SL-1

2-Mb/s Digital Trunk Interface

Fault clearing procedures

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Reason for revision

91 03 08

This procedure was reissued to include information on the Japan Digital Multiplex Interface (JDMI) for GenericX11 including supplementary features.

It has been reformatted for CD-ROM application

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General

This manual describes the maintenance procedures for the Meridian SL-1
2 Mb/s Digital Trunk Interface (DTI) and Japan Digital Multiplex Interface (JDMI) for GenericX11 including supplementary features.

This manual is divided into two chapters. The first chapter contains step-by-step instructions on how to analyze a trouble. The second chapter contains information and instructions on how to perform a specific task. References are made in chapter one to the detailed procedures in chapter two when required.

Flowchart symbols

Figure 1-1 illustrates the flowchart symbols contained in this manual.

Figure 1-1

Flowchart symbols

Instruction block - contains an instruction

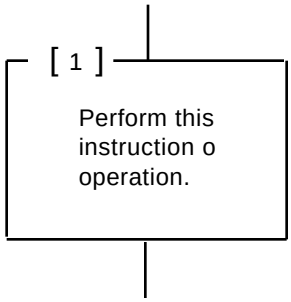
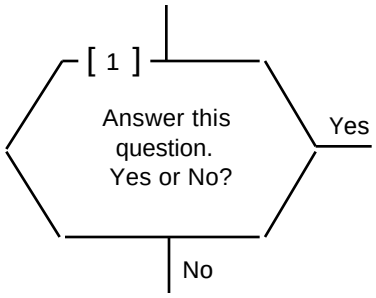


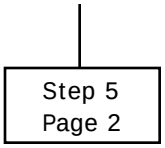
Figure 1-1 (continued)

Flowchart symbols

Decision block - contains a question. The answer indicates the path to follow.



Continuation symbol - contains the location of the next step

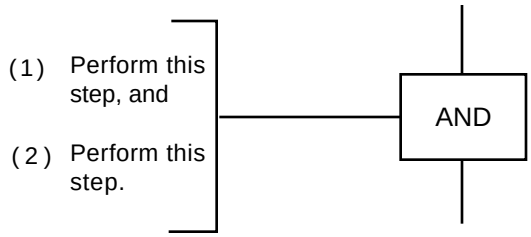


Stop symbol - identifies the end of a procedure

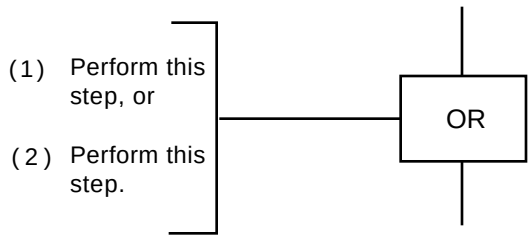
Figure 1-1 (continued)

Flowchart symbols

AND symbol - groups a sequence of steps, ALL of which must be performed to achieve a result.



OR symbol - groups a sequence of steps, only ONE of which must be performed to achieve a result.



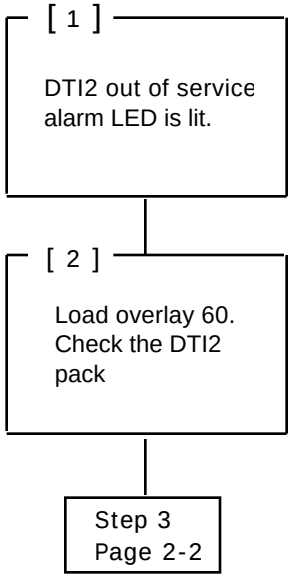
Trouble analyzing procedures

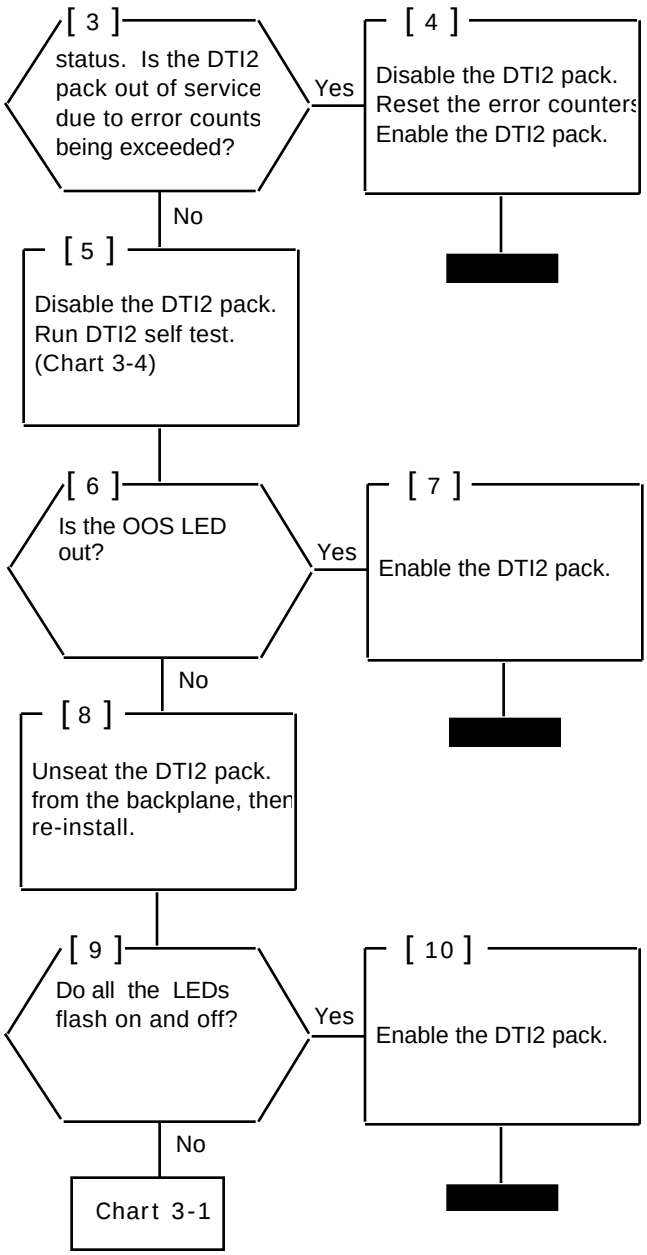
Alarm Lamps (LEDS)

This section contains detailed step-by-step instructions on how to analyse a trouble (with reference to Detailed Procedures, where required)

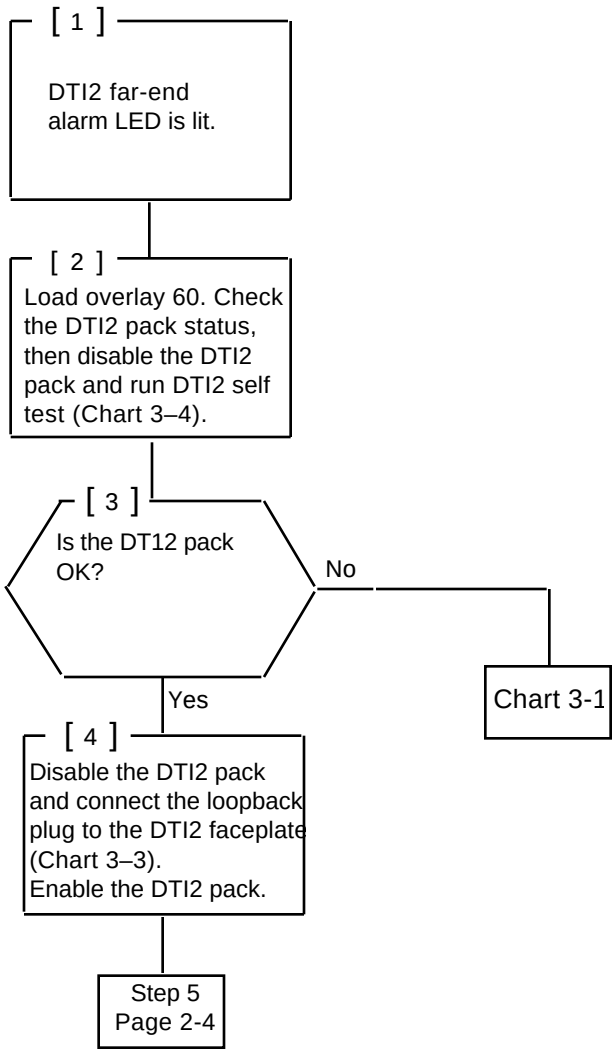
Out of Service (OOS) Alarm LED Lit

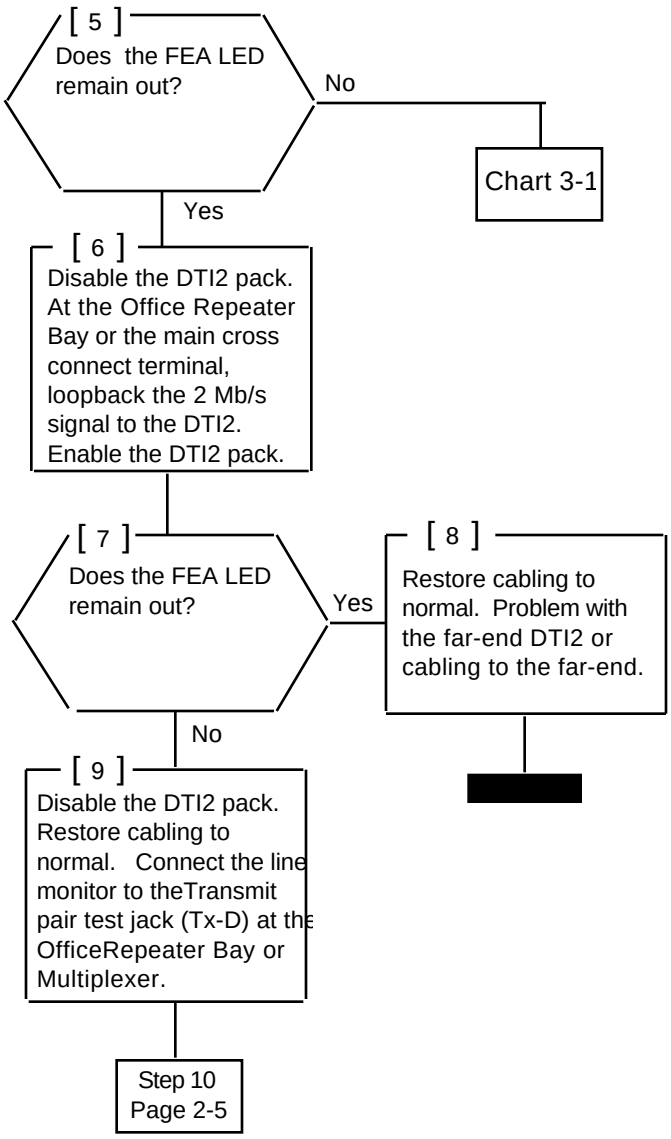
If either the Near-end alarm (NEA) or Far-end alarm (FEA) LED is also lit, then perform that procedure (i.e., NEA or FEA) before attempting this procedure.

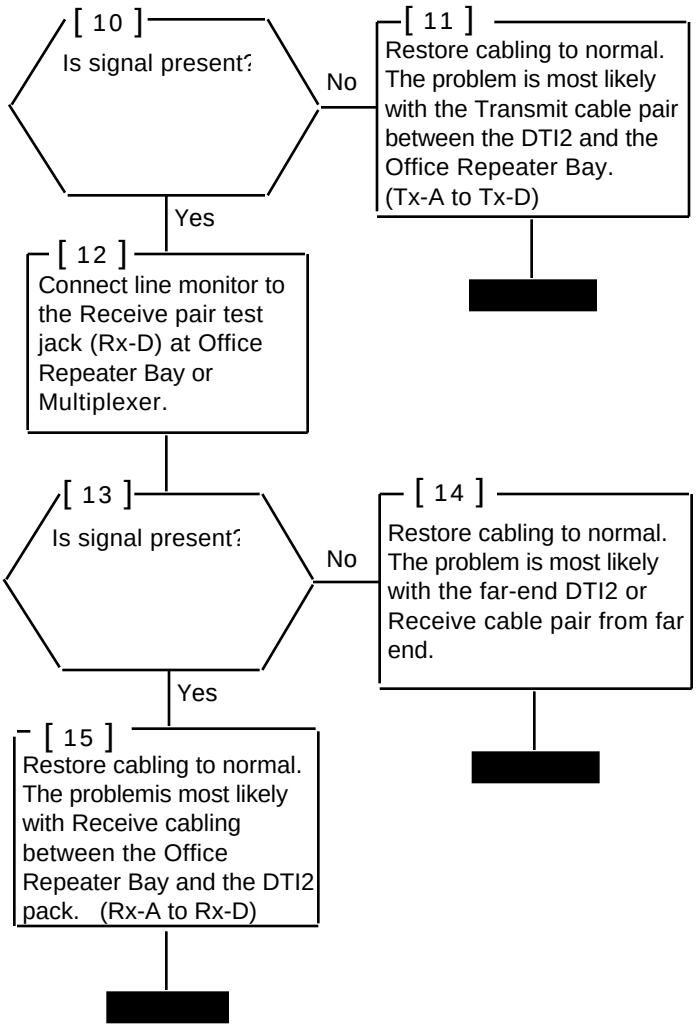



[3]
status. Is the DTI2 pack out of service due to error counts being exceeded?
Yes
[4]
Disable the DTI2 pack.
Reset the error counters
Enable the DTI2 pack.
No
[5]
Disable the DTI2 pack.
Run DTI2 self test.
(Chart 3-4)
[6]
Is the OOS LED out?
Yes
[7]
Enable the DTI2 pack.
No
[8]
Unseat the DTI2 pack.
from the backplane, then
re-install.
[9]
Do all the LEDs flash on and off?
Yes
[10]
Enable the DTI2 pack.
No
Chart 3-1

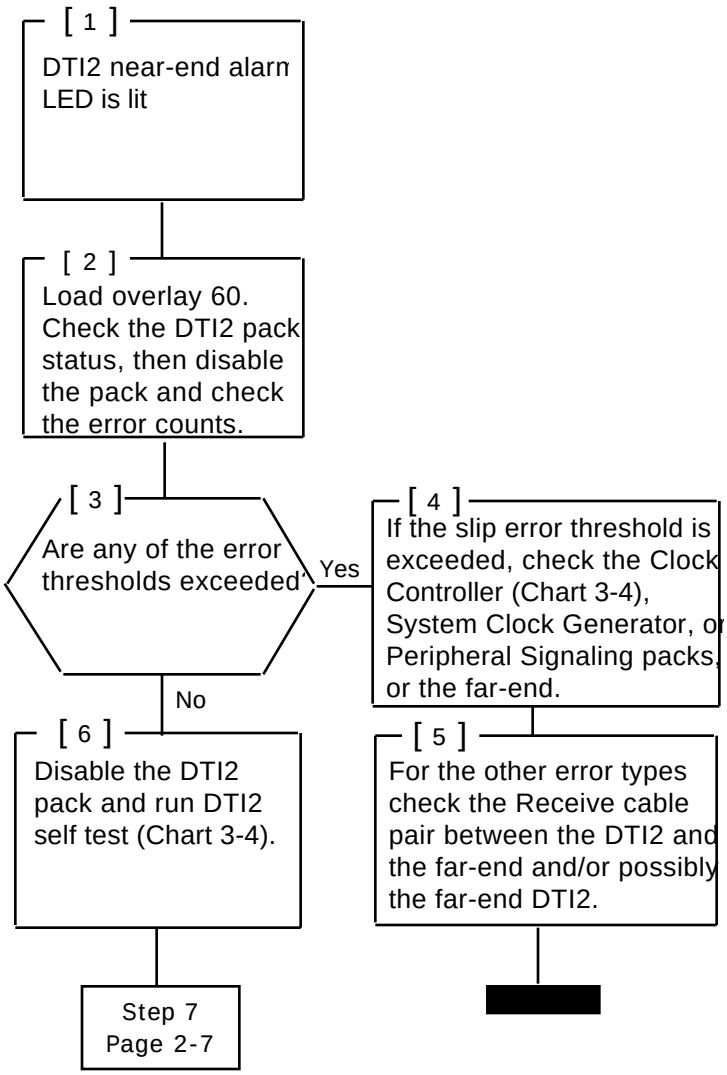
Far-end Alarm (FEA) LED Lit

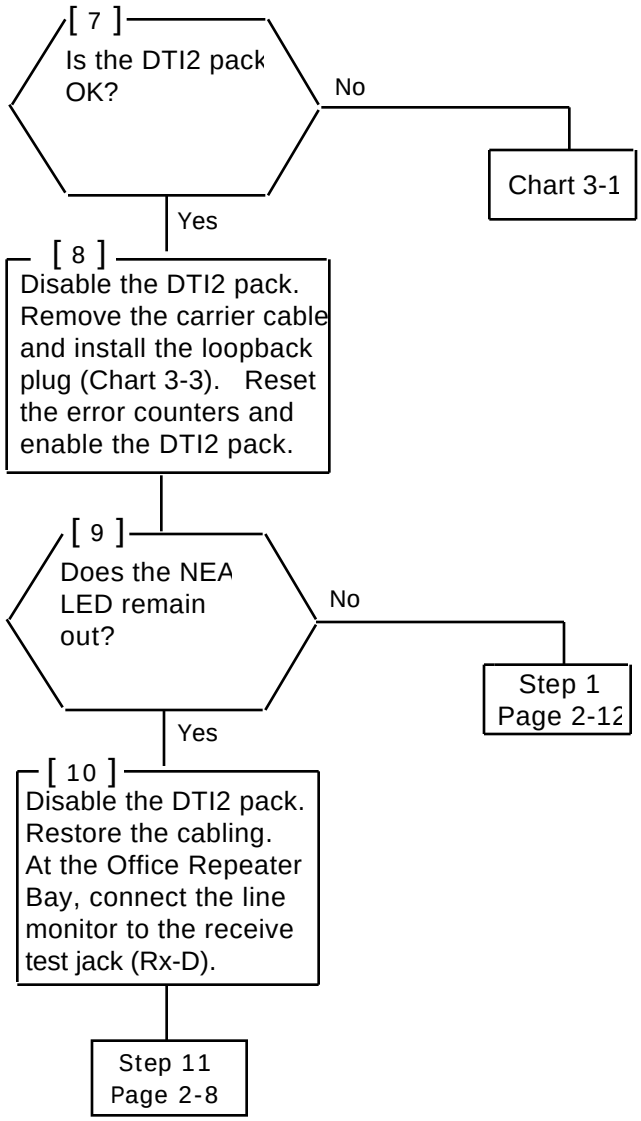


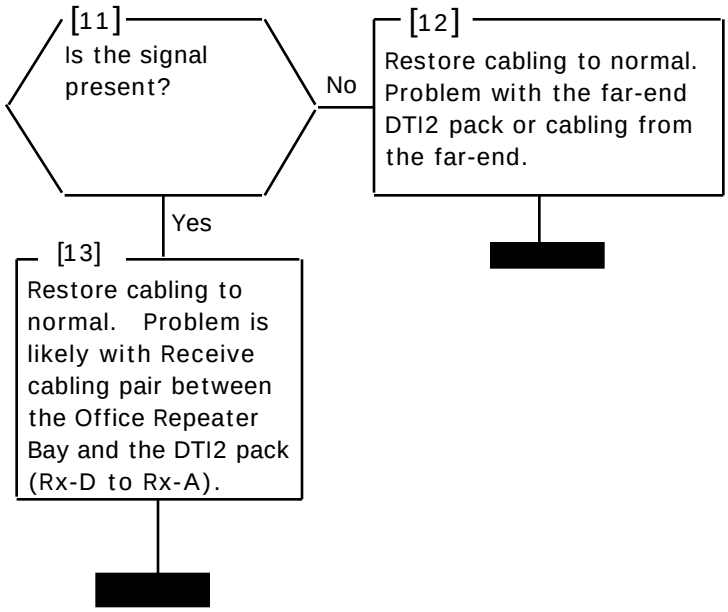

[5]
Does the FEA LED remain out?
No
Chart 3-1
Yes
[6]
Disable the DTI2 pack. At the Office Repeater Bay or the main cross connect terminal, loopback the 2 Mb/s signal to the DTI2. Enable the DTI2 pack.
[7]
Does the FEA LED remain out?
Yes
[8]
Restore cabling to normal. Problem with the far-end DTI2 or cabling to the far-end.
No
[9]
Disable the DTI2 pack. Restore cabling to normal. Connect the line monitor to theTransmit pair test jack (Tx-D) at the OfficeRepeater Bay or Multiplexer.
Step 10
Page 2-5


[10]
Is signal present?
No
[11]
Restore cabling to normal. The problem is most likely with the Transmit cable pair between the DTI2 and the Office Repeater Bay. (Tx-A to Tx-D)
Yes
[12]
Connect line monitor to the Receive pair test jack (Rx-D) at Office Repeater Bay or Multiplexer.
[13]
Is signal present?
No
[14]
Restore cabling to normal. The problem is most likely with the far-end DTI2 or Receive cable pair from far end.
Yes
[15]
Restore cabling to normal. The problemis most likely with Receive cabling between the Office Repeater Bay and the DTI2 pack. (Rx-A to Rx-D)

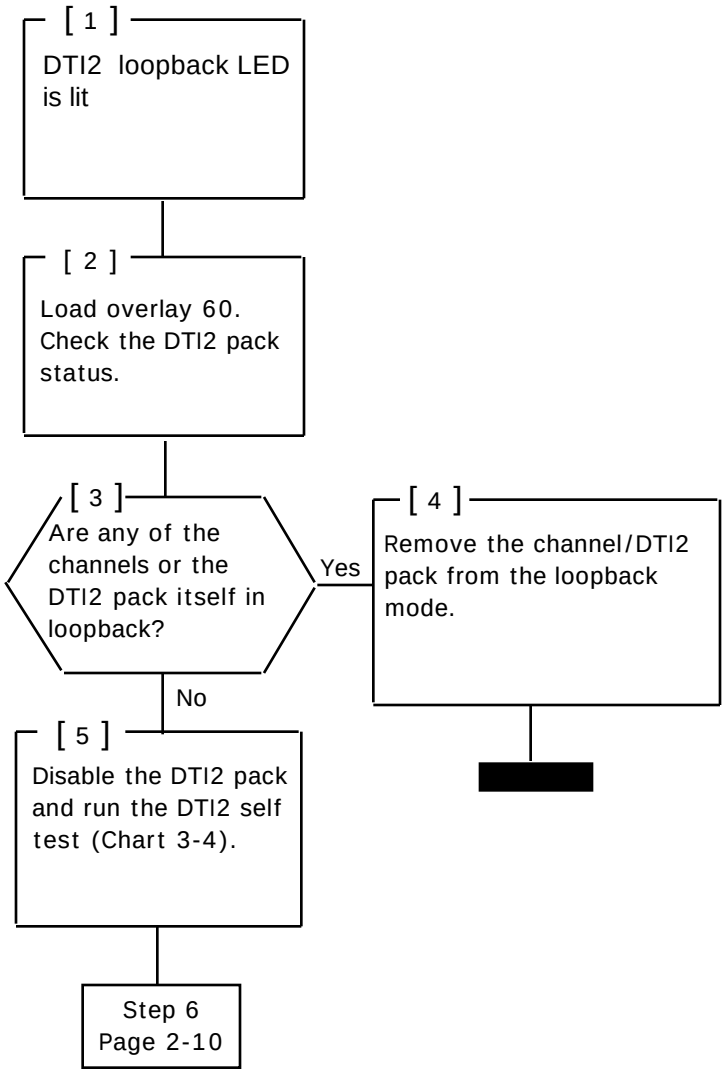
Near-end Alarm (NEA) LED Lit

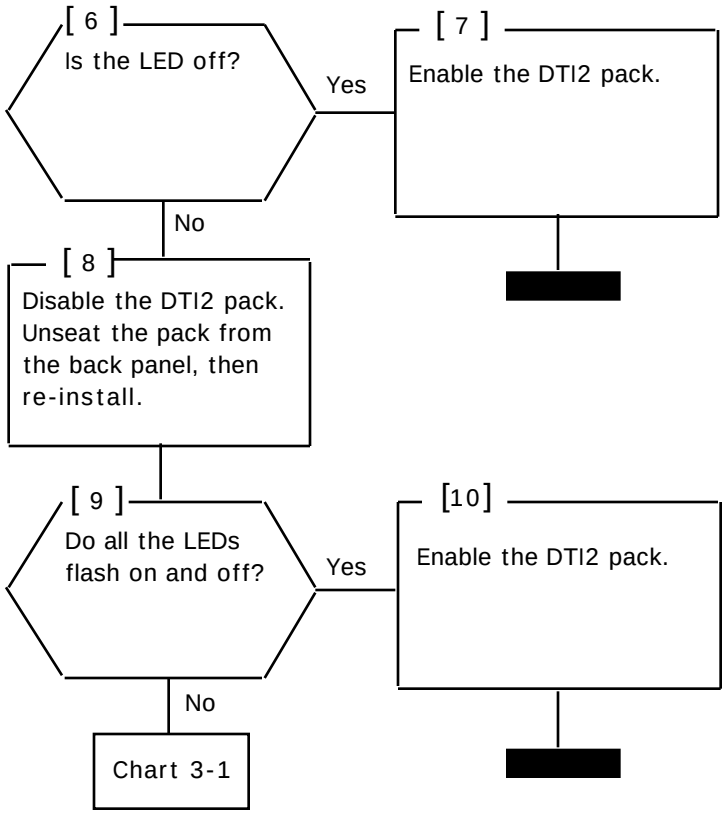



[7]
Is the DTI2 pack OK?
No
Chart 3-1
Yes
[8]
Disable the DTI2 pack. Remove the carrier cable and install the loopback plug (Chart 3-3). Reset the error counters and enable the DTI2 pack.
[9]
Does the NEA LED remain out?
No
Step 1
Page 2-12
Yes
[10]
Disable the DTI2 pack. Restore the cabling. At the Office Repeater Bay, connect the line monitor to the receive test jack (Rx-D).
Step 11
Page 2-8

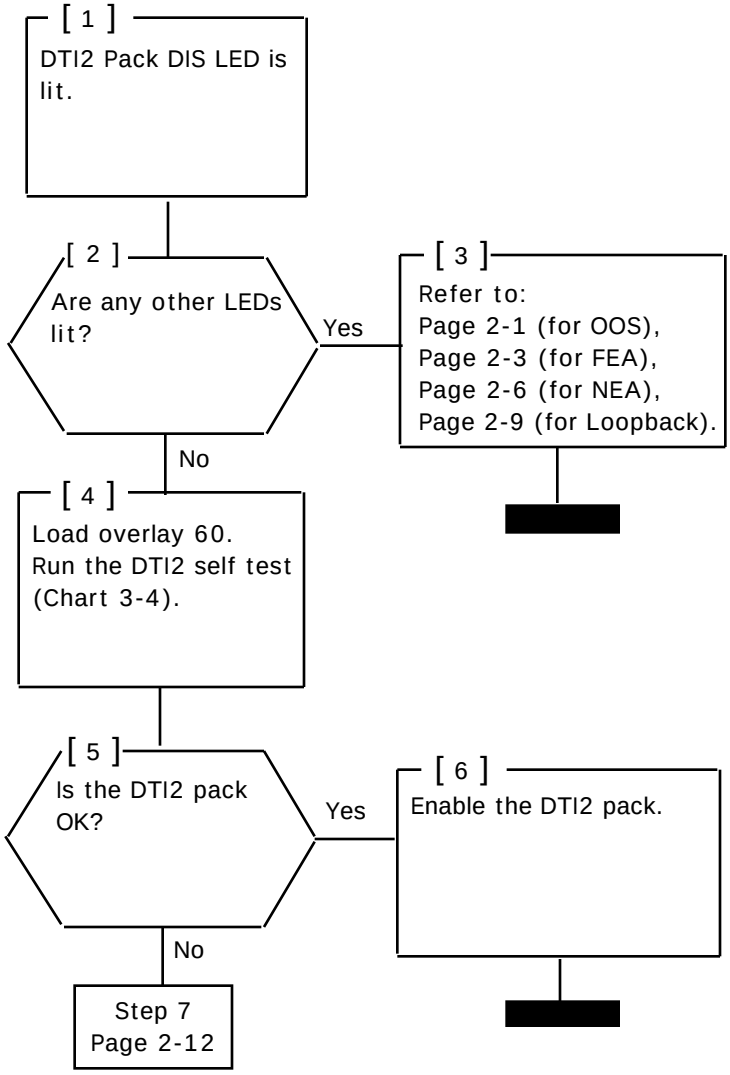

[11]
Is the signal present?
No
[12]
Restore cabling to normal. Problem with the far-end DTI2 pack or cabling from the far-end.
Yes
[13]
Restore cabling to normal. Problem is likely with Receive cabling pair between the Office Repeater Bay and the DTI2 pack (Rx-D to Rx-A).

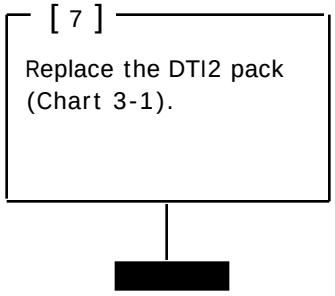
Loopback Alarm LED Lit




[6]
Is the LED off?
Yes
[7]
Enable the DTI2 pack.
No
[8]
Disable the DTI2 pack. Unseat the pack from the back panel, then re-install.
[9]
Do all the LEDs flash on and off?
Yes
[10]
Enable the DTI2 pack.
No
Chart 3-1

Disable (DIS) Alarm LED Lit

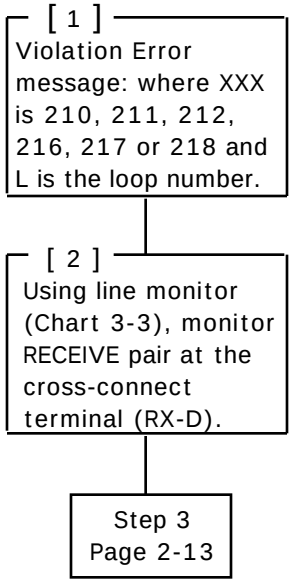


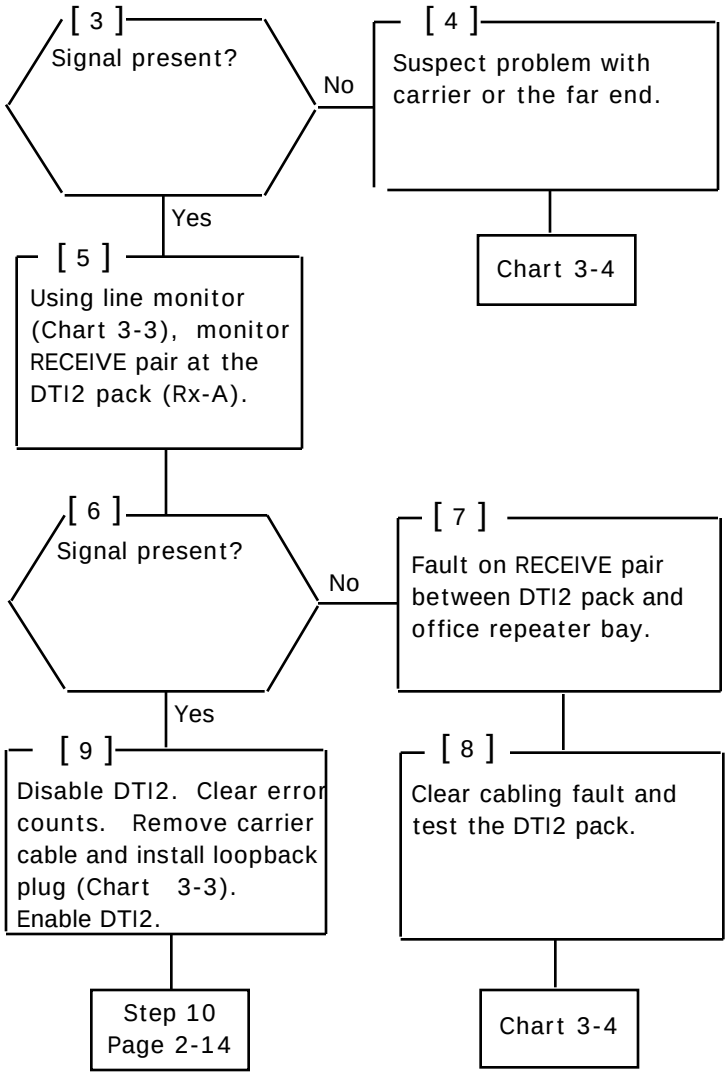


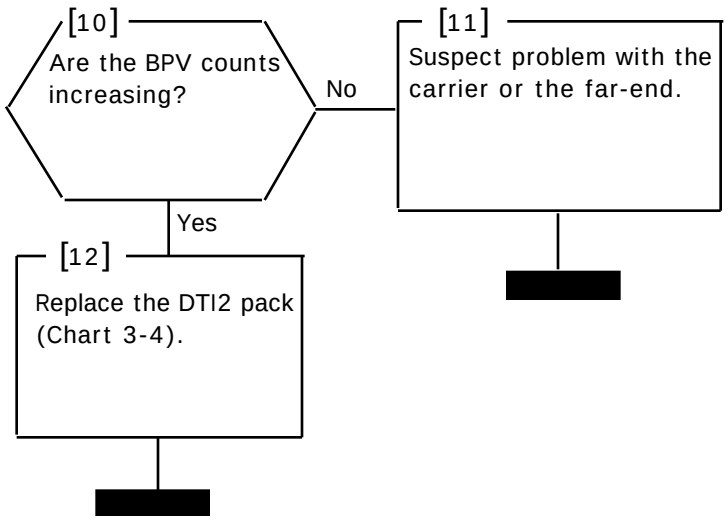
Violation Error Messages

Note: Error Message Formats:

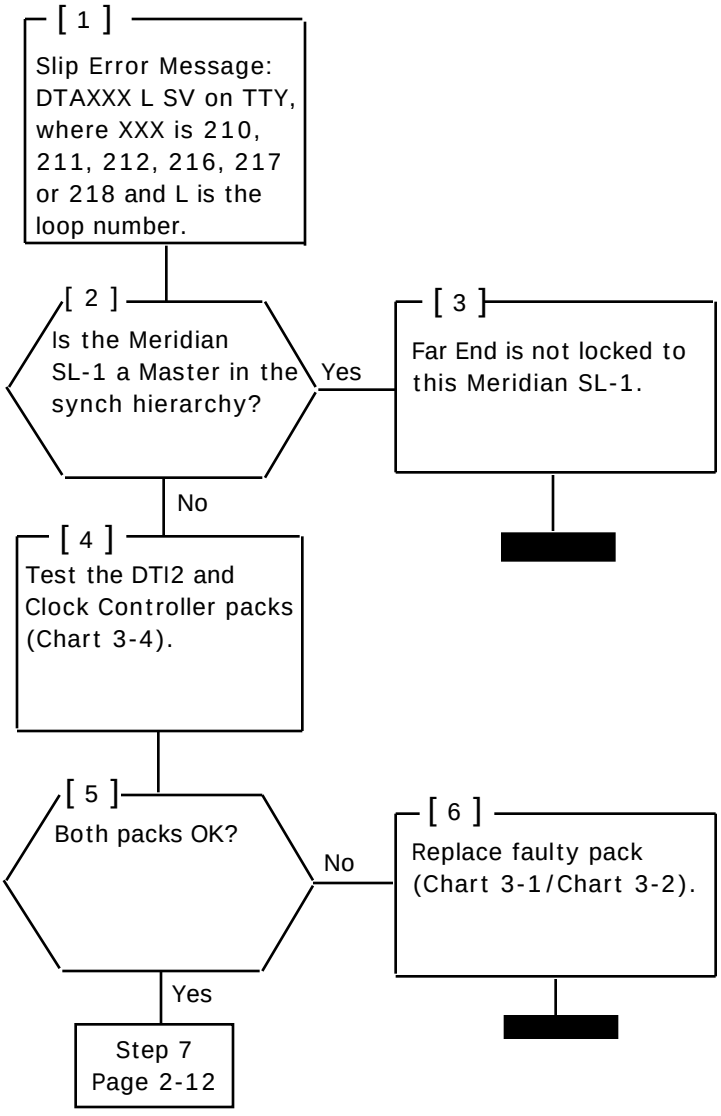
- Bipolar Violation Error: DTAXXX L BV
- Coded Mark Inversion Violation Error: DTAXXX L CV

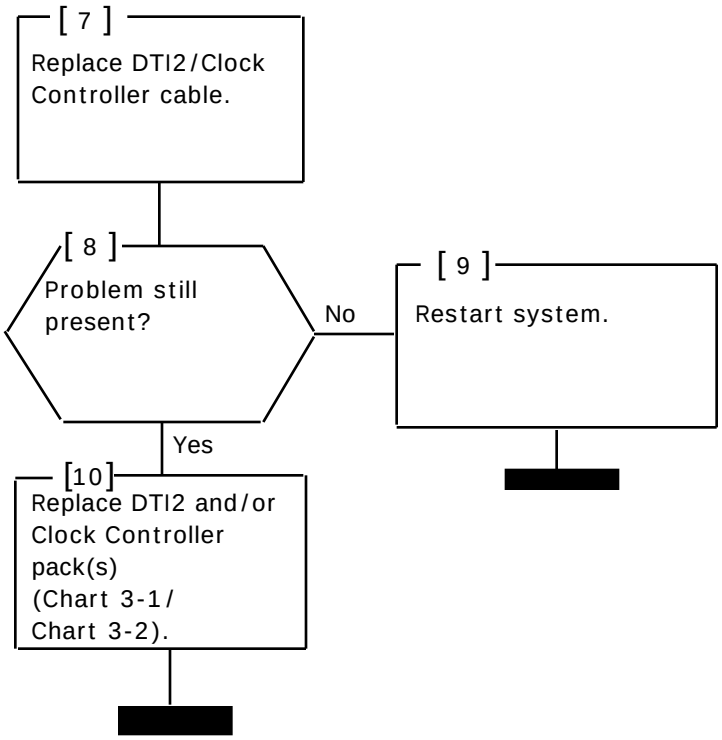



[3]
Signal present?
No
[4]
Suspect problem with carrier or the far end.
Chart 3-4
Yes
[5]
Using line monitor (Chart 3-3), monitor RECEIVE pair at the DTI2 pack (Rx-A).
[6]
Signal present?
No
[7]
Fault on RECEIVE pair between DTI2 pack and office repeater bay.
Yes
[9]
Disable DTI2. Clear error counts. Remove carrier cable and install loopback plug (Chart 3-3). Enable DTI2.
[8]
Clear cabling fault and test the DTI2 pack.
Step 10
Page 2-14
Chart 3-4

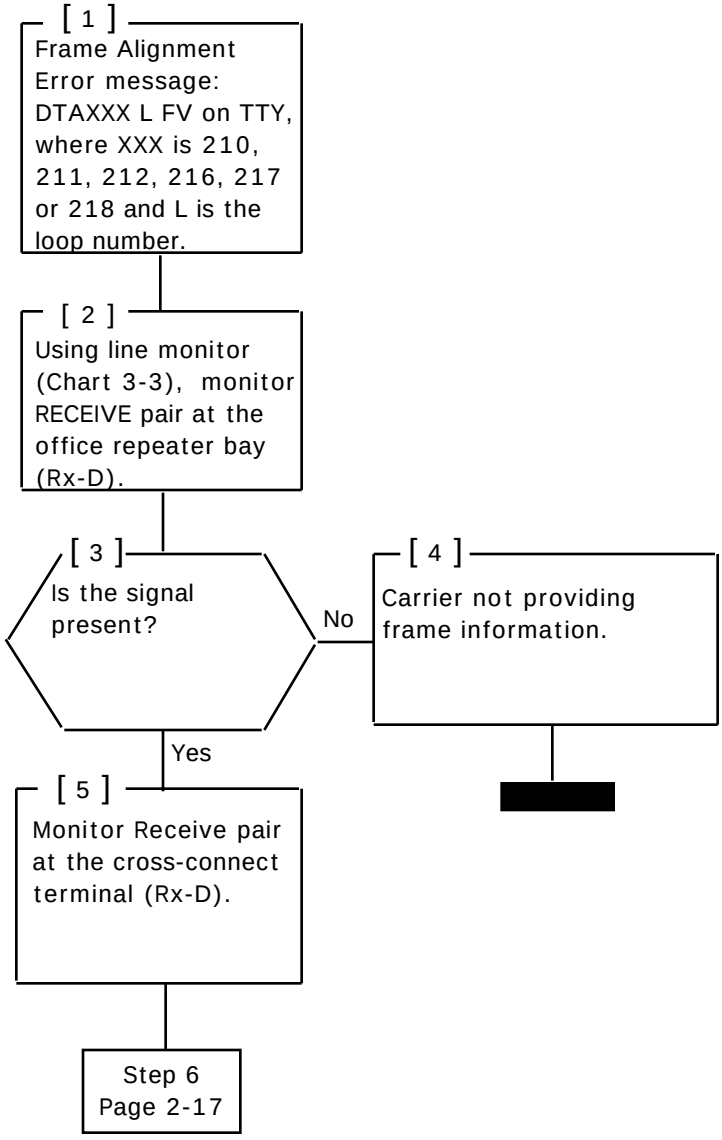

[10]
Are the BPV counts increasing?
No
[11]
Suspect problem with the carrier or the far-end.
Yes
[12]
Replace the DTI2 pack (Chart 3-4).

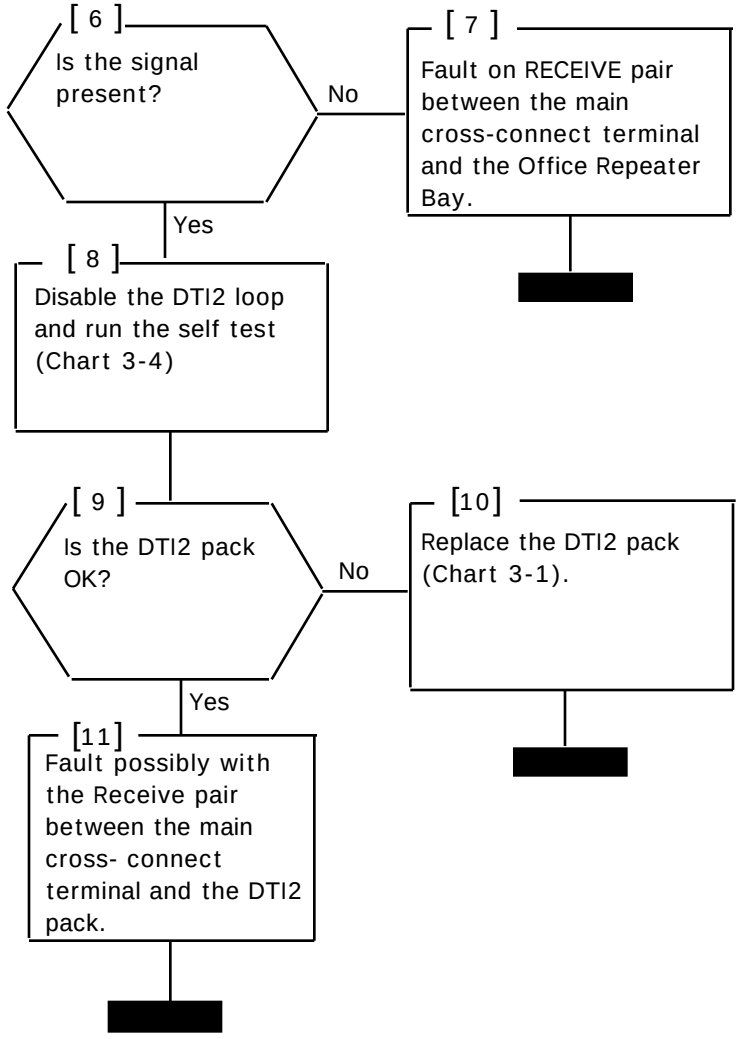
Slip Error Message




[7]
Replace DTI2/Clock Controller cable.
[8]
Problem still present?
No
[9]
Restart system.
Yes
[10]
Replace DTI2 and/or Clock Controller pack(s) (Chart 3-1/ Chart 3-2).

Frame Alignment Error Message




[6]
Is the signal present?
No
[7]
Fault on RECEIVE pair between the main cross-connect terminal and the Office Repeater Bay.
Yes
[8]
Disable the DTI2 loop and run the self test (Chart 3-4)
[9]
Is the DTI2 pack OK?
No
[10]
Replace the DTI2 pack (Chart 3-1).
Yes
[11]
Fault possibly with the Receive pair between the main cross- connect terminal and the DTI2 pack.

DTI2/DMI Pack Replacement

Chart 3-1
Replacement of Digital Interface circuit pack

> **CAUTION**
> Firmly touch the metal frame of the cabinet to discharge static electricity from your body before handling circuit packs

Step	Procedure
	Pack Removal:
1	Disable the Network Loop, using Overlay 60. The command is DISL *'loop number'.*
2	Disconnect cables on the Interface pack faceplate.
3	Remove circuit pack.
	Installation
4	Install the pack in the appropriate slot. LEDs will flash: 4 LEDS on, 1 LED off. 4 LEDS off, 1 LED on.

– continued –

Chart 3-1 (continued)
Replacement of Digital Interface circuit pack

Step	Procedure
5	Connect the carrier interface cable, then the network loop cable. If the Interface pack is defined as a Primary or Secondary clock source, connect the Clock Controller cable(s). When the network cable is installed, the LEDs will flash all LEDs on/ all LEDs off as the hardware reset/test is done.
6	Test the Interface pack using Overlay 60. The command is SLFT 'loop number'. If trouble is indicated by the response, refer to NTP 553-2301-511 for message interpretation. Otherwise, continue with the next step.
7	Enable the Network Loop using Overlay 60. Command is ENLL *'loop number'*.

Clock Controller pack replacement

Chart 3-2
Replacement of Clock Controller circuit pack

Note: Do not deviate from this procedure. This procedure will not cause the system to SYSLOAD or initialize,but deviation could cause major service disruptionfor the complete system.,

CAUTION

Firmly touch the metal frame of the cabinet to discharge static electricity from your body before handling circuit packs

Chart 3-2 (continued)
Replacement of Clock Controller circuit pack

Step	Procedure
1	Ensure that the Clock Controller card being replaced is associated with the inactive CPU. Switch CPUs, if necessary, using Overlay 35. The command is SCPU.
2	Use Overlay 60 to disable the Clock Controller card being replaced. The command is DIS CC *'n'*.
3	On the Clock Controller card being replaced, set the ENB/DIS switch to DIS.
4	Disconnect cables from Clock Controller card being replaced.
5	Remove card from shelf.
6	Set the ENB/DIS switch to DIS on the Clock Controller card being added.
7	Ensure that the option switch setting is correct. Depending on the Clock Controller, perform either (a) or (b): a) For the QPC471, set to OFF if the Clock Controller card is to be located in a CPU shelf (XN machine) or ON if it is to be located in a Network shelf., b) For the QPC775, refer to 553-2201-211 for option switch settings.
8	Install new Clock Controller card in same slot as the defective card.
9	Reconnect cable(s) to Clock Controller faceplate.
10	Set ENB/DIS switch on new Clock Controller to ENB.
11	Enable new Clock Controller card, using Overlay 60.The command is ENL CC *'n'.*

12	Use Overlay 60 to verify normal service level. First; switch the active clock to standby. The command is SWCK 'n'. Next; check the status of the new Clock Controller. The command is SSCK *'n'.* If a trouble is indicated by the response, refer to NTP 553-2301-511 for an interpretation of the message.

2.048 Megabit PCM line monitor

Chart 3-3
2.048 Megabit PCM line monitor

Step	Procedure
1	To monitor the DTI 2.048 Mb/s pcm data stream, use: SIGNAL MONITOR, • model: EPMII, • ELMI, of Copenhagen Denmark • or equivalent.. This SIGNAL MONITOR allows the user to monitor the framing patterns, alarm bit, or any of the thirty channels. Loopback plug (shorts pins 2 to 6 and 3 to 7 of a 9-pin D connector).
2	To monitor the DMI 2.048 Mb/s pcm data stream, use: SIGNAL MONITOR, • model: ANDO Multimedia MUX analyserAP-9205 • or equivalent.. This SIGNAL MONITOR allows the user to monitor the framing patterns, alarm bit, or any of the thirty channels. Loopback plug (shorts pins 2 to 7 and 3 to 6 of a 9-pin D connector).

Verification tests for DTI2/DMI and CC packs

Chart 3-4
Verification tests for DTI2/DMI and CC packs

1. Verification test for DTI circuit pack

Step	Procedure
1	Disable the Network Loop, using Overlay 60. The command is DISL *'loop number'.*
2	Test the DTI2 or DMI pack using Overlay 60. The command is SLFT *'loop number'*. If a trouble is indicated by the response, check that the Network cable, Network card and carrier cable are installed properly. Run the Interface file test a second time. If a problem still exists, refer to NTP 553-2301-511 for message interpretation. Otherwise continue with the next step.
3	Enable Network Loop, using Overlay 60. Command is ENLL *'loop number'*.

2. Verification test for the clock controller circuit pack

Step	Procedure
1	Switch the active clock to standby. The command is SWCK *'n'*.
2	Check the Clock Controller status. The command is SSCK *'n'*. If a trouble is indicated by the response, refer to NTP 553-2301-511 for message interpretation.

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