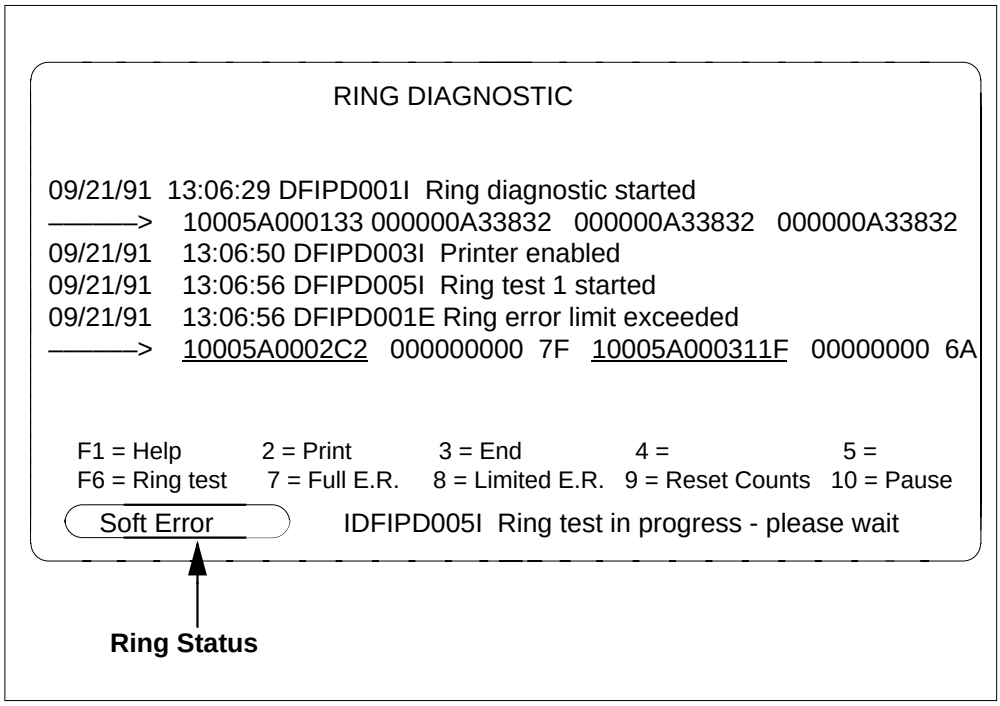
Ring Diagnostic Function Keys (Sheet 2 of 2)

Key	Description
F6 Ring Test	To test the Adapter Support Interface and the ability of the Token Ring to pass data, press F6. A test result message appears when each step of the two-step test completes.
F7 Full E.R.	To monitor all error report messages the system sends to the data area of the display, press F7. This mode displays all beacon status updates when you perform manual recovery actions. The function key 7 = Full E.R. is highlighted when you activate the Full Error Reporting function. To cancel Full Error Reporting, press F7 (Full E.R.) again.
F8 Limited E.R.	To monitor only soft error reports from the adapters that meet a defined error level, press F8. The error reports appear in the data area of the display. The system sends the messages to the data area when the ring error limit reaches the halfway point. Ring response can be slow when the ring error limit reaches the halfway point. The function key 8 = Limited E.R. is highlighted when you activate the Full Error Reporting function. To cancel Limited Error Reporting, press F8 (Limited E.R.) again.
F9 Reset Counts	To reset the error counts that the error reporter function of the Ring Diagnostic maintains, press F9. *Press this key if you received message 120.* The system saves messages that are in the print or display buffers.
F10 Pause	To stop the scrolling of messages in the data area, press F10. Messages scroll in the data area because the data area fills. The function key 10 = Pause is highlighted when you activate the Pause function. When Pause is active, the system sends new messages to a display buffer. If this buffer fills to 80% of the buffer capacity, a message appears in the Ring Diagnostic status area. To bring the messages in the display buffer to the data area of the screen, cancel Pause. To start scrolling again or cancel Pause, press F10 (Pause) again.

TOPS MPX Token Ring LAN troubleshooting (continued)

The Ring Status Area

All ring status conditions appear in the list below. All ring status conditions, except Normal, are highlighted on the screen and status conditions remain highlighted until normal ring status returns. Generate a data area message when ring status changes. Refer to Data Area Messages.



Ring Status Conditions (Sheet 1 of 2)

Condition	Description
Normal	The Ring Diagnostic processes information, and the ring operates normally.
Soft Error	The ring experiences intermittent problems. Data transmitted on the ring more than once are received correctly.
Beaconing	The ring does not work. A broken wire or a defective adapter can cause the ring to stop. When the problem is isolated to one adapter, the system displays the logical address of the problem to an operator. The system displays the address of the problem in a data area message.

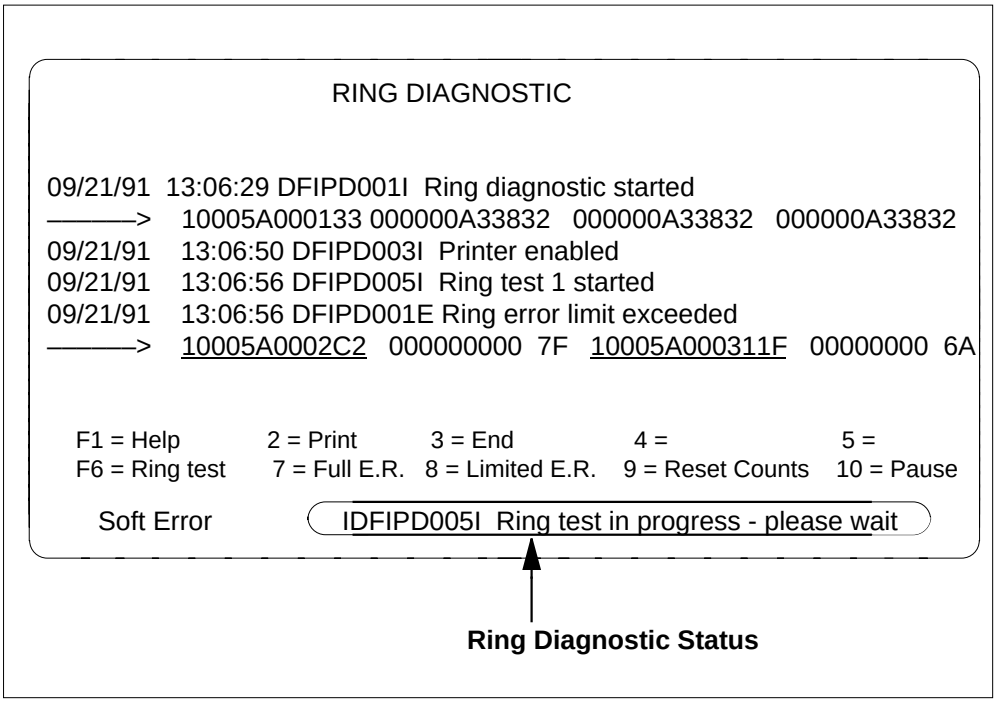
TOPS MPX Token Ring LAN troubleshooting (continued)

Ring Status Conditions (Sheet 2 of 2)

Condition	Description
Adapter Closed	This IBM Token Ring Network PC Adapter is not actively attached to the network.
Wire Fault	A problem occurs with the connection between the attaching device and the multi-station access unit (MAU).

Ring Diagnostic Status Area Messages

The Ring Diagnostic Status area messages appear with the message number and message text.



TOPS MPX Token Ring LAN troubleshooting (continued)

The following Ring Diagnostic Status messages are listed by message number. The message number is the *3 numeric digits* in the message identifier.

Ring Diagnostic Status Area Messages (Sheet 1 of 3)

Message Number	Message/Text/Meaning/Action
DFIPD002I	*Message:* Operation in progress - please wait *Meaning:* The program performs an operation. This message appears when the Ring Diagnostic performs an operation. This operation occurs a function key is pressed. *Action:* Wait for the operation to complete
DFIPD005I	*Message:* Ring test in progress - please wait *Meaning:* To initiate a ring test, press F6 (Ring Test). This message displays until the ring test completes. *Action:* Wait for the ring test to complete. Look for the results in the data area.
DFIPD008I	*Message:* Ring adapter open in progress - please wait *Meaning:* The program opens 0the ring adapter. This message displays until initialization is complete or data area message DFIPD040E displays. *Action:* Wait for the adapter to open.
DFIPD080W	*Message:* Display buffer 80% full *Meaning:* The display buffer is 80% full. The display buffer is an area in memory that holds the Ring Diagnostic output. The display buffer holds Ring Diagnostic output until the system can send the output to the display. The display buffer can hold up to 100 lines of data. When the buffer becomes full, new data is lost. This message occurs when the data area is in the Pause mode. *Action:* To return the Ring Diagnostic in the Help mode, press F3 (End). If you are not in Help mode, deactivate Pause, Full E.R., or Limited E.R. functions, if active.

TOPS MPX Token Ring LAN troubleshooting (continued)

Ring Diagnostic Status Area Messages (Sheet 2 of 3)

Message Number	Message/Text/Meaning/Action
DFIPD081E	*Message:* Display buffer overflow - data lost *Meaning:* The display buffer is full. The latest data is lost. *Action:* To return to the Ring Diagnostic in Help mode, press F3 (End). If you are not in Help mode, deactivate Pause, Full E.R., or Limited E.R. functions, if active.

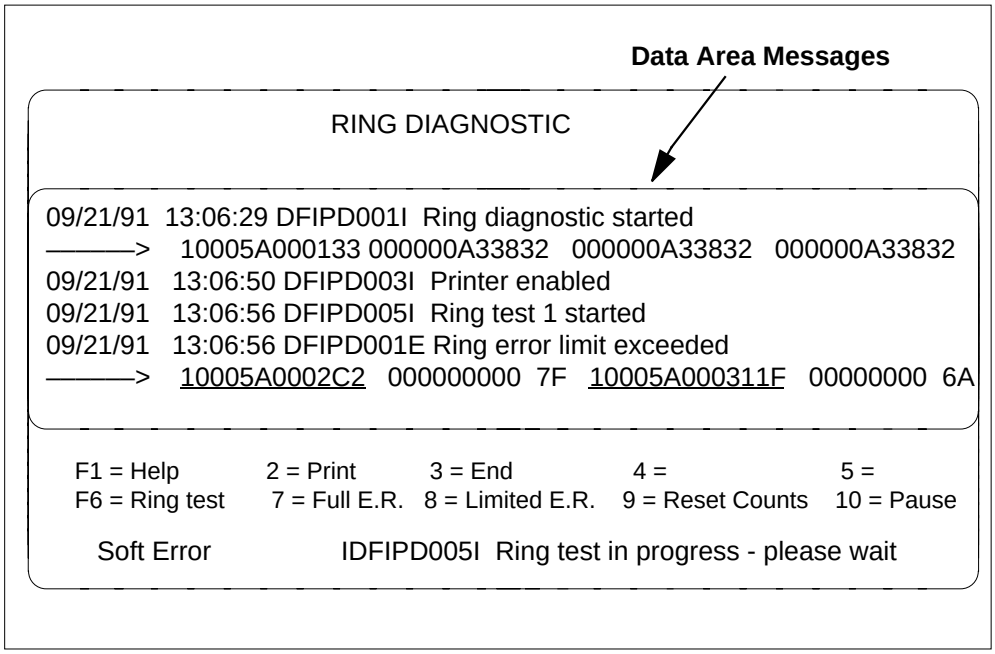
TOPS MPX Token Ring LAN troubleshooting (continued)

Ring Diagnostic Status Area Messages (Sheet 3 of 3)

Message Number	Message/Text/Meaning/Action
DFIPD090W	*Message:* Printer needs attention *Meaning:* There is no response from the printer. The printer is not connected, off-line, jammed, or out of paper. *Action:* Check to see if the printer is: • Powered on • On-line • Supplied with paper • Connected to the PC To try the printer again, correct the print problem and press F4 (Retry Print). If this action does not correct the printer error, press F2 (Print). F2 disables the printer and allows continued use of the Ring Diagnostic.
DFIPD990E	*Message:* XX *Meaning:* (The two Xs represent an error code in the form of two hexadecimal digits.) This code indicates an abnormal end occurs. *Action:* If the error code is 45, press F3 (End) and try a different System Disk. If the code is not 45, press F3 (End) and do the following: 1. Start the PC again with the System diskette in the A Drive. 2. Start the Ring Diagnostics again. 3. If the same message occurs, try a different System Diskette. 4. If the problem is not corrected, press F5 (Dump). Follow the actions in the messages that display.

Data Area Messages

TOPS MPX Token Ring LAN troubleshooting (continued)

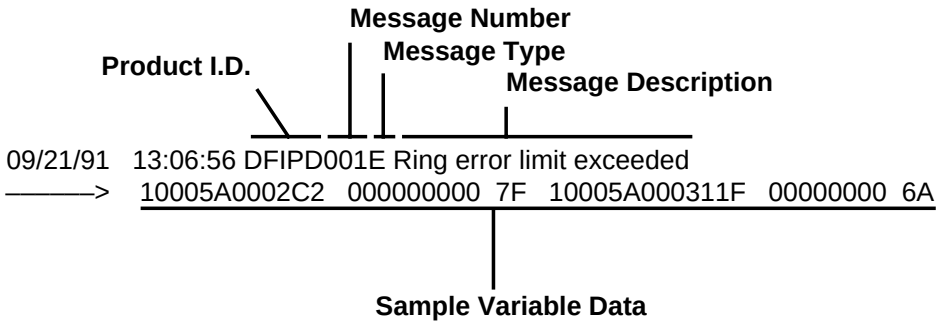


Data area messages have one or two lines. The number of lines depends on if variable data is associated with the message. When two lines display, the second line is variable data.

The three types of messages are:

- *I - Information*
- *W - Warning*
- *E - Error*

The identification of the Data Area Message components appears below.



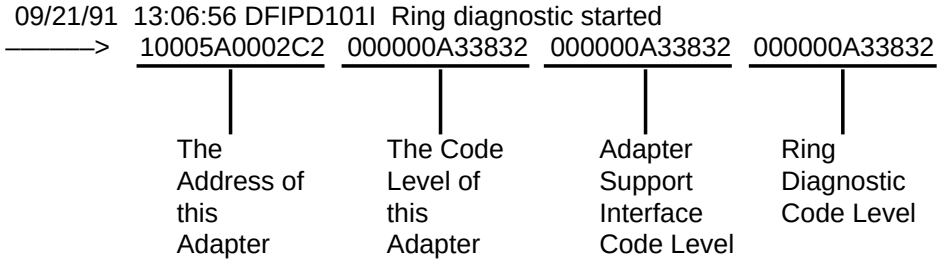
TOPS MPX Token Ring LAN troubleshooting (continued)

The following table lists the data area messages and probable causes.

Data Area Message Descriptions

Message Number	Message/Meaning/Action/Variable Data
DFIPD001I	*Message:* Ring diagnostic started *Meaning:* The Ring Diagnostic completes initialization. When this message displays, ring status is Normal. *Action:* None required, unless you have not recorded the address of the adapter. If the address is not recorded, record the adapter address at this time. The first Help panel contains the adapter address. *Variable Data:*

TOPS MPX Token Ring LAN troubleshooting (continued)



(Sheet 1 of 4)

Message Number	Explanation
DFIPD003I	*Message:* Printer enabled *Meaning:* The printer is active. The user pressed F2 (Print) or started the Ring Diagnostic with the /P parameter in effect. *Action:* There is no action required. *Variable Data:* Does not apply
DFIPD004I	*Message:* Printer disabled *Meaning:* The printer is disabled. The user pressed F2 (Print) while the print was activated. *Action:* There is no action required. *Variable Data:* Does not apply
DFIPD010I	*Message:* Full error reporting enabled *Meaning:* Full Error Reporting is active. The user pressed F7 (Full E.R.) or started the Ring Diagnostic with the /F parameter in effect. *Action:* There is no action required. *Variable Data:* Does not apply

TOPS MPX Token Ring LAN troubleshooting (continued)

(Sheet 2 of 4)

Message Number	Explanation
DFIPD011I	*Message:* Full error reporting disabled *Meaning:* Full Error Reporting is disabled. The user pressed F7 (Full E.R.) when Full E.R. was in effect. *Action:* There is no action required. *Variable Data:* Does not apply
DFIPD012I	*Message:* Limited error reporting enabled *Meaning:* Limited Error Reporting is active. The user pressed F8 (Limited E.R.) or started Ring diagnostic with the /L parameter in effect. *Action:* There is no action required. *Variable Data:* Does not apply
DFIPD013I	*Message:* Limited error reporting disabled *Meaning:* Limited Error Reporting is disabled. The user pressed F8 (Limited E.R.) when Limited Full E.R. was in effect. *Action:* There is no action required. *Variable Data:* Does not apply
DFIPD014I	*Message:* Error counters reset *Meaning:* The error counters for the soft error reporter function of the Ring Diagnostic are reset. The user pressed F9 (Reset Counts). When this message displays, a ring status of Soft Error changes to Normal. *Action:* There is no action required. *Variable Data:* Does not apply

TOPS MPX Token Ring LAN troubleshooting (continued)

(Sheet 3 of 4)

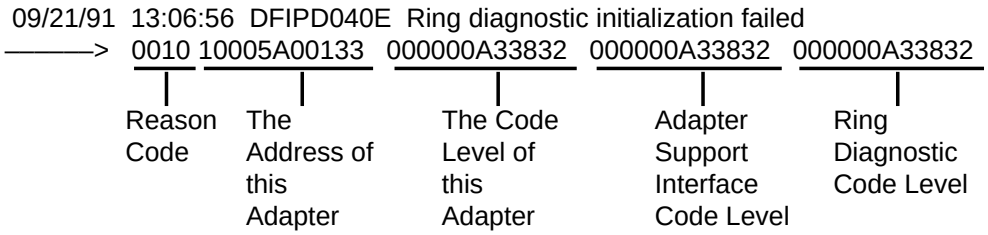
Message Number	Explanation
DFIPD015I	*Message:* Ring test 1 started *Meaning:* Ring test 1 started. The user pressed F6 (Ring Test). The Ring Diagnostic sends a message to test the Adapter Support Interface and the adapter in this computer. *Action:* Wait for another message that indicates the result of ring test 1. *Variable Data:* Does not apply
DFIPD016I	*Message:* Ring test 1 successful - test 2 started *Meaning:* Ring test 1 completed and ring test 2 starts. Ring diagnostic sends a message to complete the test of the Adapter Support Interface in this computer. This message appears after message number DFIPD015I. *Action:* Wait for a message that indicates the result of ring test 2. *Variable Data:* Does not apply
DFIPD017E	*Message:* Ring test 1 failed - test stopped *Meaning:* The Ring Diagnostic could not complete ring test 1 *Action:* When ring status is Normal, run the Adapter Diagnostics. Make sure the diagnostics indicate that the adapter functions and the message repeats. Remove and replace the TOPS MPX position. Follow the common procedures. Install the replacement TOPS MPX. Begin the test. Use the TOPS MPX power-on self test. If the known working TOPS MPX position flags this error, there is a problem with the adapter cable or the MAU. *Variable Data:* Does not apply

TOPS MPX Token Ring LAN troubleshooting (continued)

(Sheet 4 of 4)

Message Number	Explanation
DFIPD018I	*Message:* Ring test 2 successful - test complete *Meaning:* Ring test 2 is complete. The Adapter Support Interface and adapter sent out a message that returned correctly. This message appears after the message number DFIPD016I. *Action:* There is no action required. *Variable Data:* Does not apply
DFIPD019E	*Message:* Ring test 2 failed - test is complete *Meaning:* Ring test 2 did not send a message around the ring. The Adapter Support Interface or this adapter does not send or receive the message correctly. This message appears when message DFIPD230E displays and the Ring Diagnostic starts. *Action:* When ring status is Normal, run the Adapter Diagnostics. Make sure the diagnostics indicate that the adapter functions and the message repeats. Remove and replace the TOPS MPX position. Follow the common procedures. Install the replacement TOPS MPX. Begin the test. Use the TOPS MPX power-on self test. If the known working TOPS MPX position flags this error, a problem with the adapter cable or the MAU is present. *Variable Data:* Does not apply
DFIPD040E	*Message:* Ring Diagnostic initialization failed. *Meaning:* The Ring diagnostic cannot start correctly. The error is caused by an internal program error or by the creation of the back-up copy of the System Disk. *Action:* Refer to the variable data and to the chart below to determine the reason for failure. *Variable Data:*

TOPS MPX Token Ring LAN troubleshooting (continued)



(Sheet 1 of 2)

Reason Code	Reason	Action
0002	Initialize command fails.	Refer to Action #1 after this table.
0003	Open command fails.	Refer to Action #1 after this table.
0007	Status command fails.	Refer to Action #1 after this table.
0008	Adapter already in use.	Use optional parameter /l to invoke the Ring diagnostic.
000A	Parameters were not passed to the Ring Diagnostic.	Use a different System Diskette. A problem with the Ring Diagnostic is present.
000E	Wrong optional parameter.	Use a different System Diskette. A problem with the Ring Diagnostic is present.
000F	Printer initialization fails.	Remedy the problem with the printer.
0010	Help initialization fails.	Use a different System Diskette. A problem with the Ring Diagnostic is present.
0015	Error reporter fails.	Use a different System Diskette. A problem with the Ring Diagnostic is present.
0018	The wrong level of DOS is used.	Make sure you use the DOS version 4.0 or higher.

TOPS MPX Token Ring LAN troubleshooting (continued)

(Sheet 2 of 2)

Reason Code	Reason	Action
0001A	Formatter initialization fails.	Use a different System Diskette. A problem with the Ring Diagnostic is present.
All other numbers		Refer to Action #2 after this table.

TOPS MPX Token Ring LAN troubleshooting (continued)

(Sheet 1 of 2)

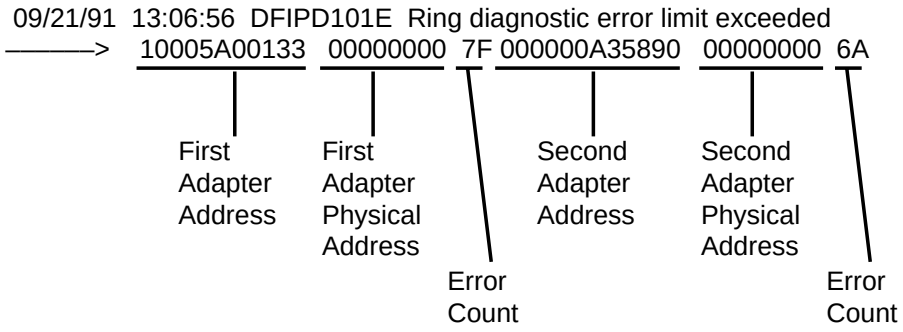
Message Number	Explanation
DFIPD040E (cont)	*Action #1:* A second message appears after message DFIPD040E. The second message provides additional information. Take the action the other message indicates. *Action #2:* • To start the PC again, turn off the power. Wait 5 s. Turn the power back on with the system disk in the A Drive. • To start the Ring Diagnostics again, type DFIRUN and press ENTER. • If the message continues to display, run the Adapter Diagnostics. • If the message continues to display, try a different System diskette. • If the problem continues a problem with the adapter or the PC is present. Remove and replace the TOPS MPX position. Follow the common procedures. Install the replacement TOPS MPX. Begin the test. Use the TOPS MPX power-on self test.
DFIPD040E	*Message:* Ring Diagnostic ended *Meaning:* The user pressed F3 (End) or the initialization failed and caused the Ring Diagnostic to end. When this message displays because the user pressed F3 (End), ring status is Adapter Closed or Wire Fault. *Action:* If the user did not press F3 (End), refer to the previous messages for more information. *Variable Data:* Does not apply

TOPS MPX Token Ring LAN troubleshooting (continued)

(Sheet 2 of 2)

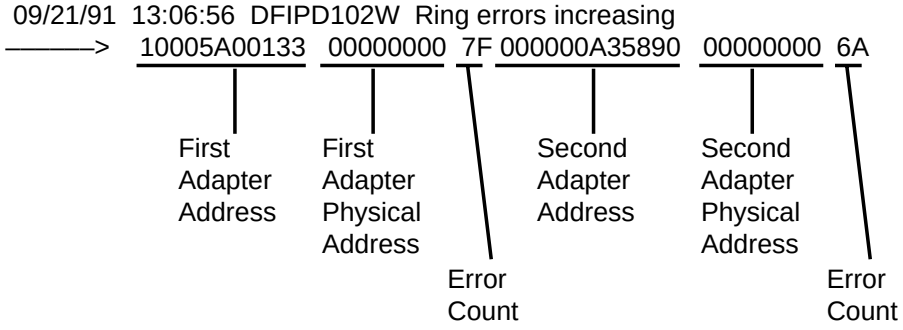
Message Number	Explanation
DFIPD081E	*Message:* Display buffer overflow - data lost *Meaning:* The area that stores display messages is full. New data is lost. This problem can occur because the Ring Diagnostic remains in Pause or Help too long. This problem can also occur because the system generates messages too fast for the display. The system generates messages too fast when the user activates Full E.R. or Limited E.R. on a ring with a high error rate. *Action:* To return to the Ring Diagnostic in the Help mode, press F3 (End). If you are not in the Help mode, deactivate Pause, Full E.R., or Limited E.R. functions. *Variable Data:* Does not apply
DFIPD101E	*Message:* Ring error limit exceeded *Meaning:* The number of soft errors exceeds the limit. This can degrade the performance of the ring. When this message appears, ring status is Soft Error. *Action:* Record the ring status. Write down the addresses of the first and second adapters. • To clear the error counters, press the F9 (Reset Counts) key. If the errors continue, disconnect the adapters that cause the errors. Reset the counters again. If errors do not continue, troubleshoot the terminals that cause the problems. Look for defective cables, connectors, or loose connections. • If the preceding action does not solve the problem, a defective MAU can be the cause of the problem. Isolate the MAU where the terminals were connected and run the test again. If this action does not solve the problem, replace the MAU. • If the problem persists, it is possible that there is more than one defective MAU. Continue troubleshooting to locate any additional defective MAUs or adapters. *Variable Data:*

TOPS MPX Token Ring LAN troubleshooting (continued)



Note: If the variable data for the first adapter is not available, it is replaced with two asterisks (**). This indicates that the ring Diagnostic isolated the problem to the indicated adapter.

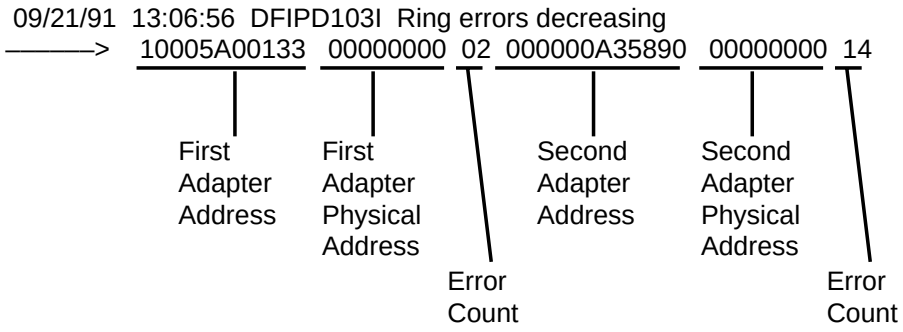
Message Number	Explanation
DFIPD102W	*Message:* Ring errors increasing *Meaning:* Adapters on the ring record soft errors and the number approaches a level that is not accepted. This message displays when Full E.R. is activated. When this message displays, ring status is Normal. *Action:* There is no action required. *Variable Data:*



TOPS MPX Token Ring LAN troubleshooting (continued)

Note: If the variable data for the first adapter is not available, it is replaced with two asterisks (**). This indicates that the ring Diagnostic isolated the problem to the indicated adapter.

Message Number	Explanation
DFIPD103I	*Message:* Ring errors decreasing *Meaning:* The rate of soft errors decreases. It is possible that the source of the soft errors are removed When this message displays, the ring status is Normal. *Action:* There is no action required. *Variable Data:*

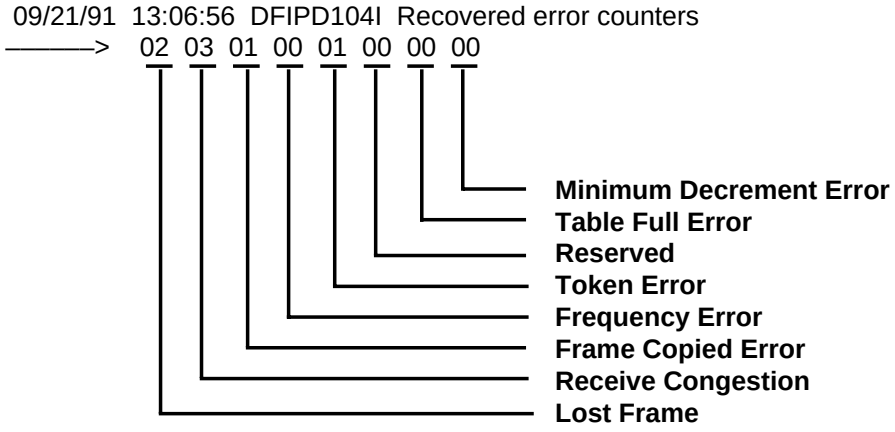


TOPS MPX Token Ring LAN troubleshooting (continued)

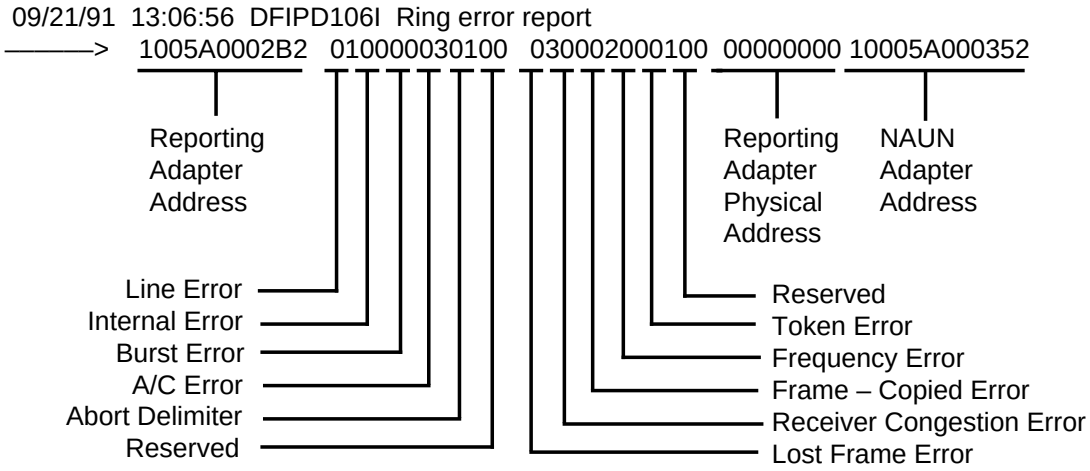
Note: If the variable data for the first adapter is not available, it is replaced with two asterisks (**). This indicates that the ring Diagnostic isolated the problem to the indicated adapter.

Message Number	Explanation
DFIPD104I	*Message:* Recovered error counters *Meaning:* The number of recovered errors exceeds the reporting limit. The source of these errors cannot be determined. This message displays only when Full E.R. is activated. This message is a normal function of the ring. When this message appears, the ring status is Normal or Soft Error. *Action:* There is no action required. *Variable Data:*

TOPS MPX Token Ring LAN troubleshooting (continued)



Message Number	Explanation
DFIPD106I	*Message:* Ring error report *Meaning:* A soft error is detected. This message is a normal function of the ring. This message occurs only when Full E.R. or Limited E.R. is activated. When this message appears, ring status is Normal or Soft Error. *Action:* There is no action required. *Variable Data:* Does not apply



TOPS MPX Token Ring LAN troubleshooting (continued)

	NAUN (Nearest Active Upstream Neighbor): The NAUN device is the first device (in the ring sequence) involved with the error. The beaconing device is the last device (in the ring sequence) involved with the error.

Message Number	Explanation
DFIPD107E	*Message:* Adapter congested *Meaning:* More traffic is sent to the adapter than the adapter can manage. The adapter cannot receive a surplus number of frames. This message is an alert. *Action:* If the problem continues, it is possible that the adapter has a hardware or software problem. Run the Adapter Diagnostics. *Variable Data:* Does not apply
DFIPD108I	*Message:* Ring poll failure *Meaning:* The ring poll, also called neighbor notification, process encounters an error, and recovery occurs. This message displays only when Full E.R. is activated. When this message displays, ring status is Normal or Soft Error. *Action:* There is no action required. *Variable Data:*

TOPS MPX Token Ring LAN troubleshooting (continued)

```
09/21/91  13:06:56  DFIPD081I  Ring poll failure
————–>   10005A0002B2  10005A000352
```

Reporting Adapter Address

Address of Last Adapter Responding to Ring Poll

Message Number	Explanation
DFIPD109I	*Message:* Ring monitor error - ring recovered *Meaning:* The ring recovers after a ring monitor error occurs. This message appears only when Full E.R. is activated. When this message appears, ring status is Normal or Soft Error. *Action:* There is no action required. *Variable Data:*

```
09/21/91  13:06:56  DFIPD109I  Ring monitor error – ring recovered
————–>   1005A0002B2  0002  00000000  10005A000352
```

Ring Monitor Address

Error Reason Code

Ring Monitor Physical Address

NAUN Adapter Address

Message Number	Explanation
DFIPD110I	*Message:* Error reporter failed - processing continues *Meaning:* The system logs the message when the Ring Diagnostic detects an adapter that is not congested any longer. *Action:* There is no action required. *Variable Data:* Does not apply

TOPS MPX Token Ring LAN troubleshooting (continued)

Message Number	Explanation
DFIPD120E	*Message:* Error reporter failed - processing continues *Meaning:* The soft error reporter function of the Ring diagnostic fails. The Ring diagnostic continues to process other information. *Action:* To set the soft error reporter function again, press F9 (Reset Counts). If this message occurs again, do the following: 1. Start the PC again (remove power, wait 5 seconds, and apply power again). 2. Start the Ring Diagnostic. 3. If the same message occurs, use a different System Diskette and run the test again. 4. If the preceding action does not correct the problem, record the variable data. Check for problems with the PC and the adapter card. *Variable Data:*

TOPS MPX Token Ring LAN troubleshooting (continued)

09/21/91 13:06:56 DFIPD120E Error reporter failed – processing continue
————> 0002

Error
Reason
Code

(Sheet 1 of 2)

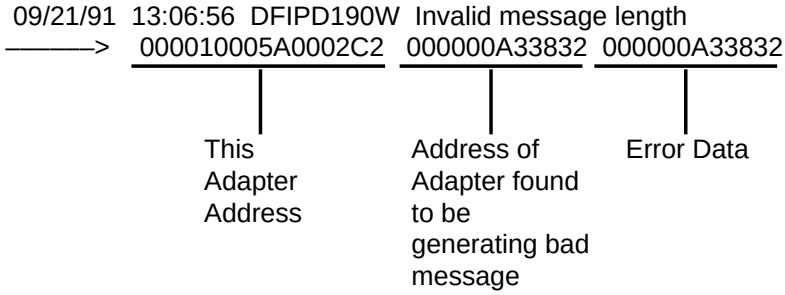
Message Number	Explanation
DFIPD140I	*Message:* Only adapter on ring *Meaning:* The Ring diagnostic detects that this is the only active adapter on the ring. *Action:* If you know other devices are active on the ring, check the other devices to make sure they are operational. *Variable Data:* Does not apply
DFIPD141I	*Message:* Additional adapters on ring. *Meaning:* The Ring Diagnostic detects at least one other adapter on the ring becomes active. *Action:* There is no action required. *Variable Data:* Does not apply

TOPS MPX Token Ring LAN troubleshooting (continued)

(Sheet 2 of 2)

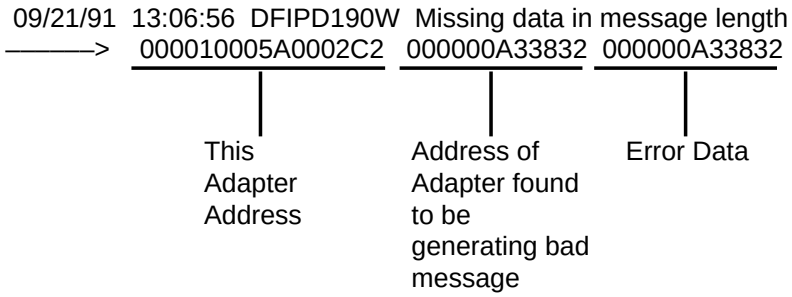
Message Number	Explanation
DFIPD190W	*Message:* Invalid message length *Meaning:* The length of a message the Ring diagnostic receives does not agree with the length specified in the message. This message displays when Full E.R. is activated. *Action:* Run the Adapter Diagnostics on the adapter that generates the message. If diagnostics indicate that the adapter that generates the message functions correctly, run the diagnostics on the adapter that receives the message. If the diagnostics indicate that this adapter functions correctly and you continue to get this message, perform the following procedure. 1. Start the PC containing the adapter that generates the message again. 2. Start the Ring Diagnostic. 3. If the same message occurs, try a different System Diskette. 4. If the preceding action does not correct the problem, record the variable data. Check for problems with the PC and the adapter card. *Variable Data:*

TOPS MPX Token Ring LAN troubleshooting (continued)



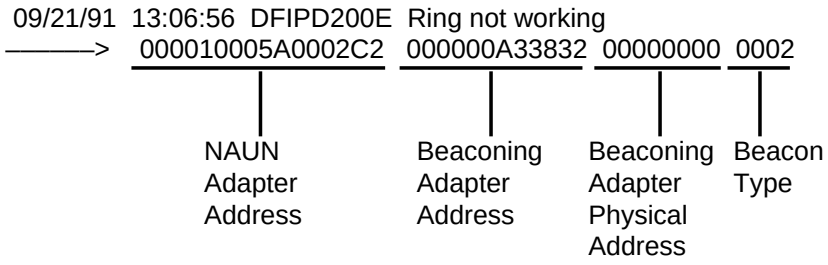
Message Number	Explanation
DFIPD192W	*Message:* Missing data in message *Meaning:* Required data is not present in a message that the Ring Diagnostic receives. The message displays when Full E.R. is activated. *Action:* Run the Adapter Diagnostics on the adapter that generates the message. If the diagnostics indicate that the adapter generating the message functions correctly, run the diagnostics on this adapter that receives the adapter message. If the diagnostics indicate that this adapter functions correctly and you continue to get this message, do the following. 1. Start the PC that contains the adapter that generates the message again. 2. Start the Ring Diagnostic. 3. If the same message occurs, try a different System Diskette. 4. If the preceding action does not correct the problem, record the variable data. Check for problems with the PC and the adapter card. *Variable Data:*

TOPS MPX Token Ring LAN troubleshooting (continued)



Message Number	Explanation
DFIPD200E	*Message:* Ring not working *Meaning:* The Ring Diagnostic determines that the ring is beaconing. Recovery can take a some time. If the Ring Diagnostic was running, auto-recovery is in progress. If starting the Ring Diagnostic, auto-recovery failed. When Full E.R. is active and you enter manual recovery, this message can appear often. This message indicates how the recovery actions affect the ring. When this message displays, ring status is Beaconing. *Action:* Wait at least one minute and observe ring status. If ring status does not change, record ring status and do the following: 1. Disconnect the beaconing adapter from the ring. If this corrects the problem, run the Adapter Diagnostics on that PC. 2. Isolate the problem to the PC or the cable, and replace the damaged element. 3. If the problem persists, it is possible that the MAU has faults. Break the ring into separate MAUs and trouble-shoot the problem. Replace the defective MAU and restore the ring to operation. To properly install the new MAU (per MAU reset procedure), use the reset tool. *Variable Data:*

TOPS MPX Token Ring LAN troubleshooting (continued)



(Sheet 1 of 2)

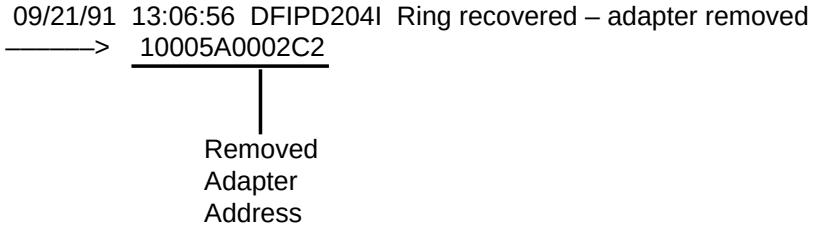
Message Number	Explanation
	NAUN (Nearest Active Upstream Neighbor): The NAUN device is the first device (in the ring sequence) involved with the error. The beaconing device is the last device (in the ring sequence) involved with the error.
DFIPD201E	*Message:* Ring not working - this adapter beaconing *Meaning:* The Ring Diagnostic determines that this adapter is Beaconing. When this message displays, ring status is Beaconing. *Action:* Wait for the next message and follow the actions for the message. *Variable Data:* Does not apply
DFIPD202E	*Message:* Ring recovery failed *Message:* The auto-recovery of the adapter did not work. When this message displays, the ring status is Beaconing. *Action:* This action requires manual recovery. Record ring status and attempt recovery as described in DFIPD200E - Ring not working. *Variable Data:* Does not apply

TOPS MPX Token Ring LAN troubleshooting (continued)

(Sheet 2 of 2)

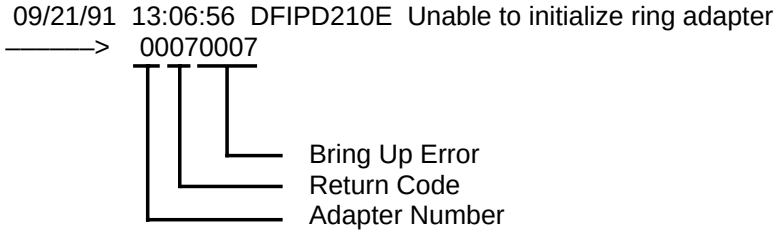
Message Number	Explanation
DFIPD203I	*Message:* Ring recovered *Meaning:* The ring recovers and operates normally. When this message displays, ring status is Normal or Soft Error. *Action:* There is no action required. *Variable Data:* Does not apply
DFIPD204I	*Message:* Ring recovered - adapter removed *Meaning:* The adapter, indicated in the following variable data, is logically removed from the active ring. The ring recovers. When this message displays, ring status is Normal or Soft Error. *Action:* Record the ring status. Run the Adapter Diagnostics on the removed adapter. *Variable Data:*

TOPS MPX Token Ring LAN troubleshooting (continued)



Message Number	Explanation
DFIPD210E	*Message:* Unable to initialize ring adapter *Meaning:* The Ring Diagnostic is not able to start this adapter. *Action:* Verify that the indicated adapter is installed and the switches are set correctly. Correct any errors found. If the message repeats, do the following: Run the Adapter Diagnostics. If diagnostics indicate the adapter is operational, and this message repeats, record the variable data and troubleshoot the problem as for DFIPD200E - Ring not working. *Variable Data:*

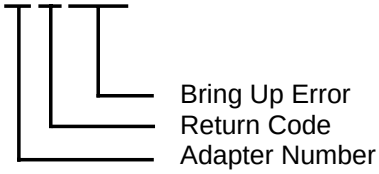
TOPS MPX Token Ring LAN troubleshooting (continued)



Message Number	Explanation
DFIPD211E	*Message:* Unable to open ring adapter *Meaning:* This adapter did not respond to the attempt of the Ring Diagnostic to open the adapter. *Action:* Determine the return code from the variable data as shown in Variable Data: If the return code is 07 or FF, record the problem described in the data area message. If the return code is 27, verify the adapter data rate. If the return code continues to be 27, run the Ring Diagnostic on a different terminal on the the same ring. When the return code is 07 or FF, do the following: *Action:* 1. Start the PC containing the adapter that generates the message again. 2. Start the Ring Diagnostic. 3. If the same message occurs, try a different System Diskette. 4. If the preceding action does not correct the problem, record the variable data. Check for problems with the PC and the adapter card. *Variable Data:*

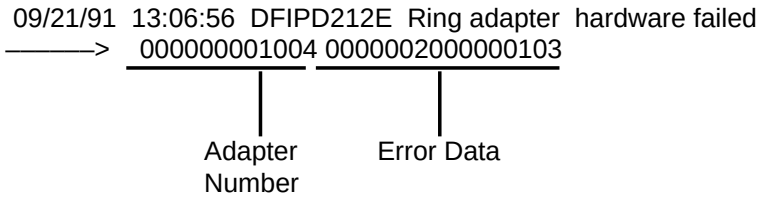
TOPS MPX Token Ring LAN troubleshooting (continued)

09/21/91 13:06:56 DFIPD210E Unable to open ring adapter
————> 00070007



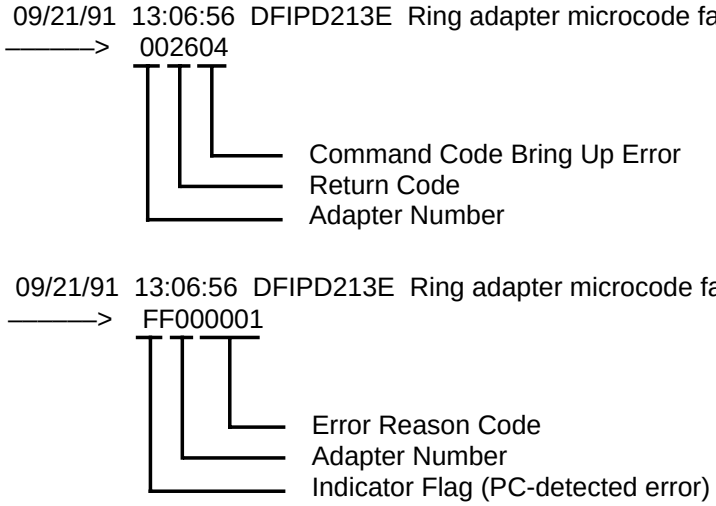
Message Number	Explanation
DFIPD212E	*Message:* Ring adapter hardware failed *Meaning:* The adapter hardware fails. *Action:* Run the Adapter Diagnostics. If the diagnostics indicate that the adapter functions correctly and the message repeats, record the variable data. Manually Troubleshoot the PC and the connections to the MAU. *Variable Data:*

TOPS MPX Token Ring LAN troubleshooting (continued)



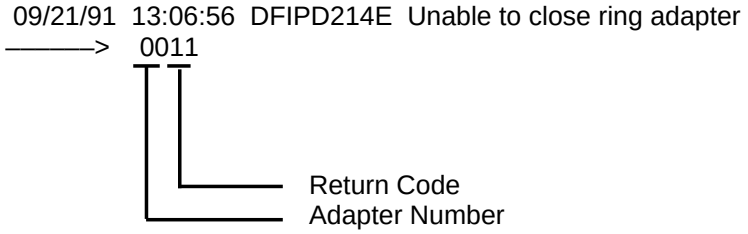
Message Number	Explanation
DFIPD213E	*Message:* Ring adapter microcode failed *Meaning:* The Adapter Support Interface code fails. *Action:* Do the following: 1. Verify that the indicated adapter is installed and the switches are set correctly. Correct any errors found. 2. Start the PC again. 3. Start the Ring Diagnostic. 4. If the same message occurs, try a different System Diskette. 5. If the preceding action does not correct the problem, record the variable data. Perform manual troubleshooting procedures. *Variable Data:*

TOPS MPX Token Ring LAN troubleshooting (continued)



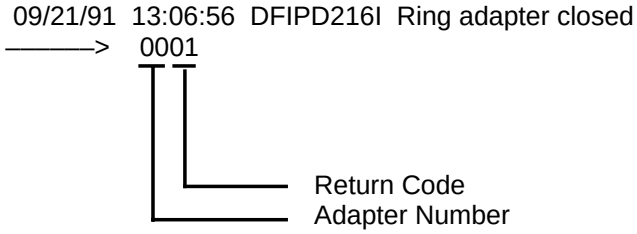
Message Number	Explanation
DFIPD214E	*Message:* Unable to close ring adapter *Meaning:* This adapter did not respond correctly to the attempt of the Ring Diagnostic to close the adapter. *Action:* Run the Adapter Diagnostics on this adapter. If the diagnostics indicate that the adapter functions correctly and the message repeats, perform the following function: 1. Verify that the indicated adapter is installed and that the switches are set correctly. Correct any errors found. 2. Start the PC again. 3. Start the Ring Diagnostic. 4. If the same message occurs, try a different System Diskette. 5. If the preceding action does not correct the problem, record the variable data. Perform manual troubleshooting procedures. *Variable Data:*

TOPS MPX Token Ring LAN troubleshooting (continued)



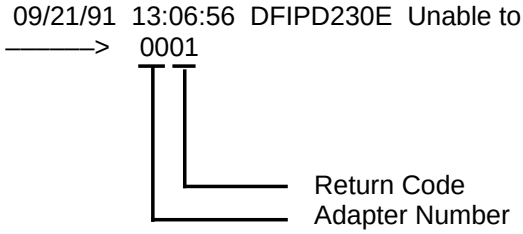
Message Number	Explanation
DFIPD215E	*Message:* Ring adapter or lobe failed *Meaning:* The Ring Diagnostic determines if a wire fault is present. When this message displays, ring status is Wire Fault. *Action:* Record the ring status. Replace the defective cable and run the Ring Diagnostic again to verify the problem is corrected. *Variable Data:* Does not apply.
DFIPD216I	*Message:* Ring adapter Closed *Meaning:* This message can occur because the user presses F3 (End). The message can also occur when an error forces the adapter to close. When this message displays, ring status is Adapter Closed. *Action:* If the reason code is 00, there is no action required. If the reason code is 01 or 03, run the Adapter Diagnostics. If the diagnostics determine the adapter is defective, replace the position in according to standard practices. *Variable Data:*

TOPS MPX Token Ring LAN troubleshooting (continued)



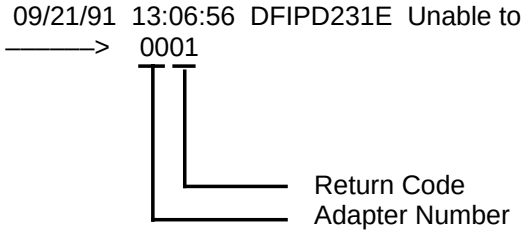
Message Number	Explanation
DFIPD230E	*Message:* Unable to open ring adapter interface *Meaning:* The Adapter Support Interface cannot open the ring adapter interface. *Action:* Run the Adapter Diagnostics on this adapter. If the diagnostics indicate the adapter functions correctly and the message repeats, perform the following procedure: 1. Verify that the indicated adapter is installed and the switches are set correctly. Correct any errors found. 2. Start the PC again. 3. Start the Ring Diagnostic. 4. If the same message occurs, try a different System Diskette. 5. If the preceding action does not correct the problem, record the variable data. Perform manual troubleshooting procedures. *Variable Data:*

TOPS MPX Token Ring LAN troubleshooting (continued)



Message Number	Explanation
DFIPD231E	*Message:* Unable to close ring adapter interface *Meaning:* The Adapter Support Interface code does not accept the close command for the Ring Diagnostic. *Action:* Run the Adapter Diagnostics on this adapter. If the diagnostics indicate the adapter functions correctly and the message repeats, perform the following procedure: 1. Verify that the indicated adapter is installed and the switches are set correctly. Correct any errors found. 2. Start the PC again. 3. Start the Ring Diagnostic. 4. If the same message occurs, try a different System Diskette. 5. If the preceding action does not correct the problem, record the variable data. Perform manual troubleshooting procedures. *Variable Data:*

TOPS MPX Token Ring LAN troubleshooting (continued)



(Sheet 1 of 2)

Message Number	Explanation
DFIPD991I	*Message:* Insert formatted diskette in drive A *Meaning:* The user pressed F5 (Dump) that requests a dump of Ring Diagnostic information in memory. This information can be given to the service supplier. Message number DFIPD992I follows this message. *Action:* Insert a formatted diskette with 150 Kb of free space into drive A. *Variable Data:* Does not apply
DFIPD992I	*Message:* Press any key when ready *Meaning:* The Ring Diagnostic is ready to create a file on the diskette in drive A. *Action:* Press any key. *Variable Data:* Does not apply

TOPS MPX Token Ring LAN troubleshooting (end)

(Sheet 2 of 2)

Message Number	Explanation
DFIPD993I	*Message:* Memory image file created *Meaning:* The file was created. *Action:* Take or send the diskette to the service supplier. *Variable Data:* Does not apply
DFIPD994I	*Message:* Memory image file not created *Meaning:* The file was not created. *Action:* There is no action required. *Variable Data:* Does not apply

Troubleshooting a customer-reported failure
No FRIU alarms

Application

Use this procedure to clear faults when the following two conditions occur.

- The customer reports a service interruption.
- Frame relay interface unit (FRIU) alarms are not under the alarm banner on the MAP display.

Definition

FRIU alarms are not on the MAP banner. Post the FRIU and clear any alarms. Query traffic and perform loopback tests when no alarm exists for the posted FRIU.

Common procedures

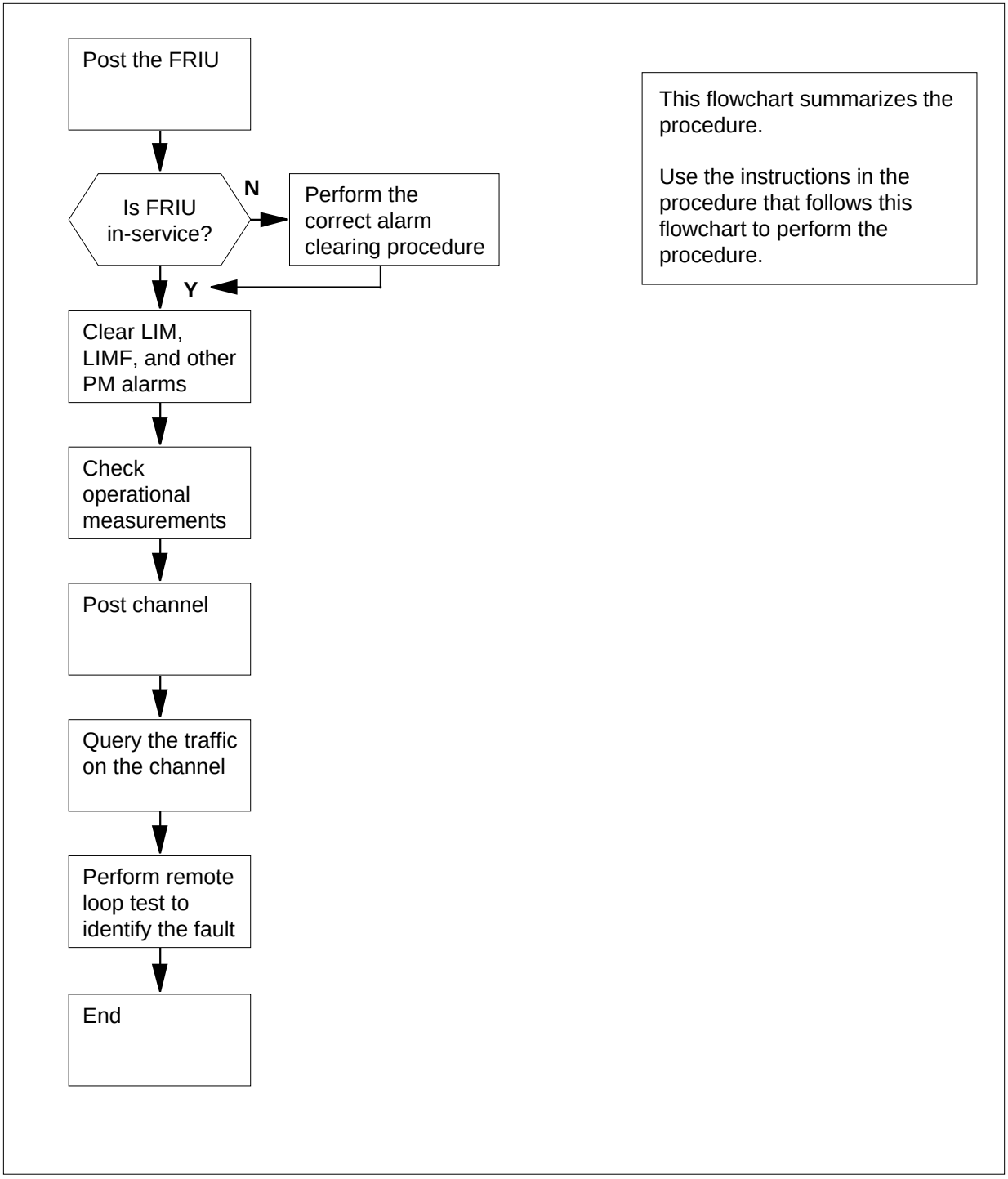
There are no common procedures.

Action

This procedure contains a summary flowchart and a list of steps. Use the flowchart as a sumary of the procedure. Follow the steps to perform the procedure.

Troubleshooting a customer-reported failure
No FRIU alarms (continued)

Summary of Troubleshooting a customer reported failure - no FRIU alarms



Troubleshooting a customer-reported failure No FRIU alarms (continued)

Troubleshooting a customer-reported failure- no FRIU alarms

At the MAP terminal

1 Obtain the directory number (DN) from the fault report.

2 To access the PVDNCI level of the MAP display, type

>PVDNCI

and press Enter.

Example of a MAP response

```
PVDNCI:
```

3 To identify the agent ID for the DN obtained from the fault report, type

>FRSDISP DN NO dir_no

and press Enter.

where

dir_no
is the DN obtained from the fault report

Example of a MAP response

```
PVDNCI:
DN 6132263770 belongs to FRS Agent 1
```

Note: The agent ID appears at the end of the response. In the example, the agent ID is 1.

4 To locate the FRIU and channel for the agent ID, type

>FRSDISP AGENT ID agent_no

and press Enter.

where

agent_no
is the agent ID obtained in step 3

Example of a MAP response

```
AGENT DN    NP   SPEED CONDEV AB CUSTOMER CONNECT TO
1 6132263770 NATL LS_1536KBS NIL N1        FRIU 5 7
```

Note: The FRIU number and channel assigned to this agent appear under the CONNECT TO header in the MAP response. In the example, the FRIU is 5 and the channel number is 7.

5 To return to the CI level of the MAP display, type

>QUIT

and press Enter.

Troubleshooting a customer-reported failure
No FRIU alarms (continued)

6 To access the PM level of the MAP display, type

```
>MAPCI; MTC; PM
```

and press Enter.

7 To post the FRIU identified in step 4, type

```
>POST  FRIU  friu_no
```

and press Enter.

where

friu_no
is the FRIU number obtained in step 4

If the FRIU	Do
is SysB	step 8
is SysB (NA)	step 8
is ManB	step 9
is ManB (NA)	step 9
is ISTb	step 10
is ISTb (NA)	step 8
is InSv (NA)	step 11
is InSv	step 13

8 Perform the procedure *Clearing a PM FRIU critical alarm (on an LPP)* in *Alarm and Performance Monitoring Procedures*. Do not return to this procedure.

9 Perform the procedure *Clearing a PM FRIU major alarm (on an LPP)* in *Alarm and Performance Monitoring Procedures*. Do not return to this procedure.

10 Perform the procedure *Clearing a PM FRIU minor alarm (on an LPP)* in *Alarm and Performance Monitoring Procedures*. Do not return to this procedure.

11 Determine from the MAP banner if any alarms are present under the PM header.

If alarms	Do
are present	step 12
are not present	step 13

12 Perform the correct alarm clearing procedures. Refer to *Alarm and Performance Monitoring Procedures*.

Troubleshooting a customer-reported failure
No FRIU alarms (continued)

13 Check the operational measurements (OM) that apply to DataSPAN. Look for high counts of cyclic redundancy test (CRC) errors in:

- OM group FRSAGENT, register PTERR for each involved agent
- OM group FRSPM, register PORTERR for each involved device
- OM group FRT1, register FRT1CRC for the involved carrier

For example, to check register FRT1CRC for OM group FRT1, type

>OMSHOW FRT1 ACTIVE 3

and press Enter.

Example of a MAP response

```
CLASS:  ACTIVE
START:1997/08/21 21:15:00 THU; STOP:1997/08/21 21:16:10 THU;
SLOWSAMPLES:         1;   FASTSAMPLES             7;

    INFO (FRT1OMINF)
     FRT1LCGA  FRT1RCGA  FRT1LOF   FRT1SBU
     FRT1MBU   FRT1CBU   FRT1BER   FRT1ES
     FRT1SES   FRT1UAS   FRT1AIS   FRT1CRC

 3 FRIU   29
           0        0         0         0
           0        0         0         0
           0        0         0         0
```

For more information on OMs, refer to *Operational Measurements Reference Manual*.

14 To post the access channel, type

>CARR;CHAN;POST chan_no

and press Enter.

where

chan_no
is the channel number that appeared in response to the PVDNCI command

Example of a MAP display

```
CARRIER                    Alarm   BER     ES   SES   UAS
 InSv                              <-9.     0     0   211


CHANNEL  1
         N

CHANNEL    1       ( 24  x DS0)
InSv /NoLMI
```

15 To check the traffic level on the access channel, type

>QTRAFFIC

Troubleshooting a customer-reported failure
No FRIU alarms (end)

and press Enter.

Example of a MAP response

```
CHANNEL 1       (24   x DS0)
InSv /NoLMI
qtraffic
Traffic from  15:30:00 to 15:36:32
Frames Tx:         30 Frames Rx:        0  Abort Rx:     0
Port errors:    0 Invalid msg length:   0 Invalid DLCI:  0
```

16 Perform remote loop tests to identify the fault. Refer to *Routine Maintenance Procedures* to install and remove loops required for carrier and channel remote loopback tests.

17 The procedure is complete.

Troubleshooting a customer-reported failure
No PM alarms

Application

- The customer reports service disruption.
- Peripheral module (PM) alarms are not under the alarm banner on the MAP display.

Definition

PM alarms are not on the MAP banner. Post the FRIU and clear any alarms. Instructions can require you to return channels to service. Query traffic and perform loopback tests when no alarms exist for the posted FRIU.

Common procedures

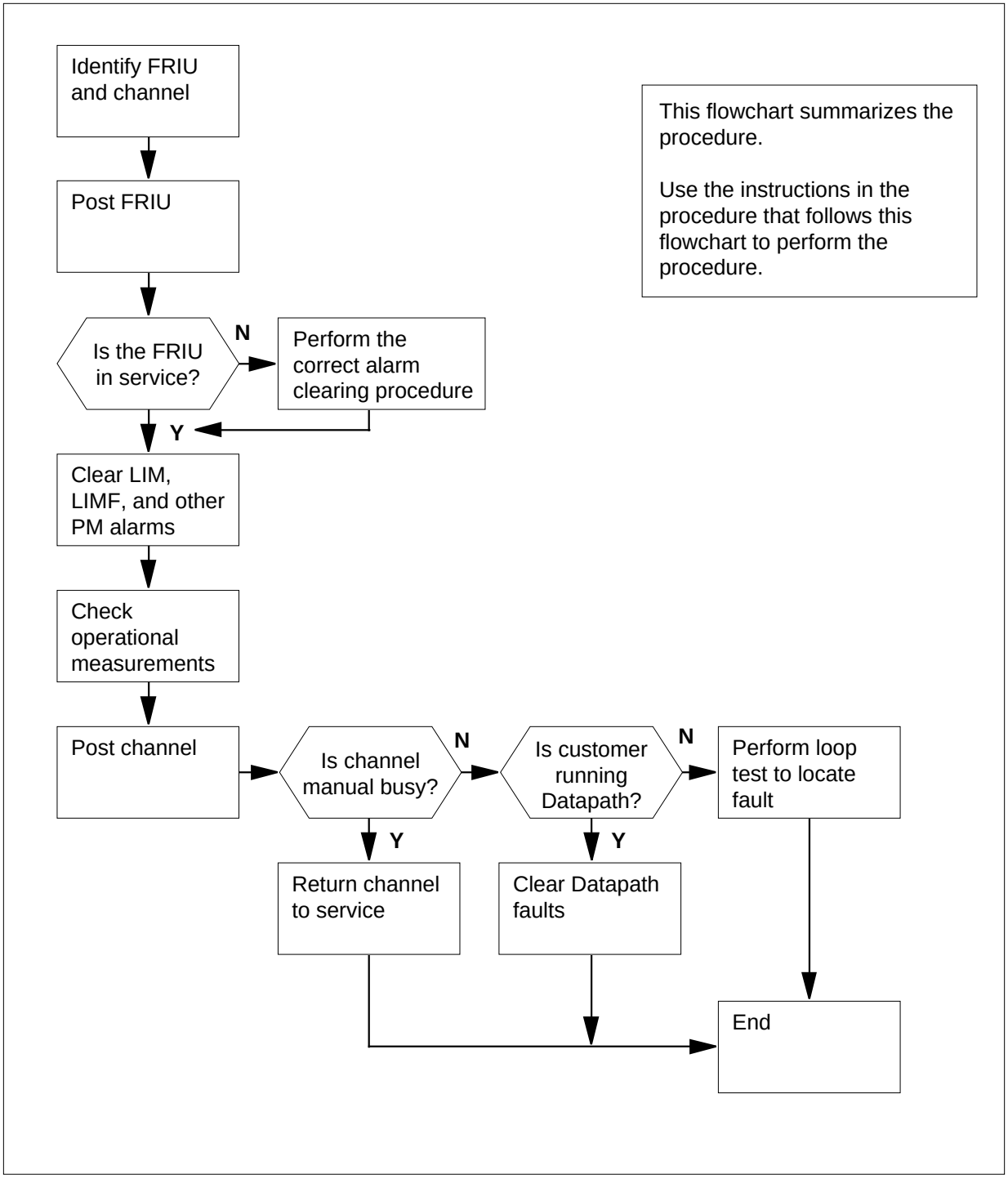
There are no common procedures.

Action

This procedure contains a summary flowchart and a list of steps. Use the flowchart as a summary of the procedure. Follow the steps to perform the procedure.

Troubleshooting a customer-reported failure
No PM alarms (continued)

Summary of Troubleshooting a customer-reported failure - no PM alarms



Troubleshooting a customer-reported failure No PM alarms (continued)

Troubleshooting a customer-reported failure—no PM alarms

At your current location

1 Determine the state of the channel.

If the channel state	Do
is not manual-busy	step 2
is manual-busy	step 22

At the MAP terminal

2 To access the PVDNCI level of the MAP display, type

>PVDNCI

and press Enter.

Example of a MAP response

```
PVDNCI:
```

3 To identify the agent ID for the DN obtained from the fault report, type

>FRSDISP DN NO dir_no

and press Enter.

where

dir_no
is the DN obtained from the fault report

Example of a MAP response

```
PVDNCI:
DN 6132263770 belongs to FRS Agent 1
```

Note: The agent ID appears at the end of the response. In the example, the agent ID is 1.

4 To locate the FRIU and channel for the agent ID, type

>FRSDISP AGENT ID agent_no

and press Enter.

where

agent_no
is the agent ID obtained in step 3

Example of a MAP response

```
AGENT DN    NP   SPEED CONDEV AB CUSTOMER CONNECT TO
1 6132263770 NATL LS_1536KBS NIL N1        FRIU 5 7
```

Troubleshooting a customer-reported failure
No PM alarms (continued)

Note: The FRIU number and channel assigned to this agent appear under the CONNECT TO header in the MAP response. In the example, the FRIU is 5 and the channel number is 7.

5 To return to the CI level of the MAP display, type

```
>QUIT
```

and press Enter.

6 To access the PM level of the MAP display, type

```
>MAPCI; MTC; PM
```

and press Enter.

7 To post the FRIU identified in step 4, type

```
POST  FRIU  friu_no
```

and press Enter.

where

friu_no
is the FRIU number obtained in step 4

If the FRIU	Do
is SysB	step 8
is SysB (NA)	step 8
is ManB	step 9
is ManB (NA)	step 9
is ISTb	step 10
is ISTb (NA)	step 8
is InSv (NA)	step 11
is InSv	step 11

8 Perform the procedure *Clearing a PM FRIU critical alarm (on an LPP)* in *Alarm and Performance Monitoring Procedures*. Do not return to this procedure.

9 Perform the procedure *Clearing a PM FRIU major alarm (on an LPP)* in *Alarm and Performance Monitoring Procedures*. Do not return to this procedure.

10 Perform the procedure *Clearing a PM FRIU minor alarm (on an LPP)* in *Alarm and Performance Monitoring Procedures*. Do not return to this procedure.

Troubleshooting a customer-reported failure
No PM alarms (continued)

11 Determine from the MAP banner if any alarms are present under the PM header.

If alarms	Do
are present	step12
are not present	step13

12 Perform the correct procedures to clear the alarm. Refer to *Alarm and Performance Monitoring Procedures*.

13 Check the operational measurements (OM) that apply to DataSPAN. Look for high counts of cyclic redundancy check (CRC) errors in:

- OM group FRSAGENT, register PTERR for each involved agent
- OM group FRSPM, register PORTERR for each involved device
- OM group FRT1, register FRT1CRC for the involved carrier

For example, to check register FRT1CRC for OM group FRT1, type

>OMSHOW FRT1 ACTIVE 3

and press Enter.

Example of a MAP response

```
CLASS:  ACTIVE
START:1997/08/21 21:15:00 THU; STOP:1997/08/21 21:16:10 THU;
SLOWSAMPLES:         1;   FASTSAMPLES              7;

    INFO (FRT1OMINF)
     FRT1LCGA  FRT1RCGA  FRT1LOF   FRT1SBU
     FRT1MBU   FRT1CBU   FRT1BER   FRT1ES
     FRT1SES   FRT1UAS   FRT1AIS   FRT1CRC

 3 FRIU   29
           0        0         0         0
           0        0         0         0
           0        0         0         0
```

For more information on OMs, refer to *Operational Measurements Reference Manual*.

14 To post the access channel, type

>CARR;CHAN;POST chan_no

and press Enter.

where

chan_no
is the channel number that appears in response to the PVDNCI command

Example of a MAP display:

Troubleshooting a customer-reported failure
No PM alarms (continued)

```
CARRIER                    Alarm   BER     ES   SES   UAS
 InSv                              <-9.     0     0   211


CHANNEL  1
         N

CHANNEL    1       ( 24  x DS0)
InSv /NoLMI
```

15 Determine the state of each channel.

If the channel state	Do
is ManB	step 16
is any other item, and the customer uses Datapath	step 22
is any other item, and the customer uses DDS	step 23

16 Select a manual-busy channel to return to service.

17 To post the channel, type

>POST chan_no

and press Enter.

where

chan_no
is the number of the channel that will return to service

18 To return the channel to service, type

>RTS

and press Enter.

19 Repeat steps 17 to 18 for each manual-busy channel.

Go to step 20.

20 Determine if the channels are in service.

If one or more channels	Do
are dot (.) (in service)	step 24
are any other items	step 21

21 Perform the correct procedure to clear the alarm. *Alarm and Performance Monitoring Procedures* describe alarm clearing procedures.

Troubleshooting a customer-reported failure **No PM alarms** (end)

22 Perform Datapath procedures to clear faults. Refer to *DMS-100 DATAPATH Maintenance and Installation Guide*, 297-2121-223. Do not return to this procedure.

23 Perform remote loop tests to identify the fault. Refer to *Routine Maintenance Procedures* for procedures to install and remove loops required for carrier and channel remote loopback tests.

24 The procedure is complete.

Updating TOPS MPX software

Application

Use this procedure to update the TOPS MPX position software.

Action

A summary of the Updating TOPS MPX software appears in the flowchart on the following page. Use the instructions that follow this flowchart to perform the procedure.

All TOPS MPX positions on a token ring must be at the same release level. To make sure all positions are on the same level:

- busy out all positions on the token ring
- load the positions again
- return the positions to service

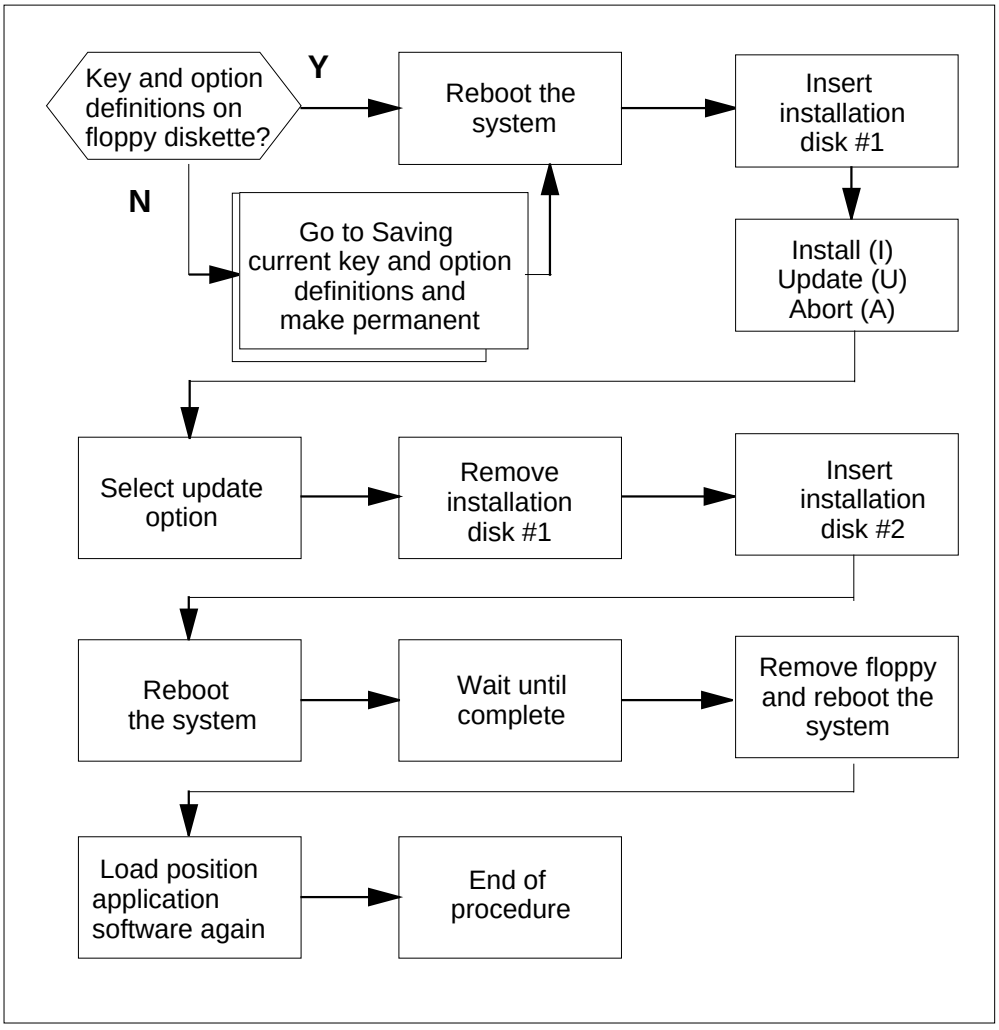
You can update separate token rings at different times.

Tools

Installation disks #1 and #2 are required to perform this procedure. Installation disks #1 and #2 contain the latest version of the TOPS MPX software.

Updating TOPS MPX software (continued)

Summary of Updating TOPS MPX software



Updating TOPS MPX software (continued)

Updating TOPS MPX software

At the TOPS MPX position

1

DANGER
Loss of previous key or option definitions
The initial installation procedure destroys any previous key, screen, status messages, command privileges and option definitions. Save previously defined keys, screen, status messages, command privileges and options on a diskette before you perform the update procedure.

Key and option definitions.

If	Do
keys, screen, status messages, command privileges or option descriptions are not saved on a diskette.	Perform saving current keys, screen, status messages, command privileges and option definitions procedure.
the TOPS MPX software is present. The current keys, screen, status messages, command privileges and option descriptions are not saved on diskette.	Perform saving current keys, screen, status messages, command privileges and option definitions procedure.
the TOPS MPX software is present. The current keys, screen status messages, command privileges, and option descriptions are saved on diskette.	Perform step 2

2 At the TOPS MPX access DOS.

If	Do
the TOPS MPX software runs.	Turn TOPS MPX power off. Insert system disk. Turn TOPS MPX power on.
the A:\> prompt displays	Remove diskette in Drive A and type, C:

Updating TOPS MPX software (continued)

If	Do
the C:\> prompt displays	Go to Step 3.

3 To access the root directory of the hard drive, type:

```
>CD\
```

and press the DOS-ENTER key.

The prompt displays.

```
>C:\>
```

4 To load installation disk #1:

Place installation disk #1 in Drive A and press the RESET KEY SEQUENCE.

KEY/SEQUENCE	IBM Keyboard	TOPS MPX Keyboard
RESET KEY SEQUENCE	Press and hold Ctrl, Alt, and Del keys.	Press and hold <-- and Word <-- keys. Press Clg key

5 Select the update option.

The system prompts for an install (I) or update (U) of the TOPS MPX.

To select the update option, type:

```
>U
```

When prompted to press <ENTER> to continue, or <ESC> to ABORT, press the DOS-ENTER key.

The following table provides equivalent TOPS MPX keys/sequences for IBM keys. The user can request these keys/sequences under the DOS application.

KEYS/SEQUENCE	IBM Keyboard	TOPS MPX Keyboard
DOS-ENTER KEY	<--- Enter	Bus
DAS CMD KEY	F3	DAS Cmd
TOPS DAS-ENTER KEY	F4	DAS Enter
RESET KEY SEQUENCE	Press and hold Ctrl, Alt and Del keys	Press and hold <-- and Word <-- keys Press Clg key
ESC KEY	Esc	Clear Field

6 Insert Installation Disk #2.

Updating TOPS MPX software (end)

Several lines of information appear on the screen. This information prompts the insertion of installation disk #2.

In response to the prompt:

- Remove installation disk #1 from the floppy disk drive.
- Insert installation disk #2 in the floppy disk drive.
- Press the DOS-ENTER key.

7 The following text appears on the MAP display:

```
"To change the personality of this machine, use the command

CHANGE. MPX installation is complete.  The system will now
reboot. Please remove the disk from drive A: and press
<ENTER> when ready."
```

The update procedure is complete.

Remove Installation Disk #2 from drive A: and press the DOS-ENTER key. The system reboots and runs in MPX software.

The CHANGE command can change the profile of this machine.

Note: If you use the CHANGE command, run IBM DEFPOS again. This action makes sure the token ring addresses are correct.

8 Load the operating company defined TOPS MPX position application software again. Perform the following:

To exit the TOPS MPX software turn off the position, insert the system disk, and power on the position. Remove the system disk when boot is complete.

At the A:\ prompt type:

>C:

The following DOS prompt displays:

>C:\> (root directory of the C drive)

Insert the operating company-defined TOPS MPX position application software diskette in the disk drive. Type:

>COPY A:*.*

and press the DOS ENTER key. The names of the copied files appear on the MAP display. Return to the DOS prompt.

Remove the diskette from the floppy drive. To return to the TOPS MPX software, perform the RESET key sequence.

KEY/SEQUENCE	IBM Keyboard	TOPS MPX Keyboard
RESET KEY SEQUENCE	Press and hold Ctrl, Alt, and Del keys.	Press and hold <-- and Word <-- keys Press Clg key

VSLE session defaults to audio SLE

Application

Use this procedure to determine why the Visual Screen List Editing (VSLE) session defaults to audio Screening List Editing (SLE).

Definition

A subscriber complaint indicates that during a VSLE session, the subscriber receives audio announcements of feature status information. The subscriber receives the announcements rather than the visual display on the Analog Display Services Interface (ADSI) set.

Common procedures

There are no common procedures.

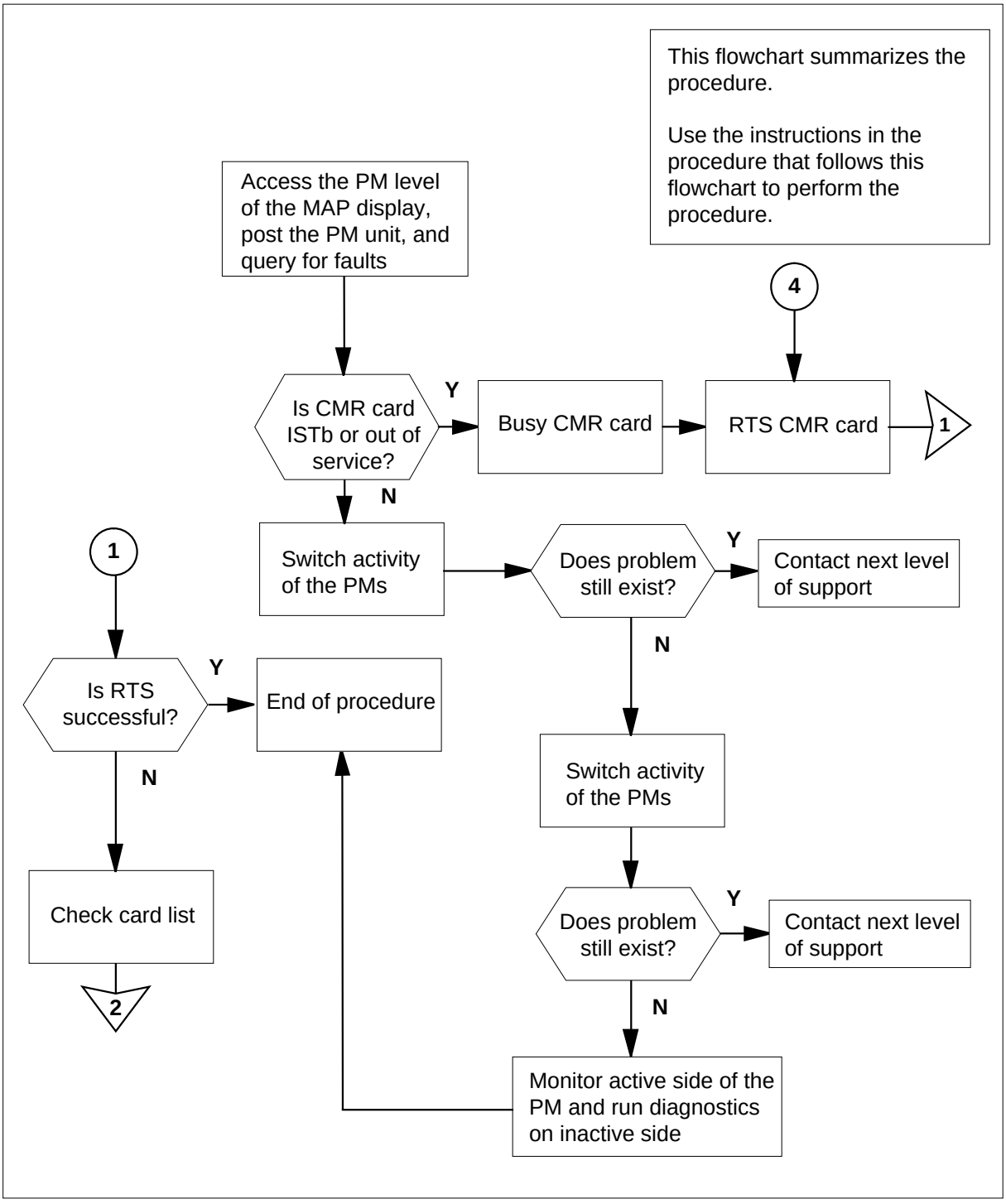
Action

This procedure contains a summary flowchart and list of steps. Use the flowchart as a summary of the procedure. Follow the steps to perform the procedure.

Note: The CLASS modem resource (CMR) card NT6X78 can go out of service in the active unit. If the card goes out of service, the operating company personnel can busy, replace, load, and return the card to service. The operating company personnel do not need to execute these operations on the whole unit.

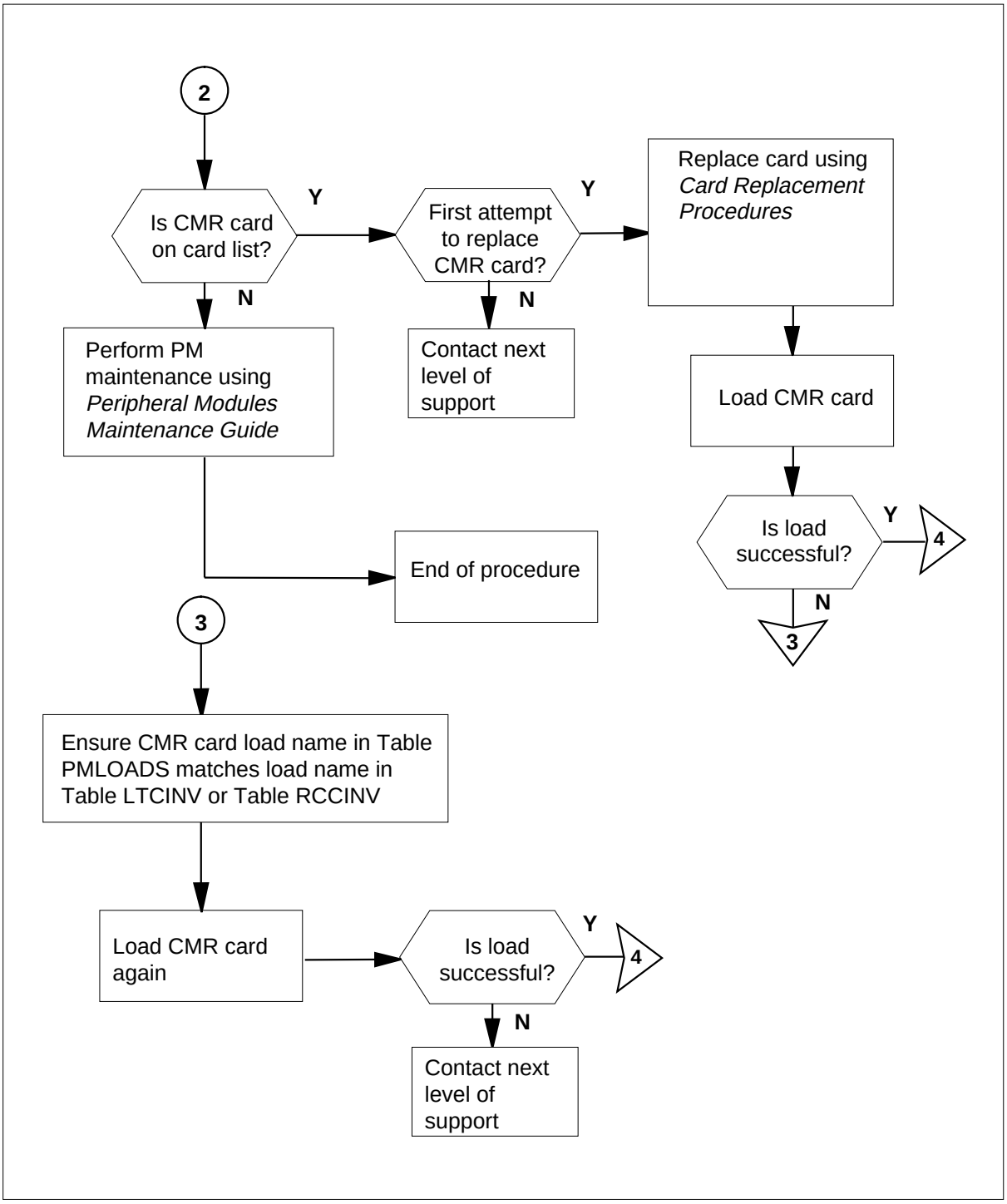
VSLE session defaults to audio SLE (continued)

Summary of VSLE session defaults to audio SLE



VSLE session defaults to audio SLE (continued)

Summary of VSLE session defaults to audio SLE (continued)



VSLE session defaults to audio SLE (continued)

VSLE session defaults to audio SLE

At the MAP terminal:

1 To access the PM level of the MAP display, type

`>MAPCI;MTC;PM`

and press Enter.

2 To post the peripheral module (PM) unit, type

`>POST pm_type pm_number`

and press Enter.

where

pm_type
is the PM type (LGC, LTC, RCC, SMS, or SMU)

pm_number
is the number of the PM (0 through 127)

3 To check for fault indicators in the CLASS modem resource (CMR) card, type

`>QUERYPM FLT`

and press Enter.

If CMR card	Do
is in-service trouble (ISTb) or out of service	step 6
is not ISTb or out of service	step 4

4 To switch activity of the unit in order to restore service quickly, type

`>SWACT`

and press Enter.

If SWACT passes and problem	Do
is present	step 22
is nt present	step 5

5 To switch activity back to the original unit, type

`>SWACT`

and press Enter.

If SWACT passes and problem	Do
is present	step 22
is not present	step 20

VSLE session defaults to audio SLE (continued)

6

CAUTION
Loss of Service
A BSY of the CMR card on the active unit of the PM affects CLASS services. CLASS services that use the card can not function.

To busy the CMR card, type

>BSY UNIT **unit_no** ***CMR***

and press Enter.

where

unit_no
is the number of the PM (0 or 1)

Note: CMR is an optional parameter that means to busy only the CMR card.

7 To return the CMR card to service, type

>RTS UNIT **unit_no** ***CMR***

and press Enter.

where

unit_no
is the number of the PM unit (0 or 1)

Note: CMR is an optional parameter that means to return the CMR card to service.

If RTS	Do
passes	step 23
fails	step 8

8 Examine the generated card list. The performance of one of the following steps depends on the card list.

The following card list is a standard message of a CMR card failure.

VSLE session defaults to audio SLE (continued)

```
          RTS Failed, TESTALL
          Diagnostic TESTALL failed.
          Fail message received from PM
          Replace the Cards in the Card List
          and applicable Paddleboards (i.e. 6X12) :
Site Flr RPos Bay_id  Shf  Description    Slot   EqPEC
HOST  01  D02 LGE  00  18  LGC : 000      13     6X78
```

If CMR card	Do
is on the card list	step 11
is not on the card list	step 9

9 Perform PM maintenance on the PM currently posted and return to this point.

10 Go to step 23.

11 Use the following information to determine the next step in this procedure.

If	Do
a first-time replacement of the CMR card	step 12
replaced CMR card already	step 22

12 See *Card Replacement Procedures* and return to this point.

13 To load the CMR card in the PM, type

>LOADPM UNIT **unit_no CC** ***CMR***

and press Enter.

where

unit_no
is the number of the PM (0 or 1)

Note: Use the LOADPM command to load the CMR card separate from the PM.

If response	Do
is the loading completes correctly	step 17
is CMR FAILED TO LOAD. TASK ABORTED WHILE LOADING CMR	step 14
is CMR FILE CMR33A15 NOT FOUND ON DEVICE INDICATED IN TABLE PMLOADS *Note:*CMR33A15 is the CMR load name	step 14

VSLE session defaults to audio SLE (continued)

If response	Do
is FAILED TO OPEN CORRECTLY	step 14

14 Verify that the CMR card can load. To use the QUERYPM command to determine the CMR load name, type

>querypm CNTRS

and press Enter.

Example of a MAP response:

```
Unsolicited MSG limit = 250, Unit 0 = 0, Unit 1 = 0.
Unit 0:
RAM Load: NLG32BU
ROM Load: XPMRKA02
CMR LOAD: CMR33AI5
CMR DEFINERS: 12
MP: 6X45BA/BB
SP: 6X45BA/BB
Unit 1:
RAM Load: NLG32BU
ROM Load: XPMRKA02
CMR LOAD: CMR33AI5
CMR DEFINERS: 12
MP: 6X45BA/BB
SP: 6X45BA/BB
```

Note: In this example, the CMR load name is CMR33AI5.

15 Ensure that the CMR card load name in Table PMLOADS matches the load name in Table LTCINV or Table RCCINV.

16 To load the CMR card again, type

>LOADPM UNIT unit_no CC CMR

and press Enter.

where

unit_no
is the number of the PM unit (0 or 1)

Note: CMR is an optional parameter that means to load only the CMR card.

If load	Do
passes	step 17
fails	step 22

17 To return the CMR card to service, type

>RTS UNIT **unit_no** ***CMR***

VSLE session defaults to audio SLE (end)

and press Enter.

where

unit_no
is the number of the PM (0 or 1)

Note: CMR is an optional parameter that means to return only the CMR card to service.

The following card list is a standard message that refers to a CMR card failure.

```
        RTS Failed, TESTALL
        Diagnostic TESTALL failed.
        Fail message received from PM
        Replace the Cards in the Card List
        and applicable Paddleboards (i.e. 6X12) :
Site Flr RPos Bay_id  Shf  Description    Slot   EqPEC
HOST  01  D02 LGE  00  18  LGC : 000      13     6X78
```

If RTS	Do
passes	step 23
fails but the CMR card is not on the card list	step 18
fails and the CMR card is on the card list	step 19

18 Perform PM maintenance on the PM currently posted. Go to step 23.

19 Go to step 23.

20 Use the following information to determine the next step in this procedure.

If	Do
a first-time replacement of the CMR card	step 12
replaced CMR card already	step 22

21 Monitor the active side of the PM and run diagnostics on the inactive side.

22 Go to step 23.

23 For additional help, contact the person responsible for the next level of support.

24 The procedure is complete.

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