Meridian 1

ISDN Basic Rate Interface

Maintenance

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Contents

About this guide

This document describes ISDN BRI maintenance tools and procedures to assist in identifying faults, locating defective units, correcting problems by fixing or replacing defective units, and verifying operation after the corrections or replacements have been made.

This document focuses on the maintenance of ISDN BRI equipment installed in Meridian 1 systems, and requires that non ISDN BRI functions operate correctly before starting to diagnose ISDN BRI problems. Refer to the following documents for general Meridian 1 maintenance information, and ISDN BRI descriptions.

X11 input/output guide (553-3001-400)

Meridian 1 general maintenance information (553-3001-500)

Meridian 1 fault clearing (553-3001-510)

Meridian 1 hardware replacement (553-3001-520)

ISDN Basic Rate Interface Product description (553-3901-100)

> ***Note:*** Not all features and services are available in all markets. For example, ISDN BRI trunking is not supported in the United States. For more information, please contact your local Northern Telecom representative.

Applicability of this guide

The intended audience of this guide is all craftspersons charged with maintaining ISDN BRI.

How this guide is organized

This publication has been organized according to the following sections.

Isolating and correcting faults lists and describes ISDN BRI diagnostic maintenance commands, and describes potential hardware, software, and configuration problems that may occur on newly-installed or operational ISDN BRI systems.

Replacing ISDN BRI cards describes how to unpack replacement cards, remove and replace defective cards, verify the operation of ISDN BRI equipment, and package and ship the defective cards to an authorized repair center.

ISDN BRI maintenance messages lists ISDN BRI messages pertaining to routine system activities, system faults, and configuration input errors.

Related documents

ISDN BRI on Generic X11 including Supplementary features:

— ISDN Basic Rate Interface Product Description 553-3901-100

— ISDN Basic Rate Interface Installation 553-3901-200

— ISDN Basic Rate Interface Administration 553-3901-300

— ISDN Basic Rate Interface Acceptance Testing 553-3901-330

Note: This guide does not contain any information related specifically to Meridian 1 system Option 11. This information is contained in the Northern Telecom publication *Option 11 ISDN Administration and Maintenance* 553-3011-311.

Isolating and correcting faults

Introduction

This chapter explains how to identify and clear Meridian 1 ISDN BRI faults. It is assumed that readers of this publication possess a basic knowledge of Meridian 1 fault clearing methods described in the Northern Telecom publication *Meridian 1 fault clearing* (553-3001-510).

Fault detection and correction

Based on whether ISDN BRI is newly installed and not yet operational, or if it was operating correctly and is now faulty, try to determine the probable cause of system or card failure.

Problems can occur in the following three areas.

— hardware

— configuration

— software

The types of faults requiring isolation and correction depend on whether faults occur during installation or are due to component failure in a previously operating system. For example, in a newly installed system the fault may lie in any or all of the three areas; however, in a previously operating system the fault probably lies in the hardware.

Newly installed ISDN BRI equipment

Problems occurring while installing ISDN BRI equipment are usually caused by the following.

— improperly installed cards

— loose or improperly connected cables or improperly wired cross-connect in the DSL

— incorrect software

— incorrect ISDN BRI configuration

Previously operating ISDN BRI equipment

Problems occurring during the normal operation of ISDN BRI equipment are usually caused by the following.

— faulty cards

— accidental cable disconnection

— faulty power supply

— improper environmental conditions

Isolating faults

Figure 1 presents a flowchart that deals specifically with ISDN BRI service problems. Based on the symptoms that these problems exhibit, the flowchart refers to the test procedures in this document that can resolve these problems.

If the problem cannot be resolved after exhausting all available diagnostic tools and test procedures, list all the observed symptoms and contact your technical service representative.

Figure 1
ISDN BRI fault isolation flowchart

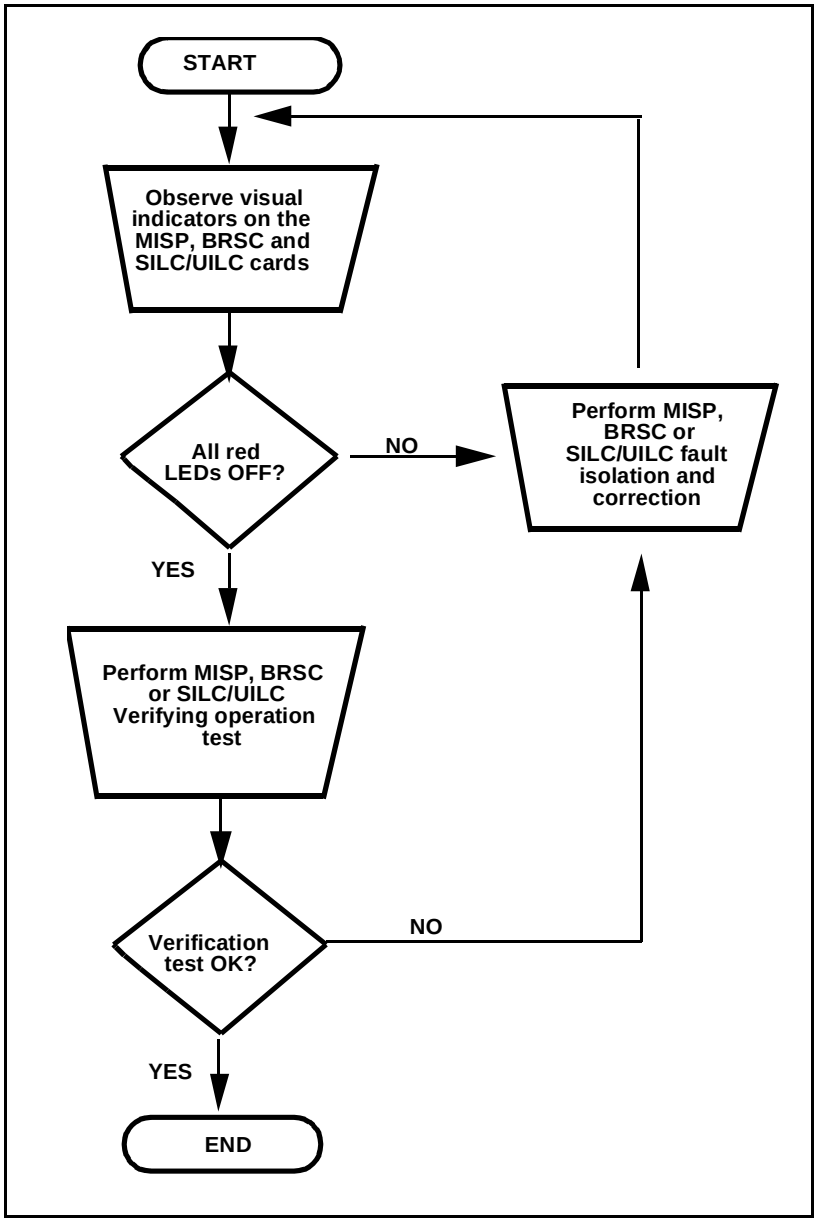


Table 1
ISDN BRI equipment problems (Part 1 of 2)

Symptoms	Diagnosis	Solution
Red LED on the MISP is permanently on.	The MISP is faulty, has not been configured, or is disabled.	Check the MISP status - go to "MISP fault isolation and correction" procedure in this chapter.
	Program software download (PSDL) has failed due to MISP or disk failure.	If all the MISPs in the system show red LED on, check the program software download; otherwise, replace the defective MISP.
Automatic recovery routine activates every 30 seconds to enable or disable the MISP as indicated by the MISP LED flashing every 30 seconds.	Incompatibility between the software configuration and the application indicating a missing or incorrectly configured MISP.	Check that the MISP is installed in the correct card slot. To verify the MISP configuration parameters, refer to the 553-3901-300.
	The MISP is faulty.	Go to "Performing the MISP self-test."
Red LEDs on one or more SILCs, UILCs or BRSCs are permanently on.	The SILCs and/or UILCs and/or BRSCs are faulty, disabled, or not configured.	Check the card status - go to "SILC or UILC fault isolation and correction "or the "Performing the BRSC self-test" in this chapter.
Calls cannot be placed or received on all SILCs and/or UILCs or BRSCs associated with a specific MISP.	The MISP, BRSC(s) or line cards are faulty, have not been configured, or are disabled.	Check the MISP status - go to "MISP fault isolation and correction" procedure in this chapter. Check the card status - go to "SILC or UILC fault isolation and correction or the "Performing the BRSC self-test" in this chapter.
Calls cannot be placed or received on some SILCs and/or UILCs or BRSCs associated with a specific MISP.	The SILCs and/or UILCs or BRSCs are faulty or disabled. The loop or the module is disabled.	Check the card status - go to "SILC or UILC fault isolation and correction" procedure in this chapter, or the "Performing the BRSC self-test" in this chapter.
	The signaling link between the MISP and the BRSC, SILCs or UILCs is faulty.	Check the continuity of the signaling channel - go to "Performing the MISP loopback tests" in this chapter.

Table 1
ISDN BRI equipment problems (Part 2 of 2)

Symptoms	Diagnosis	Solution
Calls cannot be placed or received on some DSLs on a particular line card.	The DSLs are incorrectly configured, not configured, or disabled.	Check the status of each DSL - go to "SILC or UILC fault isolation and correction" in this chapter; go to "Performing the BRSC self-test" in this chapter.
	Signaling link between the MISP, the BRSC or the SILCs or UILCs is faulty.	Check the signaling link between the MISP and the BRSC, and the SILC and/or SILCs - go to "Performing the MISP loopback tests".
	ISDN BRI terminal is faulty or incorrectly configured.	Check the ISDN BRI terminal user guide to ensure the terminal is operating correctly.
	Duplicate TEIs may exist on the DSL	Perform TEI check on the DSL.
	DSL wiring is faulty.	Check the DSL wiring.
Problems with features on ISDN BRI terminals.	Incorrect DSL and/or TSP configuration for the connected ISDN BRI terminals.	Verify the DSL and the TSP parameters, with the configuration procedures found in the 553-3901-300.
User reports problems with calls on specific type terminals.	Mismatch between the DSL configuration and the terminal type connected to the DSL, a faulty terminal, or a faulty connection to the DSL.	Go to "SILC or UILC fault isolation and correction" or "Performing the BRSC self-test" in this chapter to check the status of each DSL. Check the DSL wiring. Check the ISDN BRI terminal user manual to determine if the terminal is operating correctly and is configured correctly.

MISP fault isolation and correction

The MISP provides a communication interface between the CPU and the peripheral devices. It communicates with the CPU over the CPU bus. It communicates with the BRSCs, the SILCs, and the UILCs over the Network bus. Both buses are located on the Network module backplane. It uses one network loop to interface with the BRSCs, the SILCs and the UILCs.

The MISP processes the signaling information received on the D-channels from the DSLs. If a BRSC is not used, the MISP also separates packet data from signaling information and forwards it to the packet handler on the Dchannels.

Problems with the MISP may be caused by hardware faults, incorrect configuration, disabled MISP, or continuity problems between the MISP and other network cards connected to the network bus. To isolate and correct the MISP-related problems, use the following procedures.

Checking the MISP status

To isolate and correct the MISP-related problems, follow the procedures below.

Checking the MISP status:

1 Log-in on the maintenance terminal and load overlay program 32 (type in **LD 32)**.

2 Enter **STAT lll**, where **lll** is the MISP loop number.

If the response is

lll : MISP LOOP
mm DSBL nn BUSY
MISP lll: ENBL ACTIVATED xx/xx/xx xx:x
BRIL/BRIT : ENBL

then

The MISP loop is enabled,

where

BRIL or **BRIT** is the ISDN line or trunk application on the MISP (whichever is configured).

mm = the number of disabled network timeslots on the MISP network loop. If mm>0, disabled timeslots are indicated. Go to "Checking the SILC or UILC status". If a BRSC is configured, go to "Checking the BRSC status".

nn = the number of busy network timeslots on the MISP network loop. If a BRSC is not used, this number equals 2 x (number of line cards + 1), where 1 indicates that packet data transmission is configured; that is, there are 2 timeslots for each SILC or UILC and an additional timeslot for packet handling. If a BRSC is used, nn equals 2 x (number of line cards) + number of BRSCs + 1.

xx/xx/xx xx:x = date and time the MISP base code was activated.

If the response is

lll=MISP LOOP
DISABLED RESPONDING
MISP lll MAN DSBL

then

The MISP loop:

—has been manually disabled by **DISL III**, or

—has an overload condition, or

—has failed the self-test when enabling this loop

Enable the MISP loop by typing **ENLL lll**, where **lll** is the MISP loop number. A message indicating that the MISP is enabled and working is displayed on the console. Observe the red LED on the MISP. If it extinguishes, the MISP is functioning correctly. If the LED stays lit, the MISP probably failed the self-test and a message should be displayed on the maintenance terminal. If the message indicates that the MISP is faulty, replace it; or

If an overload condition exists, the card is faulty. Replace the card following the procedures outlined in "Removing and replacing the MISP" section in this document; or

If the self-test failed, refer to the "Performing the MISP self-test" section in this document for corrective action.

If the response is

BRIL/BRIT: MAN DSBL

then

The BRIL/BRIT application is manually disabled.

Enable the MISP loop by typing **ENLL lll**, where **lll** is the MISP loop number. A message indicating that the MISP is enabled and working is displayed on the console. Observe the red LED on the MISP. If it extinguishes, the MISP is functioning correctly. If the LED stays lit, the MISP probably failed the self-test and a message should be displayed on the maintenance terminal. If the message indicates that the MISP is faulty, replace it.

If the response is

BRIL/BRIT:SYS DSBL

then

The BRIL/BRIT application is system disabled.

Enable the MISP loop by typing **ENLL lll**, where **lll** is the MISP loop number. A message indicating that the MISP is enabled and working is displayed on the console. Observe the red LED on the MISP. If it extinguishes, the MISP is functioning correctly. If the LED stays lit, the MISP probably failed the self-test and a message should be displayed on the maintenance terminal. If the message indicates that the MISP is faulty, replace it.

If the response is

NO APPLICATION CONFIGURED

then

The BRIL/BRIT application is not configured on the MISP. Configure the BRIL/BRIT application. Refer to *ISDN Basic Rate Interface Administration.*

If the response is

lll=MISP LOOP
DISABLED RESPONDING
MISP lll SYS DSBL - xxxxxxxx

then

The MISP is responding, but the MISP loop:

— has been system disabled;

— an overload condition exists on the loop;

— the self-test failed when enabling the MISP loop.

where

xxxxxxxx may indicate one of the following:

SELF TESTING - the card is performing self-test.

SELFTEST PASSED - the card successfully completed self-test.

BOOTLOADING - the base code is downloading to the MISP.

SELFTEST FAILED - the self-test failed. Refer to the "Performing the MISP self-test" section in this document.

FATAL ERROR - the MISP has a serious problem. Perform a MISP self-test or loopback test as detailed in "Performing the MISP self-test" and "Performing the MISP self-tests" sections in this document.

SHARED RAM TEST FAILED - the card has a memory problem. Check the memory allocation on the MISP card.

OVERLOAD - the card is faulty and experienced an overload. Replace the card following the procedures outlined in "Removing and replacing the MISP" section in this document.

RESET THRESHOLD - the card reached the specified threshold, which has to be reset.

STUCK INTERRUPT - hardware failure, interrupt is permanently ON.

If the response is

lll=MISP LOOP
DISABLED NOT RESPONDING
MISP lll MAN DSBL

then

The MISP loop is manually disabled, and the MISP is:
— not responding;
— missing;
— installed in an incorrect slot; or
— faulty.

Check for these conditions and refer to the appropriate test procedure.

When the NOT RESPONDING condition is cleared, enable the MISP loop by typing **ENLL lll**, where **lll** is the MISP loop number. A message indicating that the MISP is enabled and working is displayed on the console. Observe the red LED on the MISP. If it extinguishes, the MISP is functioning correctly. If the LED stays lit, the MISP probably failed the self-test and a message should be displayed on the maintenance terminal. If the message indicates that the MISP is faulty, replace it.

If the response is

lll=MISP LOOP
DISABLED NOT RESPONDING
MISP lll SYS DSBL - NOT RESPONDING

The MISP is system disabled and:
— not responding;
— missing;
— installed in an incorrect slot; or
— faulty.

The MISP loop is system disabled.
Check for these conditions and refer to the appropriate test procedure.

A background routine tries to enable the MISP as soon as the NOT RESPONDING condition is cleared.

3 To obtain the ISDN BRI application status, enter **STAT BRIL/MPH lll** (for a line) or **STAT BRIT lll** (for a trunk) and observe the response.

If the response is

lll:MISP LOOP
APPLICATION ENBL ACTIVATED - xx/xx/xx xx:xx

the application has been activated at the date and time specified by xx/xx/xx xx:xx.

If the response is

lll:MISP LOOP
APPLICATION NOT CONFIGURED

the application is not configured for the specified MISP. Configure the BRIL/BRIT application. Refer to *ISDN Basic Rate Interface Administration.*

If the response is

lll:MISP LOOP
DISABLED NOT RESPONDING

the application status is not displayed because the MISP running the application is disabled or faulty and is not responding. Check for these conditions and refer to the appropriate test procedure.

Enable the MISP as soon as the cause of NOT RESPONDING is cleared, by typing **ENLL lll**, where **lll** is the MISP loop number. A message indicating that the MISP is enabled and working is displayed on the console. Observe the red LED on the MISP. If it extinguishes, the MISP is functioning correctly. If the LED stays lit, the MISP probably failed the self-test and a message should be displayed on the maintenance terminal. If the message indicates that the MISP is faulty, replace it.

If the response is

lll:MISP LOOP
DISABLED RESPONDING

the application status is not displayed because the MISP running the application is responding but is disabled. Check for these conditions and refer to the appropriate test procedure.

If the response is

lll:MISP LOOP
APPLICATION MAN DISABLED

the application is manually disabled using LD 32. Enable the MISP loop by typing **ENLL lll**, where **lll** is the MISP loop number. A message indicating that the MISP is enabled and working is displayed on the console. Observe the red LED on the MISP. If it extinguishes, the MISP is functioning correctly. If the LED stays lit, the MISP probably failed the self-test and a message should be displayed on the maintenance terminal. If the message indicates that the MISP is faulty, replace it.

If the response is

lll:MISP LOOP
APPLICATION SYS DISABLED

the application is system disabled; the background routine will attempt to enable it again.

Performing the MISP self-test

If the MISP status indicates that the MISP is faulty, conduct the self-test to verify that this MISP is faulty before replacing it. This test verifies the basic MISP functions and outputs a fail or pass message after the test is completed. To run the self-test, perform the following steps:

Performing the MISP self-test

1. Log in on the maintenance terminal and load overlay program 32 (type in **LD 32**).
2. Type **DISL lll** and press the ENTER key to disable the MISP loop, where **lll** is the MISP loop number. If the MISP is already disabled, go to step 4.
3. Exit LD 32 by typing ******** at the prompt.
4. Type **LD 30** and press the ENTER key to access the Network and Signaling Diagnostic Program to perform the self-test.
5. Type **SLFT lll type** and press the ENTER key to start the self-test, where **lll** is the MISP network loop number and **type** is **1** for a detailed self-test and **2** for a minimal test.

   If the response is

   NWS637

   the MISP card passed the self-test and is functional but must be enabled to turn off the red LED and to start processing calls. It may take up to 20 seconds to display this response.

   If the MISP passed the self-test but the problem persists, the loop or other cards interfacing with the MISP may be faulty. To verify the integrity of the network buses and the links between the MISP and other network and peripheral equipment cards interfacing with the MISP, go to “Performing the MISP loopback tests.”

   If the response is

   NWS632

   the MISP card failed the self-test and is faulty. Replace the MISP as described in the next chapter, “Replacing ISDN BRI cards.” Other NWSxxx messages may display as a result of a command-activated self-test if the MISP is missing, not configured, etc.

Performing the MISP loopback tests

If the MISP self-test indicates that the MISP is not faulty, conduct loopback tests to isolate the problems that may exist on the network cards, network buses, or connections between the MISP and the SILCs and/or UILCs.

Two types of MISP loopback tests can be performed. These are:

— MISP loopback at a DSL interface

— MISP loopback at the SILC or UILC DS30X peripheral bus interface

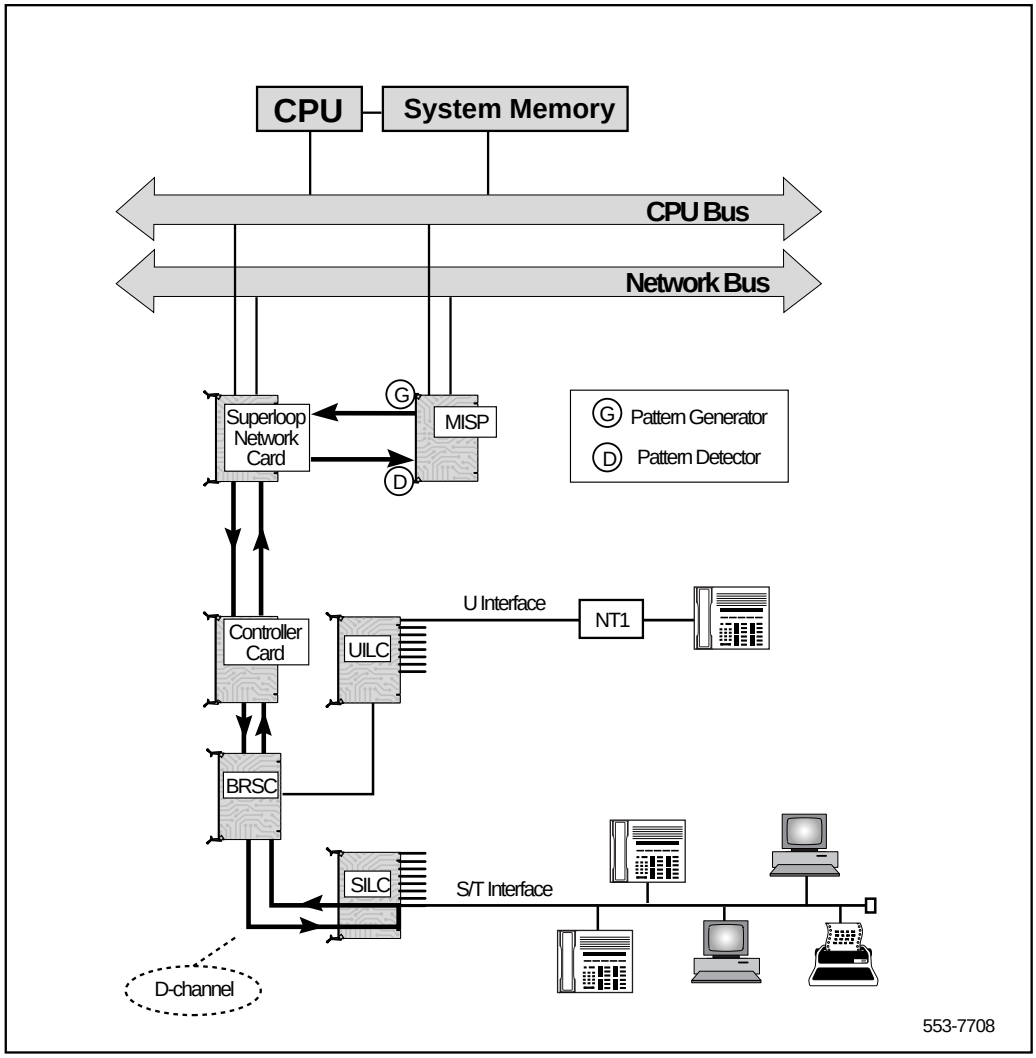
Note: If a BRSC is configured, the MISP to line card DSL loopback through the BRSC tests the entire D-channel signaling path. The MISP BRI line application generates and verifies the data through the path. The ISDN BRI application on the BRSC passes the data transparently.The MISP to line card loopback through the BRSC tests the path from the MISP application through the BRSC to the line card.The ISDN BRI application on the BRSC passes the data transparently.

MISP loopback at a DSL interface

The loopback at a DSL interface checks the continuity of the D-channel signaling path between the MISP and an individual SILC or UILC port. This procedure also tests the connections between the MISP and the DSL through the Network Superloop Card and the Peripheral Controller Card.

Figure 2 illustrates a DSL loopback path and the MISP as a test pattern generator and detector.

Figure 2
MISP loopback at a DSL interface



To start the loopback test, perform the following steps:

Testing the MISP loopback at a DSL interface

1 Log in on the maintenance terminal, and load overlay program 45 (type in **LD 45**).

2 Select test condition:

Enter **XCON 0** and press the ENTER key to perform only one loopback test.

Enter one test period shown in **XCON H 0-182, M 0-59, S 0-60** and press the ENTER key to select continuous loopback testing for a selected time span, where **H 0-182** is 0 to 182 hours, **M 0-59** is 0 to 59 minutes, and **S 0-60** is 0 to 60 seconds.

Example: **XCON M 5** specifies a five minute duration for the test.

3 At the TEST prompt, type **9** and press the ENTER key. Continue responding to the prompts to configure the loopback test as follows:

Prompt	Response	Comment
TEST	9	Selects loopback at the DSL.
PATT	x	x is the selected pattern, where **x** is 0-7. Refer to Table 2
TYPG	5	MISP is generating and transmitting the pattern.
LOOP	lll	MISP network loop number, where **lll** is 0-158 and must be an even number.
LBTY	3	DSL is requested to loopback.
LBTN	l s c dsl#	The address of the looped back DSL, where **l** is network loop, **s** is shelf (module), **c** is an SILC or UILC card, and **dsl#** is DSL.
TAG	xx	TAG is automatically assigned by the system. If the loopback test is continuous, the system tags the test with a number from 0 to 15 to keep track of the tests.

4 Check the loopback test results. The result automatically displays if XCON 0 test conditions are specified; otherwise, specify XSTA or XSTP with the test TAG number to check the status. XSTA gets the status of the manual continuity test and XSTP stops the manual continuity test. If the results show BSDxxx messages, refer to the list and description of these messages in the "Background signaling diagnostic messages (BSDxxx)" section found later in this document. The BSDxxx messages indicate the possible problem causes, which must be checked to isolate the problem.

If the loopback test passes, the problem may be somewhere in the DSL or the ISDN BRI terminal.

If the loopback test fails, go to the "Testing the MISP loopback at the SILC or UILC bus interface" procedure.

Table 2
Patterns for loopback test configuration

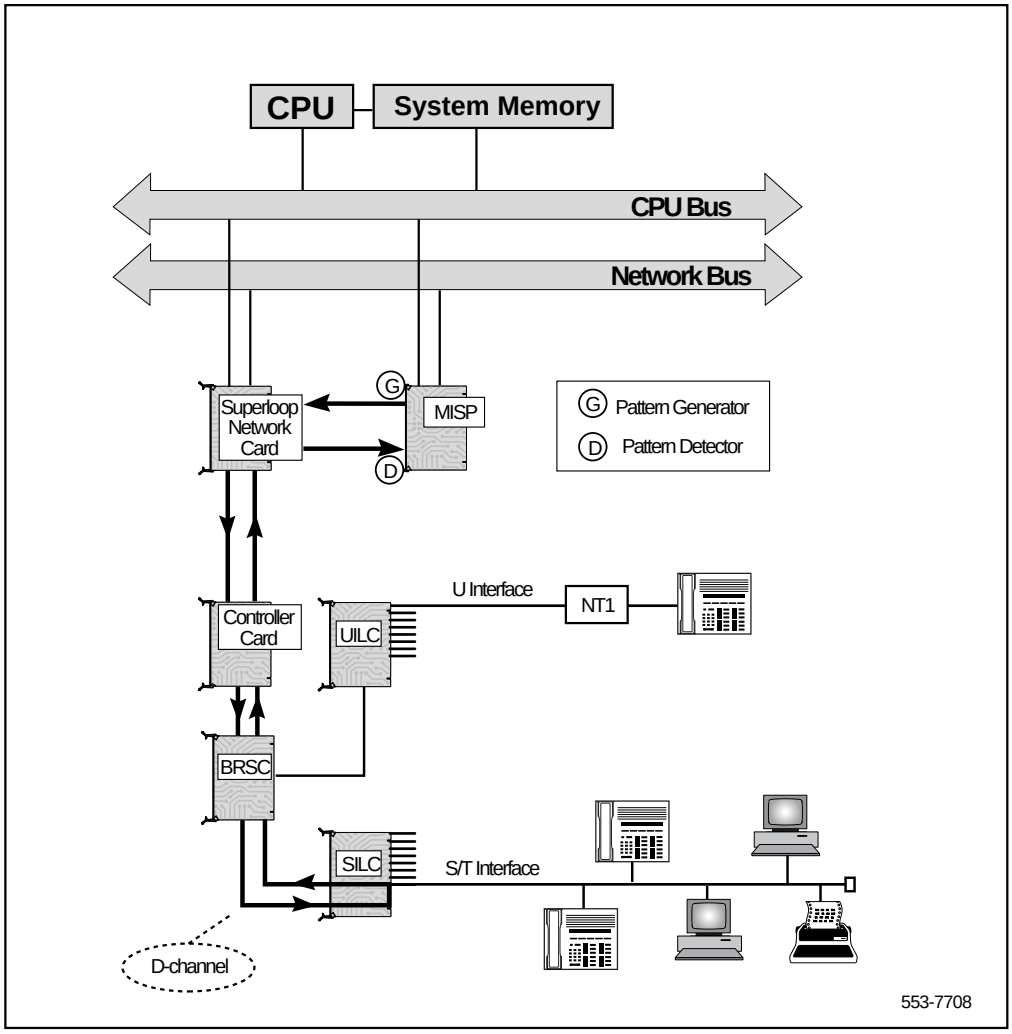
PATT	Pattern
0	11001100
1	10101010
2	01110111
3	01010101
4	10100101
5	01011010
6	11111111
7	00000000

MISP loopback at the SILC or UILC bus interface

The loopback at the SILC or UILC peripheral bus interface checks the continuity between the MISP and the SILC or UILC and its ability to communicate with the MISP over the multiplexed D-channels.

Figure 3 illustrates the SILC or UILC loopback path and the MISP as a test pattern generator and detector.

Figure 3
MISP loopback at the SILC or UILC peripheral bus interface



Before starting loopback testing at the SILC or UILC, disable the card to be tested; when the card is disabled, the system disconnects all the calls handled at the time by that card. Perform the following steps:

Testing the MISP loopback at the SILC or UILC bus interface

1. Log in on the maintenance terminal, if you are not already logged on, and load overlay program 32 (type in **LD 32**).as described in "Using the diagnostic programs" in the previous chapter if not already logged in.
2. Type **DISC l s c** and press the ENTER key to disable the SILC or UILC, where **l** is the superloop number, **s** is the shelf (module) number, and **c** is the card slot number in the module.
3. Exit LD 32 by typing ******** at the prompt, and load overlay program 45 (type in **LD 45**).
4. Select test conditions:

   Enter **XCON 0** and press the ENTER key to perform only one loopback test.

   Enter one test period shown in **XCON H 0-182, M 0-59, S 0-60** and press the ENTER key to select continuous loopback testing for a selected time span where **H 0-182** is 0 to 182 hours, **M 0-59** is 0 to 59 minutes, and **S 0-60** is 0 to 60 seconds.

   For example: **XCON H 1** conducts the test for one hour.

5 At the TEST prompt, enter **9** and press the ENTER key. Respond to the prompts to configure the loopback test as follows:

Prompt	Response	Comment
TEST	9	Selects loopback at the SILC/UILC.
PATT	x	x is the selected pattern, where **x**=0-7. Refer to Table 2.
TYPG	5	MISP is generating and transmitting the pattern.
LOOP	lll	MISP network loop number, where **lll**=0-158 and must be an even number.
LBTY	4	Card is requested to loopback.
LBTN	l s c dsl#	The address of the looped back card, where **l**=network loop, **s**=shelf (module), **c**=SILC/UILC card, and dsl# is the port.
TAG	xx	If the loopback test is continuous, the system tags the test with a number from 0 to 15.

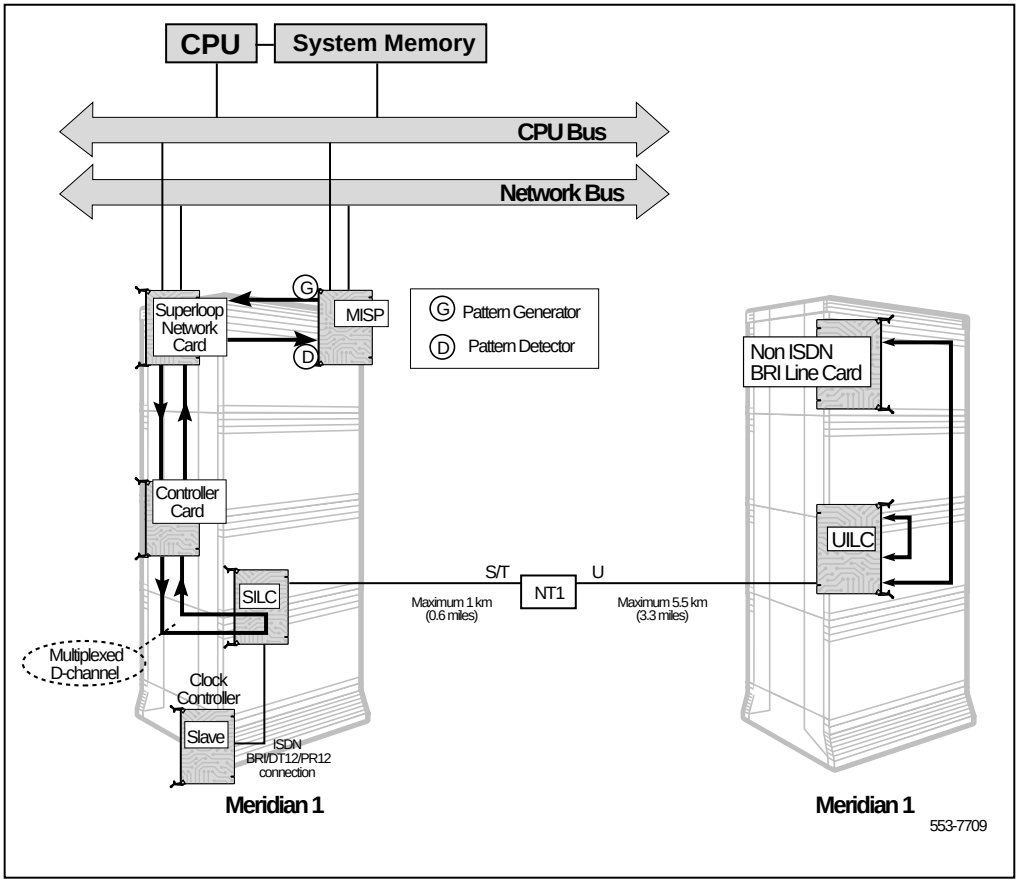
6 Check the loopback test results. The result automatically displays if XCON 0 test conditions are specified; otherwise, specify XSTA or XSTP with the test TAG number to check the status. If the results show BSDxxx messages, refer to the list and description of these messages in the “Background signaling diagnostic messages (BSDxxx)” section found later in this document. The BSDxxx messages indicate the possible causes to check to isolate the problem.

If the line card loopback test fails, the problem may be between the MISP and the line cards in the Superloop Network Card or Peripheral Controller Card.

Performing the ISDN BRI trunk remote loopback test

Figure 4 illustrates a remote loopback test for an ISDN BRI trunk DSL provisioned as a MCDN Tie configuration; the Tie trunk connection is achieved by connecting two Meridian 1s through an NT1 device.

Figure 4
ISDN BRI trunk DSL remote loopback



The following steps are used to perform the remote loopback test for a ISDN BRI trunk DSL provisioned as a MCDN Tie configuration.

Performing the ISDN BRI trunk remote loopback test

1 Log in on the maintenance terminal and load overlay 32 (type in **LD 32**).

2 Put the far-end and near-end of the ISDN BRI trunk in the test mode by entering the **ENTS L S C D** command**,** and pressing the ENTER key.

Note: the ISDN BRI trunk DSL must be configured for the ISDN BRI trunk application, and must be either in the release or enabled state.

If the reference clock source is configured on the DSL, you will be prompted with **"CLOCK SOURCE ON DSL # OF SILC L S C, PROCEED?"** to ensure that you have taken necessary precautions for uninterrupted clock reference for the system.

3 Put the far-end ISDN BRI trunk DSL in the remote loopback mode by entering the **ENRB L S C D** command, and pressing the ENTER key.

4 Run the remote loopback test by entering the **RLBT L S C D** command**,** and pressing the ENTER key.

The result of the test will be displayed as follows:

DSL: L S C / C RLB TEST TIME: xx:xx

TEST: PASS

TEST: FAIL - NO DATA RCV FAR END

TEST: FAIL - CORPT DATA RCV FAR END

TEST: FAIL - REASON UNKNOWN

If the test failed due to no data or corrupt data being received from the far end, verify that proper test data is being used; if the test failed for unknown reasons, make ensure that the ISDN BRI trunk DSL has been properly configured for the ISDN BRI trunk application, and perform the test again.

5 Take the far-end ISDN BRI trunk DSL out of remote loopback mode by entering the **DSRB L S C D** command, and pressing the ENTER key. The the far-end and near-end ISDN BRI trunk DSLs are placed in the test mode.

6 Take the far-end and near-end ISDN BRI trunk DSLs out of test mode by entering the **DSTS L S C D** command, and pressing the ENTER key. The ISDN BRI trunk DSLs are reset in their release or established state.

7 Enable the ISDN BRI trunk DSL by entering the **ENLU** command.

BRSC fault isolation and correction

The BRSC processes the signaling information received on the D-channels from the DSLs. It sends the resulting Network messages to an MISP by means of a single channel. The BRSC also filters out D-channel Packet Switched Data (DPSD) from the line cards and it routes this information to an internal or external packet handler.

Problems with the BRSC may be caused by hardware faults, incorrect configuration, disabled BRSC or MISP, or continuity problems between the MISP and other network cards connected to the network bus.

Checking the BRSC status

The first step in identifying any problem is to verify the status of the BRSC. To obtain the status of a BRSC and the ISDN BRI application, execute this command in the Network and IPE Diagnostic, LD 32:

STAT lll s cc

A possible response is:

APPLICATION MAIN STATE SUB STATE/ACTIVATION TIME

BASECODE ENABLED xx/xx/xx x:xx

BRI ENABLED xx/xx/xx x:xx

IDLE 0 BUSY 0 DISABLED 8 MBSY 0

TOTAL DSLS CONFIGURED 8

For this example, the BRSC is servicing eight DSLs that are all disabled.

Table 3 shows the main states for the BRSC.

Table 3
BRSC maintenance states

BRSC status	Description	Comments
ENABLED	BRSC and MISP enabled.	No action required.
SYSTEM DISABLED	BRSC basecode disabled and ready to be enabled.	Enable BRSC using ENLC lll s cc in LD 32.
MANUALLY DISABLED	Craftsperson has disabled the card, or enabling the BRSC has failed.	Enable the BRSC using ENLC lll s cc in LD 32; perform BRSC self-test.

Table 4 lists the sub-states when the BRSC is either in MANUALLY or SYSTEM DISABLED state.

Table 4
BRSC maintenance sub-states

BRSC status	Description	Comments
ENABLING	BRSC is being enabled.	No action required.
DISABLING	BRSC is being disabled.	No action required.
DOWNLOADING S/W	Software download is taking place.	No action required.
WAITING FOR S/W DOWNLOAD	Background audit detected need for software download.	Quit overlay to invoke background peripheral software download.
INVALID STATE	Software error.	Manually disable and manually enable the BRSC.
RESPONDING	An attempt to enable the BRSC is taking place.	No action required.
NOT RESPONDING	The system cannot communicate with the BRSC basecode.	Verify that the BRSC is properly installed; perform the BRSC self-test.
SELFTEST IN PROGRESS	BRSC is placed in this state when: - BRSC is installed in the IPE module - self-test command invoked in LD 30 - self-test command issued at the beginning of the enabling process.	No action required.
SELFTEST FAILED	BRSC card is faulty.	Re-invoke the self-test command in LD 30; replace BRSC.
SIGNALING TEST	BRSC is undergoing signaling test, such as a loopback test in LD 45.	No action required.

Checking the status of the BRSC card identification and loadware versions

To obtain the status of a BRSC card identification base code and the ISDN BRI application version number, execute this command in the Network and IPE Diagnostic, LD 32:

IDC lll s cc

If the channel between the MISP and BRSC is up, the response is:

=> xxx...x

BOOTCODE VERSION: xx:xx

BASECODE VERSION: xx...x (hw_state)

BRI APPL VERSION: xx...x (hw_state)

hw_stat is the Base Code or the state of the ISDN BRI application in the BRSC.

If the channel between the MISP and BRSC is down, the response is:

LOADWARE VERSION NOT AVAIL-MISP CANNOT ACCESS BRSC CARD

Checking the status of the Terminal Endpoint Identifiers

The TEIs and their corresponding User Service Identifier (USID) on the specified DSL have established the D-channel data link layer with the MISP. To obtain the status of the TEIs and USID, execute the **STEI lll s cc dsl#** command in the Network and IPE Diagnostic, LD 30.

The output format is:
MISP 111

TEI	USID
===	====
nnn	nnnn
...	... .

Performing the BRSC self-test

If the BRSC status indicates that the BRSC is faulty, conduct the self-test to verify that this BRSC is faulty before replacing it. This test verifies the basic BRSC functions and outputs a fail or pass message after the test is completed. To run the BRSC self-test, follow the procedure below.

1 Log in on the maintenance terminal.

2 At the > prompt, type **LD 32** and press the ENTER key to access the Network and IPE Diagnostic Program.

3 Type **DISC lll s cc** and press the ENTER key to disable the BRSC, where lll s cc is the BRSC card number. If the MISP is already disabled, go to step 5.

4 Exit LD 32 by typing ******** at the prompt.

5 Type **LD 30** and press the ENTER key to access the Network and Signaling Diagnostic Program to perform the self-test.

6 Type S**LFT lll s cc** (where lll is the superloop number, s is the shelf number, and cc is the card number). Press the ENTER key to start the self-test.

If the response is

NWS637

the BRSC passed the self-test and is functional but must be enabled to turn off the red LED and to start processing calls. It may take up to 20 seconds to display this response.

If the response is

NWS632

the BRSC failed the self-test and is faulty. Replace the BRSC as described in “Replacing ISDN BRI cards”.

Performing the BRSC loopback tests

If the BRSC self-test indicates that the BRSC is not faulty, perform the MISP to BRSC D-channel loopback tests; this tests the signaling channel between the MISP and the BRSC. See Figure 7. The BRSC card must be enabled and the BRSC application disabled to invoke this test.

If a BRSC is **not** configured when performing a MISP to line card DSL loopback (as explained in the section “MISP loopback at a DSL interface”) or a MISP to line card loopback test (as explained in the section “MISP loopback at a SILC or UILC bus interface”), then also perform the following:

— an MISP to line card DSL loopback through the BRSC. See Figure 5. This tests the entire D-channel signaling path. The MISP BRI line application generates and verifies the data through the path. THe ISDN BRI application on the BRSC passes the data transparently.

— an MISP to line card loopback through the BRSC. See Figure 6. This tests the path from the MISP application through the BRSC to the line card.The ISDN BRI application on the BRSC passes the data transparently.

Figure 5
MISP to line card DSL loopback through the BRSC

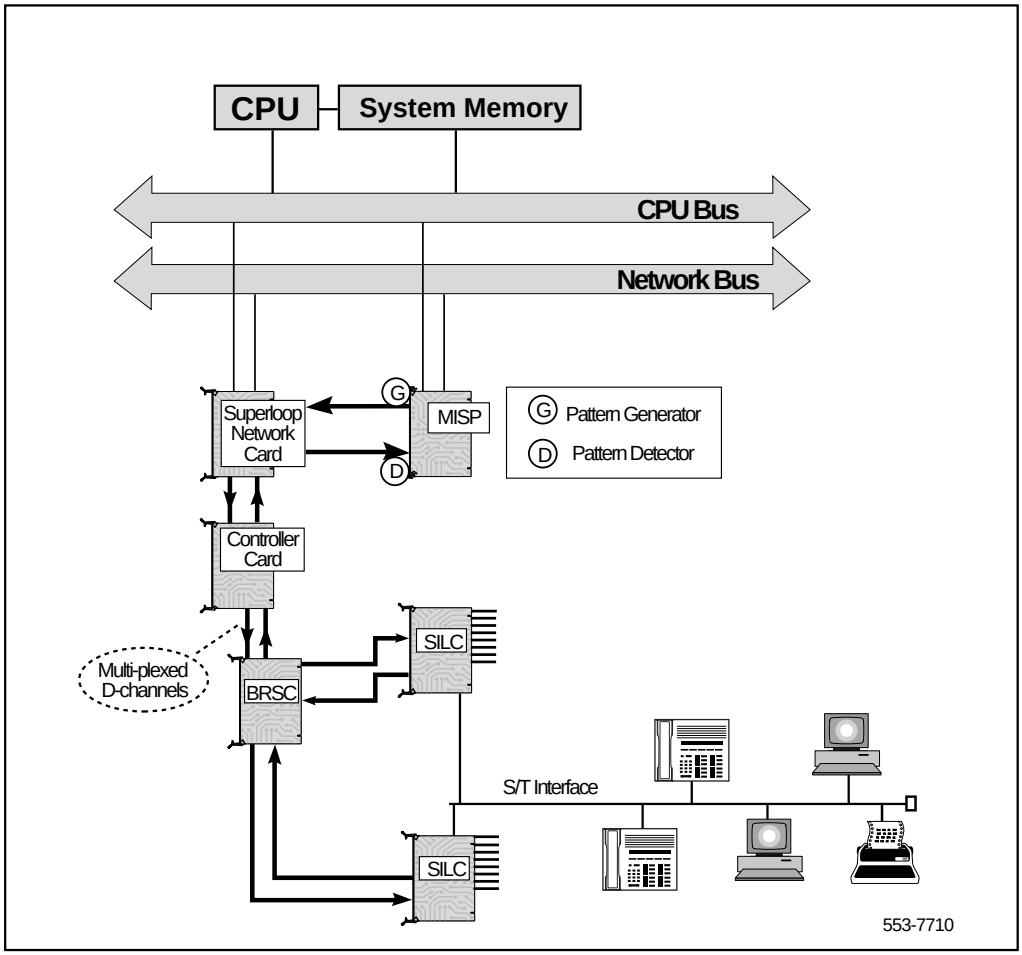


Figure 6
MISP to line card loopback through the BRSC

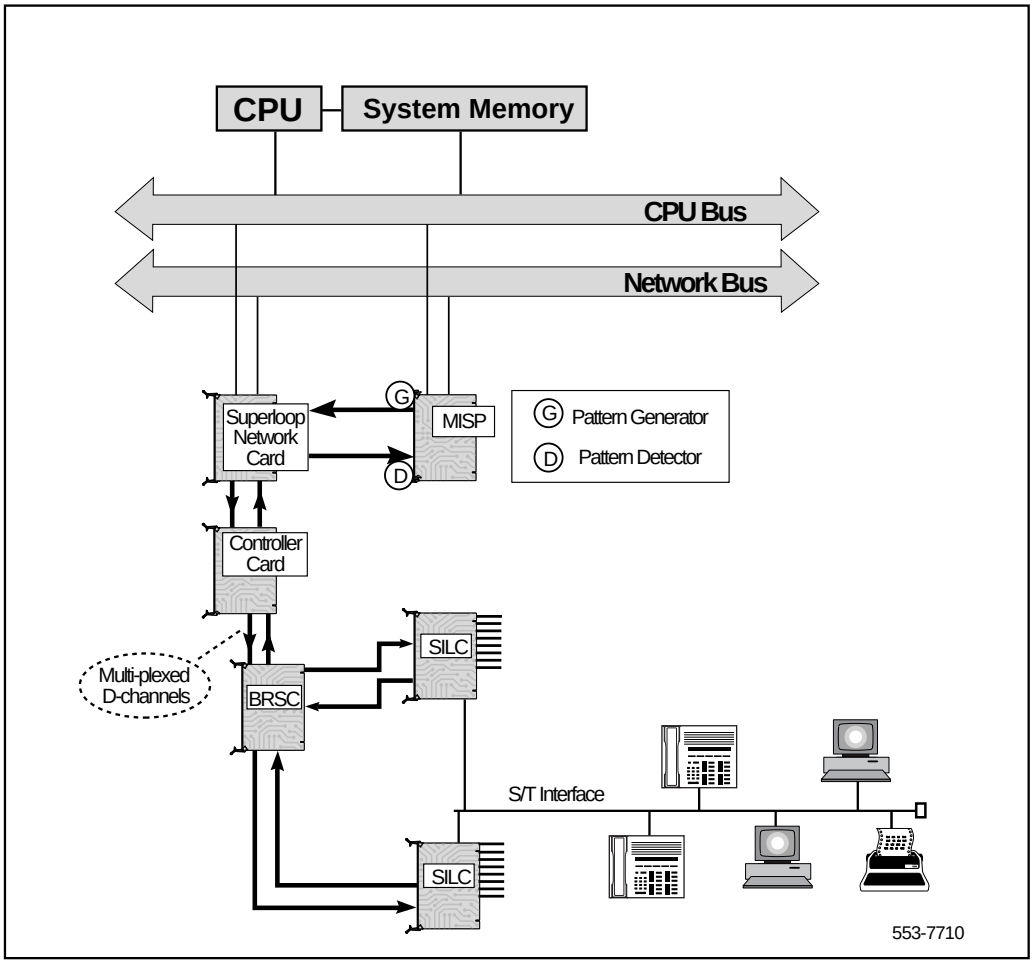
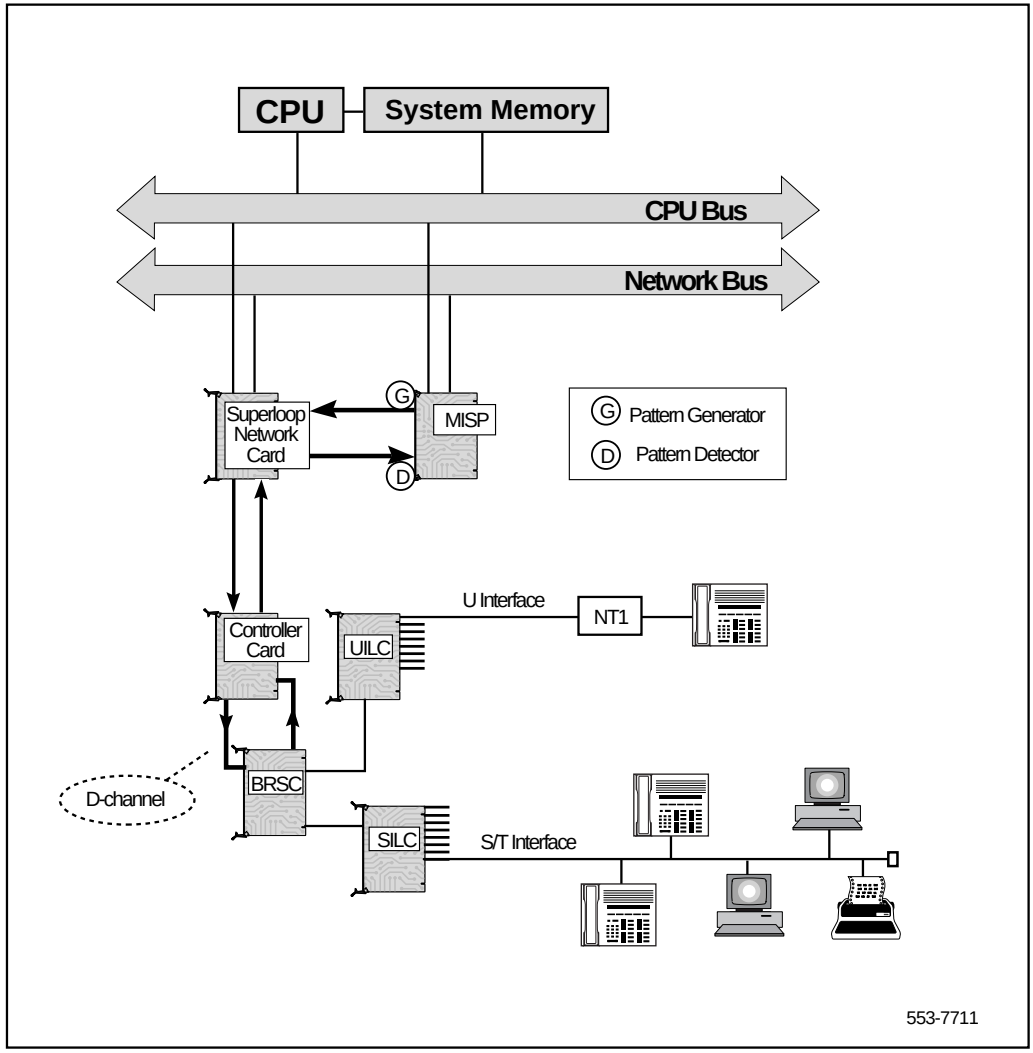


Figure 7
MISP to BRSC loopback test



SILC or UILC fault isolation and correction

The SILC and UILC Intelligent Peripheral Cards provide eight S/T interfaces and eight U interfaces respectively, which are used to connect ISDN BRI compatible terminals or trunks over DSLs to the Meridian 1 system.

Checking the SILC or UILC status

The first step in identifying the problem is to verify the status of the SILC or UILC card, by performing the following steps.

Checking the SILC or UILC status

1 Log in on the maintenance terminal and load overlay program 32 (type in **LD 32**).

2 Type **STAT l s c** and press the ENTER key, where **l** is the loop number, **s** is the shelf (module) number, and **c** is the card slot in the module.

If the response is

ll = UNEQ

the card has not been configured for the specified card slot. Make the proper configuration and proceed with the following steps.

For ISDN BRI trunks

The response is:

ll = sw_state dsl_type l2_state num_tei l1_state dch_state clock mode

where:

ll is the DSL/unit number within the line card.

sw_state is one of the following DSL software states, as perceived by the Meridian 1 (please refer to Table 5):

IDLE (no active call);
BUSY (active call in progress);
UNEQ (DSL is not equipped);
MBSY (in maintenance busy state).

dsl_type is the following type:

TRNK (ISDN BRI trunk DSL)

l2_state is one of the following DSL status, as perceived in the MISP call application (please refer to Table 6):

UNEQ (unequipped);
IDLE (no active calls);
BUSY (call is active);
MSBY (in maintenance busy mode);
DSBL (B Channel is disabled);
ESTA (in established state);
RLS (in release state);
TEST (in test mode);
RLBT (in remote loopback mode);
APDB (application disabled);
MPDB (MISP disabled).

num_tei is the number of established terminal end-point identifiers

Note: Not applicable to DSL trunks.

l1_state is one of the following line card states, to indicate the status of a DSL (please refer to Table 7):

UNEQ (unequipped);
DOWN (layer 1 is down);
UP (layer 1 is up);
DSBL (DSL is disabled);
LCNR (line card not responding);
UNDN (undefined DSL state);
XPDB (associated XPEC is disabled);
UTSM (unable to send messages to the MISP).

dch_state is one of the following D-channel states:

ESTA (line is established);
RLS (link is released);
TEST-IDLE (in test mode);
TEST-RLBT (in remote loopback test mode).

clock is one of the following clock mode configuration:

DSBL (clock is configured but not active);
PREF (primary reference clock is active);
SREF (secondary reference clock is active).

mode is one of the following layer 1 mode configuration:

NT (network);
TE (terminal).

Example:

```
ll = sw_state dsl_type l2_state  num_tei  l1_state dch_state  clock  mode

00 = IDLE     LINE      ESTA       2          UP
01 = UNEQ
02 = UNEQ
03 = IDLE     TRUNK     ESTA     - - - -                              TE
04 = IDLE     TRUNK     ESTA     - - - -                              TE
05 = UNEQ
06 = UNEQ
07 = UNEQ
```

where DSL (unit) 0 is a BRI line, DSLs 3 and 4 are BRI trunks.

Table 5 lists the DSL software states (**sw_state)**, as perceived by the Meridian 1.

Table 5
DSL status in the Meridian 1 CPU

Software state	Description	Comments
IDLE	No active calls.	No action required.
BUSY	Call is active.	No action required.
UNEQ	DSL is unequipped.	The DSL is not configured. To configure the DSL, refer to the 553-3901-300, “DSL configuration procedures.”
MBSY	DSL is in maintenance busy mode.	No action required. The DSL is being tested.
BBDB	BRSC basecode disabled.	Enable BRSC using ENLC <BASE> lll s cc in LD 32.
BADB	BRSC application is disabled.	Enable BRSC using ENLC lll s cc in LD 32.

Table 6 lists the DSL status (**l2_state**) as perceived in the MISP call application.

Table 6
DSL status in the MISP

DSL state	Description	Comments
UNEQ	Unequipped.	MISP is not configured. To configure the MISP, refer to the 553-3901-300, "MISP configuration procedures."
IDLE	No active calls.	No action required.
BUSY	Call is active.	No action required.
MBSY	DSL is in maintenance busy mode.	No action required. The DSL is being tested.
DSBL	B Channel is disabled.	Enable using LD 32.
ESTA	DSL is in established state.	No action required.
RLS	DSL is in release state.	For Meridian 1 and 1TR6 interfaces, if Layer 2 is in RLS state, an inproperly configured or faulty trunk is implied. Check the DSL configuration (refer to the (553-3901-300, "DSL configuration procedures"), or check the status of the DSL (refer to the "Checking the DSL status" section of this chapter.) For a Numeris interface, if the Layer 1 is down, the trunk is idle; no action is required.
TEST	DSL in test mode.	No action required.
RLBT	DSL in remote loopback mode.	Remote loopback test being done on DSL. Wait for test to end.
APDB	MISP line application is disabled.	Enable MISP application using LD 32.
MPDB	MISP is disabled.	Enable MISP using LD 32.

Table 7 lists line card states **(ll_state)** to indicate the status of a DSL.

Table 7
DSL status in the line card

Line card state	Description	Comments
UNEQ	Not equipped.	DSL is not configured. Refer to the 553-3901-300, “DSL configuration procedures” to configure the DSL.
DOWN	Link layer is not established.	DSL faulty. Ensure that the link layer is established.
UP	Link layer is established.	No action required.
LCNR	Line card is not responding.	Faulty line card. Go to the procedure “Checking the SILC and UILC status.”
DSBL	DSL is disabled.	Enable DSL using LD 32.
UNDN	DSL is in an undefined state.	Check the DSL configuration in the 553-3901-300, “DSL configuration procedures.”
UTSM	Meridian 1 CPU is unable to send message to the line card.	Faulty line card or the path between the CPU and the card. Go to the procedure “Testing the MISP loopback at a DSL interface” in this chapter.
BBDB	BRSC basecode disabled.	Enable BRSC using ENLC <BASE> lll s cc in LD 32.
BADB	BRSC application is disabled.	Enable BRSC using ENLC lll s cc in LD 32.
SYNC	Synchronized state.	Applies to TE mode DSL only; the S/T interface is in activation process.

For ISDN BRI lines

If the response is

ll = *software_state* (DSL) (MISP_*state* LC_*state*)

the card is configured and the parameters in the response show the status of the DSLs, where

- **ll** is a number from 00 to 07 indicating eight card ports (DSLs)
- the ***software_state* (DSL)** indicates the status of each DSL on the card. Table 8 describes the statuses given.
- the **MISP_*state*** indicates the status of the MISP associated with the card. Table 6 describes the statuses given.
- **LC_*state*** indicates the status of a DSL on a card. Refer to Table 9.

For example, the response may be:

00 = UNEQ
01 = BUSY (DSL) (ESTA UP)
02 = UNEQ
00 = UNEQ
03 = UNEQ
04 = UNEQ
05 = UNEQ
06 = UNEQ
07 = MBSY (DSL) (MBSY UNDN)

Table 8 lists DSL software states. ***Software_state*** is the status of a DSL as perceived by Meridian 1.

Table 8
DSL status in the Meridian 1 CPU

Software state (DSL)	Description	Comments
IDLE	No active calls.	No action required.
BUSY	Call is active.	No action required.
MBSY	DSL is in maintenance busy mode.	No action required. The DSL is being tested.
DSBL	DSL is disabled.	Enable DSL using LD 32.
UNEQ	DSL is unequipped.	The DSL is not configured. To configure the DSL, refer to the 553-3901-300, “DSL configuration procedures.”

Table 9 lists the DSL status as perceived in the MISP call application.

Table 9
DSL status in the MISP

MISP state	Description	Comments
NTAN	DSL is not assigned to an MISP.	DSL is not properly configured. To configure the DSL, refer to the 553-3901-300, “DSL configuration procedures.”
UNEQ	Unequipped.	MISP is not configured. To configure the MISP, refer to the 553-3901-300, “MISP configuration procedures.”
MBSY	DSL is in maintenance busy mode.	No action required. The DSL is being tested.
DSBL	DSL is disabled.	Enable DSL using LD 32.
UNDN	DSL is in an undefined state.	To check the DSL configuration, refer to the 553-3901-300, “DSL configuration procedures.”
RLS	Link layer is not established.	Terminal not connected to the DSL or faulty. Check the terminal using the terminal user guide.
ESTA	Link layer is established.	No action required.
MPDB	MISP is disabled.	Enable MISP using LD 32.
APDB	MISP line application is disabled.	Enable MISP application using LD 32.
MPNR	MISP is not responding or message is lost.	Go to the procedure “Checking the MISP status” to check the MISP status.
UTSM	Meridian 1 CPU is unable to send message to MISP.	Go to the procedure “Checking the MISP status” to check the MISP status.

Table 10 lists line card states to indicate the status of a DSL.

Table 10
DSL status in the line card

Line card state	Description	Comments
UNEQ	Not equipped.	DSL is not configured. Refer to the 553-3901-300, “DSL configuration procedures” to configure the DSL.
DOWN	Link layer is not established.	DSL faulty or terminal is not connected or is faulty. Use the terminal user guide to check the terminal.
UP	Link layer is established.	No action required.
LCNR	Line card is not responding.	Faulty line card. Go to the procedure “Checking the SILC and UILC status.”
DSBL	DSL is disabled.	Enable DSL using LD 32.
UNDN	DSL is in an undefined state.	Check the DSL configuration in the 553-3901-300, “DSL configuration procedures.”
UTSM	Meridian 1 CPU is unable to send message to the line card.	Faulty line card or the path between the CPU and the card. Go to the procedure, “Testing the MISP loopback at a DSL interface.”

Note: After obtaining the status of all the DSLs for a selected card, check the status of individual DSLs or perform the self-test on the SILC or UILC card, following the proper procedures described in this document.

Checking the DSL status

If the card status shows that some of the DSLs on the card are undefined, unequipped, down, or unable to send a message to the MISP, perform the following steps to check the individual DSLs.

Checking the DSL status

1 Type **STAT l s c dsl#**, where **l** is the loop number, **s** is the shelf (module) number, **c** is the card slot in the module, and **dsl#** is one of the eight ports (DSLs) on the card, and press the ENTER key.

For ISDN BRI trunk DSL types

If the response is:

ll = sw_state dsl_type l2_state num_tei l1_state dch_stateclock mode

where:

ll is the DSL/unit number within the line card.

sw_state is one of the following DSL software states, as perceived by the Meridian 1 (please refer to Table 5):

IDLE (no active call);
BUSY (active call in progress);
UNEQ (DSL is not equipped);
MBSY (in maintenance busy state).

dsl_type is the following type:

TRNK (ISDN BRI trunk DSL)

l2_state is one of the following DSL status, as perceived in the MISP call application (please refer to Table 6):

UNEQ (unequipped);
IDLE (no active calls);
BUSY (call is active);
MSBY (in maintenance busy mode);
DSBL (B Channel is disabled);
ESTA (in established state);
RLS (in release state);
TEST (in test mode);
RLBT (in remote loopback mode);
APDB (application disabled);
MPDB (MISP disabled).

num_tei is the number of established terminal end-point identifiers

Note: Not applicable to DSL trunks.

l1_state is one of the following line card states, to indicate the status of a DSL (please refer to Table 7):

UNEQ (unequipped);
DOWN (layer 1 is down);
UP (layer 1 is up);
DSBL (DSL is disabled);
LCNR (line card not responding);
UNDN (undefined DSL state);
XPDB (associated XPEC is disabled);
UTSM (unable to send messages to the MISP).

dch_state is one of the following D-channel states:

ESTA (line is established);
RLS (link is released);
TEST-IDLE (in test mode);
TEST-RLBT (in remote loopback test mode).

clock is one of the following clock mode configuration:

DSBL (clock is configured but not active);
PREF (primary reference clock is active);
SREF (secondary reference clock is active).

mode is one of the following layer 1 mode configuration:

NT (network);
TE (terminal).

For ISDN BRI lines

If the response is

DSL UNEQ

the DSL is not configured in the Meridian 1 database.

If the response is

DSL: *swstate mstatus lcstatus*
B1 Bstatus* B2 B*status

the DSL is configured and its status is defined by the parameters in the response, where

— ***swstate*** is the status of the DSL as perceived by Meridian 1

— ***mstatus*** indicates the status of the DSL in the MISP

— ***lcstatus*** indicates the DSL status on the card

— ***Bstatus*** is the status of the B-channel as perceived by Meridian 1.

An example of this response is as follows:

DSL: IDLE APDB UP
B1: IDLE B2: BUSY

The possible states for the *swstate* are listed in Table 7; for the *mstatus* in Table 9; for the *lcstatus* in Table 7. The *B status* is listed in Table 11.

Table 11
B-channel call status

B-channel status	Description	Comments
IDLE	No active calls	No action is required
BUSY	Call is active	No action is required
MBSY	B-channel is in maintenance busy state	No action is required. The channel is being used for maintenance testing
DSBL	B-channel is disabled	Enable DSL using LD 32

2 If the response is similar to

DSL: DSBL DSBL UNEQ
B1 DSBL B2 DSBL

Type **ENLU l s c dsl#** and press the ENTER key to enable the DSL, where **l s c dsl#** is the DSL address.

3 If the response is similar to

DSL: DSBL NTAN UTSM
B1 DSBL B2 DSBL

Check the DSL configuration. To verify the DSL configuration parameters, refer to the 553-3901-300.

4 If the response is similar to

DSL: DSBL RLS LCNR
B1 DSBL B2 DSBL

This indicates a hardware problem on this card port (DSL). Before replacing the card, perform the loopback test between the MISP and the SILC or UILC and verify if the path or the Superloop Network Card or Peripheral Controller Card is faulty.

Performing the SILC or UILC self-test

If the card or DSL status indicates that the SILC or UILC is faulty, conduct a self-test to verify that the SILC or UILC is actually faulty before replacing it. This test verifies the basic SILC or UILC functions and outputs a fail or pass message after the test is completed.

Performing the SILC or UILC self-test

1. Log in on the maintenance terminal and load overlay program 32 (type in **LD 32**).
2. Type **DISC l s c** and press the ENTER key to disable the card. Enter the card address, where **l** is the loop number, **s** is the shelf (module) number, and **c** is the card slot number in the module.
3. Exit LD 32 by typing ******** at the prompt.
4. Load overlay program 30 (type in **LD 30**).
5. Type **SLFT l s c** and press the ENTER key to start the self-test. Enter the card address, where **l** is the loop number, **s** is the shelf (module) number, and **c** is the card slot number in the module.

   During the self-test observe the red LED on the front panel. The LED is on during the test. It flashes three times if the MISP loop passes the test; otherwise, the loop failed the test.

   If the response is

   NWS637

   the card passed the self-test and is functional but the problem may be in the DSL cabling or the terminal.

   Check the DSL connections from the I/O Panel on Meridian 1 IPE Module through the distribution frames to ISDN BRI terminals or trunks connected to this DSL. Other NWSxxx messages may appear, indicating different problem causes. For a list of possible messages, refer to the "Network and signaling diagnostic messages (NWSxxx)" section found later in this document.

If the response is

NWS632

the card failed the self-test and is faulty or missing. If the card is faulty, replace it as described in “Replacing ISDN BRI cards” procedures or install a card into the empty card slot if the card is missing.

MPH fault isolation and correction

The XCON TEST 9 command in the Background signaling and switching diagnostics (LD 45) provides a continuity check on the link interface between the MPH and MCU, the MISP, the BRSC, or the B-channels and the D-channels of a DSL.

The MPH is usually the originator for the continuity checks, sending a test pattern or a query status command. The response from the other end is then verified by the MPH and passed on to the Meridian 1. The test between the MPH and the Packet Switched Data Network (PSDN) through the PRI/MCU is the only exception to this; the PSDN can generate and receive patterns and the MPH loops it back.

Table 12 illustrates the prompts to use with the MPH continuity check tests.)

Table 12
XCON Test 9 (LD 45

Prompt	Response	Comment
TEST	9	CON test number
PATT	x	x = 0-7
TYPG	x	x = 5 is the MISP loop x = 8 is the PDNI.
LOOP	xx	MISP loop.
LBTY	x	x = 8 is the PSDN - MCU loopback x = 9 is the MCU loopback x = 10 is the PDL2 loopback x = 11 is the BCH loopback x = 12 is the BRSC loopback.
LBTN	xxxx	If LBTY = 8, LBTN is the MISP loop and NWIF is 1-3 If LBTY = 9 LBTN is MCU TN If LBTY = 10 LBTN is either BRIL loop or BRSC TN If LBTY = 11 LBTN is the BCH TN.

Using the MPH loopback tests

If a particular packet call setup is not working, check the communication links using the corresponding interface loopback test:

— For PSDN packet calls from a network interface, use the MPH and MCU to PSDN or the MPH and PRI to PSDN continuity test

— For B-channel packet data call setups, use the MPH to B-channel continuity test.

— For D-channel packet data call setups, use the MPH to MISP or MPH to BRSC loopback test.

These tests are described below.

MPH and PSDN through MCU continuity test

Figure 8 illustrates this test which provides loopback testing between the MPH and PSDN through the MCU. The continuity check originates from the MPH through the Superloop network card, the Controller card, the line card, and then responds back at the MCU level. If the MCU was set up originally to operate in transparent mode (64 Kbps or 56 Kbps to the PSDN interface), the connection between the MPH and the MCU must be brought down and then reestablished. To perform this test, the dedicated connection between the MCU and the MPH must be in manually disabled state.

MPH and PSDN through PRI continuity test

Figure 9 also illustrates this test which provides loopback testing between the MPH and PSDN using a PRI connection. To perform this loopback test, the dedicated connection between the PRI and the MPH must be in manually disabled state.

Figure 8
MPH to PSDN continuity test using MCU

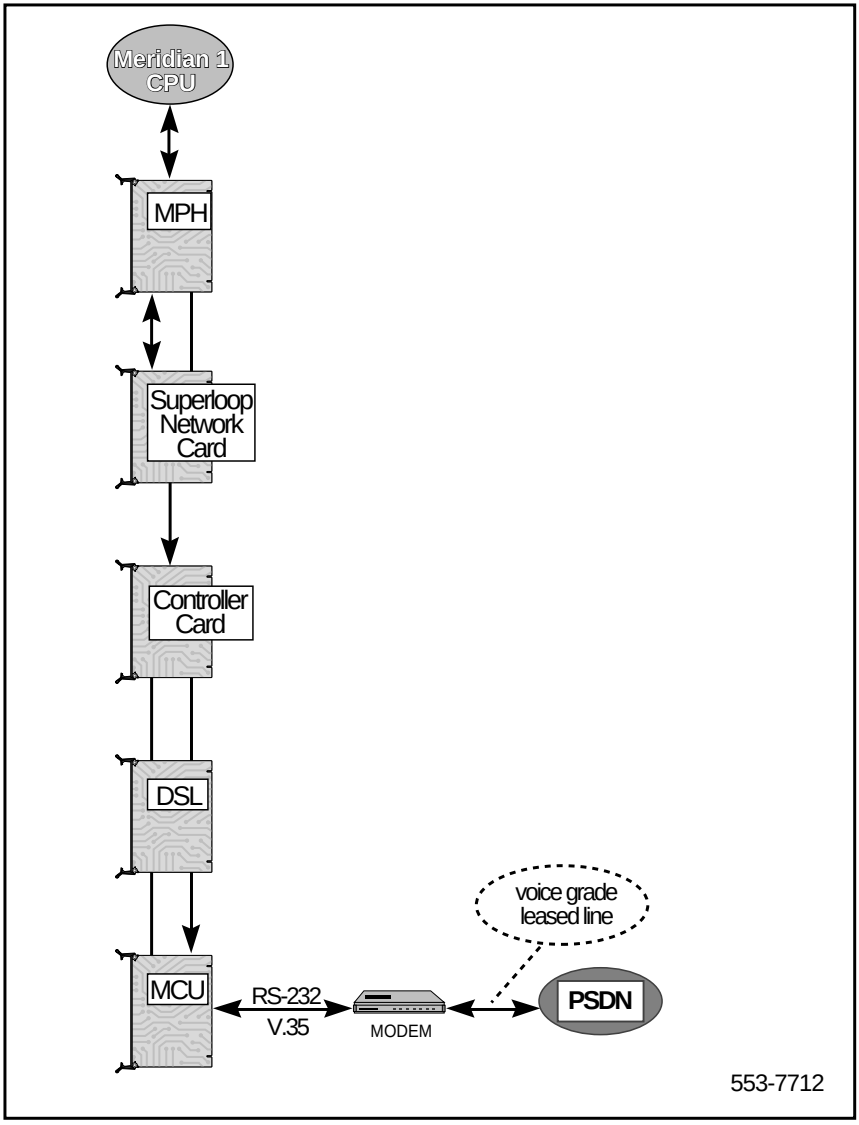
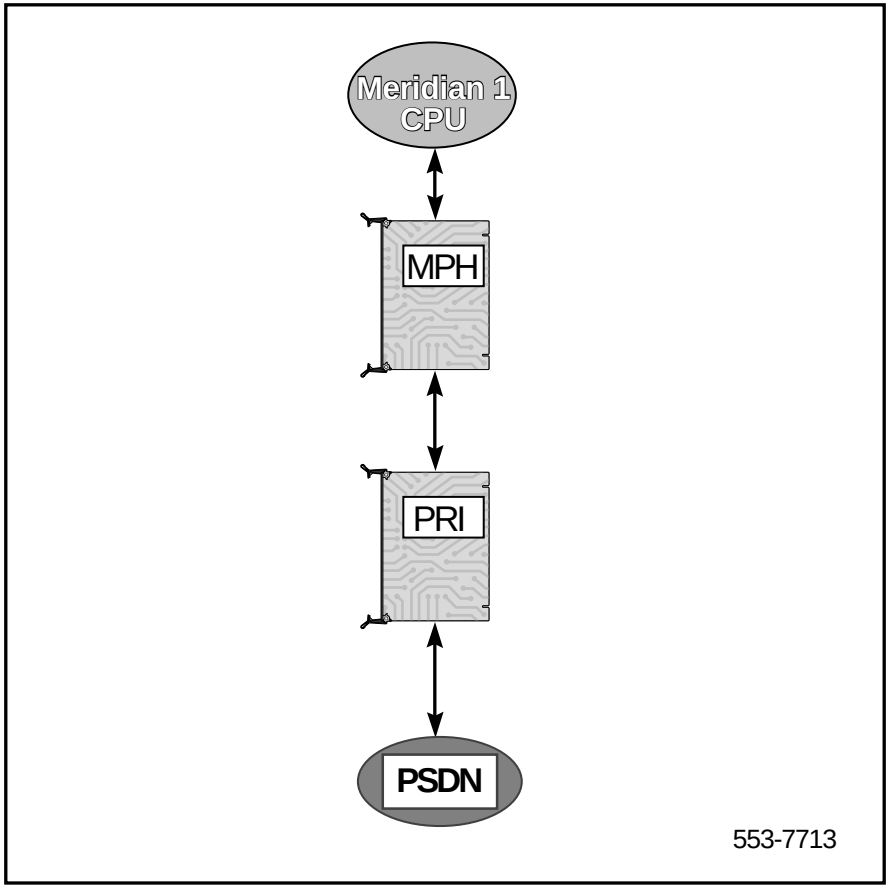


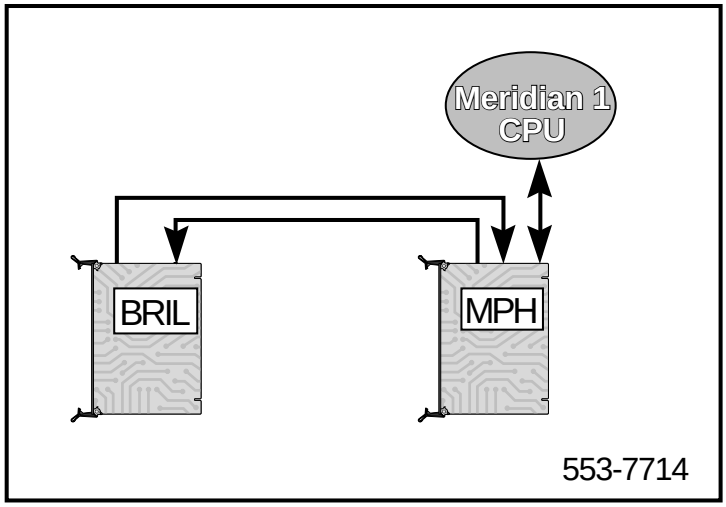
Figure 9
MPH to PSDN continuity test using MCU



MPH to BRIL continuity test

Figure 10 shows the MPH to BRIL continuity test. The link interface between the MPH and the MISP is a direct path through the network bus without any intervening circuit pack. A test pattern frame is sent from the MPH to the MISP. The MISP, on receiving the test frame, retransmits back to the MPH. To perform this test, the dedicated connection between the BRIL and the MPH must be in manually disabled state.

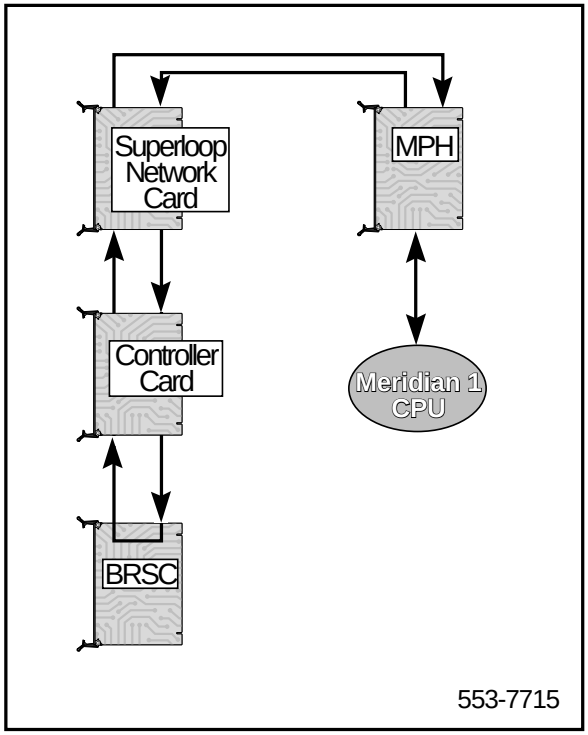
Figure 10
MPH to BRIL continuity test



MPH to BRSC continuity test

Figure 11 illustrates the MPH to BRSC test. As in the MISP case, a test pattern frame is sent from the MPH through the Superloop network card to the Controller card and then to the BRSC. Upon receiving the frame, the BRSC retransmits it back to the MPH. To perform this test, the dedicated connection between the BRSC and the MPH must be in manually disabled state.

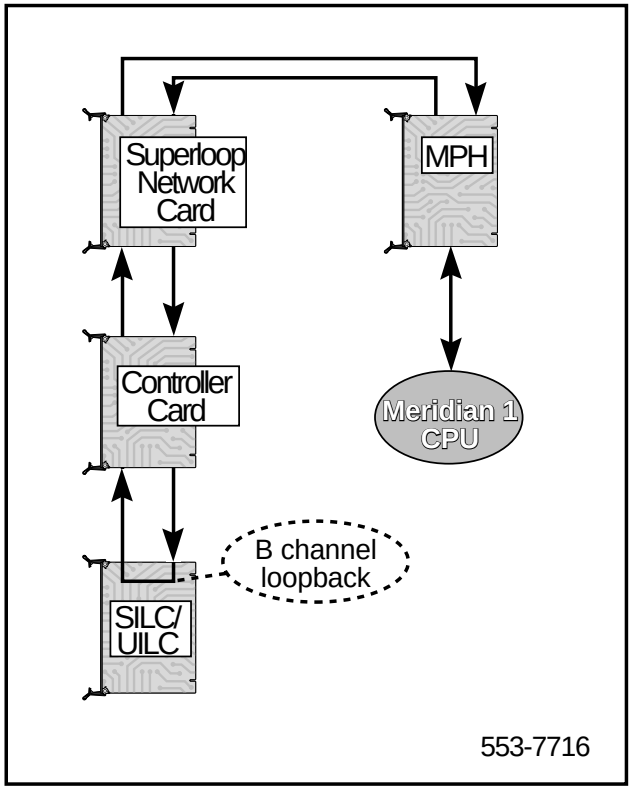
Figure 11
MPH to BRSC continuity test



MPH to B-channel continuity test

Figure 12 illustrates the MPH to B-channel continuity test. In the MPH to B-channel continuity test, the Meridian 1 sends a message to the line card placing the B-channel in loopback mode. The continuity test pattern is then transmitted by the MPH, going through the Superloop network card and the Controller card, then looped back at the line card. For the MPH to B-channel test, the dedicated connection between the MPH and the B-channel must be in manually disabled state.

Figure 12
MPH to B-channel continuity test



MPH to D-channel continuity test

The connection between the MPH and the D-channel is tested in two steps: first a continuity test pattern between the MISP/BRSC with the DSL's D-channel and a continuity test between the MISP/BRSC with the MPH. If both tests pass, the link between the MPH and the DSL D-channel is good.

ISDN BRI maintenance commands

MISP maintenance commands

MISP maintenance commands are used to manipulate the operational status and perform diagnostic tests on specific MISPs. These commands are located in different non-resident programs (overlays), which can be accessed using the administration terminal or the maintenance telephone.

Table 13 lists these commands and the non-resident diagnostic program where they can be found.

Table 13
MISP maintenance commands (Part 1 of 2)

MISP Maintenance Command	Maintenance Command Description	Resident in Program
DISL l	Disables the MISP on network loop l.	LD 32
ENLL l	Enables the MISP on network loop l.	LD 32
DISL BRIL l	Disables the line application on MISP loop l.	LD 32
ENLL BRIL l	Enables the line application on MISP loop l.	LD 32
PERR l	Uploads and prints the error log for MISP on loop l	LD 32
ENLL l <FDL>	Enables <force downloads trunk applications> for MISP, on loop l.	LD 32
ENLL BRIT l <FDL>	Enables <force downloads> the application loadware for the ISDN BRI trunk application on the MISP, on loop l.	LD 32
DISL BRIT L <REM>	Disables <removes the trunk application loadware for the> ISDN BRI trunk application on the MISP, on loop l.	LD 32
STAT l	Displays the MISP status on MISP loop l.	LD 32
STAT BRIL l	Query the status of ISDN BRI line application on the MISP, loop l.	LD 32
STAT BRIT l	Queries the status of the ISDN BRI trunk application on the MISP on loop l.	LD 32

Table 13
MISP maintenance commands (Part 2 of 2)

MISP Maintenance Command	Maintenance Command Description	Resident in Program
IDC l	Displays the MISP card ID number, the base code, and the application software version numbers.	LD 32
SLFT lll <1,2>	Performs self-test on the MISP, loop lll, type 1 or 2. Type 1 test is a comprehensive test. Type 2 test is a power-on/reset test. Response NWS632 indicates selftest failed. Response NWS637 indicates selftest passed.	LD 30
XCON 0 H (0-182) M (0-59) S (0-60)	Performs loopback test from the MISP to an SILC or UILC that checks the signaling channel. It does not test the SILC or UILC but only the peripheral bus interface and backplane connectors. 0 = performs only one loopback test H, M, S = performs loopback test for the number of hours, minutes, or seconds entered.	LD 45
DWLD MISP xx FDL	Force downloads all BRIT interface tables on the MISP	LD 32
DWLD MISP DSQI FDL	Force downloads a particular BRIT interface table on the MISP	LD 32
ENLL BRIE xx FDL	Force downloads all BRIT interface tables and the BRIE application on the MISP	LD 32
ENLL BRIE xx	Disables the BRIE loadware application is	LD 32

BRSC maintenance commands

BRSC maintenance commands are used to manipulate the operational status and perform diagnostic tests on the cards and their associated MISPs. These commands deactivate the card you plan to test, perform the specified loop test or self-test, and return the card back into service.

These commands are located in different non-resident programs (LDs) which can be accessed using the administration terminal or the maintenance telephone.

Table 14 lists the BRSC maintenance commands and the non-resident diagnostic program where they can be found.

Table 14
BRSC maintenance commands (Part 1 of 2)

BRSC maintenance command	Maintenance command description	Resident in program
DISC <BASE> lll s cc	Disables the BRSC at the specified lll s cc.	LD 32
ENLC lll s cc <FDL/NST>	Enables the BRSC basecode at lll s cc, and force downloads the basecode at the application.	LD 32
DISC l s cc	Disables ISDN BRI application at l s cc.	LD 32
ENLL lll	Enables the MISP basecode at lll, and enables all associated BRSCs.	LD 32
ENLC (BRI) lll s cc	ENABLES BRSC ISDN BRI application at lll s cc.	LD 32
DISC (BRI) lll s cc	Disables BRSC ISDN BRI application at lll s cc.	LD 32
ENLC lll s cc <FDL>	Enables BRSC ISDN BRI application at lll s cc, and force downloads the basecode at the application.	LD 32
DISL lll	Disables the MISP basecode at lll, and disables all associated BRSCs.	LD 32
ENLL lll	Enables the MISP basecode.	LD 32
ENLL lll <FDL>	Enables the MISP basecode and MISP application at lll, which enables all other configured applications on the MISP.	LD 32

Table 14
BRSC maintenance commands (Part 2 of 2)

BRSC maintenance command	Maintenance command description	Resident in program
DISL BRIL lll <REM>	Disables the MISP application at lll, which disables the BRSC ISDN BRI application.	LD 32
ENL BRIL lll <FDL>	Enables the MISP application at lll, which enables the BRSC ISDN BRI application.	LD 32
DISS lll s DSXP x	Disables the superloop network card lll at location s. Disables the controller card x, which disables the BRSC at location lll.	LD 32
ENLS lll s ENXP X	Enables the superloop network card lll at location s. Enables the controller card x, which enables the BRSC at location lll.	LD 32
DISS lll s	Disables logical shelf lll at location s. If there is an enabled BRSC at the module, it remains enabled.	LD 45
DISU l s c dsl#	Deactivates DSL# at location l s c.	LD 32
ENLU s c dsl#	Activates DSL# at location l s c.	LD 32
STAT l s c	Displays status of all DSLs on the line card and the version number of the downloaded software at location l s c.	LD 32
STAT l s c dsl#	Displays status of DSL# on the line card at location l s c.	LD 32
IDC lll s c	Checks the BRSC card identification, basecode and the ISDN BRI application version number at location lll s c.	LD 32
STAT lll s c	Displays the status of the BRSC card and the ISDN BRI application at location lll s c.	LD 32
STEI lll s c dsl#	Displays the status of all TEIs and USIDs on DSL# at location lll s c.	LD 30
SLFT lll s cc	Performs self-test on the BRSC at location lll s cc.	LD 32

SILC and UILC maintenance commands

SILC and UILC maintenance commands are used to manipulate the operational status and perform diagnostic tests on specific cards and their DSLs. The main role of these commands is to deactivate the card you plan to test, to perform the specified loop test or self-test, and return the card back into service.

These commands are located in different non-resident programs (overlays), which can be accessed using the administration terminal or the maintenance telephone.

Table 15 lists these commands and the non-resident diagnostic programs where they can be found.

Table 15
SILC/UILC maintenance commands (Part 1 of 4)

SILC/UILC Maintenance Command	Maintenance Command Description	Resident in Program
DISC l s c	Disables the SILC/ UILC at the specified loop l, shelf s, and card slot c. If the reference clock source is configured on the DSL, you will be prompted with **"CLOCK SOURCE ON DSL # OF SILC L S C, PROCEED?"** to ensure that you have taken necessary precautions for uninterrupted clock reference for the system.	LD 32
DISI l s c	Disables the SILC/ UILC when the card is **idle**, at the specified loop l, shelf s, and card slot c. If the reference clock source is configured on the DSL, you will be prompted with **"CLOCK SOURCE ON DSL # OF SILC L S C, PROCEED?"** to ensure that you have taken necessary precautions for uninterrupted clock reference for the system.	LD 32

Table 15
SILC/UILC maintenance commands (Part 2 of 4)

SILC/UILC Maintenance Command	Maintenance Command Description	Resident in Program
ENLC l s c	Starts the SILC/UILC self-test at a specified loop l, shelf s, card slot c, before enabling the line card. If the line card is not present in the card slot when this command is entered, the enabling process still takes effect. When the line card is inserted in the card slot at a later time, whichever of the DSLs that are in the enabled state are automatically brought up.	LD 32
DISU l s c dsls#	Deactivates the DSL at location l s c dsl#. If the reference clock source is configured on the DSL, you will be prompted with **"CLOCK SOURCE ON DSL # OF SILC L S C, PROCEED?"** to ensure that you have taken necessary precautions for uninterrupted clock reference for the system.	LD 32
ENLU l s c dsl#	Activates the DSL at location l s c dsl#.	LD 32
STAT l s c	Displays the status of all DSLs on the card and the version number of the downloaded software at location l s c.	LD 32
STAT l s c dsl#	Displays the status of a DSL on a card at location l s c dsl#.	LD 32
IDC l s c	Checks the card identification and the loadware version stored in the card.	LD 32
SLFT l s c	Performs self-test on the card, loop l, shelf s, card slot c.	LD 30
ESTU l s c d	Enables a D-channel link for a ISDN BRI trunk line, loop l, shelf s, card slot c, dsl#.	LD 32
RLSU l s c d	Releases a D-channel link for a ISDN BRI trunk line, loop l, shelf s, c, dsl#.	LD 32

Table 15
SILC/UILC maintenance commands (Part 3 of 4)

SILC/UILC Maintenance Command	Maintenance Command Description	Resident in Program
ENTS l s c d	Puts the far-end and near-end ISDN BRI trunk in test mode, line, loop l, shelf s, card slot c, dsl#. If the reference clock source is configured on the DSL, you will be prompted with **"CLOCK SOURCE ON DSL # OF SILC L S C, PROCEED?"** to ensure that you have taken necessary precautions for uninterrupted clock reference for the system.	LD 32
ENRB l s c d	Puts the far-end ISDN BRI trunk in remote loopback mode, line, loop l, shelf s, card slot c, dsl#.	LD 32
RLBT l s c d	Runs remote loopback test for an ISDN BRI trunk, line, loop l, shelf s, card slot c, dsl#.	LD 32
DSRB l s c d	Takes the far-end ISDN BRI trunk out of remote loopback mode, line, loop l, shelf s, card slot c, dsl#.	LD 32
DSTS l s c d	Takes the far-end and near-end ISDN BRI trunk DSLs out of test mode, line, loop l, shelf s, card slot c, dsl#.	LD 32
ENLU	Enables the ISDN BRI trunk.	LD 32
PMES l s c d	Uploads and prints layer 3 messages for ISDN BRI trunk DSL, loop l, shelf s, c, dsl#.	LD 32
PCON l s c d	Uploads and prints configuration parameters for ISDN BRI trunk DSL, loop l, shelf s, c, dsl#.	LD 32
PTRF l s c d	Uploads and prints the traffic report for ISDN BRI trunk DSL, loop l, shelf s, c, dsl#.	LD 32
PERR l s c	Uploads and prints the error log for a specified line card, loop l, shelf s, c, dsl#.	LD 32
PERR l	Uploads and prints the error log for a specified MISP, loop l.	LD 32

Table 15
SILC/UILC maintenance commands (Part 4 of 4)

SILC/UILC Maintenance Command	Maintenance Command Description	Resident in Program
PTAB l s c d <tabl#>	Uploads and prints layer 3 message configuration table for ISDN BRI trunk DSL, loop l, shelf s, c, dsl#, table#.	LD 32
PLOG l s c d	Uploads and prints the protocol log for ISDN BRI trunk DSL, loop l, shelf s, c, dsl#.	LD 32

MPH maintenance commands

Maintenance and diagnostic commands for the MPH provide the capability of performing fault detection and isolation, query link status, and disabling and enabling an MPH application.

Table 16 lists the MPH maintenance commands and the non-resident diagnostic program where they can be found.

Table 16
MPH maintenance commands (Part 1 of 3)

MPH maintenance command	Maintenance command description	Resident in program
DSIF L PDNI Y	Disables link interface Y (1-3) for type PDNI on loop L	LD 32
RMIF L PDNI Y	Disables and removes link interface Y (1-3) for type PDNI on loop L.	LD 32
ENIF L PDNI Y <FDL>	Enables link interface Y (1-3) for type PDNI on loop L.	LD 32
DSIF L PDL2 L1	Disables link interface SAPI16 for BRIL on loop L.	LD 32
RMIF L PDL2 L1	Disables and removes link interface SAPI16 for BRIL on loop L.	LD 32
DSIF L PDL2 l s c	Disables link interface SAPI16 for BRSC only s c.	LD 32
RMIF L PDL2 l s c	Disables and removes link interface SAPI16 for BRSC on l s c.	LD 32
ENIF L PDL2 L1 <FDL>	Enables link interface SAPI16 for BRIL on loop L.	LD 32
ENIF L PDL2 l s c <FDL>	Enables link interface SAPI16 for BRSC on l s c.	LD 32
DSIF l s c DSL DCH x	Disables link interface for USID x for D-channel packet data terminal TN l s c DSL.	LD 32
ENIF l s c DSL DCH x <FDL>	Enables link interface for USID x for D-channel packet data terminal TN l s c DSL.	LD 32
DSIF l s c DSL BCH x	Disables link interface for USID x for B-channel packet data terminal TN l s c DSL.	LD 32
RMIF l s c DSL BCH x	Disables and removes link interface for B-channel packet data TN l s c DSL, for B-channel x (x = 1 or 2)	LD 32

Table 16
MPH maintenance commands (Part 2 of 3)

MPH maintenance command	Maintenance command description	Resident in program
ENIF l s c DSL BCH x <FDL>	Enables link interface for USID x for B-channel packet data terminal TN l s c DSL, for B-channel x (x = 1 or 2)	LD 32
STIF L PDNI Y	Displays the link status for interface Y for type PDNI on loop L.	LD 32
STIF L PDL2 L1	Displays the status for link interface SAPI16 for BRIL on loop L.	LD 32
STIF L PDL2 l s c	Displays the status for link interface SAPI16 for BRSC on l s c.	LD 32
STIF l s c DSL DCH x	Display status of link interface D-channel for USID x for packet data terminal TN l s c DSL.	LD 32
STIF l s c DSL BCH x	Display status of link interface B-channel packet data terminal TN l s c DSL, for B-channel x (x = 1 or 2)	LD 32
ERRL L <CLR>	Upload error logs for the MPH application on loop L; if entered, the <CLR> option clears all error log peg counts.	LD 32
ENLL L <FDL>	Enables the MISP.	LD 32
DISL MPH L <REM>	Disables MPH application on loop l.	LD 32
ENLL MPH L <FDL>	Enables MPH application on loop l.	LD 32
STAT L	Displays the status of MISP on loop l.	LD 32
STAT MPH L	Displays status of MPH application.	LD 32
IDC L	Displays MISP basecode and application version number.	LD 32
DISL L	Disables network loop l on which MCU and B-channel/D-channel terminals are defined.	LD 32
ENLL L	Enables network loop l on which MCU and B-channel/D-channel terminals are defined.	LD 32

Table 16
MPH maintenance commands (Part 3 of 3)

MPH maintenance command	Maintenance command description	Resident in program
DSXP X	Disables network card X on which MCU and B-channel/D-channel terminals are defined.	LD 32
ENXP X	Enables network card X on which MCU and B-channel/D-channel terminals are defined.	LD 32
DISC l s c	Disables line cards on which MCU and B-channel/D-channel terminals are defined.	LD 32
ENLC l s c	Enables line cards on which MCU and B-channel/D-channel terminals are defined.	LD 32
DISU l s c u	Disables the unit on which MCU and B-channel/D-channel terminals are defined.	LD 32
ENLU l s c u	Enables the unit on which MCU and B-channel/D-channel terminals are defined.	LD 32
ENLC l s c	Enables the line card on which the MCU is defined.	LD 32
XCON	Invoke MPH link interface loopback test 9.	LD 45

MISP and SILC/UILC message monitoring commands

Link Diagnostic Program **LD 48** is used to monitor and print messages sent and received by the MISP, SILC, and UILC cards.

These commands are used to enable the technician to monitor ISDN BRI activity during normal system operation and to facilitate system maintenance.

Table 17 lists Link Diagnostic Program LD 48 commands and their functions.

Table 17
MISP and SILC/UILC message monitoring commands (Part 1 of 2)

LD 48 Command	Command Description
SETM MISP <loop #> DBG	Turns on the debug option on the MISP.
SETM MISP <loop #> MON	Turns on the printing option for incoming and outgoing messages for the MISP.
SETM MISP <loop #> MNT	Prints status messages for the MISP.
SETM MISP <loop #> AMO	Activates sending audit messages from the CPU to the MISP.
SETM MISP BRIM	Prints input/output messages form the CPU to the MISP and SILCs/UILCs and from these cards back to the CPU (according to the hexadecimal control word xxxx for MISPS or ISDN BRI line cards).
SETM TNx l s c dsl#	Activates printing of messages for a specified DSL.
SETM TNx l s c 31	Activates printing of messages for a specified ISDN BRI card.
RSET MISP <loop #> DBG	Resets the command for debug option.
RSET MISP <loop #> MON	Resets the command for monitor option.
RSET MISP <loop #> MNT	Resets the command for printing maintenance messages.
RSET MISP <loop #> AMO	Resets the command for audit option.

Table 17
MISP and SILC/UILC message monitoring commands (Part 2 of 2)

LD 48 Command	Command Description
RSET MISP BRIM	Resets the command for printing messages for a DSL or line card.
RSET TNx	Resets the command for printing of messages for a specified DSL.
RSET ALL	Resets the command for a group of commands.

Note: For SETM BRIM, use bits 1, 2, 3, 4, 5, and 11 of the control word for different types of messages. Table 18 lists the bit numbers and their corresponding message types.

Table 18
ISDN BRI message types

Bit Number	Type of Message
0	Input SSD message from ISDN BRI line cards to the Meridian 1.
1	Output SSD message from Meridian 1 to ISDN BRI line cards.
2	Input expedited message from BRIL/BRIT application on MISP card to the Meridian 1.
3	Output expedited message from Meridian 1 to BRIL/BRIT application on MISP card.
4	Input ring message from BRIL/BRIT application on MISP card to the Meridian 1.
5	Output ring message from Meridian 1 to BRIL/BRIT application on MISP card.
11	Call processing error message.

MPH message monitoring commands

Link Diagnostic Program **LD 48** is used to monitor and print messages sent and received by the MPH interface. These commands are used to enable the craftsperson to monitor ISDN BRI activity during normal system operation and to facilitate system maintenance.

Table 19 lists Link Diagnostic Program LD 48 commands and their functions, as they pertain to MPH.

Table 19
MPPH message monitoring commands

MPH maintenance command	Maintenance command description	Resident in program
SETM IFx <MPH loop#> PDL2<BRIL loop#>	Monitors the interface messages for BRIL SAPI16 interface type.	LD 48
SETM IFx <MPH loop#> PDL2 <BRSC l s c>	Monitors the interface messages for BRSC SAPI16 interface type.	LD 48
SETM IFx <MPH loop#> PDN1 <NWIF#>	Monitors the interace messages for network interfaces.	LD 48
SETM IFx <L S C D> BCHx	Monitors the interace messages for B-channel terminal x (x = 1 or 2).	LD 48
SETM IFx <L S C D> DCHx	Monitors the interace messages for D-channel terminals (x = USID number).	LD 48
RSET IFx	Resets the interface message monitor per interfacer.	LD 48
RSET MPHM	Resets the MPH messages to be monitored.	LD 48
SETM MPHM XXXX	Specifies the MPH messages to be monitored.	LD 48

Application download and enable application failure messages

Once the D-channel port is enabled, the enable application or MISP Handler download function may fail. Table 20 and Table 21 provide possible reasons for download failure and enable application failure, and corrective actions to take. Please note that the messages are printed on the TTY terminal.

Table 20
Download fail messages

Message	Action to take
DOWNLD FAIL (FDL NOT ALLOWED)	Check if other D-channel ports are enabled on the MISP.
DOWNLD FAIL (PSDL FAILURE)	Try again. If problem persists, then report it.
DOWNLD FAIL (TX BUF BUSY)	Try again later.
DOWNLD FAIL (MTC IN PROG)	Try again later.
DOWNLD FAIL (NO MTC SID)	Report the problem.
DOWNLD FAIL (****)	Report the problem. Note that **** is the reason passed from the MISP interface handler.

Table 21
Enable application fail messages

Message	Action to take
ENLAPPL FAIL (CARD SAYS FAIL)	The MISP is not allowing the application to be enabled. Try again. If problem persists, then report it.
ENLAPPL FAIL (APPL TRNSIENT ST - TRY AGAIN)	Try again.
ENLAPPL FAIL (****)	Report the problem. Note that **** is the reason passed from the MISP interface handler.

Replacing ISDN BRI cards

If completion of ISDN BRI troubleshooting determines that the equipment is defective, remove the defective cards and replace them with spares. The procedures in this chapter describe how to unpack replacement cards, remove and replace defective cards, verify the operation of ISDN BRI equipment, and package and ship the defective cards to an authorized repair center.

Unpacking replacement cards

Unpack and visually inspect the replacement cards by following the steps below:

Unpacking replacement cards

1. Inspect the shipping container for damage. Notify the distributor if the container is damaged.
2. Remove the unit carefully from the container. Do not puncture or tear the container; use a utility knife to open it. Save the container and the packing material for the shipment of the defective card.
3. Visually inspect the replacement card for obvious faults or damage. Report the damage to a Northern Telecom sales representative.
4. Keep cards in their antistatic bags until ready to install them. Do not stack them on top of each other.
5. Install the cards in the Meridian 1 module. When handling the cards, hold them by their nonconductor edges to prevent damage from static discharge.

Removing and replacing the MISP

The MISP can be removed from and inserted into the Meridian 1 modules without turning off the power to the module. This allows the system to continue processing calls on the peripheral cards not associated with the defective MISP.

Note: A clock controller is required for ISDN BRI trunk applications. If the MISP being removed is providing the clock function, the clock must be reassigned to another location. Please refer to the 553-3901-201.

Removing the MISP

1 Log in on the maintenance terminal or telephone and load overlay program 32 (type in **LD 32**).

2 Check the status of the MISP by entering **STAT c** where c is the card slot number of the MISP.

Note: Make sure the MISP is idle before proceeding with the next step to avoid interrupting active calls.

3 When the Type **DISL lll** and press the ENTER key to disable the MISP loop, where **lll** is the MISP loop number being disabled.

4 Unlatch the card-locking devices by squeezing the tabs and pulling the card-locking devices away from the card as shown in Figure 13

5 Pull the card out of the module and place it into an antistatic bag away from the work area.

Remove the clock controller if there is one, and place it in an antistatic bag away from the work area.

6 Hold the replacement card by the card-locking devices and insert it partially into the card guides in the module.

7 Pull the card-locking devices away from the card faceplate and firmly insert the card into the backplane connector. Press the card-locking devices firmly against the faceplate to latch the card inside the module, as shown in Figure 14. The MISP automatically starts the self-test.

Install the clock controller if required.

8 Observe the red LED on the front panel during self-test. The LED is on during the test. If it flashes three times and stays on, it has passed the test. Go to step 9. If it does not flash three times and then stay on, it has failed the test. Pull the MISP partially out of the module and reinsert it firmly into the module and repeat step 8. If the problem persists, go to the previous chapter to troubleshoot the MISP or look for other common or network equipment problem causes.

9 At the > prompt in the LD32 program, type **ENLL lll** and press the ENTER key to enable the MISP loop. If the red LED on the MISP turns off, the MISP is functioning correctly and is ready to process calls. If the LED stays on, go to the procedure “Testing the MISP status” in the “Isolating and correcting faults” chapter in this document.

10 Tag the defective card with a description of the problem and prepare it for shipment to the equipment supplier's repair depot.

Figure 13
Unlatching the card-locking devices on a card

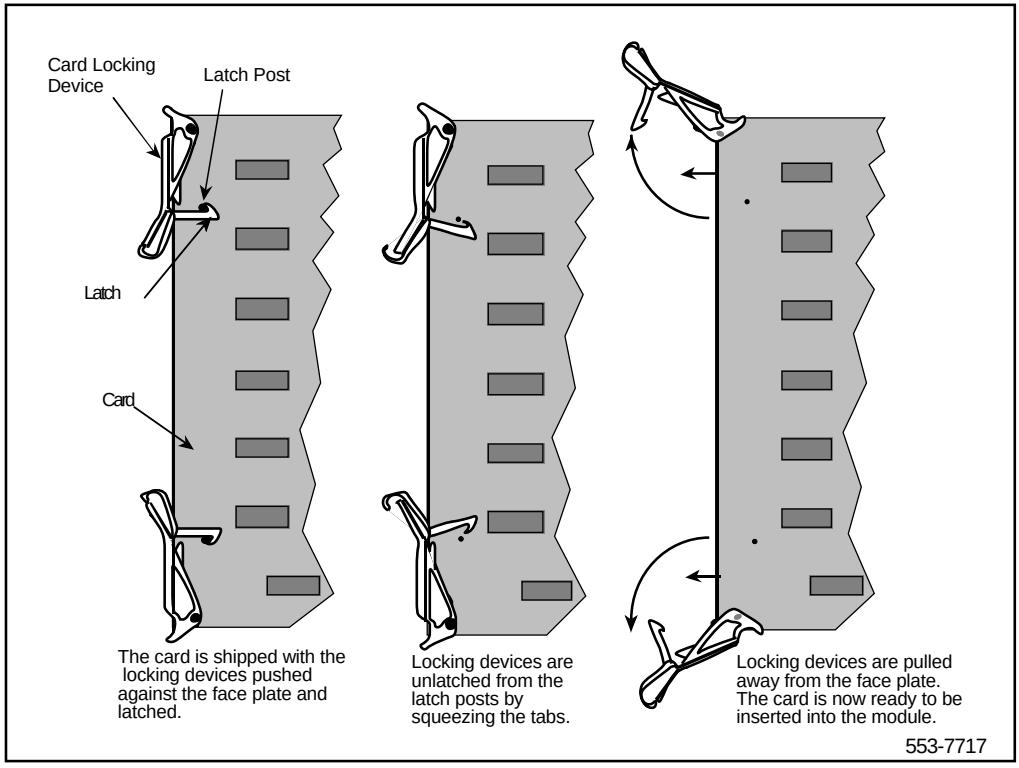
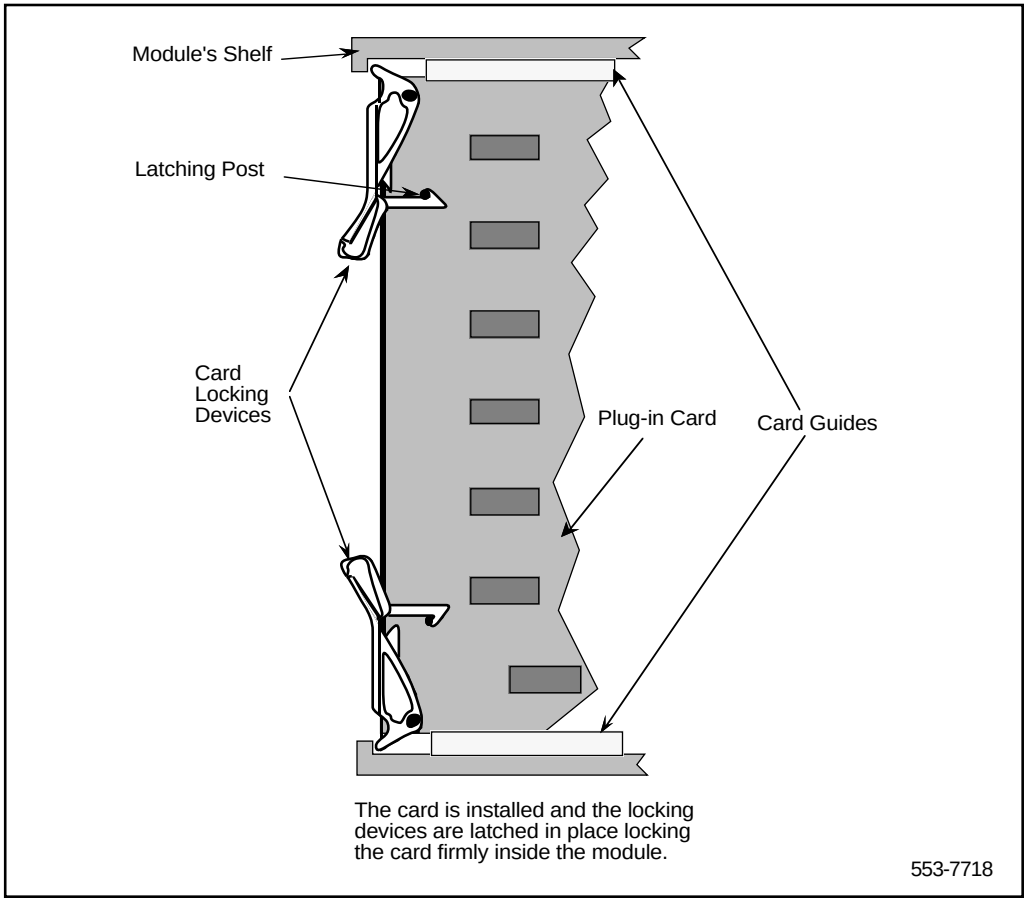


Figure 14
Latching the card-locking devices on a card



Removing and replacing the SILC, UILC or BRSC

The SILCs, UILCs and BRSCs can be removed from and inserted into the Meridian 1 modules without turning off the power to the module. This allows the system to continue processing calls on functional SILCs, UILCs and BRSCs.

Note: If an ISDN BRI trunk connected to the SILC, UILC is providing a reference clock source to system clock controller, the reference source must be reassigned to another location. Please refer to the 553-3901-201.

Removing and Replacing the SILC or UILC

1 Log in on the maintenance terminal or telephone and load overlay program 32 (type in **LD 32**).

Note: Make sure the MISP is idle before proceeding with the next step to avoid interrupting active calls.

2 Type **DISC l s c** and press the ENTER key to disable the SILC or UILC, where **l** is the MISP network loop number, **s** is the shelf (module) number, and **c** is the card slot number in the module.
To disable the BRSC, type **DISC lll s c** and press the ENTER key, where **lll** is the superloop number, **s** is the shelf (module) number, and **c** is the card slot number in the module.

3 Unlatch the card-locking devices by squeezing the tabs and pulling the devices away from the card as shown in Figure 13.

4 Pull the card out of the module and place it in an antistatic bag away from the work area.

5 Hold the replacement card by the card-locking devices and insert it partially into the card guides in the module.

6 Pull the card-locking devices away from the faceplate on the card and insert the card firmly into the backplane connector. Firmly press the card-locking devices against the faceplate to latch the card in the module, as shown in Figure 14. The card automatically starts the self-test.

7 Observe the red LED on the front panel during the self-test. The LED is on during the test. If it flashes three times, the card passes the test. Go to step 9. If the red LED does not flash three times and then stay on, the card fails the test. Pull the card partially out of the module, reinsert it firmly, and repeat step 8. If the problem persists, go to the previous chapter to troubleshoot the card or look for other problem causes.

8 At the > prompt in the LD32 program, type **ENLC l s c** and press the ENTER key to enable the card. If you are enabling the BRSC, type **ENCL lll s c** and press ENTER. If the red LED on the card turns off, it is functioning correctly and is ready to process calls; otherwise, go to the procedure "Checking the SILC and UILC status" or "Checking the BRSC status" in "Isolating and correcting faults" in this document.

9 Tag the defective card with a description of the problem and prepare it for shipment to the equipment supplier's repair center.

Verifying operation

After replacing faulty cards with the spares and enabling them, some basic functional tests should be performed to verify that the replacement card has solved the problem.

To verify the operation of an SILC, UILC or a BRSC card, perform the following steps:

Verifying the operation of an SILC, UILC or a BRSC card

1. Place an outgoing voice or data call on an ISDN BRI terminal or trunk connected to a previously faulty card or DSL to verify the outgoing transmission and signaling channels.
2. Place an outgoing voice or data call on an ISDN BRI terminal to the ISDN BRI terminal or trunk in step 1 to verify the incoming transmission and signaling channels.
3. Repeat these two steps for other previously faulty cards and DSLs.

To verify the operation of an MISP, follow the following steps:

Verifying the operation of an MISP

1. Place an outgoing voice or data call on an ISDN BRI terminal connected to a DSL associated with a previously faulty MISP to verify its ability to process the signaling information received on D-channels.
2. Disconnect the call after determining that the connection was successful.

Reinstalling covers

After completing the verification and determining that the system is operating correctly, perform the following the steps.

Reinstalling covers

1. Reinstall covers on the system modules.
2. Terminate the session with Meridian 1 by logging out on the maintenance terminal. Type LOGO at the > prompt and press the ENTER key.

Packing and shipping defective cards

To ship the defective ISDN BRI card to an authorized repair center, perform the following steps:

Packing and shipping defective cards

1. Tag the defective card with the description of the problem.
2. Package the defective card for shipment using the packing material from the replacement card. Place the card in an antistatic bag, then into the box, and securely close the box with tape.
3. Obtain the shipping and cost information from Northern Telecom and mail the package to an authorized repair center.

Testing and troubleshooting ISDN BRI terminals

Verifying a new M5317T terminal installation

Verifying user operation

Any problems found during this phase should be corrected before turning equipment over to the customer. Refer to the "Troubleshooting" chapter.

1. Examine loop length.
2. If under-carpet cabling is used, evaluate the cables for loss, impedance, crosstalk, and propagation delay.
3. Examine all telephone connections.
4. Set up a communication path to another M5317.
5. Go through some call routines, using the enabled features. (Refer to the M5317 Voice Features User Guide for procedures to establish and answer telephone calls.)
6. Verify that the display is showing the appropriate responses.

Troubleshooting the M5317T

Trouble conditions may be reported by the telephone user (customer report), by way of automatic routine tests, or during installation procedures.

Isolating switch problems

1. Run the LD32 diagnostic program for the Meridian 1 switch.
2. Check for error and location codes in the diagnostic output.
3. If the codes indicate a faulty component, replace it. Refer to the "Replacing ISDN BRI cards" section in this document.
4. Run the diagnostic programs again to confirm that the error and location codes have been cleared.

Clearing error codes

Perform the following steps if the telephone displays error codes after initialization. After each step, check the display. If an error code persists, go to the next step.

1. If the static X.25 TEIs in the telephone and the network do not match, datafill the telephone TEIs manually.
2. If the SPIDs in the telephone and the network do not match, correct the telephone SPIDs.
3. Confirm that a terminating resistor is present in the loop.
4. Perform a loop-back test with the suspect telephone connected to an external shorting jack.
5. Substitute a different telephone, datafilling it with the same information as the suspect telephone.
6. Replace or repair any defective wiring between the telephone and the network termination or line card.
7. Confirm that non-reversing cables are used.
8. Replace the telephone and repeat the installation process.

Restoring dial tone

If there is no dial tone or if you cannot make a telephone call, follow these procedures. Check for dial tone and try to make a call after each step.

1. Check and re-insert any loose Teladapt connectors.
2. Wiggle the line cord or handset cord while listening for sounds from the handset. If you hear crackling or ticking sounds, replace the cords.
3. Check the teladapt socket for the handset or try another handset.
4. Re-run any defective wiring between the line card, distribution panel, and telephone.
5. Check the switch software to confirm the correct telephone assignment and voice channel operation in the network.
6. Replace the telephone.

Isolating faulty keys

Refer to the M5317T Installation Guide for procedures to follow if you suspect faulty key operation or if the display is behaving strangely.

Verifying a new M5209T terminal installation

Procedures are provided for the following tests:

- Running a self-test
- Running a panel test
- Making a test voice call
- Making a test data call (applies to the M5209TDp and M5209TDcp models only)
- Assigning the test display language (M5209TDcp models only)

Running a self-test

WARNING

If you have made changes to SPIDs or TEIs, wait 20 seconds for the set to update its memory before continuing.

1 Unplug the RJ45 line cord from the jack, wait five seconds, then plug it in. The set automatically does a self-test on power up.

2 Check the display for the following message:

SELF TEST PASSED

If this message appears, the self-test was completed successfully. If the self-test failed, the display shows the following message:

code: **SELF TEST FAILED**
V:TWait P:TWait C:TWait

Where ***code:*** refers to a specific code number. Write down the code number(s) and refer to the “Troubleshooting displayed error messages” section of the M5209T Installation Guide.

Running a panel test

1 Press the Hold and Rls keys simultaneously until the following main menu is displayed:

MAIN MENU
CONFIG

2 Press #. The following prompt is displayed:

ENTER PASSWORD

3 Dial 4736 (ISDN) and press #. The following message is displayed:

CONFIGURATION MENU
TEI

4 Press * until the following option is displayed:

CONFIGURATION MENU
KEY TEST

5 Press # to begin the key test.

The M5209T tests the display and indicators by flashing a checkerboard pattern on the display, and by turning on the half-diamonds one at a time.

After the display test, the following message appears:

DEPRESS ALL KEYS

Press the following keys; as you do, check that each key is displayed as it is pressed.

0-9 (dial pad keys)
*
#
volume up/volume down
Hold
Rls

When all keys have been tested, the following should be displayed:

0123456789*#UDHR

6 Press each feature/line key.

As you press each key, a diamond appears on the associated feature/line indicator. When you press the last indicator, a diamond does not appear. Instead, the following message is displayed:

CONFIGURATION MENU
EXIT

7 Note any problems that you encountered during the test, and refer to the Troubleshooting section.

8 Exit the test by pressing Rls.

Making a test voice call

1 Make a voice call using a standard test DN. Note any problems that you encountered during the test, and refer to the Troubleshooting section.

Making a test data call

Note: Skip this test if the installed set is an M5209T (voice only set).

1 If you have been trained in making and troubleshooting data call, refer to the appropriate set manuals to make the test data call. If you are not familiar with data call procedures, contact the customer representative and have him make a data call for you.

Assigning the test display language

Note: This test applies to the M5209TDcp only.

1 Press the Hold and Rls keys simultaneously until the following main menu is displayed:

MAIN MENU
CONFIG

2 Press * until the following option is displayed:

MAIN MENU
LANGUAGE

3 Press #. The following message is displayed:

LANGUAGE
ENGLISH

4 Press * to select the desired display language.

5 Press #. The following message is displayed:

MAIN MENU
EXIT

Troubleshooting the M5209T

Trouble conditions may be reported by the telephone user (customer report), by way of automatic routine tests, or during installation procedures. The following are general troubleshooting procedures to follow when problems are found with the M5209T; for more detailed information on troubleshooting the M5209T, refer to the M5209T Installation Guide.

Note: You should bring the following spare replacement parts to the installation site to be tested:
- installed set model
- handset
- handset cord
- RJ45 line cord
- RS-232C interface cable

Power and cable connection problems

When no response is received from the M5209T, the cable and power connections should first be checked before proceeding with any other troubleshooting sequence.

Check the cable connections and power supply, by ensuring that:

1 The RJ45 line cord is properly connected to the wall jack or Terminator Resistor (TR) box.

2 If used, the RS-232C interface cable is properly connected to both the DTE port and the M5209 data port.

3 The handset cord is properly connected to both the handset and the handset jack underneath the set.

4 The cable from the wall jack or TR box, to the NT1, is properly connected.

5 The U-loop cable and the NT1 is properly connected.

6 The S-loop cable and the NT1 is properly connected

7 The NT1 is functioning properly.

Whether the NT1 is a stand-alone or rack-mount model, both types are functioning properly when the LED status indicators appear as summarized below:

Status Indicator	**LED light**
Power	On
S/T	OFF
U-sync	OFF
Test	OFF

If the NT1 indicators are not as shown above, it is not ready for use with the M5209; contact your supervisor for direction.

Once you have checked the cable connections and power supply, and the M5209 is still not responding:

8 Unplug the RJ45 line cord from the wall jack or TR box for five seconds, then plug it back in and perform a power reset on the M5209.

9 If problems still exist, try another M5209T set, using the existing cables. If this set works, the problem is with the original set; it should be replaced.

If the replacement M5209T does not work, replace the existing cables with your spare cables; repeat step 8.

If problems persist, contact your supervisor.

Problems with the set components

Problems with the set components may include:

- the keys are not responding, or responding improperly;
- the feature key indicators are not functional
- the display is not functional
- the handset has no audio, or the audio is distorted
- the speaker has no audio, or the audio is distorted

1 Check the cable connections using the procedures described in the "Power and cable connection problems" section. For handset problems, try another handset cord or another handset.

2 If cables are not the source of the problem, run a panel test as described in the "Verifying a new M5209T terminal installation" chapter.

If the panel test fails, replace the set.

Troubleshooting displayed error messages

When a self test is performed as described in the "Verifying a new M5209T terminal installation" chapter, and it fails, a code number is displayed to indicate the type of error that is at hand. Refer to the "Troubleshooting displayed error messages" section of the M5209T Installation Guide for a complete description of these codes, and the steps required to fix the problem situation.

ISDN BRI maintenance messages

The following is a list of several types of messages that are displayed on the administration terminal or printed on the system printer or teletype (TTY). These messages may indicate routine system activities, system faults, or input errors made during ISDN BRI configuration procedures.

ISDN Basic Rate Interface messages (BRIxxx)

The following messages are printed on demand by using SETM MISP <card#> MNT command in Link Diagnostic Program LD 48. By using RSET MISP <card#> MNT command in Link Diagnostic Program LD 48, you stop printing these messages.

BRI100

MISP sent line card update message. This message consists of two words, where each word indicates the status of the line card update message followed by the time when the message was printed. The possible status conditions are:

0H No error

1H Invalid DSL address

2H Forced disconnect has timed out

3H Invalid state change

4H MISP application failed to complete layer 1 connection

7H MISP application failed to queue the request

Example:

BRI100 004003 000000, where 4 indicates that the application failed to complete layer 1 connection due to 3 - invalid state change

BRI101

MISP sent line card B-channel update message. This message consists of four words, where each word indicates the B-channel status followed by the time when the status was printed. The possible status conditions are:

0H No error

1H Invalid DSL address

2H Forced disconnect has timed out

3H Invalid state change

4H MISP application failed to complete layer 1 connection

7H MISP application failed to queue the request

BRI102

MISP sent DSL update message. This message consists of one word that indicates the DSL status followed by the time when the status was printed. The possible status conditions are:

0H No error

1H Invalid DSL address

2H Forced disconnect has timed out

3H Invalid state change

4H MISP application failed to complete layer 1 connection

7H MISP application failed to queue the request

BRI103

MISP sent DSL B-channel update message. This message consists of two words, where each word indicates the B-channel status followed by the time when the status was printed. The possible status conditions are:

0H No error

1H Invalid DSL address

2H Forced disconnect has timed out

3H Invalid state change

4H MISP application failed to complete *physical* (layer 1) connection

7H MISP application failed to queue the request

BRI104

MISP sent DSL status message. The first number after the address displays the new DSL status message, the second number displays the reason for the change of status, and the third number displays the time when the status was printed. DSL states are:

0H Unequipped

1H Disabled

2H Maintenance busy

3H Reserved for future use

4H Enabled, but network (layer 2) is in release state

5H Enabled and network (layer 2) is established

6H Busy

Possible reasons for change of state are:

1H The first *network* (layer 2) link has been established

2H The last *network* (layer 2) link has been released

3H A DSL overload counters has been reached

4H Excessive *physical* (layer 1) errors on a DSL have been detected

BRI105

MISP sent DSL B-channel status message.

BRI107

MISP received line card audit message.

BRI108

MISP received DSL audit message.

BRI109

MISP received line card status audit message.

BRI110

MISP received line card B-channel status audit message.

BRI111

MISP received DSL status audit message.

BRI112

MISP received DSL B-channel status audit message.

BRI113

MISP sent TEI check message.

BRI114

MISP sent TEI restore message.

BRI115

MISP sent TEI remove message.

BRI200

Line card self test response. The response is indicated by the number following the line card address. Possible responses are:

0H	Passed selftest
1H	Line card microcontroller's internal RAM failure
2H	Line card microcontroller's external RAM failure
3H	Line card microcontroller's EPROM failure
4H	Network timeslot controller failure
5H	PAD EPROM failure
6H	Microwire controller failure
7H	Reserved for future use
8H	DSL 0 transceiver failure
9H	DSL 1 transceiver failure
AH	DSL 2 transceiver failure
BH	DSL 3 transceiver failure
CH	DSL 4 transceiver failure
DH	DSL 5 transceiver failure
EH	DSL 6 transceiver failure
FH	DSL 7 transceiver failure

BRI201

DSL reports layer 1 status. For SILCs in network terminator (NT) mode, the possible status conditions can be:

0H	S/T transceiver failure
1H	Physical (layer 1) is activated successfully
2H	Physical (layer 1) is de-activated successfully
3H	Physical (layer 1) is losing synchronization
4H	Physical (layer 1) is in the process of being established
5H	Physical (layer 1) failed to get established

For SILCs in terminal equipment (TE) mode, the possible status conditions can be:

0H	S/T interface transceiver failure
1H	Physical (layer 1) is activated successfully
2H	Deactivation was requested from far end
3H	Physical (layer 1) is losing synchronization
4H	Physical (layer 1) is in the process of being activated
5H	Physical (layer 1) failed to get established

For UILCs in terminal equipment (TE) mode, the possible status conditions can be:

0H	U interface transceiver failure
1H	Physical (layer 1) is activated successfully
2H	Deactivation was requested from far end
3H	Physical (layer 1) is loosing synchronization
4H	Physical (layer 1) is in the process of being activated
5H	Physical (layer 1) failed to get established
6H	Physical (layer 1) failed to be activated

BRI202

Line card responds to audit DSL state message. Five decimal numbers are displayed following the DSL address indicating the status of the DSL. These numbers specify the mode, B1and B2 channel status, DSL sampling, framing, and activation:

Mode	B1,B2 Framing activation	
Mode	0	Disabled
	1	NT1 mode, adaptive sampling
	2	NT1 mode, fixed sampling
	3	TE mode
B1, B2	0	B-channel disabled
	1	B-channel enabled
Framing	0	Multi-framing disabled
	1	Multi-framing enabled
Activation	0	Waiting to be activated
	1	Automatically activated

BRI203

Line card report for query message available.

BRI204

Line card responds to terminal equipment query message.

BRI300

MISP sent interface data download message.

BRI301

MISP sent timeslot download message.

BRI302

MISP sent packet data download message.

BRI303

MISP sent protocol data download message.

BRI304

MISP sent TSP data download message.

BRI305

MISP sent DSL traffic request message.

BRI306

MISP sent DSL layer 2 traffic request message.

BRI312

Downloading Layer 3 tables to MISP time-out. Default tables in MISP will be used.

BRI313

MISP did not respond to Layer 3 download messages. Default tables in MISP will be used.

BRI314

Downloading Layer 3 tables to the MISP failed. Default tables in the MISP will be used.

The following messages are printed automatically as they occur.

BRI800

The MISP being enabled or disabled is not present in network shelf.

BRI801

Dedicated connection between the MISP and the line card cannot be established.

BRI802

Task is aborted.

BRI803

Application is being enabled.

BRI804

Peripheral loadware is being downloaded.

BRI805

Error detected while downloading protocol to application; application is still being enabled.

BRI806

Protocol download message not acknowledged; application is still being enabled.

BRI807

Line card update message cannot be sent to the application.

BRI808

Line card cannot be put in maintenance busy mode because message cannot be sent to the MISP.

BRI809

Basecode application has been enabled or disabled.

BRI810

MISP is not present in the specified shelf. Make sure that you specified the correct shelf.

BRI811

Data corrupted.

BRI812

Resources not available to process the task; try again later.

BRI813

Another task waiting to be processed; wait at least 30 seconds and try again.

BRI814

Command is illegal. Make sure you enter the correct command.

BRI815

Not equipped. Specify correct card.

BRI816

Not configured as an MISP card.

BRI817

MISP basecode/application is already enabled.

BRI818

Specified application is not configured on the MISP.

BRI819

Peripheral loadware downloading to the MISP failed; check to see that loadware is present on the diskette and the diskette is inserted in disk drive.

BRI820

MISP self test failed. Check the MISP card. If the problem persists, replace the card.

BRI821

Application cannot be enabled or disabled because software is being downloaded.

BRI822

Task aborted. Firmware download cannot be completed because the application is enabled.

BRI823

Unable to send message to the MISP to enable or disable basecode application.

BRI824

MISP cannot perform the enable/disable tasks.

BRI825

Message cannot be sent to remove application from the MISP's EPROM.

BRI826

Socket IDs have not been assigned to this application. Task is aborted.

BRI827

Message to enable or disable has timed out; task aborted.

BRI828

MISP is disabled; task cannot be performed.

BRI829

This application is not resident in the MISP.

BRI830

Basecode application is in transient state; try the command again later.

BRI831

MISP has sent an undefined response.

BRI832

Protocols could not be downloaded to the MISP. Make sure that the MISP is enabled.

BRI833

HDLC data could not be downloaded to the MISP. The accompanying number indicates the error code returned from the message handler.

BRI834

Hardware fault has been detected on the MISP.

BRI835

MISP failed to process “Protocol Download Request” message.

BRI836

All applications must be disabled before disabling basecode.

BRI837

MISP basecode disabled without disabling the application(s); will attempt to release application's resources but an INIT might be required if problems persist.

BRI838

MISP could not be accessed.

BRI839

MISP failed to remove requested application.

BRI840

Enabling or disabling process took too long; process was aborted.

BRI841

Dedicated channel to the packet handler could not be established.

BRI842

Dedicated channel to the packet handler could not be disconnected.

BRI843

MISP basecode application failed; will try again in 0.5 second.

BRI844

Application software should be downloaded after enabling is completed by using Network and Peripheral Equipment Diagnostic Program LD 32. The download cannot be accomplished as long as LD 32 is active. Exit the program before starting the download.

BRI845

Enabling process was aborted and application firmware was not downloaded. Check to see that the firmware is present on the diskette and the diskette is inserted in the disk drive. Also the MISP may be busy updating the flash EPROM.

BRI846

Application cannot be automatically enabled. Five tries to download the application firmware failed. Enable it in the Network and Peripheral Equipment Diagnostic Program LD 32.

BRI847

Application loadware has been removed from the MISP.

BRI848

Application is not identified with a socket ID, no communication with the MISP.

BRI849

Task aborted. Meridian 1 cannot access the application information block on the MISP.

BRI850

DSL parameter cannot be downloaded because one or more pointers are nil. Try manually enabling the DSL to force the parameter to download. If this doesn't work, remove the DSL and then recreate it using ISDN BRI Service Change Program LD 27.

BRI851

DSL parameter cannot be downloaded because Meridian 1 could not send message to the MISP.

BRI852

DSL parameter cannot be downloaded because no call register is available.

BRI853

DSL parameter cannot be downloaded because the download request message was invalid.

BRI854

DSL parameter cannot be downloaded because the specified TSP is invalid.

BRI855

DSL parameter cannot be downloaded because the MISP did not acknowledge the download message.

BRI856

DSL parameter cannot be downloaded because download procedure timed out.

BRI857

DSL parameter cannot be downloaded because the MISP and/or application is disabled.

BRI858

Line card does not exist, thus a dedicated connection cannot be established or removed.

BRI858

Only an ISDN BRI card can have a dedicated connection.

BRI860

Software BUG.

BRI861

MISP is disabled, could not make a dedicated connection.

BRI862

No path available to setup a D-channel dedicated connection.

BRI863

Cannot send a message to the MISP to update the HDLC.

BRI864

Cannot send a message to the MISP to update the HDLC.

BRI865

Software BUG. ISDN PRI pointer is nil.

BRI866

PRI is disabled and a dedicated connection cannot be made.

BRI867

Dedicated connection cannot be established or removed because it is not in PRI MODE.

BRI868

B-channel is busy.

BRI869

A B-channel is not available to establish a dedicated connection.

BRI870

Call Register is not available to establish a B-channel or $B_{D\text{-channel}}$ dedicated connection.

BRI871

A dedicated connection cannot be established because there is no available path between the Network and the ISDN PRI.

BRI872

Invalid number for the specified B-channel or $B_{D\text{-channel}}$ type.

BRI873

Unable to establish or remove a dedicated B-channel or $B_{D\text{-channel}}$ connection because the ISDN PRI is disabled.

BRI874

Unable to establish or remove a dedicated B-channel or $B_{D\text{-channel}}$ connection because the ISDN PRI is disabled.

BRI875

Unable to establish or remove a dedicated B-channel or $B_{D\text{-channel}}$ connection because the ISDN PRI is disabled.

BRI876

Specified $B_{D\text{-channel}}$ is busy.

BRI877

B_{D}-channel dedicated connection cannot be established because there is no available path between the MISP and the ISDN PRI.

BRI878

Cannot send a message to the MISP to update the HDLC about the B_{D}-channel.

BRI879

Cannot send a message to the MISP to update the timeslot mapping for the dedicated B_{D}-channel connection.

BRI880

Cannot establish D-channel, B-channel, or B_{D}-channel dedicated connection because the MISP application is disabled.

BRI881

Cannot establish B_{D}-channel dedicated connection because the B-channel on the ISDN PRI is busy.

ISDN BRI trunking messages (BRITxxx)

BRIT100 DSL

The B-channel indicated in the outgoing SETUP is locked out because the far-end is using an alternate B-channel.

BRIT101 DSL c

The B-channel is locked out due to a RELCOMP or RELEASE; The message has been received with one of the following cause (c) values:

82 = channel does not exist
44 = requested channel is not available
6 = alternate channel acceptable

BRIT202

Protocol Error: Incorrect value for extension bit.

Output: DSL: x DATA: y z

x = DSL number

y = Message type

z = Information Element (IE)

BRIT203

Protocol Error: Mandatory Notification description invalid.

Output: DSL: x DATA: y z

x = DSL number

y = Message type

z = Information Element (IE)

BRIT206

Protocol Error: The length of the incoming call reference value was incorrect. The length allowed is 1.

There may be a compatibility problem with the far end.

Output: DSL: x DATA: y

x = DSL number

y = Call reference length

BRIT207

Protocol Error: Wrong message type.

Output: DSL: x DATA: y

x = DSL number

y = Message type

BRIT208

Protocol Error: Wrong Information Element (IE) for message type.

Output: DSL: x DATA: y

x = DSL number

y = Message type

BRIT209

Protocol Error: Undefined Information Element (IE) for message type.

Output: DSL: x DATA: y

x = DSL number

y = Message type

BRIT210

Protocol Error: Wrong coding standard.

Output: DSL: x DATA: y

x = DSL number

y = Coding standard

BRIT211

Protocol Error: Incorrect extension bit.

Output: DSL: x DATA: y

x = DSL number

y = Message type

BRIT212

Protocol Error: Bearer capability (BC) - Information transfer not supported.

Output: DSL: x DATA: y

x = DSL number

y = Transfer capability

BRIT213

Protocol Error: Bearer capability (BC) - Information transfer rate/mode not supported.

Output: DSL: x DATA: y

x = DSL number

y = Transfer rate

BRIT214

Protocol Error: Bearer capability (BC) - Layer 1 protocol ID not correct.

Output: DSL: x DATA: y

x = DSL number

y = Protocol ID

BRIT215

Protocol Error: Bearer capability (BC) - Rate is not correct.

Output: DSL: x DATA: y

x = DSL number

y = Message type

BRIT216

Protocol Error: Bearer capability (BC) - Rate is not correct.

Output: DSL: x DATA: y

x = DSL number

y = Rate

BRIT217

Protocol Error: General location not supported.

Output: DSL: x DATA: y

x = DSL number

y = General location number

BRIT218

Protocol Error: Cause value not supported.

Output: DSL: x DATA: y

x = DSL number

y = Cause information element (IE)

BRIT219

Protocol Error: Channel ID octet 3 error.

Output: DSL: x DATA: y

x = DSL number

y = Octet 3

BRIT222

Protocol Error: Channel number does not exist.

Output: DSL: x DATA: y

x = DSL number

y = B-channel number

BRIT223

Protocol Error: CREF flag in SETUP message is incorrect.

Output: DSL: x DATA: y

x = DSL number

y = Call reference number

BRIT224

Protocol Error: State message error, protocol violation.
The state IE is not appropriate for the current state.

Output: DSL: x DATA: a b c d e

x = DSL number

a = Pointer to BRIT message call register

b = UTN

c = State PM

d = Message type

e = Call reference number

BRIT225

Protocol Error: State message error, protocol violation. Release complete received in U11 or U31 state.

Output: DSL: x DATA: y

x = DSL number

y = Message type

BRIT227

Protocol Error: Message received in NULL state.

Output: DSL: x DATA: y

x = DSL number

y = Message type

BRIT228

Protocol Error: Mandatory Channel ID missing in ALERTing.

Output: DSL: x DATA: y

x = DSL number

y = NONE

BRIT229

Protocol Error: Mandatory Channel ID missing in incoming CONNect message.

Output: DSL: x DATA: y

x = DSL number

y = NONE

BRIT232

Protocol Error: PROGRESS INDICATOR not supported.

Output: DSL: x DATA: y

x = DSL number

y = Message type

BRIT233

Protocol Error: ZERO length for mandatory Information Element (IE).

Output: DSL: x DATA: y

x = DSL number

y = Information Element (IE) identifier

BRIT234

Protocol Error: ZERO length for optional Information Element (IE).

Output: DSL: x DATA: y

x = DSL number

y = Information Element (IE) identifier

BRIT235

Protocol Error: Bearer capability (BC) - Layer ID is not correct.

Output: DSL: x DATA: y

x = DSL number

y = Layer ID

BRIT236

Protocol Error: Incorrect Transit Network Selection (TNS) Network ID

Output: DSL: x DATA: y

x = DSL number

y = Message type

BRIT237

Protocol Error: Message length exceeds buffer size.

Output: DSL: x DATA: y

x = DSL number

y = Message type

BRIT238

Protocol Error: Protocol discriminator is not compatible with the message received.

Output: DSL: x DATA: y

x = DSL number

y = Protocol discriminator

BRIT239

Protocol Error: Maintenance message is not allowed for this DSL interface.

Output: DSL: x DATA: y

x = DSL number

y = Message type

BRIT241

Protocol Error: No response from far end to this BRIT call.

Output: DSL: x DATA: y

x = DSL number

y = B-channel number

BRIT242

Protocol Error: Received a BRIT message with an unsupported service identifier.

Output: DSL: x DATA: y

x = DSL number

y = Service identifier

BRIT243

Protocol Error: Service discriminator is not supported by BRIT.

Output: DSL: x DATA: y

x = DSL number

y = Service discriminator

BRIT244

Protocol/Database Error: Facility reject message received.

Output: DSL: x DATA: a b c d e

x = DSL number

a = Originating PNI

b = Originating number

c = Destination PNI

d = Destination number

e = Reason

BRIT245

Database Error: Missing PNI number in the customer data block.

Output: DSL: x DATA: y z

x = DSL number

y = Customer number

z = Service ID

BRIT246

Protocol Error: Received bad facility information element (IE).

Output: DSL: x DATA: y

x = DSL number

y = Error indication

BRIT247

Database Error: PNI missing in Route Data Block.

Output: DSL: x DATA: y

x = DSL number

y = Service identifier

BRIT248

Protocol Error: ROSE component sent is being rejected.

Output: DSL: x DATA: y

x = DSL number

y = Service identifier

BRIT249

Protocol Error: ISDN: Received a Status message with CAUSE = 30. This is normally received in response to a Status Inquiry but the Meridian 1 did not send out a Status Inquiry message. The Status message is ignored.

Output: DSL: x DATA: y

x = DSL number

y = DSL interface ID

BRIT250

Protocol Error: Received information element (IE) is in the wrong codeset.

Output: DSL: x DATA: y

x = DSL number

y = Information element (IE) identifier

BRIT251

Protocol Error: The Presentation Method of Protocol Profile (PMPP) is wrong in the High Layer Compatibility IE.

Output: DSL: x DATA: y

x = DSL number

y = High Layer Compatibility PMPP

BRIT252

Protocol Error: The Interpretation of High Layer Characteristics ID is wrong in the High Layer Compatibility IE.

Output: DSL: x DATA: y

x = DSL number

y = High Layer Compatibility INTERPRT

BRIT253

Protocol Error: The High Layer Characteristic ID is wrong in the High Layer Compatibility IE.

Output: DSL: x DATA: y

x = DSL number

y = High Layer Compatibility CHAR ID

BRIT254

Database Error: The DSL is interfacing with a software issue not supported by the application.

Output: DSL: x DATA: y z

x = DSL number

y = Release ID

z = Service identifier

BRIT255

Protocol Error: Information request type is not supported. A message error or a protocol error will be generated depending on whether the IE is mandatory or not.

Output: DSL: x DATA: y z

x = DSL number

y = Message type

z = Information element (IE) identifier

BRIT256

Protocol Error: Wrong length for information request IE. The length on the received IE is beyond the range. A message error or a protocol error will be generated depending on whether the IE is mandatory or not.

Output: DSL: x DATA: y z

x = DSL number

y = Message type

z = Information element (IE) identifier

BRIT257

Protocol Error: Information request specific is not supported. A message error or a protocol error will be generated depending on whether the IE is mandatory or not.

Output: DSL: x DATA: y z

x = DSL number

y = Message type

z = Information element (IE) identifier

BRIT261

Database Error: The DSL interface for routing Network Message Service (NMS) facility messages is not an Meridian 1 interface.

Output: DSL: x DATA: a b c d

x = DSL number

a = Operation code for TCAP protocol

b = Originating digits

c = Terminating digits

d = Customer number

BRIT262

Protocol Error: Invalid value for the interface identifier field of channel ID information element from an incoming message.

Output: DSL: x DATA: y

x = DSL number

y = Message type

BRIT265

Database Error: A Facility Reject message was received. Destination digits cannot be translated.

Output: DSL: x DATA: a b c d e

x = DSL number

a = TCAP package type

b = Problem (NOXLAN/NONMS)

c = Originating digits

d = Destination digits

e = Customer number

BRIT266

Protocol Error: TCAP Package type is not recognized by Network Message Center (NMC) feature.

Output: DSL: x DATA: a b c d e f

x = DSL number

a = TCAP package type

b = TCAP component type

c = Problem

d = Originating digits

e = Destination digits

f = Customer number

BRIT267

Protocol Error: TCAP Package type is not recognized by Network Message Center (NMC) feature.

Output: DSL: x DATA: a b c d

x = DSL number

a = TCAP package type

b = Originating digits

c = Destination digits

d = Customer number

BRIT268

Protocol Error: TCAP Component is not recognized by Network Message Center (NMC) feature.

Output: DSL: x DATA: a b c d e

x = DSL number

a = TCAP package type

b = TCAP component type

c = Originating digits

d = Destination digits

e = Customer number

BRIT269

Protocol Error: TCAP Operation is not recognized by Network Message Center (NMC) feature.

Output: DSL: x DATA: a b c d e f

x = DSL number

a = TCAP package type

b = TCAP component type

c = Operation

d = Originating digits

e = Destination digits

f = Customer number

BRIT270

Protocol Error: TCAP parameter is not recognized by Network Message Center (NMC) feature.

Output: DSL: x DATA: a b c d e f g

x = DSL number

a = TCAP package type

b = TCAP component type

c = Operation

d = Parameter

e = Originating digits

f = Destination digits

g = Customer number

BRIT271

Database Error: LDN0 must be defined for the customer for ISDN DID calls in order to determine the number of digits expected for successful call termination.

Output: DSL: x DATA: y

x = DSL number

y = Customer number

BRIT272

Message is ping-pong between 2 nodes.

Background signaling diagnostic messages (BSDxxx)

BSD800

Command is being executed.

BSD801

Call register not available. Wait and try the command again. If the problem persists, increase the number of call registers using Configuration Record Program LD 17.

BSD802

Specified card slot not equipped.

BSD803

Specified card not equipped.

BSD804

Time slot is busy.

BSD805

Time slots are not available.

BSD806

Loopback channel is not available.

BSD807

Time-out is waiting for network response.

BSD808

DSL is busy.

BSD809

DSL is in maintenance busy mode.

BSD810

Specified Controller card does not belong to the specified Network card. Make sure you entered correct shelf number.

BSD811

Terminals not installed at specified DSL.

BSD812

Digital terminal not available at specified terminal number.

BSD815

Wait for the prompt.

BSD816

Tags not available. Stop a test by executing XSTP command and try again.

BSD817

Generate message could not be sent. The system is temporarily out of message registers. Wait and try again.

BSD818

Detect message could not be sent. The system is temporarily out of message registers. Wait and try again.

BSD819

XMI message could not be sent. The system is temporarily out of message registers. Wait and try again.

BSD820

Last one-shot test still running. Wait until the test is completed or stop the test by executing XSTP 0 command and try again.

BSD821

Tag number has not been assigned to a test.

BSD822

Database error. The pointer is nil.

BSD823

One-shot status not printed. Use XSTA command to get the test status.

BSD824

Card slot is disabled.

BSD825

Card is disabled.

BSD826

DSL is disabled.

BSD827

Message could not be sent to the MISP application. Check the MISP and the application status.

BSD828

Message could not be sent to the MISP because the MISP express output buffer is not available.

BSD829

Loopback cannot be performed on a non-ISDN BRI line card.

BSD830

Loopback can only be performed between an MISP and one of the ISDN BRI line cards assigned to it.

BSD831

MISP does not respond; use XSTP command to terminate test.

BSD832

Tags suspended; use XSTP command to terminate test and check the cases where the Network card did not acknowledge reception of the test message.

BSD833

Message cannot be sent to the MISP. Check the MISP status.

BSD834

Line cards not defined at the specified DSL.

BSD835

All DSLs must be in disabled state.

BSD836

Card slot is not an MISP.

BSD837

Test case number does not match test case data.

BSD838

Command not applicable to Network/DTR card.

BSD899

Input invalid. Please re-enter the input value.

Software error monitor messages (BUGxxxx)

BUG5438

DSLs already configured have reached the limit.

BUG5439

Logical terminal IDs already specified have reached the limit.

BUG5441

D-channel dedicated connections could not be established.

BUG5442

Messages could not be sent to the line card.

BUG5443

Source invalid to ISDN BRI call processing module.

BUG5444

ISDN BRI call processing message time-out is in the wrong state.

BUG5445

B-channel specified by the MISP is used by another call and cannot be released.

BUG5446

Information element is missing in incoming ISDN BRI call processing message.

BUG5447

Information element is invalid in the incoming ISDN BRI call processing message.

BUG5448

ISDN BRI call processing packet message length is invalid.

BUG5449

ISDN BRI message handler failed to send a message.

BUG5450

Main progress marker (Mainpm) is invalid after digit translation; call is cleared.

BUG5451

Address translation cannot be performed on the specified DSL.

BUG5452

New call reference cannot be obtained.

BUG5453

ISDN BRI call cannot be connected because of incompatibility of the B-channel with the incoming call type.

BUG5454

Message CR cannot be found for incoming PRI call destined for an ISDN BRI terminal.

BUG5455

ISDN BRI call cannot be held; protected card pointer is nil.

BUG5456

ISDN BRI call cannot be retrieved; protected card pointer is nil.

BUG5457

Problem encountered when releasing the call.

BUG5458

Source invalid for BRI_INTERACT procedure.

BUG5459

Source invalid for BRI_MAINT module.

BUG5460

Source undefined for BRI_MAINT module for the MISP.

BUG5461

Source undefined for BRI_MAINT module for the line card.

BUG5462

Card type expected is ISDN BRI line card.

BUG5463

Protected card pointer is nil.

BUG5464

Non-key function data pointer is nil for DSL data.

BUG5465

Address translation failed for the DSL.

BUG5466

MISP protected pointer is nil.

BUG5467

MISP unprotected pointer is nil.

BUG5468

MSDL/MISP pointers cannot be set up.

BUG5469

Timeslot assignment controller data failed to be downloaded.

BUG5470

HDLC data failed to be downloaded.

BUG6034

A problem occurred during processing of a gateway call between UIPE and one of DPNSS1, MFC, MFE or DID signaling, or between BRIL and DPNSS1.

BUG6036

Parameter NUM_DIGS is larger than 10 in procedure TEN_N_BLS_HEX_CNV

BUG6037

Number larger than 3,999,999,999 has been passed to procedure TEN_N_BLS_HEX_CNV

BUG6038

A non Binary Coded Decimal has been passed to procedure TEN_N_BLS_HEX_CNV

BUG6039

MSGCR of outgoing trunk is nil in procedure AOC_REQUEST

BUG6040

Too many supplementary services are being requested at the same time using the keypad IE (for AEX-10 Australia)

BUG6041

A supplementary service request is to be built, but the IE length = 0.

Equipment data dump messages (EDDxxx)

EDD114

DSL data cannot be found.

EDD115

USID map cannot be found.

EDD116

Protected MISP data block cannot be found.

Error monitor messages (ERRxxxx)

ERR5157

ISDN BRI call is in wrong state; call attempt is aborted.

ERR5158

ISDN BRI call reference invalid.

ERR5159

ISDN BRI B-channel status out of sync between Meridian 1 and the MISP; call attempt is aborted.

ERR5160

ISDN BRI calls exceeded the limit for the DSL.

ERR5161

ISDN BRI call cannot be connected because of incompatibility of the call type with the B-channel.

ERR5162

ISDN BRI call cannot be connected because a call register cannot be allocated.

ERR5163

ISDN BRI call processing message has timed out.

ERR5164

ISDN BRI B-channel is in maintenance busy state.

ERR5165

Message received from invalid card slot.

ERR5166

Message received from wrong ISDN BRI line card.

ERR5167

Message received from ISDN BRI line card is invalid.

ERR5168

Output buffer not available to send scan and signal distributor (SSD) message.

ERR5169

ISDN BRI line card reports message problem.

Network link messages (LNKxxx)

LNK101

Incorrect card type. The card type must be a TERM, DTI, DLI, or MISP.

LNK133

Wrong password entered for the MISP command.

Network and peripheral replacement messages (NPRxxx)

NPR509

DSL configuration download failed.

NPR510

DSL is already enabled.

NPR511

Shelf contains at least one ISDN BRI card, wait about 45 seconds to enable the loop.

NPR512

The command is being executed.

NPR514

Unit cannot be enabled.

NPR515

ISDN BRI line card did not send activation acknowledgment for DSL.

NPR516

ISDN BRI line card self test can not be invoked.

NPR517

Line card self test failed; line card not enabled.

NPR519

Line card does not respond.

NPR522

MISP does not respond; command is aborted.

NPR533

"Line Card State Change" message not received from the MISP.

NPR534

"DSL State Change" message not received from the MISP.

NPR551

Message cannot be sent to the MISP because of invalid message or conditions.

NPR555

Express output queue is full.

NPR556

MISP output buffer is not available.

NPR561

Input valid only for the MISP card

NPR562

Message cannot be sent to the line card.

NPR570

Application information blocks cannot be read from the MISP.

NPR605

Application is not configured on this MISP.

NPR606

Trunk DSL needs to be in RELEASED state.

NPR607

Trunk DSL needs to be in ESTABLISHED state.

NPR608

Trunk DSL needs to be in TEST mode.

NPR609

Trunk DSL needs to be in REMOTE LOOPBACK mode.

NPR610

Trunk DSL needs to be ENABLED (not used).

NPR611

Trunk DSL needs to have TKTP = TIE and IFC = SL1.

NPR612

Trunk Application is DISABLED.

Network and signal diagnostic messages (NWSxxx)

NWS620

Express output queue full, CPU can not send the message to the MISP.

NWS621

MISP output buffer not available.

NWS622

Message cannot be sent to the MISP because of invalid message or conditions.

NWS623

Message cannot be sent to a line card.

NWS624

Shelf contains at least one ISDN BRI card, wait about 45 seconds to enable the loop.

NWS625

Database error. Database protected pointer is nil.

NWS626

Self test command only applies to the MISP network cards and ISDN BRI line cards. Make sure you specify correct card.

NWS627

Self test can only be invoked if card is disabled.

NWS628

Self test can only be invoked if line card is disabled.

NWS630

Card slot is unequipped.

NWS631

Card slot does not respond.

NWS632

Self test failed.

NWS633

MISP status is undefined.

NWS635

Line card does not respond.

NWS636

MISP self test cannot be activated.

NWS637

Self test passed.

NWS638

Unit is not equipped.

NWS639

TEI test could not be performed.

NWS640

MISP does not respond.

NWS641

Command cannot be performed on the MISP; use Network and IPE Diagnostic Program LD 32 to check the MISP.

MPH messages (MPHxxx)

MPH000

No error.

MPH001

Invalid parameter.

MPH002

Invalid TEI value.

MPH003

Invalid loop.

MPH004

Invalid protected loop pointer.

MPH005

Invalid unprotected loop pointer.

MPH006

Invalid unprotected interface pointer.

MPH007

No MPH application.

MPH008

Invalid interface type.

MPH009

Invalid interface index.

MPH010

Invalid interface timeslot.

MPH011

Invalid message ID.

MPH012

The MPH MISP loop is disabled.

MPH013

The MPH application is disabled.

MPH014

An MPH maintenance task is in progress.

MPH015

No MPH interface maintenance task call register.

MPH016

Invalid interface maintenance main step pm.

MPH017

Maintenance task timed out.

MPH021

No buffer available.

MPH022

Unable to send message.

MPH023

Not in manual disabled state.

MPH024

Invalid interface maintenance secondary step pm.

MPH025

Interface in manual disabled state.

MPH030

Interface TN is undefined.

MPH031

Invalid interface state change.

MPH032

Interface nailup connection failed.

MPH033

Maintenance message time-out.

MPH034

Interface in disabled state.

MPH035

Invalid interface request.

MPH036

Unable to send message.

MPH037

Enable/disable interface failed.

MPH038

MPH associated with this BRIL expected.

MPH041

Download interface failed.

MPH042

Download interface time-out.

MPH043

Unable to download.

MPH045

Download TSP failed.

MPH046

Download TSP time-out.

MPH047

Download DNAT failed.

MPH048

Download DNAT time-out.

MPH049

Download DCH TSP time-out.

MPH050

Download DCH TSP failed.

MPH061

DCH interface enable time-out.

MPH062

DCH interface enable failed.

MPH063

DCH interface disable time-out.

MPH064

DCH interface disable failed.

MPH065

IPC channel disable/enable failed.

MPH200

Unsolicited response for DCH/BCH terminal state update.

MPH201

Indication message received for maintenance pending message.

MPH202

Confirm message received for maintenance pending message.

MPH203

Indication message received for clear-maintenance-pending message.

MPH204

Confirm message received for clear-maintenance-pending message.

MPH205

Response for status update message for undefined interface.

MPH206

Response for status request message for undefined interface.

MPH207

Indication for status request message.

MPH208

Confirm for status request message.

MPH209

Response for error log upload request.

MPH210

Unsolicited response for NWIF/SAPI16 interface state change.

MPH215

Indication for audit request message.

MPH300

Indication received for MPH application download.

MPH301

Indication received for L2 protocol download.

MPH302

Indication received for L3 protocol download.

MPH303

Indication received for interface data download.

MPH304

Indication received for MPH TSP data download.

MPH305

Indication received for PVC data download.

MPH306

Indication received for DNA data download.

MPH307

Indication received for TFC data download.

MPH308

Indication received for DSL LAPD data download.

Service change messages (SCHxxxx)

SCH0000

Illegal input character.

SCH4127

Signaling/pad category table cannot be removed because there are references to this table.

SCH5366

Protocol group already exists.

SCH5367

Protocol group does not exist.

SCH5368 x

Protocol group x cannot be removed. Remove the DSL associated with this protocol and try again.

SCH5369

MISP has already been enabled.

SCH5370

MISP has not been configured.

SCH5371

Not a PRI. Enter a PRI number.

SCH5372

I/O polling table is full.

SCH5373

MSDL/MISP index cannot be obtained because the table is full.

SCH5374

Warning: B-channel is not configured for packet data transmission.

SCH5375

Specified PRI channel is busy. Enter an idle PRI channel number.

SCH5376

Number of DSLs exceeded the defined system limit.

SCH5377

Not a MISP. Enter a MISP card slot number.

SCH5379

MISP supports only four ISDN BRI line cards.

SCH5380

DSL# 7 of this ISDN BRI line card cannot be configured. D-channel is configured for packet handler

SCH5381

Non superloop is not allowed. Enter a superloop number.

SCH5382

Disable the card by removing all the DSLs on the card.

SCH5383

ISDN BRI line card already configured.

SCH5384

ISDN BRI line card has not been configured.

SCH5385

Non ISDN BRI line cards are not allowed.

SCH5386

Non DSL terminal number (TN) is not allowed.

SCH5387

Disable the ISDN BRI line card to configure its DSL.

SCH5388

Remove all DSLs on the line card to change the card type.

SCH5389

DSL number is out of range. Enter a number from 0 to 7.

SCH5390

DSL data block has not been created. Configure the DSL.

SCH5391

DSL data block has already been created.

SCH5392

B-channel packet data option not enabled. B-channel packet data option must be configured in MISP.

SCH5393

Warning: Make sure the call type matches the changed DN and TSP.

SCH5394

Specify at least one type of call, which can be VCE, DTA, or PMD.

SCH5395

System contains additional LTEIs.

SCH5396

Remove all TSPs from the DSL before removing the DSL.

SCH5397

Enter three values LTG and LTN for Logical Terminal Id and one for TEI.

SCH5398

LTIDs exceed the specified system limit.

SCH5399

LTEIs exceed maximum limit allowed for this DSL.

SCH5400

LTEI has not been configured.

SCH5401

Warning: Make sure MCAL value does not exceed the maximum number of calls for a DSL specified in TSP.

SCH5402

System contains additional configured TSPs.

SCH5403

ISDN BRI DN is not allowed.

SCH5404

MISP not allowed.

SCH5405

A non-ISDN BRI terminal cannot be configured for the specified ISDN BRI line card.

SCH5406

This DSL cannot be configured because a D-channel is used for packet handler.

SCH5407

LTID TEI pair database block has not been configured.

SCH5408

Enter TEI you wish to delete.

SCH5409

Enter the call type you wish to delete.

SCH5410

Address translation failed.

SCH5411

DSL database block has not been configured.

SCH5412

USID map is not defined.

SCH5413

TSPs have reached the allowable limit.

SCH5414

TSP is already configured.

SCH5415

TSP does not exist. Assign a configured TSP.

SCH5416

USID has not been removed.

SCH5417

TSP does not exist.

SCH5418

Define at least one SPID.

SCH5419

SPID has not been configured.

SCH5420

Input has exceeded the maximum allowed SPIDs per TSP. Specify a maximum or eight SPIDs for each TSP.

SCH5421

DN input must be specified.

SCH5422

DNs exceed the allowed limit.

SCH5423

DN database block does not exist.

SCH5424

DN does not exist for the specified TSP.

SCH5425

DN has already been deleted.

SCH5426

Invalid input. Check the input value and try again.

SCH5427

Call type is not defined in the DSL.

SCH5428

Default DN must be entered.

SCH5329

Warning: Default DN has not been defined.

SCH5430

Insufficient memory.

SCH5431

DN tree is corrupted.

SCH5432

DN is not an ISDN BRI DN. Specify an ISDN BRI DN.

SCH5433

DN is already defined for a different DSL.

SCH5434

USID does not exist. Specify an available USID.

SCH5435

SPID has been defined in the TSP.

SCH5436

SPID value is too long. Enter correct SPID value not to exceed nine characters.

SCH5437

TSP has not been defined for the specified SPID.

SCH5438

Card is not configured in the MISP data block.

SCH5439

ISDN BRI package is not installed in the specified card slot.

SCH5440

Card slot has already been assigned. Specify an card slot.

SCH5441

MISP cannot be removed because an ISDN BRI line card is still associated with this MISP.

SCH5442

ISDN BRI line card cannot be moved or swapped. Make sure all the DSLs have been removed from the card first.

SCH5443

ISDN BRI DN cannot be a customer night DN.

SCH5444

Card slot is used by MISP.

SCH5445

ISDN BRI DN cannot be a hotline DN.

SCH5446

ISDN BRI DN cannot be a night DN.

SCH5447

ISDN BRI DN cannot be a customer night DN.

SCH5448 l

Disconnect dedicated D-channel connection command for the specified MISP l has failed. Check MISP status.

SCH5449 l

Send DSL or line card status command for the specified MISP l has failed. Check MISP status.

SCH5450 l

Parameter download procedure for the specified MISP l has failed. Check MISP status.

SCH5451 l

B-channel dedicated connection to PRI has failed.

SCH5452 l

Disconnect B-channel dedicated connection to PRI command has failed.

SCH5453 l

Send maintenance pending message to MISP l has failed.

SCH5454

Invalid LTID, LTG=15 and LTN=1023 is not allowed simultaneously

SCH5455

DSL has already been configured.

SCH5456

DSL does not exist.

SCH5848

The specified application is not configured on this MISP. Configure the application to the MISP.

SCH5849

ISDN BRI trunk types can only be TIE, COT and DID.

SCH5850

Cannot change these parameters without disabling all associated trunk members.

SCH5851

Interface type must be SL1, 1TR6 or NUMR.

SCH5852

Cannot remove BRIL application without disabling the application. Disable the application using LD 32.

SCH5853

Cannot remove BRIL application without first removing all associated DSLs.

SCH5854

The specified route is not an ISDN BRI route.

SCH5855

ISDN BRI trunk package is not equipped on this system.

SCH5856

The new MISP for this card does not have BRIL configured but there is a BRIL DSL on this card. Enter a MISP with a BRIL application.

SCH5857

ISDN BRI route is not allowed if an ISDN BRI Route Packet Handler exists. Use a different route or take out the ISDN BRI Route Packet Handler option on this route before proceeding.

SCH5858

PRI is not supported if the DTI package and the PRI package are not equipped.

SCH5859

A DSL trunk in NT mode must be associated with a route on NET side. Check the Network and User configuration for ISDN BRI route and Network and Terminal configuration on the DSL route.

SCH5860

Protocol group cannot be removed if there are one or more ISDN BRI routes using this protocol set group. Remove the routes associated with this protocol before proceeding.

SCH5861

Cannot remove the BRIT application without first disabling it. Use LD 32 and disable the application.

SCH5862

Cannot remove the BRIT application without first removing all associated DSLs.

SCH5863

The new MISP for this card does not have BRIT configured but there is a BRIT DSL on this card. Enter a MISP with a BRIT application.

SCH5864

BRIL package is not equipped on this system.

SCH5965

The ISDN option must be configured in the Customer Data Block before an ISDN BRI route can be configured. Use LD 15 and enable the ISDN option for this customer.

SCH5866

Either the BRIL or BRIT package is not equipped on this system.

SCH5867

The line card is not an SILC. An SILC line card must be entered if the clock source is to be drawn from an ISDN BRI line.

SCH5899

The appropriate DSL on this card (DSL#0 for PREF or DSL#1 for SREF) must be a trunk DSL. Enter an SILC card with an ISDN BRI Trunk clock source configured on the appropriate DSL, or use LD 27 to configure an ISDN BRI trunk clock source on the appropriate DSL.

SCH5900

The appropriate DSL on this card (DSL#0 for PREF or DSL#1 for SREF) is not provisioned for a clock source. Use LD 27 to change the CLOK parameter on the appropriate DSL to YES. The DSL must first be in TE mode.

SCH5901

Either no card exists in this slot or the slot must be a DTI, JDMI or PRI slot.

SCH5902

Either the card in this slot is not an SILC card or the slot must be a DTI JDM or PRI slot.

SCH5903

Either the appropriate DSL in this slot (DSL#0 for PREF or DSL#1 for SREF) is not a trunk DSL, or the slot must be a DTI, JDMI or PRI slot.

SCH5904

Either the appropriate DSL in this slot (DSL#0 for PREF or DSL#1 for SREF) is not provisioned for a clock source, or the slot must be a DTI, JDMI or PRI slot.

SCH5905

The appropriate DSL in this slot (DSL#0 for PREF or DSL#1 for SREF) is not configured. Use LD 27 to configure the appropriate trunk clock source.

SCH5906

Either the appropriate DSL in this slot (DSL#0 for PREF or DSL#1 for SREF) is not configured, or the slot must be a DTI, JDMI or PRI slot.

SCH5907

The clock on this DSL is referenced in the Digital Data Block. This reference must be removed using LD 73 before the mode can be changed to NT.

SCH5908

The clock on this DSL is referenced in the Digital Data Block. Reference must be removed using LD 73 before CLOK can be changed to NO on this DSL.

SCH5919

The clock on this DSL is referenced in the Digital Data Block. Reference must be removed using LD 73 before DSL can be removed.

SCH5926

The clock on this DSL is referenced by the DTI/PRI system data. This reference must be removed using LD 73 before the mode can be changed to NT.

SCH5927

The clock on this DSL is referenced by the DTI/PRI system data. This reference must be removed using LD 73 before CLOK can be changed to NO on this DSL.

SCH5928

The clock on this DSL is referenced by the DTI/PRI system data. This reference must be removed using LD 73 before this DSL can be removed.

SCH5929

DTI package is restricted. If the BRIT package is equipped, enter TYPE =DTI2 or TYPE = PRI2.

SCH5930

The slot number is not a valid DTI/PRI/MISP slot. Configure the DTI/PRI slot using LD 17 or configure the MISP using LD 27.

SCH5931

The slot number is not a valid DTI/PRI/MISP slot. Configure the DTI/PRI slot using LD 17 or configure the MISP using LD 27.

SCH5932

This MISP is referenced as a clock controller in the Digital Data Block. This reference must be removed using LD 73 before the MISP can be removed.

SCH5933

This MISP is referenced as a clock controller in the DTI/PRI system data. This reference must be removed using LD 73 before the MISP can be outed.

SCH5938

The requested change cannot be processed because the route would be changed to USR side, but there are NT mode DSL members on this route; NT mode DSL must be on NET side.

SCH5939

This is not an SILC card. This slot is valid input only for SILC clock references.

SCH6089

Either the MSDL package or the BRIL/BRIT package must be equipped.

SCH6178

Feature is not defined in database.

SCH6179

Feature input is invalid.

SCH6180

No Feature Activation or Feature Indication ID is input.

SCH6181

Feature ID is out of range.

SCH6182

Feature Indication ID which has been input conflicts with Feature Indication ID of another feature.

SCH6183

Feature Activation ID which has been input conflicts with Feature Activation ID of another feature.

SCH6184

Warning: the feature is already defined in the database. The Feature Activation/Indication IDs which has been input will overwrite the existing Feature Activation/Indication ID for the feature.

SCH6185

Wrong number of input fields.

SCH6186

Invalid protocol ID.

SCH6187

There are Feature IDs defined in the TSP(s) of this DSL.

SCH6399

MTRO keyword table is corrupted.

SCH6409

A protocol engine active (inactive) interface type is allowed to be changed to another protocol engine active (inactive) interface type only if there is no DSL associated with the route.

SCH6410

The route entered for the BRIE application must have the protocol engine active; the route entered for the BRIT application should not have the protocol engine active.

SCH6411

The MPH application cannot be configured with any other application on the MISP.

SCH6412

The new MISP for this card does not have BRIE configured, but there is a BRIE DSL on this card.

SCH6413

Cannot have an IPE shelf with both BRSC and trunk DSLs.

SCH6426

The call forward external allow/deny is only allowed for ETSI and NI-1 protocols.

SCH6427

Invalid supplementary feature.

SCH6428

Cannot subscribe Call Forward for this call type because DN does not subscribe this call type.

SCH6429

Cannot delete this Call Forward service because it is active.

SCH6435

Supplementary service is not defined in the database.

SCH6436

Invalid supplementary service.

SCH6437

There are supplementary services defined in the TSP(s) of this DSL.

System loader messages (SYSxxxx)

SYS4413

DSL can not be loaded. The number of DSLs exceeds the limit.

SYS4414

Protected storage cannot be allocated.

SYS4415

DSL data cannot be found.

SYS4416

ISDN BRI card cannot be inserted in the slot.

SYS4417

MISP cannot be associated with line card because protected data block for the card does not exist.

SYS4418

MISP cannot be associated with line card because protected card data block for the card does not exist.

SYS4419

USID map cannot be found.

SYS4420

Multiple DSLs associated with the specified ISDN BRI directory number.

SYS4421

Logical terminal IDs exceeds limit on the specified DSL.

SYS4206

Data can only be loaded when PRI2, DTI2, BRIT, or BRIL package is selected.

SYS4590

BRIT package restricted.

SYS4592

BRIL package restricted.

SYS4593

Either the BRIL or BRIT package needs to be equipped.

SYS4594

BRIL application will not be configured on any MISP because the BRIL package is not equipped.

SYS4595

BRIT application will not be configured on any MISP because the BRIT package is not equipped.

SYS4600

The DTI package is restricted and either the BRIT package is restricted or the DTI2 package is equipped or the PRI2 package is equipped.

Meridian 1

ISDN Basic Rate Interface

Maintenance

Information is subject to change without notice. Nortel Networks Corporation reserves the right to make changes in design or components as progress in engineering and manufacturing may warrant. This equipment has been tested and found to comply with the limits for a Class A digital device pursuant to Part 15 of the FCC rules, and the radio interference regulations of Industry Canada. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses and can radiate radio frequency energy, and if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at their own expense.

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