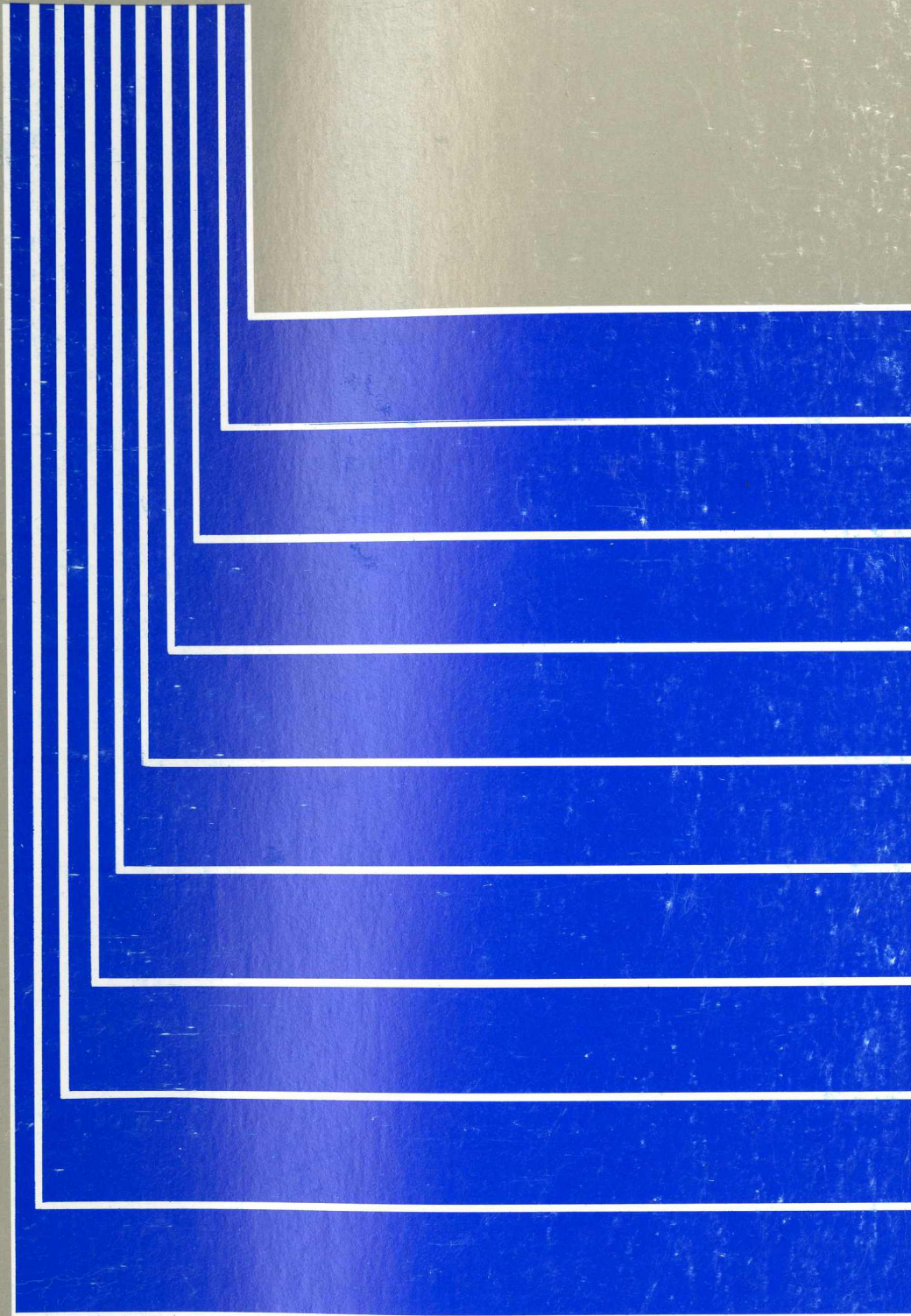


Problem Determination

IBM 3708
Network
Conversion Unit



Problem Determination

IBM 3708
Network
Conversion Unit

GA27-3767-01

Federal Communications Commission (FCC) Statement

Warning: This equipment generates, uses, and can radiate radio frequency energy and if not installed and used in accordance with the instruction manual, may cause interference to radio communications. It has been tested and found to comply with the limits for a Class A computing device pursuant to Subpart J of Part 15 of FCC rules, which are designed to provide reasonable protection against such interference when operated in a commercial environment. Operation of this equipment in a residential area is likely to cause interference in which case the user at his own expense will be required to take whatever measures may be required to correct the interference.

Instructions to User: In many instances, shielded cables and connectors must be used for connection to peripherals. Proper IBM cables are available from authorized dealers. The manufacturer is not responsible for any radio or television interference caused by using other than the recommended cables or by unauthorized modifications to this equipment; it is the responsibility of the user to correct such interference.

If necessary, the user should consult the dealer or an experienced radio/television technician for additional suggestions. The user may find the following booklet prepared by the Federal Communications Commission helpful:

How to Identify and Resolve Radio-TV Interference Problems

This booklet is available from the following:

FOB Public Contact Branch Room 725 1919 M St. NW Washington, DC 20554 Tele. (202) 634-1940	Consumer Assistance and Small Business Division Room 254 1919 M St. NW Washington, DC 20554 Tele. (202) 632-7000
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Second Edition (February 1988)

This edition obsoletes GA27-3767-0.

Changes are made periodically to the information herein; before using this publication in connection with the operation of IBM systems or equipment, consult the latest *IBM System/370, 30XX and 4300 Processors Bibliography*, GC20-0001; *System/38 Bibliography*, GH30-0233; and *8100 Bibliography*, GC20-8100, for the editions that are applicable and current.

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About This Book

This book describes the procedures for solving a problem or isolating the source of a problem with the IBM 3708 Network Conversion Unit. It includes procedures for contacting IBM for assistance and listings of the 3708 alert messages and control terminal messages.

This book is intended for use by persons who have a working knowledge of the 3708 and the system in which it is installed. It provides helpful information for people who set up the 3708, enter or change 3708 configuration information, detect and solve 3708 problems, or relocate the 3708.

To use this book, you should be familiar with the following:

- American National Standard Code for Information Interchange (ASCII)
- Asynchronous (start-stop) devices
- IBM 3270 Information Display System
- Systems Network Architecture (SNA).

How This Book is Organized

This book contains two parts:

“Problem Determination Procedures” contains the following chapters:

- Chapter 1, “Introducing the Problem Determination Procedures,” describes the problem determination procedures for the 3708 and the service and warranty options that are available.
- Chapter 2, “Using Symptoms to Solve a Problem,” provides a symptom index and symptom descriptions to help solve a problem with the 3708.
- Chapter 3, “Gathering More Information,” describes how to gather detailed information about a 3708 problem when the symptom index in Chapter 2, “Using Symptoms to Solve a Problem,” does not indicate the source of the problem.
- Chapter 4, “Handling Microcode Problems,” describes microcode problems and how to isolate the source of microcode problems by gathering detailed information about them.
- Chapter 5, “Handling Hardware Problems,” describes how to run the 3708 extended diagnostic test and how to isolate a problem to the base or cartridge of a 3708.
- Chapter 6, “Service Information,” describes how to get assistance in solving a 3708 problem.

“Problem Determination Reference” contains the following appendixes:

- Appendix A, “3708 Alert Messages,” describes the format for the 3708 alert messages and lists the messages. It includes an explanation and a recommended action for each message.

- Appendix B, “Considerations for Hosts Not Using NetView or NPDA,” describes the format that the 3708 uses for unsolicited alerts that it sends to a host. This function can assist personnel in interpreting the unsolicited alerts at a host without NetView or the Network Problem Determination Application (NPDA).
- Appendix C, “3708 Control Terminal Messages,” lists the 3708 control terminal messages. It includes an explanation and a recommended action for each message.
- Appendix D, “3708 Status Line,” describes the status line position, messages, and codes. It includes an explanation and a recommended action for each field in a message.
- Appendix E, “SNA Sense Codes,” lists and describes the modifier codes for the SNA error codes.
- Appendix F, “3708 Screen Sequences,” shows the sequence of the 3708 screens that access the screens that are used for problem determination.
- Appendix G, “Temporarily Reinstating the IBM-Supplied Configuration,” describes how to temporarily reinstate the IBM-supplied configuration.
- Appendix H, “Permanently Reinstating the IBM-Supplied Configuration” describes how to permanently reinstate the IBM-supplied configuration.

Related 3708 Library Publications

The following list describes other books and information for the 3708:

- *IBM 3708 Network Conversion Unit Setup*, GA27-3611, is shipped with the 3708 and describes how to set up and test the 3708, how to handle setup problems, and how to prepare the 3708 for relocation.
- *IBM 3708 Network Conversion Unit Description*, GA27-3768, describes the external interfaces and operational characteristics of the 3708.
- *IBM 3708 Network Conversion Unit Planning and Installation*, GA27-3766, describes how you can plan for and install the 3708.
- Unpacking instructions are printed on the 3708 shipping carton and show how to unpack the 3708.
- *IBM 3708 Network Conversion Unit Problem Report*, GA27-3638, which is shipped with the 3708, provides a means of recording problem diagnosis information, that is used by the repair center representatives.
- *IBM 3708 Network Conversion Unit End-User Reference*, GA27-3765, describes the procedures for operating terminals attached to the 3708.
- *IBM 3708 Network Conversion Unit Registration Address Form* is shipped with the 3708. This form must be completed and returned to IBM for you to automatically receive notification of changes in the 3708 microcode.
- IBM 3708 reference cards describe the keyboard functions of ASCII displays, which can be connected to a 3708, and describe the general procedures for terminal users.

The end-user devices and the 3708 reference card order numbers are the following:

End-User Device	Form No.
IBM Personal Computer (PC) in 3101 Emulation Mode with standard 3101 keyboard functions	SX27-3635
IBM 3101 Display Terminal Models 10, 12, 13, 20, 22, and 23	SX27-3633
IBM 3151, 3161, 3162, 3163, and 3164	SX27-3862
IBM 3151, 3161, 3162, 3163, and 3164 (3708 Feature)	SX27-3867
ADDS Viewpoint® Display Station	SX27-3636
ADDS Viewpoint®/78	SX27-3706
Beehive™ ATL-078	SX27-3645
Data General Dasher® D210 Display Terminal	SX27-3652
DEC® Model VT100	SX27-3638
DEC® Model VT220 (Emulating a VT100)	SX27-3790
DEC® Model VT220	SX27-3639
DEC® Model VT52	SX27-3637
FALCO 500®	SX27-3864
Hazeltine Esprit I™ and II™	SX27-3640
Hazeltine 1500	SX27-3641
Hewlett-Packard 2621B Interactive Terminal	SX27-3651
Lear Siegler ADM 24E	SX27-3703
Lear Siegler ADM 3A Dumb Terminal®	SX27-3642
Lear Siegler ADM 31™	SX27-3704
Northern Telecom Displayphone™	SX27-3653
ROLM Cedar	SX27-3649
ROLM Cypress	SX27-3648
ROLM Juniper	SX27-3650
Teletype 5410 Async. Display Terminal	SX27-3646
Teletype 5420	SX27-3647
TeleVideo® 910	SX27-3643
TeleVideo® 912C	SX27-3705
TeleVideo® 950	SX27-3644
User-Defined Terminal	SX27-3654
WY-50®	SX27-3865

Service Information

If you are not able to solve a 3708 hardware or microcode problem by using *IBM 3708 Problem Determination*, see Chapter 6, "Service Information."

Changes Since the Last Edition

This book contains the following new information:

- Symptom descriptions for some problem areas
- Descriptions of SNA sense codes
- Description of the Display Storage Screen.

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Chapter 1. Introducing the Problem Determination Procedures

This chapter describes the problem determination procedures for the IBM 3708 Network Conversion Unit and describes the service and warranty options that are available.

Problem determination is the procedure for solving a problem or for isolating the source of a problem and contacting IBM for assistance.

Diagnosing a Problem

The source of a problem with the 3708 can be any of the following:

- Installation errors
- Cable connection errors
- Configuration errors
- Microcode errors
- Hardware problems in the 3708 base or cartridge.

Use the procedure outlined below to determine the source of the problem.

Finding the Source of the Problem

To do problem determination for the 3708, follow these steps:

1. Look for the problem in the symptom index in Chapter 2, "Using Symptoms to Solve a Problem." If the symptom is in the list, follow the suggested action in the symptom description for solving the problem.
2. If step 1 does not solve or isolate the source of the problem, see the procedures in Chapter 3, "Gathering More Information."
3. If steps 1 and 2 indicate that the source of the problem is in the microcode, see the procedures in Chapter 4, "Handling Microcode Problems."
4. If steps 1, 2, or 3 indicate that the source of the problem is in the hardware, see the procedures for running the extended diagnostic test in Chapter 5, "Handling Hardware Problems."
5. If the above steps do not solve the problem or if the procedures direct you to call IBM for assistance, see the procedures in Chapter 6, "Service Information."

Reviewing the Service and Warranty Options

This section describes the various service and warranty options that are available for the 3708.

Service Options

Maintenance service is available under the IBM Maintenance Agreement. The available service options are as follows:

Service Option	Description
Customer on-site exchange	IBM arranges for the delivery of an exchange unit to your location and for the pick up of the failing unit.
IBM on-site exchange	An IBM representative comes to your location and exchanges a functioning unit for the failing unit. If you purchase the IBM on-site exchange service option, you can also purchase optional periods of maintenance service, which extend the hours in which service is available.

Warranty Options

The warranty period is for 1 year and is serviced under the customer on-site exchange service option. However, you can select the IBM on-site exchange service option during the warranty period for an additional charge. If you purchase the IBM on-site exchange service option, you can also purchase optional periods of maintenance service, which extend the hours in which service is available. Contact the local IBM branch office for more information on warranties and maintenance agreements.

3708 Remote Assistance

IBM's remote assistance is an integral part of the 3708's maintenance service offerings. Remote assistance allows an IBM service representative to dial out to a 3708, to run extensive diagnostic tests, and to apply microcode fixes if necessary. Remote assistance is designed to minimize outages that would otherwise require the unnecessary replacement of the base or cartridge and to minimize the delay in waiting to receive a new cartridge with updated microcode. To receive remote assistance, you must provide *a modem and phone line access* for the IBM service representative. See "Receiving Remote Assistance" on page 6-2 for more information about remote assistance.

Chapter 2. Using Symptoms to Solve a Problem

This chapter provides a symptom index and symptom descriptions to help you isolate the source of a problem with the 3708.

Symptom Index

The symptom index lists, by problem area, the symptoms of problems and the pages on which the symptoms are described.

If the symptom of a problem is not in the index or if the suggested solution does not solve the problem, go to Chapter 3, "Gathering More Information."

Problem Area	Symptom	Page
3708 lights	The 3708 power light does not come on when you press the 3708 power switch.	2-4
	Both the 3708 base Not Ready light and the cartridge light stay on.	2-5
	The 3708 base Not Ready light stays on and the cartridge light is off.	2-5
	The 3708 cartridge light stays on.	2-6
	Both the 3708 base Not Ready light and the cartridge light blink together (both on, then both off).	2-6
	The 3708 base Not Ready light and the cartridge light blink alternately (base on/cartridge off, then base off/cartridge on).	2-7
Display	Extra, missing, or unintelligible characters are displayed.	2-9
	The screen is blank.	2-10
	Characters or cursor are one position to the right or left of where they should be.	2-12
	Unintelligible characters intermittently displayed on all terminals, and sessions are lost.	2-12
	The screen is shifted up one line (protocol conversion mode).	2-12
	The ENTER key does not work.	2-13
	The 3708 transmits an INCORRECT RESPONSE message when you log on.	2-13
	Characters are not displayed when entered on the screen.	2-14
	Double characters are displayed.	2-14
	Incorrect characters are displayed.	2-14

Problem Area	Symptom	Page
	The Break key does not stop data from being displayed in protocol enveloping mode.	2-15
	The status line displays X HOST when the ENTER key is pressed.	2-15
	The status line displays X WAIT when the ENTER key is pressed.	2-15
	The IDENT key does not work.	2-15
	A carriage return does not occur at the end of a line in protocol enveloping mode.	2-15
	Unformatted SSCP data is displayed before a host session is established.	2-16
	The Backspace key does not work during 3708 logon.	2-16
	The Backspace key does not work in protocol enveloping mode or while logging on to the host application.	2-16
	The 3270 function keys do not work during host application logon.	2-16
	The cursor is in the lower right corner of the screen in protocol conversion mode.	2-16
Printer	Extra, missing, or unintelligible characters are displayed.	2-17
	Incorrect characters are printed.	2-18
	Forms are not aligned with printout.	2-18
	Local copies overrun form boundaries.	2-18
	Nothing prints.	2-18
	Printer data is lost.	2-20
	The IDENT function does not work.	2-20
	Blank lines appear periodically in the printout.	2-21
	Extra form feeds appear periodically in the printout.	2-21
Host sessions	The display session is disconnected when you log off from the host application.	2-22
	The host line does not activate at the 3708 (the 3708 lights blink alternately).	2-22
	Sessions end unexpectedly.	2-22
	You receive a host-unavailable message when you select an SNA host.	2-23
	You receive a host-unavailable message when you are connected to a host application.	2-23
	You receive a session-not-established message when you try to log on to your host.	2-23

Problem Area	Symptom	Page
	You are unable to activate the display terminal logical unit (LU) from the host.	2-24
	You are unable to activate the printer LU from the host.	2-24
Modems connected to switched ports	The modem enters test mode when it is connected to the 3708.	2-26
	You are unable to dial back into a switched port after hanging up.	2-26
Performance	Frequent host retransmissions occur.	2-27
	The host must poll several times before it receives a response.	2-27
	A045 alerts occur often, indicating a buffer shortage.	2-28
	You are getting poor response time at the terminal.	2-29
Miscellaneous	The 3708 ports do not operate.	2-30
	The BASIC CONFIGURATION IN USE, CALL SUPERVISOR message is displayed when you log on to the 3708.	2-30

Symptom Descriptions

The symptom descriptions list the possible causes and the suggested solutions for the problem. These descriptions are organized by problem area.

If the symptom of a problem is not in the index or if the suggested solution does not solve the problem, go to Chapter 3, "Gathering More Information."

Problem Area: Lights

The 3708 power light does not come on when you press the 3708 power switch.

CAUTION:

Determining the active source and distribution of the 120 or 220 volt service that is used by the 3708 is hazardous and should be performed by trained personnel only.

- **Cause:** The 3708 is not receiving power.

Solution: Ensure that the 3708 power cord is plugged into an active power receptacle and that the AC receptacle meets the 3708 power requirements. Refer to *IBM 3708 Planning and Installation*. Test the receptacle with a device that works. Ensure that the 3708 power cord is plugged firmly into the 3708 base.

- **Cause:** The 3708 power cord is defective.

Solution: Call for service. See Chapter 6, "Service Information."

- **Cause:** A device that is connected to the 3708 is transmitting incorrect signals.

Solution: Turn off the 3708 power switch, remove all cables from the 3708 ports, and turn on the 3708 power switch. If the 3708 powers on, one of the connected devices may be transmitting electrical signals on incorrect pins.

Reconfigure the connected terminal to supply the correct signals or replace the cable with an IBM 3708 or compatible cable. Refer to *IBM 3708 Planning and Installation* for information on compatible cables. Also, verify that the correct type of cable is connected to the device; for example, do not use a DCE cable when connecting a display terminal directly to the 3708. If the 3708 does not turn on, see the procedures in "Running the 3708 Extended Diagnostic Test."

- **Cause:** The 3708 base is defective.

Solution: If power is being supplied to the 3708 base, no cables are connected, and the 3708 does not power on, the base may be defective. Call for service. See Chapter 6, "Service Information."

Both the 3708 base Not Ready light and the cartridge light stay on.

- **Cause:** A device that is connected to the 3708 is transmitting incorrect signals.
Solution: Turn off the 3708 power switch, remove all cables from the 3708 ports, and turn on the 3708 power switch. If the 3708 powers on, one of the connected devices may be transmitting electrical signals on incorrect pins.
Reconfigure the connected terminal to supply the correct signals or replace the cable with an IBM 3708 or compatible cable. Refer to *IBM 3708 Planning and Installation* for information on compatible cables. Also, verify that the correct type of cable is connected to the device; for example, do not use a DCE cable when connecting a display terminal directly to the 3708. If the 3708 does not turn on, see the procedures in “Running the 3708 Extended Diagnostic Test.”
- **Cause:** The 3708 cartridge is inserted incorrectly.
Solution: Turn off the 3708, remove the cartridge, and insert it again. Turn on the 3708 again.
- **Cause:** The base or cartridge is defective.
Solution: If a spare cartridge is available, insert the spare cartridge, and turn on the 3708. If the problem continues or if a spare cartridge is not available, call for service. See Chapter 6, “Service Information.”

The 3708 base Not Ready light stays on and the cartridge light is off.

- **Cause:** A device that is connected to the 3708 is transmitting incorrect signals.
Solution: Turn off the 3708 power switch, remove all cables from the 3708 ports, and turn on the 3708 power switch. If the 3708 powers on, one of the connected devices may be transmitting electrical signals on incorrect pins.
Reconfigure the connected terminal to supply the correct signals or replace the cable with an IBM 3708 or compatible cable. Refer to *IBM 3708 Planning and Installation* for information on compatible cables. Also, verify that the correct type of cable is connected to the device; for example, do not use a DCE cable when connecting a display terminal directly to the 3708. If the 3708 does not turn on, see the procedures in “Running the 3708 Extended Diagnostic Test.”
- **Cause:** The 3708 was set for STOP ON ERROR, and an error has caused the 3708 to stop.
Solution: To determine if this is the cause, turn off the 3708, wait 10 seconds, and turn on the 3708 again. If the 3708 completes its normal startup, a STOP ON ERROR has occurred. See the procedures in “Handling Restart Errors” on page 4-4.

- **Cause:** The cartridge is inserted incorrectly.
Solution: Turn off the 3708 remove the cartridge, and insert it again. Turn on the 3708 again.
- **Cause:** The base is defective.
Solution: To determine if the base is defective, turn off the 3708, wait 10 seconds, and turn on the 3708 again. If the base continues to fail, call for service (see Chapter 6, "Service Information"); if not, replace the cartridge.

The 3708 cartridge light stays on.

- **Cause:** The 3708 cartridge is inserted incorrectly.
Solution: Turn off the 3708, remove the cartridge, and insert it again. Turn on the 3708 again.
- **Cause:** The cartridge is defective.
Solution: If a spare cartridge is available, insert the spare cartridge and turn on the 3708. If the problem continues or if a spare cartridge is not available, call for service. See Chapter 6, "Service Information."

The 3708 base Not Ready light and the cartridge light blink together (both on, then both off).

- **Cause:** The 3708 is performing extended diagnostic tests and is ready for the port diagnostic wrap tests.
Solution: See the procedures in "Running the 3708 Extended Diagnostic Test."
- **Cause:** The 3708 is performing port wrap tests as part of the CSU procedure.
Solution: See the procedures in "Setting Up the 3708" in *IBM 3708 Network Conversion Unit Setup*, GA27-3611.

The 3708 base Not Ready light and the cartridge light blink alternately (base on/cartridge off, then base off/cartridge on).

- **Cause:** The 3708 has been started with the IBM-supplied configuration in effect. With this configuration, the host port is excluded; therefore, it is normal for the lights to blink alternately.
Solution: Define the user-defined configuration and include the host port, then have the host activate the line.

- **Cause:** The SNA host lines are not activated. The 3708 lights indicate that none of the SNA hosts have transmitted an SNRM command to activate the line. If an SNA host is not defined in the configuration, the 3708 is operating normally. If an SNA host is defined in the configuration, the host has not activated the line.

Solution: Have the host network operator activate the SNA host line for the 3708.

- **Cause:** A cable on the host port is disconnected.

Solution: Reconnect the host port cable to the 3708 and make sure that the connections to any modem on the line to the host are connected securely.

- **Cause:** Line errors may be causing this symptom.

Solution: Verify that the cables are operating correctly, that the cables are IBM compatible (refer to *IBM 3708 Planning and Installation*), and that the modems are operating correctly.

- **Cause:** A configuration error is preventing the SNA host line from activating.

Solution: Verify that all SNA host configuration values (Station Address, NRZI, Permanent RTS, Line Speed) match the values that the host expects. Verify that the clocking (line speed) configuration at the 3708 and the host are compatible. Refer to *IBM 3708 Planning and Installation* for more information.

- **Cause:** The IBM-supplied configuration is invoked. Since the IBM-supplied configuration does not include a working SNA host definition (host port is excluded), the lights are blinking normally. The IBM-supplied configuration can be invoked under these five conditions:

1. You temporarily invoke the IBM-supplied configuration by pressing the Test/Normal switch after turning on the 3708.

Solution: To return to the user-defined configuration, restart the 3708.

2. You permanently invoke the IBM-supplied configuration by placing REPLWIBM in the Name field and CONFIG. in the Version field of the 3708 general definition. See Appendix G, "Temporarily Reinstating the IBM-Supplied Configuration" and Appendix H, "Permanently Reinstating the IBM-Supplied Configuration" for more information.

Solution: Reconfigure the 3708. The user-defined terminal tables and the user-defined translate table remain intact. Refer to *IBM 3708 Planning and Installation*.

3. The last time that the 3708 was active, you reconfigured the 3708 without satisfying the storage algorithm that is described in *IBM 3708 Planning and Installation*.

Solution: To determine if this is the cause of the problem, log on to the 3708 control terminal.

Since the IBM-supplied configuration is in effect, you may need to connect your control terminal to a different port. Refer to *IBM 3708 Planning and Installation* for a description of the IBM-supplied configuration.

After you log on, the control terminal displays message C116 BUFFER CONSTRAINT EXCEEDED at the bottom of the screen. See Appendix C, "3708 Control Terminal Messages" for more information about message C116.

Reconfigure the 3708 to satisfy the storage algorithm by performing one or more of the following:

- Reduce the number of large and medium receive queues (RECEIVE QUEUE SIZE = L or M)
- Reduce the number of multiple logical unit (MLU) ports (Device Class = 4)
- Reduce the number of ports that support large screen devices (3270 Model Emulation = 3, 4, or 5)
- Exclude all unused 3708 ports.

4. An error exists in the data in the 3708 MCF/patch area.

Solution: To determine if this is the cause of the problem, log on to the 3708 control terminal.

Since the IBM-supplied configuration is in effect, you may need to connect your control terminal to a different port. Refer to *IBM 3708 Planning and Installation* for a description of the IBM-supplied configuration.

After you log on, the control terminal displays message C114 MCF/PATCHES NOT APPLIED; EEPROM CHECKSUM ERROR in the bottom two lines of the screen. See Appendix C, "3708 Control Terminal Messages" for more information about message C114.

Call for service. See Chapter 6, "Service Information." The MCF/patch information is incorrect and must be reapplied.

5. You configured the host using 3708 port definitions.

Solution: If you redefine a host port through option 3 (port definition) after you have defined a host through option 2 (host definition) on the 3708 Configuration and Password Menu, the host definition is destroyed. Reconfigure the host by using the host definition option.

Problem Area: Displays

Extra, missing, or unintelligible characters are displayed.

- **Cause:** The normal 3708 basic assurance (BAT) tests were run when the terminal was active.

Solution: When the 3708 is first turned on, the BAT tests transmit data to the ports to verify that the ports are operating. If the device is already turned on, some characters appear on the screen. You may need to turn off, then turn on the device. If you want to suppress the BAT test data, set bit 3 of the nonstandard operations field of the 3708 General Definition screen to 1.

- **Cause:** The line speed is incorrect.

Solution: Verify that the line speed on the terminal and the modem matches the 3708 port Line Speed option.

- **Cause:** The parity is incorrect.

Solution: Verify that the parity on the terminal and the modem matches the 3708 port Parity option.

- **Cause:** The pacing configuration is incompatible.

Solution: If the terminal is transmitting XON/XOFF (DC3/DC1) to pace the 3708, verify that the 3708 port Receive XON/XOFF option is *1*.

- **Cause:** An incorrect terminal type was specified when the user logged on to the 3708.

Solution: Turn off or disconnect the device and establish a new connection to the 3708. When the C2 logon screen (terminal selection menu) appears, select the correct number.

- **Cause:** An incorrect terminal type is defined when the 3708 logon screens are excluded or the terminal type logon screen is suppressed.

Solution: When the 3708 logon screens are excluded, only one terminal type may be supported on that port. Redefine the Terminal ID value for that port, restart the 3708, and try again to establish a connection.

- **Cause:** The terminal is defined for the wrong type of emulation.

Solution: Verify that the terminal is defined to emulate the terminal type that you selected on the 3708 C2 logon screen (terminal selection menu).

For example, for an IBM 3161 emulating the IBM 3101, enter *1* for the terminal type.

- **Cause:** The 3708 is in protocol enveloping mode and is sending 7F as a delay character. The display is interpreting the delay character as a valid data character.

Solution: Configure the 3708 to use either NUL (X'00') or XON (X'11') as the delay character. Use the nonstandard operations field of the 3708 General Definition screen.

- **Cause:** Line noise caused parity errors.

Solution: For protocol conversion mode, press the Refresh key sequence. For protocol enveloping mode, try the function that you were doing again. For a switched connection in either mode, hang up and dial again. For a nonswitched connection, contact the carrier representative if the problem continues.

- **Cause:** The terminal is malfunctioning.

Solution: To determine if this is the cause of the problem, try another terminal. Use the problem determination documentation for the terminal to isolate the problem. If necessary, exchange the terminal.

- **Cause:** The modem returned a line-connected message at the same time the host or 3708 is sending data.

Solution: Configure the modem to suppress the connection message.

The screen is blank.

- **Cause:** The EIA 422-A connection is not activated. For a port with an Interface Type of *I* (EIA 422-A), the terminal must send a carriage return character (X'0D') to the 3708 when the device is first turned on.

Solution: Press the carriage return key.

- **Cause:** You configured the port for auto-baud or auto-parity. If the port is configured for a line speed of *19* (autobaud) or for a parity of *6* (autoparity), the terminal must send a carriage return character (X'0D') to the 3708. The carriage return character determines the line speed and parity to use for the session.

Solution: Press the carriage return key.

- **Cause:** The terminal is in local mode (offline).

Solution: Make sure that the terminal is not in local mode. It must be online to work with the 3708.

- **Cause:** The terminal is not operating.

Solution: Verify that the terminal has power and can operate. Use the problem determination documentation for the terminal to isolate the problem.

- **Cause:** The port is excluded from the 3708 configuration.

Solution: The Port Excluded option is *Y* for the port to which you are connected. Change the Port Excluded option to *N* to include the port.
- **Cause:** The 3708 logon screens are excluded from the 3708 configuration.

Solution: The Logon Screens Excluded option is *Y* for the port to which you are connected. The 3708 cannot prompt the display terminal user for information. Press the carriage return key and log on to the host.
- **Cause:** The display terminal logical unit (LU) is not active.

Solution: At the host, check the status of the display terminal LU. If the LU is not active, activate it.
- **Cause:** The cable is defective.

Solution: Use a cable from another port to determine if a different cable works. If so, replace the defective cable.
- **Cause:** The cable type is incorrect.

Solution: Refer to *IBM 3708 Planning and Installation* for cable descriptions. You may need a DTE cable instead of a DCE cable.
- **Cause:** The cable is built incorrectly.

Solution: Refer to *IBM 3708 Planning and Installation* for cable pin layouts.
- **Cause:** A connection for a switched line does not exist.

Solution: Establish a connection to the 3708 through the modem.
- **Cause:** The terminal end (remote) modem settings are incorrect or the 3708 end (local) modem settings are incorrect.

Solution: Verify the modem settings using the documentation for the modems.
- **Cause:** The line speed or parity is incorrect.

Solution: Verify that the line speed and parity for the terminal match the 3708 port Line Speed and Parity options.

Characters or cursor are one position to the right or left of where they should be.

- **Cause:** The setting of the Field Attribute Byte flag in the selected terminal table is incorrect.

Solution: If you are using a UDT, correct the setting of this flag. See *IBM 3708 Network Conversion Unit Planning and Installation* for more information. If you are using a default terminal table, verify the setup parameters of your terminal.

Unintelligible characters intermittently displayed on all terminals and sessions are lost.

- **Cause:** The 3708 has restarted due to a microcode or hardware problem. The host connection is lost because the 3708 has restarted.

Solution: See the procedures in "Handling Restart Errors" on page 4-4.

The screen is shifted up one line (protocol conversion mode).

- **Cause:** The auto scroll or auto newline is incorrect. When operating in full-screen mode and when a character is displayed in the last column of a line, the terminal must not automatically position the cursor to the beginning of the next line. Some terminals provide separate settings to control scrolling and the automatic linefeed functions; others combine the two functions.

Solution: If the device has separate settings, turn off the automatic linefeed function and turn on the scrolling function. Verify the switch settings on the terminal. Refer to *IBM 3708 Planning and Installation*.

For example, for the IBM 3101, turn off the auto newline and set the following terminal switches to turn on scrolling during logon:

Switch	Setting
AUTO NL	off
AUTO LF	off
SCROLL	on

For the IBM 3161, 3163, and 3164, set the following switches:

Switch	Setting
AUTO LF	off
SCROLL	jump or smooth

If the device does not have separate settings, turn off the auto newline or scroll function for the terminal. If the device is a UDT terminal and the scroll function cannot be inhibited, set the no-scroll bit in the UDT for this terminal.

The ENTER key does not work.

- **Cause:** The keyboard is locked (protocol conversion mode only). A locked keyboard prevents the user from entering data. When the keyboard locks, an input inhibited message (for example, X CLOCK) is displayed in the 3708 status line. If the terminal does not display a status line, the cursor appears in the lower right corner of the screen.

Solution: Check the 3708 status line to determine the cause of the keyboard lock. If the terminal does not display the status line, use the Status ON/OFF key sequence to display it. See Appendix D, "3708 Status Line" for more information about the status line.

- **Cause:** You specified an incorrect terminal type when logging on to the 3708 (protocol conversion mode only).

Solution: Turn off or disconnect the device and establish a new connection to the 3708. When the C2 logon screen (terminal selection menu) appears, select the correct number.

- **Cause:** An incorrect terminal type is defined when the 3708 logon screens are excluded or the terminal type screen is suppressed.

Solution: When the 3708 logon screens are excluded or the terminal type (C2) screen is suppressed, only one terminal type may be supported on that port. Redefine the Terminal ID value for that port, restart the 3708, and try again to establish a connection.

- **Cause:** The user-defined terminal definition is incorrect (protocol conversion mode only). You are using a user-defined terminal table if you select terminal types 20 to 25.

Solution: Refer to the user-defined terminal table section of *IBM 3708 Planning and Installation* for more information.

- **Cause:** The turnaround character is incorrect (protocol enveloping mode and 3708 logon only).

Solution: Verify that the characters defined in the port Turnaround Characters option match those transmitted by the terminal when you press the ENTER key.

The 3708 transmits an INCORRECT RESPONSE message when you log on.

- **Cause:** Incorrect data was entered.

Solution: Type the data again and try again to log on.

- **Cause:** Incompatible XON/XOFF pacing or line turnaround characters are defined.

Solution: Verify that the 3708 is configured to receive XON/XOFF pacing (Receive XON/XOFF=1) if the terminal is transmitting XON/XOFF pacing. The default turnaround characters are carriage return (CR) and line feed (LF). Verify that the ENTER key generates either a CR or an LF but not both. If the ENTER key generates a carriage return line feed (CRLF), configure the 3708 for just a CR as the turnaround character.

Characters are not displayed when entered on the screen.

- **Cause:** The port Echoplex option is 0, and the terminal is not defined for local echo.

Solution: Reconfigure the port so the port Echoplex option is 1, or define the terminal for local echo. You can also set bit 9 of the nonstandard operations field of the 3708 General Definition screen to 1. See *IBM 3708 Network Conversion Unit Planning and Installation* for a complete description of nonstandard operations.

Note: For protocol conversion, the terminal must not be set for local echo.

- **Cause:** One of the following might have occurred:
 - Line noise removed 2 bits from a character and the 3708 is interpreting it as an XOFF character.
 - A user accidentally sent an XOFF character from a terminal.
 - A modem connected to the 3708 sent an XOFF character.
 - An XON character from the device was deleted by line noise.

Solution: Transmit an XON character to the 3708.

Double characters are displayed.

- **Cause:** The port's Echoplex option is 1, and the terminal is defined for local echo.

Solution: Reconfigure the port so the Echoplex option is 0, or do not define the terminal for local echo.

Incorrect characters are displayed.

- **Cause:** An incorrect translate table was specified.

Solution: Verify that the 3708 port is configured for the correct translate table. If necessary, define a user-defined translate table to translate the characters correctly.

The Break key does not stop data from being displayed in protocol enveloping mode.

- **Cause:** The Full Duplex Control Unit option is *1* for the port.

Solution: Reconfigure the Full Duplex Control Unit option as *0* for the port. Refer to the configuration section in *IBM 3708 Planning and Installation* for more information about the Full Duplex Control Unit option.

The status line displays X HOST when the ENTER key is pressed.

- **Cause:** The 3708 received Receiver Not Ready (RNR) from the host.

Solution: Wait for the condition to clear. When the host is ready, the 3708 sends the data to the host, and the X CLOCK message replaces the X HOST message. If the problem occurs regularly, ask the system programmer to determine whether the host system is overloaded.

The status line displays X WAIT when the ENTER key is pressed.

- **Cause:** The 3708 has a temporary buffer shortage.

Solution: Wait for the condition to clear. When buffers are available, the 3708 sends the data to the host, and the X CLOCK message replaces the X WAIT message.

The IDENT key does not work.

- **Cause:** The status line is not toggled on.

Solution: To use the IDENT key, the status line must be toggled on. For devices displaying the status message on the last data line, toggle the status line to on before you use the IDENT function.

- **Cause:** The terminal is not defined in the printer device list.

Solution: Reconfigure the printer authorization matrix to include the port for the terminal in the Source Device List field. Refer to the configuration section of *IBM 3708 Planning and Installation* for more information about the Source Device List field.

A carriage return does not occur at the end of a line in protocol enveloping mode.

- **Cause:** The host transmits a new line (NL) instead of a carriage return line feed (CRLF).

Solution: Reconfigure the host (NCP) for TERM = TWX and SSCPFM = USSNTO.

Unformatted SSCP data is displayed before a host session is established.

- **Cause:** The SSCPFM parameter at the host (NCP) is incorrect.
Solution: Reconfigure the host (NCP) for SSCPFM = USSSCS or SSCPFM = USSNTO for protocol conversion, or reconfigure the host for SSCPFM = USSNTO for protocol enveloping or dynamic. The 3708 does not support SSCPFM = USS3270.

The Backspace key does not work during 3708 logon.

- **Cause:** The terminal key is not generating the backspace character.
Solution: The 3708 does backspacing only when it receives an ASCII backspace character (X'08'). Press the key that is defined to generate the ASCII backspace character. For many terminals, the Cursor Left key does not generate a backspace character.

The Backspace key does not work in protocol enveloping mode or while logging on to the host application.

- **Cause:** The host application is not performing the backspace function.
Solution: The 3708 does not do editing functions in protocol enveloping mode. For automatic backspacing, define the backspace character as a line control to the application.

The 3270 function keys do not work during host application logon.

- **Cause:** The 3270 function keys are not recognized by the 3708 unless the 3708 is operating in protocol conversion mode. The 3708 operates in protocol enveloping mode until the LU type 2 bind is complete. When a LU type 2 bind is received, the 3708 begins operating in protocol conversion mode.
Solution: Do not use the 3270 function keys until the LU type 2 session with the host has been established.

The cursor is in the lower right corner of the screen in protocol conversion mode.

- **Cause:** The keyboard is locked.
Solution: Turn on the status line using the Status ON/OFF key sequence. Depending on the condition, either press the Reset key sequence or wait until the condition clears. See Appendix D, "3708 Status Line," for more information about the status line.

Problem Area: Printers

Extra, missing, or unintelligible characters are printed.

- **Cause:** The normal 3708 basic assurance tests (BAT) were run when the terminal was active.

Solution: If you turn on the 3708 while the printer is on, the 3708 basic assurance tests (BAT) sends extraneous characters to the printer. These characters are used to test the 3708 ports. This is normal and does not require any action. If you want to suppress the BAT test data, set bit 3 of the nonstandard operations field of the 3708 general definition screen to 1.

- **Cause:** The line speed is incorrect.

Solution: Verify that the line speed on the printer and modem matches the 3708 port Line Speed option.

- **Cause:** The parity is incorrect.

Solution: Verify that the parity on the printer and the modem matches the 3708 port Parity option.

- **Cause:** The pacing configuration is incompatible.

Solution: If the printer is transmitting XON/XOFF (DC3/DC1) to pace the 3708, verify that the 3708 port Receive XON/XOFF option is *I*.

- **Cause:** The display in a multiple logical unit (MLU) configuration is not transmitting XON/XOFF (DC1/DC3) for the connected printer.

Solution: If possible, reconfigure the display to transmit or pass XON/XOFF pacing characters to the 3708 when the printer connected to its auxiliary port is running low on buffer space. If the problem continues, reduce the line speed between the MLU configuration and the 3708.

- **Cause:** Data is sent in LU type 1 SCS transparency mode and is (or is not) being translated from EBCDIC to ASCII.

- **Solution:** Set bit 8 of the nonstandard operations field of the 3708 General Definition screen to be compatible with the host application.

- **Cause:** Line noise caused parity errors.

Solution: For a switched connection, hang up and dial again. For a nonswitched connection, contact the carrier representative if the problem continues.

- **Cause:** The printer is malfunctioning.

Solution: To determine if this is the cause, try another printer. Use the problem determination documentation for the printer to isolate the problem. If necessary, exchange the printer.

Incorrect characters are printed.

- **Cause:** You specified an incorrect translate table.

Solution: Verify that the 3708 port is configured for the correct translate table. If necessary, define a user-defined translate table to translate the characters correctly.

Forms are not aligned with the printout.

- **Cause:** The application program and the printer have different values for lines per page.

Solution: If your printer has a manual lines-per-page switch, change the value to agree with the application program. If your printer does not have a manual lines-per-page switch, configure the 3708 to Transmit Form Feed (LU_1 SCS) = N.

Local copies overrun form boundaries.

- **Cause:** Your terminal is emulating a 3270 Model 2 display and the printer's maximum line length is less than 80 characters, or your terminal is emulating a 3270 Model 5 display and the printer's maximum line length is less than 132 characters.

Solution: When performing the local copy function, the 3708 assumes that the printer has a maximum line length of 80 characters for displays other than Model 5 and 132 characters for Model 5 displays. Change your printer's maximum line length to be either 80 or 132.

Nothing prints.

- **Cause:** The printer is not operating.

Solution: Verify that the printer has power, that paper is in the printer, and that the cover is closed; then interlock the switches. Use the problem determination documentation for the printer to isolate the problem.

- **Cause:** The 3708 configuration is incorrect.

Solution: Verify that the printer is defined in the host Printer Device field, that the printer mode is correct, and that the printer device list includes all the displays that need access to the printer.

- **Cause:** The printer is not operating as you expect. For example, the printer is indicates compressed data but you have not specified this function. The 3708 BAT test may have sent a command sequence to the printer for compressed data.

Solution: Turn the printer off, then turn the printer on again. If you want to suppress the BAT test data, set the bit 3 of the nonstandard operating field of the General Definition screen to 1.

- **Cause:** The port is excluded from the 3708 configuration.

Solution: The Port Excluded option is *Y* for the port to which the printer is connected. Change the Port Excluded option to *N* to include the port.

- **Cause:** The printer in the Printer Source Fields is defined for two host definitions. Only one host may access a printer.

Solution: Delete the printer from the Printer Source Field of the host that you are not using. Start the 3708 again to activate the configuration.

- **Cause:** The printer port is not specified in the Host Printer Source field, or the port being printed from is not specified in the printer Source Device List field for the printer port.

Solution: Reconfigure the host to list the printer's port in the Host Printer Source field, or reconfigure the printer port to specify the port being printed from in the printer Source Device List field.

- **Cause:** The cable is defective.

Solution: Use a cable from another port to determine if a different cable works. If so, replace the defective cable.

- **Cause:** The cable type is incorrect.

Solution: Refer to *IBM 3708 Planning and Installation* for cable descriptions. You may need a DTE cable instead of a DCE cable.

- **Cause:** The cable is incorrectly built.

Solution: Refer to *IBM 3708 Planning and Installation* for cable pin layouts.

- **Cause:** A connection for a switched line does not exist.

Solution: Establish a connection to the 3708 through the modem.

- **Cause:** The line speed or parity is incorrect.

Solution: Verify that the line speed and parity for the printer match the port Line Speed and Parity options.

- **Cause:** The printer mode is not defined as *1* or *3*.

Solution: To allow the host application to have access to the printer, the printer mode option must be options *1* or *3* (system mode).

Printer data is lost.

- **Cause:** The Receive XON/XOFF (DC3/DC1) option is incorrect.

Solution: If the printer uses XON/XOFF pacing, verify that the Receive XON/XOFF option for the printer port is *1*.

- **Cause:** A delay is required for the printer head movement.

Solution: Specify values that are not zero for the Delay After Form Feed and Delay After Carriage Return options. This causes the 3708 to put delays in the data stream after a carriage return (CR) or form feed (FF) to allow the print head enough time to be repositioned.

- **Cause:** The printer is using hardware flow control (DTR) pacing.

Solution: If the device is raising and lowering Data Terminal Ready (DTR) to perform pacing, reconfigure the device to transmit XON/XOFF characters. The 3708 supports XON/XOFF (DC1/DC3) pacing only from its downstream devices.

- **Cause:** Other possible causes include the following:

- Line noise caused the 3708 to detect an XOFF from the printer.
- Line noise corrupted an XON character from the printer.

Solution: Transmit an XON character from the printer. This action may require you to turn off the power to the printer then turn it on.

The IDENT function does not work.

- **Cause:** The 3708 is not configured for a local or shared printer on the port that you are accessing.

Solution: Configure the port printer mode option for a local or shared printer. Configure the host Printer Source Field to include the port number to which you are connected. Start the 3708 again to activate the configuration.

- **Cause:** The printer in the Printer Source Fields is defined for two host definitions. Only one host may access a printer.

Solution: Delete the printer from the Printer Source Field of the host that you are not using. Start the 3708 again to activate the configuration.

Blank lines appear periodically in the printout.

- **Cause:** The 3708 is configured to perform a Newline function (NL) at Begin Bracket.

Solution: Reconfigure the printer port, specifying NL at BEGIN BRACKET = N.

Extra formfeeds appear periodically in the printout.

- **Cause:** The 3708 is configured to perform a a Form Feed (FF) at Begin Bracket.

Solution: Reconfigure the printer port, specifying FF at BEGIN BRACKET = N.

Problem Area: Host Sessions

The display session is disconnected when you log off the host application.

- **Cause:** The Disconnect option is incorrect.
Solution: Correct the Disconnect option. For an application that transmits UNBIND Type 2, such as NCCF, specify 2 or 3 for the Disconnect option. Refer to *IBM 3708 Planning and Installation* for more information.
- **Cause:** The normal TSO logoff sequence occurred.
Solution: For TSO, specify 4 or 5 for the Disconnect option.

The host line does not activate the 3708; the 3708 lights blink alternately.

See the information about the 3708 lights blinking alternately on page 2-7.

Sessions end unexpectedly.

- **Cause:** The host session is lost.
Solution: Verify that the host is operating, that the modems are correct, that the cable connections are secure, and that the cables are correct.
- **Cause:** An inactivity time out occurred (switched connections).
Solution: Change or suppress the 3708 Inactivity Time Out option for the port. Refer to the configuration section in *IBM 3708 Planning and Installation* for more information.
- **Cause:** The 3708 starts again after detecting an error.
Solution: The 3708 continues normal activities after starting again. If the problem continues, define the 3708 to STOP ON ERROR. See "Setting the 3708 for STOP ON ERROR" on page 4-4 for more information.
- **Cause:** The PBX has a call-waiting feature.
Solution: When the user is connected to a 3708 through a PBX switch connection, the call-waiting signal from the PBX suspends the carrier detect (CD) long enough for the connection to be dropped. Turn off the call-waiting feature on the PBX for the line, reconfigure the modems not to disconnect when CD drops for less than 2 seconds, or configure AUTO ON HOOK = 0 at the 3708 port to prevent the 3708 from disconnecting when CD drops.

You receive a host-unavailable message when you select an SNA host.

- **Cause:** The port logical unit (LU) is inactive.

Solution: At the host, check the status of the port LU. If the LU is inactive, activate it.

- **Cause:** The 3708 port SNA LU Device Number option is incorrect.

Solution: Verify that the value for the port SNA LU Device Number option is unique and is 2 less than the corresponding LOCADDR value at the host. (LOCADDR is used for an NCP host. Refer to *IBM 3708 Planning and Installation* for a description of the correct values for this option when the 3708 is attached to other hosts).

You receive a host-unavailable message when you are connected to a host application.

- **Cause:** The host link has been reset by one of the following events:

- Modems on host link failed
- Host sent SDLC DISC
- Host cable loose or removed
- Host port inactivity timer expired
- Host sent DACTPU
- Host sent DACTLU.

Solution: Verify that the modems are operating and that all cable connections are secure. At the host, check the status of the 3708 line, the PU, and the LU. If any element is inactive, take steps to activate it.

You receive a session-not-established message when you try to log on to your host.

- **Cause:** The screen size requested in the BIND is larger than the maximum size specified in the 3708 port definition.

Solution: Specify a logmode that matches the screen size defined for the port, or reconfigure the 3708 port for a larger screen size.

- **Cause:** The terminal type in use at the port does not support the screen size being requested. If you are using a UDT, the UDT may be incorrect. Refer to *IBM 3708 Network Conversion Unit Planning and Installation* for more information.

Solution: On the 3708 Terminal Selection screen, choose a terminal that supports the screen size you want to use. For a UDT, make sure that the “set screen size” sequences are in the terminal table.

- **Cause:** The BIND requested a Model 5 screen size, but the terminal type in use did not have cursor class 0, 1, or 6. If you are using a UDT, it may be incorrect. Refer to *IBM 3708 Network Conversion Unit Planning and Installation* for more information.

Solution: Choose a different terminal type. For a UDT, make sure that it has cursor class 0, 1, or 6.

You are unable to activate the display terminal logical unit (LU) from the host.

- **Cause:** The display is not defined in the Host Keyboard Source field.
Solution: Reconfigure the host to list the display's port in the Host Keyboard Source field.
- **Cause:** The 3708 port SNA LU Device Number option is incorrect.
Solution: Verify that the value for the port SNA LU Device Number option is unique and is 2 less than the corresponding LOCADDR value at the host. (LOCADDR is used for an NCP host. Refer to *IBM 3708 Planning and Installation* for a description of the correct values for this option when the 3708 is attached to other hosts.)

You are unable to activate the printer LU from the host.

- **Cause:** The printer is not defined in the Host Printer Source field.
Solution: Reconfigure the host to list the printer's port in the Host Printer Source field.
- **Cause:** The printer is not defined for printer modes *1* or *3* (system or shared mode).
Solution: To allow the host application to have access to the printer, the printer port must have the printer mode set to either *1* or *3*.
- **Cause:** The 3708 port SNA LU Device Number option is incorrect.
Solution: Verify that the value for the port SNA LU Device Number option is unique and is 2 less than the corresponding LOCADDR value at the host. (LOCADDR is used for an NCP host. Refer to *IBM 3708 Planning and Installation* for a description of the correct values for this option when the 3708 is attached to other hosts.)

Devices on a multipoint NRZI line cannot communicate with the host.

- **Cause:** The modem/modem sharing device is not clamping TXD line to MARK after RTS is dropped.

Solution:

1. Configure the modem/modem sharing device to hold TXD line at MARK when RTS is dropped.
2. Configure to operate in NRZ mode.

Problem Area: Modems Connected to Switched Ports

The modem enters test mode when it is connected to the 3708.

- **Cause:** Both the modem and the 3708 are using pin 21.

Solution: Obtain the IBM 3708 cables or compatible cables that do not have pin 21. Refer to *IBM 3708 Planning and Installation* for more information about compatible cables.

You are unable to dial back into a switched port after hanging up.

- **Cause:** The modem is not dropping Data Set Ready (DSR). Check the alert log for A059 alert messages. See Appendix A, "3708 Alert Messages" for a description of the alert message. For a switched line, this alert message indicates that DSR is on or high before the 3708 has raised DTR.

Solution: Reconfigure the modem to drop DSR when it detects an on-hook condition.

Problem Area: Performance

Frequent host retransmissions occur.

- **Cause:** Full duplex (FDX) is configured at the host.
Solution: Regenerate the (NCP) host PU line for DATAMODE=HALF.

- **Cause:** The cable is incorrect.
Solution: To determine if this is the cause of the problem, refer to the cable descriptions in *IBM 3708 Planning and Installation*. Obtain the correct type of cable.

- **Cause:** The cable is defective.
Solution: Exchange cables.

- **Cause:** The cables are unshielded. Using unshielded cable can cause numerous transitions on the RI line, resulting in poor performance.
Solution: Replace cables with properly shielded cables or ground the RI line.

- **Cause:** The modem is defective.
Solution: Exchange modems.

- **Cause:** Line errors may be causing this symptom.
Solution: Verify that the cables are operating correctly, that the cables are IBM compatible (refer to *IBM 3708 Planning and Installation*), and that the modems are operating correctly.

- **Cause:** Clocking definitions at the host and the 3708 are incompatible.
Solution: Correct the configuration. See *IBM 3708 Network Conversion Unit Planning and Installation* for information on how clocking should be specified for various host attachments.

The host must poll several times before it receives a response.

- **Cause:** The host session is using SNA segmenting instead of chaining. The 3708 operates more efficiently when large messages are split into SNA chain elements rather than segments.
Solution: Reconfigure the host for chaining. Ensure that the response unit (RU) size in the BIND for the session indicates 256-byte RUs.

- **Cause:** Clocking definitions at the host and the 3708 are incompatible.

Solution: Correct the configuration. See *IBM 3708 Network Conversion Unit Planning and Installation* for information on how clocking should be specified for various host attachments.

A045 alerts occur often, indicating a buffer shortage.

- **Cause:** Too many large receive queues, multiple logical unit (MLU) ports, or large screen devices are defined.

Solution: To increase the number of internal system buffers and improve the performance of the 3708, you can do the following:

- Reduce the number of large and medium receive-queues (RECEIVE QUEUE SIZE = L or M)
 - Reduce the number of MLU ports (Device Class = 4)
 - Reduce the number of ports that support large screen devices (3270 Model Emulation = 3, 4, or 5).
 - Exclude all unused 3708 ports.
- **Cause:** The host session is not using pacing. For printers (LU Type 1 SCS and LU Type 3 DSC) and for protocol enveloping displays, the host should use a low pacing value. This ensures that the host does not send data before the 3708 processes previous data.

Solution: Reconfigure the host for low pacing values.

You are getting poor response time at the terminal.

- **Cause:** All of the items described for this problem area can cause poor response times.

Solution: To determine the cause of your performance problem, follow these steps:

1. Read Appendix C, "Suggested Guidelines for Increasing 3708 Performance", in *IBM 3708 Network Conversion Unit Description*. This appendix contains suggestions for configuration changes that may improve performance. These suggestions may solve your problems.
2. Look at the alert log for alerts that indicate buffer shortage. Buffer shortage problems are discussed above.
3. Look at the error log for entries that begin with '0A' or '10'.

Error log entries that begin with '0A' indicate LU session problems. (Refer to 3-1) These entries can indicate application errors that may be causing your problems.

Error log entries that begin with '10' indicate host link problems. (Refer to 3-1) Entries that start with '1004' may indicate that numerous frame aborts or FCS errors are occurring. This may mean that you have a modem or cabling problem.

4. Run a trace on the host line. You can run an NCP line trace from NCP or a trace from a stand alone line monitor. Analyze this trace for unusual sequences in the SDLC flow. Look for numerous frame retransmissions or missed polls. This type of trace may be requested by remote service personnel if you contact IBM for help with your performance problems.

Problem Area: Miscellaneous

The 3708 ports do not operate.

- **Cause:** The host dropped the session.
Solution: Verify the operational status of the host site.
- **Cause:** Logon screens are excluded and the host has not activated the LU session.
Solution: Activate the LU session at the host.
- **Cause:** The cable type is incorrect.
Solution: To determine if this is the cause of the problem, refer to the cable descriptions in *IBM 3708 Planning and Installation*. Obtain the correct type of cable.
- **Cause:** The cable is defective.
Solution: To determine if this is the cause of the problem, use a cable from an operational port. If necessary, order a new cable.
- **Cause:** The 3708 base malfunctioned.
Solution: See the procedures in "Running the 3708 Extended Diagnostic Test" on page 5-1.

The message **BASIC CONFIGURATION IN USE, CALL SUPERVISOR** is displayed when you log on to the 3708.

- **Cause:** The 3708 IBM-supplied configuration is invoked.
Solution: See the discussion about the reasons that the IBM-supplied configuration is invoked on page 2-7.

Chapter 3. Gathering More Information

This chapter describes how to gather more detailed information about a problem with the 3708.

Before doing the procedures in this chapter, search the symptom index in Chapter 2, "Using Symptoms to Solve a Problem." If the symptom is not listed or if the suggested solution does not solve the problem, do the procedures in this chapter.

Note: These procedures require the use of the control terminal. The 3708 must have at least one operational port to do these procedures. If this is not the case, see Chapter 5, "Handling Hardware Problems."

Introducing the Sources for More Detailed Information

The 3708 operator may be required to gather information for IBM service personnel when remote service is not possible. To gather more detailed information about 3708 problems, use the following screens:

- Alert Display screen
- Port Status Summary Display screen
- Port Data Monitor screen
- Error Log Display screen
- Display Storage screen.

Appendix F, "3708 Screen Sequences," shows an overview of the 3708 menus and screens that are used for problem determination. See "Introducing the Menus" on page 3-3 for an overview of the 3708 menus that are used in this chapter.

The Alert Display Screen

The Alert Display screen (D111.1) is the primary source for detailed information about 3708 problems. It lists the seven most recent alert messages (alerts) that are kept by the 3708 in its alert log. (An *alert* is a record of an unusual event that is detected by the 3708, such as a program or hardware error.)

Note: When diagnosing a problem that results in exchanging the base or the cartridge, include the information from the Alert Display screen with the problem report form that accompanies the defective base or cartridge.

The Alert Display screen lets you:

- Distinguish among problems with the 3708 microcode, the 3708 hardware, and the communication lines
- Identify an individual port with a problem
- Identify actions to take, as listed in Appendix A, "3708 Alert Messages."

Alerts can be displayed at the control terminal even when they cannot be displayed at a host.

See "Using the Alert Display Screen" on page 3-6 for instructions on displaying and interpreting the Alert Display screen.

Other Sources for More Detailed Information

IBM service personnel and the 3708 operator can supplement information from the Alert Display screen with detailed information from the following screens:

- *Port Status Summary Display* (S137.0). This screen shows the current status of a selected port. It includes information about the state of the communication interface signals (such as Data Set Ready), the error counters, the line speed, and the parity.

See "Using the Port Status Summary Display Screen" on page 3-25 for instructions on displaying and interpreting the Port Status Display screen.

- *Port Data Monitor* (S136.0). This screen shows data that is being received and sent in hexadecimal format by a selected ASCII port.

There are restrictions on the types of ports for which this function is available.

See "Using the Port Data Monitor Screen" on page 3-20 for instructions on displaying and interpreting the Port Data Monitor screen.

- *Error Log Display* (D112.2). This screen contains information about errors that are encountered by the 3708.

IBM service personnel require this information when diagnosing 3708 microcode problems. Using this information can also make installation of the 3708 easier.

See "Using the Error Log Display Screen" on page 3-9 for instructions on displaying and interpreting the Error Log Display screen.

- *Display Storage* (S132.0). This screen shows the hexadecimal contents of any specified area of 3708 storage. IBM service personnel use this function during remote servicing. The 3708 operator can use this function to obtain information when remote service is not possible.

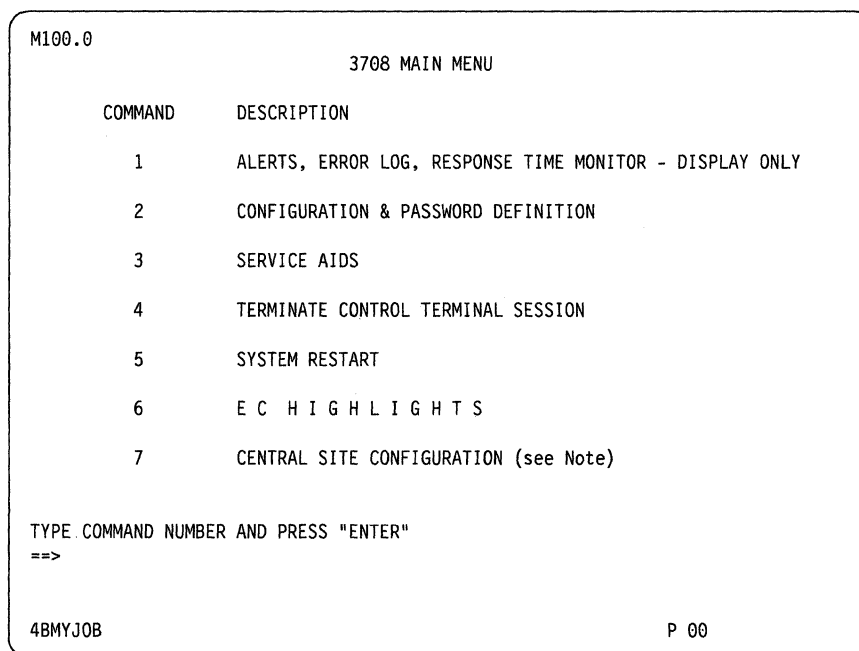
See "Using the Display Storage Screens" on page 3-16 for instructions on displaying and interpreting the Display Storage screen.

Introducing the Menus

This section shows the 3708 menus that are used in this chapter. These menus are displayed on the control terminal. See Appendix F, "3708 Screen Sequences," for an overview of the 3708 menus and screens.

The Main Menu

The 3708 Main Menu (Figure 3-1) is the starting point for all the tasks in this chapter.



```
M100.0
                                3708 MAIN MENU

COMMAND      DESCRIPTION
  1          ALERTS, ERROR LOG, RESPONSE TIME MONITOR - DISPLAY ONLY
  2          CONFIGURATION & PASSWORD DEFINITION
  3          SERVICE AIDS
  4          TERMINATE CONTROL TERMINAL SESSION
  5          SYSTEM RESTART
  6          E C H I G H L I G H T S
  7          CENTRAL SITE CONFIGURATION (see Note)

TYPE COMMAND NUMBER AND PRESS "ENTER"
==>

4BMYJOB                                P 00
```

Figure 3-1. 3708 Main Menu (M100.0)

This chapter describes the following Main Menu options:

- ALERTS, ERROR LOG, RESPONSE TIME MONITOR - DISPLAY ONLY
- SERVICE AIDS.

Note: Option 7, CENTRAL SITE CONFIGURATION, is for IBM 3708 Feature 3525 (Pluggable Cartridge with Central Site Configuration) and its associated PC aid only. Control terminal operators should not select and use option 7. Refer to *IBM 3708 Network Conversion Unit Planning and Installation* for central site configuration planning information.

The Display Function Menu - Main Menu, Option 1

The 3708 Display Function Menu (Figure 3-2) provides access to the Alert, Response Time Monitor (RTM), and Error Log Display screens.

To display the Display Function Menu, select *1* from the Main Menu (Figure 3-1 on page 3-3).

```
M110.0

                                3708 DISPLAY FUNCTION MENU

COMMAND      DESCRIPTION
  1          ALERTS
  2          ERROR LOG
  3          RESPONSE TIME MONITOR

TYPE COMMAND NUMBER AND PRESS "ENTER" OR PRESS "PF2" TO QUIT
==>

4BMYJOB                                P 00
```

Figure 3-2. 3708 Display Function Menu (M110.0)

This chapter describes the following Display Function Menu options:

- ALERTS (See "Using the Alert Display Screen" on page 3-6.)
- ERROR LOG (See "Using the Error Log Display Screen" on page 3-9.)

Note: For more information on Response Time Monitor (RTM), refer to *IBM 3708 Description*.

The Service Aids Menu - Main Menu, Option 3

The 3708 Service Aids Menu (Figure 3-3) provides access to the Display Storage, Port Data Monitor, and Port Status Summary screens.

To display the Service Aids Menu, select 3 from the Main Menu (Figure 3-1 on page 3-3).

M130.0	3708 SERVICE AIDS MENU
COMMAND	DESCRIPTION
1	START UP OPTIONS
2	DISPLAY STORAGE
3	SNAPSHOT DUMP
4	RESERVED
5	MCF/PATCH MENU
6	PORT DATA MONITOR
7	PORT STATUS SUMMARY
8	VITAL PRODUCT DATA
TYPE COMMAND NUMBER AND PRESS "ENTER" OR PRESS "PF2" TO QUIT ==>	
4BMYJOB	P 00

Figure 3-3. 3708 Service Aids Menu (M130.0)

This chapter describes the following Service Aids Menu options:

- DISPLAY STORAGE (See "Using the Display Storage Screens" on page 3-16.)
- PORT DATA MONITOR (See "Using the Port Data Monitor Screen" on page 3-20.)
- PORT STATUS SUMMARY (See "Using the Port Status Summary Display Screen" on page 3-25.)

Figure 4-1 on page 4-4 describes the following option:

- START UP OPTIONS.

"Replacing the Base" on page 5-4 describes the following option:

- VITAL PRODUCT DATA.

The following options are reserved for IBM service personnel:

- SNAPSHOT DUMP
- MCF/PATCH MENU.

Using the Alert Display Screen

This section describes how to display and interpret the Alert Display screen, and how to use the information from the screen.

Use the Alert Display screen to do the following:

- Distinguish among problems with the 3708 microcode, the 3708 hardware, and the communication lines
- Identify an individual port with a problem
- Identify actions to take, as listed in Appendix A, "3708 Alert Messages."

Alerts can be displayed at the control terminal even when they cannot be displayed at a host either because the host is unavailable or because NetView or NPDA is not installed at the host.

Displaying the Alert Display Screen

Display the Alert Display screen (Figure 3-4 on page 3-7) by selecting *I* on the Display Function Menu (Figure 3-2 on page 3-4).

Note: For recurring or intermittent problems, record the contents of the Alert Display screen immediately upon the occurrence of the problem. This information must be included on the problem report form when exchanging the base or cartridge.

When you are finished with the Alert Display screen, press PF2 to return to the Display Function Menu.

Interpreting the Error Messages

One of the following error messages can appear when the user is accessing the Alert Display screen:

A994 INSUFFICIENT BUFFERS AVAILABLE
A995 INVALID ENTRY IN THE ALERT LOG - xx
A996 ALERT LOG POINTER INVALID
A997 NO 3708 ALERTS LOGGED
A999 ALERT LOG CONTAINS EXTENDED ERROR DATA

See Appendix A, "3708 Alert Messages" for an explanation and recommended action for these messages.

Refreshing the Alert Display Screen

While you are viewing the static Alert Display screen, the 3708 may log a new error condition. When this happens, you see this message:

C201 MESSAGE WAITING - PRESS PF5

Press the PF5 key. The following message appears:

A998 AN ADDITION HAS BEEN MADE TO THE ALERT LOG

Refresh the Alert Display screen by pressing the ENTER key. The new alert appears at the top of the screen.

Interpreting the Alert Display Screen

Figure 3-4 shows an example of the Alert Display screen.

```
D111.1
                                3708 ALERT DISPLAY

ALERT
ID DESCRIPTION/CAUSE ACTION FAILURE CODE

*A106 CT PASSWORD RETRY LIMIT 04 EXCEEDED-PORT 01 07 00 04
A060 DATA-SET-READY DROP-PORT 07 CHK MDM/DEV/CABLE 07 00 04C00200 04C00200
A060 DATA-SET-READY DROP-PORT 07 CHK MDM/DEV/CABLE 07 00 04C00200 04C00200
A060 DATA-SET-READY DROP-PORT 07 CHK MDM/DEV/CABLE 07 00 04C00200 04C00200
A063 LOST CARRIER DETECT-PORT 03 CHK PHONE CONNECT 03 00 04C00002 04C00002
A063 LOST CARRIER DETECT-PORT 03 CHK PHONE CONNECT 03 00 04C00002 04C00002
A098 AUTO BAUD/PRITY ERR-PORT 03 CORRECT MISMATCH 03 00 04C00020 04C00020

*MOST RECENT ALERT. REFER TO MANUAL FOR MORE DETAILS.

INCLUDE ALERT ID, PORT #, & FAILURE CODE ON PROBLEM REPORT FORM

PRESS "ENTER" TO REFRESH OR "PF2" TO QUIT

4BMYJOB P 00
```

Figure 3-4. 3708 Alert Display Screen Example (D111.1)

Alerts are listed in chronological order, with the most recent entry at the top, marked by an asterisk (*).

The following list describes the fields on the Alert Display screen.

ALERT ID

Identifies the type of alert. Alerts are listed in Appendix A, "3708 Alert Messages" in the order of their ID numbers.

DESCRIPTION/CAUSE

Briefly describes the type of alert, which identifies the probable cause of the problem.

The DESCRIPTION/CAUSE field contains information that can identify alerts for a particular problem. For example, if a certain port is not operating correctly, you can use the port number in one alert to identify other alerts that contain a matching port number.

ACTION

Identifies the action to further diagnose or solve the problem. When an action is SEE 3708 MANUALS, it is referring you to Appendix A, "3708 Alert Messages" in this book.

FAILURE CODE

Provides specific information about the alert. These numbers can help IBM service personnel to further diagnose the problem. Appendix A, "3708 Alert Messages" contains instructions for interpreting failure codes.

Using the Information from the Alert Display Screen

After displaying the Alert Display screen, do the following:

1. Print the information on the screen. You can print the information using a printer that is connected to either of the following:
 - The auxiliary port of the terminal. Use the terminal's print screen function.
 - Another port of the 3708. Use the 3708's local copy function.

If a printer is not available, manually copy the information from the screen.

This information is required when you call IBM for service. It is also required with the problem report form that is used when exchanging a 3708 base or cartridge.

2. Identify the alert or alerts for the problem and locate them in Appendix A, "3708 Alert Messages." Note that an asterisk (*) marks the most recent alert.

Take the appropriate action for the alert as described in the appendix.

Using the Error Log Display Screen

This section describes how to display and interpret the Error Log Display screen.

The information on this screen is required by IBM service personnel when diagnosing 3708 microcode problems, as described in Chapter 4, “Handling Microcode Problems.”

Two copies of the error log exist when the 3708 is operating:

- A permanent version in the nonvolatile storage (EEPROM)
- A working version in RAM.

The RAM version is copied to EEPROM every 4 hours if new entries have been added. Unless a STOP ON ERROR occurs, a restart of the 3708 causes entries logged since the latest EEPROM update to be lost. When STOP ON ERROR is in effect, the 3708 copies the RAM version to the EEPROM before stopping.

Using the Error Log to Improve Performance

System administrators for the 3708 can sometimes use information from the error log to improve the performance or reliability of the 3708 installation. This is especially true for the following:

- *SDLC line errors.* Certain errors on the SDLC line cause the resetting of all data flow to the SNA host. This causes terminal sessions with the host to be reset and switched (dial-up) connections to be disconnected.

Such occurrences do not necessarily indicate a problem with the 3708. For example, they can be caused by intermittent line failures. However, if such resetting occurs often without any corresponding alerts being logged, examine the error log for any SDLC errors. Refer to *IBM 3708 Description* for more information about SDLC errors. This may help to determine the next step in problem determination.

For example, if an error indicates that the 3708 transmitted an FRMR (frame reject), monitor or trace the host line to analyze the frames that are being sent and received.

- *SNA negative responses.* Some conditions in an SNA session cause the host LU to send a negative response to the 3708. Most of these conditions are recovered automatically by either the host or by the 3708 and are not causes for concern.

The 3708 creates an error log entry for each negative response from the host. The entry contains the SNA sense code that was received, which is an indication of the problem as detected by the host LU. Examining the error log can therefore help to diagnose performance problems.

The sense code information may help to determine the next step in problem determination. For example, it may indicate a problem for which a host session trace (like a VTAM buffer/IO trace) should be initiated.

Displaying the Error Log Display Screen

Display the Error Log Display screen (Figure 3-5 on page 3-11) by selecting option 2 on the Display Function Menu (Figure 3-2 on page 3-4).

The 14 most recent errors appear on the Error Log Display screen. Display the next 14 entries by pressing the ENTER key.

When you finish with the Error Log Display screen, press PF2 to return to the Display Function Menu.

Interpreting the Error Log Display Screen

Figure 3-5 shows an example of the Error Log Display screen.

```
D112.1
                                3708 ERROR LOG DISPLAY

ADDRESS  - - - - - D A T A  - - - - -
* 000488 68 12 07 00 03 04 00 00 1020 02A9
00047C 68 04 07 00 10 C0 02 00 1020 0262
000470 68 04 04 00 08 C0 02 00 1020 000B
000464 68 04 05 00 08 C0 02 00 1020 000B
000458 68 04 06 00 08 C0 02 00 1020 000B
00044C 00 00 FE FE FE FE FE FE FE 1005 B614
000440 68 04 03 00 10 C0 00 02 1004 A74B
000434 68 04 03 00 10 C0 00 02 1000 00A2
0006E0 68 04 04 00 08 C0 02 00 1000 000B
0006D4 68 04 05 00 08 C0 02 00 1000 000B
0006C8 68 04 06 00 08 C0 02 00 1000 000B
0006BC 68 04 07 00 08 C0 02 00 1000 000B
0006B0 00 00 FE FE FE FE FE FE FE 0FE0 000B
0006A4 68 04 09 00 08 C0 02 00 0FE0 000B

*CURRENT ERROR LOG ENTRY
PRESS "ENTER" TO CONTINUE OR "PF2" TO QUIT

4BMYJOB                                P 00
```

Figure 3-5. 3708 Error Log Display Screen Example (D112.1)

The error log entries appear in chronological order with the most recent shown first. Each screen can contain 14 entries. The maximum number of entries in the error log is 58. When this number is exceeded, new entries are written over the oldest entries. The most recent entry is marked with an asterisk (*).

A special error log entry is created each time the 3708 is turned on or started again. The format is:

```
00 00 FE FE FE FE FE FE FE
```

These entries can help to distinguish between events that occur before and after the 3708 was last turned on.

The following list describes the fields on the Error Log Display screen:

ADDRESS

Indicates the actual memory address of the first character of the error log entry. This can point out where new errors have been written over old errors.

DATA

Lists 12 bytes identifying the type of error and the relative time that it occurred. See "Interpreting the Data Format" on page 3-12 for instructions on interpreting the error data.

Interpreting the Data Format

Each 12-byte DATA entry on the Error Log Display screen contains the following fields:

- Error type code
- Error data
- Relative time 1
- Relative time 2.

For example, the first error in Figure 3-5 on page 3-11 fits this format as follows:

Error Type Code	Error Data	Relative Time 1	Relative Time 2
68	12 07 00 03 04 00 00	1020	02A9

Error Type Code and Data Fields

This section explains the error type code and error data fields for selected errors. These are the errors that can be useful for improving the performance or reliability of the 3708 installation. The errors that are not listed are useful only to IBM service personnel.

Table 3-1 on page 3-13 lists the selected errors. They are listed by error code, which is the leftmost column of digits (byte) in the DATA area of the Error Log Display screen. The next 7 bytes provide specific error data, while the final 4 bytes (two columns of four digits each) are the relative time fields.

When less than the full 8 bytes of error data appear in the table, the omitted bytes are not applicable.

Table 3-1 (Page 1 of 2). Selected Error Descriptions		
Code	Data	Description
00	00 FE FE FE FE FE FE	Normal restart occurred.
00	00 FC FC FC FC FC FC	Restart occurred while the 3708 was updating the nonvolatile storage (EEPROM). Some error log entries may be invalid.
01 - 09		Not described here. Call for service.
0A	11 28 xy 12 28 xy 13 28 xy zz zz zz zz	These LU task entries indicate that the 3708 received an UNBIND type FE. The host application detected a severe protocol error.
0A	21 28 xy 22 28 xy 23 28 xy zz zz zz zz	These LU task entries indicate that the 3708 received a negative response to a shutdown request.
0A	31 28 xy 32 28 xy 33 28 xy zz zz zz zz	These LU task entries indicate that a SHUTD request was received from the host when the 3708 was already in a shutdown state.
0A	51 28 xy 52 28 xy 53 28 xy 0n nn	These LU task entries indicate that the 3708 sent a negative response to the host.
0A	61 28 xy zz zz zz zz	The LU task received a negative response from the host.
10	04 pp 00 10 A0 80 00	A frame was received with bad FCS from the host attached to port <i>pp</i> .
10	04 pp 00 10 A0 40 00	A hardware overrun occurred on port <i>pp</i> .
10	04 pp 00 10 A0 08 80	An aborted frame was received from the host attached to port <i>pp</i> .
10	04 pp 00 10 A0 08 40	A "too short" frame was received from the host attached to port <i>pp</i> .
10	04 pp 00 10 A0 08 20	A "too long" frame was received from the host attached to port <i>pp</i> .
10	04 pp 00 10 C0 02 00	A DSR error occurred on port <i>pp</i> .
10	05 pp 00 ff ff ff	An FRMR (frame reject) was sent by the 3708 on port <i>pp</i> . <i>ffffff</i> is the 3-byte information field of the FRMR.
10	06 pp	A DISC (disconnect) was received by the 3708 on port <i>pp</i> .
10	07 pp	An unexpected SNRM (set normal response mode) was received by the 3708 on port <i>pp</i> .
10	32 pp	An unexpected interrupt was detected by the 3708 for port <i>pp</i> .
11 - 67		Not described here. Call for service.
68	11 pp 00 ll tt	The password retry limit was exceeded on port <i>pp</i> . <i>ll</i> is the retry limit, and <i>tt</i> is the number of attempts.
68	12 pp 00 ll tt	The control terminal password retry limit was exceeded on port <i>pp</i> . <i>ll</i> is the retry limit, and <i>tt</i> is the number of attempts.

Table 3-1 (Page 2 of 2). Selected Error Descriptions		
Code	Data	Description
68	13 00 00 68 3y 68 3z	The control terminal was requested by the user on port <i>y</i> when the control terminal was already in a session on port <i>z</i> .
68	02 <i>pp</i>	A command time-out occurred on port <i>pp</i> .
68	04 <i>pp</i>	A line interface error occurred on port <i>pp</i> .
68	22 <i>pp</i>	An unexpected interrupt occurred on port <i>pp</i> .
69 - FF		Not described here. Call for service.

Notes:

1. *nnn* is a 3270 data stream error code. See Appendix D, "3708 Status Line" for an explanation of these codes.
2. *y* is the 3708 port (1 - A) associated with the LU.
3. *x* is the type of LU. Values can be:
 - 5 = Display on host A
 - 6 = Display on host B
 - 7 = Printer.
4. *zzzzzzzz* is the SNA sense code.

Refer to Appendix E, "SNA Sense Codes" and *IBM SNA Reference Summary* for more information.

Relative Time Fields

The 3708 does not contain a real-time clock. Instead, it maintains a relative time clock that is started whenever power is supplied to the 3708. The relative time clock lets the 3708 identify the most recent error. It also lets you identify errors that occurred as a group.

The relative time 1 field is a counter whose bits are defined as follows:

Bits	Description	Meaning
0-10	Day count	Incremented every 24 hours. Also incremented each time the 3708 is turned on or restarted (wraps every 2048 days)
11-15	45-minute count	Incremented every 45 minutes (wraps every 24 hours)

The relative time 2 field is a counter whose bits are defined as follows:

Bits	Description	Meaning
0-15	1/4-second timer	Wraps every 4.3 hours

Using the Display Storage Screens

This section describes how to display and interpret the Display Storage screen.

The information on this screen is required by IBM service personnel when diagnosing 3708 microcode problems, as described in Chapter 4, "Handling Microcode Problems."

Use the Display Storage screen to look at:

- Base RAM used for control blocks, buffers, and screen images
- Base EEPROM used for the configuration, alert log, and error log
- Cartridge EPROM used for the microcode.

The areas of storage cannot be changed by using this screen.

Displaying the Display Storage Screen

Display the Display Storage screen by selecting 2 on the Service Aids Menu (Figure 3-3 on page 3-5).

The Display Storage screen appears with all address and data fields blank. The count field contains the default value of 80 for displaying the maximum of X'80' (128 decimal) bytes of storage.

To display information on the Display Storage screen, do the following:

1. In the TYPE ADDRESS field, enter the starting address of the area to display. Leading zeros are not required.

The following table lists the valid addresses for this function:

Address Range	Location
000000 - 01FFFF	RAM in the base (128K)
100000 - 13FFFB	EPROM in the cartridge (256K)
190000 - 193FFF	EEPROM in the base (8K)

2. In the TYPE COUNT field, enter the number of contiguous bytes to display in hexadecimal (maximum is 80).
3. Press the ENTER key.

After the data is displayed on the screen, do any of the following:

- Record the contents of the area of interest.
- Type another address or a different count and press the ENTER key to display the data.
- Press the ENTER key, without entering any new values, to display the next block of storage, using the same count. This is how to scroll through storage until the highest available address is displayed, as indicated by the message:

C108 END OF DATA RANGE

- Press PF9 to toggle between EBCDIC and ASCII representation of the current data displayed.
- When you are finished with the Display Storage screen, press PF2 to return to the Service Aids Menu.

Interpreting the Error Messages

One of the following messages may appear while using the Display Storage screen:

C106 INVALID INPUT

This message indicates that the address, count, or range (address + count) to display is invalid. The cursor moves to the first position of the invalid field for entering a correct value.

C108 END OF DATA RANGE

This message indicates that the upper boundary of the storage area being displayed has been reached.

C210 EEPROM DISPLAY - SEE MANUAL

For an explanation of this message, see “Interpreting the Display Storage Screens” on page 3-18.

Interpreting the Display Storage Screens

The Display Storage screen allows you to specify the starting address for the storage area you want to display and the number of bytes to display. It lists the addresses you specify, the data in them, and the appropriate ASCII or EBCDIC translation of the data.

Figure 3-6 shows an example of the Display Storage screen in which the data have been translated into the appropriate ASCII characters.

```
S132.0
                                3708 DISPLAY STORAGE

TYPE ADDRESS : 000000
TYPE COUNT   : 80

                                ---- ASCII ----
000000 0000 FFFF FFFF FFFF 0010 92A4 0010 921A ::::::::::::::
000010 0010 8F72 0010 8F7E 0010 8F8A 0010 8F96 :::r::::::::::
000020 0010 8FA2 0010 8F66 0010 8FBA 0010 8FC6 ::::::::::::::
000030 0010 91A8 0010 91A8 0010 91A8 0010 91A8 ::::::::::::::
000040 0010 91A8 0010 91A8 0010 91A8 0010 91A8 ::::::::::::::
000050 0010 91A8 0010 91A8 0010 91A8 0010 91A8 ::::::::::::::
000060 0010 911E 0010 8D90 0010 8F66 0010 8F66 ::::::::::f:::f
000070 0010 9914 0010 8F66 00FF 1A0C 00FF 0C76 ::::::::::f::::v

PRESS "ENTER" TO CONTINUE, "PF2" TO QUIT OR "PF9" FOR EBCDIC/ASCII TRANSLATE

4BMYJOB                                P 00
```

Figure 3-6. 3708 Display Storage Screen with ASCII Translation Example (S132.0)

Figure 3-7 on page 3-19 shows an example of the Display Storage screen in which the data have been translated into the appropriate EBCDIC characters.

```

S132.0
                                3708 DISPLAY STORAGE

TYPE ADDRESS : 000000
TYPE COUNT   : 80

                                ---- EBCDIC ----
000000 0000 FFFF FFFF FFFF 0010 92A4 0010 921A :::::::::::ku::k:
000010 0010 8F72 0010 8F7E 0010 8F8A 0010 8F96 :::::::::::=:::::o
000020 0010 8FA2 0010 8F66 0010 8FBA 0010 8FC6 ::s:::::::::::F
000030 0010 91A8 0010 91A8 0010 91A8 0010 91A8 ::jy::jy::jy::jy
000040 0010 91A8 0010 91A8 0010 91A8 0010 91A8 ::jy::jy::jy::jy
000050 0010 91A8 0010 91A8 0010 91A8 0010 91A8 ::jy::jy::jy::jy
000060 0010 911E 0010 8D90 0010 8F66 0010 8F66 ::j:::::::::::
000070 0010 9914 0010 8F66 00FF 1A0C 00FF 0C76 ::r:::::::::::

PRESS "ENTER" TO CONTINUE, "PF2" TO QUIT OR "PF9" FOR EBCDIC/ASCII TRANSLATE

4BMYJOB                                P 00

```

Figure 3-7. 3708 Display Storage Screen with EBCDIC Translation Example (S132.0)

The following list describes the fields on the Display Storage screen:

TYPE ADDRESS

Lets you specify the starting address in hexadecimal for the storage display function.

TYPE COUNT

Lets you specify the number of bytes in hexadecimal for the storage display function.

Storage addresses and data

Lists the specified addresses and data in hexadecimal.

The storage display area appears as a maximum of eight rows. Each row begins with an 6-digit starting address field (000000 in the first storage display line in Figure 3-6 on page 3-18 and Figure 3-7). Each row continues with up to 16 bytes of data.

The format of nonvolatile storage (EEPROM) is different because data is stored at odd addresses only. When EEPROM data is displayed, the unused (even-addressed) bytes are ignored by the 3708. This causes the starting address on each line to be incremented by X'20' (decimal 32), which is twice the normal amount. If you specify an even address in the EEPROM area, the 3708 automatically adds 1 to the address.

ASCII or EBCDIC

The information under these headings are the data in the storage area translated into the appropriate ASCII or EBCDIC characters. The 3708 uses its default translate table to determine the ASCII/EBCDIC translation. You can select the translation you want to display by pressing the PF9 key. The PF9 key allows you to toggle between the ASCII and EBCDIC translations of the data in the storage addresses you have selected.

Using the Port Data Monitor Screen

This section describes how to display and interpret the Port Data Monitor screen.

Use the Port Data Monitor screen to monitor data that is being sent and received by the port. This screen is useful to service personnel who are diagnosing communication problems.

The Port Data Monitor is subject to the following restrictions:

- It cannot be used with ports defined for SNA hosts.
- It cannot be used with the port to which the control terminal is connected.
- It cannot monitor printer data when a port is defined to use a display and printer as separate logical units.

Displaying the Port Data Monitor Screen

Display the Port Data Monitor screen (Figure 3-8 on page 3-21) by selecting **6** on the Service Aids Menu (Figure 3-3 on page 3-5). After selecting this option, enter the number of the port whose communication data is to be monitored.

The following message appears when the 3708 begins monitoring the port:

```
C209 WAITING FOR RESPONSE FROM PORT
```

This message remains on the screen until the port sends or receives some data. The 3708 then begins displaying the data, with a line of asterisks (*) following the most recent line of data.

When you are finished with the Port Data Monitor screen, press PF2 to return to the Service Aids Menu.

Interpreting the Error Messages

One of the following error messages can appear when the user is accessing the Port Data Monitor screen:

```
C100 PORT DATA MONITOR FAILED  
C104 DATA MONITOR NOT ALLOWED ON CONTROL TERMINAL PORT  
C105 PORT NOT ACTIVE  
C113 DATA MONITOR NOT ALLOWED ON SDLC PORT  
C120 PORT NOT ACTIVE: EXCLUDED  
C121 PORT NOT ACTIVE: FAILED EXTENDED DIAGNOSTIC TEST
```

See Appendix C, "3708 Control Terminal Messages" for an explanation and recommended action for these messages.

Holding the Port Data Monitor Screen

When the Port Data Monitor screen is filled, the 3708 pauses for 5 seconds; it then begins writing new data over the previous screen of data.

To hold (pause) the screen, press the ENTER key.

While the screen is being held, the following message appears:

C205 HOLDING DISPLAY

To continue monitoring data, press the ENTER key again. You can hold and continue any number of times while using the Port Data Monitor screen.

Note: Some data may not be displayed if the screen is held for more than a few seconds. When you continue, a dash (-) appears at the beginning of the first line of data that follows the data that was not displayed.

Interpreting the Port Data Monitor Screen

Figure 3-8 and Figure 3-9 on page 3-22 show examples of the Port Data Monitor screen.

```
S136.0
                                3708 PORT 06 DATA MONITOR

R 9781A2A69699844B
T 0D257E7E7E7E7EC9C2D440F3F7F0F87E7E7EC5C3404040F3F4F2F3F0F87E7E7E7E7ED9C9
R F14B
T 0D257E7E7E7E7EC9C2D440F3F7F0F87E7E7EC5C3404040F3F4F2F3F0F87E7E7E7E7ED9C9
R F14B
T 0D257E7E7E7E7EC9C2D440F3F7F0F87E7E7EC5C3404040F3F4F2F3F0F87E7E7E7E7ED9C9
R 834B
T 0D257E7E7E7E7EC9C2D440F3F7F0F87E7E7EC5C3404040F3F4F2F3F0F87E7E7E7E7ED9C9
R-839695A3999693934B
T 0D257E7E7E7E7EC9C2D440F3F7F0F87E7E7EC5C3404040F3F4F2F3F0F87E7E7E7E7ED9C9
*****

PRESS "ENTER" TO HOLD/CONTINUE OR "PF2" TO QUIT

10
```

Figure 3-8. 3708 Port Data Monitor Screen Example (S136.0) for Protocol Enveloping

```

S136.0
  3708 PORT 02 DATA MONITOR

R 6163
T 6163
R 65
R-2E
T-2E
R 0D
R 1B59376F
*****
R 7220
T 7220
R 70
R-70
R 6C
T 6C1B593120

PRESS "ENTER" TO HOLD/CONTINUE OR "PF2" TO QUIT

4BMYJOB                                P 00

```

Figure 3-9. 3708 Port Data Monitor Screen Example (S136.0) for Protocol Conversion

The following list describes the fields on the Port Data Monitor screen.

R or T (in column 1)

Indicates whether the line represents received data (R) or transmitted data (T).

Dash (-) (in column 2)

Indicates that some data may not be displayed that was received or sent before the line containing the dash. This can be caused by holding the display. It can also be caused by a buffer shortage inside the 3708. If the 3708 requires additional buffer space to handle normal operations, the buffers used by the Port Data Monitor can be reassigned for other purposes.

Received or transmitted data (beginning in column 3)

Shows the received or transmitted data in hexadecimal format with 76 digits (38 bytes) per line. *Only the first 38 bytes of a receive or transmit transaction are displayed.*

Also note the following:

- If the port is running in protocol enveloping mode and is defined to echo received data back to a device (ECHOPLEX=1), the echoed data is not displayed.
- If the port is defined to use XON/XOFF pacing (RECEIVE XON/XOFF=1), the XON and XOFF characters are not displayed. If the port does not use XON/XOFF pacing, these characters are displayed as normal data characters.

Understanding the Communication Modes and the Data Formats

This section describes the data formats for each mode that the 3708 uses.

Protocol Enveloping Mode and 3708 Logon

When the 3708 is monitoring a port that is bound in an LU type 1 NTO session or a display port that is not yet in session with a host, data appear on the Port Data Monitor screen as follows:

- Data that is transmitted to a downstream device is displayed before EBCDIC-to-ASCII translation and before insertion of the parity bit (if used).
- Data that is received from a downstream device is displayed after ASCII-to-EBCDIC translation and after deletion of the parity bit.

Normally, this results in the data appearing in EBCDIC form. However, if the port is bound in an LU type 1 NTO session in which the translate option was set for no translation, the data appears in ASCII form.

The processing for the 3708 logon screen uses the standard ASCII and EBCDIC translations. Therefore, monitoring a port that is logging on to the 3708 results in EBCDIC characters appearing on the Port Data Monitor screen.

The Port Data Monitor screen does not display individual characters as they are sent and received in protocol enveloping mode. Entire messages (up to 38 characters) are displayed as units when the direction of the communication changes.

The screen does not show the following:

- Data echoed to the connected device (Echoplex = 1)
- Characters that are used for pacing (Receive XON/XOFF = 1).

Protocol Conversion Mode

When the 3708 is monitoring a port that is bound in a protocol conversion session (LU type 1 SCS, LU type 2, or LU type 3), data transmitted to the device and data received from the device appear in ASCII form before insertion or deletion of the parity bit. A change of data-flow direction normally determines the end of a transaction. This allows the 3708 to more efficiently use the buffers that hold the port monitor data. This means that characters that are received from the device that is connected to the port are processed until the 3708 determines that it must transmit characters back to the device. At this point, all the received characters that have been processed are sent to the Port Data Monitor screen and displayed on one line. Then the characters that were transmitted to the device are displayed.

For example, on many terminals, ESC 1 causes a PF1 function. When the 3708 receives both the ASCII characters X'1B' and X'31', it performs the PF1 function. Since the 3708 will be transmitting to the device, the X'1B31' appears on one line on the Port Data Monitor screen and is followed by the characters that the 3708 transmits to the device.

If Receive XON/XOFF is 1, XON/XOFF characters are treated as pacing and the Port Data Monitor screen does not display them. If Receive XON/XOFF is 0, XON/XOFF characters are treated as data and the Port Data Monitor screen displays them.

The Port Data Monitor screen does not display individual characters as they are sent and received in protocol conversion mode. Entire transactions (up to 38 characters) are displayed as units when the direction of the communication changes.

ASCII Pass-through Mode

When monitoring a port in ASCII pass-through mode (either the port for an ASCII host or for a device communicating with an ASCII host), data appears on the Port Data Monitor screen in 8-bit ASCII form. This includes parity bits, if used.

The Port Data Monitor screen displays individual characters as they are received and transmitted by the port. A transaction (display line) in ASCII pass-through mode can contain one or more characters, depending on the line speeds and the level of activity on other 3708 ports.

For example, because of activity on other ports, the 3708 may receive three characters from an ASCII device before they are sent to an ASCII host. These three characters appear on one line of the Port Data Monitor screen.

Using the Port Status Summary Display Screen

This section describes how to display and interpret the Port Status Summary Display screen.

Use the Port Status Summary Display screen to do the following:

- Monitor the status of the communication interface (such as whether the carrier detect is high or low)
- Verify the port definition settings for line speed, parity, and port enable or disable
- Check the counts of parity errors, framing errors, and overrun errors.

Note: Versions of the 3708 microcode released before EC Level A58809 do not display all the information described in this section.

Displaying the Port Status Summary Display Screen

Display the Port Status Summary Display screen (Figure 3-10 on page 3-26) by selecting 7 on the Service Aids Menu (Figure 3-3 on page 3-5). After selecting this option, enter the number of the port whose status you want to display.

When the 3708 has collected the status information, the Port Status Summary Display screen appears.

When you are finished with the Port Status Summary Display screen, press PF2 to return to the Service Aids Menu.

Refreshing the Port Status Summary Display Screen

If you suspect that the status of the port has changed while the Port Status Summary is on the screen, refresh the screen by pressing the ENTER key. An updated port status summary appears.

Interpreting the Port Status Summary Display Screen

Figure 3-10 shows an example of the Port Status Summary Display screen.

```
S137.0
                                3708 PORT 6 STATUS SUMMARY DISPLAY

CD  1          LINE TYPE          LEASED
RTS 1          INTERFACE TYPE     232C
CTS 1          COMMUNICATION PROTOCOL ASCII
DTR 1
DRS 0
TR  0
RI  0
DSR 1

PORT STATE          ENABLED
PARITY              ODD
PARITY ERROR COUNT  0000
CHARACTER FRAMING ERROR COUNT 0000
OVERRUN ERROR COUNT 0000
LINE SPEED IN BPS  9600

PRESS "ENTER" TO REFRESH OR "PF2" TO QUIT

4BMYJOB                                P. 00
```

Figure 3-10. 3708 Port Status Summary Display Screen Example (S137.0)

The following list describes the fields on the Port Status Summary Display screen.

CD

Indicates whether the carrier detect (CD) is currently high (1) or low (0). CD is controlled by the connected device.

RTS

Indicates whether the request to send (RTS) is currently high (1) or low (0). RTS is controlled by the 3708.

CTS

Indicates whether the clear to send (CTS) is currently high (1) or low (0). CTS is controlled by the connected device.

DTR

Indicates whether the data terminal ready (DTR) is currently high (1) or low (0). DTR is controlled by the 3708.

DRS

Indicates whether the data rate select (DRS) is currently high (1) or low (0). DRS is controlled by the 3708.

TR

Indicates whether the test request (TR) is currently high (1) or low (0). TR is controlled by the 3708.

RI

Indicates whether the ring indicator (RI) is currently high (1) or low (0). RI is controlled by the connected device.

DSR

Indicates whether the data set ready (DSR) is high (1) or low (0). DSR is controlled by the connected device. For information on how the 3708 uses the communication interface signals (CD through DSR), refer to *IBM 3708 Description*.

PORT STATE

Indicates the current state of the selected port. This field contains one of the following messages:

ENABLED

Indicates that the port is available for communication.

DISABLED

Indicates that the port is inactive.

ENABLE IN PROCESS — WAITING FOR CR

Indicates that the 3708 is waiting for the user to press the CR key on the terminal for that port. Any of the following three port definition parameters may cause this condition:

- LINE SPEED = AUTOBAUD
- PARITY = AUTOPARITY
- INTERFACE TYPE = 422A.

To complete the port enable process, press the CR key on your terminal.

ENABLE IN PROCESS — WAITING FOR DSR

Indicates that the 3708 is waiting for the DSR indicator on that specific port to become active.

PARITY

Identifies the parity type specified in an ASCII port definition (ODD, EVEN, NONE, MARK, or SPACE). This field does not apply to a port that is defined for an SDLC host. N/A indicates that parity is not applicable in the port in its current state.

PARITY ERROR COUNT

Indicates the number of parity errors (in hexadecimal) detected in data received by this port when the port is defined for an ASCII device. This field does not apply to a port that is defined for an SDLC host.

CHARACTER FRAMING ERROR COUNT

Indicates the number of framing errors (in hexadecimal) that are detected in data that is received by this port when the port is defined for an ASCII device. This field indicates the number of frames that are received with frame check sequence errors (in hexadecimal) when the port is defined for an SDLC host.

OVERRUN ERROR COUNT

Indicates the number of overrun errors (in hexadecimal) encountered by this port, when the port is defined for an SDLC host. This field does not apply to a port that is defined for an ASCII device.

LINE SPEED IN BPS

Indicates the line speed specified for the port in its definition.

If the port is defined for an ASCII device and the port is set for autobaud and the port is not enabled, AUTO is displayed. If the port is defined for an SDLC host port using external clocking, EXT is displayed. N/A indicates that line speed is not applicable for the port in its current state.

LINE TYPE

Indicates the type of line (LEASED or SWITCHED) specified for the port in its definition.

INTERFACE TYPE

Indicates the interface type (232C or 422A) specified for the port in its definition.

COMMUNICATION PROTOCOL

Indicates the type of protocol used by the port. SDLC is used to indicate an SDLC host port definition and ASCII indicates an ASCII port definition.

Chapter 4. Handling Microcode Problems

This chapter describes 3708 microcode problems and how to gather detailed information about them.

The types of microcode problems that are covered in this chapter are as follows:

- Task abends* A task abend typically causes an individual port to fail while other ports continue to operate. The failed port returns to operation when the 3708 starts again.
- Restart error* A restart error causes the 3708 to automatically start again during operation, ending all current communication sessions.
- Restart loop* A restart loop is a special type of restart error that causes the 3708 to become trapped in its restart sequence.

Each of these errors requires separate procedures for gathering problem information.

Before doing the procedures in this chapter, do the following:

1. Search the symptom index in Chapter 2, "Using Symptoms to Solve a Problem." If the symptom is listed, verify that the index lists the 3708 microcode as a possible cause.
2. Display alerts for the problem as described in "Using the Alert Display Screen" on page 3-6.

See Appendix A, "3708 Alert Messages" for the recommended action for the alerts. If the alerts indicate a microcode problem, the appendix refers you to a specific section in this chapter.

3. Become familiar with the procedures for each symptom as described in this chapter, so you can be ready to gather information when the problem occurs again.

Printing the Information

When you have displayed the information that is required by the following procedures, print the information using a printer connected to either of the following:

- The auxiliary port of the terminal. Use the print-screen function for the terminal.
- Another port of the 3708. Use the local copy function for the 3708.

If a printer is not available, manually copy the information from the screens.

Handling Task Abends

Alerts with the following alert numbers indicate that a microcode task abend has occurred:

A021 A022 A023 A024 A025 A026
A027 A028 A032 A033 A034 A043

Normally, a task abend prevents the affected port from being used but allows activity on other ports to continue. The alerts generated by the abend are available until:

- The 3708 is restarted by the operator or by a subsequent, more serious failure.
- Seven additional alerts are generated (only seven alerts are retained by the 3708).

Therefore, do *not* restart the 3708 when a task abend occurs. Instead, call immediately for remote service, as described in Chapter 6, "Service Information." The IBM service representative will try to call the 3708 from a remote terminal and gather the task abend error information.

If it is not possible to get remote service access, do the procedures in "Gathering Task Abend Information" to record error information for the service representative.

Gathering Task Abend Information

These procedures are intended for IBM service representatives. They are also intended for 3708 operators when it is not possible for the IBM service representative to provide remote service on the 3708.

Task abend information is obtained from the following control terminal screens:

- Alert Display
- Error Log Display
- Display Storage.

To collect information about a task abend:

1. Display the Alerts Display screen as described in "Using the Alert Display Screen" on page 3-6.
2. Print the alert log as described in "Printing the Information" on page 4-1.
3. Review the formats for interpreting alerts in Appendix A, "3708 Alert Messages." Take special note of the task ID (*tttt*) and the storage address (*cccccc*) in the Failure Code field of the alert related to the problem.
4. Display the Error Log Display screen as described in "Using the Error Log Display Screen" on page 3-9.
5. Print the entire error log as described in "Printing the Information" on page 4-1.
6. Display the Display Storage screen as described in "Using the Display Storage Screens" on page 3-16.

7. Display the following addresses for the lengths indicated and print the data they contain:

- Address 1B00 for 16 bytes
- Address 144A for 1024 bytes (eight screens of data)
- Storage address (*cccccc*) from the Failure Code field of the alert for at least 288 bytes (three screens of data)
- If the first three digits of the task ID (*tttt*) are 043 or 683, do steps *a* through *f*; otherwise, continue with step 8.
 - a. Make *x* equal to the value in the fourth position of the task ID. The fourth position of the task ID indicates the port number, in hexadecimal, where the error occurred.
 - b. Find *x* in the following table and display the two addresses on the Display Storage screen. For example, if the task ID is 0433, the addresses to use are 3520 and 3548.

X	Addresses	
1	3518	3540
2	351C	3544
3	3520	3548
4	3524	354C
5	3528	3550
6	352C	3554
7	3530	3558
8	3534	355C
9	3538	3560
A	353C	3564

- c. Record the 4 bytes (00 *yy yy yy*) starting with the first address.
 - d. Record the 4 bytes (00 *zz zz zz*) starting with the second address.
 - e. Use *yyyyyy*, omitting the leading zeroes, as the address for displaying and printing at least 592 bytes (five screens of data).
 - f. Use *zzzzzz*, omitting the leading zeroes, as the address for displaying and printing at least 592 bytes (five screens of data).
8. Attach a description of the 3708 configuration to the task abend information.
9. Call for service and give the task abend information to the service representative. See Chapter 6, "Service Information" for more information.

Handling Restart Errors

Some microcode errors, such as a control program abend, storage parity errors, and processor errors, cause the 3708 to restart automatically. To recover from these errors, the 3708 operates as if the power switch is turned off and back on. The following actions also occur:

- All communication with connected devices stops.
- All switched connections are dropped.
- A connected SNA host detects an inoperative condition for the 3708 line and for the physical unit (PU).
- The 3708 performs the initial light sequences.
- The ports are activated as follows:
 - The 3708 logon screens are displayed, depending on the configuration.
 - Calls are accepted on switched connections.
- A connected SNA host can contact the 3708 again.

Setting the 3708 for STOP ON ERROR

When a restart error occurs, the 3708 normally does not copy error log information to nonvolatile storage (EEPROM). Therefore, after restart is complete, no pertinent information remains about the error that caused the restart.

Use the following procedure when the 3708 has repeated and spontaneous restart errors. The procedure causes the 3708 to stop, rather than restart, when the next restart error occurs. Note that this is not the normal mode of operation and should only be used as part of problem determination.

To cause the 3708 to stop on error, do the following:

1. Display the Start Up Options screen (Figure 4-1) by selecting *I* on the Service Aids Menu (Figure 3-3 on page 3-5).

```
M131.0
                                3708 START UP OPTIONS

N   STOP ON ERROR (Y/N)
    (Y = STOP ON ERROR)
    (N = RESTART ON ERROR)

N   REQUEST RELOCATION CSU (Y/N)

N   ACTIVATE I/O INTERRUPT TRACE (Y/N)

PRESS "ENTER" TO CONTINUE OR PRESS "PF2" TO QUIT

4BMJOB                               P 00
```

Figure 4-1. 3708 Start Up Options Screen (M131.0)

2. Enter *Y* for STOP ON ERROR.

The following messages appear in sequence:

C203 UPDATE IN PROCESS. PLEASE WAIT.
C204 UPDATE SUCCESSFUL.

3. When C204 UPDATE SUCCESSFUL appears, press ENTER to return to the Service Aids Menu.

4. Recreate the problem, if possible.

If you do not know what circumstances cause the problem, return to normal operation.

When the problem occurs again:

- The 3708 stops operating.
- The base Not Ready light turns on.

The STOP ON ERROR causes the following to occur:

- The 3708 saves error information in the Extended Error Information Field (EEIF) of the EEPROM in the base.
- The 3708 writes one of the following alerts to the alert log:

A001 A002 A003 A009 A010 A011
A012 A013 A014 A015 A016 A017
A030 A031 A034

5. Restart the 3708 by turning it off, waiting 10 seconds, and turning it on again.

6. Call for remote service, as described in Chapter 6, "Service Information." The service representative will try to call the 3708 from a remote terminal and gather the restart error information.

If it is not possible to get remote service access, follow the procedures in "Gathering Restart Error Information" on page 4-6 on page 4-6 to record error information for the service representative.

7. Return the 3708 to normal RESTART ON ERROR operation as described in "Returning to Normal Restart" on page 4-6.

Gathering Restart Error Information

These procedures are intended for IBM service representatives. They are also intended for 3708 operators when it is not possible for the IBM service representative to perform remote service on the 3708.

Restart error information is obtained from the following screens, which are displayed on the control terminal:

- Alert Display screen
- Error Log Display screen
- Display Storage screen.

To collect information about a restart error, do the following:

1. Display the Alert Display screen as described in "Using the Alert Display Screen" on page 3-6.
2. Print the alert log as described in "Printing the Information" on page 4-1.
3. Display the Error Log Display screen as described in "Using the Error Log Display Screen" on page 3-9.
4. Print the entire error log as described in "Printing the Information" on page 4-1.
5. Display the Display Storage screen as described in "Using the Display Storage Screens" on page 3-16.
6. Display and print the EEIF (extended error) data at address 190229 for 1350 bytes (11 screens of data).

Note: The EEIF data is available for a minimum of 4 hours after you restart the 3708 *if you do not update the nonvolatile storage (EEPROM)* by updating the 3708 configuration. Do not reconfigure the 3708 until the EEIF data is printed. The message area of the control terminal screen indicates when the EEIF contains valid error information.

Returning to Normal Restart

This procedure returns the 3708 to normal automatic restart operation after the information for a restart error has been gathered.

To return the 3708 to normal restart operation, do the following:

1. Display the Start Up Options screen (Figure 4-1 on page 4-4) as described in "Setting the 3708 for STOP ON ERROR" on page 4-4.
2. Enter *N* for RESTART ON ERROR. The following messages appear in sequence:

C203 UPDATE IN PROCESS. PLEASE WAIT.
C204 UPDATE SUCCESSFUL.

3. When C204 UPDATE SUCCESSFUL appears, press ENTER to return to the Service Aids Menu.

Exiting Restart Loops

Permanent errors, such as parity errors in the microcode or in the RAM in the base, can cause restart loops.

If the 3708 detects a permanent error soon after the 3708 is turned on, it continually restarts as it detects the permanent error. This rotation is a restart loop and causes the following to occur:

- All displays that are connected to the 3708 lose the host session.
- The diagnostic program, which tests the ports each time the 3708 restarts, sends approximately eight unintelligible characters to the displays that are connected to the 3708.
- Both the base Not Ready lights and the cartridge light blink alternately while the 3708 waits for the host connection to be established again.

Each time the 3708 restarts, the base and cartridge Not Ready lights blink and then turn off.

Gathering Restart Loop Information

The procedure for gathering restart loop information is identical to that for restart errors, as described in “Gathering Restart Error Information” on page 4-6. However, the following steps are required to stop the restart loop correctly:

1. Use the Test/Normal switch to stop the 3708.
2. Within 5 seconds after the base Not Ready light and the cartridge light turn off, press and hold the Test/Normal switch in the test position (only the cartridge light turns on).

Note: If both lights are on, release the Test/Normal switch and wait for the light sequence to begin again. Then repeat the procedure to ensure that you press the switch within 5 seconds of both lights turning off. This ensures that the 3708 copies extended error information about the restart problem to the EEIF field.

3. Release the Test/Normal switch.
4. Follow the procedures in “Gathering Restart Error Information” on page 4-6.

Chapter 5. Handling Hardware Problems

This chapter describes how to run the 3708 extended diagnostic test to isolate a problem to the base or the cartridge. This chapter also describes how to replace the 3708 base and cartridge.

Before doing the procedures in this chapter, do the following:

1. Search the symptom index in Chapter 2, “Using Symptoms to Solve a Problem.” If the symptom is listed, verify that the index lists the 3708 hardware as a possible cause.
2. Display alerts for the problem as described in “Using the Alert Display Screen” on page 3-6.

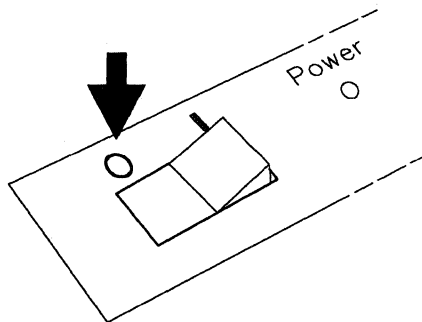
See Appendix A, “3708 Alert Messages” for the recommended action for the alerts. If the alerts indicate a 3708 hardware problem, the appendix refers you to a specific section in this chapter.

Running the 3708 Extended Diagnostic Test

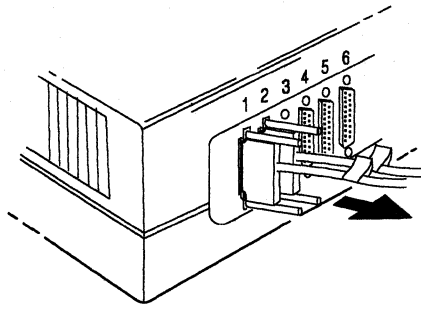
The 3708 extended diagnostic test can detect a hardware problem and isolate it to the base or the cartridge. Do not do this procedure unless it is authorized by the control terminal operator or by the system administrator.

After isolating the problem to the base or cartridge, see “Replacing the Base” on page 5-4 or “Replacing the Cartridge” on page 5-9 to solve the problem. To run the extended diagnostic test, do the following:

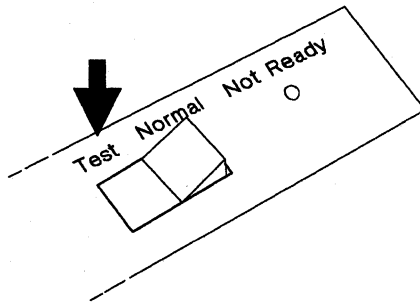
1. Turn off the 3708.



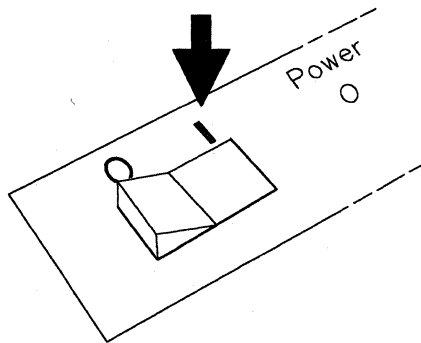
2. Disconnect the cables.



3. Hold the Test/Normal switch in the Test position.



4. Turn on the power.



5. Release the Test/Normal switch.

After 40 seconds, the base Not Ready light and the cartridge light begin blinking together.

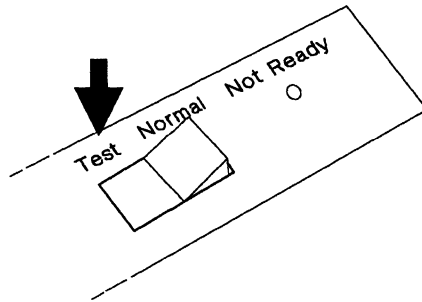
Starting at power on time, the 3708 lights go through the following sequence:

Power Light	Base Not Ready	Cartridge Light	Appropriate Time
On	On	On	.25 seconds
On	Off	On	.50 seconds
On	On	Off	40 seconds
On	Blinking	Blinking	Go to the next step.

6. Get the test plug for testing ports. The test plug should be wrapped around the power cord.
7. Insert the test plug into each port. The light on the test plug blinks for each working port.

If the light does not blink for a port, the port is not operating.

8. After testing the ports, if the base Not Ready light and the cartridge light are blinking, press the Test/Normal switch to the test position.



9. Release the Test/Normal switch.
10. If any port fails, complete the *IBM 3708 Problem Report, GA27-3638*. Check the box on the form for each port that fails.
11. When you have finished testing the ports, wrap the test plug around the power cord for storage.

Replacing the Base

Note: Save the power cord, wrap plug, and cartridge to use with the new base.

To replace the base, do the following:

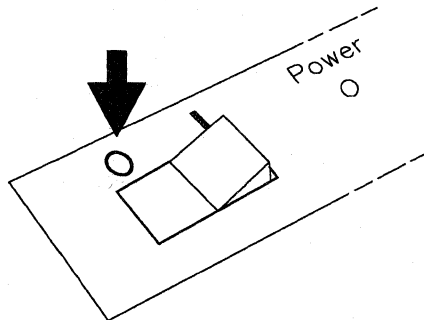
1. Complete the *IBM 3708 Problem Report* and attach any extended error information.

IBM 3708 NETWORK CONVERSION UNIT PROBLEM REPORT			
Complete this sheet and return it with the failed 3708 element.			
Customer Name: _____		Date: _____	
Customer Address: _____			
RID Number _____			
Contact the control terminal operator for the following information:			
Alert ID _____		Port # _____	
Failure Code (1) _____		(2) _____ (3) _____	
Mark all indicators at time of extended test failure:			Write Pass or Fail:
Base Power Light	Base Not Ready Light	Cartridge Not Ready Light	Port Test
___ On	___ On	___ On	Port #
___ Blinking	___ Blinking	___ Blinking	1
___ Off	___ Off	___ Off	

2. If you can log on to the 3708 control terminal, make sure that you display and copy the microcode fixes (MCF) history information, the patch history information, and the configuration for all ports. This information is used in a later step. Refer to Appendix F, "3708 Screen Sequences" to access the MCF/Patch history screen.

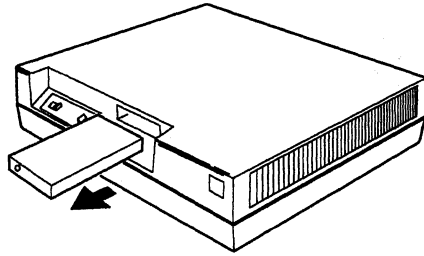
If you cannot logon to the 3708, continue with the next step.

3. Turn off the 3708.

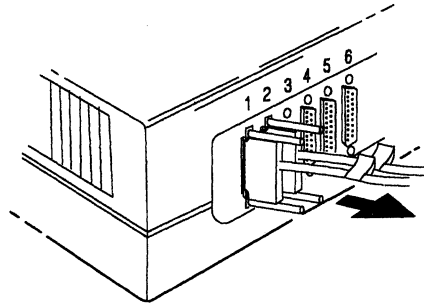


4. Unplug the power cord from the outlet and from the 3708.

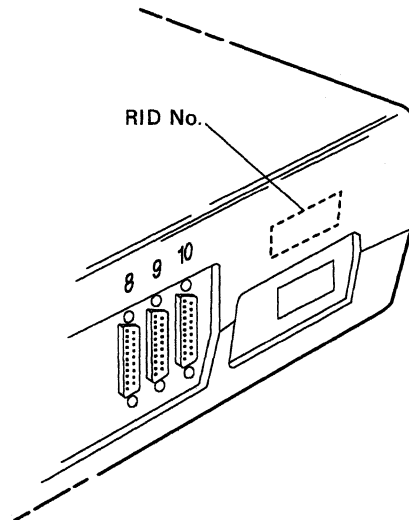
5. Remove the cartridge from the base.



6. Disconnect the cables from the 3708.

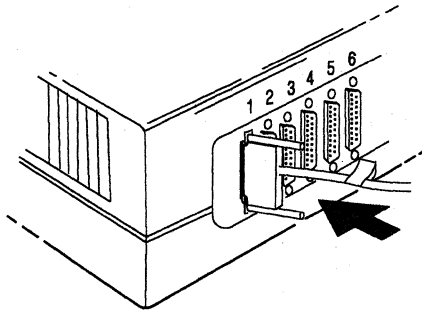


7. Call for a new base. See Chapter 6, "Service Information" for service information.
8. After receiving the new base, record the repair identification (RID) number, which is on the back of the 3708.

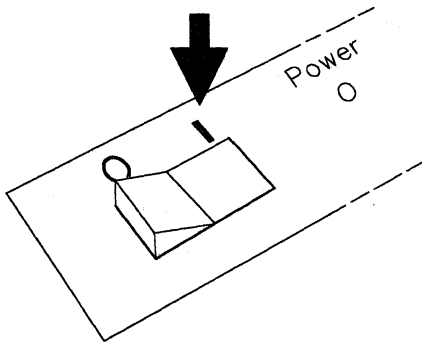


9. Install the new base. Refer to *IBM 3708 Network Conversion Unit Setup and Problem Handling* for instructions.

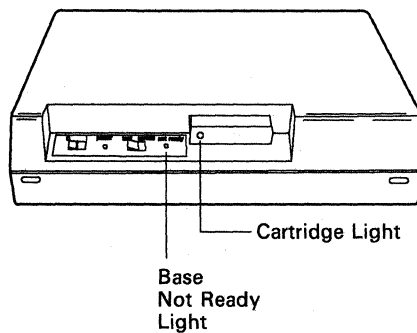
10. Connect the cables to the correct ports and tighten the screws. Use the labels on the cables as guides.



11. Turn on the 3708. The power light turns on, followed by the base Not Ready light and the cartridge light.



12. After 10 seconds, the base Not Ready light and the cartridge light turn off. However, if an SNA host is not connected to the 3708, the lights continue to blink.



13. Enter the 3708 configuration that was on the original base using the control terminal. (Refer to *IBM 3708 Planning and Installation* for configuration information.)

14. Reapply any MCFs or patches that were on the original base by doing one of the following:
 - If the 3708 is under warranty or under an IBM maintenance agreement, IBM can send the MCFs over the remote service link to the 3708. The 3708 must have a dial-in modem connected, as described in “Receiving Remote Assistance” on page 6-2.
 - If you cannot provide a modem for IBM to apply the MCFs, call the IBM service number and ask for instructions on how to apply MCFs.

15. Enter the repair identification (RID) number and the customer data, which includes the customer number, the company name, and the building address and room number of the 3708, into the Vital Product Data fields as follows:
 - a. Select 3, Service Aids, on the Main Menu (M100.0) shown in Figure 3-1 on page 3-3.
 - b. Select 8, Vital Product Data, on the Service Aids Menu (M130.0) shown in Figure 3-3 on page 3-5.

The 3708 displays the Vital Product Data screen (S138.0) as shown in Figure 5-1.

```

S138.0
                3708 VITAL PRODUCT DATA

TYPE DESIRED CHANGES FOR RID AND CUSTOMER DATA ONLY

S/N 3708880000174          MOD          001
RID 3708880000174          MFG DATE   39-85

    EC LEVELS
BASE EC          A20030C          RAM          128K
LOGIC EC         328311          CTRG        256K
MCODE EC         A58809          CTRG MCODE  TYPE  0102
DATA MCF APPL EC          EEPROM MCODE TYPE  0102
HISTORY MCF APPL EC

                                CUSTOMER DATA

PRESS "ENTER" TO CONTINUE OR "PF2" TO QUIT

4BMYJOB                                P 00
  
```

Figure 5-1. Vital Product Data Screen Example (S138.0)

- c. Type the RID number or customer data into the correct fields on the screen. A description of the fields is as follows:

Field	Description
RID	Specify the repair identification number that is located on the back of the base.
CUSTOMER DATA	Specify the customer-supplied geographic data.

- d. Press the ENTER key.

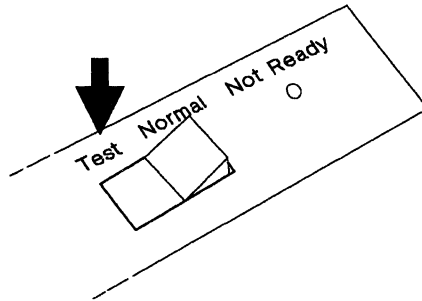
To exit the screen without making any changes, press PF2.

Replacing the Cartridge

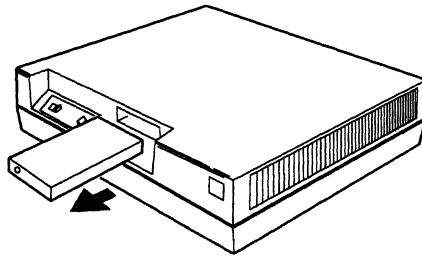
Note: Since the base stores the configuration, you do not need to reconfigure the 3708 when replacing the cartridge.

To replace the cartridge:

1. Complete the *IBM 3708 Problem Report*, GA27-3638, and attach the extended error information, if you have any.
2. Turn off the 3708.



3. Remove the cartridge.

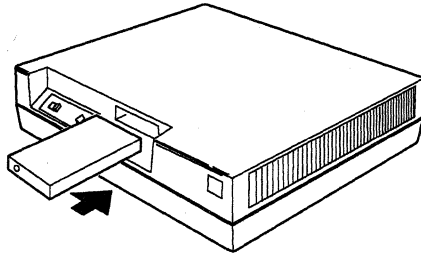


4. Call for a new cartridge. See Chapter 6, "Service Information" for more information.

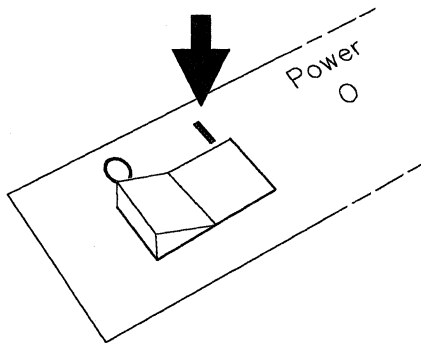
Installing a New Cartridge

To install a new cartridge:

1. Insert the new cartridge.



2. Turn on the 3708, and continue normal operation.



Chapter 6. Service Information

This chapter tells you who to call for installation technical assistance and describes the procedures to follow to get replacement elements and remote assistance for problems not solved by the problem determination procedures.

Installation Technical Assistance

Contact the marketing representative where the 3708 was purchased if you have technical questions about any of the following:

- Ordering information for the 3708 base, cartridge, and cables
- Installation
- Configuration
- System integration
- Application/host programming considerations.

Replacement Elements and Remote Assistance

This section describes how to contact IBM for maintenance assistance and describes the procedures to follow for replacing a defective unit (base or cartridge) and for receiving remote assistance.

Before calling for service, use the problem determination procedures in Chapter 1, “Introducing the Problem Determination Procedures” to isolate the problem to a failing unit if possible. After you have completed problem determination, contact IBM for service as described below. To be eligible for this assistance, the 3708 must be either under warranty or covered by an active IBM service agreement. Chapter 1, “Introducing the Problem Determination Procedures” provides the information about service and warranty options.

Calling for Service

Use the following telephone number to receive replacement units or assistance:

- In the continental United States or Puerto Rico, call the following number:

1 800 428-2569 (toll free)

- In other countries, call the appropriate support group.

Note: The telephone numbers are subject to change. If the number has changed, call the IBM marketing representative or the local IBM branch office.

Calling the 800 Number

When you call the 800 number, an IBM customer service coordinator briefly discusses your situation and asks for the type of machine, the machine serial number, the repair identification (RID) number (see page 6-3), the name of your company, and a phone number where you can be reached. The customer service coordinator also performs an entitlement check to determine the type of contract or warranty agreement in effect. The IBM customer service coordinator is not the IBM service representative for the 3708.

If you wish to obtain existing microcode fixes (MCFs) for your level of microcode, the customer service coordinator will forward your request to the IBM service representative, who will make arrangements with you for the installation of the MCFs.

If you have a problem and have successfully completed the problem determination procedures and isolated the problem to a unit, you are given instructions on how to receive a replacement unit.

If you are unable to complete the problem determination procedures or if the procedures indicate a microcode problem, further assistance in problem determination will be provided. The information about the problem will be forwarded to a 3708 specialist who will call you back. The service representative will call you and either provide a solution for the problem or work with you to solve the problem.

Receiving Remote Assistance

IBM can help through remote assistance if you are unable to resolve a 3708 problem using the procedures in *IBM 3708 Network Conversion Problem Determination* and if one of the following is true: (1) the 3708 is still under the 1-year warranty, or (2) you have purchased IBM maintenance service.

Remote assistance can include consultation with an IBM service representative for problem diagnosis by IBM through a remote connection (through a modem and phone line access that you provide). The network management personnel can also use the modem for configuration and problem management of devices that are connected to the 3708.

Hardware and Configuration Requirements

For remote assistance, you must provide telephone facilities for a 1200 bps switched, auto-answer connection. This includes a modem with the following characteristics:

- For the USA only, use a direct-connect, Bell 212A-compatible modem with operating speeds up to 1200 bps in full duplex mode when connected to the direct distance dial network. The modem must operate over a 2-wire switched line. For countries other than the USA, use a V.22-compatible modem.
- EIA 232C compatible interface.

Any downstream port used for remote assistance must be configured identically to port 3 as described in "Appendix A. IBM-Supplied Configuration" of *IBM 3708 Planning and Installation*. If this is not compatible with the normal mode of operation, reconfigure a port for that mode before receiving remote assistance by temporarily reinstating the IBM-supplied configuration. (Refer to *IBM 3708*

Network Conversion Unit Problem Determination for more information.) When not in use for remote assistance, the port is available for connection to an end-user device. The 3708 can be configured to deny access to the host from a port that is assigned to remote service.

Microcode Fixes (MCFs), patches, and diagnostic traps are applied and stored in the base unit hardware (EEPROM). They are not stored in the cartridge. If you replace your base unit, you must have any MCFs, patches, or traps applied to the new base unit.

Traces and Logs

As part of the problem determination process, the IBM representative often requires you to provide certain additional materials.

The most frequently requested are an NCP Line Trace, a VTAM Buffer Trace, or a PT2 Trace of both upstream link and the failing downstream line. Please be prepared to obtain and provide these traces when requested.

Also, you may be requested to obtain and provide copies of the 3708 Error Log and 3708 Alert Log at the time of failure.

Making this information available can greatly enhance problem determination and speed the resolution of your problem.

Locating the RID Number

The repair identification (RID) number enables the IBM customer service coordinator to perform an entitlement check to determine the warranty or type of service option that is in effect.

Locate the machine type and repair identification (RID) number of the failing unit. The RID number is in the following locations:

- Just above the power cord on the back of the base.
- On the cartridge. Apply the RID label that is shipped with the 3708 to the cartridge when the 3708 first arrives.
- In the vital product data storage area on the logic board of the 3708 base. The RID number is displayed on the 3708 logon screens when a user is logging on to the 3708.

Generally, the RID number located on the cartridge and the base is the same as the RID number displayed on the 3708 logon screens. If they are not (they will differ if you have exchanged the base element), use the control terminal to enter the RID number located on the base (and cartridge) into the 3708's vital product area (EEPROM).

Note: EEPROM is a nonvolatile logic circuit in the 3708 that retains information regardless of whether the 3708 power is on or off.

Maintaining the same RID number on the base, the cartridge, and within the 3708's vital product area ensures smoother and faster service if you ever exchange 3708 elements or require remote microcode service.

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Appendix A. 3708 Alert Messages

This appendix describes the format for 3708 alert messages and lists the messages. It includes an explanation and a recommended action for each message. See "Using the Alert Display Screen" on page 3-6 for information about displaying the alert log.

Alert Message Format

The alert messages (alerts) have the following format:

ALERT ID	DESCRIPTION/CAUSE	ACTION	FAILURE CODES
----------	-------------------	--------	---------------

The following list describes the fields in the format:

Fields	Description
ALERT ID	Uniquely identifies the alert
DESCRIPTION/CAUSE	Describes the cause of the alert
ACTION	Recommends the next step to take to solve the problem
FAILURE CODES	Indicates the type of failure that occurred.

The following is an example of an alert:

```
A001 INTERNAL FAIL-PROCESSOR SEE 3708 MANUALS aa bb cccccc
```

In the example, A001 is the ALERT ID. INTERNAL FAIL-PROCESSOR describes the cause, which is an internal failure in the base unit. SEE 3708 MANUALS refers you to this appendix for a description and a suggested action for the alert.

The letters represent the FAILURE CODES. In the example, the FAILURE CODES are:

Failure Codes	Description
aa	Failing unit
bb	3708 machine check register
ccccc	Storage address.

Alert Messages

A001 INTERNAL FAIL-PROCESSOR SEE 3708 MANUALS *aa bb cccccc*

Meaning: An internal parity error in the 3708 base caused a processor error. Normally, the 3708 restarts automatically. This alert appears only if the 3708 is set to STOP ON ERROR. See "Setting the 3708 for STOP ON ERROR" on page 4-4 for more information.

Action: Write down the ALERT ID (A001) and the codes in the message. Keep the error information available for future service needs. Follow the procedures in Chapter 6, "Service Information." The following codes appear in the alert:

Failure

Codes	Description
<i>aa</i>	Failing unit
<i>bb</i>	3708 machine check register
<i>ccccc</i>	Storage address.

A002 INTERNAL FAIL-CARTRIDGE SEE 3708 MANUALS *aa bb cccccc*

Meaning: An internal parity error in the 3708 cartridge caused a processor error. Normally, the 3708 restarts automatically. This alert appears only if the 3708 is set to STOP ON ERROR. See "Setting the 3708 for STOP ON ERROR" on page 4-4 for more information.

Action: Write down the ALERT ID (A002) and the codes in the message. Keep the error information available for future service needs. Follow the procedures in Chapter 6, "Service Information."

The following codes appear in the alert:

Failure

Codes	Description
<i>aa</i>	Failing unit
<i>bb</i>	3708 machine check register
<i>ccccc</i>	Storage address.

A003 INTERNAL FAIL-PROCESSOR SEE 3708 MANUALS *aa pp bb cccccc*

Meaning: An internal parity error in the 3708 base caused a machine check. Normally, the 3708 restarts automatically. This alert appears only if the 3708 is set to STOP ON ERROR. See "Setting the 3708 for STOP ON ERROR" on page 4-4 for more information.

Action: Write down the ALERT ID (A003) and the codes in the message. Keep the error information available for future service needs. Follow the procedures in Chapter 6, "Service Information." The following codes appear in the alert:

Failure

Codes	Description
<i>aa</i>	Failing unit
<i>pp</i>	Port
<i>bb</i>	3708 machine check register
<i>ccccc</i>	Storage address.

A004 EEPROM CHECKSUM ERROR SEE 3708 MANUALS cccccc yyyyyy

Meaning: A checksum error occurred in nonvolatile storage (EEPROM) in the 3708 base.

Action: Write down the ALERT ID (A004) and the codes in the message. Keep the error information available for future service needs. Follow the procedures in Chapter 6, "Service Information." The following codes appear in the alert:

Failure

Codes	Description
<i>ccccc</i>	Storage address
<i>yyyyyy</i>	Checksum error.

A009 INTERNAL FAIL SEE 3708 MANUALS aa pp bb cccccc

Meaning: An interrupt timeout caused a machine check. The problem is in the 3708 microcode or in the 3708 base. Normally, the 3708 restarts automatically. This alert appears only if the 3708 is set to STOP ON ERROR. See "Setting the 3708 for STOP ON ERROR" on page 4-4 for more information.

Action: Write down the ALERT ID (A009) and the codes in the message. Keep the error information available for future service needs. Follow the procedures in Chapter 6, "Service Information." The following codes appear in the alert:

Failure

Codes	Description
<i>aa</i>	Failing unit
<i>pp</i>	Port
<i>bb</i>	3708 machine check register
<i>ccccc</i>	Storage address.

A010 INTERNAL FAIL-MICROCODE SEE 3708 MANUALS tttt bb cccccc

Meaning: An interrupt timeout caused a processor error. The problem is in the 3708 microcode or in the 3708 base. Normally, the 3708 restarts automatically. This alert appears only if the 3708 is set to STOP ON ERROR. See "Setting the 3708 for STOP ON ERROR" on page 4-4 for more information.

Action: Write down the ALERT ID (A010) and the codes in the message. Keep the error information available for future service needs. Follow the procedures in Chapter 6, "Service Information." The following codes appear in the alert:

Failure

Codes	Description
<i>tttt</i>	Task ID
<i>bb</i>	3708 machine check register
<i>ccccc</i>	Storage address.

A011 INTERNAL FAIL-MICROCODE SEE 3708 MANUALS *tttt bb cccccc*

Meaning: An interrupt timeout caused a processor error. The microcode that operates the control terminal or a function that was requested through the control terminal caused the error. If you were updating the configuration, the configuration description may be damaged. The problem is in the 3708 microcode or in the 3708 base. Normally, the 3708 restarts automatically. This alert appears only if the 3708 is set to STOP ON ERROR. See "Setting the 3708 for STOP ON ERROR" on page 4-4 for more information.

Action: Write down the ALERT ID (A011) and the codes in the message. Keep the error information available for future service needs. Follow the procedures in Chapter 6, "Service Information." The following codes appear in the alert:

Failure

Codes	Description
<i>tttt</i>	Task ID
<i>bb</i>	3708 machine check register
<i>ccccc</i>	Storage address.

A012 INTERNAL FAIL-PORT *pp* TASK SEE 3708 MANUALS *tttt pp bb cccccc*

Meaning: An interrupt timeout caused a processor error. The error occurred on port *pp* while a communication control task was active. The problem is in the 3708 microcode or in the 3708 base. Normally, the 3708 restarts automatically. This alert appears only if the 3708 is set to STOP ON ERROR. See "Setting the 3708 for STOP ON ERROR" on page 4-4 for more information.

Action: Write down the ALERT ID (A012) and the codes in the message. Keep the error information available for future service needs. Follow the procedures in Chapter 6, "Service Information." The following codes appear in the alert:

Failure

Codes	Description
<i>tttt</i>	Task ID
<i>pp</i>	Port
<i>bb</i>	3708 machine check register
<i>ccccc</i>	Storage address.

A013 INTERNAL FAIL-PORT *pp* TASK SEE 3708 MANUALS *tttt pp bb dd cccccc*

Meaning: An interrupt timeout caused a processor error. The error occurred on port *pp* while an LU task was active. The problem is in the 3708 microcode or in the 3708 base. Normally, the 3708 starts again automatically. This alert appears only if the 3708 is set to STOP ON ERROR. See "Setting the 3708 for STOP ON ERROR" on page 4-4 for more information.

Action: Write down the ALERT ID (A013) and the codes in the message. Keep the error information available for future service needs. Follow the procedures in Chapter 6, "Service Information." The following codes appear in the alert:

Failure

Codes	Description
<i>tttt</i>	Task ID
<i>pp</i>	Port
<i>bb</i>	3708 machine check register
<i>dd</i>	Device address
<i>ccccc</i>	Storage address.

A014 INTERNAL FAIL-PROCESSOR SEE 3708 MANUALS aa bb cccccc

Meaning: An interrupt timeout for a valid address caused a processor error. The problem is in the 3708 base. Normally, the 3708 restarts automatically. This alert appears only if the 3708 is set to STOP ON ERROR. See "Setting the 3708 for STOP ON ERROR" on page 4-4 for more information.

Action: Write down the ALERT ID (A014) and the codes in the message. Keep the error information available for future service needs. Follow the procedures in Chapter 6, "Service Information." The following codes appear in the alert:

Failure

Codes	Description
<i>aa</i>	Failing unit
<i>bb</i>	3708 machine check register
<i>ccccc</i>	Storage address.

A015 INTERNAL FAIL-BASE UNIT SEE 3708 MANUALS aa bb

Meaning: An undefined hardware interrupt occurred. The problem is in the 3708 base. Normally, the 3708 restarts automatically. This alert appears only if the 3708 is set to STOP ON ERROR. See "Setting the 3708 for STOP ON ERROR" on page 4-4 for more information.

Action: Write down the ALERT ID (A015) and the codes in the message. Keep the error information available for future service needs. Follow the procedures in Chapter 6, "Service Information." The following codes appear in the alert:

Failure

Codes	Description
<i>aa</i>	Failing unit
<i>bb</i>	3708 machine check register.

A016 INTERNAL FAIL-MICROCODE SEE 3708 MANUALS tttt ee cccccc

Meaning: An addressing error occurred. The problem is in the 3708 microcode. Normally, the 3708 restarts automatically. This alert appears only if the 3708 is set to STOP ON ERROR. See "Setting the 3708 for STOP ON ERROR" on page 4-4 for more information.

Action: Write down the ALERT ID (A016) and the codes in the message. Keep the error information available for future service needs. Follow the procedures in Chapter 6, "Service Information." The following codes appear in the alert:

Failure

Codes	Description
<i>tttt</i>	Task ID
<i>ee</i>	Cause code
<i>ccccc</i>	Storage address.

A017 INTERNAL FAIL-PORT *pp* SEE 3708 MANUALS *aa pp bb cccccc*

Meaning: A 3708 base/port interface check (Direct Memory Access check) occurred on port *pp*. The problem is in the 3708 base. Normally, the 3708 starts again automatically. This alert appears only if the 3708 is set to STOP ON ERROR. See "Setting the 3708 for STOP ON ERROR" on page 4-4 for more information.

Action: Write down the ALERT ID (A017) and the codes in the message. Keep the error information available for future service needs. Follow the procedures in Chapter 6, "Service Information."

The following codes appear in the alert:

Failure Codes	Description
<i>aa</i>	Failing unit
<i>pp</i>	Port
<i>bb</i>	3708 machine check register
<i>ccccc</i>	Storage address.

A020 INTERNAL FAIL-BASE UNIT SEE 3708 MANUALS *aa ssss*

Meaning: A hardware error in the 3708 caused the 3708 to fail to detect that a data transfer was completed during interrupt processing. The problem is in the 3708 base.

Action: If the problem recurs, follow the procedures in Chapter 6, "Service Information." Write down the ALERT ID (A020) and the codes in the message. Keep the error information available for future service needs. The following codes appear in the alert:

Failure Codes	Description
<i>aa</i>	Failing unit
<i>ssss</i>	Processor status register.

A021 INTERNAL FAIL-MICROCODE SEE 3708 MANUALS *tttt ee cccccc*

Meaning: A program check occurred in the 3708 base. The problem is in the 3708 microcode.

Action: Follow the procedures in "Handling Task Abends" on page 4-2. Write down the ALERT ID (A021) and the codes in the message. Keep the error information available for future service needs. The following codes appear in the alert:

Failure Codes	Description
<i>tttt</i>	Task ID
<i>ee</i>	Cause code
<i>ccccc</i>	Storage address

A022 INTERNAL FAIL-CTL TRM TASK SEE 3708 MANUALS *ttt ee ccccc*

Meaning: A program check occurred in the microcode that operates the control terminal or with a function requested through the control terminal.

Action: Follow the procedures in "Handling Task Abends" on page 4-2. Write down the ALERT ID (A022) and the codes in the message. Keep the error information available for future service needs. The following codes appear in the alert:

Failure Codes	Description
<i>ttt</i>	Task ID
<i>ee</i>	Cause code
<i>ccccc</i>	Storage address.

A023 INTERNAL FAIL-PORT *pp* TASK SEE 3708 MANUALS *ttt pp ee ccccc*

Meaning: A program check occurred in a communication control task for port *pp*. The port has been deactivated.

Action: Follow the procedures in "Handling Task Abends" on page 4-2. Write down the ALERT ID (A023), the port number, and the codes in the message. Keep the error information available for future service needs. The following codes appear in the alert:

Failure Codes	Description
<i>ttt</i>	Task ID
<i>pp</i>	Port
<i>ee</i>	Cause code
<i>ccccc</i>	Storage address.

A024 INTERNAL FAIL-PORT *pp* TASK SEE 3708 MANUALS *ttt pp ee dd ccccc*

Meaning: A program check occurred in a logical unit (LU) task for port *pp* during a session between an SNA host and a terminal. The port has been deactivated.

Action: Follow the procedures in "Handling Task Abends" on page 4-2. Write down the ALERT ID (A024), the port number, and the codes in the message. Keep the error information available for future service needs.

The following codes appear in the alert:

Failure Codes	Description
<i>ttt</i>	Task ID
<i>pp</i>	Port
<i>ee</i>	Cause code
<i>dd</i>	Device address
<i>ccccc</i>	Storage address.

A025 INTERNAL FAIL-MICROCODE SEE 3708 MANUALS *tttt nn cccccc*

Meaning: A microcode or hardware failure caused a microcode task to encounter invalid data or to reach an invalid state, causing the task to abend.

Action: Follow the procedures in "Handling Task Abends" on page 4-2. Write down the ALERT ID (A025) and the codes in the message. Keep the error information available for future service needs. The following codes appear in the alert:

Failure Codes	Description
<i>tttt</i>	Task ID
<i>nn</i>	Abend code
<i>ccccc</i>	Storage address.

A026 INTERNAL FAIL-CTL TRM TASK SEE 3708 MANUALS *tttt nn cccccc*

Meaning: A microcode or hardware failure caused the control terminal task to encounter invalid data or to reach an invalid state, causing the task to abend. If the error occurred while the configuration table was being created, the configuration definition may be damaged.

Action: Follow the procedures in "Handling Task Abends" on page 4-2. Write down the ALERT ID (A026), the port number, and the codes in the message. Keep the error information available for future service needs.

Examine the configuration definition and correct it if necessary.

The following codes appear in the alert:

Failure Codes	Description
<i>tttt</i>	Task ID
<i>nn</i>	Abend code
<i>ccccc</i>	Storage address.

A027 INTERNAL FAIL-PORT *pp* TASK SEE 3708 MANUALS *tttt pp nn cccccc*

Meaning: A microcode or hardware failure caused a communication control task for port *pp* to encounter invalid data or reach an invalid state, causing the task to abend. The port has been deactivated.

Action: Follow the procedures in "Handling Task Abends" on page 4-2. Write down the ALERT ID (A027), the port number, and the codes in the message. Keep the error information available for future service needs. The following codes appear in the alert:

Failure Codes	Description
<i>tttt</i>	Task ID
<i>pp</i>	Port
<i>nn</i>	Abend code
<i>ccccc</i>	Storage address.

A028 INTERNAL FAIL-PORT *pp* TASK SEE 3708 MANUALS *tttt pp nn dd cccccc*

Meaning: A microcode or hardware failure caused a logical unit (LU) task for port *pp* to encounter invalid data or to reach an invalid state, causing the task to abend. The port has been deactivated.

Action: Follow the procedures in “Handling Task Abends” on page 4-2. Write down the ALERT ID (A028), the port number, and the codes in the message. Keep the error information available for future service needs.

The following codes appear in the alert:

Failure	
Codes	Description
<i>tttt</i>	Task ID
<i>pp</i>	Port
<i>nn</i>	Abend code
<i>dd</i>	Device address
<i>ccccc</i>	Storage address.

A030 INTERNAL FAIL-MICROCODE SEE 3708 MANUALS *tttt bb cccccc*

Meaning: The control program failed to respond to the quarter-second timer interrupt, causing a machine check. The problem is in the 3708 microcode or hardware. Normally, the 3708 starts again automatically. This alert appears only if the 3708 is set to STOP ON ERROR. See “Setting the 3708 for STOP ON ERROR” on page 4-4 for more information.

Action: Write down the ALERT ID (A030) and the codes in the message. Keep the error information available for future service needs. Follow the procedures in Chapter 6, “Service Information.” The following codes appear in the alert:

Failure	
Codes	Description
<i>tttt</i>	Task ID
<i>bb</i>	3708 machine check register
<i>ccccc</i>	Storage address.

A031 INTERNAL FAIL-MICROCODE SEE 3708 MANUALS *tttt nn*

Meaning: The 3708 control program ended abnormally. The problem is in the 3708 microcode or hardware. Normally, the 3708 starts again automatically. This alert appears only if the 3708 is set to STOP ON ERROR. See “Setting the 3708 for STOP ON ERROR” on page 4-4 for more information.

Action: Write down the ALERT ID (A031) and the codes in the message. Keep the error information available for future service needs. Follow the procedures in Chapter 6, “Service Information.”

The following codes appear in the alert:

Failure	
Codes	Description
<i>tttt</i>	Task ID
<i>nn</i>	Abend code.

A032 INTERNAL FAIL-PORT *pp* TASK SEE 3708 MANUALS *tttt pp nnnn cccccc*

Meaning: A 3708 microcode or hardware failure caused a physical unit (PU) task for port *pp* to encounter invalid data or to reach an invalid state, causing the task to abend. The port is an upstream port to an SNA host. The upstream port and the downstream ports that are associated with it have been deactivated. The configuration definition can identify which downstream ports are associated with the upstream port.

Action: Follow the procedures in "Handling Task Abends" on page 4-2. Write down the ALERT ID (A032), the port number, and the codes in the message. Keep the error information available for future service needs. The following codes appear in the alert:

Failure

Codes	Description
<i>tttt</i>	Task ID
<i>pp</i>	Port
<i>nnnn</i>	Abend code
<i>ccccc</i>	Storage address.

A033 INTERNAL FAIL-PORT *pp* TASK SEE 3708 MANUALS *tttt pp eeee cccccc*

Meaning: A program check occurred in the physical (PU) task for port *pp*. The port is an upstream port to an SNA host. The upstream port and the downstream ports that are associated with it have been deactivated. The configuration definition can identify which downstream ports are associated with this upstream port.

Action: Follow the procedures in "Handling Task Abends" on page 4-2. Write down the ALERT ID (A033), the port number, and codes in the message. Keep the error information available for future service needs.

The following codes appear in the alert:

Failure

Codes	Description
<i>tttt</i>	Task ID
<i>pp</i>	Port
<i>eeee</i>	Cause code
<i>ccccc</i>	Storage address.

A034 INTERNAL FAIL-PORT *pp* TASK SEE 3708 MANUALS *tttt bb cccccc*

Meaning: An interrupt timeout caused a processor error. The error occurred while a physical unit (PU) task was active on port *pp*. Normally, the 3708 starts again automatically. This alert appears only if the 3708 is set to STOP ON ERROR. See "Setting the 3708 for STOP ON ERROR" on page 4-4 for more information.

Action: Write down the ALERT ID (A034) and the codes in the message. Keep the error information available for future service needs. Follow the procedures in Chapter 6, "Service Information." The following codes appear in the alert:

Failure

Codes	Description
<i>pp</i>	Port
<i>tttt</i>	Task ID
<i>bb</i>	3708 machine check register
<i>ccccc</i>	Storage address.

A040 INTERNAL FAIL-BASE UNIT SEE 3708 MANUALS *tttt aa cccccc*

Meaning: A write procedure to nonvolatile storage (EEPROM) in the 3708 base failed.

Action: Follow the procedures in “Running the 3708 Extended Diagnostic Test” on page 5-1. Write down the ALERT ID (A040) and the codes in the message. Keep the error information available for future service needs.

The following codes appear in the alert:

Failure	
Codes	Description
<i>tttt</i>	Task ID
<i>aa</i>	Failing unit
<i>ccccc</i>	Storage address.

A041 INTERNAL FAIL-BASE UNIT SEE 3708 MANUALS *tttt aa cccccc*

Meaning: A read procedure from nonvolatile storage (EEPROM) in the 3708 base failed.

Action: Follow the procedures in “Replacing the Base” on page 5-4. Write down the ALERT ID (A041) and the codes in the message. Keep the error information available for future service needs. The following codes appear in the alert:

Failure	
Codes	Description
<i>tttt</i>	Task ID
<i>aa</i>	Failing unit
<i>ccccc</i>	Storage address.

A042 INTERNAL FAIL-MICROCODE SEE 3708 MANUALS *jjjjjj kkkkkkkk llllll*

Meaning: An error in the 3708 microcode or hardware caused an invalid error log entry.

Action: Follow the procedures in Chapter 4, “Handling Microcode Problems.” Write down the ALERT ID (A042) and the codes in the message. Keep the error information available for future service needs. The following codes appear in the alert:

Failure	
Codes	Description
<i>jjjjjj</i>	Error log entry bytes 0 through 3
<i>kkkkkkkk</i>	Error log entry bytes 4 through 7
<i>llllll</i>	Error log entry bytes 8 through 11.

A043 INTERNAL FAIL-MICROCODE SEE 3708 MANUALS *nnn*

Meaning: A 3708 microcode or hardware failure caused an alert processing task to encounter invalid data or to reach an invalid state, causing the task to abend.

Action: Follow the procedures in "Handling Task Abends" on page 4-2. Write down the ALERT ID (A043) and the codes in the message. Keep the error information available for future service needs. The following code appears in the alert:

Failure Codes	Description
<i>nnn</i>	Abend codes.

A044 TEMPORARY FAIL-BASE UNIT SEE 3708 MANUALS *tttt bb cccccc*

Meaning: A hardware error in the 3708 base caused an exception to an unassigned or unused vector. The problem is in the 3708 base.

Action: Follow the procedures in "Running the 3708 Extended Diagnostic Test" on page 5-1. Write down the ALERT ID (A044) and the codes in the message. Keep the error information available for future service needs. The following codes appear in the alert:

Failure Codes	Description
<i>tttt</i>	Task ID
<i>bb</i>	3708 machine check register
<i>ccccc</i>	Storage address.

A045 RECOVERED-BUFFER POOL LOW VERIFY CONFIG

Meaning: The 3708 entered slowdown mode because not enough storage buffers were available. The buffer pool now has enough buffers for normal operation, and slowdown mode has ended. Possible causes for insufficient buffers are the following:

- Traffic or data flow through the 3708 is excessive
- A malfunction occurred on a remote device
- The Port Data Monitor screen was put on hold
- Too many large receive queues, MLU ports, or large screen devices are defined.

Action: Follow the appropriate procedures:

- For excessive traffic or data flow:
 1. Reduce line speed for the input lines or use fewer input lines.
 2. Reconfigure the 3708 to decrease the data flow through the 3708.
- For 3708 microcode or remote device problems:
 1. Display the port status summary. (See “Using the Port Status Summary Display Screen” on page 3-25.)
 2. Monitor the port. (See “Using the Port Data Monitor Screen” on page 3-20.)
- For a port data monitor screen on hold:

Do not hold the screen, or release the display as soon as possible.
- For too many large receive queues, MLU ports, or large screen devices:
 1. Reduce the number of large and medium receive queues (RECEIVE QUEUE SIZE = L or M).
 2. Reduce the number of MLU ports (Device Class = 4).
 3. Reduce the number of ports that support large screen devices (3270 Model Emulation = 3, 4, or 5).
 4. Exclude all unused 3708 ports.

If the problem continues, call for assistance. See Chapter 6, “Service Information.”

A046 INTERNAL FAIL-MICROCODE SEE 3708 MANUALS *jjjjjjj kkkkkkkk lllllll*

Meaning: An error in the 3708 microcode or hardware caused an invalid diagnostic error log entry during power on or restart.

Action: Follow the procedures in “Running the 3708 Extended Diagnostic Test” on page 5-1 and Chapter 4, “Handling Microcode Problems.” Write down the ALERT ID (A046) and the codes in the message. Keep the error information available for future service needs. The following codes appear in the alert:

Failure

Codes	Description
<i>jjjjjjj</i>	Error log entry bytes 0 through 3
<i>kkkkkkkk</i>	Error log entry bytes 4 through 7
<i>lllllll</i>	Error log entry bytes 6 through 9.

A047 INTERNAL FAIL-MICROCODE SEE 3708 MANUALS *pp dd jjjjkkkk llllll*

Meaning: An error in the 3708 microcode or hardware caused an invalid link error log entry.

Action: Follow the procedures in “Running the 3708 Extended Diagnostic Test” on page 5-1 and Chapter 4, “Handling Microcode Problems.” Write down the ALERT ID (A047) and the codes in the message. Keep the error information available for future service needs.

The following codes appear in the alert:

Failure Codes	Description
<i>pp</i>	Port
<i>dd</i>	Device address
<i>jjjj</i>	Error log entry bytes 0 through 1
<i>kkkk</i>	Error log entry bytes 4 through 5
<i>llllll</i>	Error log entry bytes 8 through 11.

A050 INTERNAL FAIL-PORT(S) SEE 3708 MANUALS *qqqq rrrr*

Meaning: One or more ports failed a port wrap test (part of the 3708 extended diagnostic test) and cannot be activated by the 3708 base. The affected ports are identified by the FAILURE CODE as follows:

- *qqqq* represents the 10 ports when tested for the EIA-422-A interface.
- *rrrr* represents the 10 ports when tested for the EIA-232-C interface.

The affected ports are mapped as bits in each group, 1 bit per port, in the sequence from 10 to 1, preceded by 6 zeros reading from left to right. If the bit for a port is 0 (off), the port has not been tested or is operational for the interface or signaling shown. If the bit is 1 (on), the port is inoperable for the interface or signaling shown.

If, as in the following example, the FAILURE CODES were 00C2 0108, it would mean that ports 2, 7, and 8, have failed the RS-422-A interface test and ports 4 and 9 have failed the RS-232-C interface test:

(EIA-422-A)			
Hex	0	0	C 2
Binary	0 0 0 0	0 0 0 0	1 1 0 0 0 0 1 0
	port 10 9	8 7 6 5	4 3 2 1

(EIA-232-C)			
Hex	0	1	0 8
Binary	0 0 0 0	0 0 0 1	0 0 0 0 1 0 0 0
	port 10 9	8 7 6 5	4 3 2 1

Hex	Binary	Hex	Binary
0	0000	8	1000
1	0001	9	1001
2	0010	A	1010
3	0011	B	1011
4	0100	C	1100
5	0101	D	1101
6	0110	E	1110
7	0111	F	1111

Action: Follow the procedures in Chapter 6, "Service Information." Write down the ALERT ID (A050) and the codes in the message. Keep the error information available for future service needs. The following codes appear in the alert:

Failure Codes	Description
<i>qqqq</i>	EIA-422-A interface
<i>rrrr</i>	EIA-232-C interface.

A052 INTERNAL FAIL-BASE UNIT SEE 3708 MANUALS aa

Meaning: The diagnostics detected a failure in the base unit.

Action: Follow the procedures in Chapter 6, "Service Information." Write down the ALERT ID (A052) and the codes in the message. Keep the error information available for future service needs.

The following code appears in the alert:

Failure Codes	Description
aa	Failing unit.

A054 INTERNAL FAIL-MICROCODE SEE 3708 MANUALS uuuuuuuu

Meaning: A microcode or hardware error caused an invalid error log pointer in nonvolatile storage (EEPROM). The error was detected during restart of the 3708, and the pointer has now been reinitialized.

Action: Follow the procedures in "Running the 3708 Extended Diagnostic Test" on page 5-1 and Chapter 4, "Handling Microcode Problems." Write down the ALERT ID (A054) and the codes in the message. Keep the error information available for future service needs. The following code appears in the alert:

Failure Codes	Description
uuuuuuuu	Old pointer.

A055 INTERNAL FAIL-MICROCODE SEE 3708 MANUALS vvvvvvvv

Meaning: A microcode or hardware error caused an invalid alert log pointer in nonvolatile storage (EEPROM). The error was detected during a restart of the 3708, and the pointer has now been reinitialized.

Action: Follow the procedures in "Running the 3708 Extended Diagnostic Test" on page 5-1 and Chapter 4, "Handling Microcode Problems." Write down the ALERT ID (A055) and the codes in the message. Keep the error information available for future service needs.

The following code appears in the alert:

Failure Codes	Description
vvvvvvvv	Old pointer.

A057 INTERNAL FAIL-PORT *pp* RUN DIAGNOSTICS *pp dd iiiiii ffffffff*

Meaning: A receive overrun occurred. One or more bytes of data were received by port *pp* interface before the communication program accepted the previous byte. At least 1 byte has been lost.

Action: Write down the ALERT ID (A057) and the codes in the message. Keep the error information available for future service needs.

Perform the following steps until the problem is identified or corrected:

1. Decrease the line speed for the port. Refer to *IBM 3708 Planning and Installation* for more information about the Line Speed option.
2. Follow the procedures in Chapter 5, "Handling Hardware Problems."

The following codes appear in the alert:

Failure

Codes	Description
<i>pp</i>	Port
<i>dd</i>	Device address
<i>iiiiii</i>	Initial error
<i>fffffff</i>	Final error.

A059 DSR NOT ACTIVE-PORT *pp* **CHK MDM/DEV/CABLE** *pp dd iiiiii ffffffff*

Meaning: A data set ready (DSR) error occurred on port number *pp*. If the line is a nonswitched line, then DSR was not active within 3 seconds after a data terminal ready (DTR) was activated. If the line is a switched line, then DSR was active before the DTR was activated.

Possible causes are the following:

- A modem or device connected to this port is not turned on.
- A printer connected to this port is out of paper or has a paper jam.
- A failure occurred in a modem, modem interface cable, device, or device cable that is connected to this port.
- A failure occurred in the 3708 base.

Because the 3708 tries to activate each line that is configured, it is normal to receive one error for each port to which a device without electrical power is connected. The 3708 continues to try every 10 seconds to activate the line, but logs the error condition only once. When the device is turned on and when the line is activated, normal error logging continues on that port.

Action: Write down the ALERT ID (A059) and the codes in the message. Keep the error information available for future service needs.

Perform the following steps until the problem is identified or corrected:

1. Make sure the cable is the correct type. Refer to *IBM 3708 Network Conversion Unit Planning and Installation* for more information on cables.
2. Exchange the cable with a similarly configured port to determine if the cable has failed. If the cable has failed, replace it.
3. Run modem tests. Refer to the modem manual.
4. Follow the procedures in "Running the 3708 Extended Diagnostic Test" on page 5-1.

The following codes appear in the alert:

Failure Codes	Description
<i>pp</i>	Port
<i>dd</i>	Device address
<i>iiiiii</i>	Initial error
<i>fffffff</i>	Final error.

A060 DATA-SET-READY DROP-PORT *pp* CHK MDM/DEV/CABLE *pp dd iiiiii ffffffff*

Meaning: Data set ready (DSR) for port *pp* dropped while the terminal is in session with the host application.

Possible causes are the following:

- A modem or device connected to this port was turned off.
- A printer connected to this port is out of paper or has a paper jam.
- A directly connected cable or device has failed.
- A failure occurred in a modem, modem interface cable, device, or device cable that is connected to this port.
- A failure occurred in the 3708 base.

Action: Write down the ALERT ID (A060) and the codes in the message. Keep the error information available for future service needs.

Perform the following steps until the problem is identified or corrected:

1. Make sure the cable is the correct type. Refer to *IBM 3708 Network Conversion Unit Planning and Installation* for more information on cables.
2. Exchange the cable with a similarly configured port to determine if the cable has failed. If the cable has failed, replace it.
3. Run modem tests. Refer to the modem manual.
4. Follow the procedures in "Running the 3708 Extended Diagnostic Test."

The following codes appear in the alert:

Failure

Codes	Description
<i>pp</i>	Port
<i>dd</i>	Device address
<i>iiiiiii</i>	Initial error
<i>fffffff</i>	Final error.

A061 SDLC WRITE T.O.-PORT *pp* **CHK MDM/DEV/CABLE** *pp dd iiiiii ffffffff*

Meaning: An SDLC Frame transmitted from the 3708 could not be computed within a predetermined time limit.

Possible causes are the following:

- A modem or device supplying clocking to the 3708 was turned off.
- Clocking being supplied by an external device was lost.
- A directly connected cable or device has failed.
- A failure occurred in a modem, modem interface cable, device, or device cable that is connected to this port.
- A failure occurred in the 3708 base.

Action: Write down the ALERT ID (A060) and the codes in the message. Keep the error information available for future service needs.

Perform the following steps until the problem is identified or corrected:

1. Make sure the cable is the correct type. Refer to *IBM 3708 Network Conversion Unit Planning and Installation* for more information on cables.
2. Exchange the cable with a similarly configured port to determine if the cable has failed. If the cable has failed, replace it.
3. Run modem tests. Refer to the modem manual.
4. Follow the procedures in "Running the 3708 Extended Diagnostic Test."

The following codes appear in the alert:

Failure Codes	Description
<i>pp</i>	Port
<i>dd</i>	Device address
<i>iiiiii</i>	Initial error
<i>fffffff</i>	Final error.

A062 CLEAR-TO-SEND FAIL-PORT *pp* CHECK MODEM/CABLE *pp dd iiiiii ffffffff*

Meaning: Clear to send (CTS) was not active within 20 seconds after request to send (RTS) was activated, or CTS was dropped while RTS was active. The display terminal connected to port *pp* was off when the 3708 was turned on, or a failure occurred in a local modem, in a local modem interface cable, or in the 3708 base.

Action: If the terminal connected to this port was turned off, this is not an error condition. If the terminal connected to this port was on when the 3708 was turned on, perform the following steps until the problem is identified or corrected:

1. Write down the ALERT ID (A062) and the codes in the message.
2. Make sure the cable is the correct type. Refer to *IBM 3708 Network Conversion Unit Planning and Installation* for more information on cables.
3. Exchange the cable with a similarly configured port to determine if the cable has failed. If the cable has failed, replace it.
4. Run modem tests. Refer to the modem manual.
5. Follow the procedures in "Running the 3708 Extended Diagnostic Test" on page 5-1.

The following codes appear in the alert:

Failure

Codes	Description
<i>pp</i>	Port
<i>dd</i>	Device address
<i>iiiiii</i>	Initial error
<i>fffffff</i>	Final error.

A063 LOST CARRIER DETECT-PORT *pp* CHK PHONE CONNECT *pp dd iiiiii ffffffff*

Meaning: The carrier detect (CD) signal on a switched line was lost.

Possible causes are the following:

- The remote phone was disconnected.
- A failure occurred in the line.
- A failure occurred in the local or remote modem.
- A failure occurred in the remote device.
- A failure occurred in the local or remote modem interface cable.

Action: Write down the ALERT ID (A063) and the codes in the message. Keep the error information available for future service needs.

Perform the following steps until the problem is identified or corrected:

1. Establish a new telephone connection.
2. Make sure the cable is the correct type. Refer to *IBM 3708 Network Conversion Unit Planning and Installation* for more information on cables.
3. Run modem tests. Refer to the modem manual.
4. Run remote device tests.
5. Exchange the cable with a similarly configured port to determine if the cable has failed. If the cable has failed, replace it.
6. Display the Port Data Monitor screen (see "Using the Port Data Monitor Screen" on page 3-20).
7. Display the Port Status Summary Display screen (see "Using the Port Status Summary Display Screen" on page 3-25).
8. If the problem continues, call for assistance (see Chapter 6, "Service Information").

The following codes appear in the alert:

Failure

Codes	Description
<i>pp</i>	Port
<i>dd</i>	Device address
<i>iiiiii</i>	Initial error
<i>fffffff</i>	Final error.

A097 RCV LINE AT SPACE-PORT *pp* HAVE LINE TESTED *pp dd iiiiii ffffffff*

Meaning: The receive line that is connected to port *pp* went to a space for 2 seconds. The remote device was turned off during receive, or a failure occurred in the line, remote device, local or remote modem, modem interface cable, or in the 3708 port hardware.

Action: Write down the ALERT ID (A097) and the codes in the message. Keep the error information available for future service needs.

Perform the following steps until the problem is identified or corrected:

1. If the remote device was off, turn it on again and try the communication again.
2. Make sure the cable is the correct type. Refer to *IBM 3708 Network Conversion Unit Planning and Installation* for more information on cables.
3. Run modem tests. Refer to the modem manual.
4. Run remote device tests.
5. Exchange the cable with a similarly configured port to determine if the cable has failed. If the cable has failed, replace it.
6. Request the port data monitor (see "Using the Port Data Monitor Screen" on page 3-20).
7. Monitor the port status summary (see "Using the Port Status Summary Display Screen" on page 3-25).
8. If the problem continues, call for assistance (see Chapter 6, "Service Information").

The following codes appear in the alert:

Failure	Description
<i>pp</i>	Port
<i>dd</i>	Device address
<i>iiiiii</i>	Initial error
<i>fffffff</i>	Final error.

A098 AUTO-BAUD/PARITY ERR-PORT *pp* CORRECT MISMATCH *pp dd iiiiii ffffffff*

Meaning: An autobaud/autoparity mismatch occurred on port *pp*. You specified the wrong line speed, or a failure may have occurred in the line, the remote device, the local or remote modem, the modem interface cable, the 3708 microcode, or in the 3708 hardware.

Action: Write down the ALERT ID (A098) and the codes in the message. Keep the error information available for future service needs.

If you specified the wrong line speed, correct it, then try the transmission again. Otherwise, perform the following steps until the problem is identified or corrected:

1. Make sure the cable is the correct type. Refer to *IBM 3708 Network Conversion Unit Planning and Installation* for more information on cables.
2. Run modem tests. Refer to the modem manual.
3. Run remote device tests.
4. Exchange the cable with a similarly configured port to determine if the cable has failed. If the cable has failed, replace it.
5. Display the Port Data Monitor screen (see "Using the Port Data Monitor Screen" on page 3-20).
6. Display the Port Status Summary Display screen (see "Using the Port Status Summary Display Screen" on page 3-25).
7. If the problem continues, call for assistance (see Chapter 6, "Service Information").

The following codes appear in the alert:

Failure

Codes	Description
<i>pp</i>	Port
<i>dd</i>	Device address
<i>iiiiiii</i>	Initial error
<i>fffffff</i>	Final error.

A100 DEV INITIAL XMIT-PORT *pp* PUT DEV IN RCV MODE *pp dd iiiiii ffffffff*

Meaning: The 3708 is unable to transmit initially to the remote device on the half duplex line connected to port *pp* because the carrier is active from the device.

The remote device was left in transmit mode, or a failure occurred in the remote device, local or remote modem, or modem interface cable.

Action: Write down the ALERT ID (A100) and the codes in the message. Keep the error information available for future service needs.

If the remote device was left in transmit mode, press the Line Turnaround key on the remote device. Otherwise, perform the following steps until the problem is identified or corrected:

1. Make sure the cable is the correct type. Refer to *IBM 3708 Network Conversion Unit Planning and Installation* for more information on cables.
2. Run modem tests. Refer to the modem manual.
3. Run remote device tests.
4. If the problem continues, call for assistance (see Chapter 6, "Service Information").

The following codes appear in the alert:

Failure

Codes	Description
<i>pp</i>	Port
<i>dd</i>	Device address
<i>iiiiiii</i>	Initial error
<i>fffffff</i>	Final error.

A101 INACTIVITY T.O.-PORT *pp* VERIFY CONFIG *pp dd iiiiii ffffffff*

Meaning: Port *pp* was deactivated because no inbound activity occurred on the line for the configured time period (Inactivity Time Out). Possible causes are the following:

- No input occurred from the user on port *pp* within the specified time period. To continue communication, log on again.
- There has been no activity on the SDLC link (port *pp*) for a period of time longer than the SDLC inactivity timeout value.
- The inactivity time limit specified was too low. Reconfigure the inactivity time limit for this port.

If the timeout limit is reasonable and the timeout occurred because of inactivity by the user, no problem exists with the 3708 or the network.

- A failure occurred in the remote device, remote modem, or line.

Action: Write down the ALERT ID (A101) and the codes in the message. Keep the error information available for future service needs.

Perform the following steps until the problem is identified or corrected:

1. Review the configuration parameters for port *pp*. Correct the Inactivity Time Out option if it is too low.
2. Make sure that the host is active.
3. Make sure the cable is the correct type. Refer to *IBM 3708 Network Conversion Unit Planning and Installation* for more information on cables.
4. Run modem tests. Refer to the modem manual.
5. Run remote device tests.
6. If the problem continues, call for assistance (see Chapter 6, "Service Information").

The following codes appear in the alert:

Failure

Codes	Description
<i>pp</i>	Port
<i>dd</i>	Device address
<i>iiiiiii</i>	Initial error
<i>fffffff</i>	Final error.

A102 RCV QUEUE OVERRUN-PORT *pp* VERIFY CONFIG *pp dd iiiiii ffffffff*

Meaning: A receive queue overrun occurred. One or more bytes of data were received by port *pp*'s receive queue before the microcode processed the previous byte. At least 1 byte was lost.

Possible causes are:

- Pacing not enabled
- Excessive traffic or data flow through the 3708
- 3708 microcode error.

Action: Write down the ALERT ID (A102) and the codes in the message. Keep the error information available for future service needs.

Perform the following steps until the problem is identified or corrected:

1. Increase the size of the receive queue
2. Enable receive queue pacing
3. Adjust the traffic pattern
4. If the problem continues, call for assistance (see Chapter 6, "Service Information").

The following codes appear in the alert:

Failure

Codes	Description
<i>pp</i>	Port
<i>dd</i>	Device address
<i>iiiiiii</i>	Initial error
<i>fffffff</i>	Final error.

A105 PORT *pp* PASSWORD RETRY LIMIT *xx* EXCEEDED *pp dd ww*

Meaning: A user attempted to access the port with an incorrect password more times than the configuration allows for port *pp*. The user has been disconnected by the 3708. Each subsequent attempt to access port *pp* results in an alert and subsequent disconnection. If the password retry limit for port *pp* is reasonable, there is no problem with the 3708 or the network.

An unauthorized user may be trying to access the system illegally.

Action: If the user is authorized to access the port, have the user try again using the correct password. If the retry limit specified for this port is too low, change the limit.

The following codes appear in the alert:

Failure

Codes	Description
<i>pp</i>	Port
<i>dd</i>	Device address
<i>ww</i>	Invalid port password attempts
<i>xx</i>	The number of times that the retry limit was exceeded after the first time. After the limit is exceeded, the 3708 redefines the limit to 1. For example, if the retry limit is 3, the first time it is exceeded, <i>xx</i> is 4. The second time, <i>xx</i> is 5, and the third time, <i>xx</i> is 6.

A106 CT PASSWORD RETRY LIMIT *xx* EXCEEDED-PORT *pp dd ww*

Meaning: Three or more attempts were made using an incorrect password to gain access to the control terminal function through the port *pp*. The control terminal password retry limit is three. The port has been temporarily deactivated.

An unauthorized user may be trying to access the system illegally.

Action: Locate the terminal at which access was attempted and determine whether the user is authorized to access the control terminal function.

The following codes appear in the alert:

Failure

Codes	Description
<i>pp</i>	Port
<i>dd</i>	Device address
<i>ww</i>	Invalid port control terminal password attempts
<i>xx</i>	The number of times that the retry limit was exceeded after the first time. After the limit is exceeded, the 3708 redefines the limit to 1. For example, if the retry limit is 3, the first time it is exceeded, <i>xx</i> is 4. The second time, <i>xx</i> is 5, and the third time, <i>xx</i> is 6.

A108 S/S WRITE TIMEOUT-PORT *pp* SEE 3708 MANUALS *pp dd iiiiii ffffffff*

Meaning: A start-stop write procedure timeout occurred on port *pp* during 3708 data transmission. The line has been started again automatically.

Action: Follow the procedures in Chapter 6, "Service Information."

The following codes appear in the alert:

Failure

Codes	Description
<i>pp</i>	Port
<i>dd</i>	Device address
<i>iiiiii</i>	Initial error
<i>fffffff</i>	Final error.

A111 RTM COUNTER OVERFLOW REGEN HOST APPL PGM *hhhhhhh*

Meaning: A response time monitor (RTM) counter in the 3708 overflowed. The host RTM application program stopped and cannot send commands to reset the 3708 counters.

Action: Write down the ALERT ID (A111) and the codes in the message. Keep the error information available for future service needs.

Generate the host RTM application program (NLDM), if statistical data collection is desired.

The following code appears in the alert:

Failure

Codes	Description
<i>hhhhhhh</i>	LU name.

A112 SNA DATA STREAM ERROR REGEN HOST APPL PGM *nnn hhhhhhhh*

Meaning: Something in the data stream from the host caused an LU task in the 3708 to encounter invalid data or to reach an invalid state. The 3708 LU task sent a negative response to the host or to the application. The first three digits of the failure code are a 3274 error code. See "NNN Codes" on page D-7 for an explanation of these codes.

Action: Write down the ALERT ID (A112) and codes in the message. Keep the error information available for future service needs. Generate the host RTM application program (NLDM) if statistical data collection is desired.

The following codes appear in the alert:

Failure	
Codes	Description
<i>nnn</i>	Error codes
<i>hhhhhhh</i>	LU name.

A994 INSUFFICIENT BUFFERS AVAILABLE

Meaning: You tried to display the alert log, but insufficient buffers were available. The configuration definition may be inadequate for the amount of traffic actually encountered. The 3708 has entered slowdown mode.

Action: Try again later to display the alert log. Reevaluate the configuration. Adjust line speeds where necessary.

A995 INVALID ENTRY IN THE ALERT LOG *xx*

Meaning: The alert log is displayed. This message indicates that the 3708 found an invalid alert code in the log and is unable to display a valid cause or action that describes the alert. This error indicates a microcode or hardware error in the 3708.

Action: Follow the procedures in Chapter 6, "Service Information."

A996 ALERT LOG POINTER INVALID

Meaning: An error occurred in the 3708, altering the pointer to the alert log. The alert log cannot be displayed.

Action: Run the 3708 extended diagnostic test.

A997 NO 3708 ALERTS LOGGED

Meaning: You requested a display of the alert log, but no alerts have been generated for this 3708.

Action: None.

A998 AN ADDITION HAS BEEN MADE TO THE ALERT LOG

Meaning: An alert indicating some error condition in the 3708 was generated and written to the alert log. If this message appears frequently, the 3708 may have a serious problem that you should investigate.

When the 3708 is turned off and back on again or when the 3708 is started again from the control terminal, the 3708 sends an alert for each port that is connected to a device, which has been turned off.

The 3708 alert log may contain alerts that could not be sent to the host, for example, errors on SNA host ports.

Action: Display the alerts. Follow the instructions in this appendix for the alerts shown in the log.

A999 ALERT LOG CONTAINS EXTENDED ERROR DATA

Meaning: Extended error information about an error in the 3708 was captured in one of two ways:

- The 3708 experienced a repeated failure, causing it to restart often. You used the 3708 Test/Normal switch as described in “Exiting Restart Loops” on page 4-7 to capture error information, and you have now reset the 3708.
- The 3708 was set to STOP ON ERROR and to capture the error information before stopping.

The error information is saved in the extended error information field (EEIF) in the nonvolatile storage (EEPROM) in the 3708 base.

Action: Within 4 hours after the error information is captured, display and record the error information. Refer to Chapter 4, “Handling Microcode Problems” for more information.

Appendix B. Considerations for Hosts Not Using NetView or NPDA

The 3708 uses Network Management Vector Transport (NMVT) records to send unsolicited alerts and traffic data to SNA hosts. This appendix shows the NMVT formats used by the 3708 to send this information to the host.

Unsolicited Alert Message Format

This section describes the format the 3708 uses for unsolicited alert messages (alerts) that it sends to a host. The alerts are intended for processing by NetView or NPDA. Hosts that do not support NetView or NPDA can interpret the alerts according to the format described in the following sections.

The 3708 uses an NMVT (0000) record to transmit unsolicited alerts to SNA hosts to describe the probable cause of a problem. The following section lists the format of the NMVT (0000) record. The contents of bytes 64 and 65 are a hex code that corresponds to an alert message identifier. The table listed under “Detailed Description Code and Alert ID Cross Reference” on page B-4 shows you which message identifier corresponds to each hex code. All alert message identifiers are listed in Appendix A, 3708 Alert Messages.

NMVT (0000) Record Format

The format of the NMVT (0000) record is as follows:

Byte	Description
0-2	X'41038D' NMVT header
3-4	X'0000' reserved
5-6	X'0000' PRID
7	Flags: Bit 0 B'0' always unsolicited Bit 1 B'0' always last RU Bit 2 B'0' always first RU Bits 3-7 Reserved
8-9	Major vector length (n + 1)
10-11	Major vector ID X'0000'
12	Length of product set subvector X'10' (p + 1)
13	Subvector ID X'10'
14	X'00' retired
15	Length of product identifier subvector X'11' (q + 1)
16	Subvector ID X'11'
17	X'01' product classification
18	Length of hardware product identifier subfield X'00' (r + 1)
19	X'00' hardware product identifier subfield
20	X'12' format type
21-24	Machine type ('3708' in EBCDIC)
25-27	Machine model number (in EBCDIC)
28-29	Serial number modifier (in EBCDIC)
30-36	Serial number (in EBCDIC)
37	X'09' length of subvector X'01' (r + 1)
38	X'01' emulated hardware product identifier (X'01') product ID subfield
39-42	Machine type of product being emulated (in EBCDIC)
43-45	Machine model number of product being emulated (in EBCDIC)
46	X'07' length of subvector X'42' (p + 1)
47	X'42' relative time subvector
48	X'EF' sequence number
49-52	X'0000xxxx' timer value
53	Length of basic alert subvector (p + 1)
54	X'91' type code for basic alert

Byte	Description
55	X'00' retired field
56	Alert type
57	General cause code
58-59	Specific cause (component code)
60-61	Alert description code
62-63	User action code
64-65	Detailed text reference code (See "Detailed Description Code and Alert ID Cross Reference" on page B-4.)
66	X'00' alert repetition count
67	X'0A' length of subvector X'A0' or X'A1' (q + 1)
68	X'A0' or X'A1' detail qualifier subvector (EBCDIC or hexadecimal)
69-76	Detail qualifier
77	X'0A' length of subvector X'A0' or X'A1' (q + 1)
78	X'A0' or X'A1' detail qualifier subvector (EBCDIC or hexadecimal)
79-86	Detail qualifier
87	X'0A' length of subvector X'A0' or X'A1' (q + 1)
88	X'A0' or X'A1' detail qualifier subvector (EBCDIC or hexadecimal)
89-96	Detail qualifier
	The name subvector is sent only when the 3708 detects a link error or security violation.
97	Length of name subvector X'03' (p + 1)
98	X'03' name subvector
99	X'00' name list is to be concatenated
100	X'02' count of names in vector (link and station) or X'01' count of names for modem interface errors (link)
101	X'09' length of this field and the next field (q + 1)
102-109	Downstream line name in LP record (in EBCDIC) This name is equal to the Device Line Name configured in the 3708 by the control terminal operator.
110-113	X'D3C9D5C5' link type ('LINE' in EBCDIC)
114	X'09' length of this field and the next field (q + 1)
115-122	Downstream display in the display record (in EBCDIC) This name is equal to the Device Name configured in the 3708 by the control terminal operator.
123-126	X'C4C5E540' terminal type ('DEV' in EBCDIC)

Detailed Description Code and Alert ID Cross Reference

The detail description code (byte 64-65) in the NMVT corresponds to an alert ID displayed on the Alert Log screen. You can use the following tables to match the hex code to the alert message identifier:

Detail Code	Alert ID	Detail Code	Alert ID	Detail Code	Alert ID
X'01'	A001	X'19'	A025	X'34'	A052
X'02'	A002	X'1A'	A026	X'36'	A054
X'03'	A003	X'1B'	A027	X'37'	A055
X'04'	A004	X'1C'	A028	X'39'	A057
X'09'	A009	X'1E'	A030	X'3B'	A059
X'0A'	A010	X'1F'	A031	X'3C'	A060
X'0B'	A011	X'20'	A032	X'3E'	A062
X'0C'	A012	X'21'	A033	X'3F'	A063
X'0D'	A013	X'22'	A034	X'61'	A097
X'0E'	A014	X'28'	A040	X'62'	A098
X'0F'	A015	X'29'	A041	X'64'	A100
X'10'	A016	X'2A'	A042	X'65'	A101
X'11'	A017	X'2B'	A043	X'66'	A102
X'14'	A020	X'2C'	A044	X'69'	A105
X'15'	A021	X'2D'	A045	X'6A'	A106
X'16'	A022	X'2E'	A046	X'6C'	A108
X'17'	A023	X'2F'	A047	X'6F'	A111
X'18'	A024	X'32'	A050	X'70'	A112

Data Link Traffic Counter Format

The 3708 uses an NMVT (0025) record to send unsolicited data-link traffic counters to SNA hosts. The NMVT (0025) vector sends error and traffic counters in the 3708 downstream ports to the NetView or NPDA data base. The 3708 sends the NMVT (0025) vector unsolicited when:

- A line on a 3708 port is dropped
- The 3708 error and traffic counters for the port reaches a threshold.

PERF Events Records

NetView or NPDA uses the error and traffic statistics sent by the 3708 to compute a current error-to-traffic ratio. NetView or NPDA then compares the ratio to an NetView or NPDA threshold, which can be defined in one of the following ways:

- Specified by an initialization parameter
- Changed dynamically by a NetView command or by an NPDA command
- Set to accept a NetView default or an NPDA default.

If the threshold is exceeded, NetView or NPDA creates a performance-threshold-exceeded (PERF) event record and records the original data as a statistic. The Most Recent Statistical Data screen at the host displays the error and traffic counters.

If NetView or NPDA recognizes the PERF event records as alerts, NetView or NPDA does the following as soon as the PERF event occurs:

- Records data about the alert
- Sends the data to the NetView or NPDA alerts-dynamic display terminals that recognizes PERF events as alerts.

Note: Refer to *IBM 3708 Planning and Installation* for more information about the following port options:

- Transmit Data Threshold
- Transmit Error Threshold
- Receive Data Threshold
- Receive Error Threshold.

NetView or NPDA can warn the network operator of possible resource failures when the frequency of temporary errors is greater than an installation-defined threshold value.

NMVT (0025) Record Format

The format of the NMVT (0025) record is as follows:

Byte	Description
0-2	X'41038D' NMVT header
3-4	X'0000' reserved
5-6	X'0000' PRID
7	Flags: Bit 0 B'0' always unsolicited Bit 1 B'0' always last RU Bit 2 B'0' always first RU Bits 3-7 Reserved
8-9	Major vector length (n + 1)
10-11	Major vector ID X'0025'
12	Length of product set subvector X'10' (p + 1)
13	Subvector ID X'10'
14	X'00' retired
15	Length of product identifier subvector X'11' (q + 1)
16	Subvector ID X'11'
17	X'01' product classification
18	Length of hardware product identifier subfield X'00' (r + 1)
19	X'00' hardware product identifier subfield
20	X'12' format type
21-24	Machine type ('3708' in EBCDIC)
25-27	Machine model number (in EBCDIC)
28-29	Serial number modifier (in EBCDIC)
30-36	Serial number (in EBCDIC)
37	X'09' length of subvector X'01' (r + 1)
38	X'01' emulated hardware product identifier (X'01') product ID subfield
39-42	Machine type of product being emulated (in EBCDIC)
43-45	Machine model number of product being emulated (in EBCDIC)
46	X'07' length of subvector X'42' (p + 1)
47	X'42' relative time subvector
48	X'EF' sequence number
49-52	X'0000xxxx' timer value
53	Length of name subvector X'03' (p + 1)

Byte	Description
54	X'03' name subvector
55	X'00' name list is to be concatenated
56	X'02' count of names in vector (link and station)
57	X'09' length of this field and the next field
58-65	Downstream line name in LP record (in EBCDIC) This name is equal to the Device Line Name configured in the 3708 by the control terminal operator.
66-69	X'D3C9D5C5' link type ('LINE' in EBCDIC)
70	X'09' length of this field and the next field
71-78	Downstream display in the display record (in EBCDIC) This name is equal to the Device Name configured in the 3708 by the control terminal operator.
79-82	X'C4C5E540' terminal type ('DEV' in EBCDIC)
83	Length of counter subvector X'9A' (p + 1)
84	X'9A' counter subvector ID
85	X'01' link type is start/stop
86-88	Validity mask (if set to B'1', the corresponding counter in bytes 89-98 is valid): Bit 0 Transmit data counter Bit 1 Poll counter Bit 2 Transmit error counter Bit 3 Receive data counter Bit 4 Receive error data counter Bit 5-23 Reserved.
89-90	Transmit data counter
91-92	Poll counter
93-94	Transmit error data counter
95-96	Receive data counter
97-98	Receive error data counter

Appendix C. 3708 Control Terminal Messages

This appendix lists the 3708 control terminal messages. It includes an explanation and a recommended action for each message.

Unnumbered Messages

--- **CONFIGURATION COMPLETE - PRESS PF6 TO UPDATE MASTER COPY OR PRESS PF2 TO QUIT**

Meaning: The configuration data you entered has been accepted but has not yet been used to update the current configuration in nonvolatile storage (EEPROM).

Action: Press PF6 to apply the configuration data you entered to the current configuration in nonvolatile storage. The new configuration goes into effect the next time the 3708 is turned off and back on again or is restarted from the control terminal. Press PF2 to cancel the configuration data you entered.

--- **CONTROL TERMINAL ALREADY ACTIVE**

Meaning: Another control terminal session is currently in effect at another terminal. Only one control terminal session can be active at a time.

Action: Try again later.

--- **BASIC CONFIGURATION IN USE, CALL SUPERVISOR**

Meaning: This message appears under six circumstances:

1. The first time the 3708 is turned on during setup and before the user configuration is defined to the 3708.
2. When you press the Test/Normal switch to invoke the IBM-supplied configuration immediately after you turn on the 3708.
3. When you permanently invoke the IBM-supplied configuration by placing REPLWIBM in the Name field and CONFIG.. in the Version field of the 3708's General Definition screen (C127.1).
4. When you reconfigure the 3708 without following the 3708's storage algorithm for the number of medium and large sized receive queues.
5. When you reconfigure your host port definition using the 3708's port definition option.
6. When an error exists in the data in the 3708 MCF/patch area.

The IBM-supplied configuration definition was invoked; the user-defined configuration, if any, was not affected. The IBM-supplied configuration is usually requested when the configuration prevents you from using the 3708 or the control terminal.

Action: If the message appears before the user-defined configuration has been defined to the 3708, ignore the message. Otherwise, notify the system administrator that the IBM-supplied configuration is in effect. With the IBM-supplied configuration in effect, you can use the control terminal to make corrections to the user-defined configuration.

--- **INCORRECT PASSWORD**

Meaning: The password you entered did not match the password recorded in the 3708.

A port password or a control terminal password is up to eight characters in length and must not include a period (.) or four # symbols. Neither the control terminal password nor the port password can contain imbedded blanks. The password is assigned by the planner or system administrator.

Action: Check the password that you entered and try again. If the IBM-supplied configuration is in effect, the port password is **PASSWORD** and the control terminal password is **CONTROL**.

Meaning: The display configuration and the 3708 configuration do not match for one or more of the following reasons:

- Parity for the display and the 3708 do not match.
- One of the configurations is defined for XON/XOFF pacing, and the other is not.
- The line turnaround characters that are used at the display do not match the characters that are defined for the 3708.

Action: Verify that these configuration parameters match.

--- **INCORRECT RESPONSE**

Meaning: You did not type the data requested in the format required.

Action: Try again.

--- **TO DISCONNECT FROM THE 3708, TYPE "####."**

Meaning: The four # symbols log off the control terminal from the 3708.

Action: To log off, type four # symbols and press the period key, carriage return key, or a defined line turnaround character as the ENTER key.

Numbered Messages

C1 Type port password

Meaning: The port to which the display terminal is connected has a password defined for it in the configuration definition.

Action: Type the password for this port and press the ENTER key. In this mode, use the period key, the carriage return key, or a defined line turnaround character as the ENTER key.

C2 Type the number of your terminal:

Meaning: The port you are logging on to was defined for protocol conversion. To communicate correctly with the terminal, the 3708 must know the terminal type.

Action: Find the name of the terminal in the list on the screen. The number next to that name identifies the terminal type to the 3708. Type the number that identifies the terminal and press the ENTER key. In this mode, use the period key, carriage return key, or a defined line turnaround character as the ENTER key.

If the name of the terminal is not on the list, the terminal may be user-defined. Check with the planner or check the configuration forms to find which number to enter.

C3 Type the number of the desired connection:

Meaning: The terminal is now connected to the 3708, and you can connect to a host application or operate the terminal as the control terminal.

Action: Type the letter C and then press the ENTER key to operate the terminal as the control terminal or type the number that corresponds to the host where you want to log on. Then press the ENTER key. In this mode, use the period key, the carriage return key, or a defined line turnaround character as the ENTER key.

C4 You can now type your system logon

Meaning: You are now connected to the host system.

Action: Type in the required host logon sequence to gain access to the host application.

C5 Type control terminal password

Meaning: You must enter a password that is assigned by the planner or system administrator to begin a control terminal session. A control terminal password is up to eight characters in length and must not include spaces, a period (.), or four # symbols.

Action: Type the control terminal password and press the ENTER key. In this mode, use the period key, the carriage return key, or a defined line turnaround character as the ENTER key.

C100 PORT DATA MONITOR FAILED

Meaning: The device being monitored was disconnected on command from the host or because of a line drop condition, such as the device being turned off. The control terminal will not display any more data.

Action: Follow the instructions shown on the screen. You can try this function again after determining the cause of the problem.

**C101 CONTROL TERMINAL PASSWORD VERIFICATION FAILED.
UPDATE NOT DONE**

Meaning: You tried to change the control terminal password but did not type the same characters for verification that you typed for the new password. The control terminal password was not changed.

Action: Try the task again.

C102 A PASSWORD IS REQUIRED FOR CONTROL TERMINAL ACCESS

Meaning: You tried to change the control terminal password but entered blanks in the new password field. The control terminal password cannot be all blanks.

Action: Try the task again. Enter a password that is not all blanks, that does not begin with a blank, and that does not contain imbedded blanks. The password also must not contain a period (.) or four # symbols.

C103 UPDATE FAILED

Meaning: You entered some data that was accepted, but the 3708 could not write the data to nonvolatile storage (EEPROM). The update is not in effect.

Action: Display the alert log. Write down the alert ID (Axxx) and the failure codes from the alert screen. Keep the error information available for future service needs. See Appendix A, "3708 Alert Messages" for descriptions of the display alerts.

C104 DATA MONITOR NOT ALLOWED ON CONTROL TERMINAL PORT

Meaning: You tried to use the port data monitoring function for the port to which the control terminal is connected. This function is not allowed on the control terminal port.

Action: If you must monitor that port:

1. Terminate the control terminal session.
2. Go to another terminal and begin a control terminal session on that terminal.
3. Select the port data monitor function for the original port; otherwise, specify a different port.

C105 PORT NOT ACTIVE

Meaning: The port that you want to monitor is not available for one of the following reasons:

- The port has been excluded in the configuration.
- The device connected to the port is not turned on.
- The port is connected to a switched line modem, and no incoming call has occurred.
- Microcode controlling the port failed. To determine whether this occurred, display the Alert Log screen and look for alerts containing the port number in question.

Action: If you must use that port, remove the exclusion by reconfiguring the port or determine why the port is not active.

C106 INVALID INPUT

Meaning: You entered data or pressed a function key that was incorrect for the current screen.

Action: Correct the data and try the task again.

C107 CURRENT PASSWORD INVALID. FUNCTION TERMINATED

Meaning: You entered the current password incorrectly while trying to change the control terminal password. Enter the current password correctly to change the control terminal password.

Action: Try the task again. If you cannot log on to any port, you may need to reinstate the IBM-supplied configuration to examine or correct the configuration definition. See Appendix G, "Temporarily Reinstating the IBM-Supplied Configuration" and Appendix H, "Permanently Reinstating the IBM-Supplied Configuration" for more information.

C108 END OF DATA RANGE

Meaning: The upper boundary of the storage area that you are displaying was reached. The data displayed on the screen for the count specified includes all data up through the last byte in that storage area.

Action: Type another data address or count, and press the ENTER key.

C109 INVALID CHECKSUM

Meaning: The checksum value that was entered as the first 4 bytes of the patch data does not match the checksum value calculated from the entered data and address.

Action: Ensure that you typed all the data correctly. If the problem occurs again, contact the service representative.

C110 ACTIVATION OF ANOTHER CONTROL TERMINAL SESSION REJECTED

Meaning: Someone at another terminal that is connected to this 3708 is trying to log on that terminal as the control terminal. Only one control terminal session can be active at a time for each 3708.

Action: None. If the message recurs, prevent further logon attempts from that port.

C111 EEPROM IN USE. TRY AGAIN LATER

Meaning: You tried to access the nonvolatile storage (EEPROM) in the 3708 while the storage was being read from or written to.

Action: Try the task again later.

C112 EEPROM READ FAILED

Meaning: The 3708 could not read data from nonvolatile storage (EEPROM).

Action: See ALERT A041 in Appendix A, "3708 Alert Messages" for the proper action.

C113 DATA MONITOR NOT ALLOWED ON SDLC PORT

Meaning: You tried to use the port data monitor function for an SDLC port. This function is not allowed on an SDLC port.

Action: Specify a different port.

C114 MCF/PATCHES NOT APPLIED; EEPROM CHECKSUM ERROR

Meaning: The patches that reside in the 3708 for the current cartridge were not installed because they could not be read correctly from EEPROM or because there is an error in the MCF/Patch data itself.

Action: Call for service. See Chapter 6, "Service Information" for more information.

C115 PORT NOT DEFINED AS A PRINTER

Meaning: You tried to display the printer authorization matrix for a port, but that port is not defined for use as a printer.

Action: Select a port that has been defined for a printer or reconfigure the original port and define it as a printer.

C116 BUFFER CONSTRAINT EXCEEDED

Meaning: The receive queue buffers allocated in the 3708 are in a critical condition.

The condition occurs when the following formula is not satisfied:

$$P_m + 2(P_l) + 2(P_4) + 2(P_{ls}) < 40 - 2(P_{ne}) \text{ where:}$$

- P_m = The number of ports set for a medium (519-byte) receive queue
- P_l = The number of ports set for a large (1079-byte) receive queue
- P_4 = The number of ports operating as Device_Class_4
- P_{ls} = The number of ports configured to support 3270 Model 3, 4, or 5 emulation
- P_{ne} = The number of ASCII ports not excluded.

This warning message is displayed when the control terminal session is first activated. It indicates that the IBM-supplied configuration has been invoked.

Action: Satisfy the preceding formula for receive queue size by doing any of the following actions:

- Reduce the size of the receive queue buffers if the large buffers are not really needed.
- Eliminate some of the Device_Class_4 ports by using other types of devices.
- Reduce the number of ports that support Model 3, 4, or 5 emulation.
- Exclude all unused ports from the configuration. Refer to the configuration section in *IBM 3708 Planning and Installation* for more information.

Proceed with normal control terminal activity.

C117 BUFFER CONSTRAINT EXCEEDED; $P_m + 2(P_1) + 2(P_4) + 2(P_{1s})$ Not LT 40 - $2(P_{ne})$

Meaning: Same as C116. The receive queue buffers allocated in the 3708 are in a critical condition. This warning message appears when you select the configuration update for the port or host definition, or while a configuration update for the port or host is being done.

Action: See action described for C116. You can continue with the configuration screens or do the configuration update. No other error messages are generated by this condition.

C122 THE UDT TYPE BIT CANNOT BE CHANGED USING THIS PROCEDURE

Meaning: You have tried to modify the bit that distinguishes enhanced from standard UDTs with the UDT definition procedure.

Action: To convert between standard and enhanced UDTs, you must use option 8, Conversion Between Standard and Enhanced UDTs, from the 3708 Configuration and Password Menu (M120.0). The 3708 automatically changes the UDT type bit when this procedure is successfully completed.

C123 TERMINAL ID xx ON PORT yy WILL NOT BE VALID AFTER CONVERSION. ID MUST BE CHANGED BEFORE CONVERSION WILL TAKE PLACE.

Meaning: You are trying to convert from standard to enhanced UDTs but you have TERMINAL TYPE ID = 24 or 25 defined for at least one port.

Action: Terminal type IDs of 24 or 25 are not valid for enhanced UDTs. You can only have 4 enhanced UDTs with IDs in the range of 20 to 23. Reconfigure all ports that have TERMINAL ID = 24 or 25, specifying either a valid default terminal ID or a UDT ID from 20 to 23.

C124 BASE TERMINAL TYPE REQUIRES ENHANCED UDTs

Meaning: You have tried to define a standard UDT from a terminal type that requires an enhanced UDT.

Action: Perform the conversion between standard and enhanced UDTs before attempting to define your UDT.

C200 NO MESSAGE TO DISPLAY

Meaning: You pressed PF5 to display any waiting messages, but no messages were queued.

Action: None.

C201 MESSAGE WAITING - PRESS PF5

Meaning: One or more messages were received and queued for display.

Action: Press PF5 to see the messages. If message C201 reappears, more messages are waiting; press PF5 again.

C202 UPDATE TO BE APPLIED UPON EXIT OF PASSWORD CHANGE MENU

Meaning: You entered a port password change. The change was accepted and will be applied to the configuration definition after you leave the password-change procedure. The new port password is not effective until the next time the 3708 is turned off and back on again or is restarted from the control terminal.

Action: Follow any instructions on the screen.

C203 UPDATE IN PROCESS. PLEASE WAIT

Meaning: The changes entered are being applied to the configuration in nonvolatile storage (EEPROM). The changes are not effective until the next time the 3708 is turned off and back on again or is restarted from the control terminal.

Action: Wait until the update is completed.

C204 UPDATE SUCCESSFUL

Meaning: The changes that you entered were applied to the configuration. The changes are not effective until the next time the 3708 is turned off and back on again or is restarted from the control terminal.

Action: Follow the instructions on the screen.

C205 HOLDING DISPLAY

Meaning: While using the port data monitor function, you pressed the ENTER key, which suspended the display of information.

Action: Press the ENTER key again to continue the display of data monitor information.

C206 SNAPSHOT DUMP REQUEST ABORTED

Meaning: While the snapshot dump request function was in process, you pressed PF2, which canceled the snapshot dump function.

Action: Follow the instructions on the screen.

C207 MESSAGE LOST

Meaning: The message queue for control terminal messages overflowed and some messages were lost.

Action: Empty the message queue by viewing the messages. Press PF5 until message C201 disappears from the control terminal screen.

C208 WAITING FOR REQUESTED FUNCTION TO OCCUR

Meaning: You requested the snapshot dump function, and the request is in process.

Action: Wait for the request to be completed, or cancel the request by pressing PF2.

C209 WAITING FOR RESPONSE FROM PORT

Meaning: The 3708 is waiting for the requested port function to occur.

Action: Wait for the response to occur, or press PF2 to cancel the request.

C210 EEPROM DISPLAY - SEE MANUAL

Meaning: While using the display storage function, you entered an address that is within the range of the EEPROM.

Each line of data on the Display Storage screen shows, in hexadecimal, up to 16 bytes of data beginning at the address shown at the left of the screen. In the EEPROM, every *other* byte contains data; only the *data* bytes are shown on the screen. In this display, therefore, the addresses at the left are incremented by 32 bytes instead of the usual 16. Each byte of data occupies an odd-numbered address.

If you enter an even-numbered address that is within the EEPROM, the display begins with the next odd-numbered address.

Action: None.

C211 EXTENDED ERROR DATA LOGGED; CALL FOR ASSISTANCE

Meaning: Extended error information about an error in the 3708 was captured because the 3708 was set to STOP ON ERROR.

Action: Write down the message ID (C211). Do not do any control terminal functions that update the EEPROM. See "Setting the 3708 for STOP ON ERROR" on page 4-4 for more information. When this message appears on the 3708 Alert Display screen, you may press the ENTER key to display the current alerts.

C212 RESERVED OPTION

Meaning: You selected the Central Site Configuration option, but it is not available on your 3708 cartridge.

Action: None

C213 HOST DOWNLOAD ATTEMPTED. PLEASE LOGOFF CONTROL TERMINAL.

Meaning: You are on the control terminal and someone is trying to download a configuration to the 3708 over the SNA link.

Action: Log off the control terminal to permit the configuration download.

C214 WARNING: CONVERTING TO ENHANCED UDTs WILL REDUCE THE NUMBER OF UDTs FROM SIX TO FOUR. THE FOLLOWING UDTs WILL BE CONVERTED: x1, x2, x3, x4.

Meaning: You are performing a conversion from standard to enhanced UDTs. Terminal IDs x1, x2, x3, and x4 are converted from standard to enhanced UDTs.

Action: None

C215 ENHANCED UDTs ARE CURRENTLY DEFINED - NO ACTION HAS BEEN TAKEN.

Meaning: You are attempting to convert standard UDTs to enhanced UDTs. However, enhanced UDTs are already defined.

Action: None

**C216 WARNING: CONVERTING TO STANDARD UDTs WILL PREVENT YOU FROM DEFINING
TERMINAL INITIALIZATION SEQUENCES, UDT NAMES, AND EMULATING 3270
MODELS 3, 4, AND 5.**

Meaning: You are converting enhanced UDTs to standard UDTs. Any defined terminal initialization sequences, UDT names, or 3270 Model 3, 4, or 5 sequences are lost in the conversion.

Action: None

C217 STANDARD UDTs ARE CURRENTLY DEFINED - NO ACTION TAKEN

Meaning: You are attempting to convert enhanced UDTs to standard UDTs. However, standard UDTs are already defined.

Action: None

C218 UNSPECIFIED UDT IDS HAVE BEEN DEFAULTED TO 20, VERIFY FOR CORRECTNESS

Meaning: You can convert up to four different UDTs. Unspecified values default to 20.

Action: If the values are correct, press ENTER. Otherwise, enter again the IDs of the UDTs to be converted.

Appendix D. 3708 Status Line

This appendix describes the 3708 status line position, messages, and codes. It includes an explanation and a recommended action for each field in a message.

To help with full-screen operations and problem determination, the 3708 provides an 80-byte status line in protocol conversion mode. The status line displays messages that describe the status of host and printer sessions. These messages also describe error conditions that prevent data entry (keyboard lock conditions).

Status Line Position

The status line can appear in one of two positions on a display screen: an addressable special status area or the last data line of the display.

If the terminal has an addressable special status area, the status message is displayed on that line of the display. The 3708 permanently displays the status in that area of the display. When the status changes, the 3708 updates the status line message.

Depending on the 3270 model that you are emulating, the special status area appears on the line indicated in the following chart.

3270 Model Emulation	Status Line Position
2	25
3	33
4	44
5	28

If the terminal does not have an addressable special status area, the status message is displayed on the last data line of the display. To view status line messages on the last data line, turn on the status line. The 3708 replaces the last line of data with a status line message until the status line is turned off, or until the cursor is moved to the last data line.

When the operator uses the last data line for data and a change occurs in the status of a host or printer session, the 3708 updates the status, locks the keyboard, and does the following:

1. Performs a logical keyboard lock (discards incoming data)
2. Moves the cursor to the lower right corner of the screen
3. Sounds the terminal bell.

If the status changes and the keyboard does not lock, the 3708 sounds the terminal bell. The operator can turn on the status line to display the new information.

Once the 3708 status line is turned on, the 3708 continues to display the status line and updates it as changes occur.

To clear the status line and refresh the data on the last line, do one of the following:

- Turn off the status line.
- Begin entering data or use the cursor movement keys to move the cursor to the last line. (Either action refreshes the data and returns data to last line until the 3708 updates the status again.)

Status Line Messages and Codes

Status line messages appear on the status line in the following format:

1	2	3-10	11-38	39-40	41-44	45-60	61-80
Ready Status	Device Emulation	Session Indicator	Session Status	Insert Status	Null /Blank Status	Type-Ahead Status	Printer Status

Figure D-1. IBM 3708 Status Line Format

The following is a description of the fields and codes in the format:

Ready Status

4

Meaning: The 3708 is running and operating normally.

Action: None

Device Emulation

B

Meaning: The 3708 is using 3270 online B protocols. There are two basic protocol rules that govern communication with 3270 applications: A and B. The 3708 uses B.

Action: None

Session Indicator

MYJOB

Meaning: The session is connected to the host application or to the 3708 control terminal.

Action: None

SSCP

Meaning: The session is connected to the system operator (SSCP control program).

Action: None

Session Status

NNN codes, which can appear in the Session Status field, are described in “NNN Codes” on page D-7.

X CLOCK

Meaning: The system needs time to perform the requested function. The host application automatically unlocks the keyboard.

Action: Wait for the condition to clear.

X PC *nnn*

Meaning: Program Check. The 3708 detected an SNA data-stream error in the data from the host.

Action: See “NNN Codes” on page D-7 for information.

X CC *nnn*

Meaning: Communication Check. A condition in the network is preventing communication with the host.

Action: See “NNN Codes” on page D-7 for information.

X ?+

Meaning: Input not understood.

Action: Press the Reset key sequence defined for the terminal, check the screen, and try to enter the data again.

X -F

Meaning: Minus Function. The requested function is currently unavailable.

Action: Press the Reset key sequence defined for the terminal.

X PRTNW

Meaning: Printer Not Working. The printer assigned to the terminal is not active and no other printers in the class are available. The 3708 discards the print request.

Action: Press the Reset key sequence defined for the terminal, activate the printer, and try the function again.

X PRTBSY

Meaning: Printer Busy. The printer assigned to the terminal is busy and the 3708 has put the request in the queue.

Action: Wait for the printer to finish or press the DEV CNCL key sequence defined for the terminal to cancel the print request.

X OP X

Meaning: Operator Unauthorized. You requested a printer or print class that you are not authorized to use.

Action: Press the Reset key sequence defined for the terminal and retry the IDENT function specifying another print ID. To obtain authorization for that printer, contact the system administrator.

X <-OP-> X

Meaning: That Entry Prohibited Here. The entry you tried is invalid for that position on the screen. For example, entering data into a protected field is invalid.

Action: Press the Reset key sequence defined for the terminal; move the cursor to the correct position on the screen.

X OP >

Meaning: Too Much Data Entered. You tried to enter too much data into a field on the screen.

Action: Press the Reset key sequence defined for the terminal and enter the correct amount of data.

X OP#

Meaning: Numeric. You tried to enter a lowercase alphabetic character into a numeric field.

Action: Press the Reset key sequence for the terminal and enter the correct data in the field. To enter a lowercase alphabetic character in the field, override the numeric lock feature by typing a blank into the first character position of the field. When a blank occupies this position, enter any character into the field.

X OP#?

Meaning: Wrong Number. You entered an unacceptable number. This occurs when you use the IDENT function to assign a printer and the number is out of range or non-numeric.

Action: Press the Reset key sequence for the terminal and enter the correct data into the field.

X PARITY

Meaning: Parity Error. The 3708 detected a parity error in the data coming from the terminal. If the type-ahead key queuing function is on, the 3708 purges all characters that follow the character with the parity error.

Action: Press the Reset key sequence defined for the terminal and enter the data again.

X FRAME

Meaning: Frame Error. The 3708 detected a framing error on data from the terminal. If the type-ahead key queuing function is on, the 3708 purges all characters following the character with the parity error.

Action: Press the Reset key sequence defined for the terminal and enter the data again.

X OVRFLO

Meaning: 3708 Receive Queue Overflow. The receive queue can overflow when the following conditions occur:

- The host response time is very slow
- The 3708 is sending data too fast (for example, doing file transfer applications).

Action: Press the Reset key sequence defined for the terminal and enter the data again.

X STATLN

Meaning: Status Line Required for IDENT. The 3708 requires the status line to be on before assigning printers.

Action: Press the Reset key sequence defined for the terminal, turn on the 3708 status line, and try the IDENT function again.

X WAIT

Meaning: Wait for the 3708 to finish. The 3708 displays this message when you initiate a host data transfer while the 3708 is in slowdown mode. This condition occurs when the 3708 runs low on buffer space because of overloading.

Action: Press the Reset key sequence defined for the terminal. Continue to enter data characters, or try an Enter function. If the slowdown condition has been cleared, the data is sent to the host.

X HOST

Meaning: An upstream link has recorded a Receiver Not Ready (RNR) from host. The host is temporarily unable to accept more data.

Action: Press the Reset key sequence defined for the terminal and try the function again.

Insert Status

^

Meaning: You can insert characters into the middle of fields.

Action: None.

Null Blank Status

N/B

Meaning: Null/blank processing is enabled.

Action: None.

Type-Ahead Status

TYP

Meaning: The type-ahead key queuing function is enabled.

Action: None.

Printer Status

P *nn*

Meaning: Printer Assignment. The display is authorized to use printer address *nn*. Numbers may range from 1 to 31 for individual printers and from 70 to 85 for printer classes.

Action: None. To use a different printer or class, use the IDENT key sequence to redefine the printer access.

PRNT

Meaning: Printer Printing. The printer identified by *nn* is currently printing the information.

Action: None.

P _ _

Meaning: Printer Assignment. This value appears when you press the IDENT key sequence to assign printer access.

Action: Type in the number of the printer or class.

NNN Codes

The NNN codes appear in the Session Status field when one of the following occurs:

- The host generates an invalid SNA data stream, which is indicated by a Program Check (PC *nnn*).
- The communication link with the host fails, which is indicated by a Communication Check (CC *nnn*).

When the host application or system recovers, the status line is automatically cleared. If it is not cleared, contact the system administrator.

NNN Code	Explanation	-RSP sent to the host
PC 401	Invalid command received.	1003
PC 402	The 3708 received an invalid (out of range) address following an SBA, RA, or EUA command.	1005
PC 403	The 3708 received data after a Read, Read Modified, or EAU command.	1003
PC 404	The data stream ended before the 3708 received all of the required bytes of an SBA, RA, or EAU command.	1005
PC 411	The LU type 1 RU received was longer than in the BIND specification.	1002
PC 413	The 3708 did not try to do the requested function.	1003
PC 422	A NO Response is not allowed.	400A
PC 423	The format indicator (FI) bit is not allowed, or the FI should have been sent but was not.	400F
PC 430	A sequence number error has occurred.	2001
PC 431	A bracket error has occurred.	2002
PC 432	A bracket error has occurred.	2003
PC 433	A data traffic reset has occurred.	2005
PC 434	A direction error has occurred.	2004
PC 440	A session limit has been exceeded.	0815
PC 442	The request is not executable.	081C
PC 443	A change direction is required.	0829
PC 445	ACTLU is not equal to COLD or ERP.	0821
PC 450	A profile error has occurred.	0821
PC 451	A primary protocol error has occurred.	0821
PC 452	A secondary protocol error has occurred.	0821
PC 453	A common protocol error has occurred.	0821
PC 454	A screen size specification error has occurred.	0821
PC 455	An LU profile error has occurred.	0821
PC 456	An LU type-1 error has occurred.	0821
PC 457	BIND for cryptography was specified but is not supported by the 3708.	0821
CC 518	The 3708 received a segment with improperly sequenced TH MPF bits.	8007

Appendix E. SNA Sense Codes

Each major error code has modifiers for further description in sense byte 1. The modifier codes supported, and the SNA host or terminal condition causing the negative response to be returned, are described below:

Path Error X'80'

X'05'—NO SESSION

A BIND has not been received or accepted.

X'07'—Segmenting Error

Error is due to incorrect sequencing of segment elements.

X'08'—PU NOT Active

The 3708 has not received or accepted an ACTPU, or a control condition caused an internally generated DACTPU.

X'09'—LU NOT Active

The 3708 has not received or accepted an ACTLU, or a control condition caused an internally generated DACTLU.

X'800A'—PIU Too Long

The BIND specifies a maximum RU length, and the RU is greater than X'7FF'.

X'0E'—Unrecognized Origin

A request other than BIND is sent to an SLU that has already accepted a BIND, and the OAF' is not X'00' or the OAF in the accepted BIND.

X'0F'—Invalid Address Combination

A request was addressed to the PU (DAF' = X'00'), and the OAF was not SSCP (OAF' = X'00').

RH Error X'40'

X'06'—Exception Response Not Allowed

LIC carried exception response when BIND specified definite response.

X'07'—Definite Response Not Allowed

LIC carried definite response when BIND specified exception response or LIC carried definite response.

X'0F'—Format Indicator Not Allowed

An FM request received by the 3708 indicated a formatted header was included.

State Error X'20'

X'01'—Sequence Number Error

The sequence number of the normal flow request did not match the number expected.

X'02'—Chaining Error

Chain elements were out of protocol sequence.

X'03'—Bracket State Error

A bracket state error occurred.

X'04'—Direction Error

A normal flow request was received while the 3708 was in send state.

X'05'—Data Traffic Reset

An FM or DFC request was received before an SDT was received or accepted.

X'09'—Session control protocol violation

An FM request was received before an SDT is received.

Request Error X'10'**X'01'—RU Data Error**

Data in the request RU is not acceptable to the receiving FM data stream component; for example, a character code is not in the set supported, a formatted data field is not acceptable to presentation services, or a required name in the request has been omitted.

X'02'—RU Length Error

The TH and RH length is less than 9 bytes.

X'03'—Function Not Supported

- Unsupported Session Control Request
- Unsupported Data Flow Control Request
- Signal Code is not X'00010000'
- Network Control Request
- FM Data Stream
- Invalid Command
 - Data Following a Read, RM, RMA, or EAU command
 - For LU type 3, any Read, RM, or RMA command
- Unsupported FM Data, SSCP --> SLU

X'05'—Parameter Error

Invalid address following SBA, RA, or EUA order (SBA, RA, or EUA order without parameters), or SCS parameter error.

X'07'—Category Not Supported

- An FMD request from the SSCP was directed to a printer
- An unsupported network service message received
- An unsupported FM Data command received.

Request Reject X'08'**X'01'—Resource Not Available**

For LU type 1 or 3, ACTLU is rejected for one of the following reasons:

- The printer is authorized for local mode only
- A host initiated print has been sent to a MLU display running model 5 emulation, and the platen length configured for the port is less than the screen size (132).

X'02'—Intervention Required

Sent when the 3708 doesn't receive input for more than 10 minutes after receiving an XOFF from a downstream printer.

X'05'—Session Limit Exceeded

A BIND was received when the SLU already bound.

X'06'—Resource Unknown

An ACTPU command was received whose address does not equal one of the two possible station addresses configured in the 3708, or an ACTPU command was received whose DAF (DAF'-2) is not equal to a Device Number configured in the 3708.

X'0A'—Permission Rejected

Display or printer power is off. The SSCP will not be notified when the device powers on.

X'0B'—Bracket Race Error

This sense code is sent in protocol enveloping when the application transmits BB and the 3708 is already in brackets.

X'0C'—Procedure Not Supported

An unsupported REQMS type request was received.

X'11'—Break

- Sent in LU type 1 SCS mode when the operator presses the printer Hold Print Key followed by Cancel key, if a chain has not completed printing.
- Sent in LU type 1 NTO mode when the operator generates a break and the 3708 is in the middle of a chain from the host.

X'13'—Bracket BID Reject—(No RTR)

- Returned by LU type 1 to a BID or BID with begin bracket if the display has won contention and started a bracket.
- Returned in protocol conversion mode when a BID or begin bracket was received and INB state already exists. This may be a protocol error.

X'14'—Bracket BID Reject—(RTR to follow)

For LU type 1 or 3, the printer is busy doing local copy from a display. RTR will be returned when the printer becomes not busy with local copy.

X'15'—Function Active

REQMS request is in process.

X'16'—Function Inactive

Sent if a DACTLU is received before the SSCP-LU session is established.

X'1A'—Request Sequence Error

Generated by the 3708 when the first RU in a configuration download is not NS_IPL_INIT.

X'1B'—Receiver in Transmit Mode

The SLU is between bracket, but a data key has been pressed. BIND parameters do not match the 3708 BIND checks.

X'21'—Invalid Session Parameters

BIND indicated a screen size that was not supported by either the 3708 port or the terminal.

X'2B'—Presentation Space Integrity Lost

- A temporary error has occurred; for example, parity check in device.
- An operator has cleared the display by switching to SSCP-SLU Session or Test mode and returned to PLU-SLU session.

X'29'—Change Direction Required

Sent if a Read Buffer, Read Modify, or Read Modify All command was received without CDI or End Bracket.

X'2D'—LU Busy

An FM message was received from the SSCP while the display was owned by the PLU-SLU session or vice versa.

X'31'—Device Not Available

An FM message was received while the display was not ready (host not selected or device not powered on).

X'45'—Permission Rejected

Display or printer power is off. The SSCP will be notified when the device powers on.

X'54'—3708 Specific Sense Code

These sense codes are transmitted to the host when attempting to download configuration data created by the 3708's central site configuration (CSC) aid. The possible values are described in the following table.

For codes that refer to a sequence number, the sequence number is the RU number as assigned by CSC (where NS_IPL_INIT is RU #0). Variable codes are denoted with xx and yy, where xx is the sequence number of the current RU + 1, and yy is the sequence number of the last RU + 2.

0010	Read or Write to EEPROM failure
00A1	Configuration incomplete, UDT incomplete, Translate incomplete, Patch data area incomplete, or no records sent in new configuration text chain. This may indicate that a second update type was started before receiving the NS_IPL_FINAL RU for a previous update type.
1003	Host function not supported. This is generated when a download is attempted for a 3708 that does not have CSC support.
2001	Host Configuration Download already in progress from a different host
2201	Configuration update by Control Terminal in progress
xx20	Invalid buffer length
xxA3	Invalid record type
00A4	Attempt to load standard UDTs when enhanced UDTs are currently defined
00A5	Attempt to load enhanced UDTs when standard UDTs are currently defined
00A6	Attempt to convert to enhanced UDTs when a default terminal type of 24 or 25 is currently defined for one or more 3708 ports
yyB1	Configuration records out of order (sequence number incorrect)

Appendix F. 3708 Screen Sequences

This appendix shows the sequence of what you can display to access each of the following screens:

- Alert Display (D111.1)
- Error Log Display (D112.1)
- Display Storage (S132.0)
- MCF/Patch History Display (P135.2)
- Port *nn* Data Monitor (S136.0)
- Port *nn* Status Summary Display (S137.0)
- Response Time Monitor Display (D113.1).
- Start Up Options (S131.0)
- Vital Product Data (S138.0).

Alert Display (D111.1)

Follow the sequence of menus shown below to display screen D111.1.

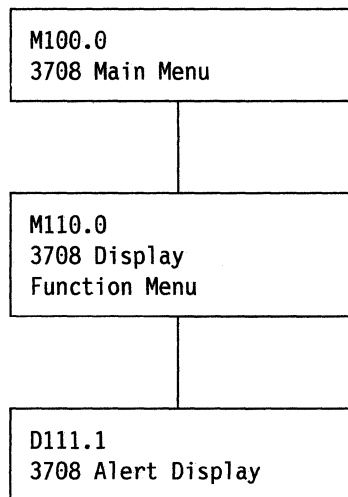


Figure F-1. Accessing the 3708 Alert Display Screen (D111.1)

Error Log Display (D112.1)

Follow the sequence of menus shown below to display screen D112.1.

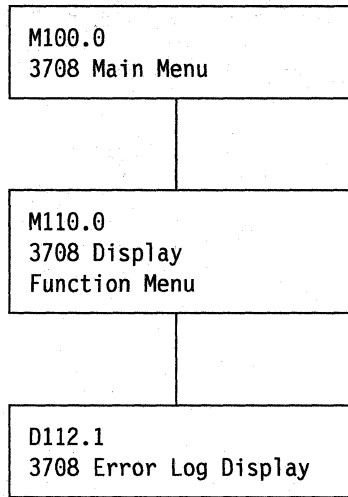


Figure F-2. Accessing the 3708 Error Log Display Screen (D112.1)

Display Storage Screen (S132.0)

Follow the sequence of menus shown below to display screen S132.0.

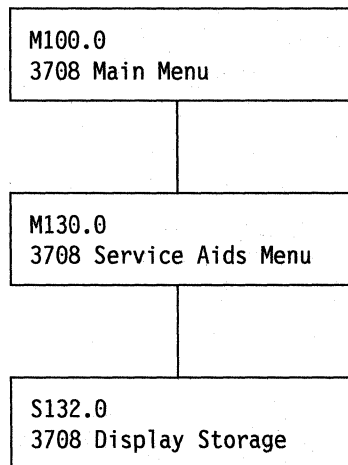


Figure F-3. Accessing the 3708 Display Storage Screen (S132.0)

MCF/Patch History Display (P135.2)

Follow the sequence of menus shown below to display screen P135.2.

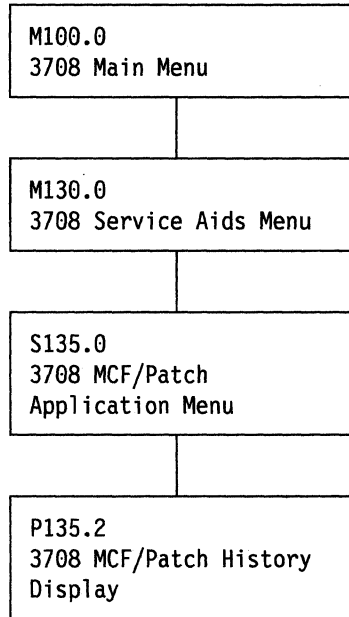


Figure F-4. Accessing the 3708 MCF/Patch History Display Screen (P135.2)

Port nn Data Monitor (S136.0)

Follow the sequence of menus shown below to display screen S136.0.

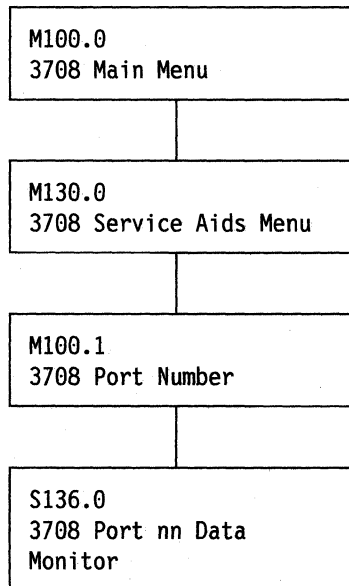


Figure F-5. Accessing the 3708 Port nn Data Monitor Screen (S136.0)

Port nn Status Summary Display (S137.0)

Follow the sequence of menus shown below to display screen S137.0.

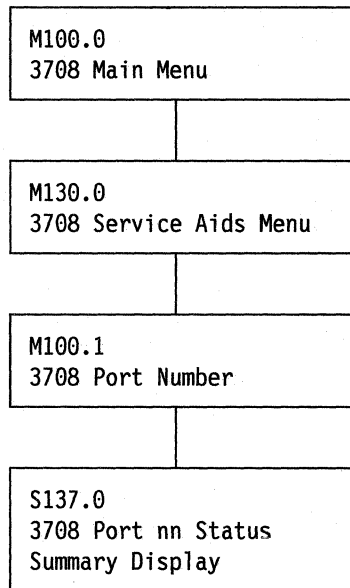


Figure F-6. Accessing the 3708 Port nn Status Summary Display Screen (S137.0)

Response Time Monitor Display (D113.1)

Follow the sequence of menus shown below to display screen D113.1.

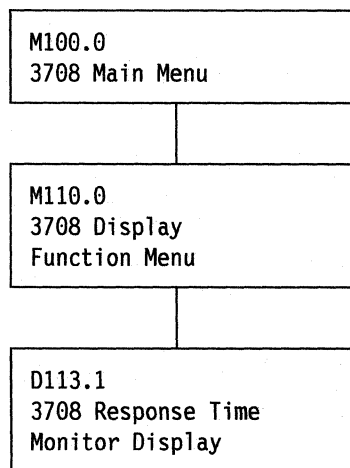


Figure F-7. Accessing the Response Time Monitor Display Screen (D113.1)

Start Up Options (S131.0)

Follow the sequence of menus shown below to display screen S131.0,

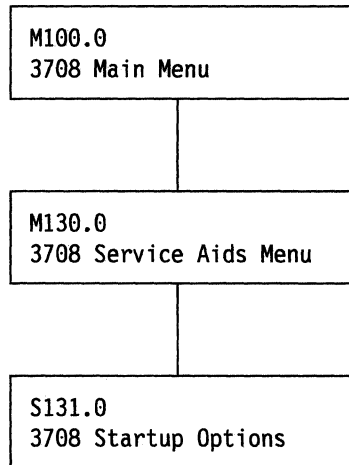


Figure F-8. Accessing the 3708 Start Up Options Screen (S131.0)

Vital Product Data (S138.0)

Follow the sequence of menus shown below to display screen S138.0.

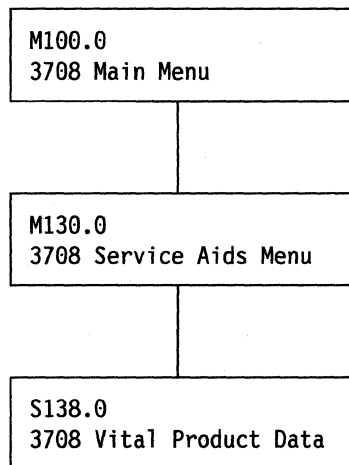


Figure F-9. Accessing the 3708 Vital Product Data Screen (S138.0)

Appendix G. Temporarily Reinstating the IBM-Supplied Configuration

This appendix describes how to reinstate the IBM-supplied configuration temporarily.

Uses

Temporarily reinstating the IBM-supplied configuration does the following:

- Allows you to log on to correct or reconfigure the 3708 when an error in the user-defined configuration prevents logon at a display terminal
- Resets the 3708 and reloads the configuration that was shipped with the 3708.

Note: Temporarily reinstating the IBM-supplied configuration does not change the user-defined configuration.

It may be necessary to connect the control terminal to a different port or to use another terminal to log on while the IBM-supplied configuration is in effect. Refer to "Appendix A. IBM-Supplied Configuration" of *IBM 3708 Planning and Installation* to determine the correct port for the control terminal.

Procedures

To temporarily reinstate the IBM-supplied configuration, follow the steps listed below:

1. Press the power switch to off.
2. Wait approximately 10 seconds, then press the power switch to on.

Alternately, you can use the control terminal initiated Restart for turning the power off then on. The System Restart is initiated from the 3708 Main Menu.
3. The base Not Ready and the cartridge LEDs should begin blinking then go off. The actual sequence is:
 - a. Both LEDs come on momentarily.
 - b. The base LED goes off, and the cartridge LED remains on for approximately 1 second.
 - c. Both LEDs are on momentarily.
 - d. The cartridge LED goes off and the base LED remains on for approximately 5 seconds.
 - e. Both LEDs go off.
4. Within 5 seconds after the base Not Ready and the cartridge LEDs both go off, press and hold the Test/Normal switch to the Test position, then release the switch.

If you make it through the window, the cartridge LED comes on for the remainder of the 5-second window. If not, try again.

The message BASIC CONFIGURATION IN USE, CALL SUPERVISOR appears on the initial screen during each subsequent port logon to remind the user that the default configuration has been reinstated.

Appendix H. Permanently Reinstating the IBM-Supplied Configuration

This appendix describes how to reinstate the IBM-supplied configuration permanently. Follow the steps listed below:

1. Bring up a control terminal configuration session.
2. Select CONFIGURATION & PASSWORD DEFINITION, item 2 on the 3708 MAIN MENU.
3. Select GENERAL DEFINITION, item 7 on the CONFIGURATION & PASSWORD DEFINITION MENU.
4. Change the NAME field to REPLWIBM (may be either upper or lower case).
5. Change the VERSION field to CONFIG. (may be either upper or lower case).
6. Press the ENTER key and, when prompted, press PF6.
7. Wait for the messages C204 UPDATE IN PROGRESS, then C203 UPDATE SUCCESSFUL.
8. Do either a power-off and power-on sequence or a 3708 restart:
 - Power Sequence
 - a. Press the power switch to off.
 - b. Wait approximately 10 seconds, then press the power switch to on.
 - Restart sequence
 - a. Go to the 3708 Main Menu.
 - b. Select SYSTEM RESTART, item 5.
 - c. Press 5 again, and when prompted, press the Enter key.

After the power-off and power-on sequence or after the 3708 restart, any user-defined configuration data except UDT and user-translate tables are destroyed.

The message BASIC CONFIGURATION IN USE, CALL SUPERVISOR appears on the initial screen during each subsequent port logon to remind the user that the default configuration has been permanently reinstated. After this procedure, the 3708 is configured essentially as it was when first shipped. The only difference is that any defined UDTs, user-defined translate table, or stop/restart on error is retained from the previous user-defined configuration data.

Note that the terminal to be used as the control terminal may now need to be changed to a different port, or the terminal may require setup to match one of the default port configurations.

List of Abbreviations

ACTLU	activated logical unit	DEV D	device description
ACTPU	activated physical unit	DEVTYPE	device type
ADDS	applied digital data systems	DFC	data flow control
AID	attention identification	DISC	disconnect
ANSI	American National Standards Institute	DM	disconnect mode
APF	Application Productivity Facility	DR	definite response
ASCII	American National Standard Code for Information Interchange	DRS	data rate select
BB	begin bracket	DSC	data stream compatibility
BC	begin chain	DSR	data set ready
BEL	bell function	DTE	data terminal equipment
BETB	between bracket state	DTR	data terminal ready
BIU	basic information unit	DUP	duplicate
BM	bottom margin	EAU	erase all unprotected
BS	back space	EB	end brackets
CBA	current buffer address	EBCDIC	extended binary coded decimal interface character
CD	change direction	EC	end chain, also engineering change
CICS/VS	Customer Information Control System/virtual storage	EEIF	extended error information field
CNM	communication network management	EEPROM	electrically erasable programmable read only memory
CNMI	Communication Network Management Initialization	EFI	expedited flow indicator
CR	carriage return	EM	end of message
CR	command reject	EMPL	Emulation Protocol Layer
CR/LF	command reject/line feed	ENP	enable presentation
CSU	customer setup unit	EOF	end of file
CTLADR	control unit address	EOL	end of line
CTS	clear to send	ERI	exception response indicator
CUD	control unit description	ERP	error recovery procedure
CURSR SEL	cursor select	ESC	escape
DACTLU	deactivate logical unit	EUA	erase unprotected to address
DACTPU	deactivate physical unit	EWA	erase/write alternate
DAF	destination address field	EW	erase/write
DAF'	destination address field prime (local address of SLU)	EX	exception response
DCD	data carrier detect	FCS	frame check sequence
DEC	Digital Equipment Corporation	FDX	full duplex data flow
DEV CNCL	device cancel	FF	form feed
DEVADR	device address	FIC	first in chain
		FID	format identification
		FIS	first in segment

FM	function management	NPDA	Network Problem Determination Application
FMD	function management data	NRM	normal response mode
FR	frame reject	NRZI	non-return to zero inverted
FRMR	frame reject	NS	network services
FTTERM	IBM PC/HOST File Transfer and Terminal Emulator Program	NTO	Network Terminal Option
GE	graphics escape	OAF'	origin address field
HDX	half-duplex data flow	OC	operations check
HT	horizontal tab	OIC	only in chain
IC	insert cursor	OIS	only in segment
IML	initial microprogram load	PA	program access
IMS/VS	Information Management System/Virtual Storage	PC	protocol conversion or personal computer
INB	in bracket	PEND.BB	pending beginning bracket
INP	inhibit presentation	PI	pacing indicator
IRS	interchange record separator	PIU	path information unit
IRS	inter-record separator	PLU	primary logical unit
LED	light emitting diode	PRID	procedure-related identifier
LF	line feed	PRNT	printer printing
LIC	last in chain	PRTS	permanent request to send
LIS	last in segment	PT	program tab
LM	left margin	PU	physical unit
LTA	line turnaround	QRI	queued response indicator
LU	logical unit	RA	repeat to address
LUSTAT	logical unit status	RAM	random access memory
MDT	modified data tag	RAS	reliability, availability, and serviceability
MIC	middle in chain	RB	read buffer
MIS	middle in segment	RCV	receive
MLU	multiple logical unit	RECFMS	record formatted maintenance statistics
MPF	mapping field	REQMS	request maintenance statistics
MPL	maximum presentation line	RH	request/response header
MPP	maximum presentation position	RI	ring indicate
msec	milliseconds	RM	read modified
NC	network control	RMA	read modified all
NCCF	Network Communication Control Facility	RNR	receive not ready
NCP	Network Control Program	RR	received ready
NDAP	Network Determination Aid Processor	RSP	response
NDM	normal disconnect mode	RTM	response time monitoring
NL	new line	RTR	ready to receive
NLDM	Network Logical Data Manager	RTS	request to send
NMVT	network management vector transport	RU	request/response unit

RxC	receive clock	TAF	target address field
RxD	receive data	TC	test control
SA	set attribute	TCAM	telecommunication access method
SBA	set buffer address	TH	transmission header
SC	session control	TM	top margin
SCS	SNA character string	TRN	transparent
SDLC	synchronous data link control	TS	transmission services
SDT	start data traffic	TSO	time sharing option
SF	start field	TSO/VTAM	time sharing option for the Virtual Telecommunication Access Method
SHF	set horizontal format	TxC	transmit clock
SHUTC	shutdown complete	TxD	transmit data
SHUTD	shutdown	UA	unnumbered acknowledgment
SLD	set line density	UDT	user-defined terminal
SLU	secondary logical unit	VCS	vertical channel select
SNA	systems network architecture	VT	vertical tab
SNF	sequence number field	VTAM	virtual telecommunication access method
SNRM	set normal response mode	W	write
SNRT	set normal response time	WCC	write control character
SOH	start of heading	X OP X	input inhibited operator unauthorized
SSCP	system services control point	X PRTBSY	input inhibited printer busy
SVF	set vertical format	X PRTNW	input inhibited printer not working
SYS REQ	system request	XID	exchange identification

Glossary of Terms and Abbreviations

This glossary contains terms and abbreviations that are used in this manual. It includes terms and definitions from *IBM Vocabulary for Data Processing, Telecommunications, and Office Systems*, GC20-1699.

Symbols used in this glossary are as follows:

- An asterisk (*) identifies definitions from the *American National Dictionary for Information Processing*, published by the Computer and Business Equipment Manufacturers Association.
- The symbol (CCITT/ITU) identifies definitions from the *CCITT Sixth Plenary Assembly Orange Book, Terms and Definitions* and working documents published by the International Telecommunication Union, Geneva, 1978.
- The symbol (ISO) identifies definitions from published sections of the *ISO Vocabulary of Data Processing*, developed by the International Standards Organization, Technical Committee 97, Subcommittee 1.
- The symbol (TC97) identifies definitions from drafts and working papers under development by the International Standards Organization, Technical Committee 97, Subcommittee 1.

Advanced Communications Function for the Network Control Program (ACF/NCP). An IBM program product that provides communication controller support for single-domain and multiple-domain networks.

alert. In NetView or NPDA, a notification about a high priority event that warrants immediate attention. This data-base record is generated for certain event types that are defined by user-constructed filters.

ANSI X3.64. American National Standard Additional Controls for use with American National Standard Code for Information Interchange (ASCII). A standard that defines a set of control functions that augments ASCII control functions as described in ANSI X3.4 and that controls input and output for two-dimensional character-imaging devices, such as displays or printers.

ASCII. * American National Standard Code for Information Interchange. A standard code, using a coded character set consisting of 7-bit coded characters (8 bits including parity check), used for information interchange among data processing systems, data communication systems, and associated equipment. The ASCII set consists of control characters and graphic characters.

ASCII pass-through. For the 3708, the transmission of unmodified data between an ASCII device and an ASCII host (NCP).

ASCII pass-through mode. For an ASCII device attached to a 3708, a mode of operation in which the device communicates with an ASCII host (NCP).

asynchronous. Without regular time relationship; unexpected or unpredictable with respect to the execution of a program's instructions.

configuration. (1) (TC97) The arrangement of a computer system or network as defined by the nature, number, and the chief characteristics of its functional units. More specifically, the term configuration may refer to a hardware configuration or a software configuration. (2) The devices and programs that make up a system, subsystem, or network.

control terminal. For the 3708, a display attached to a 3708 that enables an operator to communicate with the 3708 to control and monitor the 3708 and to define the 3708 configuration.

control terminal mode. For an ASCII device attached to a 3708, a mode of operation in which the device functions as the control terminal for the 3708.

data link. (1) * The physical means of connecting one location to another for the purpose of transmitting and receiving data. (2) (TC97) The assembly of parts of two data terminal equipments (DTEs) that are controlled by a link protocol, and that, together with the interconnecting data circuit, enable data to be transferred from a data source to a data sink. (3) The interconnecting data circuit between two or more equipments operating in accordance with a link protocol; it does not include the data source and the data sink. (4) In SNA, synonym for link(3).

data link escape character (DLE). (ISO) A transmission control character that changes the meaning of a limited number of contiguously following characters or coded representations and that is used exclusively to provide supplementary transmission control characters.

data stream. (1) All data transmitted through a data channel in a single read or write operation. (2) A continuous stream of data elements being transmitted, or intended for transmission, in character or binary-digit form, using a defined format.

DCE. Data circuit-terminating equipment.

decode. (1) (ISO) To convert data by reversing the effect of some previous encoding. (2) To interpret a code. (3) Contrast with encode.

display. (1) * (ISO) A visual presentation of data. (2) (TC95) In work processing, a device for visual presentation of information on any temporary character-imaging device. (3) (TC97) To present data visually.

DTE. Data terminal equipment.

duplex. (1) * In data communication, pertaining to a simultaneous two-way independent transmission. Synonymous with full duplex.

EBCDIC. * Extended binary-coded decimal interchange code. A coded character set consisting of 8-bit coded characters.

EEPROM. * Electrically erasable programmable read-only memory located in the base unit of the 3708. In the 3708, the EEPROM stores data containing the current configuration, patches, and error log. This data is retained when the power to the 3708 is turned off and on again.

EPROM. * Erasable programmable read-only memory located in the cartridge of the 3708. In the 3708, the EPROM stores the microcode.

emulate. (1) To imitate one system with another, primarily by hardware, so that the imitating system accepts the same data, executes the same computer programs, and achieves the same results as the imitated computer system. (2) The use of programming techniques and special machine features to permit a computing system to execute programs written for another system.

encode. (1) * (ISO) To convert data by the use of a code or a coded character set in such a manner that reconversion to the original form is possible. Encode is sometimes loosely used when complete reconversion is not possible. (2) * (ISO) Contrast with decode.

full duplex. See duplex.

half duplex. (1) * In data communication, pertaining to an alternate, one way at a time, independent transmission. (2) * Contrast with duplex.

host (NCP). (TC97) A processor that controls all or part of a user application network.

keyboard mapping. For an ASCII device attached to the 3708 in protocol conversion mode, a table that defines which ASCII keyboard sequences are equivalent to 3270 functions.

logical unit (LU). In SNA, a port through which an end user accesses the SNA network to communicate with another end user and through which the end user accesses the functions provided by system services control points (SSCPs).

Network Logical Data Manager (NLDM). An IBM program product that collects and correlates LU-LU session-related data and provides the user with online access to the data. It runs as a Network Communications Control Facility (NCCF) communication network management application program.

Network Problem Determination Application (NetView or NPDA). An IBM program product that helps the user identify network problems from a central control point using interactive display techniques.

Network Terminal Option (NTO). An IBM program product that extends the capabilities of the ACF/NCP to support a select group of non-SNA devices.

nonswitched line. A telecommunication line on which connections do not have to be established by dialing. Contrast with switched line.

padding. (1) A technique by which a receiving station controls the rate of transmission of a sending station to prevent overrun. (2) In SNA, a technique by which a receiving component controls the rate of transmission of a sending component to prevent overrun or congestion.

physical unit (PU). In SNA, the component that manages and monitors the resources (such as attached links and adjacent link stations) of a node, as requested by an SSCP through an SSCP-SSCP session.

platen. (TC95) The part of a document copying machine, usually in the form of a glass plate that can be curved, upon which the original is placed for copying. A backing, usually cylindrical, against which printing mechanisms strike or otherwise deposit ink to produce an image.

point-to-point connection. A connection established between two data stations for data transmission. The connection may include switching facilities.

primary logical unit (PLU). In SNA, the logical unit (LU) that contains the primary half-session for a particular LU-LU session. Contrast with secondary logical unit.

printer authorization matrix. A matrix stored in the 3274 control unit that establishes printer assignment and classification.

program attention key. On a display device keyboard, a key that produces an interruption to solicit program action.

program function key. (1) (TC95) On a typewriter, a control by which a specified machine function is set, released, or performed. (2) (TC97) In computer graphics, a button or switch that may be operated to send a signal to the computer program controlling the display. (3) On a terminal, a key, such as an

ATTENTION or ENTER key, that causes the transmission of a signal not associated with a printable or displayable character. Detection of the signal usually causes the system to perform some predefined function for the operator.

protocol. (1) (CCITT/ITU) A specification for the format and relative timing of information exchanged between communicating parties. (2) In SNA, the meanings of and the sequencing rules for, requests and responses used for managing the network, transferring data, and synchronizing the states of network components.

protocol conversion. For the 3708, the changing of start-stop data sent from an ASCII device to an SNA host (NCP) into 3270 data, or the changing of 3270 data sent from an SNA host (NCP) to an ASCII device into ASCII start-stop data.

protocol conversion mode. For an ASCII device attached to a 3708, a mode of operation in which the device communicates with an SNA host (NCP) as though it were a 3270 device.

protocol enveloping. For the 3708, the adding of SNA headers to data sent from an ASCII device to an SNA host (NCP), or the removing of SNA headers from data sent from an SNA host (NCP) to an ASCII device.

protocol enveloping mode. For an ASCII device attached to a 3708, a mode of operation in which the device communicates with an SNA host (NCP) as though it were an NTO device.

RAM. Random access memory.

routing. (1) The assignment of the path by which a message reaches its destination. (2) In SNA, the forwarding of a message unit along a particular path through a network, as determined by parameters carried in the message unit, such as the destination network address in a transmission header.

secondary logical unit (SLU). In SNA, the logical unit (LU) that contains the secondary half-session for a particular LU-LU session. Contrast with primary logical unit.

switched line. A telecommunication line in which the connection is established by dialing. Contrast with nonswitched line.

SNA character string (SCS). A character string composed of EBCDIC controls, optionally intermixed with end-user data, that is carried within a request/response unit.

Synchronous Data Link Control (SDLC). A discipline for managing synchronous, code-transparent,

serial-by-bit information transfer over a link connection. Transmission exchanges may be duplex or half duplex over switched or nonswitched links. The configuration of the link connection may be point-to-point, multipoint, or loop. SDLC conforms to subsets of the Advanced Data Communication Control Procedures of the American Standards Institute and High-Level Data Link Control (HDLC) of the International Standards Organization.

Systems Network Architecture (SNA). The description of the logical structure, formats, protocols, and operational sequences for transmitting information units through and controlling the configuration and operation of networks.

translate table. For the 3708, a table that defines the translation of ASCII to EBCDIC and EBCDIC to ASCII and that allows the use of special characters and nonstandard codes.

user-defined terminal. An ASCII display that is attached to the 3708 and that operates in protocol conversion mode using a keyboard map defined by the user.

user-defined terminal table. A table, which contains information for a keyboard map used to define a terminal, that a customer creates in storage.

wraparound. (1) (TC97) In computer graphics, the display at some point on the display space of the display elements whose coordinates lie outside of the display space. (2) (TC95) In display-based word processing equipment, the automatic disposition of a printable line of text onto two or more display lines necessitated by the horizontal limits of the display. (3) The continuation of an operation from the maximum addressable location in storage to the first addressable location. (4) The continuation of register addresses from the highest register address to the lowest.

3270 data stream. Data being transferred from or to an allocated primary or tertiary device, or to the host (NCP) system, as a continuous stream of data and 3270 Information Display System control elements in character form.

3270 data-stream compatibility (DSC). The facility that provides access to System/370 applications that communicate with 3270 Information Display System terminals.

3708 Network Conversion Unit. A device that allows ASCII devices to communicate with an SNA host (NCP) by providing protocol conversion and protocol enveloping and that allows ASCII devices to communicate with an ASCII host (NCP) by providing ASCII pass-through.

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Problem Determination**

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