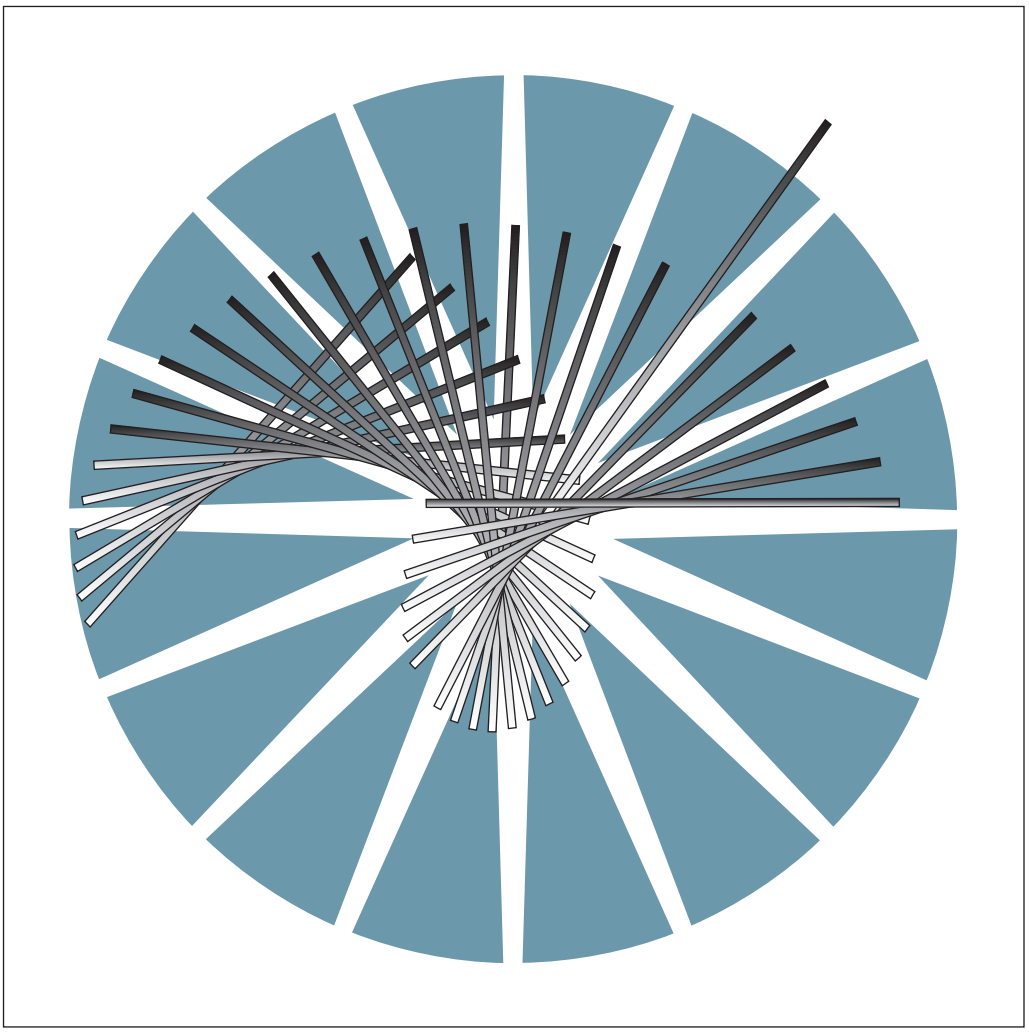
3745 Communication Controller Models A
3746 Expansion Unit Model 900
3746 Nways Multiprotocol Controller Model 950

Service Processor Installation and Maintenance (Based on 7585, 3172, or 9585)



SY33-2120-01

3745 Communication Controller Models A
3746 Expansion Unit Model 900
3746 Nways Multiprotocol Controller Model 950

Service Processor Installation and Maintenance (Based on 7585, 3172, or 9585)

SY33-2120-01

Note!

Before using this information and the product it supports, be sure to read the general information under “Notices” on page xvii.

Second Edition (June 1998)

The information contained in this manual is subject to change from time to time. Any such changes will be reported in subsequent revisions.

Order publications through your IBM representative or the IBM branch office serving your locality. Publications are not stocked at the address given below.

A form for readers' comments appears at the back of this publication. If the form has been removed, address your comments to:

IBM France
Centre d'Etudes et Recherches
Service 0798 - BP 79
06610 La Gaude
France

- FAX: 33 4 93 24 77 97
- IBM Internal Use: LGERCF at IBMFR
- Internet: lgercf@fr.ibm.com

When you send information to IBM, you grant IBM a non-exclusive right to use or distribute the information in any way it believes appropriate without incurring any obligation to you.

© **Copyright International Business Machines Corporation 1998. All rights reserved.**
Note to U.S. Government Users — Documentation related to restricted rights — Use, duplication or disclosure is subject to restrictions set forth in GSA ADP Schedule Contract with IBM Corp.

Contents

Figures xi

Notices xvii
European Union (EU) Statement xvii
Electronic Emission Notices xvii
Trademarks and Service Marks xix

Product Safety Information xxi
General Safety xxi
Safety Notices xxi
Safety Notices for United Kingdom xxi
Service Inspection Procedures xxi

About this Book xxiii
Who Should Use this Book xxiii
How to Use this Book xxiii
How this Book is Organized xxiii
Where to Find More Information xxiv
World Wide Web xxiv
Online Documentation from CD-ROM xxiv
Service Personnel Definitions xxv

Summary of Changes xxvii

Chapter 1. Installing and Setting Up Your Service Processor 1-1
Installation Scenarios And Documentation 1-3
Documentation 1-3
Installation Scenarios 1-4
Installing Your Service Processor (Based on 7585) 1-8
Service Processor Overview 1-8
Service Processor Installation Tasks 1-9
Step 1 - Preparing Your Installation 1-9
Step 2 - Installing the System Unit, Display, and keyboard 1-10
Step 3 - Installing the Service Processor Access Unit (8228) 1-19
Installing Your Service Processor (Based on 3172) 1-22
Service Processor Overview 1-22
Service Processor Installation Tasks 1-23
Step 1 - Preparing Your Installation 1-23
Step 2 - Installing the System Unit, Display, Keyboard, and CD Drive . . . 1-24
Step 3 - Installing the Service Processor Access Unit (8228) 1-36
Installing Your Service Processor (Based on 9585) 1-39
Service Processor Overview 1-39
Service Processor Installation Tasks 1-40
Step 1 - Preparing Your Installation 1-40
Step 2 - Installing the System Unit, Display, Keyboard, and CD Drive . . . 1-41
Step 3 - Installing the Service Processor Access Unit (8228) 1-53
Installing and Connecting the RSF Modem to the Service Processor 1-56
Step 4 - Installing and Connecting the 7858 to the Service Processor . . . 1-57
7858 Modem installation 1-57
Installing the Modem 1-58

© Copyright IBM Corp. 1998

Setting the 7858 Connected to the COM1 Connector (ASYN) 1-60
Saving the Configuration of the 7858 1-60
Connecting the 7858 1-61
Other Possible Settings and Connections for the 7858 1-63
Step 4 - Installing and Connecting the Hayes** Modem 1-65
Step 4 - Installing and Connecting the 7857 to the Service Processor . . . 1-68
Telecommunication Cables Part Numbers 1-69
Setting the 7857 Connected to the COM1 Connector (ASYN) 1-72
Saving the Configuration of the 7857 1-72
Connecting the 7857 to COM1 1-72
Other Possible Settings and Connections for the 7857 1-74
Connecting the 7857 to the MPA Card 1-76
Step 4 - Installing and Connecting the 7855 to the Service Processor . . . 1-77
Unpacking and Installing the 7855 1-77
Step 4 - Installing the Integrated RSF Modem (for U.S and Canada Only) 1-84
Step 5 - Customizing Your Service Processor 1-85
Complete Your Installation 1-99

Chapter 2. Introducing the Service Processor 2-1
General Information 2-2
Help for Using Your Service Processor 2-2
MOSS-E View Primary Window 2-2
Searching for Specific Information 2-4
Displaying Your Machine Status 2-5
3746-9x0 Status Display 2-5
3745 Status Display 2-6
Accessing the Functions 2-7
How to Get the Service Processor Maintenance Functions 2-7
How to Get the 3746-9x0 Controller Maintenance Functions 2-10
How to Get the 3745 Maintenance Controller Functions 2-12

Chapter 3. Maintaining the Code Loaded on the Service Processor . . . 3-1
Maintenance Service Procedures 3-2
Displaying the Level of the Code Installed On the Hard Disk 3-2
Shutting Down the Service Processor 3-2
Saving/Restoring Data on the SP Hard Disk from a CD-ROM 3-3
Saving/Restoring Configuration on Diskette 3-4
Saving Configuration Parameters on the 374X Installation Parameters Diskette 3-5
Saving/Deleting Engineering Data 3-6
Installing a New Version of The Licensed Internal Code 3-7
Changing the Active Code 3-8
Reporting Problem to RETAIN 3-9
Manually Reporting a Problem to RETAIN from a 3745 - XXA 3-9
Manually Reporting a Problem to RETAIN from a 3746-9x0 3-10
Handling Microcode Fixes on the Licensed Internal Code 3-11
Applying Microcode Fixes on the Licensed Internal Code 3-11
Removing Microcode Fixes on the Licensed Internal Code 3-14
3746-9x0 EEPROM Upgrade or Downgrade 3-15
Managing the Passwords 3-17
Changing the Service Processor and Controller Passwords 3-17
Changing the Password for DCAF 3-20
Restoring the Passwords to Their Default Values 3-21

Chapter 4. Service Processor Problem Determination 4-1
MAP: Entry Point for Problem Isolation 4-1
MAP: Service Processor / Display / Keyboard Problem Isolation 4-8
Display Removal/Display Install 4-15
Display Removal 4-15
Display Install 4-17

Chapter 5. 7585 Service Processor 5-1
MAP: 7585 Service Processor Troubleshooting 5-2
BEEP CODE INDEX 5-21
Display 5-23
Keyboard 5-24
Printer 5-24
Power-Supply Voltage Check (7585) 5-25
Power Voltage Setting 5-25
Undetermined Problems 5-26
Before Replacing a System Board 5-26
Devices List 5-27
RAM Memory Modules (SIMMs/DIMMs) 5-28
Memory Test 5-29
How to Run the 7585 Service Processor Diagnostics 5-32
How to Run the Diagnostic on Multiprotocol Adapter Card 5-34
7585 Service Processor FRU / CD-ROM Exchange 5-36
7585 Service Processor Board or Battery Exchange 5-38
7585 Service Processor LAN Adapter Exchange 5-40
7585 Service Processor Hard Disk Drive Exchange 5-44
Other FRU Exchanges for the 7585 Service Processor 5-48

Chapter 6. 3172 Service Processor 6-1
MAP: 3172 Service Processor Troubleshooting 6-2
Beep Symptoms 6-19
No-Beep Symptoms 6-19
Miscellaneous Symptoms 6-19
Display Self-Test 6-22
Keyboard Voltage Check 6-23
Power-Supply Voltage Check 6-24
Undetermined Problems 6-25
Record Customer Symptom 6-25
Devices List 6-26
Missing Non-SCSI Device 6-26
Missing SCSI Device 6-26
If both a non-SCSI device and a SCSI device are missing from the Devices List 6-27
SCSI Device Default Settings 6-27
SCSI Diagnostic Tests 6-28
Using SCSI ID to Help Isolate Failures 6-28
The Error Code Format 6-28
RDDD Codes for Adapters 6-29
RDDD Codes for Devices 6-29
Memory Problems 6-30
Determining Failing Memory Location 6-30
Determining Memory Type, Size and Speed 6-31
Finding the Failing Memory 6-31
Printer Errors 6-33

Real-Time Clock Problems 6-33
Restoring the System Partition 6-33
Using the Low-Level Format Program 6-34
When to Run the Low-Level Format Program 6-34
How to Run the Low-Level Format Program 6-34
Preparing the Hard Disk for Use 6-34
How to Test the 3172 Service Processor 6-35
How to Run the Service Processor Diagnostics 6-35
How to run Diagnostic On the CD-ROM 6-38
How to run Diagnostic On the Multiprotocol Adapter Card 6-39
3172 Service Processor FRU / CD-ROM Exchange 6-40
FRU Exchange Procedures 6-40
Service Processor FRU Exchange 6-41
How to identify your processor type 6-44
Adapter Card Exchange Procedure 6-45
Removing Adapter 6-45
Installing Adapter 6-47
Procedure after System Board or Battery Exchange 6-50
Procedure after LAN Adapter Exchange 6-53
Procedure after Hard Disk Drive Exchange 6-55
Procedure after Pentium Processor Card Exchange 6-60
Service Processor CD-ROM Exchange 6-61

Chapter 7. 9585 Service Processor 7-1
MAP: 9585 Service Processor Troubleshooting 7-2
Beep Symptoms 7-19
No-Beep Symptoms 7-19
Miscellaneous Symptoms 7-19
Display Self-Test 7-22
Keyboard Voltage Check 7-23
Power-Supply Voltage Check (9585) 7-24
Undetermined Problems 7-25
Record Customer Symptom 7-25
Devices List 7-26
Missing Non-SCSI Device 7-26
Missing SCSI Device 7-26
If both a non-SCSI device and a SCSI device are missing from the Devices List 7-27
SCSI Device Default Settings 7-27
SCSI Diagnostic Tests 7-28
Using SCSI ID to Help Isolate Failures 7-28
The Error Code Format 7-28
RDDD Codes for Adapters 7-29
RDDD Codes for Devices 7-29
Memory Problems 7-30
Determining Failing Memory Location 7-30
Determining Memory Type, Size and Speed 7-31
Finding the Failing Memory 7-31
Printer Errors 7-33
Real-Time Clock Problems 7-33
Restoring the System Partition 7-33
Using the Low-Level Format Program 7-34
When to Run the Low-Level Format Program 7-34
How to Run the Low-Level Format Program 7-34

Preparing the Hard Disk for Use . . . 7-34
Cover Lock and Tamper-Evident Switches . . . 7-34
How to Run the 9585 Service Processor Diagnostics . . . 7-35
1- Diagnostics Invocation from Diskettes . . . 7-35
2- Diagnostics Invocation from the Hard Disk . . . 7-35
Service Processor Advanced Diagnostics . . . 7-35
9585 Service Processor FRU / CD-ROM Exchange . . . 7-37
MAP: 9585 Service Processor Board Exchange . . . 7-38
MAP: 9585 Service Processor LAN Adapter Exchange . . . 7-39
MAP: 9585 Service Processor Hard Disk Drive Exchange . . . 7-41
MAP: 9585 Service Processor Battery Exchange . . . 7-44
MAP: 9585 Service Processor Integrated Modem Exchange . . . 7-45
MAP: Other FRU Exchanges for the 9585 Service Processor . . . 7-46
MAP: Service Processor CD-ROM Exchange . . . 7-47
MAP: Set Time and Date . . . 7-48
MAP: Recording the Vital Product Data on a New System Board . . . 7-49

Chapter 8. CE Leaving Procedure . . . 8-1
Check List . . . 8-1

Appendix A. Parameter Worksheets . . . A-1
Controller Integration . . . A-1
Controller Names . . . A-1
Set Power ON Schedule . . . A-1
MOSS-E Database Optimization . . . A-1
NCP Dump Transfer . . . A-1
Service Processor Integration . . . A-2
Definition of Service Processor LAN Address . . . A-2
Service Processor LAN Management Definition . . . A-2
Definition of the Service Processor in an SNA/Subarea Network . . . A-2
Definition of Service Processor in an APPN/HPR Network . . . A-2
3746-900 Integration . . . A-2
Definition of 3746-900 LAN Address . . . A-2
Definition of Service LAN IP Addresses . . . A-2
Network Routing Protocol for Each Processor Type . . . A-3
Password . . . A-3
DCAF Remote Logon Password . . . A-3
Disable Incoming Calls (to Service Processor) . . . A-3
Parameter Definitions for Reporting Alerts to NetView . . . A-3
Network Node Processor Alerts . . . A-3
MOSS-E Alerts: Mainstream Path Definition . . . A-3
APPN/HPR Network . . . A-3
SNA/Subarea Network . . . A-4
MOSS-E Alerts: Alternate Path Definition . . . A-4
Generate MOSS-E Alerts . . . A-4
Performance Management CM/2 Parameters (NPM) . . . A-4
Service Processor Parameters for DCAF using CM/2 . . . A-4
For LAN-Attached Consoles . . . A-4
For SNA-Attached Consoles . . . A-4
For APPN/HPR-Attached Consoles . . . A-4
For IP-Attached Consoles . . . A-4
For Modem-Attached Consoles . . . A-4
Parameter Definitions for RSF . . . A-5
Customer Information . . . A-5

Remote Support Facility Authorization A-5
Set Automatic Microcode Download Option A-5

Appendix B. Service Processor Aids B-1
Service Processor Based on 7585-P02 . . . . . B-1
How to check the Device Configuration (7585-P02) B-1
Service Processor Configuration Reference Based on 7585-P02 . . . . . B-1
How to Set the Cache Size Value B-12
How to check the SCSI Device Configuration (7585-P02) B-13
Service Processor Based on 3172 . . . . . B-15
Typical Devices List (3172) B-15
How to Display the Devices List B-15
Service Processor Hardware Configuration Reference (3172) B-16
How to Check the Hardware Configuration B-16
3172 SCSI Device Configuration B-19
How to Check the SCSI Device Configuration B-19
Service Processor Based on 9585 . . . . . B-21
Typical Devices List (9585-0NT) B-21
Service Processor Hardware Configuration Reference (9585) B-22
How to Check the Hardware Configuration B-22
How to Check the SCSI Device Configuration (9585) B-24
Service Processor Part Numbers (9585) B-24

Appendix C. Service Processor External Cable References C-1
Service Processor and Network Node Processor Cables for the 3746-900 C-1
Service Processor and Network Node Processor Cables for the 3746-950 C-2
Service Processor Cables for the 3745 Models 21A, 31A, 41A, 61A, and 17A C-3
Cable from the Service Processor Processor to the 8228 . . . . . C-4
Interchange Circuit for Standard LAN Cable C-4
Cable from the Service Processor to the External Modem for RSF C-6
Modem Cable (PN 0782985) C-6
Interchange Circuits for the Cables between the Service Processor and the Modem C-6
Modem Cable (PN 0782984) C-7
Interchange Circuits for the Modem Adapter Cable C-7
Cable From the Service Processor (Integrated Modem) to the Line for RSF C-8
Cable from the Service Processor Processor to the Optical Disk Drive . . C-9
Cable from the Service Processor Processor to the CD-ROM Disk Drive . C-10
Cable between the Service Processor and the Display C-11
Interchange Circuits for the Extender Cable Between the Service Processor and the Display C-11
Cable between the Service Processor and the Keyboard C-12
Interchange Circuits for the Cable between the Service Processor and the Keyboard C-12

Appendix D. Supported Connections between the Service Processor and a Remote Workstation D-1

Appendix E. Use of the 7855 Buttons: ←, ↑, →, and ↓ E-1

Appendix F. 6553 Display Adjustment Controls F-1
Key: F-1
Power On/Off F-1

Color Adjustment F-1
Image Roll and Pincushion/Barrel Adjustment F-1
Vertical and Horizontal Size Adjustment F-2
Vertical and Horizontal Image Adjustment F-2

Appendix G. Controller Expansion Component Locations G-1

Appendix H. Bibliography H-1
Customer Documentation for the 3746 Model 950 . . . . . H-1
Service Documentation for the IBM 3746 Model 950 . . . . . H-3
Customer Documentation for the 3745 (Models 210, 310, 410, 610, 21A, 31A, 41A, and 61A), and 3746 (Model 900) H-5
Additional Customer Documentation for the 3745 Models 130, 150, 160, 170, and 17A H-9
Service Documentation for the IBM 3745 (Models 210, 21A, 310, 31A, 410, 41A, 610, and 61A) and 3746 (Model 900) H-10
Additional Service Documentation for the IBM 3745 Models 130, 150, 160, 170, and 17A H-14

Glossary X-1

Index X-7

Figures

1-1. Service Processor Environment . . . 1-8
1-2. Installing Label on the Front Side of the Service Processor . . . 1-11
1-3. Installing Brackets PN 58G5752 . . . 1-12
1-4. Installing Plate PN 58G5755 . . . 1-12
1-5. Installing the Display Screen in the Controller Expansion (Front Side) 1-13
1-6. Installing Captive Nuts for the Service Drawer . . . 1-13
1-7. Installing the Service Drawer . . . 1-14
1-8. Installing the Keyboard . . . 1-14
1-9. Installing the Captive Nuts for the 7585 . . . 1-15
1-10. Installing the Service Processor Unit in the Controller Expansion (Front Side) . . . 1-15
1-11. Cable Locations . . . 1-16
1-12. Power Cords Connection . . . 1-17
1-13. Installing the Display and Keyboard on a Table . . . 1-18
1-14. Power Cord for Power Strip . . . 1-18
1-15. Use of the 8228 Setup Aid . . . 1-19
1-16. Installing the 8228 (Controller Expansion Rear side) . . . 1-20
1-17. Connecting the 8228 to the Service Processor . . . 1-21
1-18. Connecting the 8228 to the Service Processor Installed in the Controller Expansion . . . 1-21
1-19. Service Processor Environment . . . 1-22
1-20. Installing Label on the Front Side of the Service Processor . . . 1-25
1-21. Installing Label on the Rear Side of the Service Processor . . . 1-25
1-22. SCSI Switch . . . 1-26
1-23. Plugging the Cable and Terminator . . . 1-26
1-24. Plugging the Power Cable . . . 1-27
1-25. Installing Brackets PN 58G5752 . . . 1-28
1-26. Installing Plate PN 58G5755 . . . 1-28
1-27. Installing Brackets PN 58G5752 . . . 1-29
1-28. Installing the Display Screen in the Controller Expansion (Front Side) 1-29
1-29. Installing Captive Nuts for the Service Drawer . . . 1-30
1-30. Installing the Service Drawer . . . 1-30
1-31. Installing the Keyboard . . . 1-31
1-32. Installing the Service Processor Unit in the Controller Expansion (Rear Side) . . . 1-31
1-33. Installing the CD Drive . . . 1-32
1-34. Cable Locations . . . 1-33
1-35. Power Cords Connection . . . 1-34
1-36. Installing the Display and Keyboard on Table . . . 1-35
1-37. Power Cord for Power Strip . . . 1-35
1-38. Use of the 8228 Setup Aid . . . 1-36
1-39. Installing the 8228 (Controller Expansion Rear side) . . . 1-37
1-40. Connecting the 8228 to the Service Processor . . . 1-38
1-41. Connecting the 8228 to the Service Processor Installed in the Controller Expansion . . . 1-38
1-42. Service Processor Environment . . . 1-39
1-43. Voltage selection Switch . . . 1-42
1-44. SCSI Switch . . . 1-43
1-45. Plugging the Cable and Terminator . . . 1-43
1-46. Plugging the Power Cable . . . 1-44

© Copyright IBM Corp. 1998

1-47. Installing Brackets PN 58G5752 1-45
1-48. Installing Plate PN 58G5755 1-45
1-49. Installing the Display Screen in the Controller Expansion (Front Side) 1-46
1-50. Installing Captive Nuts for the Service Drawer 1-46
1-51. Installing the Service Drawer 1-47
1-52. Installing the Keyboard 1-47
1-53. Installing the Service Processor Unit in the Controller Expansion (Rear Side) 1-48
1-54. Installing the CD Drive 1-48
1-55. Cable Locations 1-49
1-56. Slot Allocation 1-50
1-57. Power Cords Connection to an ac Outlet Distribution Box 1-51
1-58. Installing the Display and Keyboard on Table 1-52
1-59. Power Cord for Power Strip 1-52
1-60. Use of the 8228 Setup Aid 1-53
1-61. Installing the 8228 (Controller Expansion Rear side) 1-54
1-62. Connecting the 8228 to the Service Processor (Sub D connector) . 1-55
1-63. Connecting the 8228 to the Service Processor (RJ45 connector) . . 1-55
1-64. 7858 Front Side 1-57
1-65. 7858 Rear Panel 1-57
1-66. 7858 Operator Panel Display 1-59
1-67. 7858 Operator Panel Display 1-59
1-68. Connecting the Service Processor (7585) from COM1 to the 7858 . 1-61
1-69. Connecting the Service Processor (3172) from COM1 to the 7858 . 1-61
1-70. Connecting the Service Processor (9585) from COM1 to the 7858 . 1-62
1-71. Installing the 7858 in the Controller Expansion 1-62
1-72. Connecting the Service Processor (3172) from the MPA Card to the 7858 1-64
1-73. Connecting the Service Processor (9585) from the MPA Card to the 7858 1-64
1-74. Hayes Modem Front View 1-65
1-75. Hayes Modem Rear View 1-65
1-76. Connecting the 7585 (Port COM1) to the Hayes 1-66
1-77. Connecting the 3172 (Port COM1) to the Hayes 1-67
1-78. Connecting the 9585 (Port COM1) to the Hayes 1-67
1-79. 7857 Front Panel 1-68
1-80. 7857 Rear Panel 1-69
1-81. 7857 Operator Panel Display 1-72
1-82. Connecting the Service Processor (7585) from COM1 to the 7857 . 1-73
1-83. Connecting the Service Processor (3172) from COM1 to the 7857 . 1-73
1-84. Connecting the Service Processor (9585) from COM1 to the 7857 . 1-73
1-85. Installing the 7857 in the Controller Expansion 1-74
1-86. Connecting the Service Processor (3172) from MPA Card to the 7857 1-76
1-87. Connecting the Service Processor (9585) from MPA card to the 7857 1-76
1-88. 7855-10 Rear Panel 1-78
1-89. Installing Telecommunication Line Cables 1-79
1-90. PNs of the External Modem Cables 1-79
1-91. Connecting ac Power 1-80
1-92. Connecting the Service Processor (3172) from the MPA Card to the 7855 1-82
1-93. Connecting the Service Processor (9585) from the MPA Card to the 7855 1-82

1-94. Installing the 7855 in the Controller Expansion 1-83
1-95. Connecting the Service Processor (9585) to the Integrated RSF Modem 1-84
1-96. MOSS-E View Primary Window 1-86
1-97. Service Processor Customization 1-87
1-98. Customer Information Customization 1-88
1-99. SP Time and Date Customization 1-88
1-100. Service LAN Addresses 1-89
1-101. NetView Links 1-90
1-102. NetView Link/Reporting Customization 1-91
1-103. Example of Switched Major Node Definition 1-92
1-104. Example of NCP Generation for an SDLC Link to NetView 1-93
1-105. Example of NCP Generation for a LAN Link to NetView 1-93
1-106. Token-Ring 3270 Session Customization 1-94
1-107. Example of a Switched Major Node Definition 1-95
1-108. Retain Customization 1-95
1-109. DCAF Links 1-96
1-110. DCAF Customization 1-97
1-111. SP Customization Message 1-98
1-112. SP Customization In Progress 1-98
1-113. SP Customization Completed 1-98
1-114. SP Reboot 1-98
2-1. MOSS-E View Primary Window 2-2
2-2. Help Pull Down Menu 2-3
2-3. Program Pull Down Menu 2-3
2-4. Information Pull Down Menu 2-3
2-5. Services Pull Down Menu 2-4
2-6. Search Window 2-4
2-7. 3746-9x0 Status Display 2-5
2-8. 3745 Model X1A Status Display 2-6
2-9. 3745 Model 17A Status Display 2-6
2-10. Service Processor Maintenance Functions 2-7
2-11. Service Processor Configuration Management Functions 2-7
2-12. Service Processor Problem Management Functions 2-8
2-13. Service Processor Operation Management Functions 2-8
2-14. Service Processor Change Management Functions 2-8
2-15. Service Processor PE Functions 2-9
2-16. 3746-9x0 Maintenance Controller Functions 2-10
2-17. 3746-9x0 Change Management Functions 2-10
2-18. 3746-9x0 Functions to Use Under PE Guidance 2-10
2-19. 3746-9x0 Problem Management Functions 2-11
2-20. 3746-9x0 Operation Management Functions 2-11
2-21. MAE Management Functions 2-11
2-22. Network Node Processor Management Functions 2-11
2-23. 3746-9x0 Configuration Management Functions 2-11
2-24. 3746-9x0 Performance Management Functions 2-11
2-25. 3745 Menu 2-12
2-26. Problem Management 2-12
2-27. Operation Management 2-12
2-28. MOSS Primary Menu 2-12
3-1. SP Configuration Management Menu 3-3
3-2. Service Processor Menu 3-3
3-3. Operation Management Service Processor Menu 3-4
3-4. Disk and Databases Management 3-4

3-5. Manage Engineering Data Menu 3-6
3-6. Service Processor Change Management Menu 3-8
3-7. Service Processor Menu 3-8
3-8. Link to RETAIN 3-9
3-9. Manage Microcode Fixes 3-12
3-10. Manage Microcode Fixes 3-12
3-11. Manage Microcode Fixes 3-13
3-12. Example of An EEPROM Upgrade Window 3-16
3-13. Management Password 3-17
3-14. MOSS-E View Password 3-18
3-15. Management Password 3-18
3-16. CCM/Telnet Management Password 3-19
3-17. DCAF Target 3-20
3-18. DCAF Password 3-20
4-1. ac Outlet Distribution Box Connections in Controller Rack 4-2
4-2. LAN attached to the Service Processor 4-8
5-1. Keyboard Connector Voltages 5-24
5-2. Power Supply Connector Voltages 5-25
6-1. Memory-Module Connector Locations on the System Board 6-30
6-2. Rack Components Location 6-41
6-3. Service Processor Cables 6-42
6-4. 80486 Processor Card 6-44
6-5. Pentium Processor Card 6-44
6-6. ID Setting on CD-ROM 6-61
7-1. Memory-Module Connector Locations on the System Board 7-30
7-2. ID Setting on CD-ROM 7-47
C-1. Service Processor and Network Node Processor Cables for 3746-900 C-1
C-2. Service Processor and Network Node Processor Cables for 3746-950 C-2
C-3. Service Processor Cables for 3745 Models xxA C-3
C-4. LAN Cable C-4
C-5. Adapter Cable (PN 60G1066) C-5
C-6. Cable between the Service Processor and the Modem (PN 0782985) C-6
C-7. Modem Cables Pin Assignments (PN 0782985) C-6
C-8. Modem Cable Adapter (PN 0782984) C-7
C-9. Modem Cables Pin Assignments (PN 0782984) C-7
C-10. SCSI Cable (PN 33F4606) C-9
C-11. SCSI Cable (PN 06H6036) C-9
C-12. SCSI Adapter Cable (PN 0782983) C-9
C-13. SCSI Cable (PN 33F4606) C-10
C-14. SCSI Cable (PN 92F2559) C-10
C-15. Cables between the Service Processor and the Display and Keyboard C-11
C-16. Extender Cable for Service Processor and Display connection . . . C-11
C-17. Cable between the Service Processor and the Keyboard C-12
C-18. Pin Assignement of the Keyboard Cable C-12
E-1. 7855 Front Panel E-1
G-1. Controller Expansion Inventory Chart (Front View). G-2
G-2. Controller Expansion Inventory Chart (Rear View). G-3
G-3. Installing Captive Nuts and Brackets for the Display, Drawer, SP and NNP Type 7585 . . . . . G-4
G-4. Installing Captive Nuts and Brackets for the Display, Drawer, SP and NNP Type 3172 . . . . . G-5
G-5. Installing Captive Nuts for LCBs G-6
G-6. Installing Captive Nuts for 8229s G-7

G-7. Installing Captive Nuts and Brackets for MAE G-8
G-8. Installing Brackets (PN 58G5752) for Processor Type 7585 . . . . . G-9
G-9. Installing Brackets for Processor Type 3172 . . . . . G-10
G-10. Units Installation in the Controller Expansion (SP Type 7585) G-11
G-11. Units Installation in the Controller Expansion (SP Type 7585 + MAE) G-11
G-12. Units Installation in the Controller Expansion (SP Type 3172) G-12
G-13. Units Installation in the Controller Expansion (SP Type 9585) G-12
G-14. Units Installation in the Controller Expansion (SP Type 9577) G-13
G-15. Connecting the Units to the ac Outlet Distribution Box. G-13

Notices

References in this publication to IBM products, programs, or services do not imply that IBM intends to make these available in all countries in which IBM operates. Any reference to an IBM product, program, or service is not intended to state or imply that only IBM's product, program, or service may be used. Any functionally equivalent product, program, or service that does not infringe any of IBM's intellectual property rights may be used instead of the IBM product, program, or service. Evaluation and verification of operation in conjunction with other products, except those expressly designated by IBM, is the user's responsibility.

IBM may have patents or pending patent applications covering subject matter in this document. The furnishing of this document does not give you any license to these patents. You can send license inquiries, in writing, to the IBM Director of Licensing, IBM Corporation, 500 Columbus Avenue, Thornwood, New York 10594, U.S.A.

European Union (EU) Statement

This product is in conformity with the protection requirements of EU Council Directive 89/336/EEC on the approximation of the laws of the Member States relating to electromagnetic compatibility. IBM can not accept responsibility for any failure to satisfy the protection requirements resulting from a non-recommended modification of the product, including the fitting of non-IBM option cards.

Electronic Emission Notices

Federal Communications Commission (FCC) Statement

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

Properly shielded and grounded cables and connectors must be used in order to meet FCC emission limits. IBM is not responsible for any radio or television interference caused by using other than recommended cables and connectors or by unauthorized changes or modifications to this equipment. Unauthorized changes or modifications could void the user's authority to operate the equipment.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Industry Canada Compliance Statement

© Copyright IBM Corp. 1998

This Class A digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations.

Avis de conformité aux normes d'Industrie Canada

Cet appareil numérique de la classe A respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.

Japanese Voluntary Control Council For Interference (VCCI) Statement

This equipment is in the 1st Class category (information equipment to be used in commercial and/or industrial areas) and conforms to the standards set by the Voluntary Control Council for Interference by Information Technology Equipment aimed at preventing radio interference in commercial and industrial areas.

Consequently, when used in a residential area or in an adjacent area thereto, radio interference may be caused to radios and TV receivers, and so on.

Read the instructions for correct handling.

Power Line Harmonics (JEIDA) Statement

The guidelines of power line harmonics required by JEIDA are satisfied.

Korean Communications Statement

Please note that this device has been approved for business purpose with regard to electromagnetic interference. If you find this is not suitable for your use, you may exchange it for a non-business one.

New Zealand Radiocommunications (Radio) Regulations

Attention: This is a Class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

Taiwanese Class A Warning Statement

This is a Class A product. In a domestic environment this product may cause radio interference in which case the user will be required to take adequate measures.

警告使用者:
這是甲類的資訊產品，在居住的環境中使用時，可能會造成射頻干擾，在這種情況下，使用者會被要求採取某些適當的對策。

Trademarks and Service Marks

The following terms, denoted by an asterisk (*), used in this publication, are trademarks or service marks of IBM Corporation in the United States or other countries:

APPN	OS/2	RETAIN	XGA
ESCON	NetView	Storyboard	
FFST/2	Personal System/2	S/370	
IBM	PS/2	VTAM	

The following terms, denoted by a double asterisk (**), used in this publication, are trademarks of other companies:

SX (Intel Corporation) Pentium (Intel Corporation)

Product Safety Information

General Safety

This product meets IBM safety standards.

Safety Notices

For *Safety Notices* refer to *IBM 3745 Communication Controller All Models*, *IBM 3746 Expansion Unit Model 900*, *IBM 3746 Nways Multiprotocol Controller Model 950*, *Safety Information*, GA33-0400

Safety Notices for United Kingdom

1. The IBM 3746 Expansion Unit Model 900 and IBM 3746 Nways Multiprotocol Controller Model 950 are manufactured according to the International Safety Standard EN 60950 and as such are approved in the UK under the General Approval Number NS/G/1234/J/100003 for indirect connection to the public telecommunication network.
2. The network adapter interfaces housed within the IBM 3746 Expansion Unit Model 900 and IBM 3746 Nways Multiprotocol Controller Model 950 are approved separately, each one having its own independent approval number. These interface adapters, supplied by IBM, do not use or contain excessive voltages. An excessive voltage is one that exceeds 42.4 V peak ac or 60 V dc. They interface with the IBM 3746 Expansion Unit Model 900 and IBM 3746 Nways Multiprotocol Controller Model 950 using Safety Extra Low Voltages (SELV) only. In order to maintain the separate (independent) approval of the IBM adapters, it is essential that other optional cards, not supplied by IBM, do not use mains voltages or any other excessive voltages. Seek advice from a competent engineer before installing other adapters not supplied by IBM.

Service Inspection Procedures

The Service Inspection Procedures help service personnel check whether the 3745/3746 conforms to IBM safety criteria. They have to be used each time the 3745/3746 safety is suspected. The *Service Inspection Procedures* section is located at the beginning of the:

- *3745 Communication Controller Models 210 to 61A Maintenance Information Procedures*, SY33-2054
- *3745 Communication Controller Models 130 to 17A Maintenance Information Procedures*, SY33-2070
- *3746-950 Service Guide*, SY33-2108.
- *3746-900 Service Guide*, SY33-2116.

The 3745/3746 areas and functions checked through service inspection procedures are:

1. External covers
2. Safety labels

© Copyright IBM Corp. 1998

3. Safety covers and shields
4. Grounding
5. Circuit breaker and protector rating
6. Input power voltage
7. Test of emergency power OFF/control power switch.
8. Power-ON indicator

About this Book

Who Should Use this Book

The IBM personnel using this book should be:

- Trained to service the Service Processor, IBM 3745 Communication Controller, 3746-900, and 3746-950.
- Familiar with the configuration of the 3745 Communication Controller, 3746-900, and 3746-950.
- Familiar with the Service Processor service documentation.

How to Use this Book

This book provides procedures for installing and maintaining a service processor. To ensure the most efficient installation:

- Read the instructions carefully before attempting to do them,
- Complete each step before going to the next one,
- Go through the chapters sequentially.

How this Book is Organized

Chapter 1	Presents the procedures to install and connect the service processor, the 8228, and the RSF modem. It also gives procedures to customize the MOSS-E parameters.
Chapter 2	Introduces the service processor configuration and gives general information to access the information.
Chapter 3	Presents the software maintenance procedures for the service processor.
Chapter 4	Presents the entry point for service processor, display, keyboard, mouse, optical disk drive, and modem problem determination.
Chapter 5	Gives the procedures for 7585-P02 troubleshouting and FRU exchange.
Chapter 6	Gives the procedures for 3172 troubleshouting and FRU exchange.
Chapter 7	Gives the procedures for 9585 troubleshouting and FRU exchange.
Chapter 8	Gives the CE leaving procedure.
Appendix A	Provides parameter worksheets for 3172, 9585, and 9577 service processor.
Appendix B	Provides service processor aids.
Appendix C	Provides service processor external cable references

© Copyright IBM Corp. 1998

Appendix D Provides instructions to use the 7855 buttons.

Appendix E Provides instructions to adjust the 6553 display

Appendix F Gives the component locations for the controller expansion

A **service and customer documentation bibliography**, a **list of abbreviations**, and an **index** are provided at the end of this book.

Where to Find More Information

For a complete list of the Service Processor, 3745, 3746-900, and 3746-950 customer and service information manuals, see at the end of this manual. In this *SPIM*, references are made to the following publications:

3746-950 Installation Guide, SY33-2107

3746-900 Installation Guide, SY33-2114

3745 Communication Controller Models 210 to 61A Maintenance Information Procedures, SY33-2054

3745 Communication Controller Models 130 to 17A Maintenance Information Procedures, SY33-2070

3746-950 Service Guide, SY33-2108

3746-900 Service Guide, SY33-2116

3745 Communication Controller Models A and 3746 Models 900 and 950: Planning Guide, GA33-0457

World Wide Web

You can access the latest news and information about IBM network products, customer service and support, and microcode upgrades via the Internet at the URL: http://www.networking.ibm.com/

Online Documentation from CD-ROM

Starting at EC F12380 (and above), with the service processor is shipped a CD which contains the LIC and a copy of the 3746 web site. You will find from this web page, marketing, PE, and all information about CCP products.

To access this page:

1. Insert the CD into the CD disk drive of the SP.
2. From the MOSS-E primary menu, click on **Information**
3. Double click on **CD-ROM documentation**
4. Then if you want to display the CCP documentation, click on **Documentation**
5. Click on **La Gaude Information Development: Communication Controllers Information**

Note: To have the very last version of the web site, connect to Internet at: http://w3.lagaude.ibm.com/ccp/3746.htm

Service Personnel Definitions

See the *3745 Communication Controller Models 210 to 61A Maintenance Information Procedures*, SY33-2054, *3745 Communication Controller Models 130 to 17A Maintenance Information Procedures*, SY33-2070, or the *3746-950 Service Guide*, SY33-2108.

Summary of Changes

This edition gives information about:

1. Installing a service processor using a CD-ROM. For installing service processor with the LIC loaded on a optical disk (up to EC D46130), refer to *Service Processor Installation and Maintenance (Based on 7585, 3172, 9585, and 9577)*, SY33-2115.
2. No more MCL process, new LIC install replace the MCL process.
3. Starting at EC F12380 and above, the LIC is shipped on a CD. On this CD you can get online documentation, for details refer to “Online Documentation from CD-ROM” on page xxiv.

© Copyright IBM Corp. 1998

Chapter 1. Installing and Setting Up Your Service Processor

Installation Scenarios And Documentation 1-3
Documentation 1-3
Installation Scenarios 1-4
Installing Your Service Processor (Based on 7585) 1-8
Service Processor Overview 1-8
Service Processor Installation Tasks 1-9
Step 1 - Preparing Your Installation 1-9
Step 2 - Installing the System Unit, Display, and keyboard 1-10
Step 3 - Installing the Service Processor Access Unit (8228) 1-19
Installing Your Service Processor (Based on 3172) 1-22
Service Processor Overview 1-22
Service Processor Installation Tasks 1-23
Step 1 - Preparing Your Installation 1-23
Step 2 - Installing the System Unit, Display, Keyboard, and CD Drive . . . 1-24
Step 3 - Installing the Service Processor Access Unit (8228) 1-36
Installing Your Service Processor (Based on 9585) 1-39
Service Processor Overview 1-39
Service Processor Installation Tasks 1-40
Step 1 - Preparing Your Installation 1-40
Step 2 - Installing the System Unit, Display, Keyboard, and CD Drive . . . 1-41
Step 3 - Installing the Service Processor Access Unit (8228) 1-53
Installing and Connecting the RSF Modem to the Service Processor 1-56
Step 4 - Installing and Connecting the 7858 to the Service Processor . . . 1-57
7858 Modem installation 1-57
Installing the Modem 1-58
Setting the 7858 Connected to the COM1 Connector (ASYN) 1-60
Saving the Configuration of the 7858 1-60
Connecting the 7858 1-61
Other Possible Settings and Connections for the 7858 1-63
Setting the 7858 Connected to the MPA Card (SYN) 1-63
Setting the 7858 Connected to the MPA card as COM2 (ASYN) . . 1-63
Connecting the 7858 to the MPA Card 1-64
Step 4 - Installing and Connecting the Hayes** Modem 1-65
Step 4 - Installing and Connecting the 7857 to the Service Processor . . . 1-68
Telecommunication Cables Part Numbers 1-69
Installation procedure 1-69
Setting the 7857 Connected to the COM1 Connector (ASYN) 1-72
Saving the Configuration of the 7857 1-72
Connecting the 7857 to COM1 1-72
Other Possible Settings and Connections for the 7857 1-74
Setting the 7857 Connected to the MPA Card (SYN) 1-74
Setting the 7857 Connected to the MPA Card as COM2 (ASYN) . . 1-75
Connecting the 7857 to the MPA Card 1-76
Step 4 - Installing and Connecting the 7855 to the Service Processor . . . 1-77
Unpacking and Installing the 7855 1-77
Unpacking the Modem 1-77
Installing the Modem 1-79

© Copyright IBM Corp. 1998

Step 4 - Installing the Integrated RSF Modem (for U.S and Canada Only) 1-84
Step 5 - Customizing Your Service Processor 1-85
Complete Your Installation 1-99

Installation Scenarios And Documentation

Documentation

Note: The following list gives the references to all the documents that can be used during the installation, but depending on your installation scenario not all of the documents will be needed.

Documents used during the installation:

1. 3746-900 IG: *3746-900 Installation Guide*, SY33-2114 (see note 1)
2. 3745 IG: *3745/210-61A Installation Guide*, SY33-2057 (see note 2)
3. 3746-950 IG: *3746-950 Installation Guide*, SY33-2107 (see note 4)
4. Output from the standalone Controller Configuration and Management.
5. *3745/130-17A Installation Guide*, SY33-2067 (see note 3)
6. SPIM: *Service Processor Installation and Maintenance (Based on 7585, 3172, and 9585)*, SY33-2120
7. NNPIM: *Network Node Processor Installation and Maintenance (Based on 7585 or 3172)*, SY33-2112
8. MES: 3745 MES and Field BMs for model conversion
9. *3745 Bypass Card Plugging Guide*, SY33-2097 (on line document see note 1)
10. *7855 Modem Model 10 Guide to Operation*, GA33-0160 or *IBM 7857 Guide to Operation*, GA13-1839
11. Parameter sheets from the *3745 Communication Controller Models A and 3746 Models 900 and 950: Planning Guide*, GA33-0457.

Notes:

This document is used when:

1. Installing a 3746-900.
2. Installing a 3745 Model X1A.
3. Installing a 3745 Model 17A.
4. Installing a 3746-950.
5. Installing the MES 3745 models conversion to models A
6. Installing the MES 3746-900 model conversion to 3746-950

Installation Scenarios

Depending on the machine and the MES received, determine which installation scenario you are going to perform (from **Scenario 1** to **Scenario 16**). Refer to Table 1-1 on page 1-5 and Table 1-1 on page 1-5 to see how the **installation tasks** can be distributed **between 2 CEs** and define which **document** must be used to **start the installation** and have an overview of the installation sequence.

Note: Refer to Table 1-2 on page 1-5 for more details about each scenario. If you are installing a 3745 Model 17A, the statements concerning the installation of an expansion frame and the procedures "CDF verify" and "locate bypass cards positions" are not applicable.

NOTE

You are able to install the 3746-900 first, then connect the service processor and run all diagnostics. Afterward the 3745 can be modified to model A (if necessary) and connected to the 3746-900

Table 1-1. Installation Scenarios

Machine and/or MES Received	Scenario
3745 model 170 or model 210 to 610	1
service processor	2
3745 MES model conversion and 3746-900	3
3745 MES model conversion and 3746-900 and service processor	4
3745 Model 17A or model 21A to 61A	5
3745 Model 17A or model 21A to 61A and service processor	6
3746-900	7
3746-900 and 3745 MES model conversion	8
3746-900 and 3745 MES and service processor	9
3746-900 and 3745 model 17A or 21A to 61A	10
3746-900 and 3745 model 17A or 21A to 61A and service processor	11
3746-950 and network node processor	12
3746-950, service processor, and network node processor	13
3746-900 MES conversion to model 3746-950 and network node processor	14
3746-900 MES conversion to model 3746-950, service processor and network node processor	15
3746-900 MES installation of APPN* and network node processor	16

Note: The installation sequence given in Table 1-2 can be modified as you are able to install the 3746-900 first and then connect to the 3745 model A. It is no more mandatory to start with the 3745 MES (to migrate to model A) or with the 3745 Installation Guide.

Scenario	CE	Tasks	Documentation	Installation Sequence
Scenario 1	1st 2nd	Install the 3745-XX0 base frame Install expansion frame (if any)	3745 Installation Guide 3745 Installation Guide	Start with the 3745 IG and install the 3745-XX0
Scenario 2	1st	Install the service processor	Service Processor Installation and Maintenance	Start with the SPIM and install the SP.
Scenario 3	1st	Install the MES model conversion	MES model conversion XX0 to XXA	Start with the MES and connect the 3745 XXA to the existing SP.
Scenario 4	1st 2nd	Install the MES model conversion Install the Service Processor	MES model conversion XX0 to XXA Service processor Installation and Maintenance	Start with the MES and using the SPIM install the SP.
Scenario 5	1st 2nd	Install the 3745-XXA base frame Install expansion frame (if any)	3745 Installation Guide 3745 Installation Guide	Start with the 3745 IG and connect the 3745-XXA to the existing SP.

Scenario	CE	Tasks	Documentation	Installation Sequence
Scenario 6	1st	Install the 3745-XXA base frame	3745 Installation Guide	Start with the 3745 IG and using the SPIM install and connect the SP.
	2nd	Install the Service Processor	Service Processor Installation and maintenance	
Scenario 7	1st	Install the 3746-900 (off line)	3746-900 Installation Guide	Start with the 3746 IG and install and connect the 3746-900 to the 3745-XXA.
	2nd	Prepare the 3745-XXA: CDF verify, Bypass Cards	3746-900 Installation Guide	
	2CEs	Connect the 3746-900 to the 3745	3746-900 Installation Guide	
Scenario 8	1st	Install the MES model conversion and prepare the 3745-XXA • CDF verify - Bypass Cards	MES model conversion XX0 to XXA 3746-900 Installation Guide	Start with the MES to convert the 3745 to model XXA, then using the 3746 IG install and connect the 3746-900
	2nd	Install the 3746-900 (off line)	3746-900 Installation Guide	
	2CEs	Connect the 3746-900 to the 3745	3746-900 Installation Guide	
Scenario 9	1st	Install the MES model conversion and prepare the 3745-XXA • CDF verify - Bypass Cards	MES model conversion XX0 to XXA 3746-900 Installation Guide	Start with the 3745 MES convert the 3745 to XXA using the SPIM install the SP, then using the 3746 IG install and connect the 3746-900
	2nd	Install the Service Processor	Service Processor Installation and maintenance	
		Install the 3746-900 (off line)	3746-900 Installation Guide	
	2CEs	Connect the 3746-900 to the 3745	3746-900 Installation Guide	
Scenario 10	1st	Install the 3745-XXA base frame	3745 Installation Guide	Start with the 3745 IG install the 3745 XXA, then using the 3746 IG install the 3746-900. The machines are connected to an existing SP.
	2nd	Install expansion frame (if any) and the 3746-900	3745 Installation Guide 3746-900 Installation Guide	
	2CEs	Connect the 3746-900 to the 3745	3746-900 Installation Guide	
Scenario 11	1st	Install the 3745-XXA base frame and the Service Processor	3745 Installation Guide Service Processor Installation	Start with the 3745 IG install the 3745 XXA, using the SPIM install the SP, then using the 3746 IG install the 3746-900.
	2nd	Install expansion frame (if any) and the 3746-900	3745 Installation Guide 3746-900 Installation Guide	
	2CEs	Connect the 3746-900 to the 3745	3746-900 Installation Guide	
Scenario 12	1st	Install the 3746-950	3746-950 Installation Guide	Start with the 3746 IG and connect the 3746 950 to the existing SP. Then using the network node processor installation and maintenance, install the NNP.
	2nd	Install the Network Node Processor	Network Node Processor Installation and Maintenance	

Scenario	CE	Tasks	Documentation	Installation Sequence
Scenario 13	1st	Install the 3746-950	3746-950 Installation Guide	Start with the 3746 IG install the 3746-950, the SPIM to install the SP, and the network node processor installation and maintenance to install the NNP.
	2nd	Install Service Processor	Service processor Installation and Maintenance	
	2nd	Install the Network Node Processor	Network Node Processor Installation and Maintenance	
Scenario 14	1st	Install the MES model conversion from 3746-900 to 3746-950	3746-900 to 3746-950 MES model conversion and the 3746-950 Installation Guide	Start with the MES then use the 3746 IG to connect the 3746-950 to an existing SP, and the network node processor installation and maintenance to install the NNP.
Scenario 15	1st	Install the MES model conversion from 3746-900 to 3746-950	3746-900 to 3746-950 MES model conversion, 3746-950 IG and the	Start with the MES and the 3746-950 IG then use the SPIM to install the SP and the network node processor installation and maintenance to install the NNP.
	2nd	Install the Service Processor	Service Processor Installation and Maintenance	
	2nd	Install the Network Node Processor	Network Node Processor Installation and Maintenance	
Scenario 16	1st	Install APPN on the 374-900 MES	MES APPN on 3746-900	Start with the MES to install APPN on the 3746-900, then use the NNPIM to install the network node processor.
	2nd	Install the Network Node Processor	Network Node Processor Installation and Maintenance	

Table 1-2. Installation Scenarios

Go To

If you are installing a:

- **7585**, go to “Installing Your Service Processor (Based on 7585)” on page 1-8.
- **3172**, go to “Installing Your Service Processor (Based on 3172)” on page 1-22.
- **9585**, go to “Installing Your Service Processor (Based on 9585)” on page 1-39.

Installing Your Service Processor (Based on 7585)

Service Processor Overview

The service processor is based on an IBM 7585 Model P02, see “Service Processor Based on 7585-P02” on page B-1 for details of the features installed.

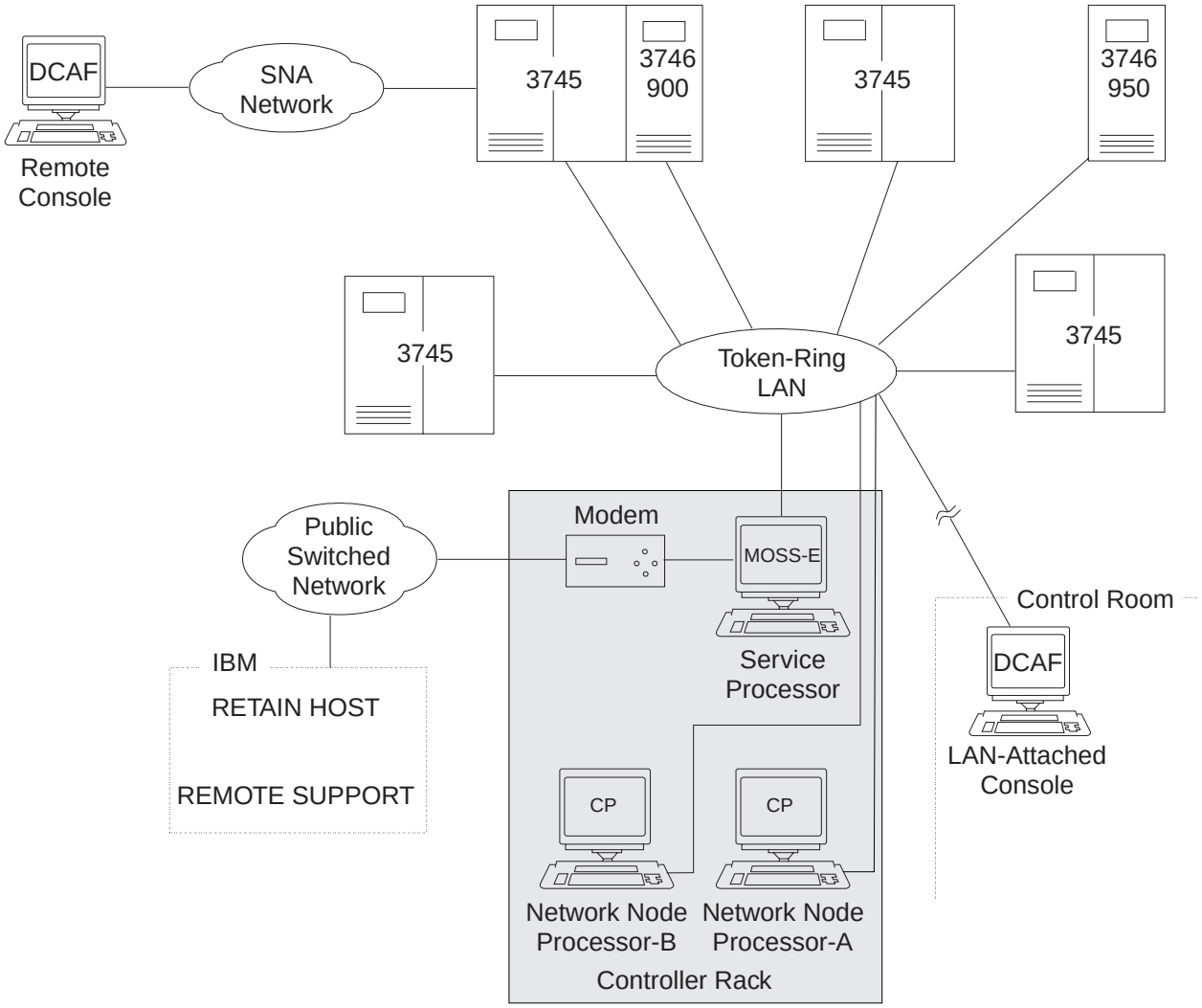


Figure 1-1. Service Processor Environment

Service Processor Installation Tasks

Note: If you are not **familiar** with the Service Processor operations, read **"General Information" on page 2-2** , to know how to get the information and then return here.

TASK	DESCRIPTION	GO TO
1	Installation Preparation	**"Step 1 - Preparing Your Installation"**..
2	Install the System Unit, Display, and Keyboard	**"Step 2 - Installing the System Unit, Display, and keyboard" on page 1-10**..
3	Install the 8228 and connect to the Service Processor	**"Step 3 - Installing the Service Processor Access Unit (8228)" on page 1-19**..
4	Install and connect the RSF modem to the Service Processor	**"Installing and Connecting the RSF Modem to the Service Processor" on page 1-56** ..
5	Customize your service processor according to the customer's options	**"Step 5 - Customizing Your Service Processor" on page 1-85**..

Step 1 - Preparing Your Installation

Obtain from the customer the following **Parameter worksheets**:

1. **"Parameter definitions for RSF"**
2. **"NetView path parameters"**
3. **"Service Processor integration"**
4. **"Service Processor parameters for DCAF"**
5. **"NCP dump transfer"** (not applicable for 3746-950)

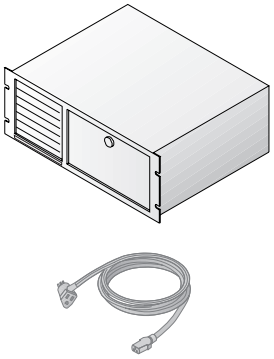
These parameter worksheets are part of the *3745 Communication Controller Models A and 3746 Models 900 and 950: Planning Guide*, GA33-0457 Appendix A and must be filled in by the customer. A copy of these parameter worksheets is given at the end of this manual see Appendix A, "Parameter Worksheets" on page A-1.

Step 2 - Installing the System Unit, Display, and keyboard

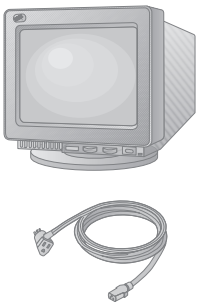
1. ____ **Unpack** Your Service Processor

You need the following items to complete this installation:

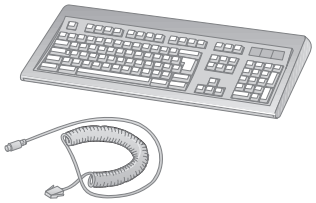
- ☐ Service Processor and Power Cord



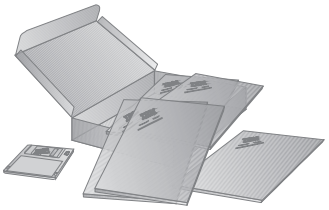
- ☐ Display and Display Power Cord



- ☐ Keyboard and Keyboard Cable



- ☐ Publications and diskettes



2. ____ Using label (PN 0782966), **identify** your Service Processor-A or Service Processor-B by sticking the appropriate label **A** on the front side of the unit (refer to Figure 1-2).

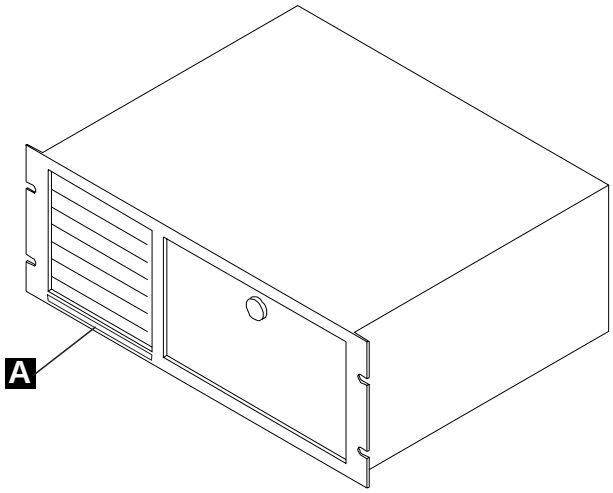


Figure 1-2. Installing Label on the Front Side of the Service Processor

The service processor, display, and keyboard can be installed:

- On a **table**, go to **step 14 on page 1-16** .
- In a **controller expansion**, in that case the display and keyboard can be installed:
  - On a table, go to **step 11 on page 1-15** .
  - In the controller expansion, go to **step 3 on page 1-12** .

3. ____ Open the front and rear doors of the controller expansion. Refer to Figure G-3 on page G-4 and locate the positions to install the brackets for the display and the service processor. Locate also the position to install the service drawer.

4. ____ For the display and the service processor, install four brackets (PN 58G5752) and secure using eight screws (PN 2665527).

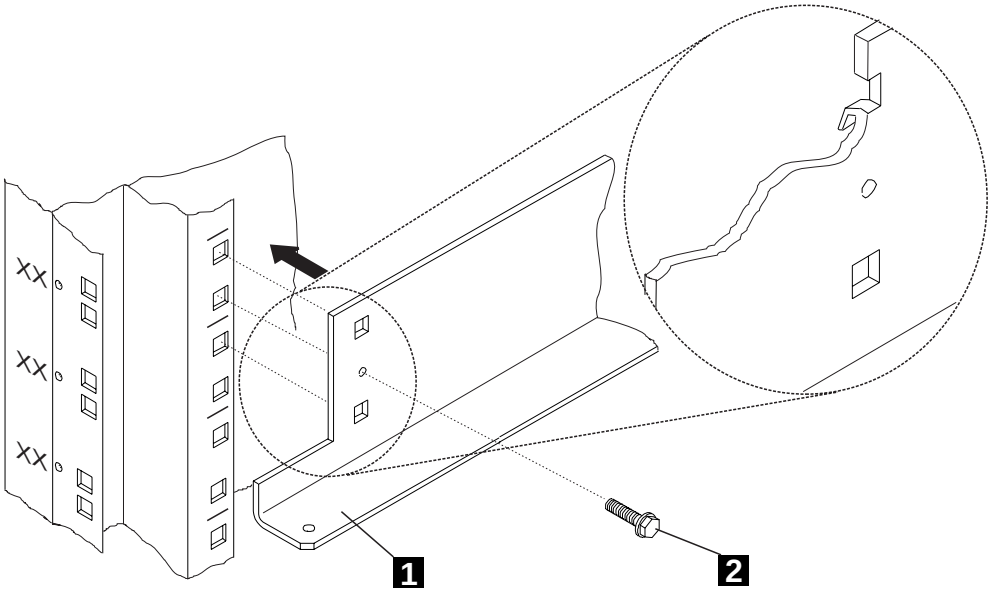


Figure 1-3. Installing Brackets PN 58G5752

5. ____ On the brackets installed for the display, install plate **2** (PN 58G5755) using four screws **1** (PN 1621230)

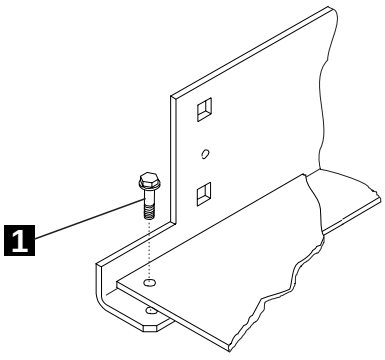


Figure 1-4. Installing Plate PN 58G5755

6. ____ Slide the display screen on the top of the controller expansion (refer to Figure 1-5).

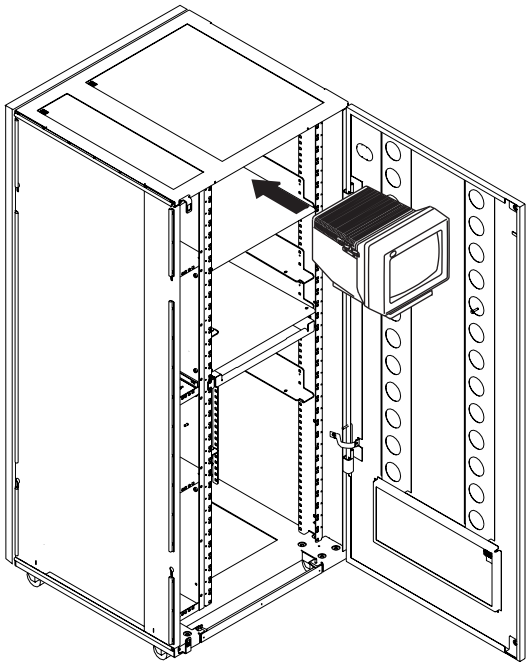


Figure 1-5. Installing the Display Screen in the Controller Expansion (Front Side)

7. ____ Refer to Figure 1-6, and if needed install four captive nuts **A** (PN 58G5766) on the front and on the rear side of the controller expansion.

.

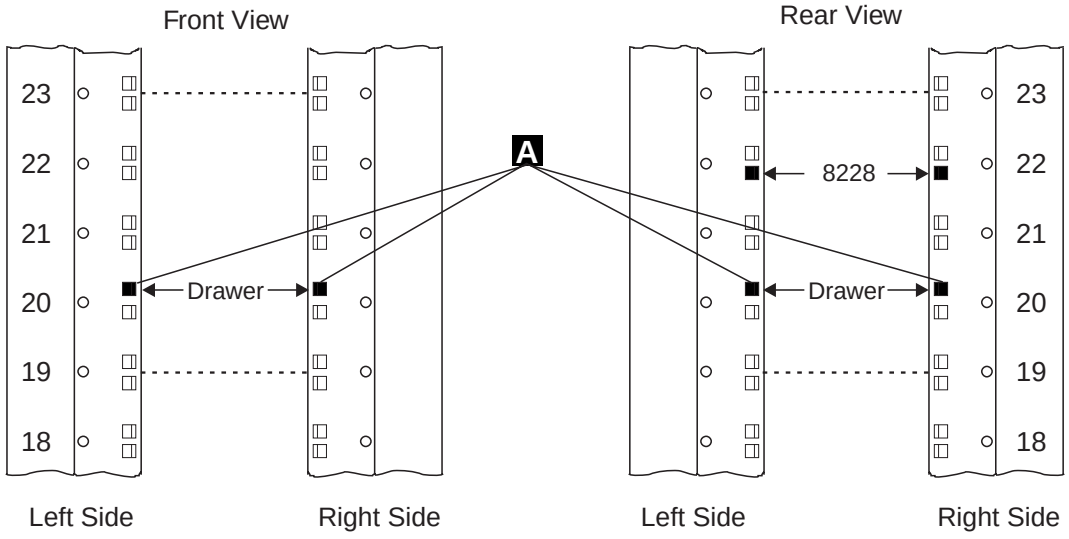


Figure 1-6. Installing Captive Nuts for the Service Drawer

8. ____ Refer to Figure 1-7, on the rear side of the controller expansion, install bracket **A** using two screws **C** (PN 1621230).
9. ____ On the front side of the controller expansion, slide the drawer **B** on the bracket **A** and secure using two screws **C** (PN 1621230).

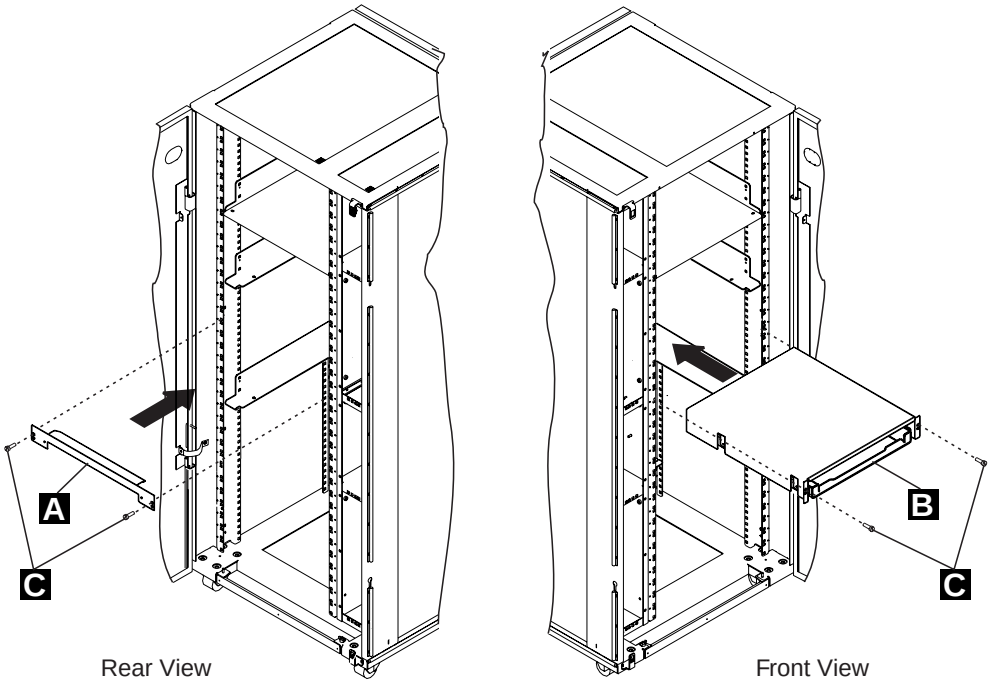


Figure 1-7. Installing the Service Drawer

10. ____ Open the drawer and install the keyboard as shown in Figure 1-8.

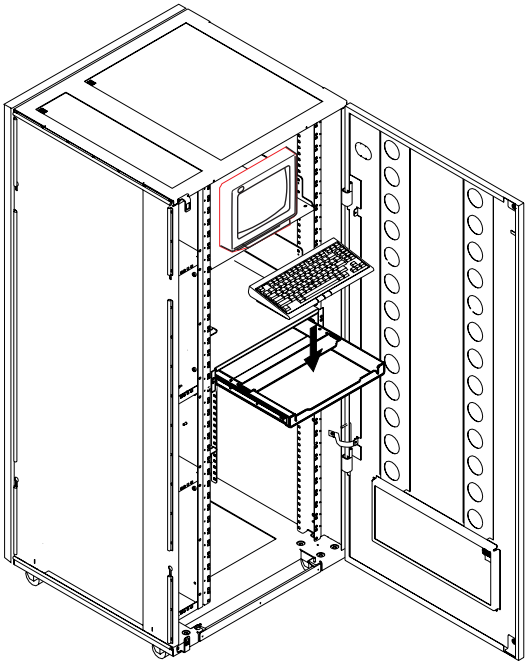


Figure 1-8. Installing the Keyboard

11. ____ Locate the captive nuts used to secure the service processor in the controller expansion. If already installed, go to step 13, otherwise go to step 12.

12. ____ Refer to Figure 1-9, install four captive nuts (PN 58G5766) on the left and right side of the controller expansion.

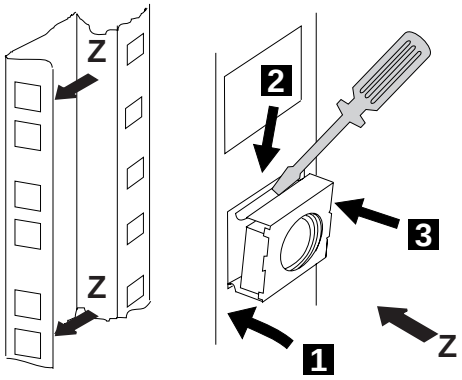


Figure 1-9. Installing the Captive Nuts for the 7585

13. ____ Slide the service processor unit on the brackets as shown in Figure 1-10, secure the unit using four screws (PN 1621230), then go to step 15 on page 1-16.

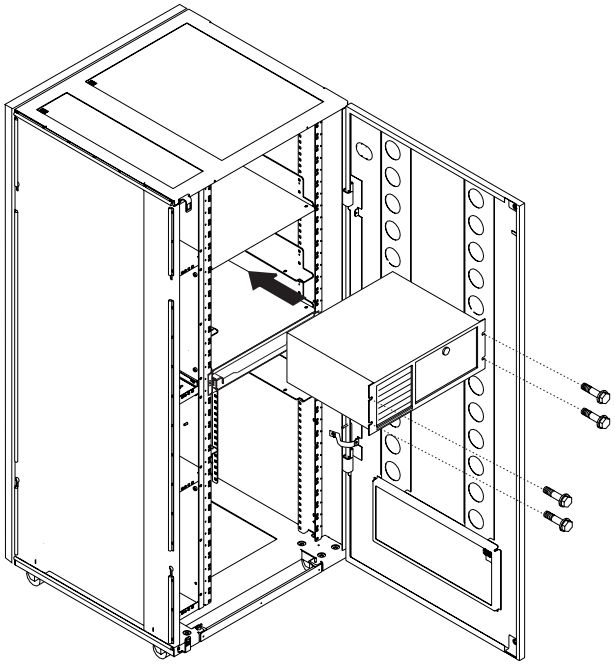


Figure 1-10. Installing the Service Processor Unit in the Controller Expansion (Front Side)

14. ____ **Obtain** a table or a desk large enough to receive the service processor, the display, the keyboard, and the modem, and go to step 15.

15. ____ **Connect** the cables to the 7585 as follows (see Figure 1-11):

    a. ____ Connect cable (PN 49G2224) keyboard plug **A** to connector K, and mouse plug **B** to connector M.

    Note: If you are installing the keyboard outside of the controller expansion, use cable PN 59G1271.

    b. ____ Connect the service processor power cord **C**.

    c. ____ Connect the token ring cable **H** (PN 6339098) to the service processor connector.

    d. ____ Connect the display signal cable **F** (PN 92F0329) to the service processor connector.

    Note: If you are installing the display outside of the controller expansion, use cable PN 59G1270.

    e. ____ *After you secure all these connections,* plug the power cords into properly grounded electrical outlets.

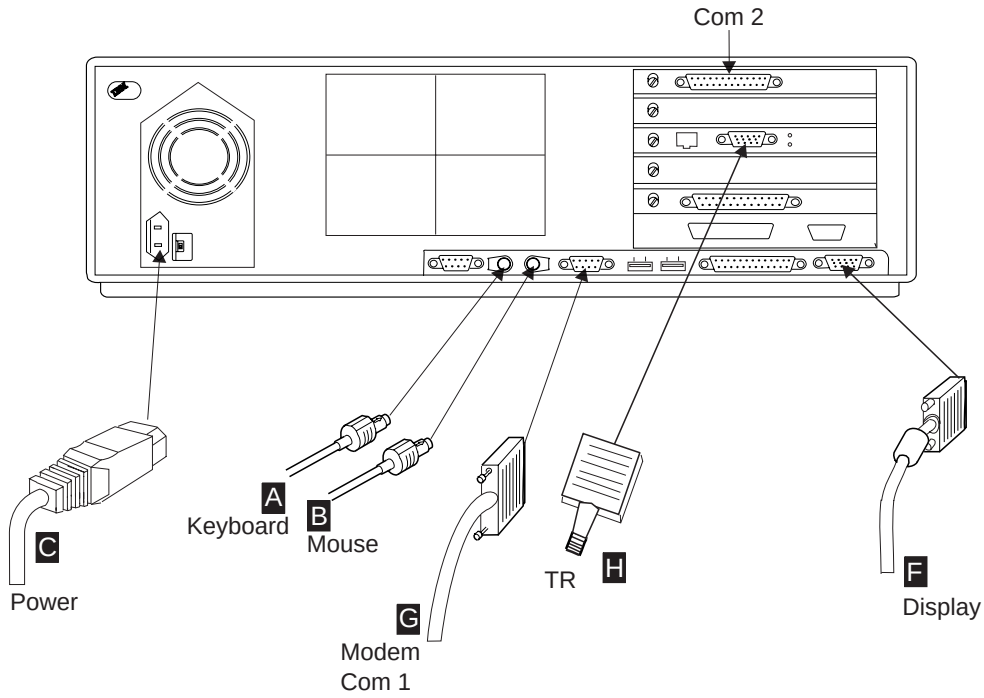


Figure 1-11. Cable Locations

Note: Cable **G** is the cable coming from the modem and it will be connected later, refer to “Installing and Connecting the RSF Modem to the Service Processor” on page 1-56.

Go To

If you have installed:

- **All the units** in the controller expansion, go to **step 16 on page 1-17**
- The **keyboard** and **display** are installed **on a table**, go to **step 17 on page 1-18**.
- **All the units** on a table, go to 19 on page 1-19

Warning

The ac outlet distribution box is connected to a **220V** power source, all the units must be set to support this voltage.

.

16. ____ Route and connect the power cords (PN 58G5783) from the display and service processor unit to the ac outlet distribution box as shown in Figure 1-12. Secure these cables using tie clamps along the frame, then go to step 18 on page 1-18.

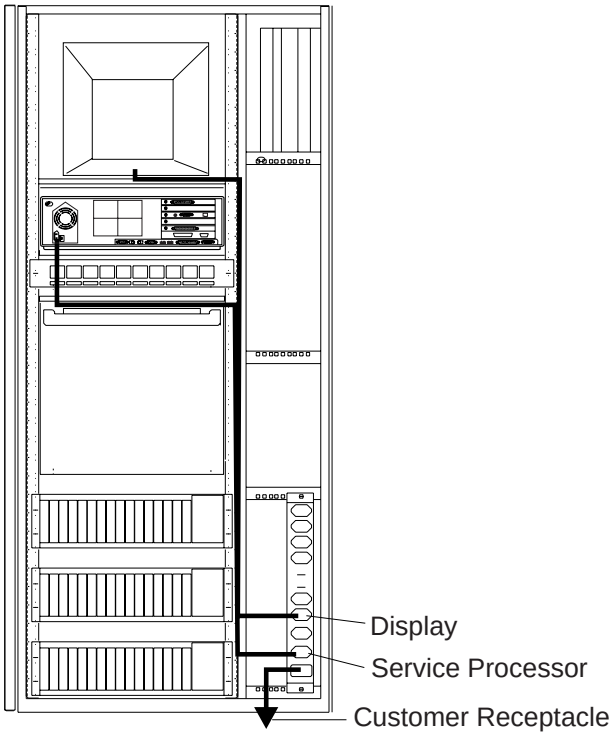


Figure 1-12. Power Cords Connection

17. ____ Connect the display cable **5** to connector **6** of cable **7** (PN 59G1270), then connect the keyboard cable **9** (PN 59G1271) to connectors K and M.

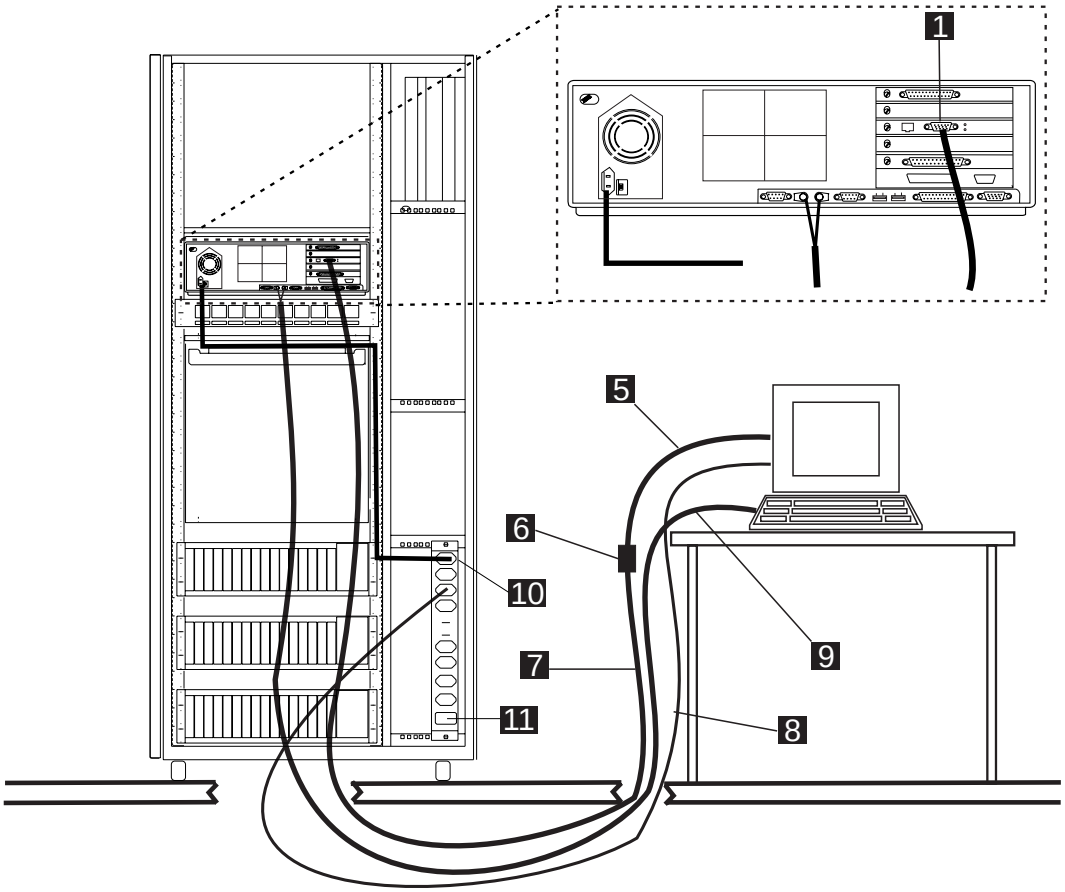


Figure 1-13. Installing the Display and Keyboard on a Table

18. ____ If it is not already plugged, connect the main power cord **A** coming from the ac outlet distribution box to the customer receptacle (refer to Figure 1-14).

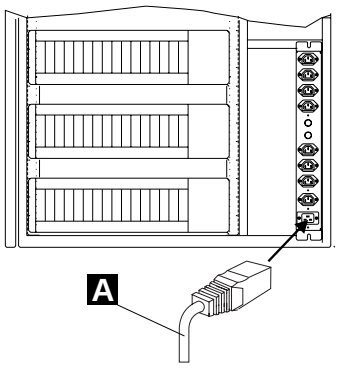


Figure 1-14. Power Cord for Power Strip

19. ____ If the customer ordered a **"backup"** Service Processor, resume step 1 on page 1-10 to step 14 on page 1-16 to install this machine near the **"active"** service processor.
    Install the system unit, display, and keyboard but **never** connect this machine to the LAN.
    This Service Processor is used to replace the "active" Service Processor if it fails.

Step 3 - Installing the Service Processor Access Unit (8228)

1. ____ Unpack the 8228, and then reset the 8228 ports as explained in the following steps:

   Note: Use the IBM 8228 Setup Aid after you have installed the 8228 and before you connect any cables to it. Save one Setup Aid to be used later if you relocate an 8228.

2. ____ Before you begin, make sure no cables are connected to the 8228. If a cable bracket has been installed on the 8228, remove it.

3. ____ Insert the aid into receptacle 1 of the 8228. The yellow stripe should be aligned with the edge of the receptacle to ensure that the aid is firmly seated.

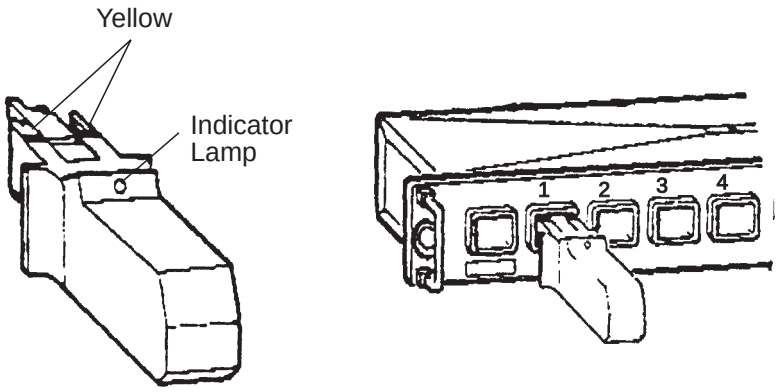


Figure 1-15. Use of the 8228 Setup Aid

   The light will glow brightly when the aid is initially inserted and will gradually dim when the aid is firmly seated in the receptacle.

   If the light does not glow brightly when you insert the Setup Aid, remove the screw from the aid and replace the battery. If the light still does not glow brightly after you have replaced the battery, try another Setup Aid.

4. ____ Leave the aid in the receptacle for four seconds after the light has gone out. Remove the aid from the receptacle and insert it into the next receptacle. The yellow stripe should be aligned with the edge of the receptacle to ensure that the aid is firmly seated.

   Go to the next receptacle and repeat this step until you have set each receptacle, 1 through 8.

5. ____ When you have set receptacle 8, insert the aid into the RI receptacle for four seconds.

The light should glow brightly while the aid is in the receptacle. If the light does not come on or goes out while the aid is connected to the receptacle, the 8228 must be replaced. Notify your network planner or supervisor.

Note: The 8228 Setup Aid is to be used only in setting up the 8228 either initially or after relocating the 8228. It should never be used when the network is operating.

6. ____ Install the 8228 in a safe place near the service processor. If you received a controller expansion, the 8228 is installed on the rear side of the controller expansion using two screws (PN 1621232) and two captive nuts (PN 58G5766) see Figure 1-16. Using label **A** (PN 0782966), identify the 8228 as Service Processor Access Unit.

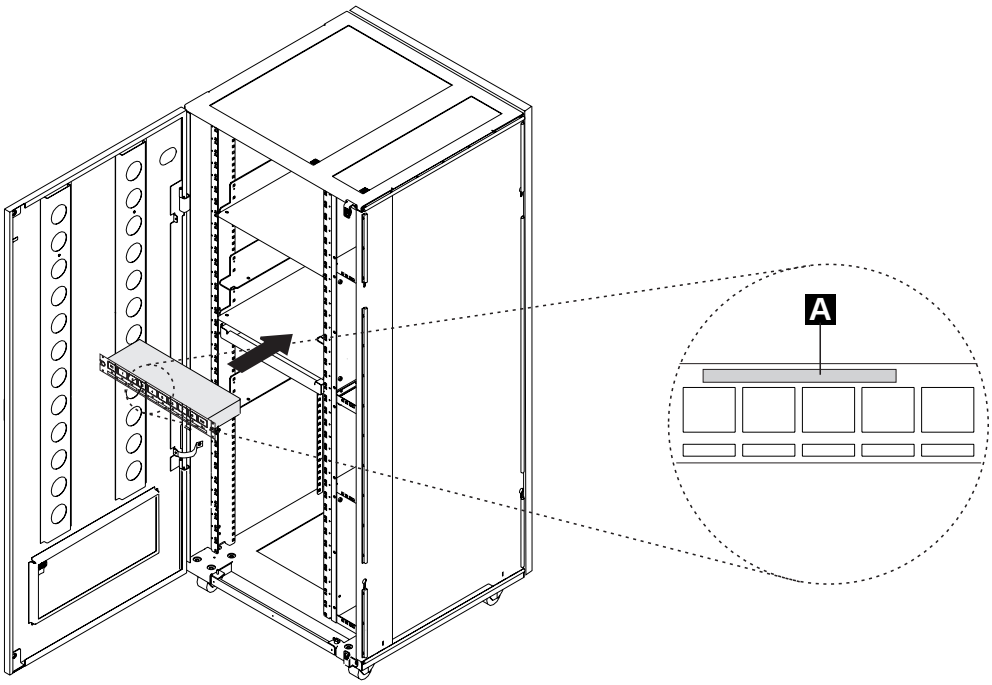


Figure 1-16. Installing the 8228 (Controller Expansion Rear side)

7. ____ Connect the 8228 to the Service Processor as follows:

   Note: If you have a controller expansion, refer to Figure 1-41 on page 1-38, if not refer to Figure 1-40 on page 1-38.

   a. ____ Plug connector **1** of cable **A** to to the service processor

   b. ____ Using a sticker, identify the connector **2** as the "service processor cable".

   c. ____ Plug connector **2** to **any plug** of the 8228 from **1 to 8**

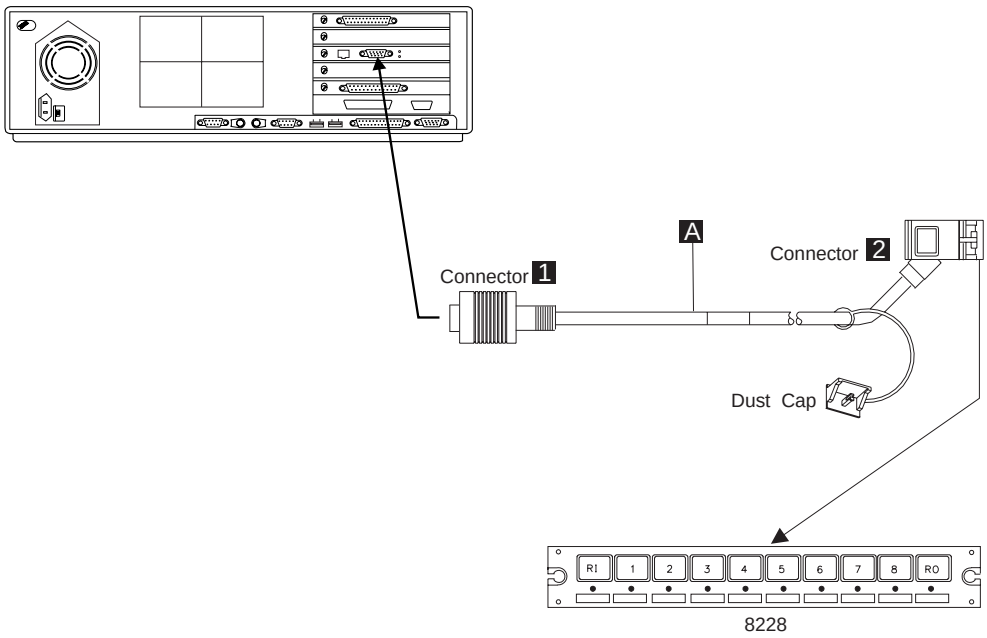


Figure 1-17. Connecting the 8228 to the Service Processor

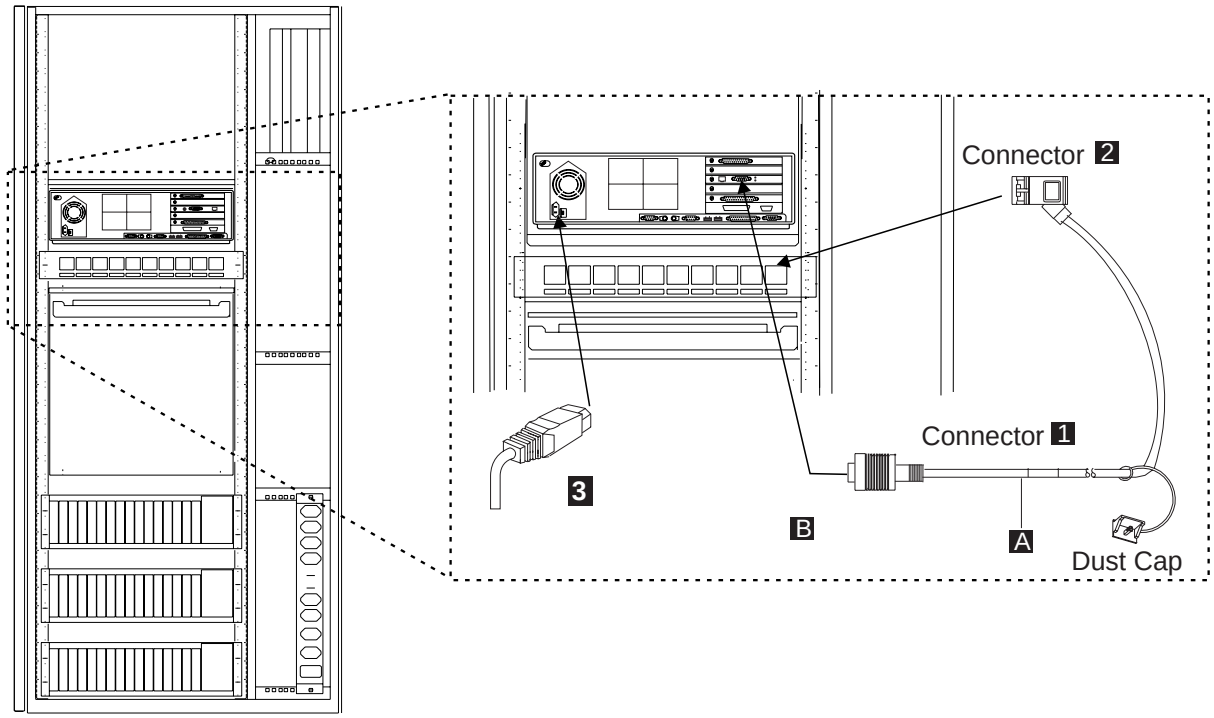


Figure 1-18. Connecting the 8228 to the Service Processor Installed in the Controller Expansion

Go to "Installing and Connecting the RSF Modem to the Service Processor" on page 1-56

Installing Your Service Processor (Based on 3172)

Service Processor Overview

The service processor is based on an IBM 3172 Model 003, see “Service Processor Based on 3172” on page B-15 for details of the features installed.

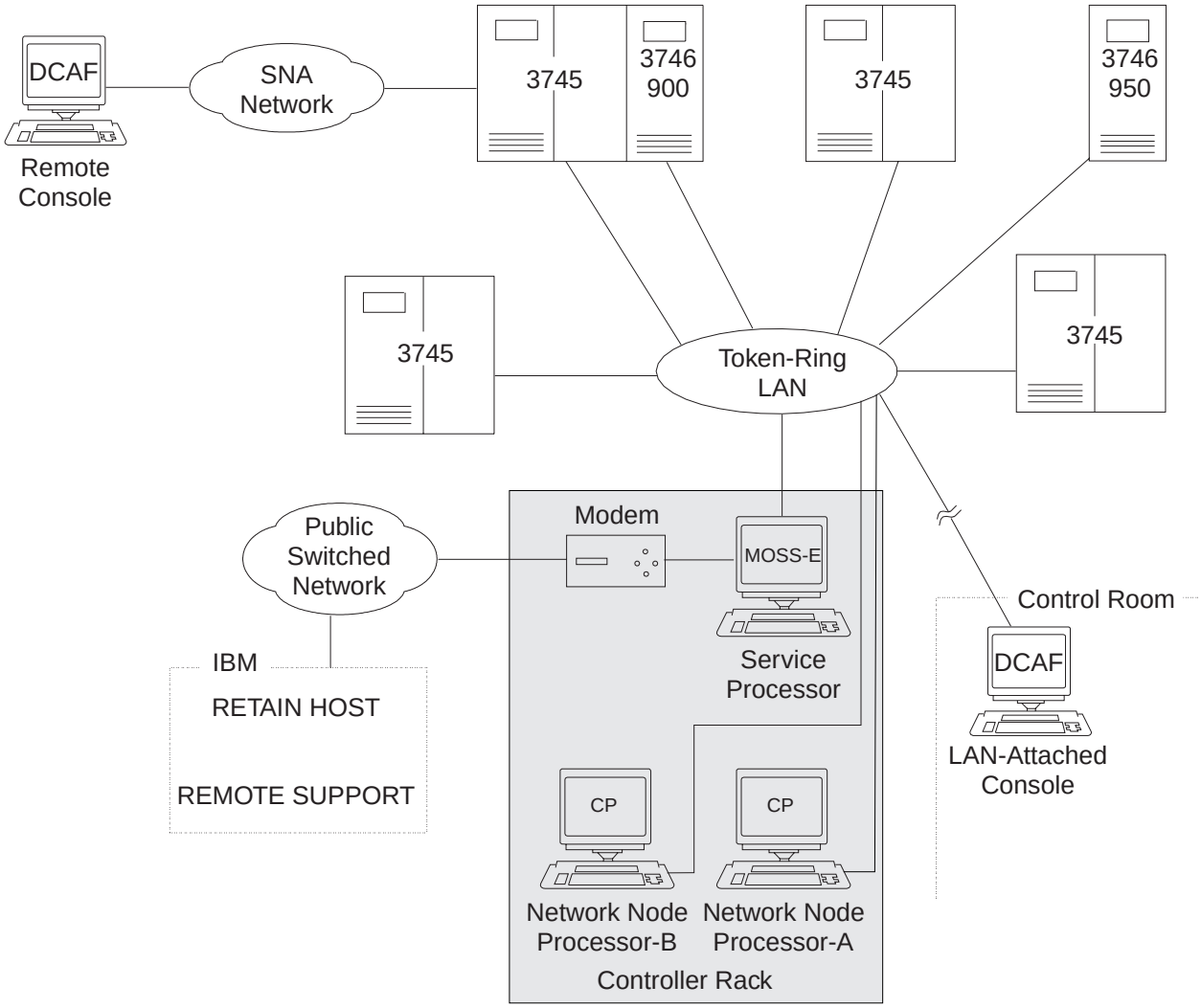


Figure 1-19. Service Processor Environment

Service Processor Installation Tasks

Note: If you are not **familiar** with the Service Processor operations, read **"General Information" on page 2-2** , to know how to get the information and then return here.

TASK	DESCRIPTION	GO TO
1	Installation Preparation	**"Step 1 - Preparing Your Installation"**..
2	Install the System Unit, Display, Keyboard, and CD Drive	**"Step 2 - Installing the System Unit, Display, Keyboard, and CD Drive" on page 1-24**..
3	Install the 8228 and connect to the Service Processor	**"Step 3 - Installing the Service Processor Access Unit (8228)" on page 1-36**..
4	Install and connect the RSF modem to the Service Processor	**"Installing and Connecting the RSF Modem to the Service Processor" on page 1-56** ..
5	Customize your service processor according to the customer's options	**"Step 5 - Customizing Your Service Processor" on page 1-85**..

Step 1 - Preparing Your Installation

Obtain from the customer the following **Parameter worksheets**:

1. **"Parameter definitions for RSF"**
2. **"NetView path parameters"**
3. **"Service Processor integration"**
4. **"Service Processor parameters for DCAF"**
5. **"NCP dump transfer"** (not applicable for 3746-950)

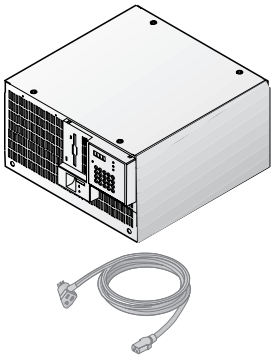
These parameter worksheets are part of the *3745 Communication Controller Models A and 3746 Models 900 and 950: Planning Guide*, GA33-0457 Appendix A and must be filled in by the customer. A copy of these parameter worksheets is given at the end of this manual see Appendix A, "Parameter Worksheets" on page A-1.

Step 2 - Installing the System Unit, Display, Keyboard, and CD Drive

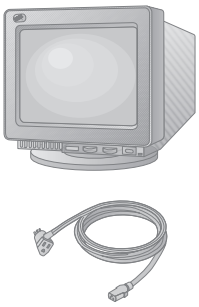
1. ____ **Unpack** Your Service Processor

You need the following items to complete this installation:

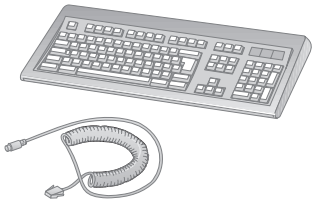
- ☐ Service Processor and Power Cord



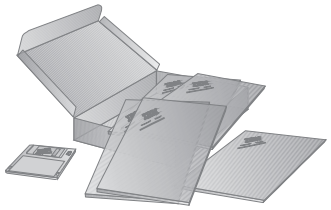
- ☐ Display and Display Power Cord



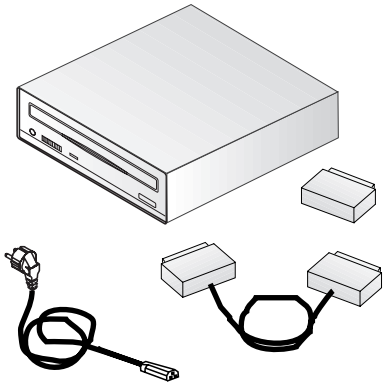
- ☐ Keyboard and Keyboard Cable



- ☐ Publications and diskettes



- ☐ CD Drive, Power and Signal Cables and Terminator



2. ____ Using label (PN 80G0680), **identify** your Service Processor-A or Service Processor-B by sticking the appropriate label **A** on the front and rear side of the unit (refer to Figure 1-20 and Figure 1-21).

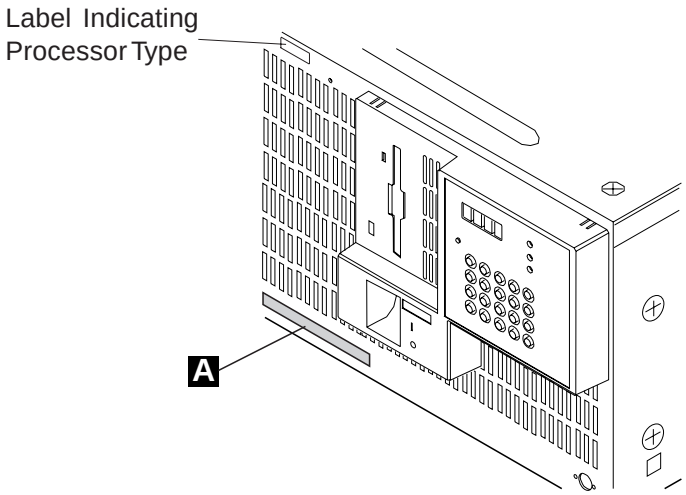


Figure 1-20. Installing Label on the Front Side of the Service Processor

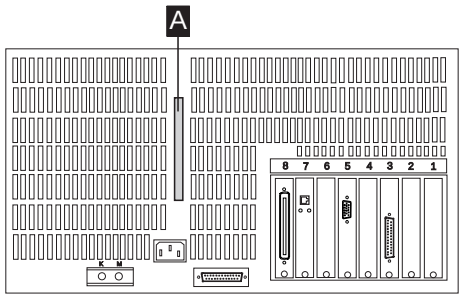


Figure 1-21. Installing Label on the Rear Side of the Service Processor

3. ____ **Verify** on the CD drive that the SCSI switch is set to the address ID **4**, if necessary change the ID by pressing the buttons located at the right and left of the display. (refer to “3172 SCSI Device Configuration” on page B-19).

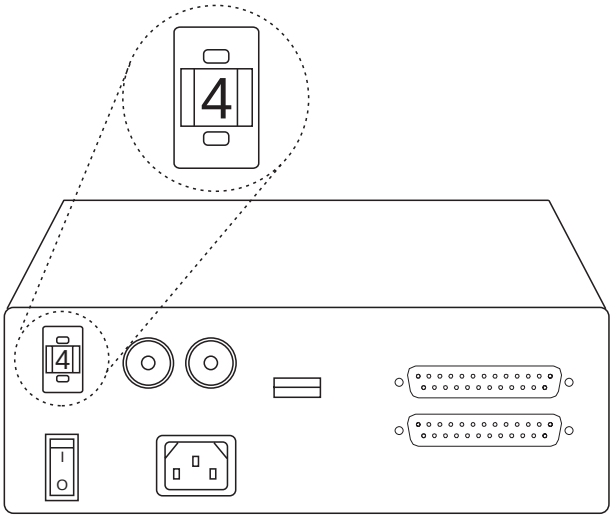


Figure 1-22. SCSI Switch

4. ____On the rear side the CD drive, **plug** terminator **A** into the lower connector and cable **B** PN 33F4606 into the upper connector.

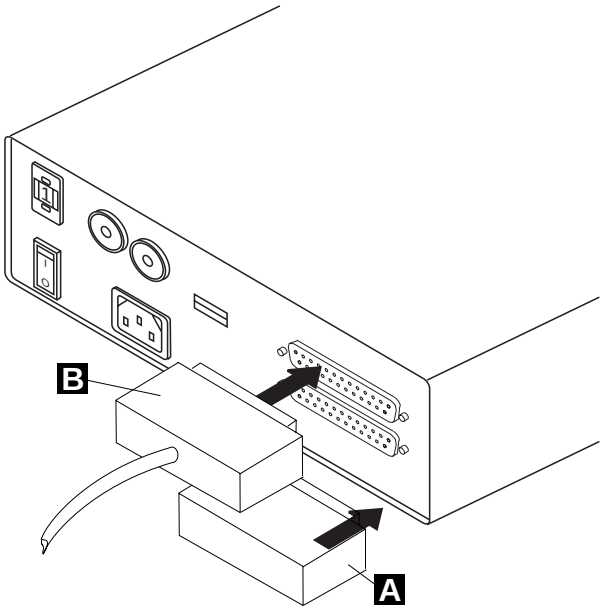


Figure 1-23. Plugging the Cable and Terminator

5. ____**plug** power cable **A** into the power connector.

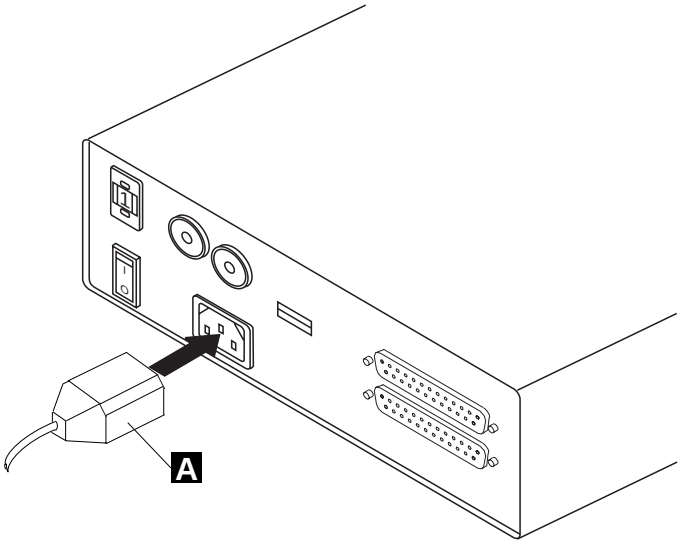


Figure 1-24. Plugging the Power Cable

6. The service processor, display, keyboard, and CD drive can be installed:
   - On a **table**, go to **step 19 on page 1-32** .
   - In a **controller expansion**, in that case the display and keyboard can be installed:
     – On a table, go to **step 17 on page 1-31** .
     – In the controller expansion, go to **step 7** .
7. ____ Open the front and rear doors of the controller expansion. Refer to Figure G-4 on page G-5 and locate the positions to install the display and service processor. Locate also the position to install the service drawer.
8. ____ For the **display**, install two brackets **1** (PN 58G5752) and secure using four screws **2** (PN 2665527).

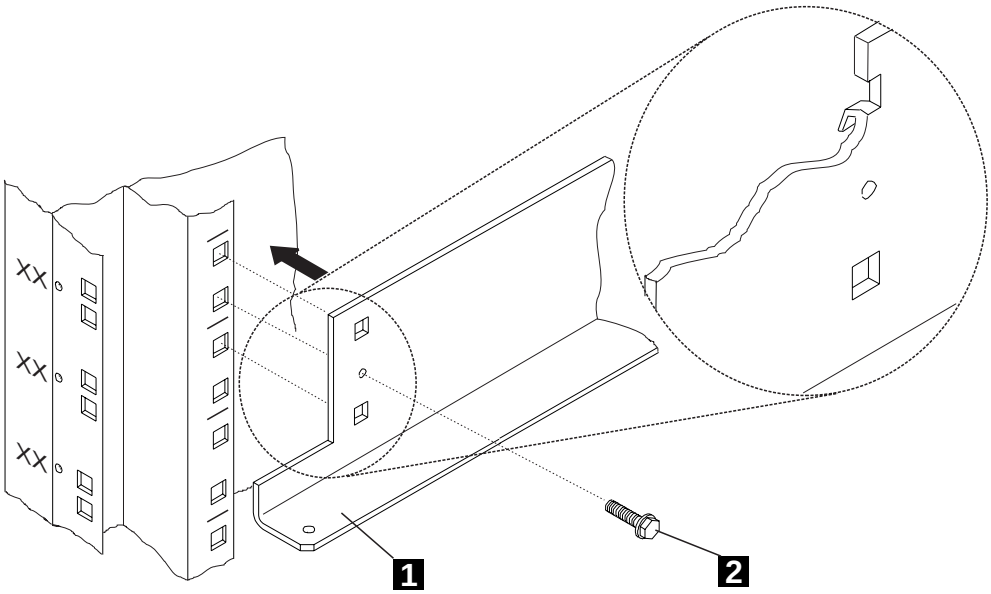


Figure 1-25. Installing Brackets PN 58G5752

9. ____ On the brackets installed for the display, install plate **2** (PN 58G5755) using four screws **1** (PN 1621230).

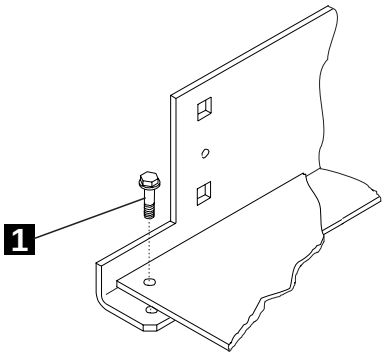


Figure 1-26. Installing Plate PN 58G5755

10. ____ For the **service processor**, install two brackets **1** (PN 58G5752) and secure using four screws **2** (PN 2665527).
11. ____ When the SP will be installed, install four screws **3** (PN 0782986)

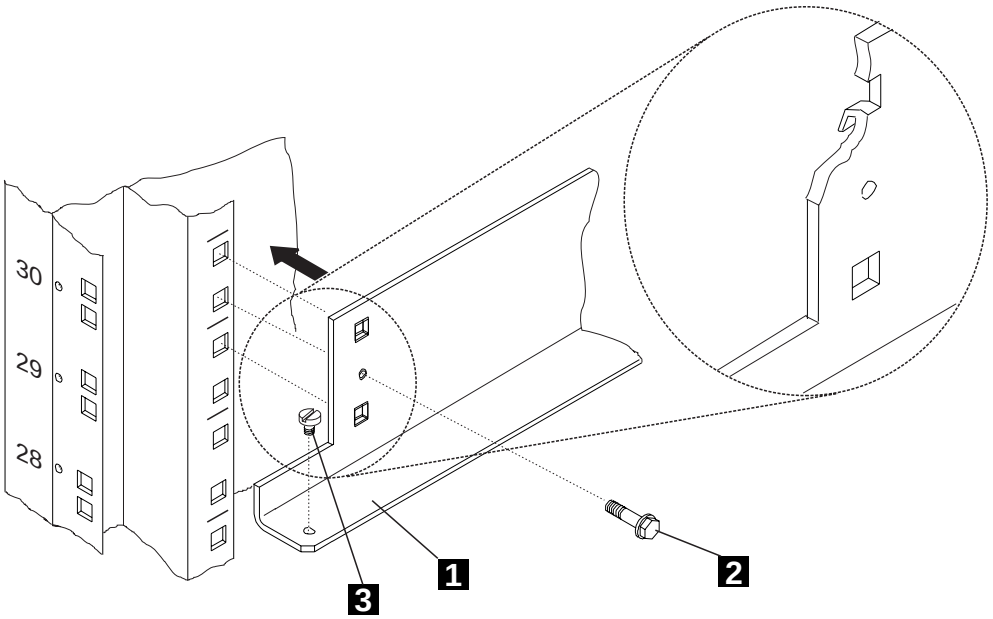


Figure 1-27. Installing Brackets PN 58G5752

12. ____ Slide the display screen on the top of the controller expansion (refer to Figure 1-28).

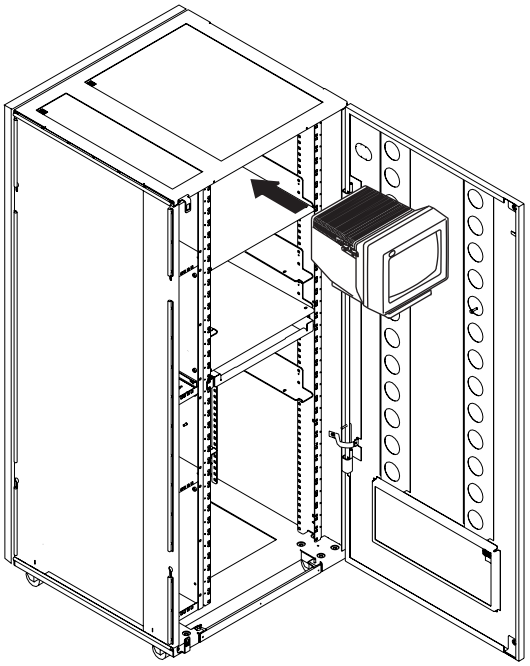


Figure 1-28. Installing the Display Screen in the Controller Expansion (Front Side)

13. ____ Refer to Figure 1-29, and if needed install four captive nuts **A** (PN 58G5766) on the front and on the rear side of the controller expansion.

.

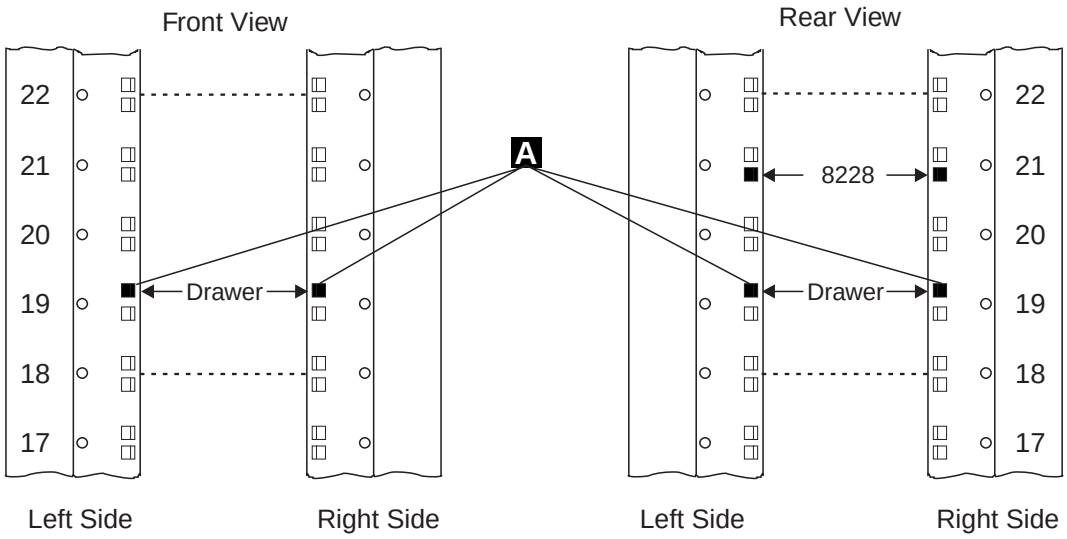


Figure 1-29. Installing Captive Nuts for the Service Drawer

14. ____ Refer to Figure 1-30, on the rear side of the controller expansion, install bracket **A** using two screws **C** (PN 1621230).

15. ____ On the front side of the controller expansion, slide the drawer **B** on the bracket **A** and secure using two screws **C** (PN 1621230).

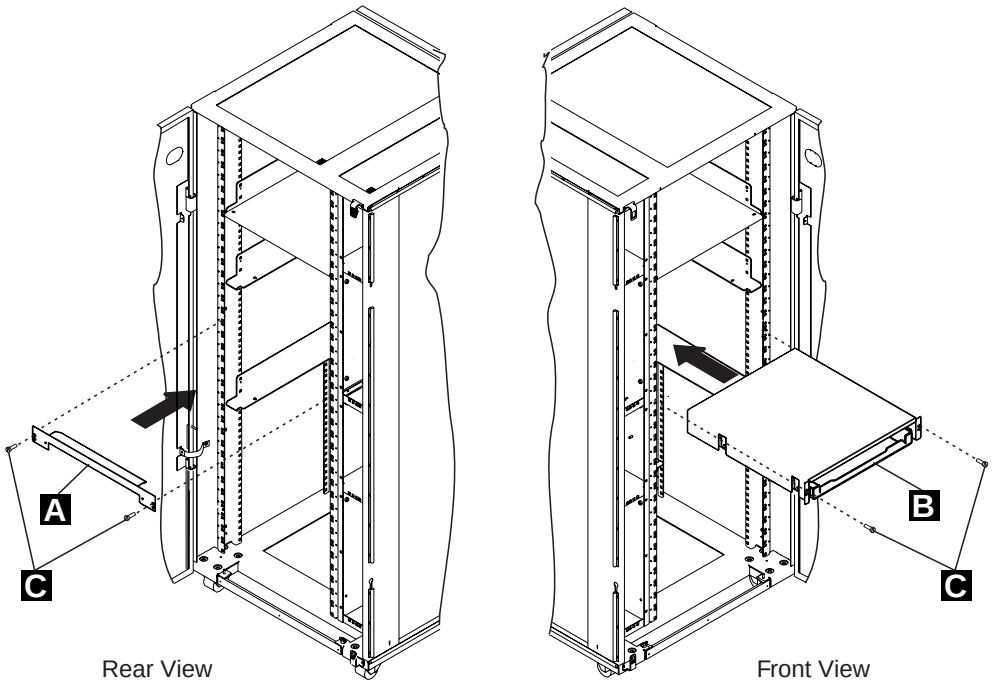


Figure 1-30. Installing the Service Drawer

16. ____ Open the drawer and install the keyboard as shown in Figure 1-31.

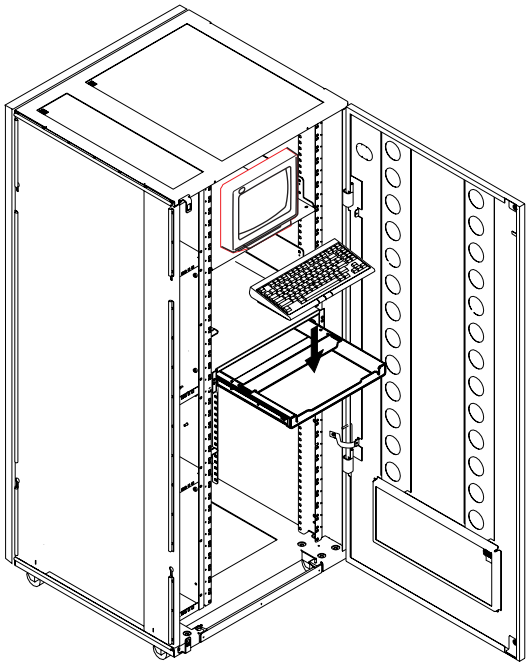


Figure 1-31. Installing the Keyboard

17. ____ If installed, remove the four pads located under the unit, then slide the service processor unit on the brackets as shown in Figure 1-32.

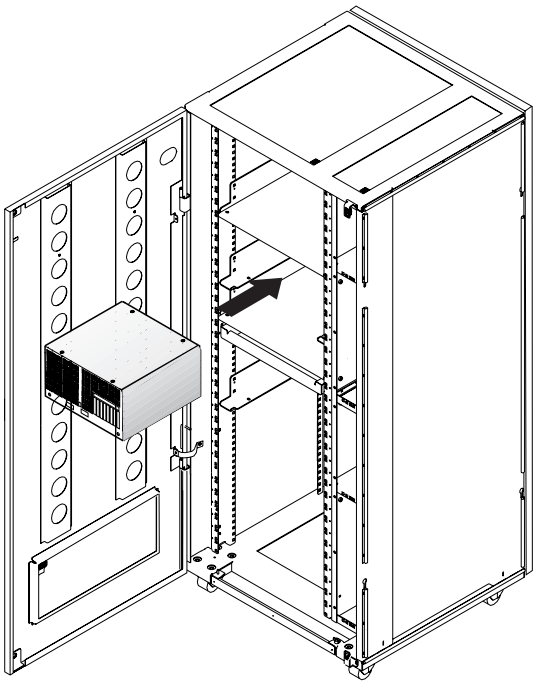


Figure 1-32. Installing the Service Processor Unit in the Controller Expansion (Rear Side)

18. ____ Install the CD drive in the controller expansion as shown in Figure 1-33, then **go to step 20** .

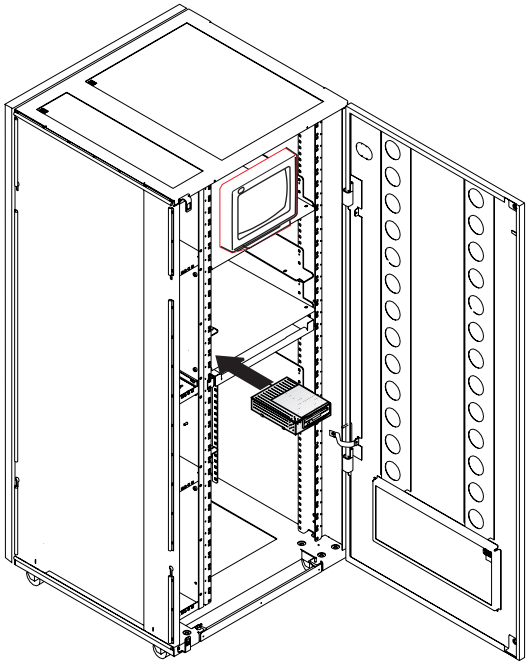


Figure 1-33. Installing the CD Drive

19. ____ **Obtain** a table or a desk large enough to receive the service processor, the display, the keyboard, the optical drive, the modem, and go to step 20.

20. ____ **Connect** the cables to the 3172 as follows (see Figure 1-34 on page 1-33):

    a. ____ Connect cable (PN 49G2224) keyboard plug **A** to connector K, and mouse plug **B** to connector M.

       Note: If you are installing the keyboard outside of the controller expansion, use cable PN 59G1271.

    b. ____ Connect the service processor power cord **C** .

    c. ____ Connect the CD drive signal cable **D** (PN 33F4606) to the service processor connector in slot 8.

    d. ____ Connect the token ring cable **E** (PN 60G1066) from cable **H** (PN 6339098) to the service processor connector in slot 7.

    e. ____ Connect the display signal cable **F** (PN 92F0329) to the service processor connector in slot 5.

       Note: If you are installing the display outside of the controller expansion, use cable PN 59G1270.

f. ____ *After you secure all these connections,* plug the power cords into properly grounded electrical outlets, then go to 24 on page 1-36
If you have installed **all the units** in the controller expansion, go to **step 21 on page 1-34**
If the **keyboard** and **display** are installed **on a table**, go to **step 22 on page 1-35** .

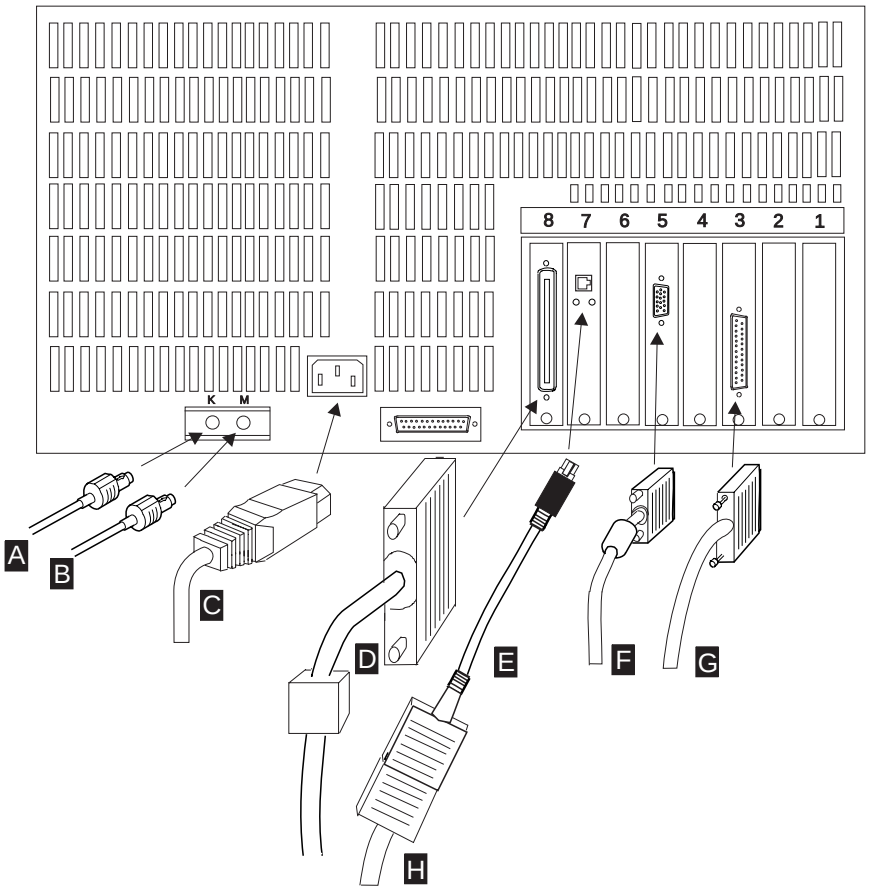


Figure 1-34. Cable Locations

Note: Cable **G** is the cable coming from the modem and it will be connected later, refer to “Installing and Connecting the RSF Modem to the Service Processor” on page 1-56. If a MAE is installed, this cable is connected to the COM 1 of the service processor.

Warning

The ac outlet distribution box is connected to a **220V** power source, all the units must be set to support this voltage.

.

21. ____ Route and connect the power cords (PN 58G5783) from the display, CD disk drive, and service processor unit to the ac outlet distribution box as shown in Figure 1-35. Secure these cables using tie clamps along the frame, then go to step 23 on page 1-35.

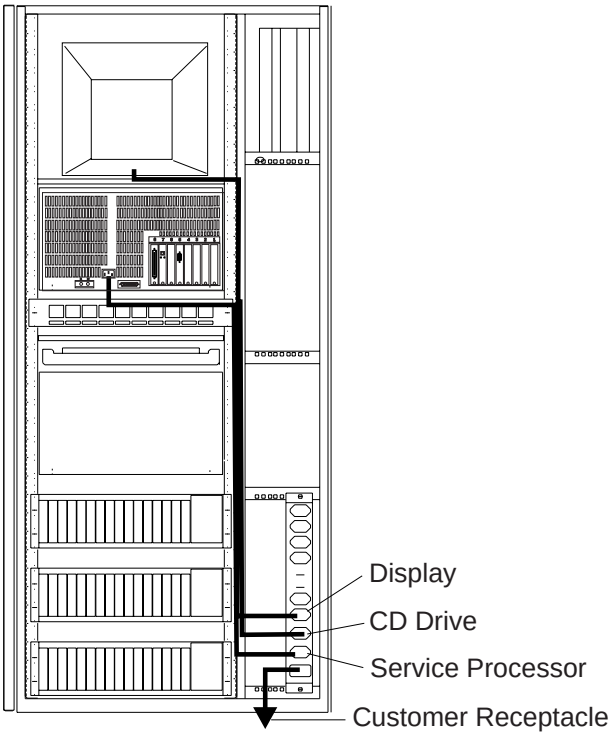


Figure 1-35. Power Cords Connection

22. ____ Connect the display cable **5** to connector **6** of cable **7** (PN 59G1270), then connect the keyboard cable **9** (PN 59G1271) to connectors K and M.

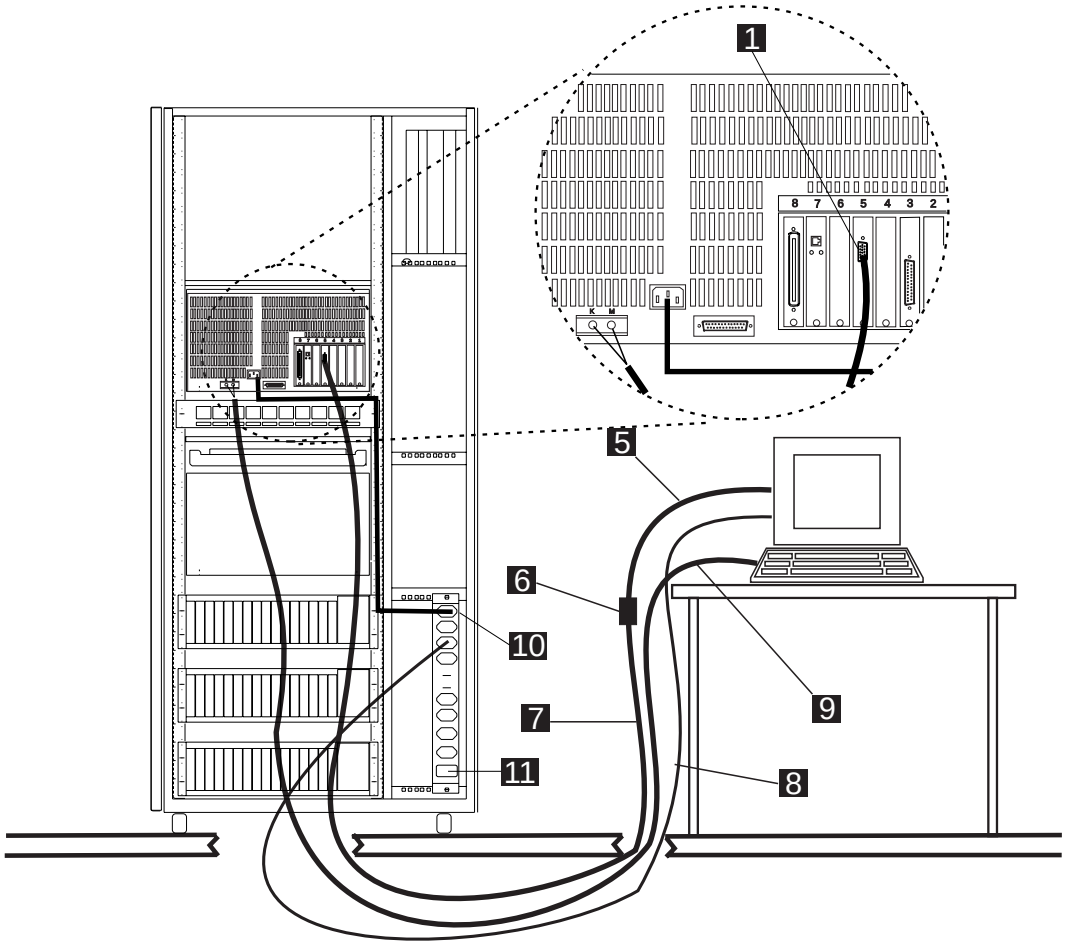


Figure 1-36. Installing the Display and Keyboard on Table

23. ____ If it is not already plugged, connect the main power cord **A** coming from the ac outlet distribution box to the customer receptacle (refer to Figure 1-37).

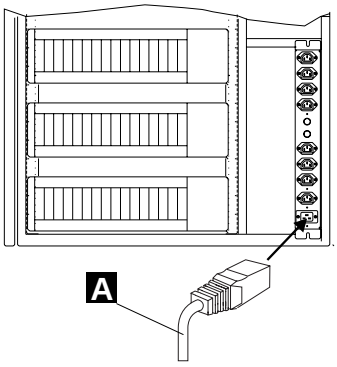


Figure 1-37. Power Cord for Power Strip

24. ____ If the customer ordered a **"backup"** Service Processor, resume step 1 on page 1-24 to step 19 on page 1-32 to install this machine near the **"active"** service processor.
    Install the system unit, display, keyboard, and CD drive but **never** connect this machine to the LAN.
    This Service Processor is used to replace the "active" Service Processor if it fails.

Step 3 - Installing the Service Processor Access Unit (8228)

1. ____ Unpack the 8228, and then reset the 8228 ports as explained in the following steps:

   Note: Use the IBM 8228 Setup Aid after you have installed the 8228 and before you connect any cables to it. Save one Setup Aid to be used later if you relocate an 8228.

2. ____ Before you begin, make sure no cables are connected to the 8228. If a cable bracket has been installed on the 8228, remove it.

3. ____ Insert the aid into receptacle 1 of the 8228. The yellow stripe should be aligned with the edge of the receptacle to ensure that the aid is firmly seated.

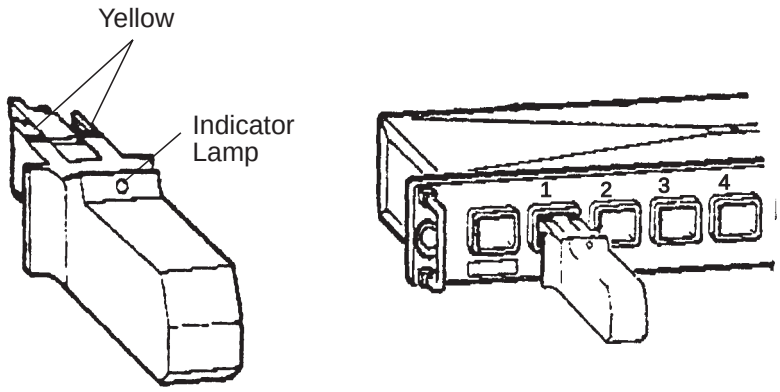


Figure 1-38. Use of the 8228 Setup Aid

   The light will glow brightly when the aid is initially inserted and will gradually dim when the aid is firmly seated in the receptacle.

   If the light does not glow brightly when you insert the Setup Aid, remove the screw from the aid and replace the battery. If the light still does not glow brightly after you have replaced the battery, try another Setup Aid.

4. ____ Leave the aid in the receptacle for four seconds after the light has gone out. Remove the aid from the receptacle and insert it into the next receptacle. The yellow stripe should be aligned with the edge of the receptacle to ensure that the aid is firmly seated.

   Go to the next receptacle and repeat this step until you have set each receptacle, 1 through 8.

5. ____ When you have set receptacle 8, insert the aid into the RI receptacle for four seconds.

The light should glow brightly while the aid is in the receptacle. If the light does not come on or goes out while the aid is connected to the receptacle, the 8228 must be replaced. Notify your network planner or supervisor.

Note: The 8228 Setup Aid is to be used only in setting up the 8228 either initially or after relocating the 8228. It should never be used when the network is operating.

6. ____ Install the 8228 in a safe place near the service processor. If you received a controller expansion, the 8228 is installed on the rear side of the controller expansion using two screws (PN 1621232) and two captive nuts (PN 58G5766) see Figure 1-39. Using label **A** (PN 80G0680), identify the 8228 as Service Processor Access Unit.

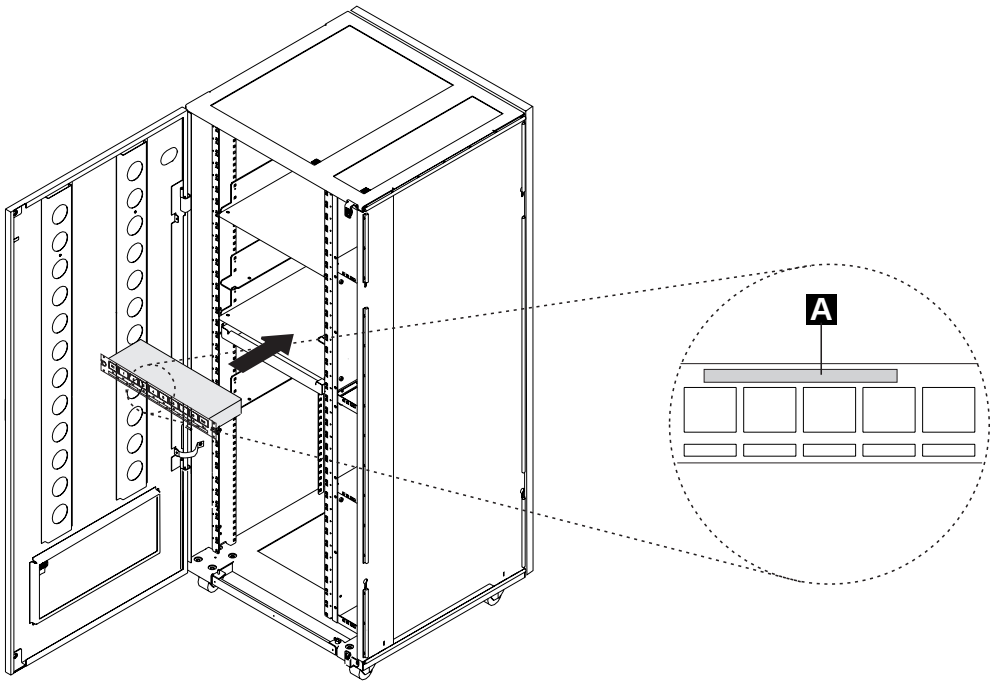


Figure 1-39. Installing the 8228 (Controller Expansion Rear side)

7. ____ Connect the 8228 to the Service Processor as follows:

   Note: If you have a controller expansion, refer to Figure 1-41 on page 1-38, if not refer to Figure 1-40 on page 1-38.

   a. ____ Tighten connector **1** of cable **A** to cable **B** (PN 60G1066) and plug this cable to **slot 7** of the service processor

   b. ____ Using a sticker, identify the connector **2** as the "service processor cable".

   c. ____ Plug connector **2** to **any plug** of the 8228 from **1 to 8**

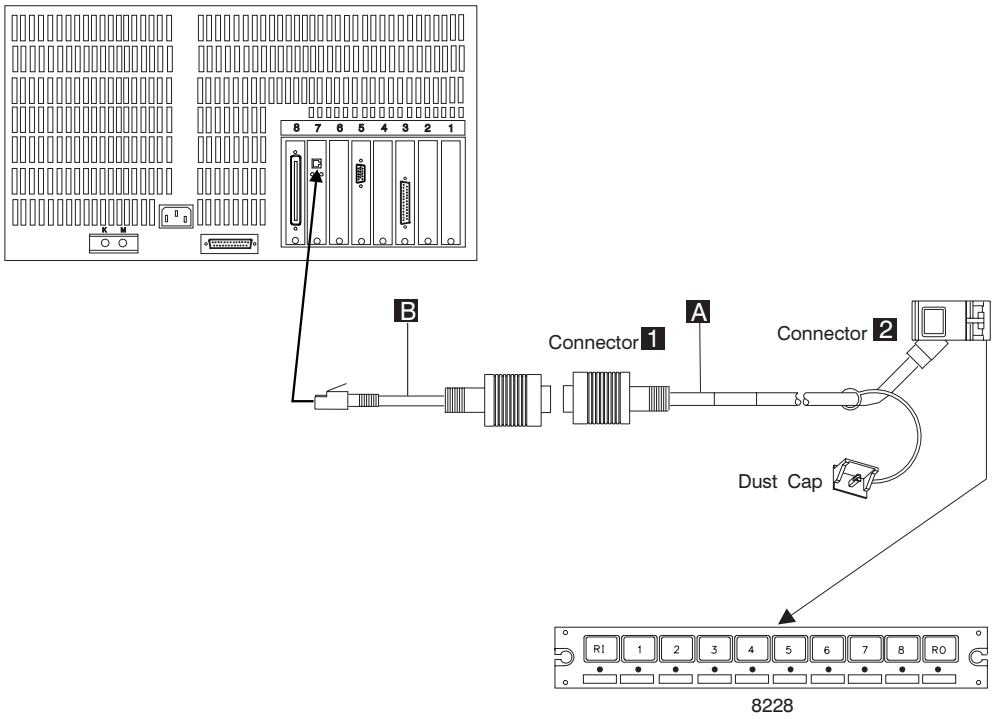


Figure 1-40. Connecting the 8228 to the Service Processor

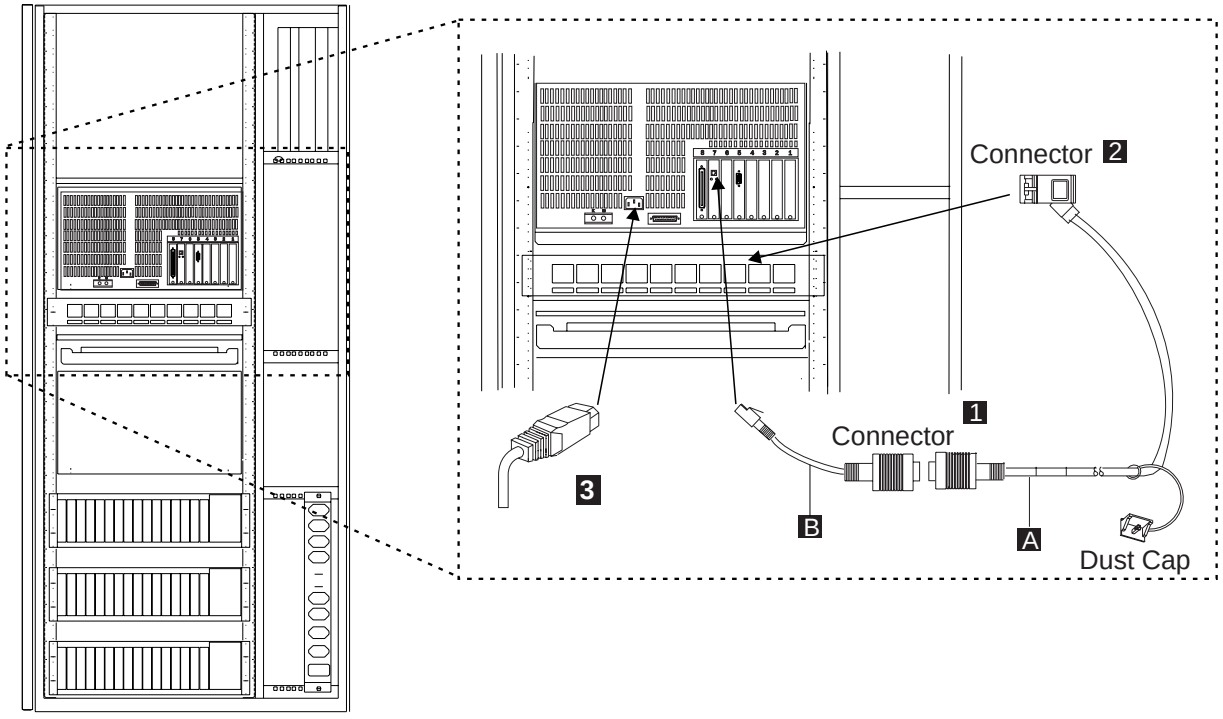


Figure 1-41. Connecting the 8228 to the Service Processor Installed in the Controller Expansion

Go to "Installing and Connecting the RSF Modem to the Service Processor" on page 1-56

Installing Your Service Processor (Based on 9585)

Service Processor Overview

The Service Processor is based on an IBM PS/2* Model 9585, see “Service Processor Based on 9585” on page B-21 for details.

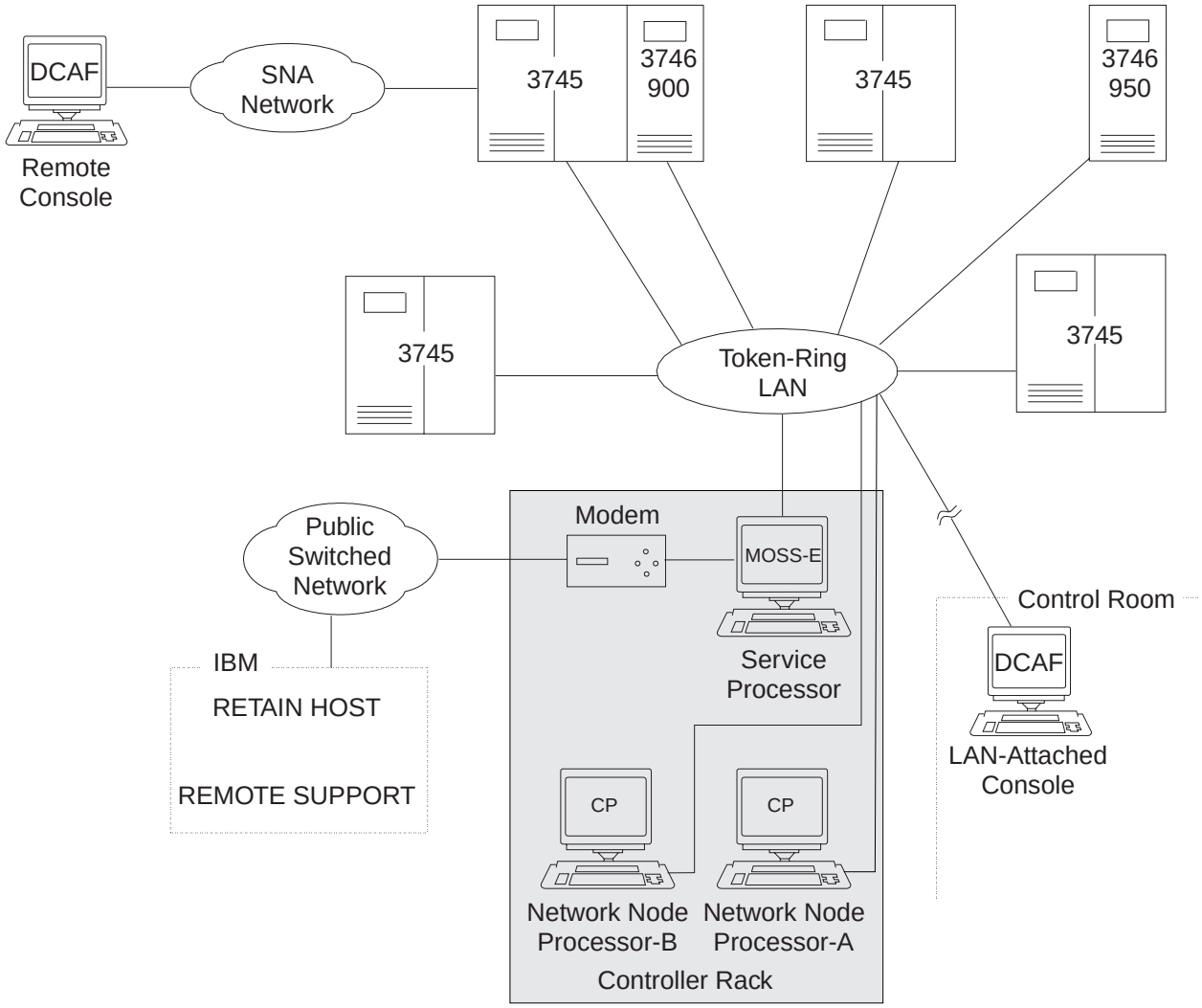


Figure 1-42. Service Processor Environment

Service Processor Installation Tasks

Note: If you are not **familiar** with the Service Processor operations, read **“General Information” on page 2-2** , to know how to get the information and then return here.

TASK	DESCRIPTION	GO TO
1	Installation Preparation	**“Step 1 - Preparing Your Installation”**..
2	Install the System Unit, Display and Keyboard	**“Step 2 - Installing the System Unit, Display, Keyboard, and CD Drive” on page 1-41**..
3	Install the 8228 and connect to the Service Processor	**“Step 3 - Installing the Service Processor Access Unit (8228)” on page 1-53**..
4	Install and connect the RSF modem to the Service Processor	**“Installing and Connecting the RSF Modem to the Service Processor” on page 1-56** ..
5	Customize your service processor according to the customer's options	**“Step 5 - Customizing Your Service Processor” on page 1-85**..

Step 1 - Preparing Your Installation

Obtain from the customer the following **Parameter worksheets**:

1. **"Parameter definitions for RSF"**
2. **"NetView path parameters"**
3. **"Service Processor integration"**
4. **"Service Processor parameters for DCAF"**
5. **"NCP dump transfer"** (not applicable for 3746-950)

These parameter worksheets are part of the *3745 Communication Controller Models A and 3746 Models 900 and 950: Planning Guide*, GA33-0457 Appendix A and must be filled in by the customer. A copy of these parameter worksheets is given at the end of this manual see Appendix A, “Parameter Worksheets” on page A-1.

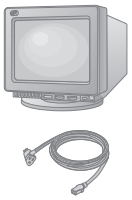
Step 2 - Installing the System Unit, Display, Keyboard, and CD Drive

1. ____ **Unpack** Your Service Processor

You need the following items to complete this installation:

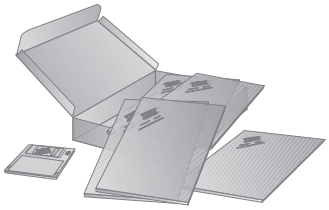
- ☐ Service Processor, Cover Lock Keys, and Service Processor Power Cord

- ☐ Display and Display Power Cord

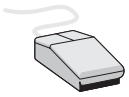


- ☐ Keyboard and Keyboard Cable

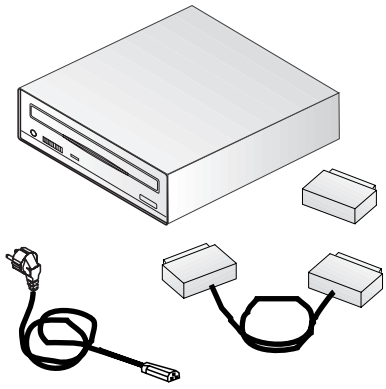
- ☐ Publications and diskettes



- ☐ Mouse



- ☐ CD Drive, Power and Signal cables and Terminator



If you are missing any item, contact your place of purchase.

2. ____ **Check** the **Voltage** Setting
   Check the setting of the voltage selection switch at the rear of your Service Processor (see Figure 1-43).

   If you need to adjust the voltage setting, use a ballpoint pen to slide the switch to the correct position.

Warning

1. Be sure the voltage selection switch is in the correct position. If you set this switch to the wrong position, you might damage your Service Processor when you turn it ON.
2. If the voltage range in your country is between 90 and 137 volts, check to see that 115 V is visible.
   In the **U.S.**, **Canada**, and **Japan**:
   - Use the **115**-volt setting if you are connecting directly to a **customer's plug**.
   - Or use the **230**-volt setting if you are installing your service processor in a **controller expansion** and connecting to the **ac outlet distribution box** of the controller expansion.
3. If the voltage range in your country is between 180 and 265 volts, check to see that 230 V is visible.

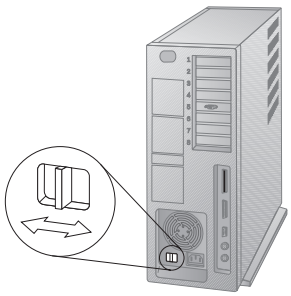


Figure 1-43. Voltage selection Switch

3. ____ **Verify** on the CD drive that the SCSI switch is set to the address ID **4**, if necessary change the ID by pressing the buttons located at the right and left of the display. (refer to “3172 SCSI Device Configuration” on page B-19).

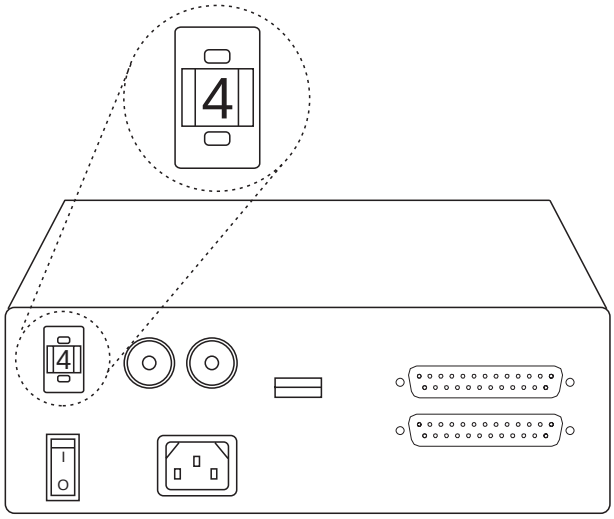


Figure 1-44. SCSI Switch

4. ____On the rear side the CD drive, **plug** terminator **A** into the lower connector and cable **B** PN 33F4606 into the upper connector.

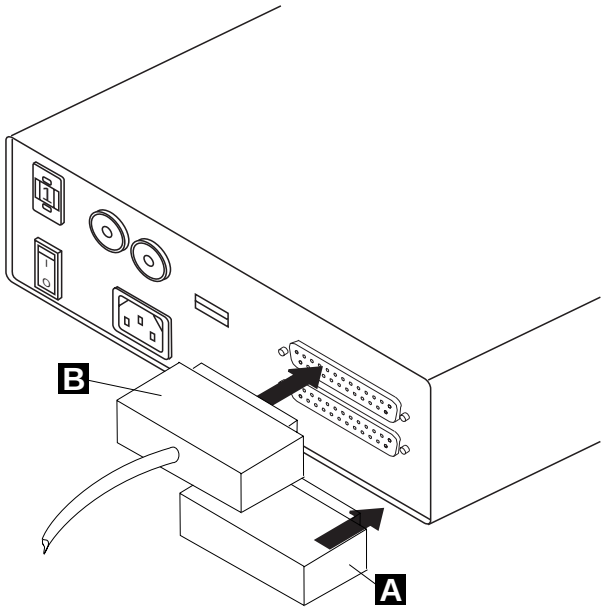


Figure 1-45. Plugging the Cable and Terminator

5. ____**plug** power cable **A** into the power connector.

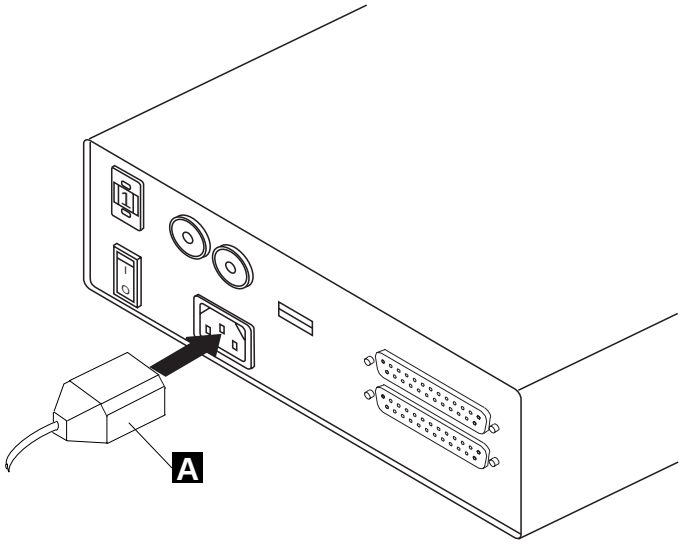


Figure 1-46. Plugging the Power Cable

The service processor unit, the display, keyboard, and CD drive can be installed:

- On a **table**, go to **step 16 on page 1-48** .
- In a **controller expansion**, in that case the display and keyboard can be installed:
  - On a table, go to **step 14 on page 1-48** .
  - In the controller expansion, go to **step 6 on page 1-45** .

Note: To be able to install all the units in the controller expansion, the customer must have ordered the specific keyboard (with track point) PN 61G2900 (shipped with cable PN 1398014). But to install the display and keyboard outside of the controller expansion, he has to order one extension cable for the display PN 59G1270 and one extension cable for the keyboard PN 59G1271

6. ____ Open the front and rear doors of the controller expansion. Refer to Figure G-4 on page G-5 and locate the positions to install the display and the service drawer.

7. ____ For the display, install two brackets **1** (PN 58G5752) and secure using four screws **2** (PN 2665527).

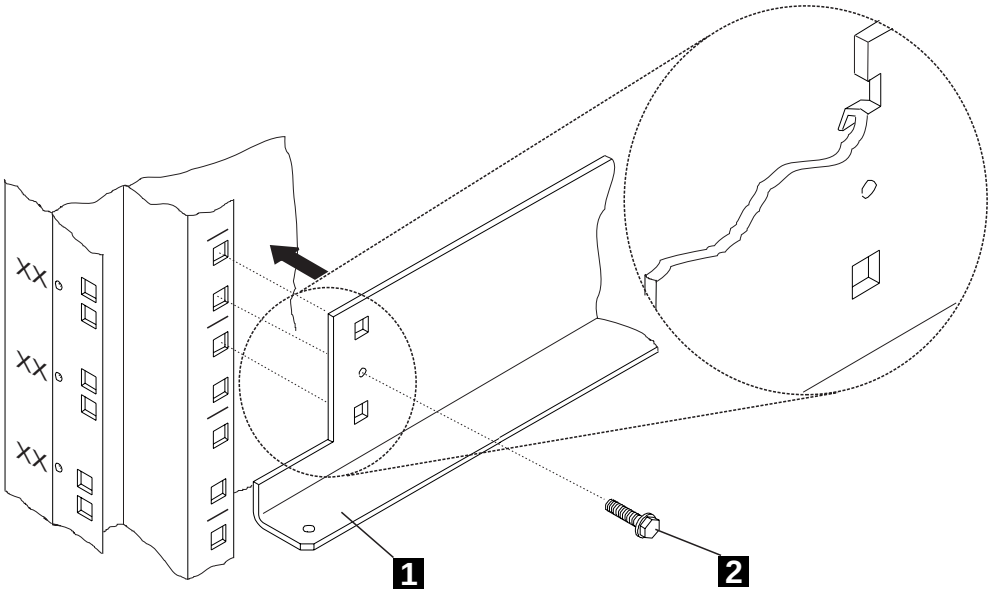


Figure 1-47. Installing Brackets PN 58G5752

8. ____ On the brackets installed for the display, install plate **2** (PN 58G5755) using four screws **1** (PN 1621230).

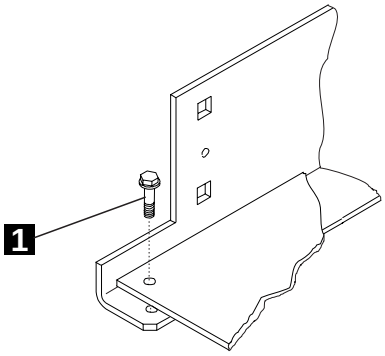


Figure 1-48. Installing Plate PN 58G5755

Note: In the shipping group, two brackets PN 58G5752 have been shipped but not used for this type of service processor They can be used to house any other rack mount unit.

9. ____ Slide the display screen on the top of the controller expansion (refer to Figure 1-49).

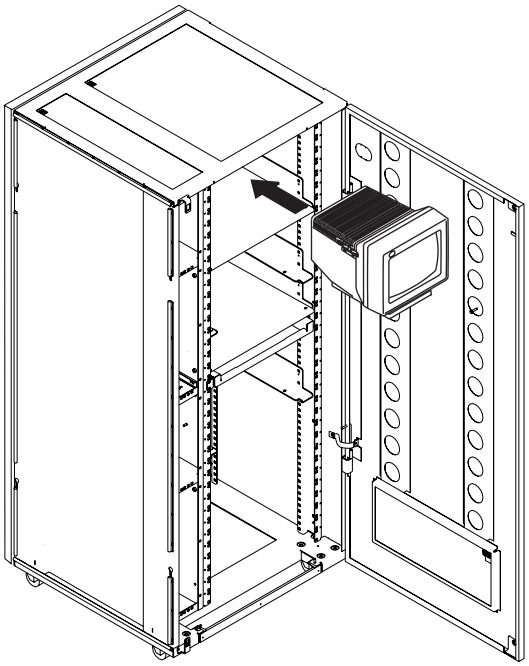


Figure 1-49. Installing the Display Screen in the Controller Expansion (Front Side)

10. ____ Refer to Figure 1-50, and if needed install four captive nuts **A** (PN 58G5766) on the front and on the rear side of the controller expansion.

.

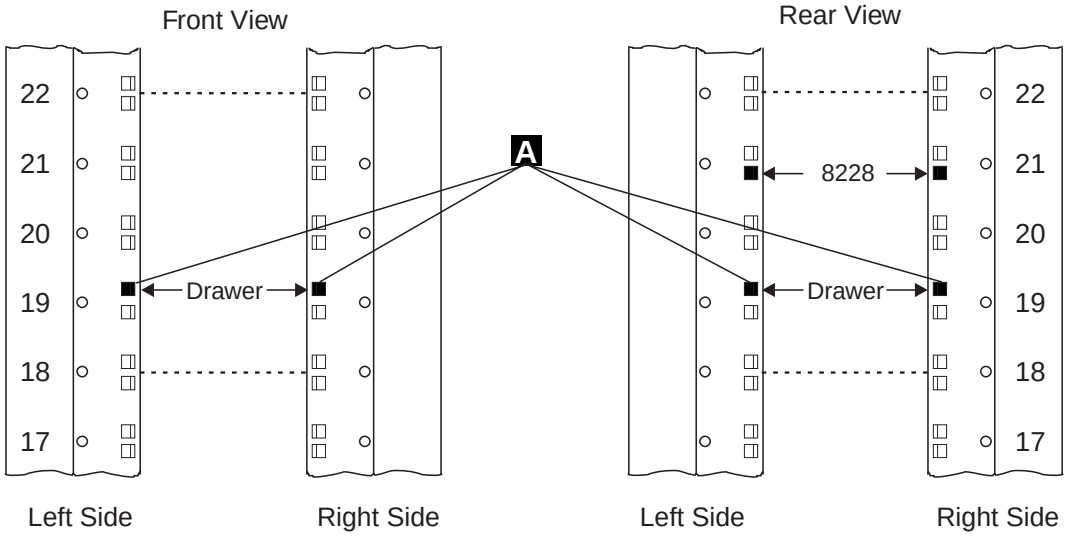


Figure 1-50. Installing Captive Nuts for the Service Drawer

11. ____ Refer to Figure 1-51, on the rear side of the controller expansion, install bracket **A** using two screws **C** (PN 1621230).

12. ____ On the front side of the controller expansion, slide the drawer **B** on the bracket **A** and secure using two screws **C** (PN 1621230).

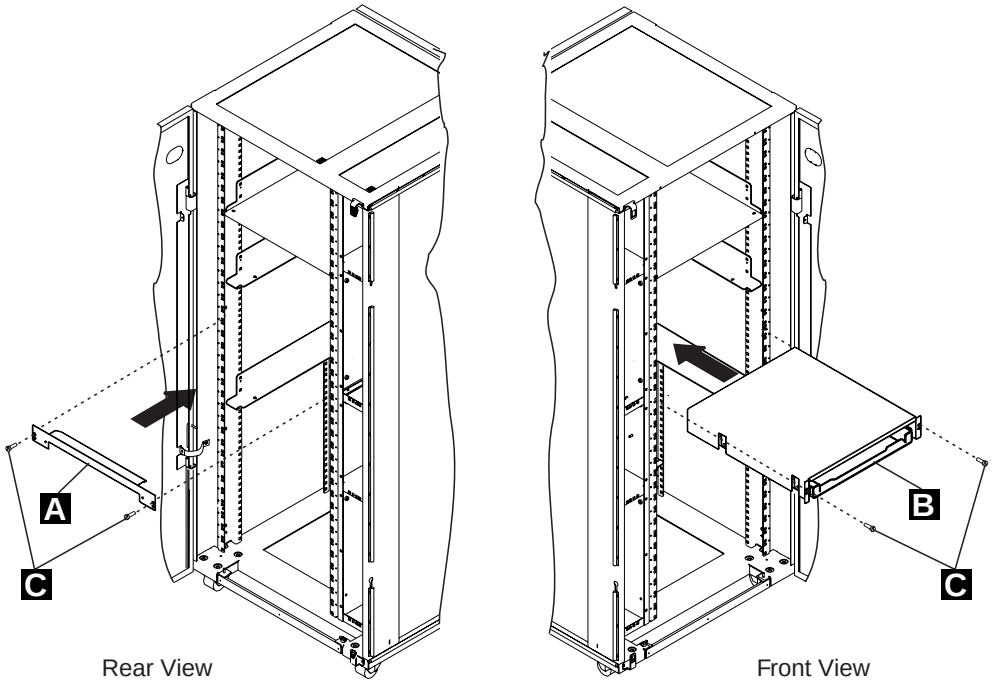


Figure 1-51. Installing the Service Drawer

13. ____ Open the drawer and install the keyboard as shown in Figure 1-52.

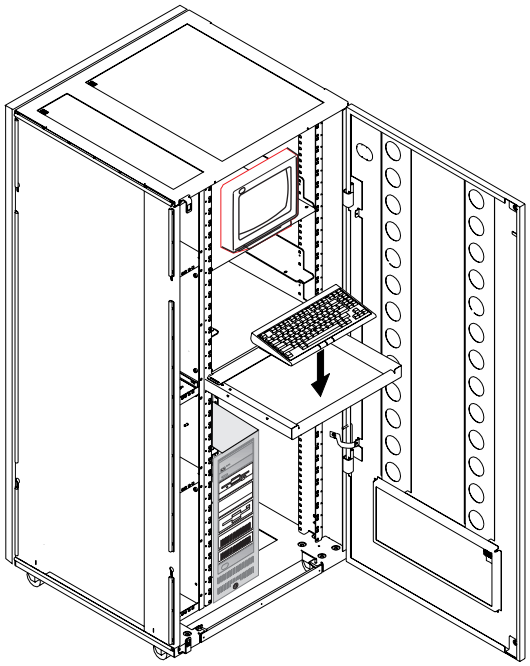


Figure 1-52. Installing the Keyboard

14. ____ If installed, remove the floor stand and slide the service processor unit as shown in Figure 1-53.

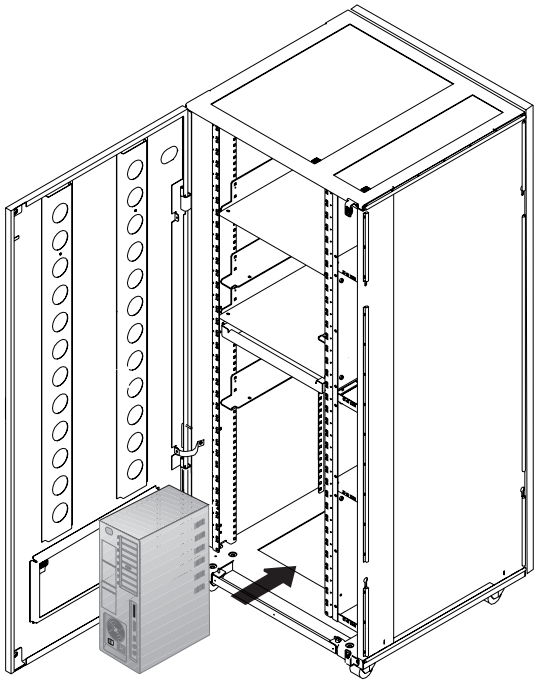


Figure 1-53. Installing the Service Processor Unit in the Controller Expansion (Rear Side)

15. ____ Install the CD drive in the controller expansion as shown in Figure 1-54, then **go to step 17 on page 1-49** .

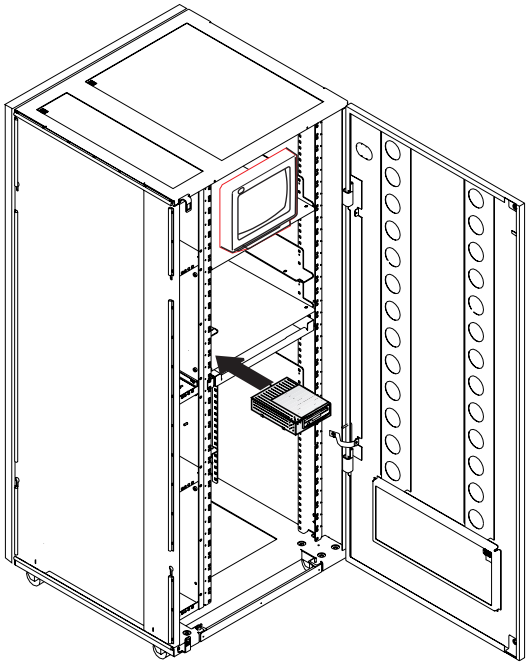


Figure 1-54. Installing the CD Drive

16. ____ **Obtain** a table or a desk large enough to receive, the service processor, the display, the keyboard, and the modem, and **go to step 17 on page 1-49** .

17. ____ **Connect** the cables as follows:
(see Figure 1-55)

    a. ____ Connect the keyboard cable to the keyboard **1** Connect the other end of the cable to the service processor **2** with the flat side of the cable connector facing toward the icon. If you are installing a mouse or other pointing device, connect that cable to the service processor **3** .

    b. ____ Connect the display signal cable to the service processor **4** . Connect the display power cord to the display **5** .

    c. ____ Remove the label from the power cord connector **6** , and then connect the service processor power cord to the service processor **6** .

    d. ____ *After you secure all these connections,* plug the service processor power cord **7** and the display power cord **8** to:

    - Properly grounded electrical customer's outlets if you are installing the service processor **outside** of a controller expansion.
    - The ac outlet distribution box plugs if you **in**stall the service processor unit in a controller expansion (refer to Figure 1-57 on page 1-51).

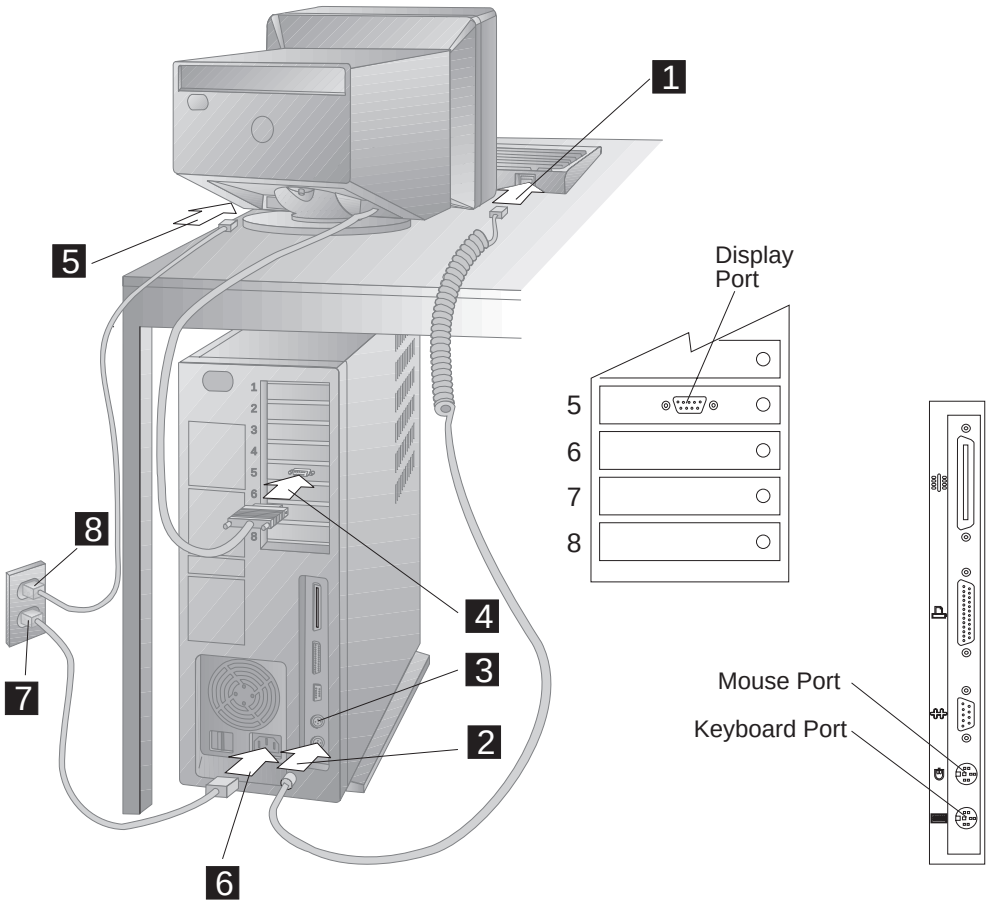


Figure 1-55. Cable Locations

18. ____ **Plug** the external cables in the following slots (see Figure 1-56):
    a. Slot 1 : **1** Token-Ring Adapter
    b. Slot 2 : Empty
    c. Slot 3 : **3** V32 Modem or Multiprotocol Adapter
    d. Slot 4 : Empty
    e. Slot 5 : **4** SVGA (display) adapter
    f. Slot 6 : Empty
    g. Slot 7 : Empty
    h. Slot 8 : Empty
19. ____ **Plug** the CD drive cable (PN 92F2559) to the SCSI connector **5** .

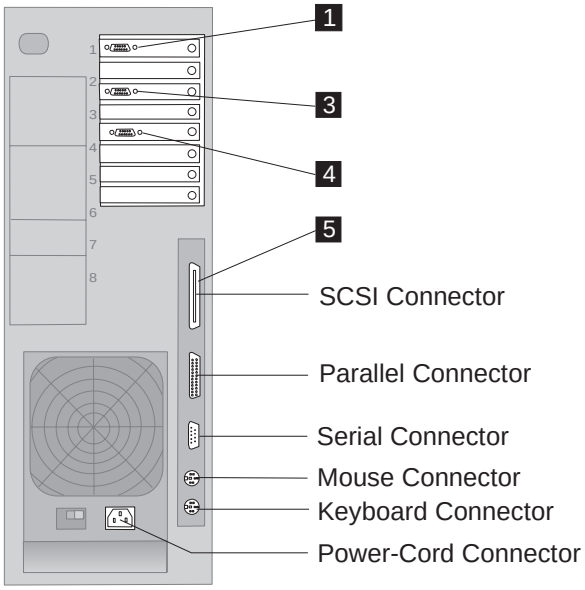


Figure 1-56. Slot Allocation

If you install your service processor unit, display, and keyboard:

- **Outside** of a controller expansion, go to **step 23 on page 1-53**
- **All the units in the controller expansion**, go to **step 20 on page 1-51**
- **Only the service processor** unit is installed **in the controller expansion**, go to step 21 on page 1-52.

Warning

The ac outlet distribution box is connected to a **220V** power source, all the units must be set to support this voltage.

.

20. ____ Route and connect the power cords (PN 58G5783) from the display, the CD drive, and the service processor unit to the ac outlet distribution box as shown in Figure 1-57. Secure these cables using tie clamps along the frame, then go to step 22 on page 1-52.

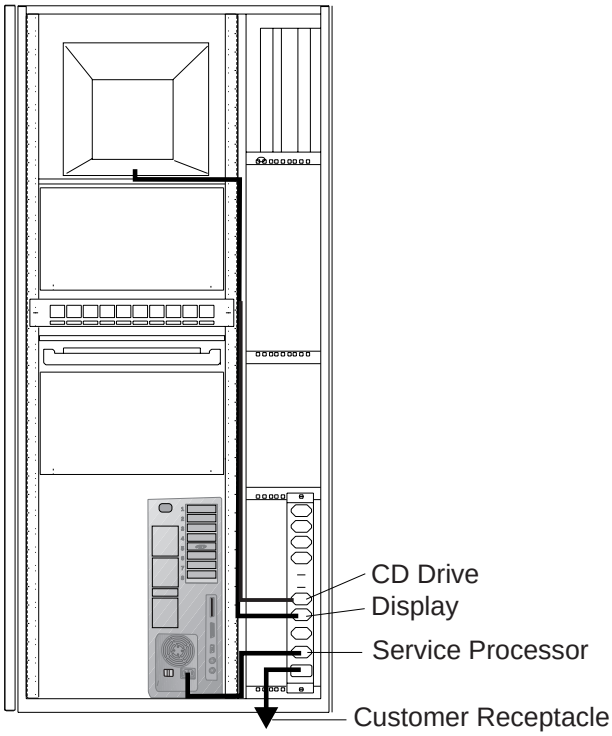


Figure 1-57. Power Cords Connection to an ac Outlet Distribution Box

21. ____ Connect the display cable **5** to connector **6** of cable **7** (PN 59G1270), then connect the keyboard cable **9** (PN 59G1271) to connectors K and M.

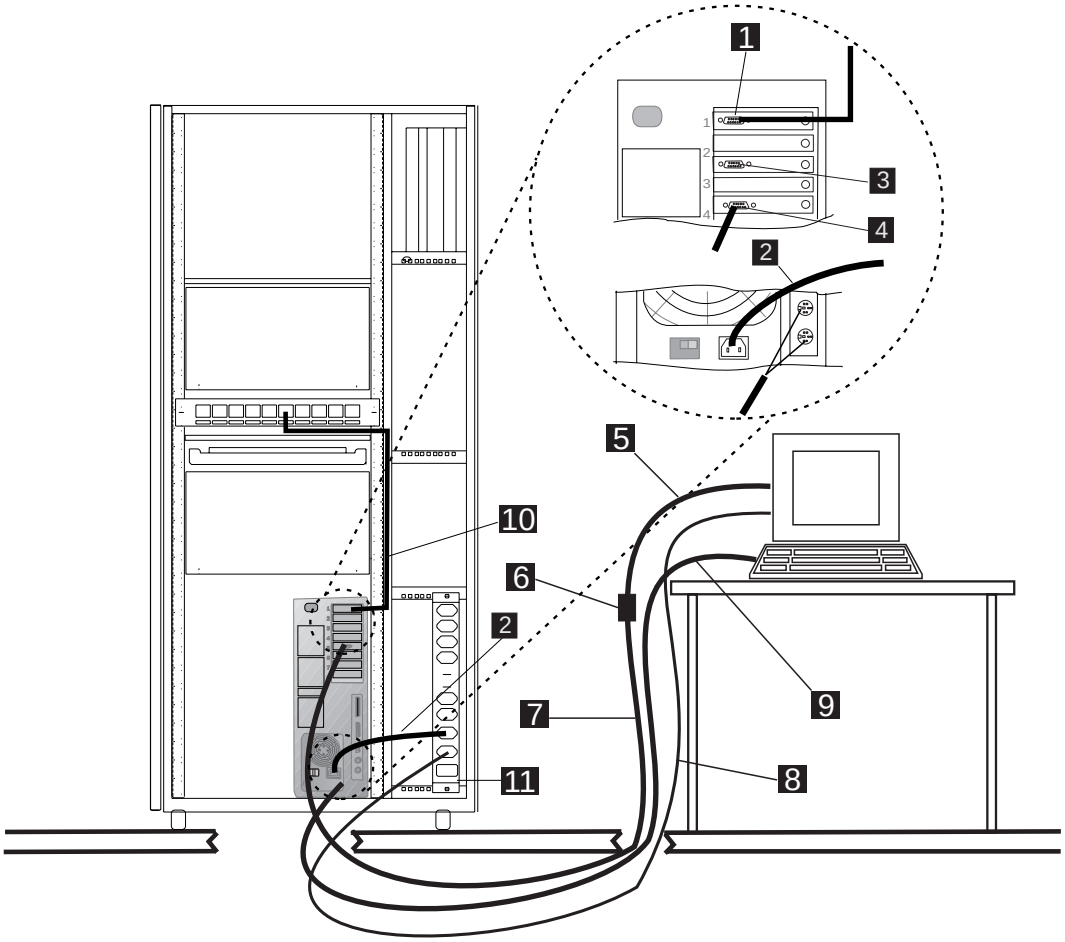


Figure 1-58. Installing the Display and Keyboard on Table

22. ____ If it is not already plugged, connect the main power cord **A** coming from the ac outlet distribution box to the **220V** customer's **receptacle** (refer to Figure 1-59).

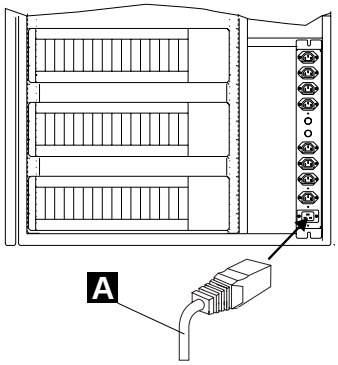


Figure 1-59. Power Cord for Power Strip

23. ____ If the customer ordered a **"backup"** service processor, go to step 24, otherwise go to “Step 3 - Installing the Service Processor Access Unit (8228).”

24. .____ Installing the service processor backup.
    Resume step 1 on page 1-41 to step 17 on page 1-49 to install this machine near the **"active"** service processor. Install the system unit, display, keyboard, and CD drive but **never** connect this machine to the LAN.

    Note: This Service Processor is used to replace the "active" Service Processor if it fails.

Step 3 - Installing the Service Processor Access Unit (8228)

1. ____ Unpack the 8228, and then reset the 8228 ports as explained in the following steps:

   Note: Use the IBM 8228 Setup Aid after you have installed the 8228 and before you connect any cables to it. Save one Setup Aid to be used later if you relocate an 8228.

2. ____ Before you begin, make sure no cables are connected to the 8228. If a cable bracket has been installed on the 8228, remove it.

3. ____ Insert the aid into receptacle 1 of the 8228. The yellow stripe should be aligned with the edge of the receptacle to ensure that the aid is firmly seated.

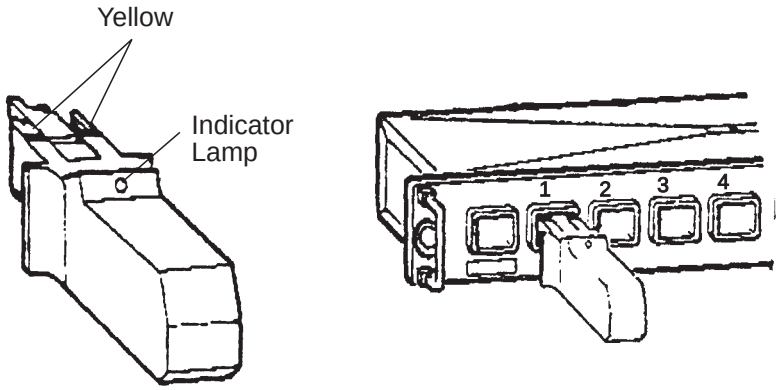


Figure 1-60. Use of the 8228 Setup Aid

   The light will glow brightly when the aid is initially inserted and will gradually dim when the aid is firmly seated in the receptacle.

   If the light does not glow brightly when you insert the Setup Aid, remove the screw from the aid and replace the battery. If the light still does not glow brightly after you have replaced the battery, try another Setup Aid.

4. ____ Leave the aid in the receptacle for four seconds after the light has gone out. Remove the aid from the receptacle and insert it into the next receptacle. The yellow stripe should be aligned with the edge of the receptacle to ensure that the aid is firmly seated.

   Go to the next receptacle and repeat this step until you have set each receptacle, 1 through 8.

5. ____ When you have set receptacle 8, insert the aid into the RI receptacle for four seconds.

The light should glow brightly while the aid is in the receptacle. If the light does not come on or goes out while the aid is connected to the receptacle, the 8228 must be replaced. Notify your network planner or supervisor.

Note: The 8228 Setup Aid is to be used only in setting up the 8228 either initially or after relocating the 8228. It should never be used when the network is operating.

6. ____ Install the 8228 in a safe place near the service processor. If you received a controller expansion, the 8228 is installed on the rear side of the controller expansion using two screws (PN 1621232) and two captive nuts (PN 58G5766) see Figure 1-61. Using label **A** (PN 80G0680), identify the 8228 as Service Processor Access Unit.

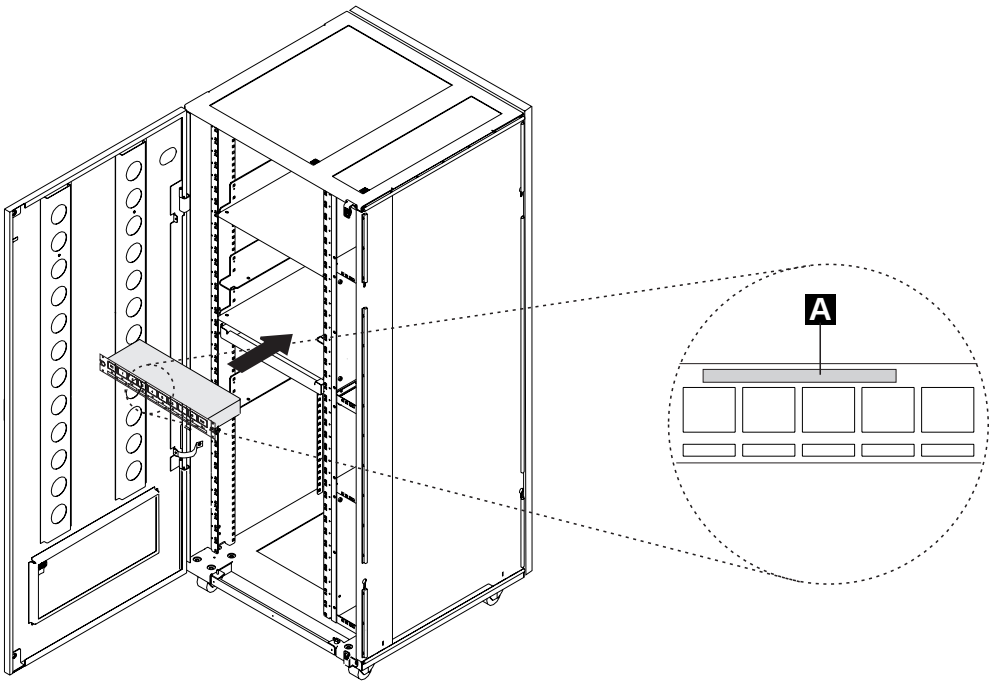


Figure 1-61. Installing the 8228 (Controller Expansion Rear side)

7. ____ Depending on the service processor connector (Sub D or RJ45), refer to Figure 1-62 on page 1-55 and go to step 7a or refer to Figure 1-63 on page 1-55 and go to step 7b on page 1-55.

   a. ____ Plug connector **1** of cable **A** to **slot 1** of the service processor, then go to 7c on page 1-55.

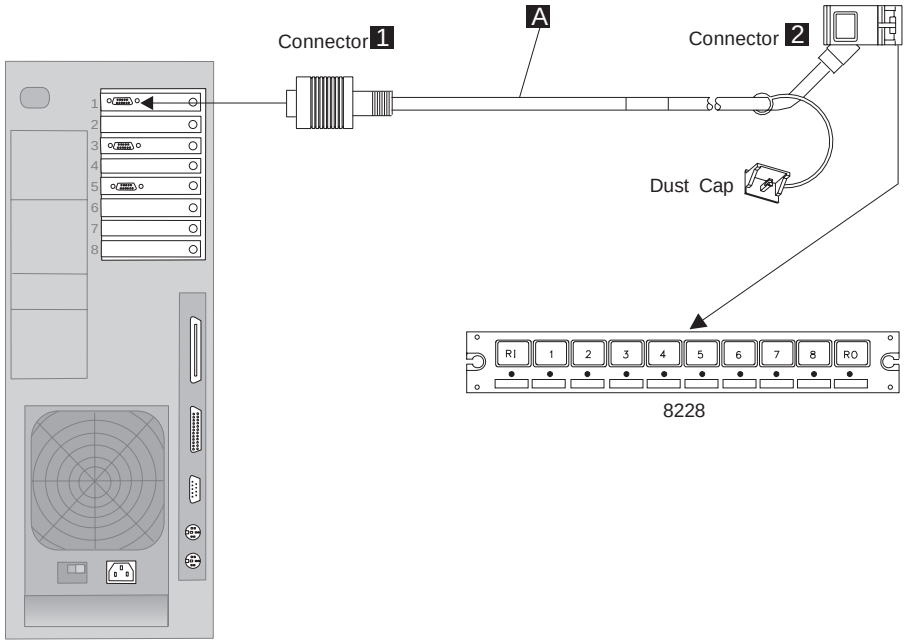


Figure 1-62. Connecting the 8228 to the Service Processor (Sub D connector)

b. ____ Tighten connector **1** of cable **A** to cable **B** (PN 60G1066) and plug this cable to **slot 1** of the service processor, then go to 7c.

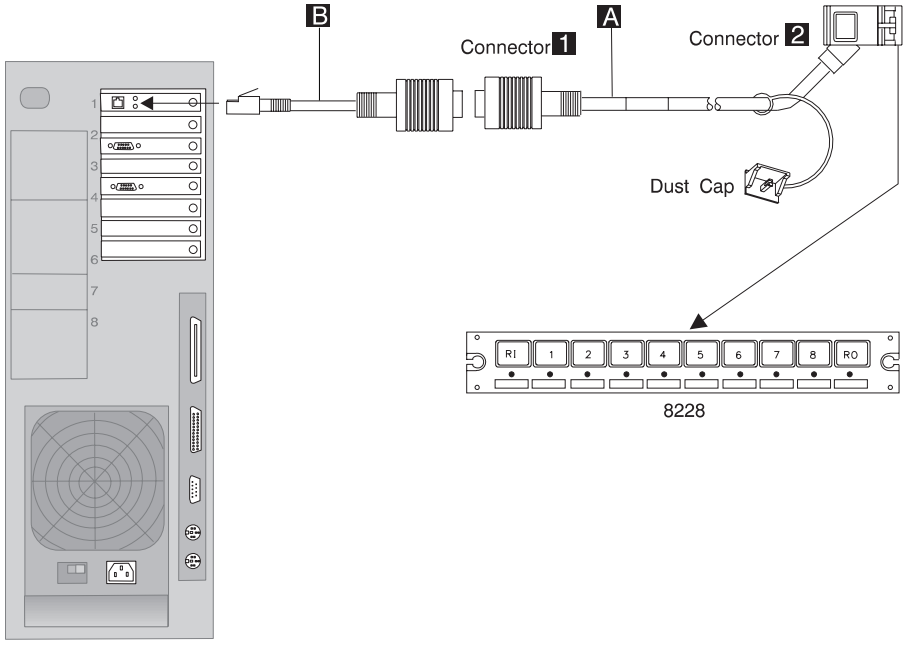


Figure 1-63. Connecting the 8228 to the Service Processor (RJ45 connector)

c. ____ Using a sticker, identify the connector **2** as the "service processor cable".

d. ____ Plug connector **2** to **any plug** of the 8228 from **1 to 8**
Go to "Installing and Connecting the RSF Modem to the Service Processor" on page 1-56

Installing and Connecting the RSF Modem to the Service Processor

Refer to Appendix D, “Supported Connections between the Service Processor and a Remote Workstation” on page D-1 to see if the connection between your service processor modem and remote workstation modem is supported.

Go To

If you are installing:

- A **7858**, go to “Step 4 - Installing and Connecting the 7858 to the Service Processor” on page 1-57
- A **Hayes**, go to “Step 4 - Installing and Connecting the Hayes** Modem” on page 1-65
- A **7857**, go to “Step 4 - Installing and Connecting the 7857 to the Service Processor” on page 1-68
- A **7855**, go to “Step 4 - Installing and Connecting the 7855 to the Service Processor” on page 1-77
- An **Integrated Modem** (for US and CANADA), go to “Step 4 - Installing the Integrated RSF Modem (for U.S and Canada Only)” on page 1-84

Note: For the other types of RSF Modems, use the installation instructions shipped with the modem (set the modem speed to 9600 bps).

Step 4 - Installing and Connecting the 7858 to the Service Processor

Notes

1. If you are not familiar with the 7858, refer to the *IBM 7858 Professional Modem Guide to Operation*, GA13-1981.
2. Power requirements:
   - Low voltage range: 90 to 137 V ac.
   - High voltage range: 180 to 265 V ac.
3. The document *Power Supply and Telecommunication Connections for IBM Modems* GA33-0054, contains useful information about the different telecommunication connectors and power supply plugs.
4. Read the *IBM Telecommunication Products Safety Handbook*, SD21-0030.
5. The **setting** of the modem is **different** if the modem is connected to a **MPA card** or to the **port COM1**. We **recommend** to connect the 7858 on **COM1**, refer to “Setting the 7858 Connected to the COM1 Connector (ASYN)” on page 1-60, for other connections refer to “Other Possible Settings and Connections for the 7858” on page 1-63.

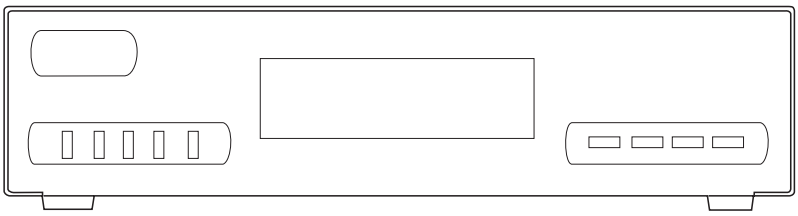


Figure 1-64. 7858 Front Side

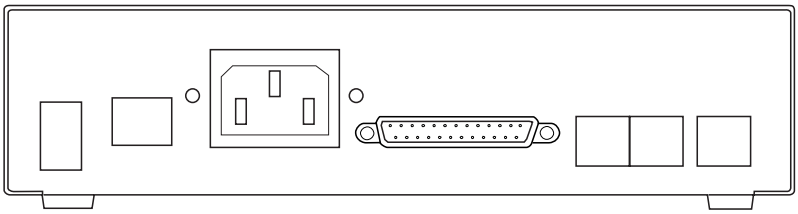


Figure 1-65. 7858 Rear Panel

7858 Modem installation

This chapter describes how the modem can be easily installed and how to configure it in order to have it immediately operational.

Besides the modem and this manual, the carton should contain:

- The Power Attachment Cord.
- Two Telecommunication cables:

  - Black cable for the switched line, with label SW, which fits into the PSTN socket in the modem rear panel.
  - Gray cable for the leased line, with label LL, which fits into the LL socket in the modem rear panel.
- The IBM Telecommunication Products Safety Handbook.

If any of these items is missing or damaged, contact the place of purchase for instructions on how to exchange your modem or obtain the missing items.

Installing the Modem

Warning

In order to avoid damages to the unit, before starting the installation, verify the modem input AC Voltage setting against the power voltage source available at your wall socket.

If needed, the selector switch can easily be moved to the correct position, using a screwdriver or a pen:

- Switch set to 115 for low voltage range: 90 - 137 VAC.
- Switch set to 230 for high voltage range: 180 - 265 VAC.

Step 1. ____**Be sure** that the **power switch** located on the modem rear panel is **off** (switch in position "O")

Step 2. ____If you are going to use a switched line telecommunication cable, plug it into the **PSTN** socket located on the modem rear panel. If this modem is **not** being installed in the United Kingdom, connect the other end of the cable to the telecommunication line.

Step 3. ____If you plan to use a leased line telecommunication cable, plug it into the **LL** socket located on the modem rear panel. If this modem is **not** being installed in the United Kingdom, connect the other end of the cable to the telecommunication line.

Step 4. ____Connect the power attachment cord to the AC power socket located on the modem rear panel and the power plug to a standard 3 pin grounded ac outlet. Then, if this modem is being installed in the United Kingdom, connect the telecommunication cables you have attached to the modem, to the telecommunication lines.

Step 5. ____You are now requested to observe the modem power on sequence.

This is the normal power on sequence:

- PWR light is turned on.
- SELFTEST RUNNING message is displayed for about 15 seconds.

Set the modem power switch to **on** (switch in position "**I**").

If the PWR light is not **on** and the voltage selector switch is correctly set and you are sure the power voltage is present at the wall socket, the modem is defective and should be replaced.

If the message SELFTEST RUNNING is not appearing on the operator panel within 10 seconds, the modem is defective and should be replaced. This message remains on the display for about 15 seconds, then it is changed by the power on sequence.

If the modem is set to the factory defaults, the operator panel shows :

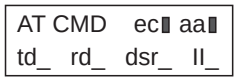


Figure 1-66. 7858 Operator Panel Display

This operational message shows that the modem is set in AT command mode for switched line operation with error control enabled and will auto-answer an incoming call.

In the next steps, you are instructed to manipulate the front panel buttons of the modem. Unless the step suggests otherwise, do not press them in for longer than one second.

The next step reset the modem options to the factory default configuration 0. Jump ahead to step 7 if the modem has never been used.

Step 6. ____Set the modem power switch to off, then hold the ↑ key pressed and set the power switch to on. When the message SELFTEST RUNNING is shown, release the ↑ key.

After about 15 seconds the message is changed to:

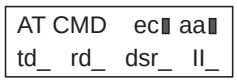


Figure 1-67. 7858 Operator Panel Display

If this sequence does not occur, the modem is defective and should be replaced.

Step 7. ____ The next steps can only be done if you have attached the modem to the public switched network. Go to step 11 on page 1-60 if you do not want to test the modem's public switched network interface.

Step 8. ____ On the modem operator panel:

a. Press the ↑ until the "DTR (C108)" message is displayed on the top row.
b. Press the → key until the "Forced On" message is displayed on the bottom row.
c. Press the ENTER key twice to select the option and to return to the modem operational mode message.

Step 9. ____ Dial the modem phone number from another telephone. You should hear the ringing tones and then the 2100 Hz answer tone from the called modem in the handset of the dialing telephone. If you hear the answer tone, go to step 11 on page 1-60. Otherwise, continue with step 10.

Step 10. ___ If you do not hear the modem answer tone, verify that the telephone line is operating properly. In most countries, you can do this by replacing the modem with a handset and then attempting a second time to dial the modem phone number from another telephone to verify that the handset rings properly.

Connect again the modem to the public switched network and try dialing the modem phone number again. Observe the front panel OH light. This

light turns off when the modem answers. If this attempt to call the modem fails, the modem is defective and should be replaced.

Step 11. ____ Set the modem power switch to off.

Note: The following steps assume that your DTE is already installed and operational.

Step 12. ____ Connect the 25-pin V.24 cable from the DTE to the 25-pin connector on the modem rear panel. Fasten the connector retaining screws.

Step 13. ____ Set the modem power switch to on. Wait until the modem operational message is displayed on the operator panel (about 15 seconds).

If the modem is connected to an asynchronous DTE which can send AT commands to the modem, you can use the DTE to configure the modem to match your communication system requirements. Otherwise, the modem can be configured through the operator panel, refer to “Setting the 7858 Connected to the COM1 Connector (ASYN)”

Note: Ten factory Redefined modem configurations are available. You could retrieve the factory configuration which better matches your system requirements, make any further configuration adjustment you should require, and save your modem configuration in one of the ten user configuration slots.

Step 14. ____ Now the modem is ready for operation. You can try it with your system. If you observe a basic system problem, such as the DTE not being able to send commands to the modem successfully, verify again that your individual modem configuration parameters are matching your system requirements. If you have a problem while using the modem, see "Problem Determination" chapter in the *IBM 7858 Professional Modem Guide to Operation*, GA13-1981.

Setting the 7858 Connected to the COM1 Connector (ASYN)

1. ____ Power OFF the modem
2. ____ Press and hold the ↑ key while power ON the modem.
3. ____ The modem is set to Factory 0 in AT command mode.

Saving the Configuration of the 7858

If you want to save the configuration just defined, in order to have it loaded again at the next modem reset, perform the following steps:

1. ____ Press the ↓ key until the "CONFIGURATIONS" message displayed the top row.
2. ____ Press the → key until the "Store User Conf." message displayed the bottom row.
3. ____ Press the ENTER key select the option.
4. ____ Pressing the ↑ key, select the User Configuration Location where the current modem configuration must be saved (0 to 9).
5. ____ Press the ENTER key save the current modem configuration.
6. ____ The defined configuration now active and saved.

Now every time the modem is reset (power on), the last user configuration which was saved is loaded as the current modem configuration.

Connecting the 7858

Which type of service processor is installed ?

- **7585**, refer to Figure 1-68
- **3172**, refer to Figure 1-69
- **9585**, refer to Figure 1-70 on page 1-62

1. ____ **Plug** the cable (PN 782985) into slot 3 **1** of the Service Processor.
2. ____ On the modem's rear panel, **plug** the other cable lead into the 25-pin connector **2** .

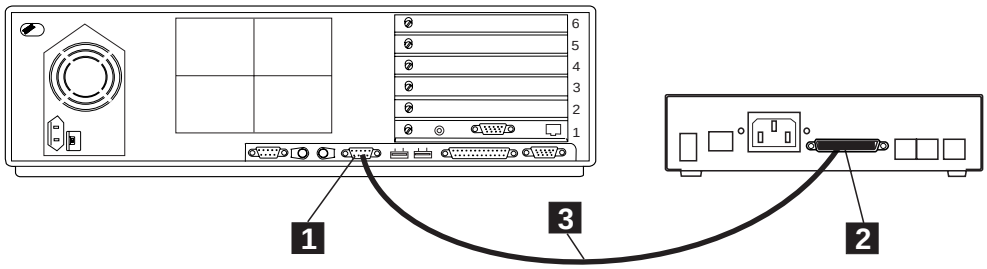


Figure 1-68. Connecting the Service Processor (7585) from COM1 to the 7858

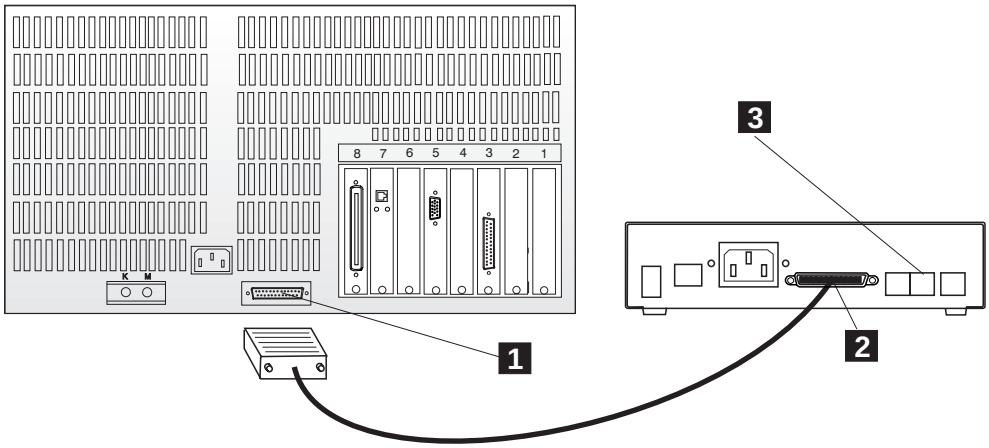


Figure 1-69. Connecting the Service Processor (3172) from COM1 to the 7858

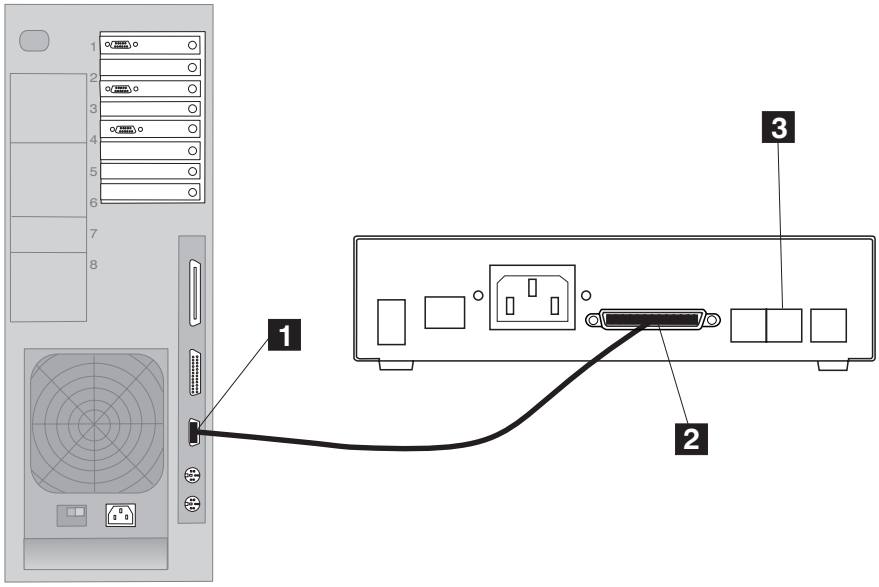


Figure 1-70. Connecting the Service Processor (9585) from COM1 to the 7858

If you received a **controller expansion**, go to **step 3** , otherwise go to “Step 5 - Customizing Your Service Processor” on page 1-85.

3. ____ Slide the 7858 in the controller expansion as shown in Figure 1-71.

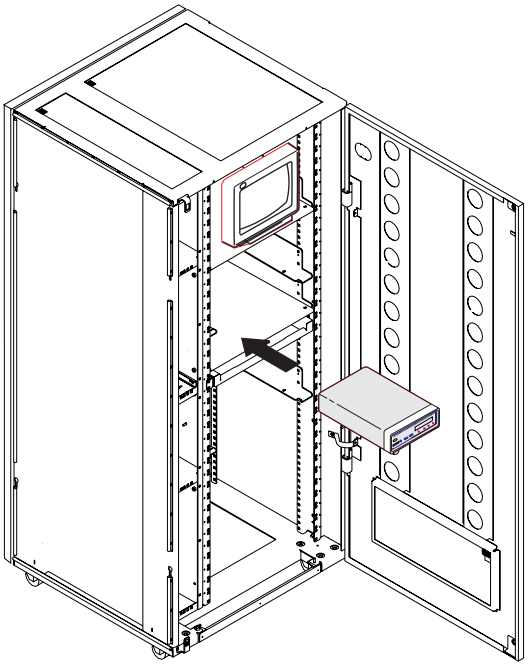


Figure 1-71. Installing the 7858 in the Controller Expansion

Go to “Step 5 - Customizing Your Service Processor” on page 1-85 .

Other Possible Settings and Connections for the 7858

Depending if the 7858 is going to work in synchronous or asynchronous mode, refer to:

- “Setting the 7858 Connected to the MPA Card (SYN)”
- “Setting the 7858 Connected to the MPA card as COM2 (ASYN)”

Setting the 7858 Connected to the MPA Card (SYN)

1. ____ Press the ↓ key until the `'CONFIG'` message displays at the top of the screen.
2. ____ Press the → key until the `'Sel Factory'` message displays at the bottom of the screen.
3. ____ Press **Enter**.
4. ____ Press the ↑ key until `3` displays.
5. ____ Press **Enter** to load the predefined factory configuration 3.
6. ____ Press the ↑ key until `'U4'` displays at the top of the screen.
7. ____ Press the → key until `'9600bps V32'` displays. Press **Enter** to validate.
8. ____ Press the ↑ key until `'U7'` displays.
9. ____ Press the → key until `'Xon/Xoff Passed'` displays. Press **Enter** to validate.
10. ____ Press the ↑ key until `'U8'` displays.
11. ____ Press the → key until `'Xon / Xoff'` displays. Press **Enter** to validate.
12. ____ Press the ↑ key until `'U10'` displays.
13. ____ Press the → key until `'Forced on'` displays. Press **Enter** to validate.
14. ____ Press the ↑ key until `'U12'` displays.
15. ____ Press the → key until `Follow CD` displays. Press the **Enter** key twice to validate.
16. ____ Press ↓ until `'Mode'` displays.
17. ____ Press → until the message `'V25HDLC NRZIASC'` displays.
18. ____ Press **Enter** twice, the modem is now in V.25 bis synchronous mode.
19. ____ Save the configuration, refer to “Saving the Configuration of the 7858” on page 1-60

Setting the 7858 Connected to the MPA card as COM2 (ASYN)

1. ____ Power OFF the modem
2. ____ Press and hold the ↑ key while power ON the modem.
3. ____ The modem is set to Factory 0 in AT command mode.
4. ____ Save the configuration, refer to “Saving the Configuration of the 7858” on page 1-60

Connecting the 7858 to the MPA Card

Which type of service processor is installed ?

- **3172**, refer to Figure 1-72
- **9585**, refer to Figure 1-73

1. ____ **Plug** the cable (PN 782985) into slot 3 **1** of the Service Processor.
2. ____ On the modem's rear panel, **plug** the other cable lead into the 25-pin connector **2** .

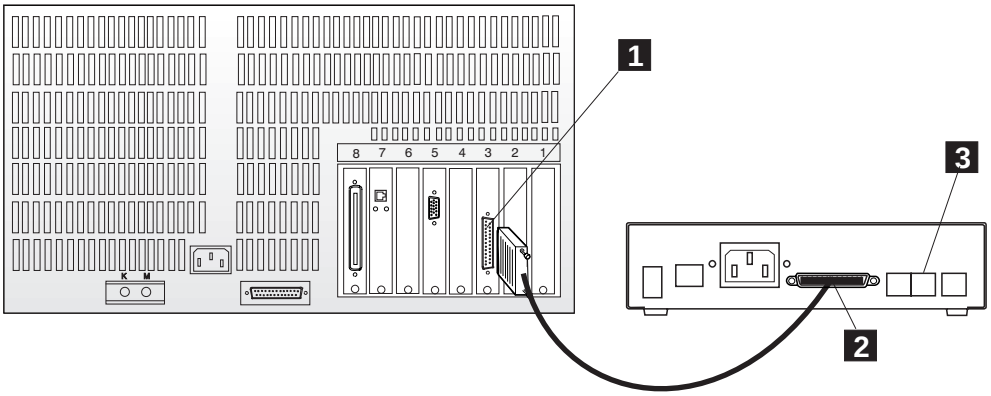


Figure 1-72. Connecting the Service Processor (3172) from the MPA Card to the 7858

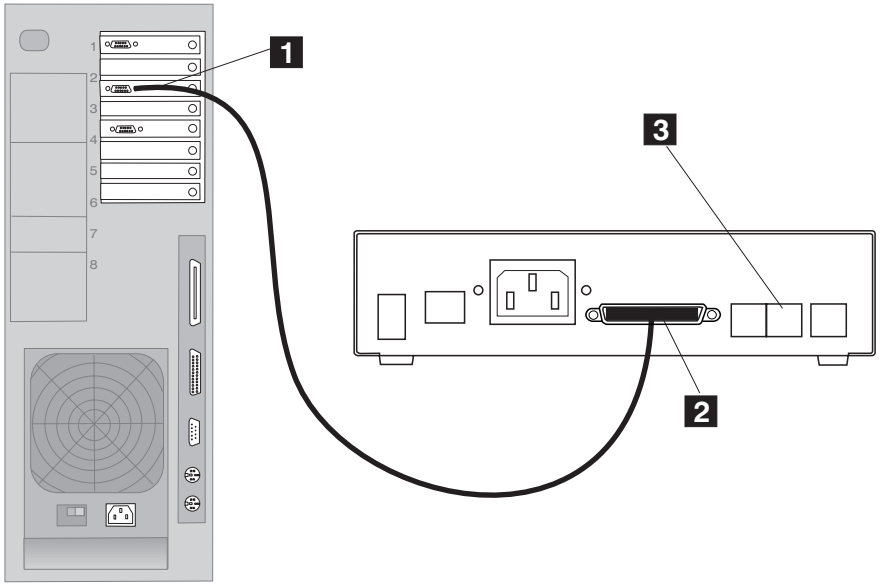


Figure 1-73. Connecting the Service Processor (9585) from the MPA Card to the 7858

Go to "Step 5 - Customizing Your Service Processor" on page 1-85 .

Step 4 - Installing and Connecting the Hayes** Modem

Notes

1. When not homologated, the 33.6 Kbps is replaced with a 28.8 Kbps modem type.
2. If you are not familiar with the Hayes modem, refer to the Hayes user's guide.
3. Power and frequency requirements:
   - Input voltage: 230V +/-10%, 50 Hz (ac), or 110V +/-10%, 60 Hz (ac)
   - Nominal output voltage: 9 V ac
   - Maximum output voltage: 12.1 V ac
   - Rated load current: 800 mA ac 50 Hz

Unpack and install the modem close to the service processor, or if a controller expansion is available, install the modem on top of the service drawer.

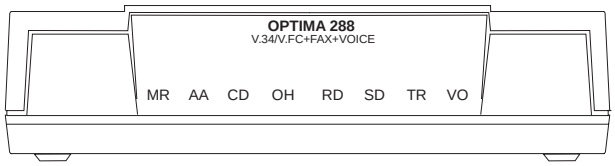


Figure 1-74. Hayes Modem Front View

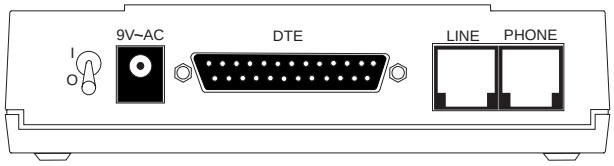


Figure 1-75. Hayes Modem Rear View

Depending on the service processor type, refer to:

- **7585**, Figure 1-76.
- **3172**, Figure 1-77 on page 1-67.
- **9585**, Figure 1-78 on page 1-67.

Note: Connectors 1 and 2 are country dependant.

1. ____ Plug cable 1 from the 9.0V-AC modem's connector to a standard 3-pin grounded ac outlet.
2. ____ Plug the interface cable 3 PN 0782984 to a 7585 or 9585 (or PN 0782985 when connected to a 3172) from the 'DTE INTERFACE' modem's connector to service processor's connector 4 .

   Note: If the modem is installed far from the service processor, use cable PN 782985 and connect this cable between the service processor and the interface cable shipped with the modem.
3. ____ Plug the switched network telecommunication cable 2 from the Line connector to the telecommunication line.

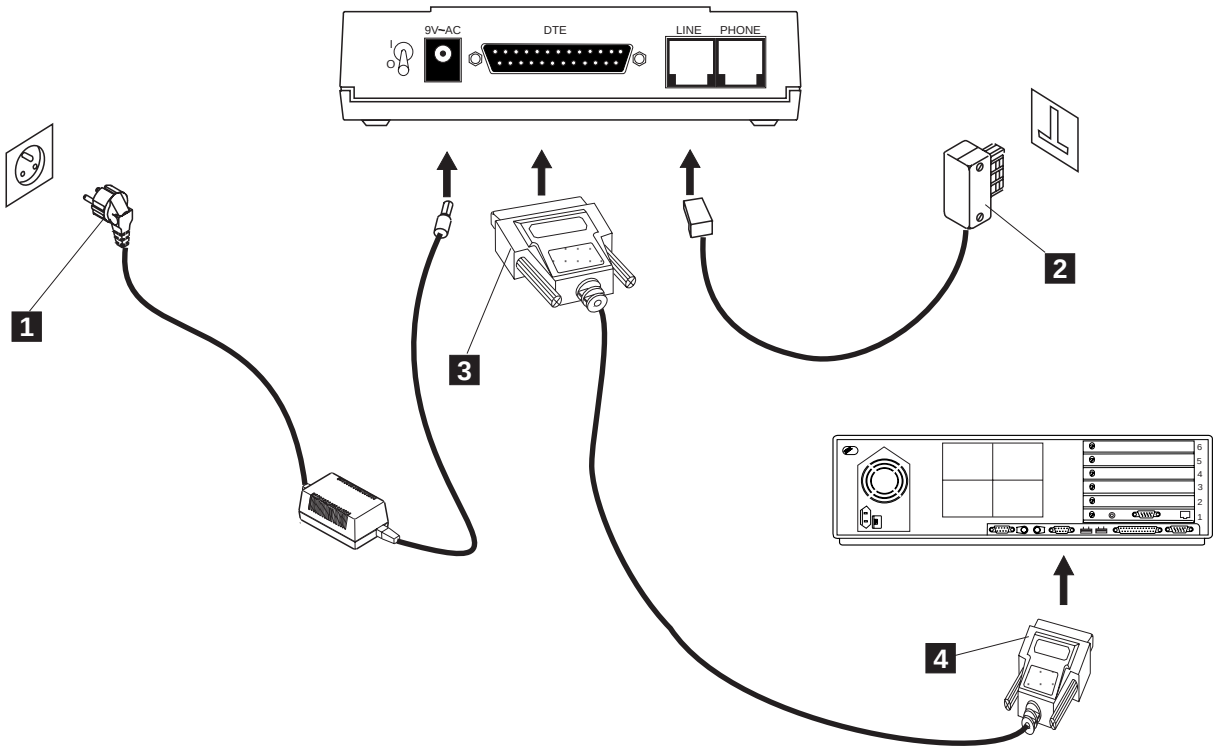


Figure 1-76. Connecting the 7585 (Port COM1) to the Hayes

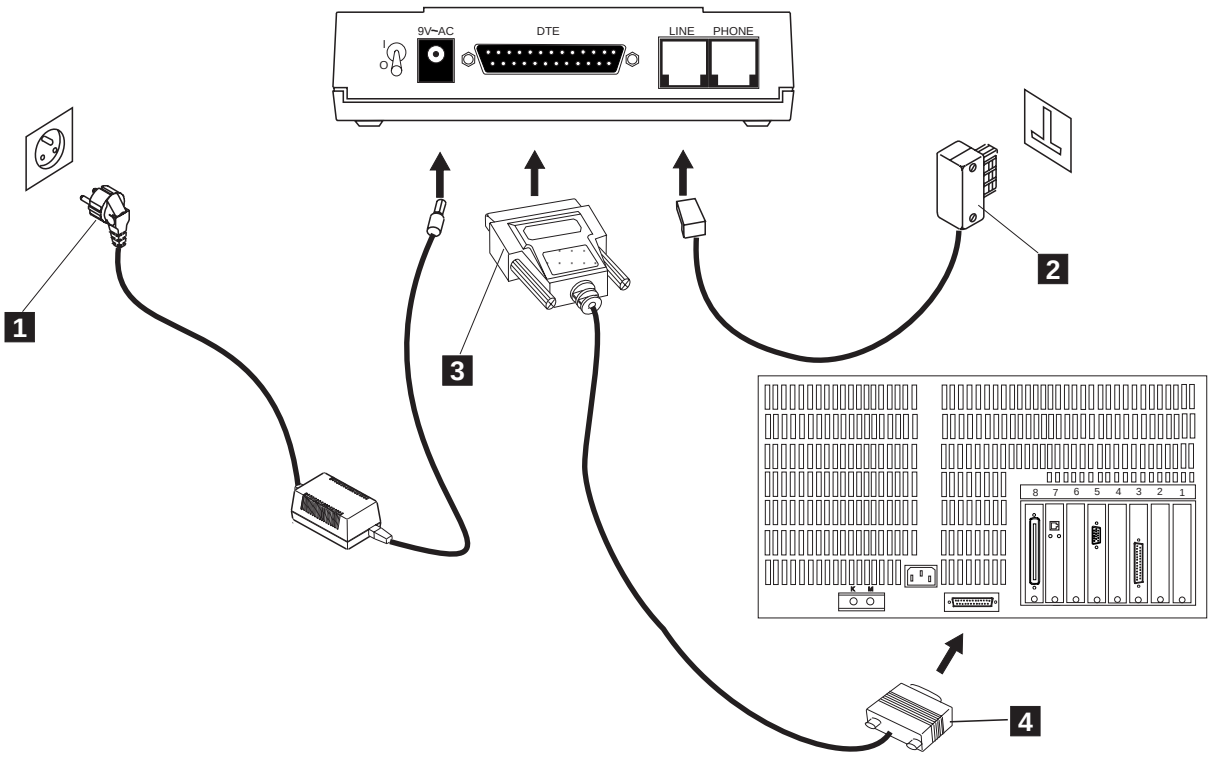


Figure 1-77. Connecting the 3172 (Port COM1) to the Hayes

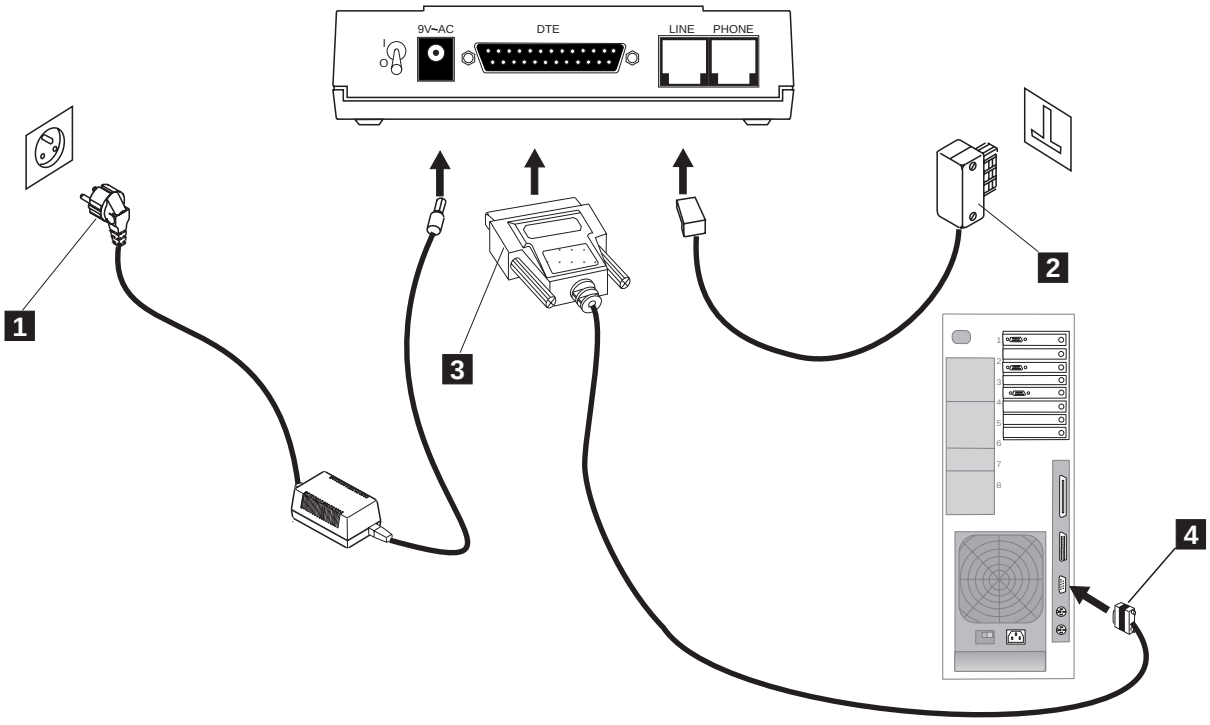


Figure 1-78. Connecting the 9585 (Port COM1) to the Hayes

Go to "Step 5 - Customizing Your Service Processor" on page 1-85 .

Step 4 - Installing and Connecting the 7857 to the Service Processor

Notes

1. If you are not familiar with the 7857, refer to the *IBM 7857 Guide to Operation*, GA13-1839.
2. Power and frequency requirements: 90 to 259 V ac, and 49.5 to 60.5 Hz (no adjustment).
3. The document *Power Supply and Telecommunication Connections for IBM Modems* GA33-0054, contains useful information about the different telecommunication connectors and power supply plugs.
4. Read the *IBM Telecommunication Products Safety Handbook*, SD21-0030
5. The **setting** of the modem is **different** if the modem is connected to a **MPA card** or to the **port COM1**. We recommend to connect the modem to COM1, refer "Setting the 7857 Connected to the COM1 Connector (ASYN)" on page 1-72, for other connection refer to "Other Possible Settings and Connections for the 7857" on page 1-74.

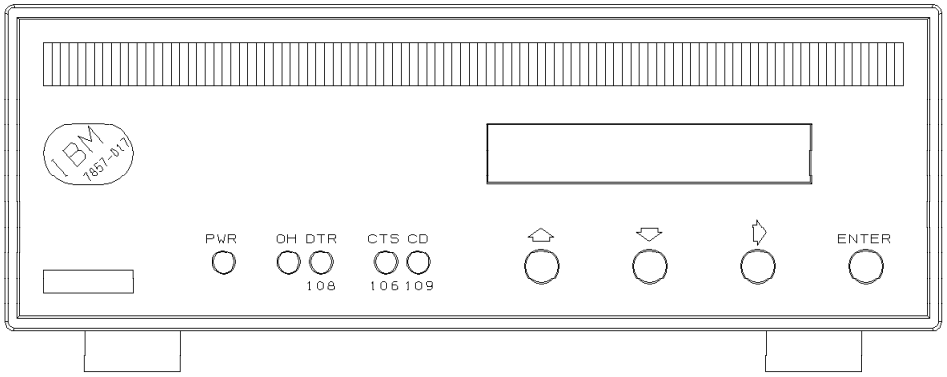


Figure 1-79. 7857 Front Panel

Besides the modem and this manual, the carton should contain:

- Telecommunication cables as needed for your country:
  - Black cable:
    - Switched line cable, with label **SW**, which fits into the PSTN socket in the modem rear panel.
  - Gray cables:
    - 2-wire leased line cable, with label **LL 2W**, which fits into the LL socket in the modem rear panel.
    - 4-wire leased line cable, with label **LL 4W**, which fits into the LL socket in the modem rear panel.
- DTE interface / 4-wire leased line wrap plugs.
- Telecommunication Products Safety Handbook.

If any of these items is missing or damaged, contact the place of purchase for instructions on how to exchange your modem or obtain the missing items.
The user is recommended to use the telecommunication cables supplied with the modem (see "Telecommunication Cables Part Numbers" on page 1-69).

Telecommunication Cables Part Numbers

Table 1-3. Telecom. cables	
Country	**PN**
Albania	89G2554
Argentina	89G2554
Australia	89G2564
Austria	89G2544
Belgium	89G2545
Bolivia	89G2554
Brazil	89G2554
Bulgaria	89G2554
Canada	89G2562
China	89G2554
Colombia	89G2554
Costarica	89G2554
Croatia	89G2554
Cyprus	89G2577
Czechland	89G2554
Denmark	89G2546
Egypt	89G2554
El Salvador	89G2554
Equador	89G2554
Finland	89G2547
France	89G2548

Table 1-3. Telecom. cables	
Country	**PN**
Germany	89G2549
Greece	89G2554
Guatemala	89G2554
Honduras	89G2554
Hong Kong	89G2565
Hungary	89G2554
Iceland	89G3145
Ireland	89G2554
Israel	89G3131
Italy	89G2551
Japan	89G2562
Korea	89G2554
Kuwait	89G2554
Luxemburg	89G3134
Macedonia	89G2554
Mexico	89G2554
Netherlands	89G2552
New Zealand	89G2577
Norway	89G2553
Pakistan	89G2554
Panama	89G2554

Table 1-3. Telecom. cables	
Country	**PN**
Paraguay	89G2554
Peru	89G2554
Poland	89G2554
Portugal	89G2554
Rumania	89G2554
Russia	89G2554
Saudi Arabia	89G2554
Slovakia	89G2554
Slovenia	89G2554
South Africa	89G3135
Spain	89G2554
Sweden	89G2555
Switzerland	89G2556
Taiwan	89G2554
Thailand	89G2554
Turkey	89G2554
UK	89G2577
Ukraine	89G2554
Uruguay	89G2554
US	89G2562
Venezuela	89G2554

Installation procedure: Figure 1-80 shows the modem rear panel with the connectors where the DTE and line cables must be connected:

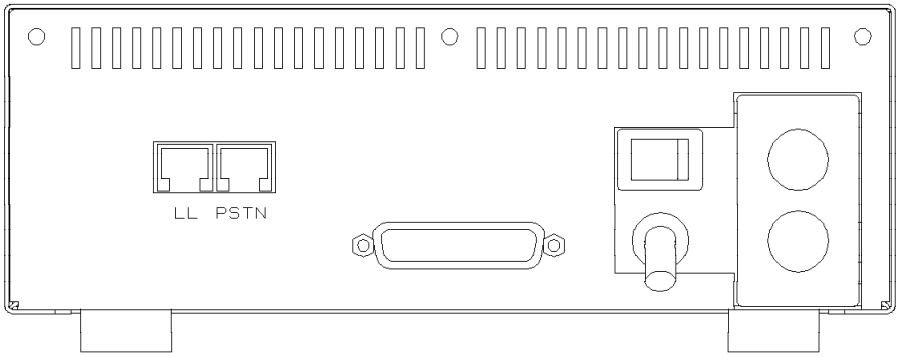


Figure 1-80. 7857 Rear Panel

Step 1. ___ Be sure that the power switch located on the modem rear panel is **off**.

Step 2. ___ If you are going to use a switched line telecommunication cable, plug it into the **PSTN** socket located on the modem rear panel, with the ferrite cylinder at the modem side. If this modem is ***not*** being installed in the United Kingdom, connect the other end of the cable to the telecommunication line.

Step 3. ___ If you plan to use a leased line telecommunication cable, plug it into the **LL** jack located on the modem rear panel, with the ferrite cylinder at the modem side. If this modem is ***not*** being installed in the United Kingdom, connect the other end of the cable to the telecommunication line.

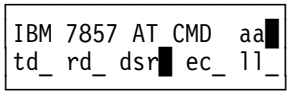
Step 4. ___ Connect the modem power plug to a standard 3 pin *grounded* ac outlet. Then, if this modem is being installed in the United Kingdom, connect the telecommunication cables you have attached to the modem, to the telecommunication lines.

Step 5. ___ You are now requested to observe the modem power on sequence. This is the normal power on sequence:

- PWR light is turned on.
- HW SELFTEST RUNNING message is displayed for about 15 seconds.
- DSP SELFTEST RUNNING message is displayed for about 15 seconds.

Set the modem power switch to **on**. If the PWR light is not **on**, or the message HW SELFTEST RUNNING is not appearing on the operator panel within 10 seconds, the modem is defective and should be replaced. This message remains on the display for about 15 seconds, then it is changed by the power on sequence.

If the modem is set to the factory defaults, after about 30 seconds, the operator panel shows:



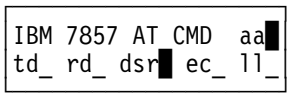
This operational message shows that the modem is set in AT command mode for switched line operation and will auto-answer an incoming call.

The next steps reset the modem options to the factory default configuration 0. Jump ahead to step 7 if the modem has never been used.

In the next steps, you are instructed to manipulate the front panel buttons of the modem. Unless the step suggests otherwise, do not press them in for longer than one second.

Step 6. ___ Set the modem power switch to **off**, then hold the ↑ key pressed and set the power switch to **on**. When the message HW SELFTEST RUNNING is shown, release the ↑ key.

After about 15 seconds the message is changed to DSP SELFTEST RUNNING and then after another 15 seconds to:



If this sequence does not occur, the modem is defective. Replace it.

Step 7. ___ The next steps can only be done if you have attached the modem to the public switched network. Go to step 11 if you do not want to test the modem's public switched network interface.

Step 8. ___ On the modem operator panel:

- Press the ↑ key until the "C108 (DTR)" message is displayed on the top row.
- Press the → key until the "Forced On" message is displayed on the bottom row.
- Press the ENTER key twice to select the option and to return to the modem operational mode message.

Step 9. ___Dial the modem phone number from another telephone. You should hear the ringing tones and then the 2100 Hz answer tone from the called modem in the handset of the dialing telephone. If you hear the answer tone, go to step 11 Otherwise, continue with step 10

Step 10. ___ If you do not hear the modem answer tone, verify that the telephone line is operating properly. In most countries, you can do this by replacing the modem with a handset and then attempting a second time to dial the modem phone number from another telephone to verify that the handset rings properly.

Connect again the modem to the public switched network and try dialing the modem phone number again. Observe the front panel OH light. This light turns **off** when the modem answers. If this attempt to call the modem fails, the modem is defective. Replace it.

Step 11. ___ Set the modem power switch to **off**.

Note: The following steps assume that your DTE is already installed and operational.

Step 12. ___ Connect the 25-pin V.24 cable from the DTE to the 25-pin connector on the modem rear panel. Fasten the connector retaining screws.

Step 13. ___ Set the modem power switch to **on**. Wait until the modem operational message is displayed on the operator panel (about 30 seconds).

Step 14. ___ Now the modem is ready for operation; you can try it with your system. If you observe a basic system problem, such as the DTE not being able to send commands to the modem successfully, verify again that your individual modem configuration parameters are matching your system requirements. If you have a problem while using the modem, see *IBM 7857 Guide to Operation*, GA13-1839, chapter "Problem Determination".

If the 7857 operator panel does not show the following message (see Figure 1-81 on page 1-72), the modem needs to be configured through the operator panel, go “Setting the 7857 Connected to the MPA Card (SYN)” on page 1-74, otherwise go to “Connecting the 7857 to COM1” on page 1-72.

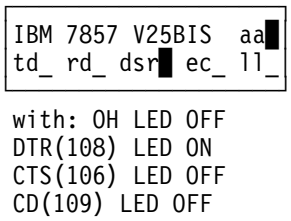


Figure 1-81. 7857 Operator Panel Display

Setting the 7857 Connected to the COM1 Connector (ASYN)

1. ____ Power OFF the modem
2. ____ Press and hold the ↑ key while power ON the modem.
3. ____ The modem is set to Factory 0 in AT command mode.

Saving the Configuration of the 7857

If you want to save the configuration just defined, in order to have it loaded again at the next modem reset, perform the following steps:

1. ____ Press the ↓ key until the "CONFIGURATIONS" message displayed the top row.
2. ____ Press the → key until the "Store User Conf." message displayed the bottom row.
3. ____ Press the ENTER key select the option.
4. ____ Pressing the ↑ key, select the User Configuration Location where the current modem configuration must be saved (0 to 9).
5. ____ Press the ENTER key save the current modem configuration.
6. ____ The defined configuration now active and saved.

Now every time the modem is reset (power on), the last user configuration which was saved is loaded as the current modem configuration.

Connecting the 7857 to COM1

Which type of service processor is installed ?

- **7585**, refer to Figure 1-82 on page 1-73
- **3172**, refer to Figure 1-83 on page 1-73
- **9585**, refer to Figure 1-84 on page 1-73

1. ____ **Plug** the cable (PN 782985) into slot 3 **1** of the Service Processor.
2. ____ On the modem's rear panel, **plug** the other cable lead into the 25-pin connector **2** .

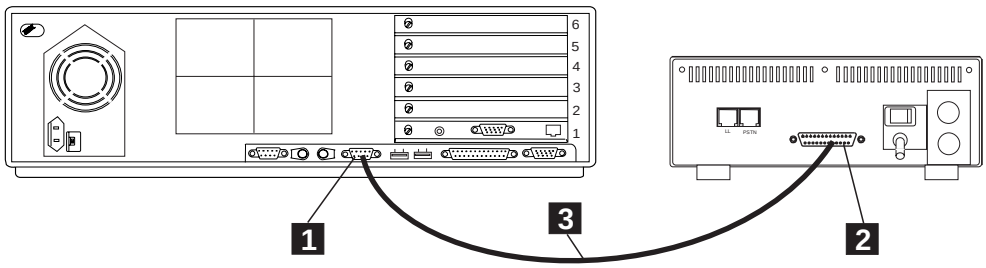


Figure 1-82. Connecting the Service Processor (7585) from COM1 to the 7857

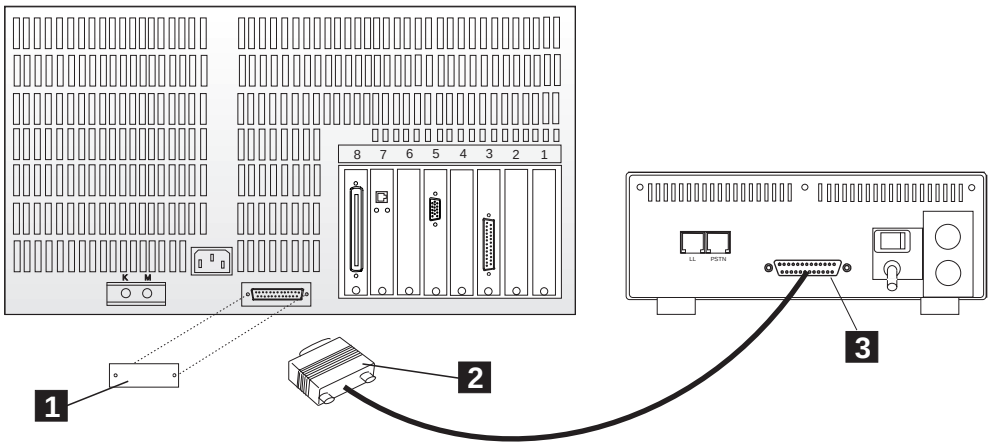


Figure 1-83. Connecting the Service Processor (3172) from COM1 to the 7857

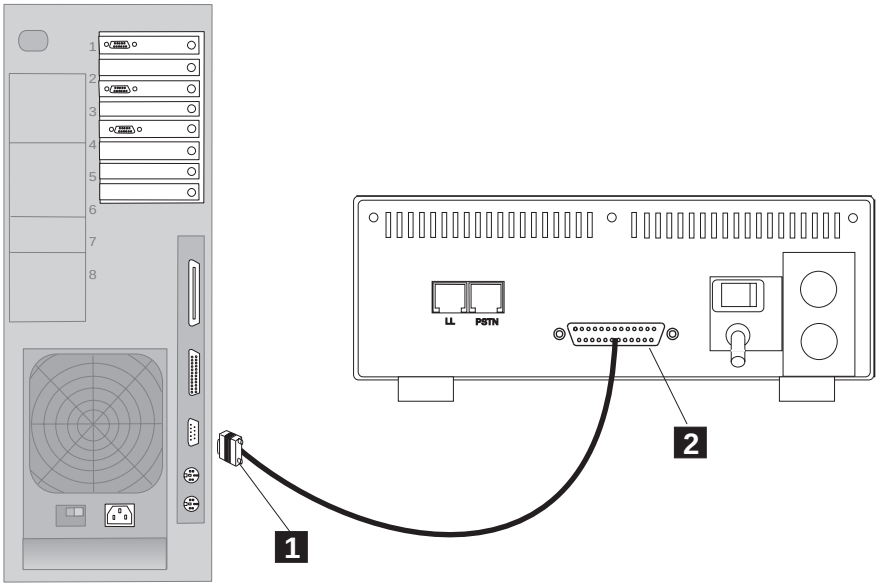


Figure 1-84. Connecting the Service Processor (9585) from COM1 to the 7857

If you received a **controller expansion**, go to **step 3** , otherwise go to “Step 5 - Customizing Your Service Processor” on page 1-85.

3. ____ Slide the 7857 in the controller expansion as shown in Figure 1-85 on page 1-74.

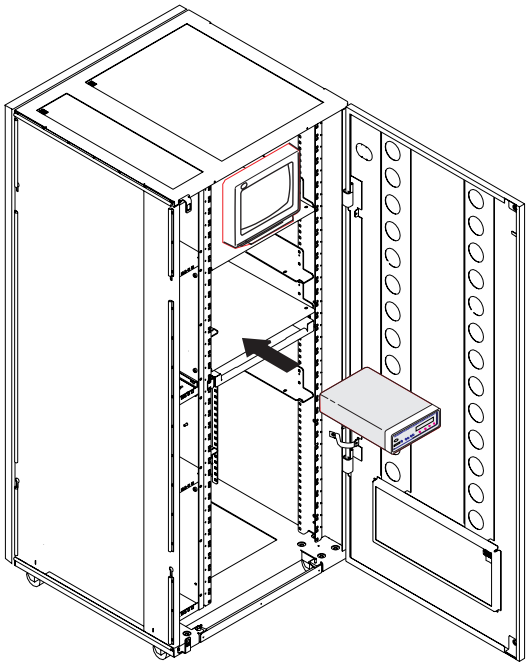


Figure 1-85. Installing the 7857 in the Controller Expansion

Go to "Step 5 - Customizing Your Service Processor" on page 1-85 .

Other Possible Settings and Connections for the 7857

Depending if the 7857 is going to work in synchronous or asychronous mode, refer to:

- "Setting the 7857 Connected to the MPA Card (SYN)"
- "Setting the 7857 Connected to the MPA Card as COM2 (ASYN)" on page 1-75

Setting the 7857 Connected to the MPA Card (SYN)

1. ____ Press the ↓ key until the `'CONFIG'` message displays at the top of the screen.
2. ____ Press the → key until the `'Sel Factory'` message displays at the bottom of the screen.
3. ____ Press **Enter**.
4. ____ Press the ↑ key until `'3'` displays.
5. ____ Press **Enter** to load the predefined factory configuration 3.
6. ____ Press the ↑ key until `'U1'` displays at the top of the screen.
7. ____ Press the → key until `'Sync mode 3'` displays. Press **Enter** to validate.
8. ____ Press the ↑ key until `'U2'` displays.
9. ____ Press the → key until `'Internal'` displays. Press **Enter** to validate.
10. ____ Press the ↑ key until `'U3'` displays.
11. ____ Press the → key until `'Autobaud'` displays. Press **Enter** to validate.
12. ____ Press the ↑ key until `'U4'` displays.

13. ____ Press the → key until 'CCITT' displays. Press **Enter** to validate.
14. ____ Press the ↑ key until 'U5' displays.
15. ____ Press the → key until '9600 V32' displays. Press **Enter** to validate.
16. ____ Press the ↑ key until 'U6' displays.
17. ____ Press the → key until 'V42Bis/MNP5 Enabled' displays. Press **Enter** to validate.
18. ____ Press the ↑ key until 'U7' displays.
19. ____ Press the → key until 'Auto Reliable/V42/MNP' displays. Press **Enter** to validate.
20. ____ Press the ↑ key until 'U8' displays.
21. ____ Press the → key until 'Xon/Xoff passed' displays. Press **Enter** to validate.
22. ____ Press the ↑ key until 'U9' displays.
23. ____ Press the → key until 'Xon/Xoff' displays. Press **Enter** to validate.
24. ____ Press the ↑ key until 'U10' displays.
25. ____ Press the → key until 'C108/2' displays. Press **Enter** to validate.
26. ____ Press the ↑ key until 'U11' displays.
27. ____ Press the → key until 'C106 Always follow C105' displays. Press **Enter** to validate.
28. ____ Press the ↑ key until 'U12' displays.
29. ____ Press the → key until 'C107/C109 Normal Mode' displays. Press **Enter** to validate.
30. ____ Press the ↑ key until 'U13' displays.
31. ____ Press the → key until 'C107 Follow C109(CD)' displays. Press **Enter** to validate.
32. ____ Press ↓ until 'Mode' displays.
33. ____ Press → until the message 'V25HDLC NRZIASC' displays.
34. ____ Press **Enter**, the modem is now in ITU-T V.25 bis synchronous mode.
35. ____ Save the configuration, refer to “Saving the Configuration of the 7857” on page 1-72

Setting the 7857 Connected to the MPA Card as COM2 (ASYN)

1. ____ Power OFF the modem
2. ____ Press and hold the ↑ key while power ON the modem.
3. ____ The modem is set to Factory 0 in AT command mode.
4. ____ Save the configuration, refer to “Saving the Configuration of the 7857” on page 1-72

Connecting the 7857 to the MPA Card

Which type of service processor is installed ?

- **3172**, refer to Figure 1-86
- **9585**, refer to Figure 1-87

1. ____ **Plug** the cable (PN 782985) into slot 3 **1** of the Service Processor.
2. ____ On the modem's rear panel, **plug** the other cable lead into the 25-pin connector **2** .

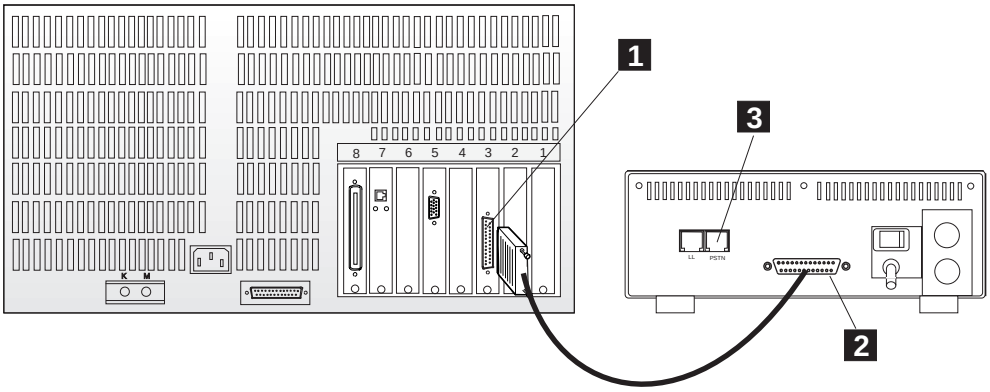


Figure 1-86. Connecting the Service Processor (3172) from MPA Card to the 7857

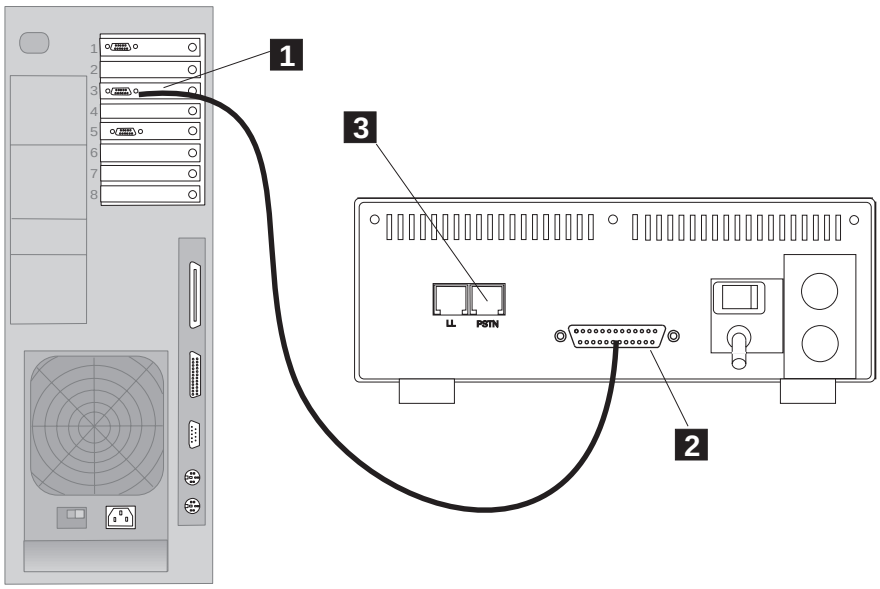


Figure 1-87. Connecting the Service Processor (9585) from MPA card to the 7857

Go to "Step 5 - Customizing Your Service Processor" on page 1-85 .

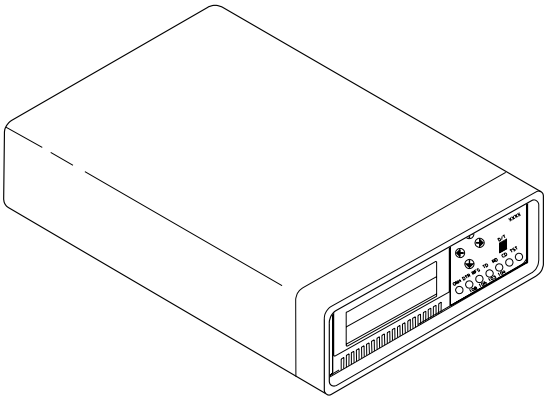
Step 4 - Installing and Connecting the 7855 to the Service Processor

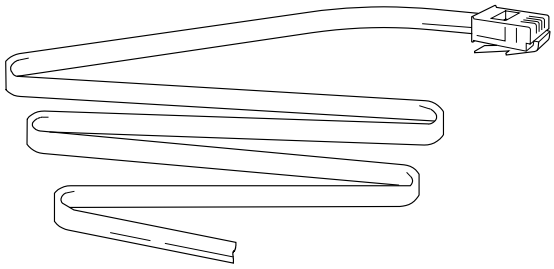
Note

The PN of the *7855 Modem Model 10 Guide to Operation* depends on the country where you are installing the modem.

Unpacking and Installing the 7855

Unpacking the Modem





Besides the modem and this manual, the carton should contain:

- Telecommunication cables as needed for your country.
- A DTE interface wrap plug.
- A 4-wire nonswitched line wrap socket or plug.
- If this book is not written in English, then you should have received a copy of the *Telecommunication Products Safety Handbook*. The handbook's safety material is included in the English language version of this book.

If any of these items is missing or damaged, contact the place of purchase for instructions on how to exchange your modem or obtain the missing items.

Note: The telecommunication cables are color-coded. There are three ways (depending on your country) to identify the color of your cables by:

- The color of the cable insulation
- The colored sticker on the cable's label

- The colored identification band around the cable.

The switched line cables fit easily into only the PSTN (or PSN in some countries) socket behind the modem.

Line Type	Cable Type and Identification Color
PSTN or PSN	Use the silver or green cable for typical installations. In some countries, a light brown cable is included for special PSTN connections such as the 8 pin programmable type of connections available in the U.S.A.

The next figure shows the rear panel of the modem. Note the keyway near pin 8 of the PSN or PSTN connector. 7855-10 cables for PSN/PSTN use have a ridge that fits into the keyway. Cables for nonswitched lines do not have that ridge.

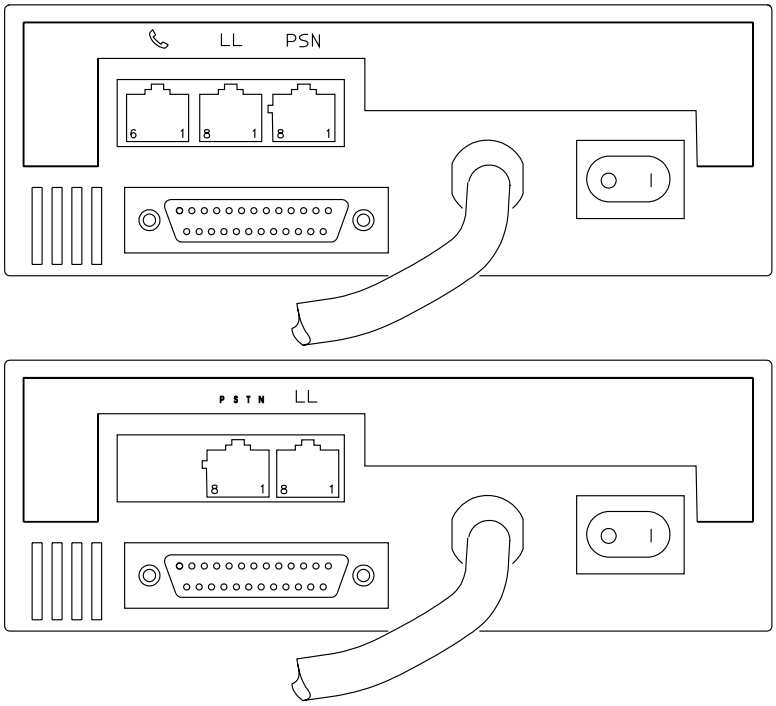


Figure 1-88. 7855-10 Rear Panel. Your modem may not have the 6-pin socket or the ground post and ground symbol.

Points to Remember

The silver or green cable has a key on its modular connector. The gray cable does not. The key fits into the 7855's PSTN socket.

Installing the Modem

1. ____ **Be sure** that the **power switch** located on the modem's rear panel is **off** as shown in Figure 1-91 on page 1-80.
2. ____ **Plug** the switched network telecommunication cable into the 8-pin *PSTN* or *PSN* jack located on the modem's rear panel. If this modem is ***not*** being installed in the United Kingdom, connect the other end of the cable to the telecommunication line. See Figure 1-89.

   Note: The PN of the telecommunication cable depends on the country where the modem is installed, refer to Figure 1-90 to determine which cable is required. For the power plugs and cables characteristics, refer to the *IBM Signal Converters Power Supply and Telecommunication Connections*, GA33-0054.

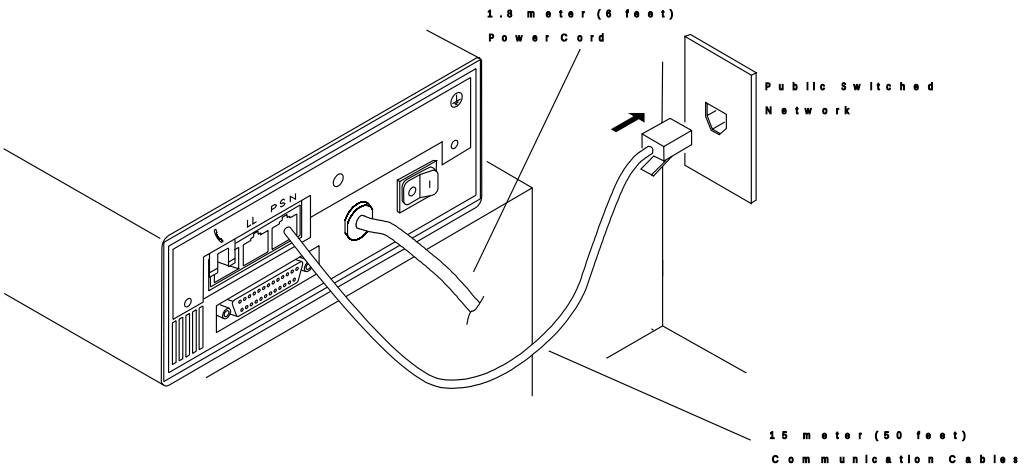


Figure 1-89. Installing Telecommunication Line Cables. Your modem's rear panel may have the PSTN and LL connectors located differently from those shown.

Philipines, Chile, Argentina	53F6095	Belgium	74F4507
Japan		Netherland	74F4500
France	74F4493	Iceland	74F4502
Italy	74F4498	Spain	93F1528
Hong Kong, UK, China, Thailand	74F4504	Israel	93F1532
Austria	74F4485	Portugal, Egypt, Greece	74F8370
Norway	74F4490	Poland, Bosnia, Serbia,	
Sweden	74F4502	Slovania, Croatia, Macedonia	
Denmark	74F4488	Saoudi Arabia	

Figure 1-90. PNs of the External Modem Cables

3. ____ **Connect** the modem's **power plug** to a standard 3-pin *grounded* ac outlet. If this modem is being installed in the United Kingdom, connect the telecommunication cables you have attached to the modem to the telecommunication lines now.

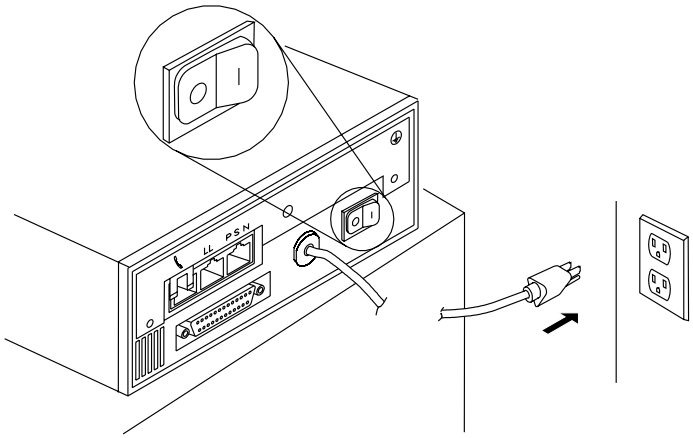


Figure 1-91. Connecting ac Power

Note: The 7855 must set as follows, CCITT V.25 Bis, Synchronous, and at 9600 bps for test purpose. In the next steps, you are instructed to manipulate the front panel buttons of the modem. Unless the step suggests otherwise, do not press them for longer than one second. Refer to Appendix E, "Use of the 7855 Buttons: ←, ↑, →, and ↓" on page E-1 to see the purpose of the 7855 buttons.

4. ____ **Plug** the DTE **wrap connector** into the back of the modem.
5. ____ **Set** the modem's **power** switch to **on**. If after 10 seconds *all* the front panel lights are still **on** or the TST light is blinking, the modem is defective and should be replaced. The RFS light on the modem may blink while the DTE wrap connector is installed. This is normal.

   If the modem is set to its factory defaults, the front panel shows `SYNC Int 9600 a`. This operational message shows that the modem is set for synchronous 9600 bps operation with internal clocking and the modem will auto-answer an incoming call.

The next steps from 6 to 9 reset the modem's options to the factory default values.

6. ____ **Press** both the ← and → buttons on the front panel of the modem. The modem displays the message `<Exit Enter>`.
7. ____ **Press** the → button. If the modem displays `View Only`, go to step 8. If the modem displays `Password....■■■■`, use the → button and the ↑ button to change the display to `Password....B293` by changing one character at a time. Press the → button one more time, and then check the display again to make sure it shows `View Only`.
8. ____ **Press and release** the ↑ or ↓ button as needed to change the display to show `First Setup`.
9. ____ **Press** the → button (just once) and then press and release the ↑ or ↓ button as needed to change the display to `Reset to Factory`.
10. ____ **Press** the ← button. All the lights on the front panel come **on** briefly.
11. ____ **Press and release** the ↑ or ↓ button until the display shows `Diagnostics`.

12. ____ **Press** the → button twice. The display should show `Do Tests` and then `Test Timer`.

13. ____ **Press and release** the ↑ or ↓ button until the display shows `Select Test` and then **press** the → button once.

14. ____ **Press and release** the ↑ or ↓ button to change the display to `Pass/Fail` and then **press** the → button once.

15. ____ Use (meaning **press and release**) the ↑ or ↓ button to change the display to `Speaker Test` and then press the ← button. The display should change to show `Pass/Fail`, the TST light should turn **on**, and the modem's speaker should immediately turn **on** and emit tones at a high volume level for about 2 seconds. You will normally hear both a modem-generated tone and dial tone during this portion of the test but it is OK if you hear only a single tone. The speaker then turns **off** for about 2 seconds and then turn back **on** and emits tones at a low volume level for about 2 seconds.
    The modem is operating correctly if you hear the pattern of *loud, off, quiet, off* of the speaker's volume. If not, replace it.

16. ____ **Dial** the modem's phone number from another telephone. You should hear a volume pattern of *loud, quiet, loud, off* in the handset of the dialing telephone. If you hear the correct tone pattern, go to step 19. Otherwise, continue with step 17.

17. ____ If you do not hear the tone, **verify** that the **telephone line** is operating properly. In most countries, you can do this by replacing the modem with a handset and then attempting a second time to dial the modem's phone number from another telephone to verify that the handset rings properly. If it does not ring, either the phone line is bad or the wrong phone number is being used. Reconnect the modem and try dialing the modem's phone number again. Observe the front panel ONH light. This light turns **off** when the modem answers. If this attempt to call the modem fails, the modem is defective. Replace it.

18. ____ **Set** the modem speed to **12000 bps**

    a. ____ **Press** both the ← and → buttons, the modem displays: '`<Exit Enter>`'.

    b. ____ **Press and release** the → button, the modem displays: '`View Only`'.

    c. ____ **Press** the ↓ button **twice**, the modem displays : '`Quick Customize`'.

    d. ____ **Press** the → button, the modem displays: '`DTE interface`".

    e. ____ **Press** the ↓ button twice, the modem displays: '`PSN Telco speed`'.

    f. ____ **Press** the → button, the modem displays: '`PSN Bps 9600`'.

    g. ____ **Press** the ↓ button, the modem displays: '`PSN Bps 12 000`'.

    h. ____ **Press** the ← button 6 times, the modem displays: '`SYNC INT 12 000`'.

19. ____ **Set** the modem's power switch to **off**.

Note: The following steps assume that your DTE is already installed and operational.

20. ____ **Detach** the DTE **wrap plug** from the modem.

21. ____ Which type of service processor is installed ?
    - **3172**, refer to Figure 1-92.
    - **9585**, refer to Figure 1-93.
22. ____ **Plug** the cable (PN 782985) into slot 3 **1** of the Service Processor.
23. ____ On the modem's rear panel, **plug** the other cable lead into the 25-pin connector **2** .

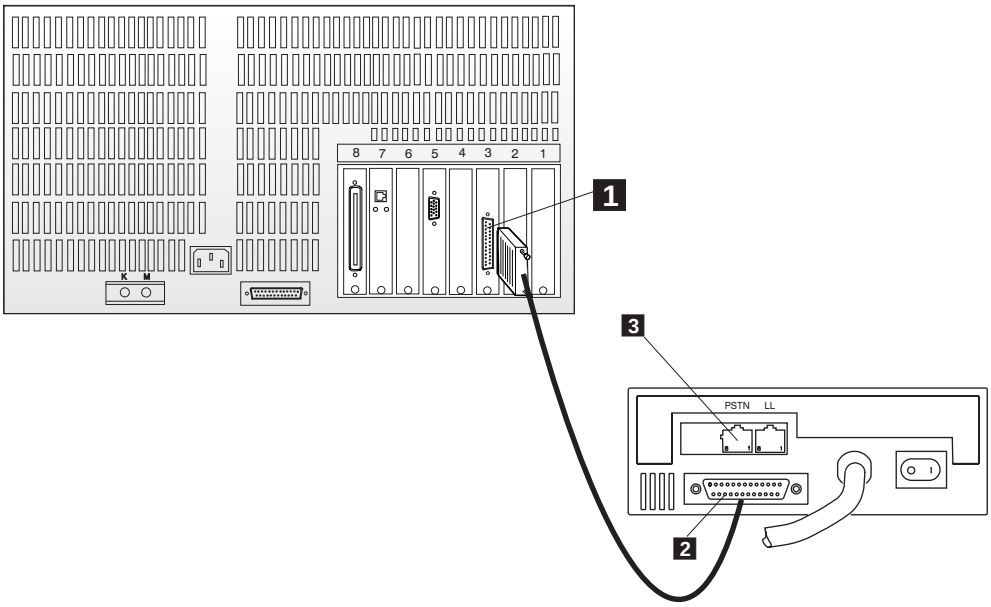


Figure 1-92. Connecting the Service Processor (3172) from the MPA Card to the 7855

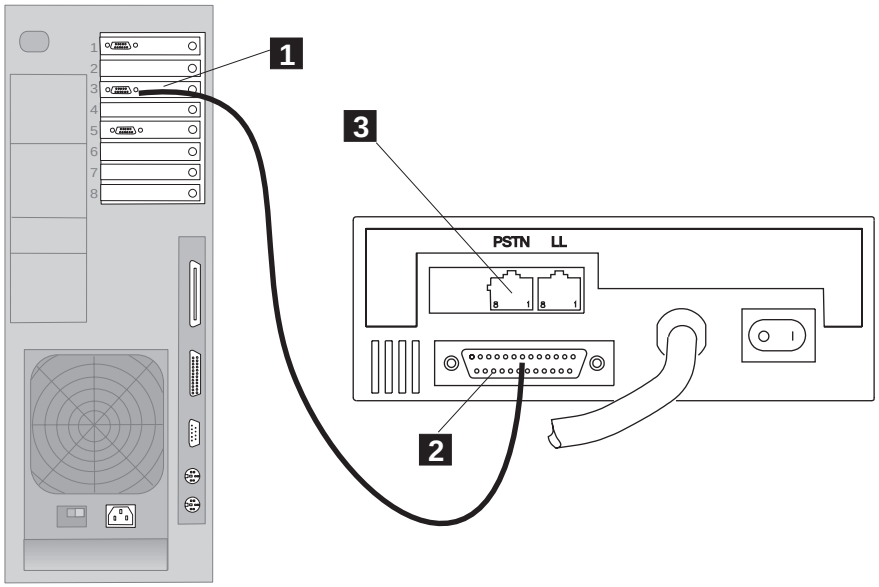


Figure 1-93. Connecting the Service Processor (9585) from the MPA Card to the 7855

24. ____ **Set** the modem's **power** switch to **on**. Wait until the modem front panel stabilizes (about 10 seconds).

25. ____ You have just set up the modem and verified most aspects of the modem's operation. You can try it with your system.
    When the 7855 is power ON, the **ONH** LED must be ON. If not, use the *7855 Modem Model 10 Guide to Operation*, chapter 10 to perform problem determination.
    When the Service Processor is power ON and initialize, the modem's **DTR** and **RFS** LEDs should be **ON**. If not and if these LEDs turn ON when the modem is initially powered ON, check the Service Processor-to-modem cable (PN 782985) and the multiprotocol adapter in the Service Processor.

    If you received a **controller expansion**, go to **step 26** , otherwise go to “Step 5 - Customizing Your Service Processor” on page 1-85.

26. ____ Slide the 7855 in the controller expansion as shown in Figure 1-94.

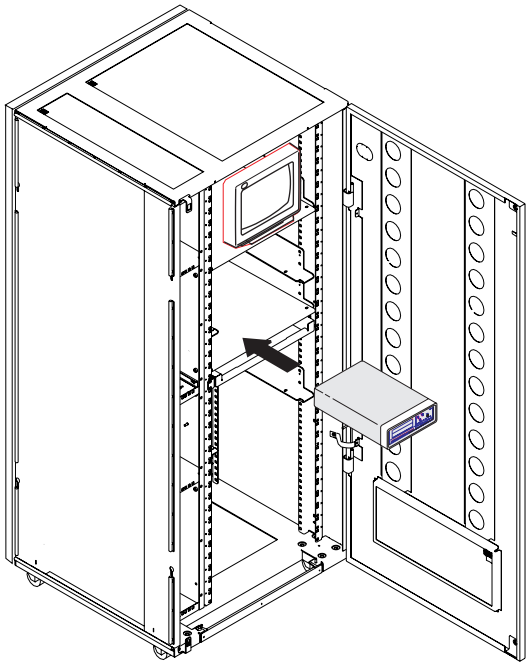


Figure 1-94. Installing the 7855 in the Controller Expansion

Go to “Step 5 - Customizing Your Service Processor” on page 1-85 .

Step 4 - Installing the Integrated RSF Modem (for U.S and Canada Only)

The configuration is done automatically. Therefore, there is nothing to customize for the integrated modem.
The integrated RSF modem is connected to the telephone line using cable PN 58G5297 plugged in connector **1** and in slot 3 of the Service Processor.
The leased line modem wrap plug (PN 74F4508) is plugged in connector **2** and in slot 3 of the service processor (refer to Figure 1-95). Leave the wrap plug in this position. It will not affect normal operation.

Note: If any error occurs, go to the START page of the *3745 Communication Controller Models 210 to 61A Maintenance Information Procedures*, SY33-2054 or *3745 Communication Controller Models 130 to 17A Maintenance Information Procedures*, SY33-2070.

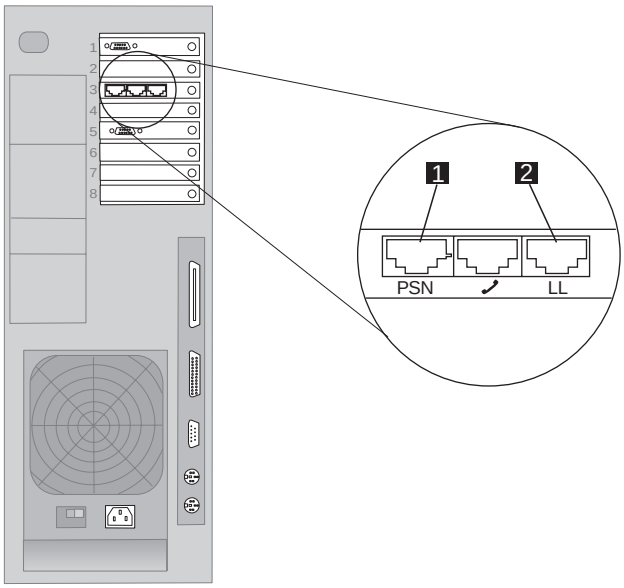


Figure 1-95. Connecting the Service Processor (9585) to the Integrated RSF Modem

Go to "Step 5 - Customizing Your Service Processor" on page 1-85 .

Step 5 - Customizing Your Service Processor

Notes

1. For any unexpected message or error concerning the service processor:
   - Go to, "MAP: Entry Point for Problem Isolation" on page 4-1

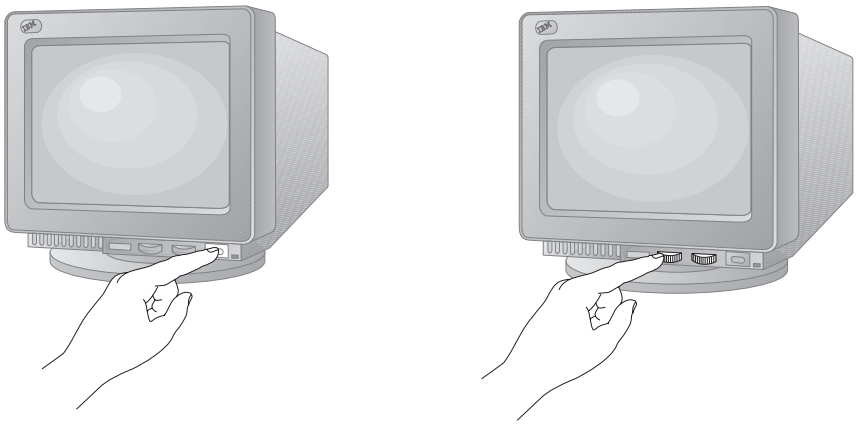
   For any other message or error displayed on the control panel, go to:
   - The **START** page of the *3745 Communication Controller Models 210 to 61A Maintenance Information Procedures*, SY33-2054, if you are working on a **3745 Model X1A**.
   - The **START** page of the *3745 Communication Controller Models 130 to 17A Maintenance Information Procedures*, SY33-2070, if you are working on a **3745 Model 17A**.
   - The **START** page of the *3746-900 Service Guide*, SY33-2116, if you are working on a **3746-900**.
   - Or go to the **START** page of the *3746-950 Service Guide*, SY33-2108, if you are working on a **3746-950**.
2. The purpose and explanation for the different parameters is given in the *3745 Communication Controller Models A and 3746 Models 900 and 950: Planning Guide*, GA33-0457.
3. Insure that the machine type and model are registered in RETAIN (CCPF). For **U.S.A.** machines, please call the Raleigh Multiplexor Support Center and verify your machine's registration in CCPF for:
   a. The seven digit **serial number** of the 3745/3746 is **correct**.
   b. The three digit **model** designation for the 3745/3746 is **correct**.

1. ____ **Power ON** the display

   a. ____ Turn on your display, and adjust the Brightness and Contrast controls to the approximate midpoint.

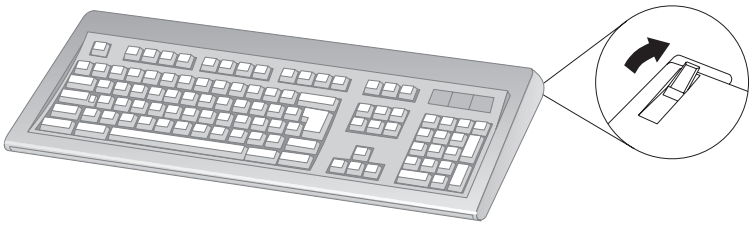
   You can readjust these controls for personal viewing comfort after you turn on your service processor.

   Note: For the 6553 display, see Appendix F, "6553 Display Adjustment Controls" on page F-1.



Note: The locations of the power switch and the Brightness and Contrast controls on your display might be different from those shown above.

b. ____ Adjust the keyboard feet for personal typing comfort.



2. ____ **Power ON** the service processor
3. ____ Check your display. The IBM logo appears, and the power-on self-test (POST) begins. **F1** and **Esc** prompts appear and then disappear.

   When the test finishes, the screen displays a number that represents the amount of available service processor memory. The service processor beeps once to indicate it is working properly.
4. ____ **Wait** while the message *"MOSS-E is being loaded, please wait"* is displayed.
5. ____ When the following screen appears, enter the **Service Processor Maintenance password** (default is **IBM3745**).
6. ____ Press **"ENTER"** or click on **"OK"**, then go to step 10 on page 1-87 if nothing has been customized on your SP, or go to step 7 on page 1-87 to select the SP customization function.

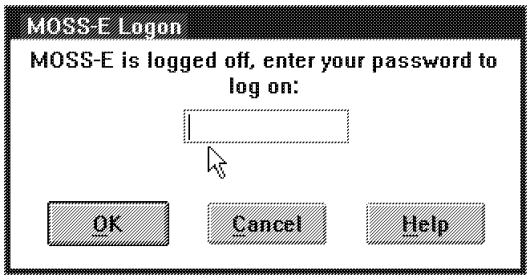


Figure 1-96. MOSS-E View Primary Window

7. ____ On the MOSS-E view primary window, double click on the **Service Processor object icon**.
8. ____ Click on **Configuration Management**
9. ____ Double click on **SP customization**
10. ____ If it is the first time that you invoke 'SP Customization', all the items are selected. If you are not ready to customize one or more items, click on the corresponding check box to deselect the item(s).
11. ____ Click on the drop-down list button and select the **modem type** installed.

    Notes:

    a. The list of the modems depends on the bus type of the service processor installed (ISA bus or MCA bus)

    b. For **7858** and **7857** for which multiple choices are prompted, you must select the option which match to the modem setting, refer to “Setting the 7858 Connected to the COM1 Connector (ASYN)” on page 1-60 or “Setting the 7857 Connected to the COM1 Connector (ASYN)” on page 1-72

    c. If you want to get more details about the different modems, press help key.

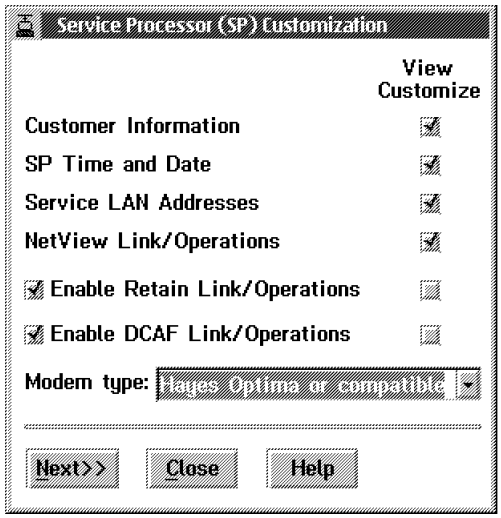


Figure 1-97. Service Processor Customization

12. ____ Click on **Next>>** and go to step 13 on page 1-88.

    Note: The next step will depend on the items list selected in the screen above (see Figure 1-97).

13. ____ Fill in the following input fields according to the values written by the customer on the parameter worksheet:**"Parameter Definitions for RSF" on page A-5** , click on **Next>>** then go to step 14 (if you selected in step 10 on page 1-87 customize the time and date).

    Note: Use the **F1** key to get details about the input fields.

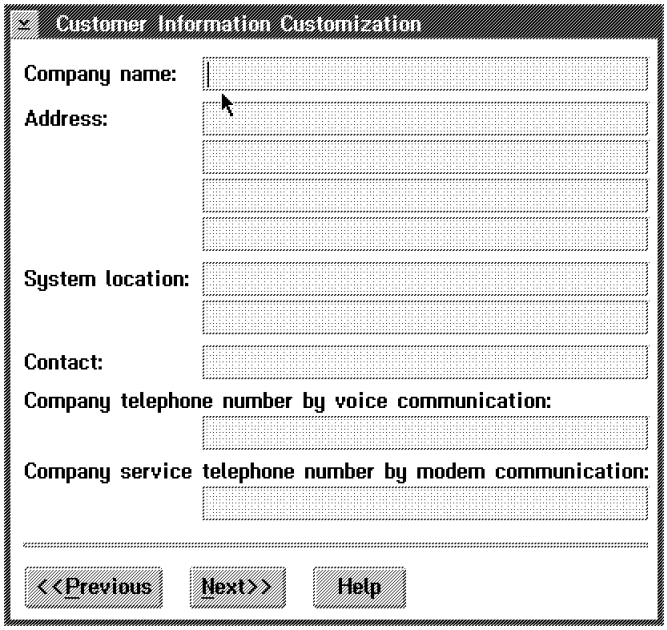


Figure 1-98. Customer Information Customization

14. ____ Modify the time, date, and time-zone offset. Click on **Apply** , click on **Next>>**, then go to step 15 on page 1-89 (if you selected in step 10 on page 1-87 to customize the service LAN addresses).

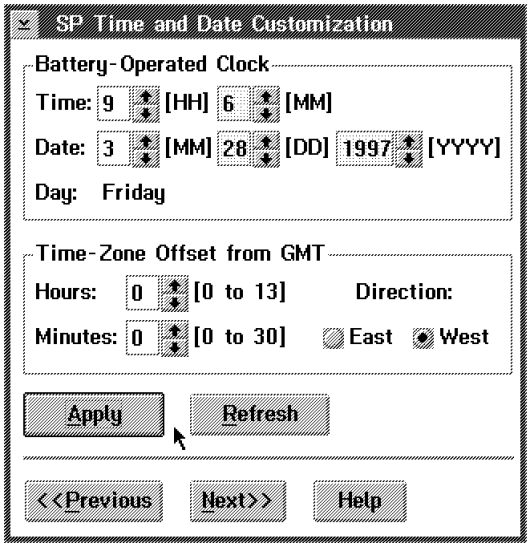


Figure 1-99. SP Time and Date Customization

15. ____ Modify the **service LAN addresses** as follows:

    Note: Use the **F1** key to get details about the input fields.

    a. ____ If needed, enter the **IP address** for the **service processor**, and **TIC3 2080** according to the values recorded by the customer on the worksheet **“Definition of Service LAN IP Addresses” on page A-2** , otherwise keep the default values.

       Note: The **Subnet mask** can also be modified for the service processor but it will be automatically updated for the **NNPs** and **TIC3 2080**.

    b. ____ Enter the **UAA/LAA** address

    c. ____ If a router is connected on the service LAN, enter its IP address.

    d. ____ If the customer has defined a LAN manager, change the C&SM LAN ID according to the LAN NAME specified in the parameter worksheet:**“Service Processor LAN Management Definition” on page A-2** .

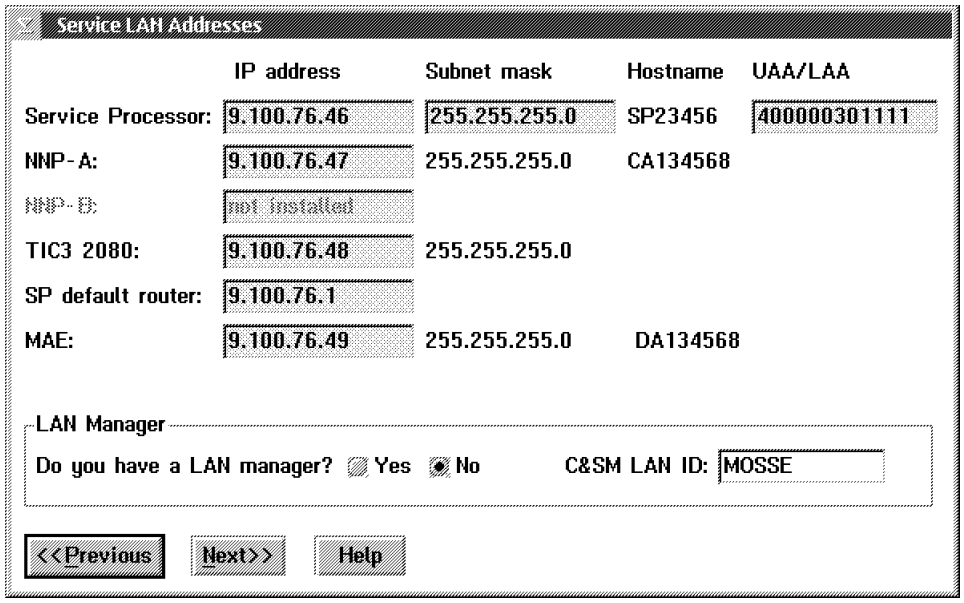


Figure 1-100. Service LAN Addresses

16. ____ Click on **Next>>**, then go to step 17 on page 1-90 (if you selected in step 10 on page 1-87 to customize the NetView parameters).

17. ____ Now you are defining the link(s) to **NetView**, two paths can be defined:

    a. A **Main Stream** which can be a LAN or SDLC link.

    b. And an **Alternate Stream** path which is always an SDLC link.

    Define the MOSS-E as a **PU 2.1** in your network. This PU will report alerts to NetView to the active **SSCP-PU** session (where PU name= CP name). This session can be established on one of the two possible links to the MOSS-E:

    - The **LAN** link via the **TIC2** or **TIC3** adapter.
    - Or, through an **SDLC** link via a 3745 SDLC port.

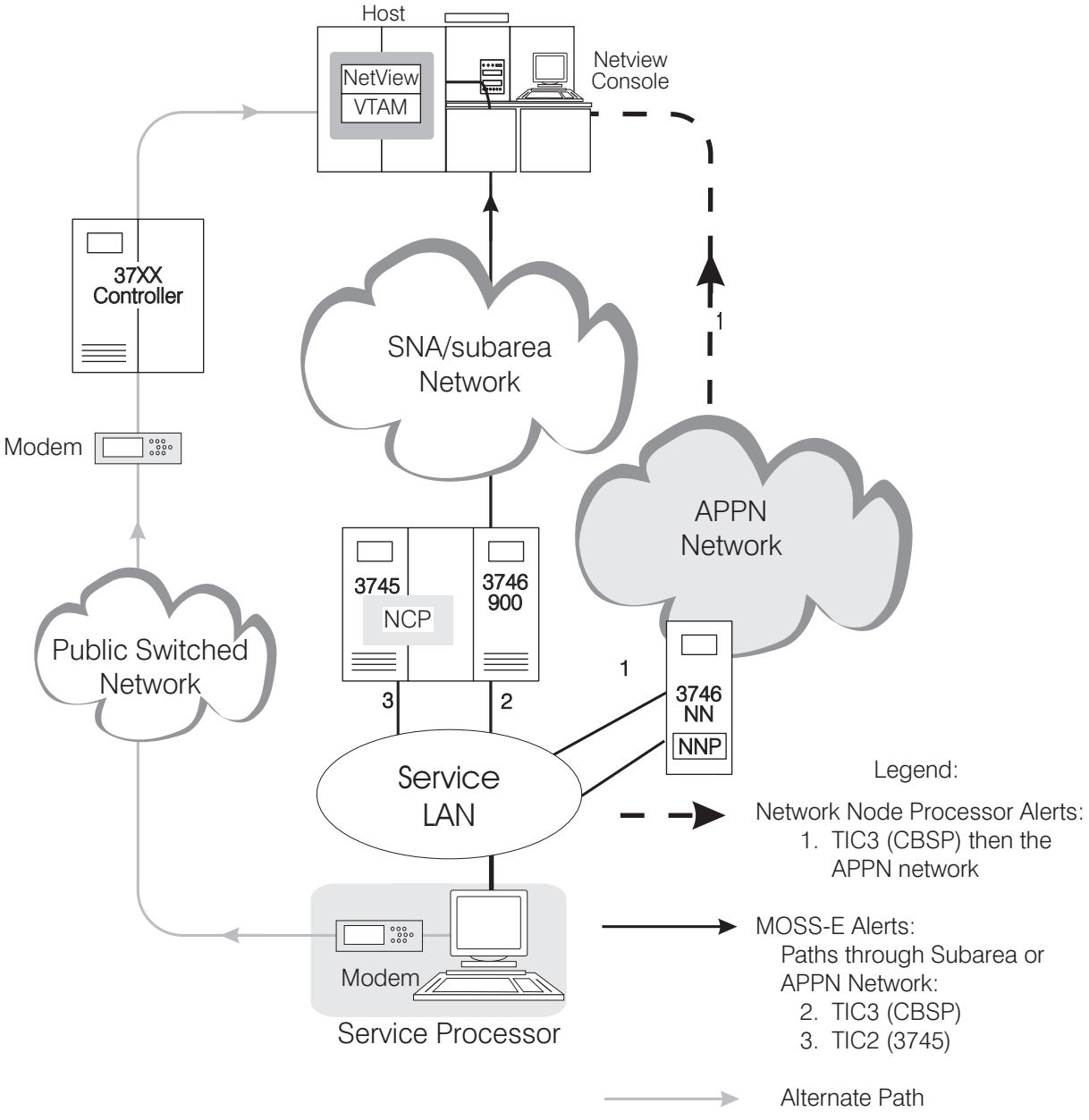


Figure 1-101. NetView Links

18. Refer to Figure 1-102, then enter the following information:

    a. ____ Generate (or not) the alerts to NetView (refer to the parameter worksheet **"Generate MOSS-E Alerts" on page A-4**).

    b. ____ Specify the NetView link through a **SNA** or **APPN** network.

    c. ____ Select the **number** of links (1 or 2)

    d. ____ If one link, the **type** (LAN or SDLC).

    e. ____ Enter the **machine type**, **model**, and **serial number**

    f. ____ Enter the **Network ID**, and **local node name**

    Note: The **Network ID** and the **Local node name** parameters must match the values recorded in the **Switched Major node definition**:
    Network ID <===> **NETID**
    Local node name <===> **CPNAME** <===> **Local PU Name**
    (Refer to Figure 1-103 on page 1-92 to see one example of switched major node definition)

    g. ____ If you are defining a 3270 session, enter the **locally administrated address** (LAA).

    Note: The **LAN destination address** is the TIC2 (3745) or TIC3 (3746-900) address through which you will access NetView. The TIC3 address can also be used for a DCAF link (SNA-attached console only).

    h. ____ Enter the **TIC3 RSAP** value.

    i. ____ If one SDLC link or two links (the alternate path is necessarily SDLC), specify the **SDLC link telephone number.**

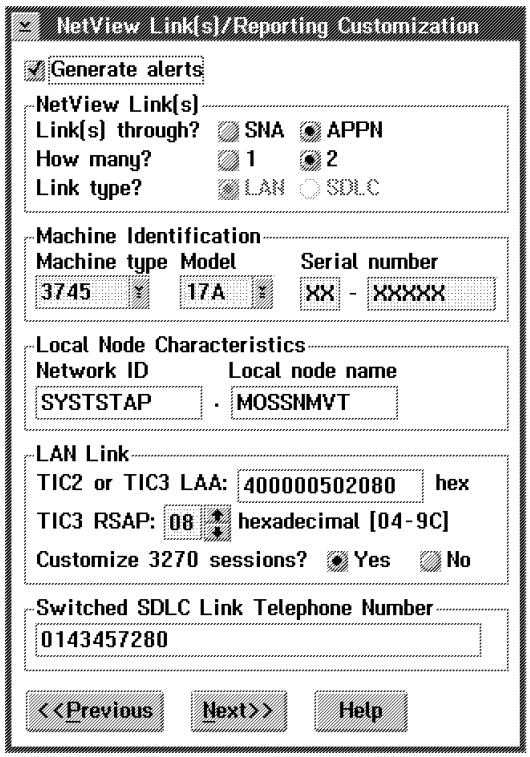


Figure 1-102. NetView Link/Reporting Customization

19. ____ Then click on **Next>>**, then go to step 20 on page 1-94 (if you selected in step 10 on page 1-87 to customize a 3270 session)

    When defining an **SDLC** link to NetView thru an **APPN** network, **CCM parameters** must be set as follows:

    a. DLC Parameters 1/3:

    - Transmit Receive Capability: Full Duplex
    - Interface: V25 B
    - Prot Type: Switched
    - Clocking: External
    - Link Station Role: Negotiable

    b. DLC Parameters 2/3:

    - Transmit NRZI: Yes
    - Echo Defeat: NO
    - Monitor Ring: Yes
    - Answer Tone: Yes l
    - Interface Gap: No

    c. DLC Parameters 3/3: keep the default values

    d. APPN Station:

    - Pu Type: 2.1
    - Destination Address: 1C
    - For DLC and APPN parameters: keep the default values

    When defining a link to NetView thru an **SNA network**, for examples of the NCP generation, refer to:

    - Figure 1-105 on page 1-93 for a **LAN link**, the **LAN destination address** must be equal to the **LOCADD** (recorded in NCP gen).
    - Figure 1-104 on page 1-93 for an **SDLC link**, the SDLC link is defined for the alternate stream path to NetView.

```
*=================================================================*
*                                                                 *
*     MAJNODE FOR CONNECTION :  MOSS-E  <==> NETVIEW V2R3         *
*                                                                 *
*                                                                 *
*=================================================================*
NTVMOSSE VBUILD TYPE=SWNET,MAXGRP=1,MAXNO=1
*-----------------------------------------------------------------*
MOSSE    PU    ADDR=04,PUTYPE=2, NETID=SYSTST , CPNAME=MOSSNMVT      X
               MAXPATH=8,MAXDATA=265,MAXOUT=1,                       X
               DISCNT=NO,
```

Figure 1-103. Example of Switched Major Node Definition

```
*********************************************************************
G23SIDES GROUP DIAL=YES,LNCTL=SDLC,TYPE=NCP,REPLYTO=3,XID=YES
*
K23C0004 LINE ADDRESS=(0004,FULL),DUPLEX=FULL,RING=YES,NEWSYNC=NO,     X
               V25BIS=(YES,DLSDLC),AUTO=YES,PAUSE=0.5,TRANSFR=71,      X
               NRZI=YES,CLOCKNG=EXT,RETRIES=(3,3,3),CALL=IN
P23C0004 PU PUTYPE=2,ISTATUS=ACTIVE
*********************************************************************
```

Figure 1-104. Example of NCP Generation for an SDLC Link to NetView

- Define a Group, Line and PU for the **Physical line**

```
   .
   .
*--------------------------------------------------------------------* FFA30320
* TIC3 BNN/INN:  PORT 2080 - PHYSICAL                                 * FFA30330
*--------------------------------------------------------------------* FFA30340
G502080 GROUP ECLTYPE=(PHYSICAL,ANY),                                  X
              ADAPTER=TIC3

K50C2080 LINE ADDRESS=(2080,FULL),PORTADD=0, LOCADD=400000502080       X
               MAXTSL=16732,LSPRI=PU,PUTYPE=1,ANS=CONTINUE,            X
               TRSPEED=16,TRANSFR=254
S50C2080 PU ADDR=01,                                                   X
               INNPORT=YES
   .
   .
```

- Define a Group, Line and PU for the **Logical line**

```
   .
   .
********************************************************************** FFA33180
*                                                                    * FFA33190
*   TIC3 BNN  : PORT 2080 - LOGICAL Connection to Service Processor  * FFA33200
*                                                                    * FFA33210
********************************************************************** FFA33230
L50G2080 GROUP DIAL=YES,LNCTL=SDLC,TYPE=NCP,ECLTYPE=(LOGICAL,PER),     X
               CALL=INOUT,PHYSRSC=S50C2080,                            X
               LINEAUT=YES,                                            X
               MAXPU=1,                                                X
               NPACOLL=NO,                                             X
               PUTYPE=2,                                               X
               RETRIES=(6,0,0,6)
R50A0001 LINE
Z50A0001 PU
   .
   .
```

Figure 1-105. Example of NCP Generation for a LAN Link to NetView

20. ____ To define a **3270 session**:

    a. ____ From the host code page pulldown menu, select your code page according to the country

    b. ____ The **"LU local / NAU address"** according to the value recorded on the parameter worksheet **"NCP Dump Transfer"** (refer to “NCP Dump Transfer” on page A-1).

    c. ____ The **"Long session/LU name"** according to the value recorded on the parameter worksheet **"NCP Dump Transfer"** (refer to “NCP Dump Transfer” on page A-1).

    Note: The number of sessions can me modified only in PE mode. In CE mode only one session can be defined.

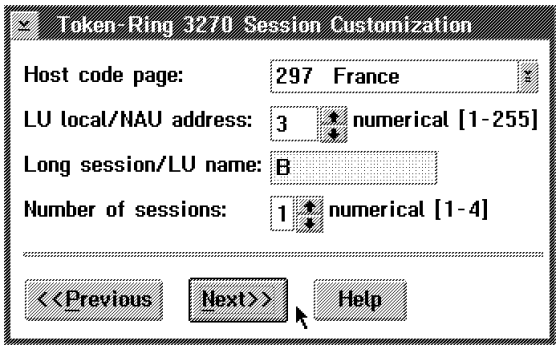


Figure 1-106. Token-Ring 3270 Session Customization

21. ____Then click on **"Next>>"**, then go to step 22 on page 1-95 (if you selected in step 10 on page 1-87 to customize a RETAIN link)

Notes

1. In the 3270 Session Customization screen, you have entered the:
   a. **LU local/NAU address**
   b. **Long session/LU name**

   These parameters must be the same as the values recorded in the switched major definition (refer to Figure 1-107 on page 1-95 for an example of a switched major node definition).
   In this example:
   a. **LU local/NAU address** <===> **03**
   b. **Long session/LU name** <===> **MOSSEEMU**
   c. For the **MOSSEEMU LU**, you must use the logon mode table entry **SNX32702** to allow the file transfer.
2. Use the **LU name** to identify the session.
3. The **LU local address** must be equal to **03** or above (values **01** and **02** are used and reserved by the service processor product).

In the switched major node, add one **LU statement** for the 3270 session:

```
MOSSE    PU   ADDR=04,PUTYPE=2,NETID=SYSTST,CPNAME=MOSSNMVT,        X
              MAXPATH=8,MAXDATA=265,MAXOUT=1,X
              DISCNT=NO
MOSSEEMU LU   LOCADDR=03 ,DLOGMOD= SNX32702
```

Figure 1-107. Example of a Switched Major Node Definition

22. ____ For **RETAIN** and **RSF** access, modify the options and enter the telephone numbers according to the customer choice:

    a. ____ **Disable** or **enable** (set by default) the RSF facility to generate the alerts to NetView (refer to the parameter worksheet **"Parameter Definitions for RSF" on page A-5**).

    b. ____ **Enable** or **disable** (set by default) the automatic microcode download option (refer to the parameter worksheet **"Set Automatic Microcode Download Option" on page A-5**).

    c. ____ Enter the **telephone numbers** according to the local IBM service support information.

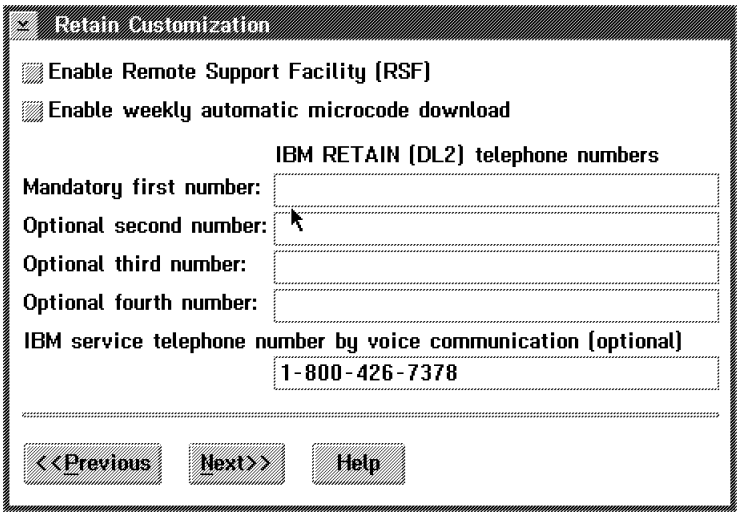


Figure 1-108. Retain Customization

23. ____ Click on **Next>>**, then go to step 24 on page 1-96 (if you selected in step 10 on page 1-87 to customize a DCAF link).

24. For **DCAF** access, four different types of console can be linked to the Service Processor:
    a. **SNA**-attached console
    b. **LAN**-attached console
    c. **SDLC**-attached console.
    d. **APPN**-attached console.

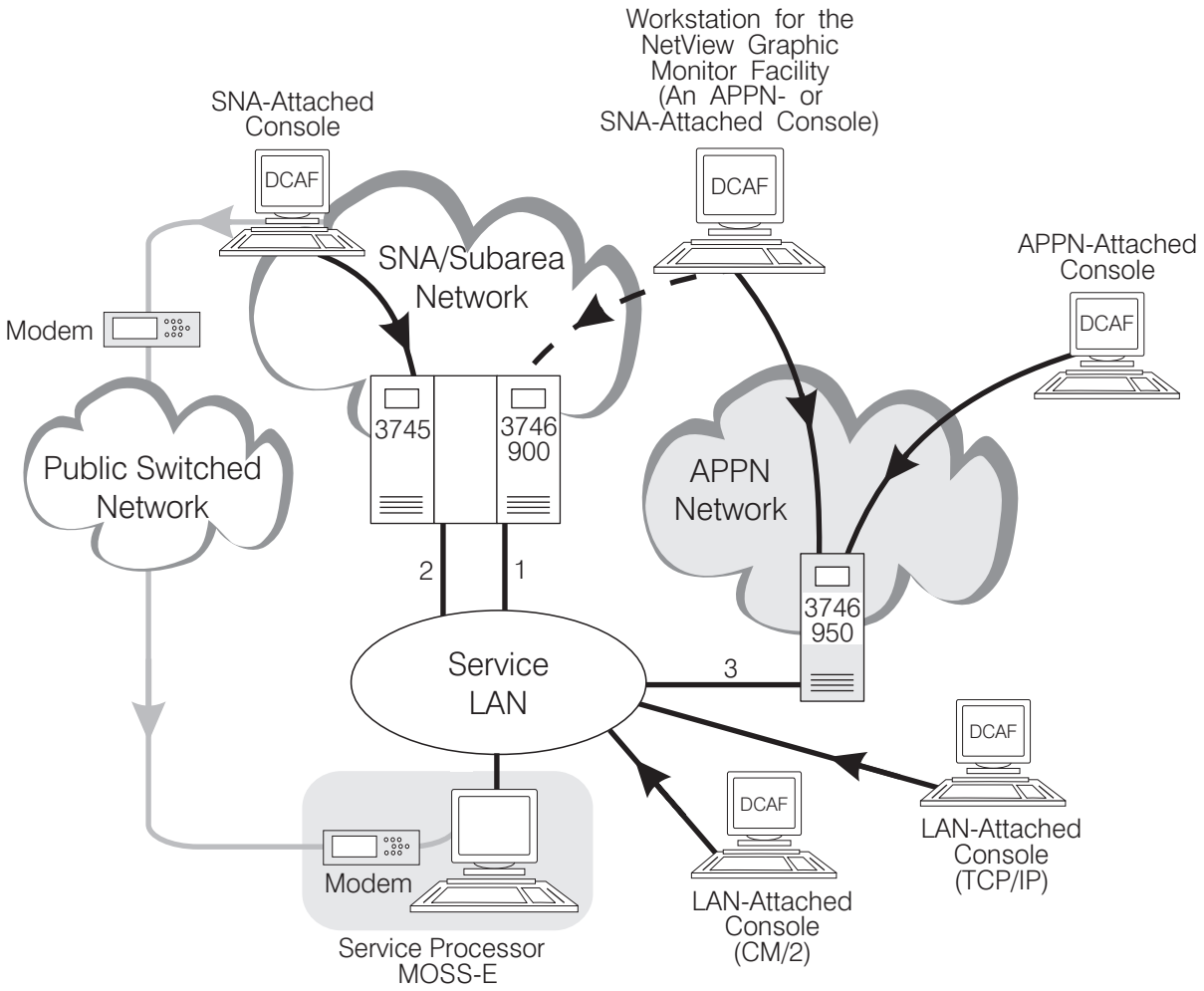


Figure 1-109. DCAF Links

25. ____ Select the type of DCAF links that you are going to define and modify the LU name according to the customer specifications:

    Notes:

    a. We recommend using four letters to identify the MOSS-E machine to DCAF connections. These names should be unique in your network, refer to the following worksheets:

    - **"For SNA-Attached Consoles" on page A-4**
    - **"For APPN/HPR-Attached Consoles" on page A-4**
    - **"For LAN-Attached Consoles" on page A-4**
    - **"For Modem-Attached Consoles" on page A-4**

    b. To specify the **destination address**, refer to Figure 1-109 on page 1-96 and according to the NetView path definition, set this address as follows:

    - If the alert **path to NetView** is **not defined** or thru **SNA**:
      - The DCAF SNA can be set for path: 1, 2, or 3
      - The DCAF APPN can be set for path: 3
    - If the alert **path to NetView** is defined thru **APPN**:
      - The DCAF SNA can be set for path: 1, 2, or 3 with a RSAP different than the TIC3 RSAP (see Figure 1-102 on page 1-91)
      - The DCAF APPN can be set for path: 3 with the same RSAP define for the NetView link (see Figure 1-102 on page 1-91).

26. ____Then click on **"Next>>"**, and go to step 27.

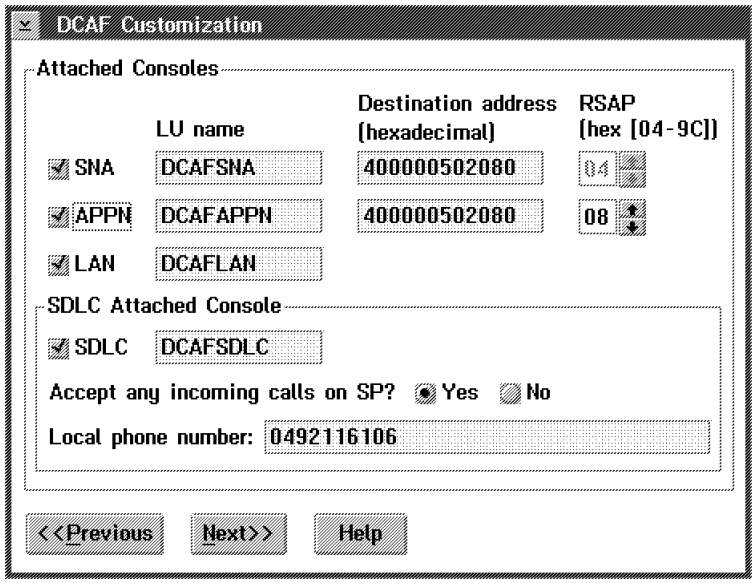


Figure 1-110. DCAF Customization

27. ____ Click on **Yes** to record your parameters.

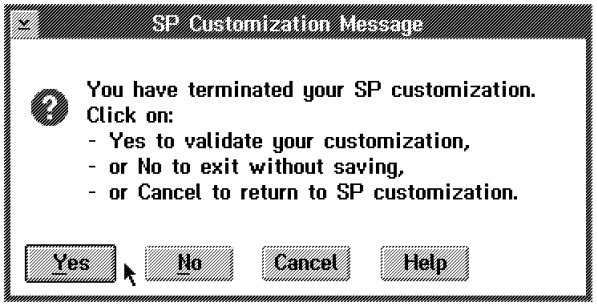


Figure 1-111. SP Customization Message

28. ____ The customization is in progress.

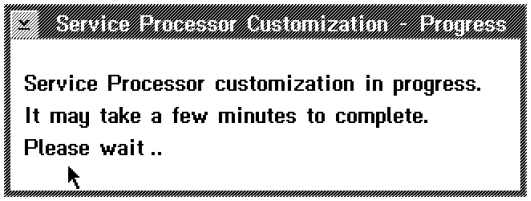


Figure 1-112. SP Customization In Progress

29. ____ The customization is completed, click on **OK**.

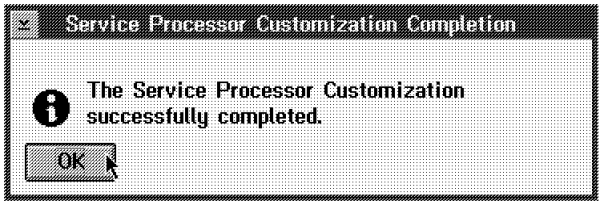


Figure 1-113. SP Customization Completed

30. ____ The service processor is going to reboot, click on **OK**.

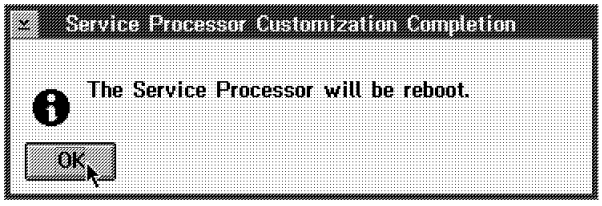


Figure 1-114. SP Reboot

Complete Your Installation

End of Service Processor Installation

Return to:

- The *3745/210-61A Installation Guide*, SY33-2057, Chapter "Making Ready to Install", Step 2, if you are installing a **3745 Model X1A**.
- The *3745/130-17A Installation Guide*, SY33-2067, Chapter "Preparing to Install the 3745", Step 2, if you are installing a **3745 Model 17A**.
- The *3746-950 Installation Guide*, SY33-2107, Chapter "Connecting the 3746-950 to the LAN", if you are installing a **3746-950**.
- Or if you are installing a 3745 model conversion from XX0 to XXA, or a 3746-900 to 3746-950 model conversion, return to your **MES installation instructions**.

Chapter 2. Introducing the Service Processor

General Information 2-2
Help for Using Your Service Processor 2-2
MOSS-E View Primary Window 2-2
Searching for Specific Information 2-4
Displaying Your Machine Status 2-5
3746-9x0 Status Display 2-5
3745 Status Display 2-6
Accessing the Functions 2-7
How to Get the Service Processor Maintenance Functions 2-7
How to Get the 3746-9x0 Controller Maintenance Functions 2-10
How to Get the 3745 Maintenance Controller Functions 2-12

© Copyright IBM Corp. 1998

General Information

Help for Using Your Service Processor

There are **three** ways to access the **Help information** by clicking on:

1. The **Help** option of the **title bar** of the screen (example: see Figure 2-2 on page 2-3).
2. The **Help push button** (example: see Figure 2-6 on page 2-4).
3. An **input field** then pressing **F1** (example: input field "Search For" in Figure 2-6 on page 2-4).

MOSS-E View Primary Window

This display shows the configuration of two communication controllers. A 3745 X1A with a 3746-900 frame installed, and a 3745 X1A.
From this screen, clicking on Program , Information, or Help, you will get all the information to manage your controller. The other options will help you find specific information (see Figure 2-3 on page 2-3, Figure 2-4 on page 2-3, and Figure 2-2 on page 2-3).

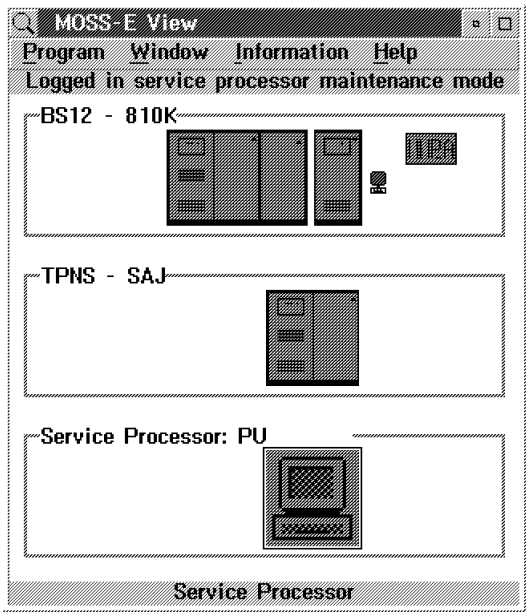


Figure 2-1. MOSS-E View Primary Window

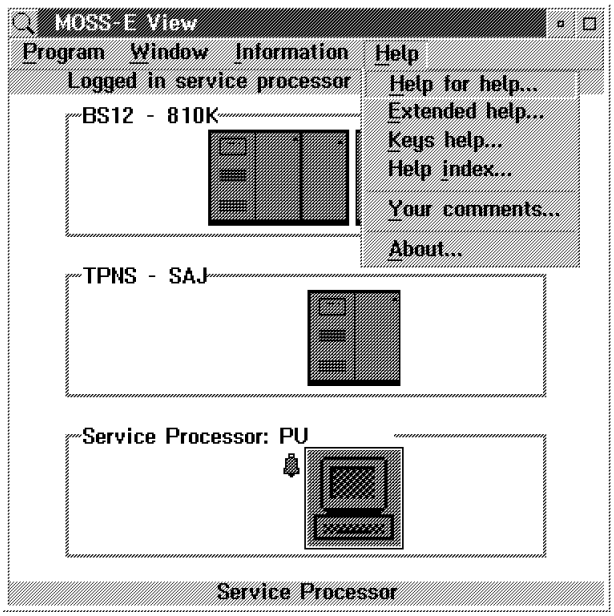


Figure 2-2. Help Pull Down Menu

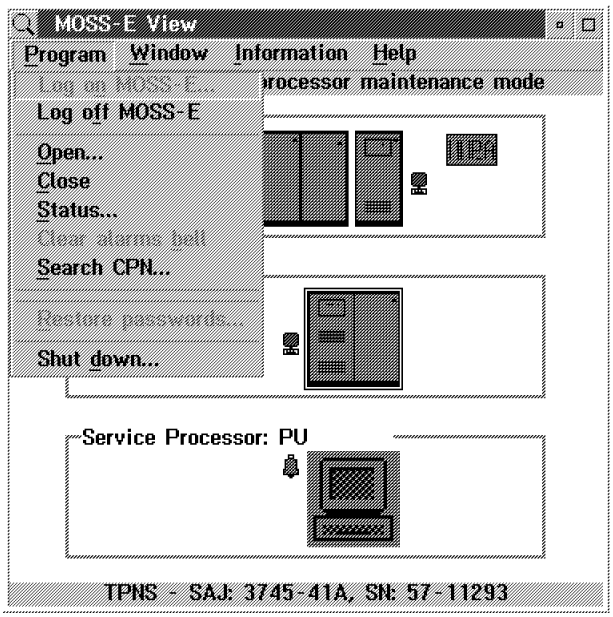


Figure 2-3. Program Pull Down Menu

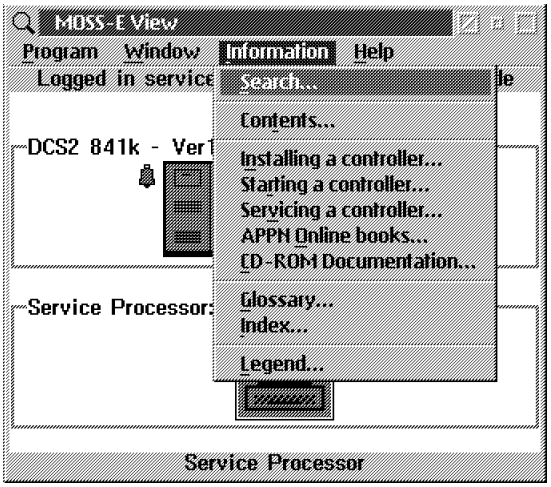


Figure 2-4. Information Pull Down Menu

Searching for Specific Information

1. From the Help pull down menu (see Figure 2-2 on page 2-3), select **Help for Help.**
2. Click on **Services** on the title bar of the MOSS-E help panel.
3. Click on **Search** on the title bar of the search window
4. Enter your search **argument** to get all the occurrences in all the available online information.

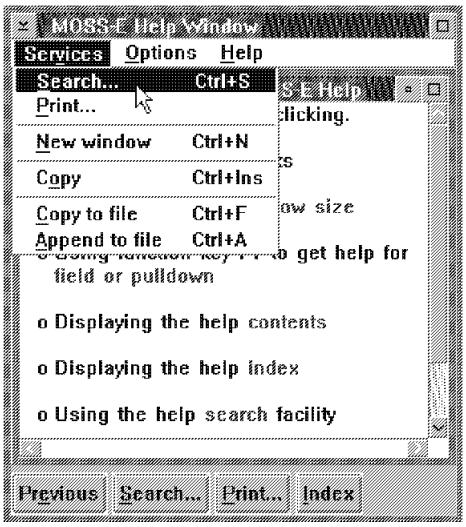


Figure 2-5. Services Pull Down Menu

Figure 2-6. Search Window

Displaying Your Machine Status

The first indication of the **machine status** is given by the **color** of the **3745 and the 3746-9x0 object icons**. To obtain the meaning of the colors do the following:

1. From the **Information pull down menu** click on **Legend** (see Figure 2-4 on page 2-3).
2. The meaning of the colors is now displayed in the MOSS-E legend window. **Scroll forward** to see the complete list of the colors.

At any time during IML, or while the system is operational you can display your machine status:

1. Click on the **3746-9x0** or **3745 object** icon using the **right button** of the mouse
2. Click on **status** pulldown option, the following screens are displayed (see Figure 2-7 for the 3746-9x0 and Figure 2-8 on page 2-6 or Figure 2-9 on page 2-6 for the 3745 X1A or 17A).

3746-9x0 Status Display

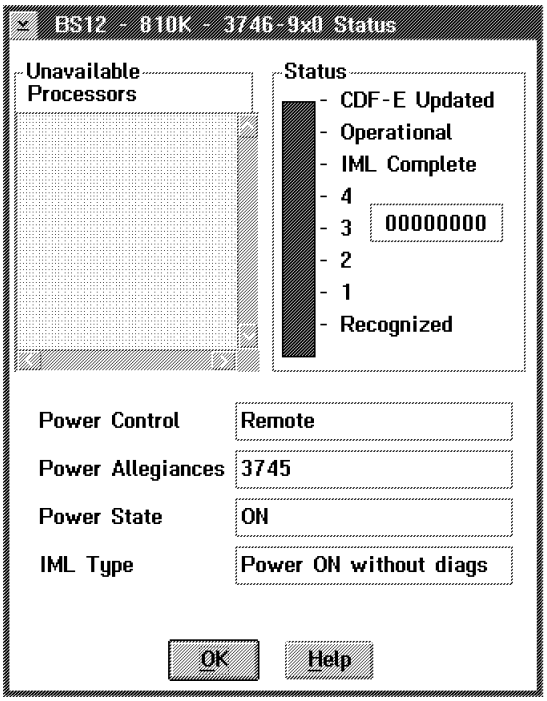


Figure 2-7. 3746-9x0 Status Display

3745 Status Display

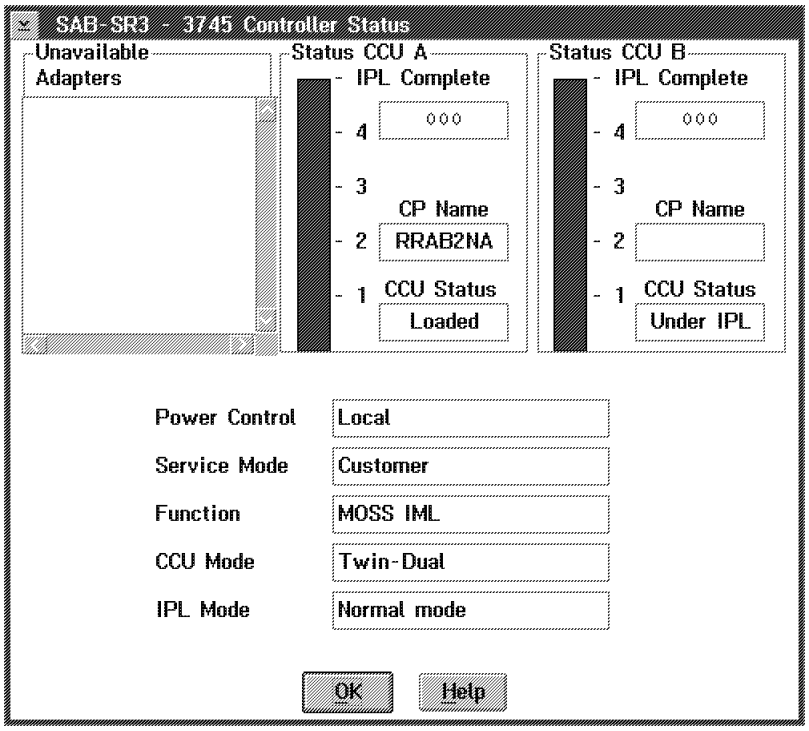


Figure 2-8. 3745 Model X1A Status Display

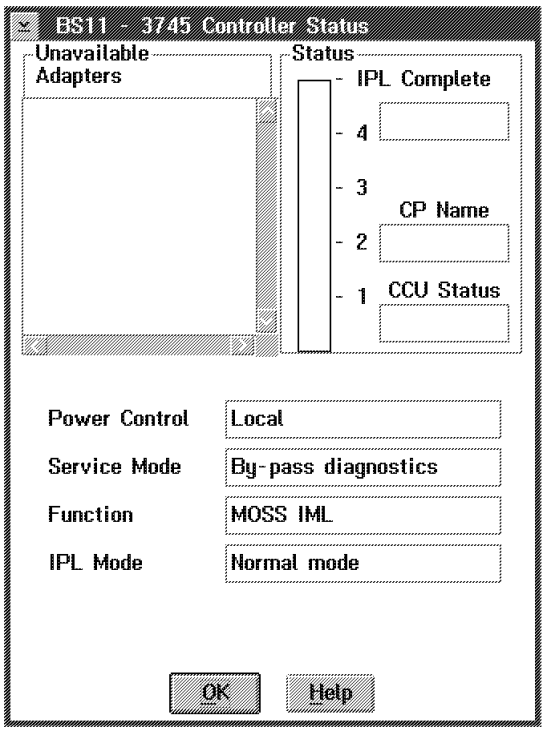


Figure 2-9. 3745 Model 17A Status Display

Accessing the Functions

Note

All maintenance functions are identified by an **(M)** preceding the text (example: see Figure 2-11 function "(M) Manage 3745/3746-900 Installation/Removal").

How to Get the Service Processor Maintenance Functions

1. Enter the **Service Processor Maintenance** password on the signon menu (default password: *IBM3745* or ask the customer if a specific password has been defined).
2. Double click on the **Service Processor object icon** , you will get the following screen:

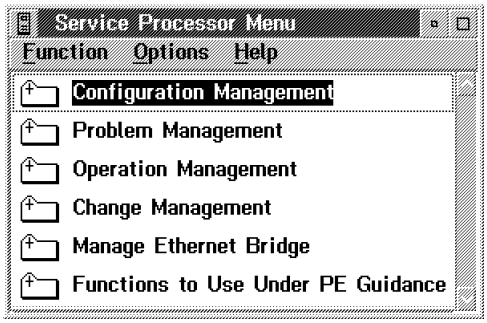


Figure 2-10. Service Processor Maintenance Functions

3. Click on Configuration Management, Operation Management, Problem Management, or Change Management to get the list of all the functions available.

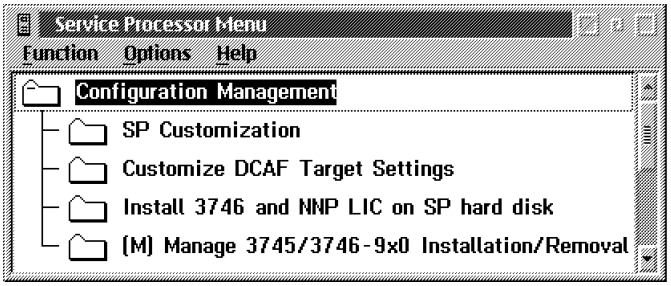


Figure 2-11. Service Processor Configuration Management Functions

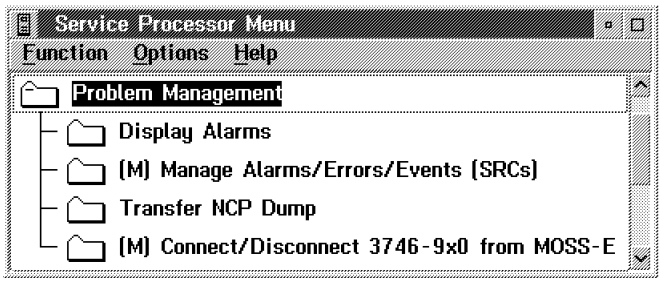


Figure 2-12. Service Processor Problem Management Functions

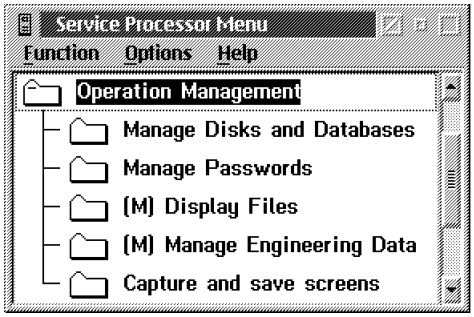


Figure 2-13. Service Processor Operation Management Functions

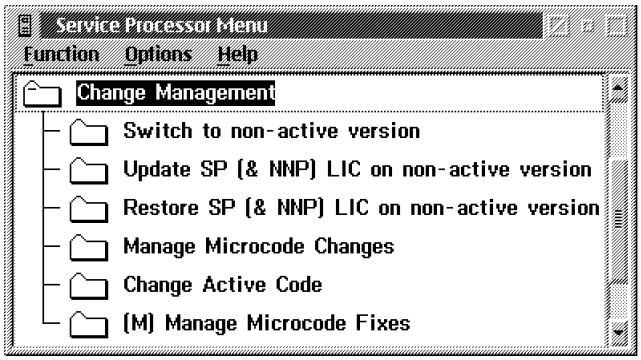


Figure 2-14. Service Processor Change Management Functions

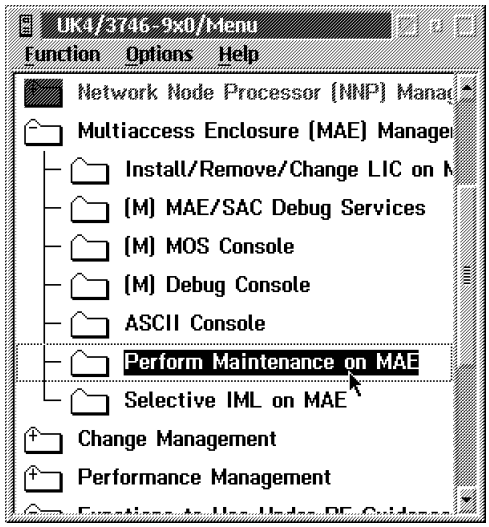


Figure 2-15. Service Processor PE Functions

How to Get the 3746-9x0 Controller Maintenance Functions

1. Enter the **Controller Maintenance** password on the signon menu (default password: *IBM3745* or ask the customer if a specific password has been defined).
2. Double click on the **Controller 3746-9x0** object icon you will get the following screen:

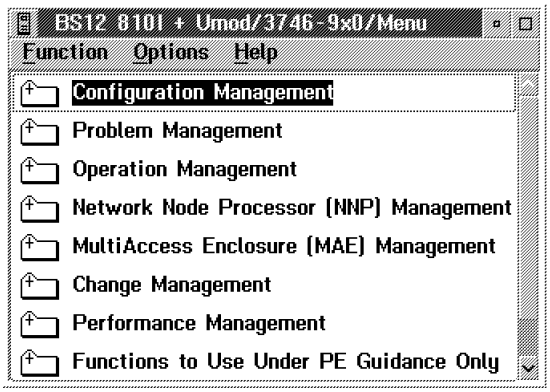


Figure 2-16. 3746-9x0 Maintenance Controller Functions

3. Click on **Configuration Management**, **Problem Management**, **Operation Management**, **Change Management**, **Performance Management**, or **Functions to Use Under PE Guidance** for details of the functions (see the following screens).

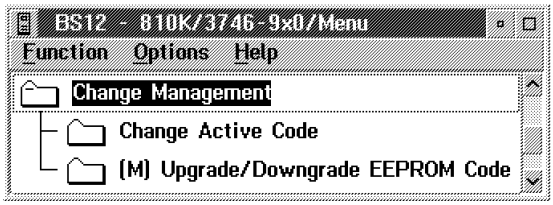


Figure 2-17. 3746-9x0 Change Management Functions

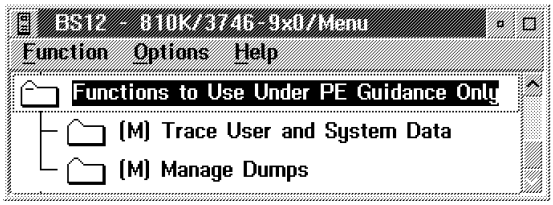


Figure 2-18. 3746-9x0 Functions to Use Under PE Guidance

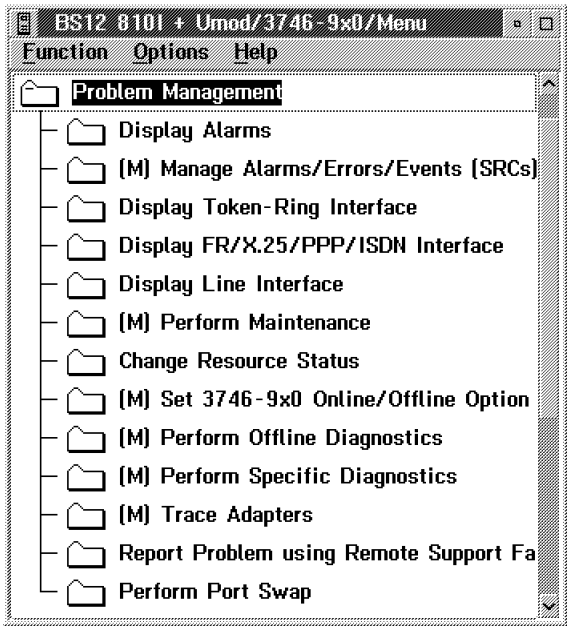


Figure 2-19. 3746-9x0 Problem Management Functions

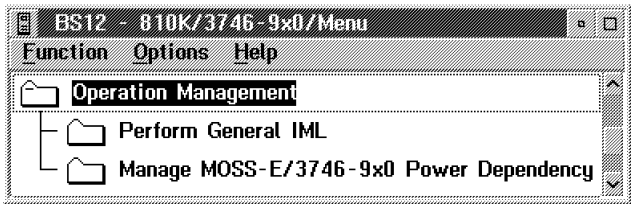


Figure 2-20. 3746-9x0 Operation Management Functions

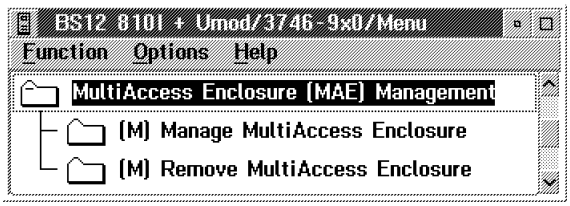


Figure 2-21. MAE Management Functions

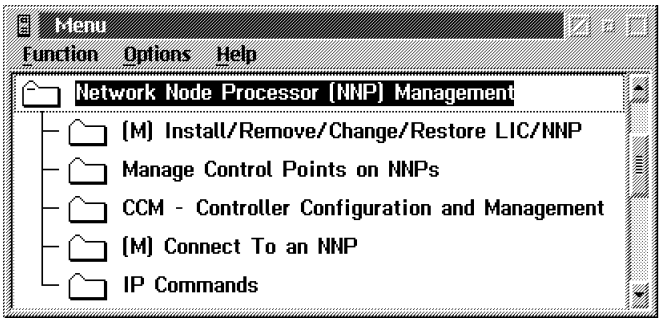


Figure 2-22. Network Node Processor Management Functions

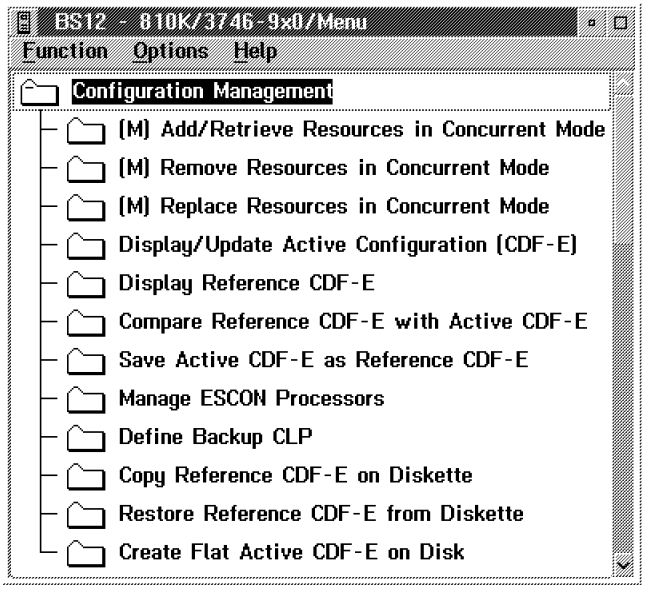


Figure 2-23. 3746-9x0 Configuration Management Functions

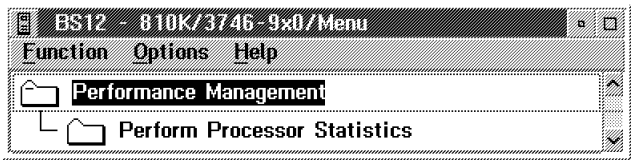


Figure 2-24. 3746-9x0 Performance Management Functions

How to Get the 3745 Maintenance Controller Functions

1. Enter the **Controller Maintenance** password on the signon menu (default password: *IBM3745* or ask the customer if a specific password has been defined).
2. Double click on the **3745 Controller** object icon you will get the following screen:

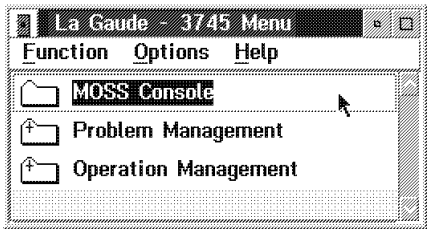


Figure 2-25. 3745 Menu

3. Click on **Problem Management**, or **Operation Management** to get the details of the functions.

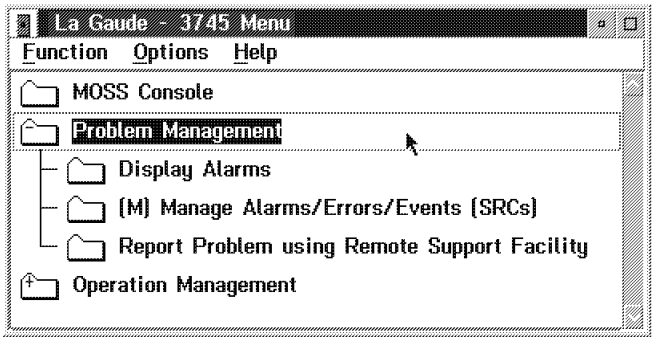


Figure 2-26. Problem Management

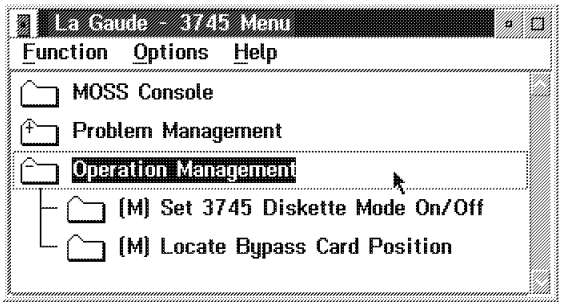


Figure 2-27. Operation Management

4. Double click on **MOSS Console**, you have the **Function Selection Rules** displayed. You can now enter the MOSS commands as usual.

Figure 2-28. MOSS Primary Menu

Chapter 3. Maintaining the Code Loaded on the Service Processor

Maintenance Service Procedures 3-2
Displaying the Level of the Code Installed On the Hard Disk 3-2
Shutting Down the Service Processor 3-2
Saving/Restoring Data on the SP Hard Disk from a CD-ROM 3-3
Saving/Restoring Configuration on Diskette 3-4
Saving Configuration Parameters on the 374X Installation Parameters Diskette 3-5
Saving/Deleting Engineering Data 3-6
Installing a New Version of The Licensed Internal Code 3-7
Changing the Active Code 3-8
Reporting Problem to RETAIN 3-9
Manually Reporting a Problem to RETAIN from a 3745 - XXA 3-9
Manually Reporting a Problem to RETAIN from a 3746-9x0 3-10
Handling Microcode Fixes on the Licensed Internal Code 3-11
Applying Microcode Fixes on the Licensed Internal Code 3-11
Removing Microcode Fixes on the Licensed Internal Code 3-14
3746-9x0 EEPROM Upgrade or Downgrade 3-15
Managing the Passwords 3-17
Changing the Service Processor and Controller Passwords 3-17
Changing the Password for DCAF 3-20
Restoring the Passwords to Their Default Values 3-21

© Copyright IBM Corp. 1998

Maintenance Service Procedures

Note

For any error related to the service processor, go to the **START** page of:

- The *3745 Communication Controller Models 210 to 61A Maintenance Information Procedures*, SY33-2054 (**3745 Model X1A**)
- The *3745 Communication Controller Models 130 to 17A Maintenance Information Procedures*, SY33-2070 (**3745 Model 17A**)
- The *3746-900 Service Guide*, SY33-2116 (**3746-900**)
- Or the *3746-950 Service Guide*, SY33-2108 (**3746-950**)

All the procedures to perform the problem determination, to run diagnostics, or to replace a failing FRU are described in this document.

Displaying the Level of the Code Installed On the Hard Disk

1. ____ Double click on the **"Service Processor object icon"**
2. ____ Click on **"Change Management"**
3. ____ Double click on **"Manage Microcode Change"** (see Figure 2-10 on page 2-7).
4. ____ Click on the **"Browse Microcode Information"**
5. ____ Click on **"OK"** to validate your choice.
6. ____ Select the code to be displayed.
7. ____ Click on **"View"**.
8. ____ Select from the view pulldown menu the **Retrieved, Activated, or Accepted changes** option.
9. ____ Press the **"Esc"** key three times to exit from the function.

Shutting Down the Service Processor

Note

Before powering OFF or to reinitialize the Service Processor from a diskette or from the hard disk, use this procedure to properly close all the active functions.

1. ____ On the "MOSS-E view" window click on **"Program"** (see Figure 2-3 on page 2-3).
2. ____ Click on **"Shut down"**, then enter the Service Processor maintenance password (default is IBM3745) and click on **"OK"**.
   You are now able to power OFF or reboot the Service Processor.

Saving/Restoring Data on the SP Hard Disk from a CD-ROM

Notes

1. This function is not disruptive as it applies to the non-active version of the code loaded on the SP hard drive.
2. This function can be used to restore a backup version of the code
3. It restores only the LIC, if you want to restore the configuration files, use the function 'Manage Disks and Databases' and take the option 'Restore databases from diskette'.
4. If an NNP is installed, its code is also restored automatically.

1. ____ From the service processor menu, click on **Configuration Management**

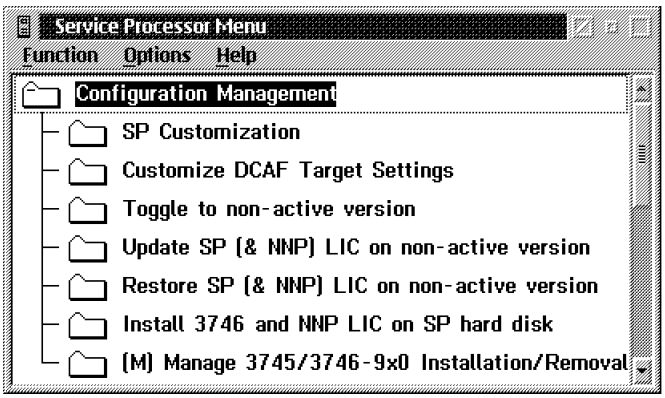


Figure 3-1. SP Configuration Management Menu

2. ____ Insert the optical disk or CD-ROM in the appropriate SP disk drive, double click on **Restore SP (&NNP) LIC on non-active version**, then follow the prompts.

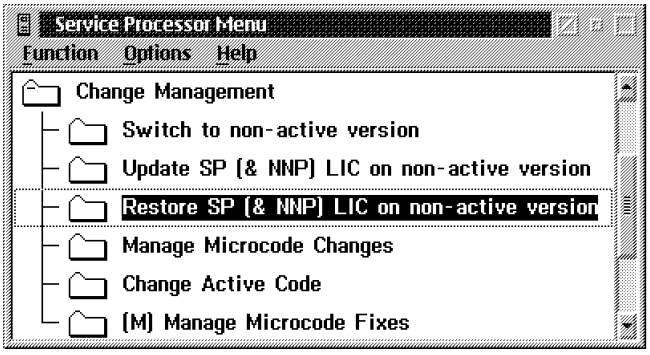


Figure 3-2. Service Processor Menu

3. ____ Then to activate the changes, use the function 'toggle to non-active version' to load and execute the new code in the processors (refer to “Changing the Active Code” on page 3-8).

Saving/Restoring Configuration on Diskette

Note

This **MOSS-E** function is used to:

1. **Define** the **frequency** and the time to **reorganize** the hard disk **database**.
2. **Save the configuration parameters** on diskette when the machine configuration has been upgraded.
3. **Restore the configuration parameters** from the diskette.

1. ____ If not already logged, enter the **Service Processor maintenance password** (default is IBM3745).
2. ____ Double click on the **"Service Processor icon"**.
3. ____ Click on **"Operation Management"**.
4. ____ Double click on **"Manage Disks and Databases"**

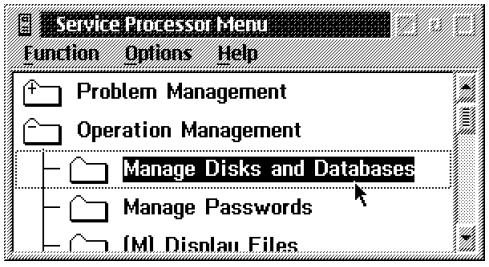


Figure 3-3. Operation Management Service Processor Menu

5. ____ Depending on the function you want to perform, use the radio buttons to select one of the options:

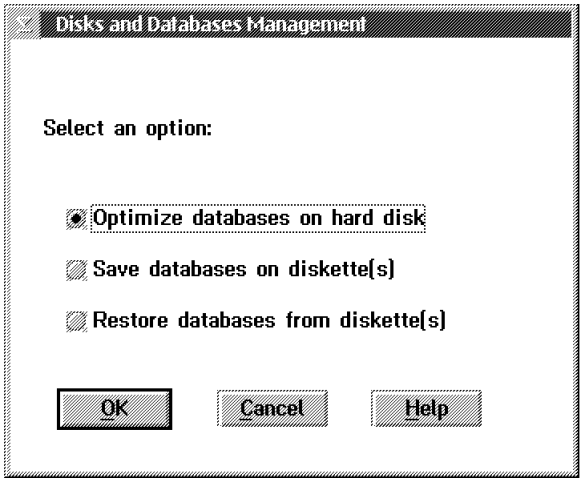


Figure 3-4. Disk and Databases Management

6. ____ Click on **"OK"** and follow the prompts.
7. ____ Click on **"Cancel"** to exit from the function.

Note: After restoring the configuration parameters, the Service Processor must be reinitialized to take in account these parameters, press **"Ctrl - Alt - Del"**.

Saving Configuration Parameters on the 374X Installation Parameters Diskette

Note

This **MOSS-E** function is used to:

1. **Build** a 3745 or 3746-9x0 installation parameters diskette when one of this diskette is damaged or lost. It is the operator responsibility to provide a new formatted diskette free of errors.
2. **Update** a 3745 or 3746-9x0 installation parameters diskette with the information recorded on the hard disk.
3. This function is available when the machine is already configured and recorded on the service processor hard disk.

1. ____ If not already logged, enter the **Service Processor maintenance password** (default is IBM3745).
2. ____ Double click on the **"Service Processor icon"**.
3. ____ Click on **"Configuration management"**.
4. ____ Double click on **"Manage 3745/3746-9x0 installation /removal"**.
5. ____ Click on line of the 3745 or 3746-9x0 that you want to save the configuration parameters, click on **"Save"**.
6. ____ When prompted, insert the new diskette.

Saving/Deleting Engineering Data

Note

This **MOSS-E** function is used to:

1. **Save** the engineering data when the DL2 link is not available or in error.
2. **Delete** the engineering data when they have been successfully recorded on diskette, or transferred to a support center via DCAF.

1. ____ If not already logged, enter the **Service Processor maintenance password** (default is IBM3745).
2. ____ Double click on the **"Service Processor icon"**.
3. ____ Click on **"Operation Management"**.
4. ____ Double click on **"Manage Engineering Data"**, then follow the prompts.

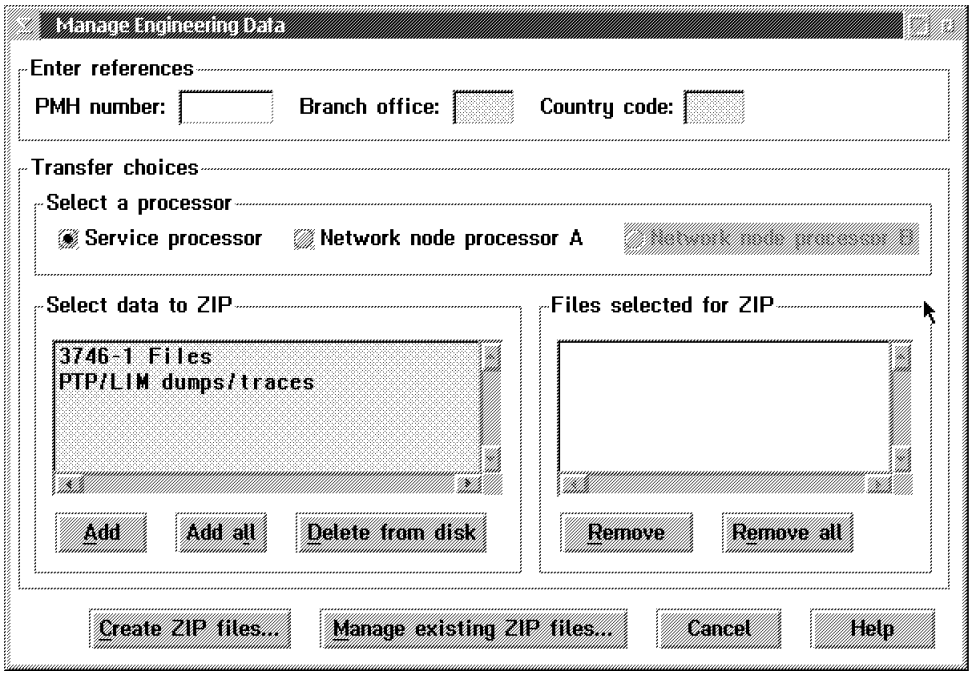


Figure 3-5. Manage Engineering Data Menu

When this data is transferred or recorded properly on the disk, you can erase the file which contained it.

1. ____ Click on **"Delete from disk"**, then follow the prompts.

Installing a New Version of The Licensed Internal Code

Important Note

The installation procedures depends on the level of the code and the hardware currently installed and the level of the code to be installed.

Use the installation instructions shipped with the LIC to upgrade the LIC and the firmware of the service processor.

A copy of the installation instructions can be obtained from the web site: **http://infodev1.lagaude.ibm.com**.

Changing the Active Code

Notes

1. This function is **disruptive** and it is used to switch the non-active partition and the active partition. It reboots the SP and the NNPs (if any).
2. Use this function after a LIC upgrade or a LIC restore to load the processors with the new LIC.

1. ____ From the service processor menu, click on **Change Management**

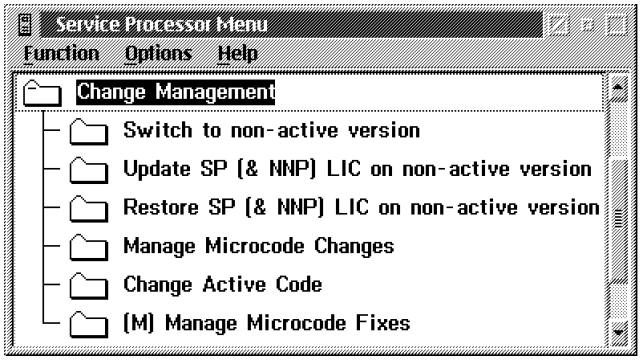


Figure 3-6. Service Processor Change Management Menu

2. ____ Double click on **Switch to non-active version**, then follow the prompts.

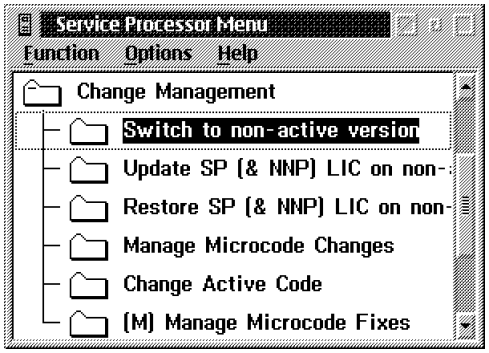


Figure 3-7. Service Processor Menu

Reporting Problem to RETAIN

Note

This function is used to initiate the **first link** to **RETAIN** after a 3745 XXA or a 3746-9x0 **installation**.

Manually Reporting a Problem to RETAIN from a 3745 - XXA

1. ____ Double click on the **3745 object icon**.
2. ____ Click on **"Problem Management"**, then scroll forward.
3. ____ Double click on **"Report Problem using Remote Support Facility"**.
4. ____ Enter a **short description** of the problem then click on **"OK"**.
5. ____ Wait for the message "Call to RETAIN successful" indicating the normal end of the transmission.
   If you get the message "Call to RETAIN unsuccessful", record the Customer Problem Number (CPN) and go to:
   - The **START** page of the *3745 Communication Controller Models 210 to 61A Maintenance Information Procedures*, SY33-2054, if you are working on a **3745 Model X1A**.
   - Or go to the **START** page of the *3745 Communication Controller Models 130 to 17A Maintenance Information Procedures*, SY33-2070, if you are workingon a **3745 Model 17A**.

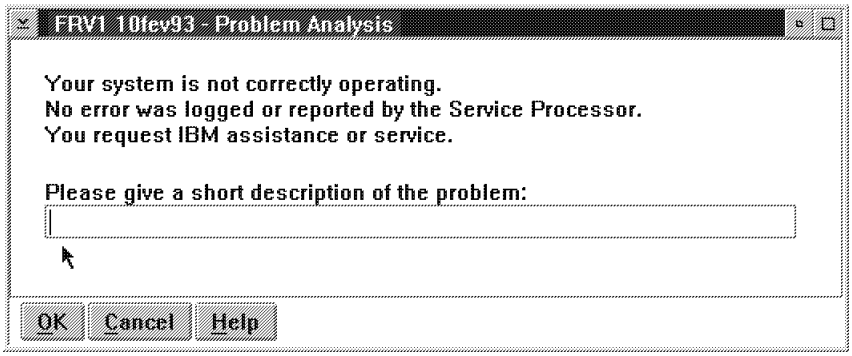


Figure 3-8. Link to RETAIN

Manually Reporting a Problem to RETAIN from a 3746-9x0

1. ____ Double click on the **"3746-9x0 object icon"**.
2. ____ Click on **"Problem management"**.
3. ____ Double click on **"Report Problem using Remote Support Facility"**.
4. ____ See Figure 3-8 on page 3-9, enter a **short description** of the problem then click on **"OK"**.
5. ____ Wait for the message "Call to RETAIN successful" indicating the normal end of the transmission.

   If you get the message "Call to RETAIN unsuccessful", record the Customer Problem Number(CPN) and go to:

   - The **START** page of the *3746-950 Service Guide*, SY33-2108, if you are working on a **3746 Model 950**.
   - Or go to the **START** page of the *3746-900 Service Guide*, SY33-2116, if you are working on a **3746 Model 900**.

Handling Microcode Fixes on the Licensed Internal Code

Applying Microcode Fixes on the Licensed Internal Code

Note

- This function is used to fix emergency problems on code and must be executed on Product Engineering recommendations.

1. ____ If you have received MCFs through VM, copy these MCFs on a diskette or optical disk (we recommend to use ALMCOPY to download these files in binary format).
2. ____ Install the diskette or the optical disk in the Service Processor diskette or disk drive.
3. ____ Enter the Service Processor maintenance password (default is IBM3745).
4. ____ Double click on the **"Service Processor object icon"**.
5. ____ Click on **"Change Management"**.
6. ____ Double click on **"Manage Microcode Fixes"** (see Figure 2-14 on page 2-8).
7. ____ Click on **"View"**, click on **"Change directory path"**
8. ____ Enter **A:*.*** to select the MCFs recorded on the diskette or **T:*.*** for optical disk, and click on **"OK"**.

   Note: The optical disk is **X** for the 400 Meg hard drive installed on a 9577.
9. ____ On the list displayed, click on the **fixes** to be applied.
10. ____ Click on **"File"**, click on **"Move"**

11. ____ when the change path is displayed, enter the directory path according to the information displayed on the following screen (in this example 'BS2' MCFs are in J:\CM2) , then click on **"OK"**.
    - **J:\CM1\ALL** for MCF concerning the 3746-9x0 number 1
    - **J:\CM2\ALL** for MCF concerning the 3746-9x0 number 2
    - **J:\MCF\ALL** for all other MCFs.

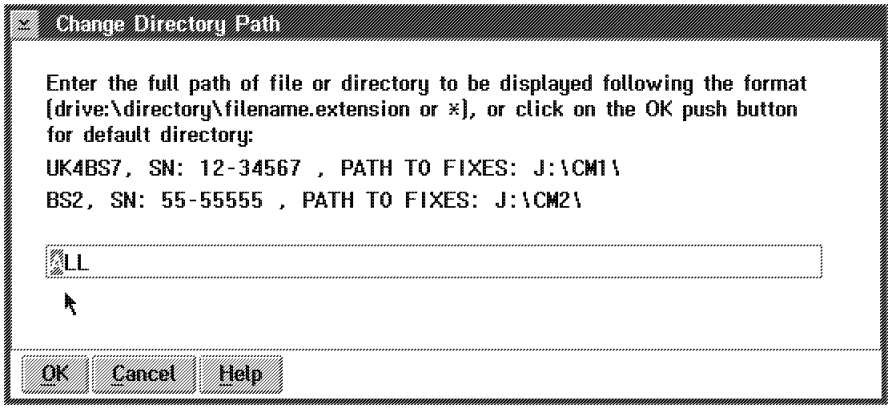


Figure 3-9. Manage Microcode Fixes

"Change directory path".

12. ____ Enter **"the directory path"** (see step 11) then click on **"OK"**.

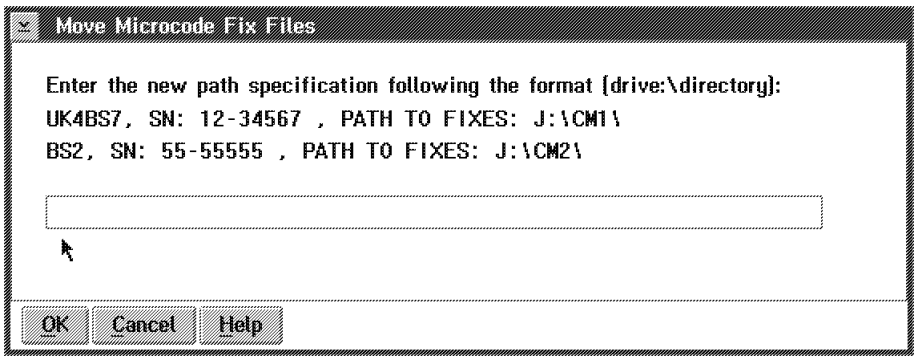


Figure 3-10. Manage Microcode Fixes

13. ____ Click on the lines of the MCFs to be applied (see example in the Figure 3-11 on page 3-13)

14. ____ Click on **"Options"** and from the **Options** pull down menu click on **Activate microcode fix**

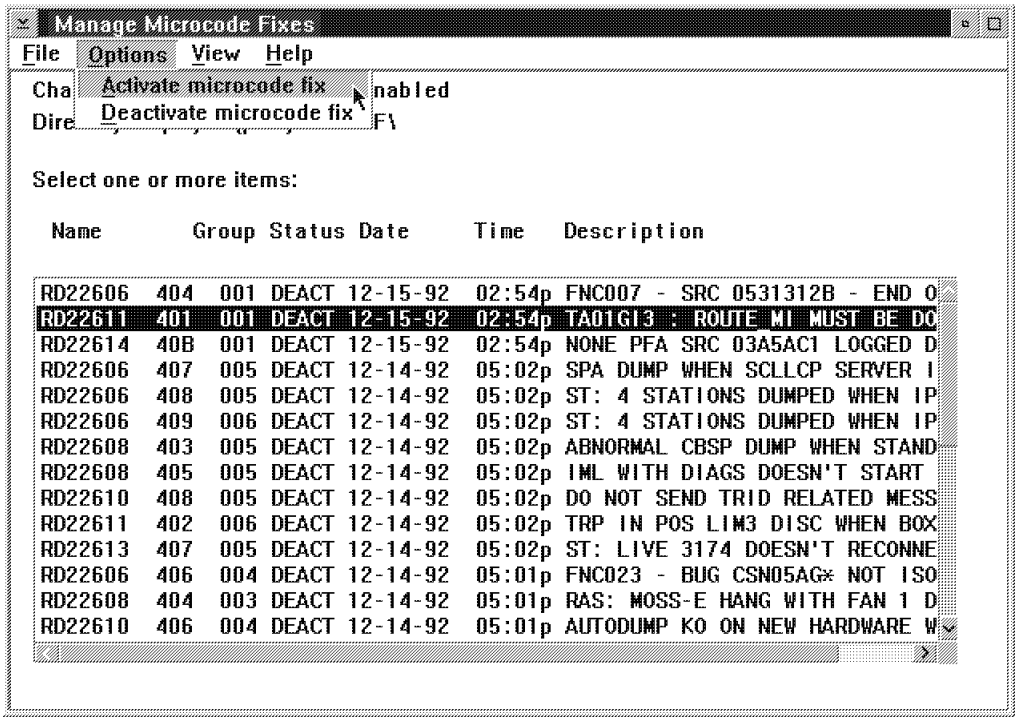


Figure 3-11. Manage Microcode Fixes

15. ____ Remove the diskette or the optical disk from the drive.

16. ____ The service processor or the 3746-9x0 are now reinitialized depending on the MCFs type:

    - If the **MCFs** concern the **3746-900 code**, click on **"OK"** twice to re-IML the 3746-900, verify the MCFs status it must be **"ACT"** and then go to **step 18** .
    - If the **MCFs** concern the **service processor code**, click on **"OK"** to shutdown the service processor, an automatic IPL of the service processor is performed and then go to **step 17** .

17. ____ Verify the MCFs status:

    a. ____ Enter the Service Processor maintenance password

    b. ____ Double click on the **"Service Processor object icon"**.

    c. ____ Click on **"Change Management"**.

    d. ____ Double click on **"Manage Microcode Fixes"**

    e. ____ Click on **"View"**, click on **"Change directory path"**

    f. ____ Enter the **"directory path"**: **J:\MCF**.

    g. ____ Click on **OK** and verify the MCFs status, it must be **"ACT"**.

18. ____ Click on the **"System Menu Icon"**, click on **"Close"** to exit from the function.

Removing Microcode Fixes on the Licensed Internal Code

Note

If you have a **"backup"** service processor, perform the same procedures on this SP to remove the MCFs.

1. ____ Enter the Service Processor maintenance password (default is IBM3745).
2. ____ Double click on the **"Service Processor object icon"**.
3. ____ Click on **"Change Management"**.
4. ____ Double click on **"Manage Microcode Fixes"** (see Figure 2-14 on page 2-8).
5. ____ Click on **"View"**, click on **"Change directory path"**
6. ____ Enter the **"directory path"**:
   - **J:\CM1** for MCF concerning the 3746-900 number 1
   - **J:\CM2** for MCF concerning the 3746-900 number 2
   - **J:\MCF** for all other MCFs.

   Then click on **OK**.
7. ____ Click on the lines of the MCFs to be removed (see Figure 3-11 on page 3-13)
8. ____ Click on **"Options"** and from the **Options** pull down menu click on **"Deactivate microcode fix"**
   - If the **MCFs** concern the **3746-900 code**, click on **"OK"** twice to re-IML the 3746-900, verify the MCFs status, it must be **"DEACT"** and then go to **step 10** .
   - If the **MCFs** concern the **service processor code**, click on **"OK"** to shutdown the service processor, an automatic IPL of the service processor is performed and then go to **step 9** .
9. ____ Verify the MCFs status:
   a. ____ Enter the Service Processor maintenance password
   b. ____ Double click on the **"Service Processor object icon"**.
   c. ____ Click on **"Change Management"**.
   d. ____ Double click on **"Manage Microcode Fixes"**
   e. ____ Click on **"View"**, click on **"Change directory path"**
   f. ____ Enter the **"directory path"**: **J:\MCF**.
   g. ____ Click on **OK** and verify the MCFs status, it must be **"DEACT"**.
10. ____ Click on the **"System Menu Icon"**, click on **"Close"** to exit from the function.

3746-9x0 EEPROM Upgrade or Downgrade

Notes

1. This function will be used after a:
   - Microcode change fix (MCF)
   - EC installation
   - Processor replacement
2. While an EEPROM Upgrade/Downgrade is running, **Do not** power OFF or IML the 3746-9x0
3. Following an EEPROM upgrade/downgrade and if you have a SP backup it is recommended to apply the same procedure on the SP backup.
4. For any error code displayed on the 3746-9x0 panel go to the **START** page of the:
   - *3745 Communication Controller Models 210 to 61A Maintenance Information Procedures*, SY33-2054 (3746-900 attached to 3745-X1A)
   - *3745 Communication Controller Models 130 to 17A Maintenance Information Procedures*, SY33-2070 (3746-900 attached to 3745-17A)
   - *3746-950 Service Guide*, SY33-2108 (3746-950)

1. ____ On the "MOSS-E VIEW" window, double click on the **"3746-9x0 icon"** (see Note 1).
2. ____ On the "3746-9x0 Menu" window click on **"Change Management"**.
3. ____ Double click on the **"Upgrade/Downgrade EEPROM Code Level"**.
   A window is displayed with a message box saying that the service processor is searching the 3746-9x0 configuration.
   On "EEPROM Upgrade" window, the upgradable or downgradable processors are **highlighted** according to the preselected status of the options "Upgrade" or "Downgrade" on the top of the window (see Figure 3-12 on page 3-16).

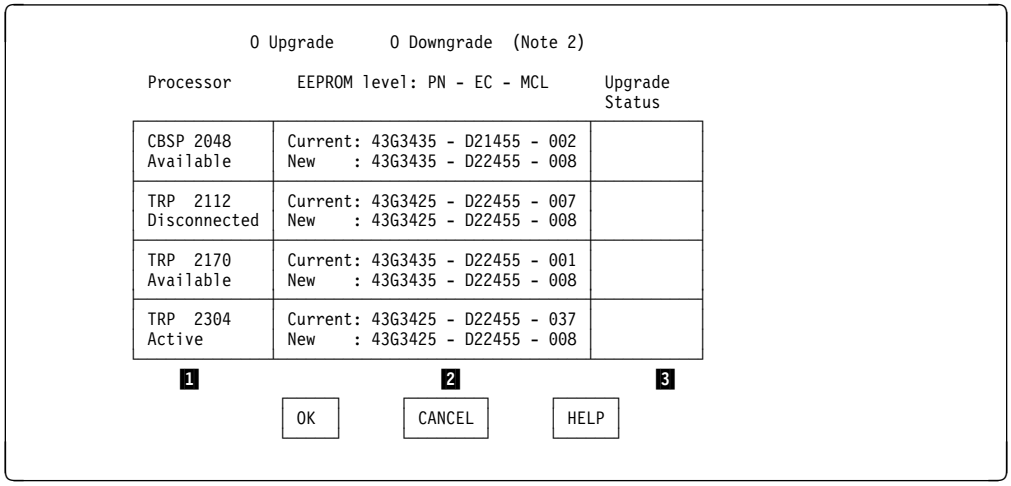


Figure 3-12. Example of An EEPROM Upgrade Window

- **1** Gives the list of the 3746-9x0 processors in CDF-E with their status (available/disconnected/active).
- **2** Gives the current and new EEPROM level: PN/EC/Level of each processor.
- **3** Gives the status after the activation of the function.

4. ____ Select the **"Upgrade"** or **"Downgrade"** option on the top of the screen then click on "OK" according to the action that you want do do.
   An "EEPROM Upgrade" window informs you that the EEPROM upgrade or downgrade is in progress with its time duration.
   At the end, a status is displayed for each processor.

5. ____ Check the result of your EEPROM upgrade/downgrade operation with the following table and take the appropriate action:

EEPROM Status	Action
Complete	Upgrade done without error continue with the next step.
Start failed	Call your support
Failed	Call your support
Completion failed	Call your support

Note: If you have done the EEPROM Upgrade after exchanging a processor leave this procedure and return to the point, in the MAP where you come from. Otherwise continue with the next step.

6. ____ Return to the "3746-9x0 Menu" click on **"Operation Management"**.

7. ____ Double click on the **"Perform General IML"** with **"Diagnostics"**.
   A Normal IML must be terminated by 00000000 displayed on the 3746-9x0 control panel.

Managing the Passwords

Changing the Service Processor and Controller Passwords

Different passwords are defined, the default password is **IBM3745**:

1. The Service Processor maintenance password
2. The Service Processor customer password
3. The Controller maintenance password
4. The Controller customer password
5. The password to access password management
6. The CCM/TELNET user user profiles management

Refer to the appendix of the *3745/17A-61A and 3746-900 Basic Operations Guide*, SA33-0177 or *3746 Nways Multiprotocol Controller Model 950 User's Guide*, SA33-0356 to obtain the list of the functions accessible to the user depending on the password.

Notes

1. If the password contains numeric digits, don't forget to enable the numeric keys by clicking on the numeric lock key (NumLk).
2. If you have a **backup** Service Processor do not forget to update your passwords on this Service Processor using the same procedure.

1. ____ Double click on the **"Service Processor object icon"**.
2. ____ Click on **"Operation Management"**
3. ____ Double click on **"Manage Passwords"** function (see Figure 2-10 on page 2-7)
4. ____ Ask the customer to obtain the **management password** reserved for this function (the default password is **IBM3745**).
5. ____ Enter the password and click on **"OK"**.
6. ____ Click on **"MOSS-E view passwords"**.

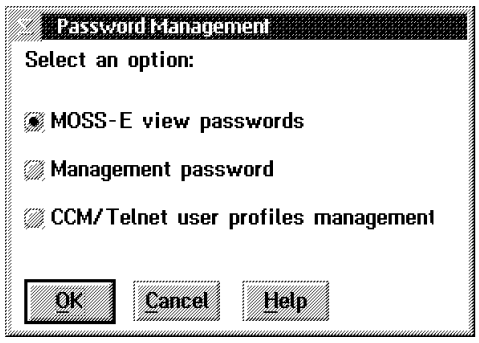


Figure 3-13. Management Password

7. ____ Click on **"OK"**
8. ____ On the following screen, enter or ask the customer to enter the **4 different passwords**.

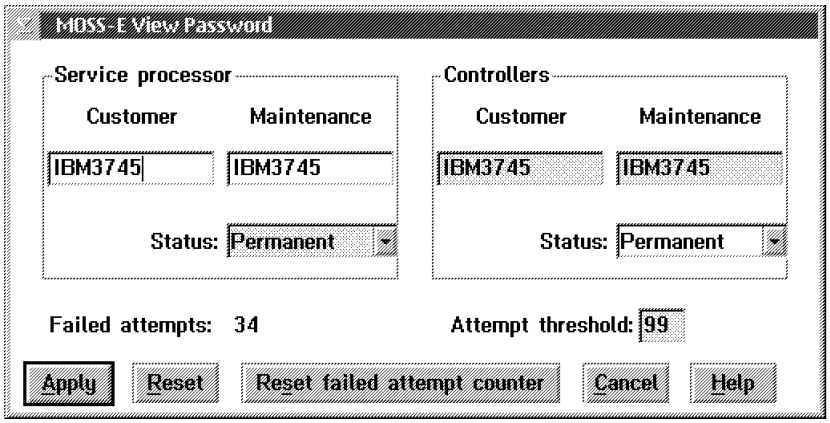


Figure 3-14. MOSS-E View Password

9. ____ Click on **"Apply"**
10. ____ Select **Management password**
11. ____ Click on **"OK"**
12. ____ In the following screen, enter or ask the customer to enter the **Management password** and modify the **attempt threshold** value if necessary.

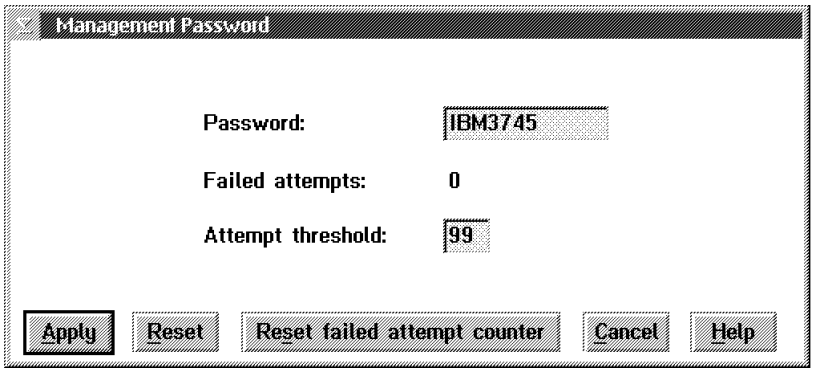


Figure 3-15. Management Password

13. ____ Click on **"Apply"**

14. ____ Click on **"CCM/Telnet user profiles management"**, then click on **"help"** and enter the required parameters

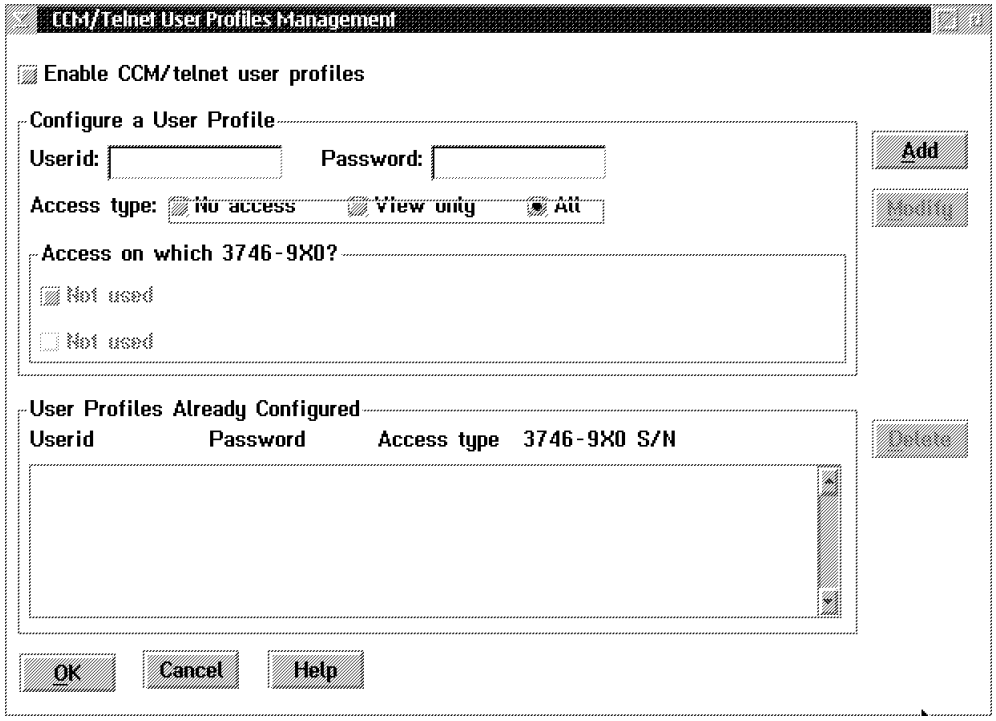


Figure 3-16. CCM/Telnet Management Password

15. ____ Click on **"OK"**

16. ____ Click on **"Cancel"** to leave the function.

Changing the Password for DCAF

Note

If you have a **backup** Service Processor do not forget to update the DCAF password on this Service Processor using the same procedure.

1. ____ Double click on the **"Service Processor object icon"**.
2. ____ Click on **"Configuration management"**.
3. ____ Double click on the **"Customize DCAF Target Settings"** function (see Figure 2-10 on page 2-7)
4. ____ Click on **"Options"**, then click on **Password**.

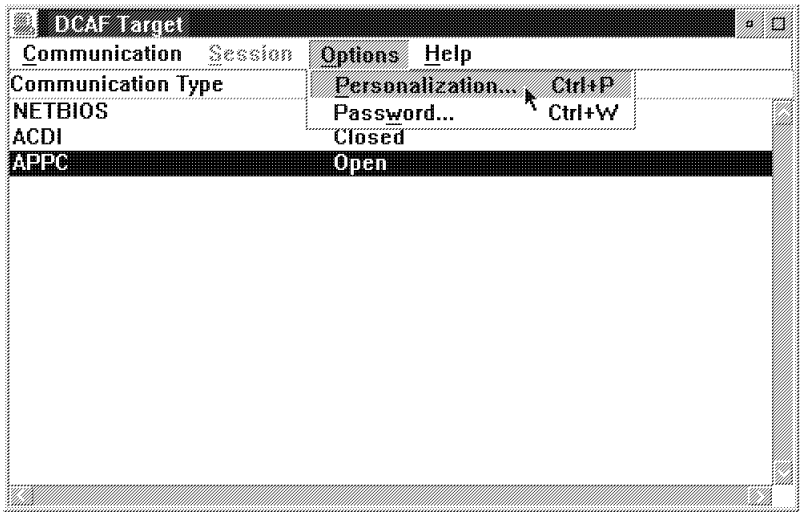


Figure 3-17. DCAF Target

5. ____ Click on **"Enable password"** then enter the password in the **New password** and **Verify new password** input fields according to the value recorded by the customer on the parameter sheet.

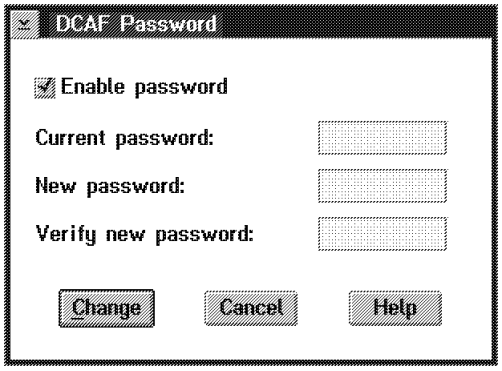


Figure 3-18. DCAF Password

6. ____ Click on **"Change"**, click on **"OK"**, then press **"F3"** to close DCAF.

Restoring the Passwords to Their Default Values

Notes

1. This function is used when the customer has lost his passwords or when the number of unsuccessful logon attempts has reached the maximum number defined, or when reloading the hard disk.
2. If you have a **backup** Service Processor do not forget to restore the passwords on this Service Processor using the same procedure.

1. ____ If you are on the MOSS-E logon window, click on **"Cancel"**
2. ____ On the MOSS-E view window, click on **"Program"** (see Figure 2-3 on page 2-3).
3. ____ From the pull down menu, click on **"Restore password"**.
4. ____ When requested install the **Service Processor installation diskette 1** in the diskette drive, then follow the prompts.

The passwords are now restored to their default value (**IBM3745**), and the number of logon attempts is reset.

Chapter 4. Service Processor Problem Determination

MAP: Entry Point for Problem Isolation

You are here because you have a problem on the service processor, the display, or the modem.

001

Are you here for a unit power ON problem?
Yes No

002

According to the defective unit type, select the action to be performed.

Unit Type	Action
Service Processor	Go to "MAP: Service Processor / Display / Keyboard Problem Isolation" on page 4-8.
Display	Go to "MAP: Service Processor / Display / Keyboard Problem Isolation" on page 4-8.
CD-ROM	If the CD-ROM is connected to a service processor based on 3172, test it, go to "How to run Diagnostic On the CD-ROM" on page 6-38. Otherwise exchange it. For Service processor based on: • 7585 go to "7585 Service Processor FRU / CD-ROM Exchange" on page 5-36. • 9585 go to "9585 Service Processor FRU / CD-ROM Exchange" on page 7-37.
Modem	Refer to the modem documentation: • For the IBM 7855, refer to the *7855 Modem Model 10 Guide to Operation*, GA33-0160 • For the IBM 7857, refer to the *IBM 7857 Guide to Operation*, GA13-1839 • For the Hayes** modem, refer to the corresponding manual. • For other modem, refer to the corresponding manual.

003

(Step **003** continues)

© Copyright IBM Corp. 1998

003 (continued)

- Check that the suspected unit is powered ON.
- If not switch the power ON button to the ON position.

Is the suspected unit powered ON?

Yes **No**

004

Go to Step 006.

005

Problem solved. Go to Chapter 8, “CE Leaving Procedure” on page 8-1.

006

Is the suspected unit connected to the ac outlet distribution box of the controller rack?

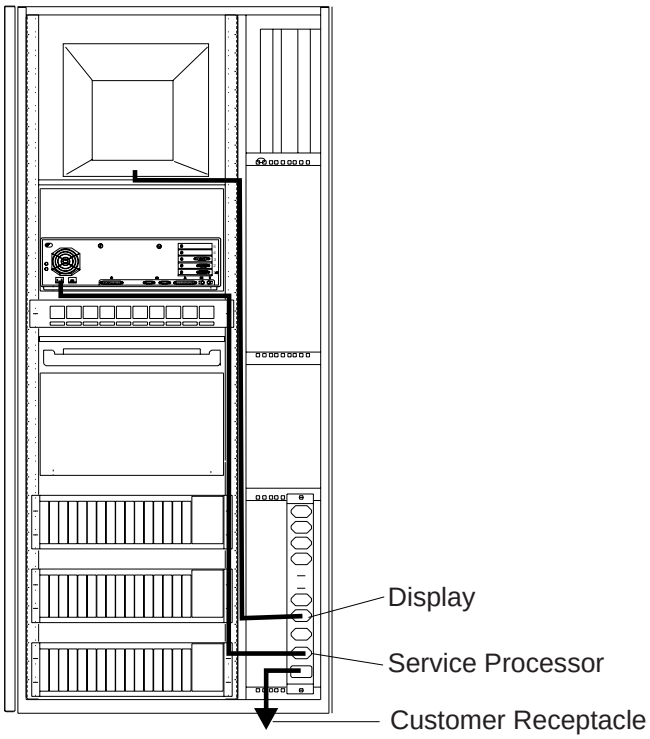


Figure 4-1. ac Outlet Distribution Box Connections in Controller Rack

Yes **No**

007

Go to Step 011 on page 4-3

008

(Step **008** continues)

008 (continued)

Check that the ac power cable of the suspected unit is well connect at:

- The rear of the unit
- On the ac outlet distribution box.

Is the problem solved?

Yes **No**

009

Continue with Step 016.

010

Problem solved. Go to Chapter 8, “CE Leaving Procedure” on page 8-1.

011

Check that the ac power cable of the suspected unit is well connect at:

- The rear of the unit.
- On the ac wall socket.

Is the problem solved?

Yes **No**

012

Connect a know working device, such as a lamp, into the ac wall socket.

Is the device work OK?

Yes **No**

013

The ac wall socket is defective. Inform the customer to have it repaired.

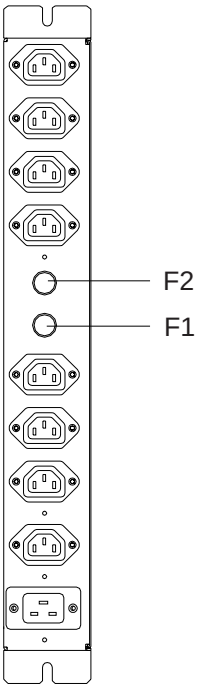
014

Go to Step 032 on page 4-6.

015

Problem solved. Go to Chapter 8, “CE Leaving Procedure” on page 8-1

016



Fuse Location on ac outlet distribution box

- On the ac outlet distribution box:
  - Fuse F1 controls the range of connectors J1 to J4
  - Fuse F2 controls the range of connectors J5 to J8.
- Check if other units are connected to the same range of connectors than the suspected unit.

Are there other units connected to the same range than the suspected unit?

Yes **No**

017

Go to Step 026 on page 4-5.

018

Check that the other units have their power ON/OFF switch to ON.

Are other units powered ON?

Yes **No**

019

Go to Step 021

020

Go to Step 032 on page 4-6.

021

Check the corresponding fuse.

Is the fuse OK?

Yes **No**

022

(Step **022** continues)

022 (continued)

- Switch to OFF all the units controlled by this fuse.
- Exchange the defective fuse.
- Switch ON all the units controlled by this fuse.

Is the fuse blown again?

Yes **No**

023

Problem solved go to Chapter 8, “CE Leaving Procedure” on page 8-1.

024

Suspect a power problem in a unit powered through the ac outlet distribution box.

- Switch to OFF all the units controlled by this fuse.
- Exchange the fuse.
- Switch one by one the units controlled by this fuse to identify the unit which has a problem.
- Once you have identified the faulty unit continue with Step 032 on page 4-6.

025

Suspect the ac wall socket.

026

Check the corresponding fuse.

Is the fuse OK?

Yes **No**

027

- Switch to OFF the defective unit controlled by this fuse.
- Exchange the defective fuse.
- Switch ON the unit controlled by this fuse.

Is the fuse blown again?

Yes **No**

028

Problem solved go to Chapter 8, “CE Leaving Procedure” on page 8-1.

029

Go to Step 032 on page 4-6

030

Are all other units installed in the controller rack powered ON?

Yes **No**

031

Suspect the ac wall socket.

032

- Suspect a power problem in a unit.
- According to the defective unit type, select the action to be performed.

Unit Type	Action
Service Processor	• If your service processor is a 7585 go to “MAP: 7585 Service Processor Troubleshooting” on page 5-2. • If your service processor is a 3172 go to “MAP: 3172 Service Processor Troubleshooting” on page 6-2. • If your service processor is a 9585 go to “MAP: 9585 Service Processor Troubleshooting” on page 7-2. Then if you have to exchange a FRU • If your service processor is a 7585 go to “7585 Service Processor FRU / CD-ROM Exchange” on page 5-36. • If your service processor is a 3172 go to “3172 Service Processor FRU / CD-ROM Exchange” on page 6-40. • If your service processor is a 9585 go to “9585 Service Processor FRU / CD-ROM Exchange” on page 7-37.
Display	Exchange it. Go to “Display Removal/Display Install” on page 4-15.
CD-ROM	Exchange the complete CD-ROM drive. If the CD-ROM is connected to a service processor based on: • 7585 go to “7585 Service Processor FRU / CD-ROM Exchange” on page 5-36. • 3172 go to “3172 Service Processor FRU / CD-ROM Exchange” on page 6-40. • 9585 go to “9585 Service Processor FRU / CD-ROM Exchange” on page 7-37.

Unit Type	Action
Modem	Refer to the modem documentation: • For the IBM 7855, refer to the *7855 Modem Model 10 Guide to Operation*, GA33-0160 • For the IBM 7857, refer to the *IBM 7857 Guide to Operation*, GA13-1839 • For the Hayes modem, refer to the corresponding manual.. • For other modem, refer to the corresponding manual.

MAP: Service Processor / Display / Keyboard Problem Isolation

You are here because you suspected:

- **A service processor problem**
- **A display or keyboard problem**
- **A connection problem between the service processor and a 3745 or a 3746-9xx.**

The service processor and the display are powered ON.

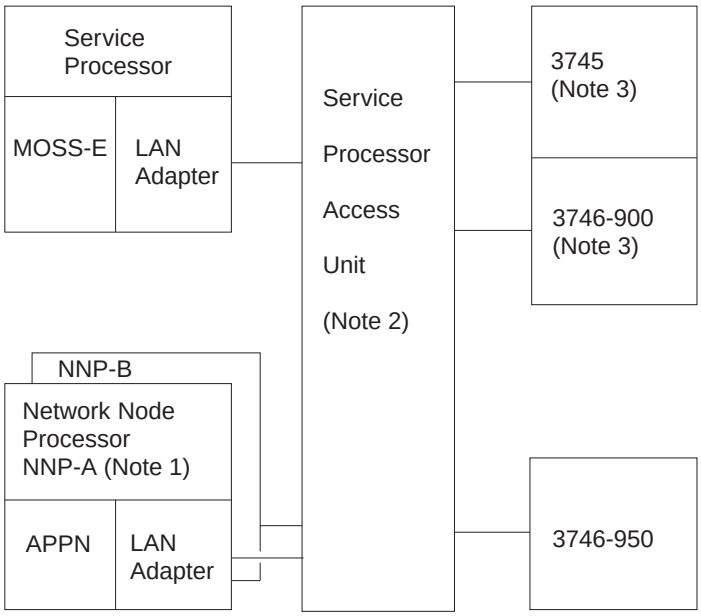


Figure 4-2. LAN attached to the Service Processor

Notes:

1. The network node processor is an optional feature which is present only when APPN is installed.
2. Up to two service processor access units (8228) can be used depending on the number of network node processor used.
3. Only 3745, 3746-900, 3746-950, service processor and network node processor can be connected to the LAN when APPN is installed.

001

Is there something displayed on the service processor attached display?

Yes **No**

002

Go to Step 012 on page 4-9.

003

(Step **003** continues)

003 (continued)

Is the service processor IML complete with MOSS-E View window displayed?
Yes **No**

004

Is there a message SYSxx-xxxxx (OS/2 message) displayed on screen?
Yes **No**

005

Go to Step 013 on page 4-10.

006

Call support for assistance.

007

Is the keyboard and/or the mouse locked?
Yes **No**

008

Go to Step 017 on page 4-10.

009

- Check that the mouse cable is properly plugged into the rear of the service processor.
- Check that the keyboard cable is properly plugged into the keyboard and into the rear of the service processor.

Do you find the problem?
Yes **No**

010

Use an IBM mouse from another machine. Continue with Step 014 on page 4-10.

011

Problem solved go to Chapter 8, “CE Leaving Procedure” on page 8-1.

012

- If you cannot use the display, exchange it. Go to “Display Removal/Display Install” on page 4-15.
- If the problem is not solved replace the XGA adapter card. Go to Step 021 on page 4-11.

013

According to your service processor type select the appropriate action.

Service Processor Type	Action
7585	Go to "MAP: 7585 Service Processor Troubleshooting" on page 5-2 to identify the problem. Then if you have to exchange a FRU go to "7585 Service Processor FRU / CD-ROM Exchange" on page 5-36.
3172	Go to Step 022 on page 4-11.
9585	Go to "MAP: 9585 Service Processor Troubleshooting" on page 7-2 to identify the problem. Then if you have to exchange a FRU go to "9585 Service Processor FRU / CD-ROM Exchange" on page 7-37.

014

If you tried another mouse on the service processor, did it work properly?

Yes **No**

015

Replace the system board. Go to Step 021 on page 4-11.

016

Replace the service processor mouse.

017

- Check that the service processor LAN cable is correctly connected at the rear of the service processor and in the service processor access unit.
- Check that all the LAN cables are correctly connected in the service processor access unit.

Did you find the problem?

Yes **No**

018

- Run diagnostics on the service processor, go to Step 020. Then if you have to exchange a FRU, go to Step 021 on page 4-11.

019

Problem solved go to Chapter 8, "CE Leaving Procedure" on page 8-1.

020

(Step **020** continues)

020 (continued)

According to your service processor type select the appropriate procedure.

Service Processor Type	Procedure
7585	Go to “How to Run the 7585 Service Processor Diagnostics” on page 5-32 to identify the problem. Then if you have to exchange a FRU go to “7585 Service Processor FRU / CD-ROM Exchange” on page 5-36.
3172	Go to “How to Test the 3172 Service Processor” on page 6-35 to identify the problem. Then if you have to exchange a FRU go to “3172 Service Processor FRU / CD-ROM Exchange” on page 6-40.
9585	Go to “How to Run the 9585 Service Processor Diagnostics” on page 7-35 to identify the problem. Then if you have to exchange a FRU go to “9585 Service Processor FRU / CD-ROM Exchange” on page 7-37.

021

According to your service processor type select the appropriate procedure.

Service Processor Type	Procedure
7585	Go to “7585 Service Processor FRU / CD-ROM Exchange” on page 5-36.
3172	Go to “3172 Service Processor FRU / CD-ROM Exchange” on page 6-40.
9585	Go to “9585 Service Processor FRU / CD-ROM Exchange” on page 7-37.

022

Check on the service processor control panel if one of the following error code is displayed, and perform the action specified.

Code Displayed	Symptom Explanation	Action
AAE6	Remote procedure call (RPC) call cannot decodes results	• Power OFF then power ON the service processor. • If the problem always present go to Step 023 on page 4-14. • If the problem persits call you support.
AAE7	RPC call cannot send	

Code Displayed	Symptom Explanation	Action
AA15	SETCP function failedin system status MGR (reboot NNP)	• Power OFF then power ON the service processor. • If the problem always present go to Step 023 on page 4-14. • If the problem persits call you support.
AA16	CREATECPSEMAPHORE function failed (reboot NNP)	
AA17	INITSYSSTATUSTABLE function failed (reboot NNP)	
AA18	INITBCKSTATUSTABLE function failed (reboot NNP)	
AA2D	System status thread exit	
AAC1	service processor supervisor fatal error (create CP semaphore failed)	• Power OFF then power ON the service processor. • If that does not solve the problem go to Step 023 on page 4-14. • If the error persists call your support.
AAC3	service processor supervisor fatal error (cannot read EULNCFG config file)	
AAC4	service processor supervisor fatal error (environment error)	
AAC5	service processor supervisor fatal error (error setting CP semaphore)	
AAC6	service processor supervisor fatal error (cannot read EULAASPS config file)	
AAC7	service processor supervisor fatal error (error setting CP semaphore)	
AAC8	service processor supervisor fatal error (cannot read EULNCFG config file)	• Power OFF then power ON the service processor. • If that does not solve the problem go to Step 023 on page 4-14. • If the error persists call your support.
AAC9	service processor supervisor fatal error (cannot read EULNCFG config file)	
AACA	service processor supervisor fatal error (cannot read EULNCFG config file)	
AACB	service processor supervisor fatal error (cannot read EULAASPS config file)	
AACC	service processor supervisor fatal error (DOSALLOCSEG - SP CP-1A THREAD)	

Code Displayed	Symptom Explanation	Action
AACD	service processor supervisor fatal error (DOSALLOCSEG - SP CP-1B THREAD)	• Power OFF then power ON the service processor • If that does not solve the problem go to Step 023 on page 4-14. • If the error persists call your support.
AACE	service processor supervisor fatal error (DOSALLOCSEG - SP CP2-A THREAD)	
AACF	service processor supervisor fatal error (DOSALLOCSEG - SP CP2-B THREAD)	
AAD0	service processor supervisor fatal error (DOSALLOCSEG - SP CP-B THREAD)	
AAD1	service processor supervisor fatal error (DOSALLOCSEG - SP CP-A THREAD)	
AAD2	service processor supervisor fatal error (DOSALLOCSEG - RPC SP STS THREAD)	• Power OFF then power ON the service processor • If that does not solve the problem go to Step 023 on page 4-14. • If the error persists call your support.
AAD3	service processor supervisor fatal error (DOSALLOCSEG - RPC CP STS THREAD)	
AAD4	service processor supervisor fatal error (DOSALLOCSEG - RPC SP/CP STS THREAD)	
AAD5	service processor supervisor fatal error (DOSALLOCSEG - RPC SP/CP THREAD)	
AAD6	service processor supervisor fatal error (DOSALLOCSEG - MOSS-E REBOOT THREAD)	
AAD7	service processor supervisor fatal error (DOSALLOCSEG - RPC CP CTRL. THREAD)	• Power OFF then power ON the service processor. • If that does not solve the problem go to Step 023 on page 4-14. • If the error persists call your support.
AAD8	service processor supervisor fatal error (DOSALLOCSEG - RPC SRC THREAD)	
AAD9	service processor supervisor fatal error (DOSALLOCSEG - REBOOT COUNT THREAD)	
AADA	service processor supervisor fatal error (trap occured inside its code)	
AADC	service processor supervisor fatal error (cannot read EULNCFG config file)	

Code Displayed	Symptom Explanation	Action
AADD	service processor supervisor fatal error (search EULNCFG failed)	• Power OFF then power ON the service processor. • If that does not solve the problem go to Step 023 on page 4-14. • If the error persists call your support.
AADE	service processor supervisor fatal error (read VPD2.INI file failed)	
AADF	service processor supervisor fatal error (read VPD2.INI file failed)	
AAE0	service processor supervisor fatal error (session register failed)	
AAE1	service processor supervisor fatal error (create backup NNP failed)	
AAE2	service processor supervisor fatal error (update VPD failed)	• Power OFF then power ON the service processor. • If that does not solve the problem go to Step 023 on page 4-14. • If the error persists call your support.
AAE3	service processor supervisor fatal error (cannot init LAN global data)	

If the service processor control panel is always at **0000** or if the code displayed does not match with the code of the previous list, go to "MAP: 3172 Service Processor Troubleshooting" on page 6-2. Then if you have a FRU to exchange go to "Service Processor FRU Exchange" on page 6-41.

023

Restore the hard disk of the service processor.

Notes

- This function is available from the **Service Processor installation diskette 1** and can take up to 1.5 hour to restore the whole disk.

- If the Service Processor is **operational**, use the procedure "Shutting Down the Service Processor" on page 3-2 to close all the active functions.
- Refer to "Saving/Restoring Data on the SP Hard Disk from a CD-ROM" on page 3-3 to restore the hard disk.
- Refer to "Saving/Restoring Configuration on Diskette" on page 3-4 to restore the configuration.

Is the problem solved?

Yes **No**

024

Call your support.

025

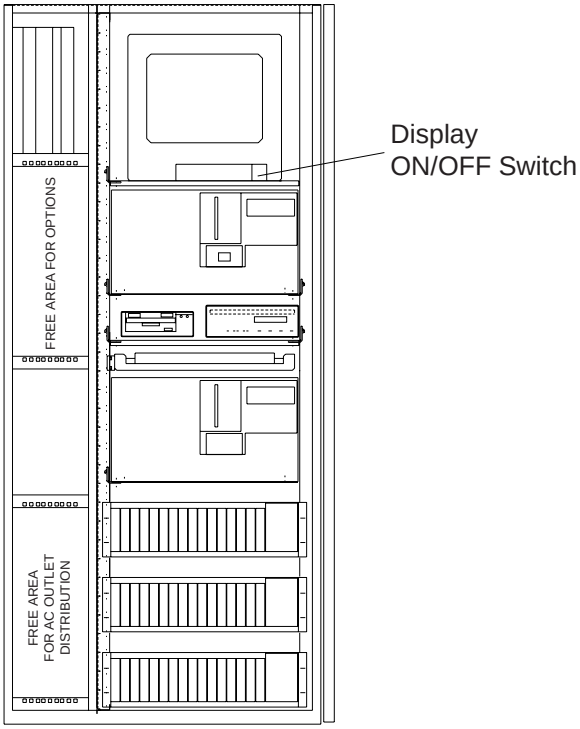
Go to Chapter 8, "CE Leaving Procedure" on page 8-1.

Display Removal/Display Install

Display Removal

Follow this procedure to remove the display from the rack:

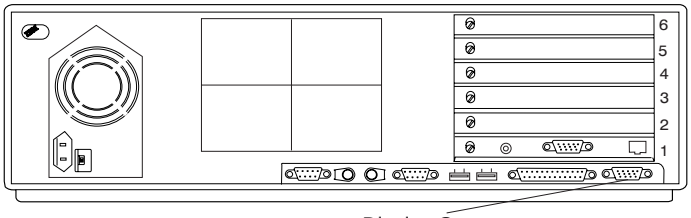
1 Switch OFF the display using the power ON/OFF switch located on the front panel.



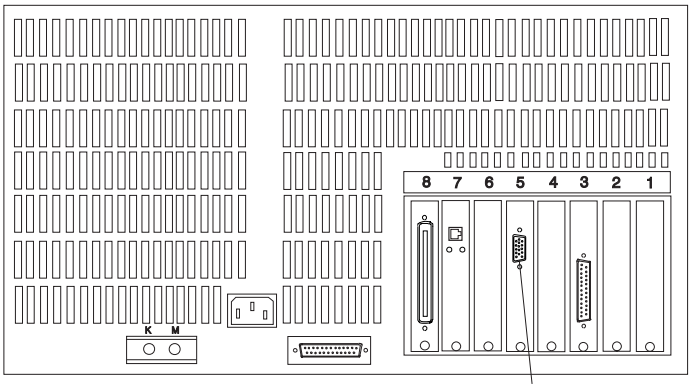
2 Disconnect the power plug of the display from the ac power source.

3 At the rear of the service processor disconnect the display cable.

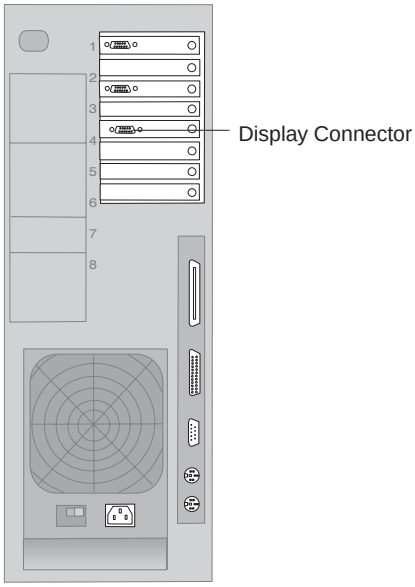
7585-P02



3172



9585



Warning

Be carefull the weight of the display is about 15 kg.

4 Slide out the display assembly from the rack and install it on a table.

Display Install

Follow the previous “Display Removal” on page 4-15 procedure in reverse order.

Chapter 5. 7585 Service Processor

MAP: 7585 Service Processor Troubleshooting 5-2
BEEP CODE INDEX 5-21
Display 5-23
Keyboard 5-24
Printer 5-24
Power-Supply Voltage Check (7585) 5-25
Power Voltage Setting 5-25
Undetermined Problems 5-26
Before Replacing a System Board 5-26
Devices List 5-27
RAM Memory Modules (SIMMs/DIMMs) 5-28
Memory Test 5-29
How to Run the 7585 Service Processor Diagnostics 5-32
How to Run the Diagnostic on Multiprotocol Adapter Card 5-34
7585 Service Processor FRU / CD-ROM Exchange 5-36
7585 Service Processor Board or Battery Exchange 5-38
7585 Service Processor LAN Adapter Exchange 5-40
7585 Service Processor Hard Disk Drive Exchange 5-44
Other FRU Exchanges for the 7585 Service Processor 5-48

© Copyright IBM Corp. 1998

MAP: 7585 Service Processor Troubleshooting

Note about POST error code

The zeros before and after the error code may be not present for some PS/2 models. Messages might appears on your screen as three-, four-, or five-characters messages. When this occurs, add two zeros after the last characters and one, two, or three zeros before the first character, so that you can look up the error as an eight-character message.

Example:

101 displayed means 00010100

1701 displayed means 00170100

16680 displayed means 01668000

Notes:

1. If you have both an error message and an incorrect audio response, diagnose the error message first.
2. If you cannot run the diagnostic tests, but did receive a POST error message, diagnose the POST error message.
3. If you did not receive any error message, look for a description of your error symptoms in the first part of this index.
4. Check all power supply voltages before you replace the system board. (See “Power-Supply Voltage Check (7585)” on page 5-25)
5. Check the hard disk drive jumper settings before you replace a hard disk drive. All supported hard disk drives use jumpers or tabs to set drives as either primary or secondary. Refer to the jumper instructions that came with your hard disk drives.

Important

- Some errors are indicated with a series of beep codes. See “BEEP CODE INDEX” on page 5-21 for an explanation of the beep codes.
- For all system boards, the processor is a separate FRU from the system board; that is, the processor is not included with the system board FRU. See “Before Replacing a System Board” on page 5-26 before replacing the system board.

001

- Power-off the system.
- Check all cables and power cords.
- Make sure there are no diskettes in the drives.
- Set all display controls to the middle position.
- Power-on the system.

Note: If you get a POST error code, press the pause key (while the error code is on the screen). Write down any error codes that are displayed, then press F1 to continue.
(Step **001** continues)

001 (continued)

DID YOU RECEIVE A POST ERROR CODE?

Yes **No**

002

Go to Step 006 on page 5-14

003

Check your FIRST POST ERROR with the following list.

Symptom / Error	FRU / Action
000 SCSI Adapter not enabled.	**Be sure adapter device and Bus Master fields are enabled in PCI configuration program. See documentation shipped with computer.**
02X	**SCSI Adapter**
08X Check SCSI terminator installation.	**SCSI Cable** SCSI Terminator SCSI Device SCSI Adapter
101 Interrupt failure.	**System Board**
102 Timer error.	**System Board**
106	**System Board**
110 System board parity error.	**Memory Module** System Board
111 I/O channel parity error.	**Reseat adapters** Any Adapter System Board
114 External ROM checksum error.	**Memory Module** System Board
129 Internal cache test error.	**Processor** L2 Cache Memory System Board
151 Real-time clock failure.	**System Board**
161 Bad CMOS battery.	**Run Configuration/Setup Utility** Clock Battery System Board
162 And unable to run diagnostics.	**Diskette Drive** System Board Diskette Drive Cable
162	**Run Setup** Clock Battery System Board

Symptom / Error	FRU / Action
163 Clock not updating or invalid time set.	**Time and Date Set?** Clock Battery System Board
164 POST detected a base memory or extended memory size mismatch error.	**Run Configuration/Setup Utility** See “RAM Memory Modules (SIMMs/DIMMs)” on page 5-28. System Board
17X, 18X	**C2 Security**
175	**Riser Card** System Board
176	**Covers were removed from the computer**
177 Corrupted Administrator Password.	**Riser Card** System Board
178	**Riser Card** System Board
183	**Enter the administrator password**
184 Password removed due to check-sum error.	**Enter new password**
185 Corrupted boot sequence.	**Set configuration and reinstall the boot sequence**
186	**Riser Card** System Board
189	**More than three password attempts were made to access the computer**
199	**See “Devices List” on page 5-27**
1XX Not listed above.	**System Board**
201 Memory data error.	**Memory Module** System Board
225	**Unsupported Memory**
229 External cache test error.	**L2 Cache Memory** System Board
2XX	**See “RAM Memory Modules (SIMMs/DIMMs)” on page 5-28** Memory Module System Board
301	**Keyboard** Keyboard Cable System Board
303 With an 8603 error.	**Mouse** Keyboard Keyboard Cable System Board
303 With no 8603 error.	**Keyboard** Keyboard Cable System Board

Symptom / Error	FRU / Action
305	**System Board** Keyboard Keyboard Cable Mouse
3XX Not listed above.	**Keyboard** Keyboard Cable System Board
5XX	**Display Adapter** (if installed) System Board
601	**Diskette Drive A** Diskette Drive Cable System Board
604 And unable to run diagnostics.	**Diskette Drive A** Diskette Drive Cable System Board
604 And able to run diagnostics.	**Diskette Drive B** Diskette Drive Cable System Board
605 POST cannot unlock the diskette drive.	**Diskette Drive** Diskette Drive Cable System Board
662	**Diskette drive configuration error or wrong diskette drive type**
663	**Wrong media type**
6XX Not listed above.	**Diskette Drive** System Board External Drive Adapter Diskette Drive Cable Power Supply
762 Math coprocessor configuration error.	**Run Setup** Math Coprocessor System Board
7XX Not listed above.	**Math Coprocessor** System Board
962 Parallel port configuration error.	**Run Configuration** Parallel Adapter (if installed) System Board
9XX	**Printer** System Board
1047	**16-Bit AT Fast SCSI Adapter**
10XX (where X is not equal to digits above)	**Alternate Parallel Adapter** Riser Card
107X Check SCSI terminator installation.	**Check SCSI terminator installation**. SCSI Cable SCSI Terminator SCSI Device SCSI Adapter

Symptom / Error	FRU / Action
1101 Serial connector error, possible system board failure.	**Run Advanced Diagnostics**
1101, **1102**, **1106**, **1108**, **1109**	**System Board** Any Serial Device
1107	**Communications Cable** System Board
1102 Card selected feedback error.	**Run Advanced Diagnostics**
1103 Port fails register check.	**Run Advanced Diagnostics** System Board
1106 Serial option cannot be turned off.	**Run Advanced Diagnostics** System Board
1107	**Serial Device Cable** System Board
1110 Register test failed.	**Run Advanced Diagnostics** System Board
1116 Interrupt error.	**Run Advanced Diagnostics**
1117 Failed baud rate test.	**Run Advanced Diagnostics**
1162 Serial port configuration error.	**Run Configuration** Serial Adapter (if installed) System Board
11XX Not listed above.	**System Board**
1201	**System Board** Any Serial Device
1202, **1206**, **1208**, **1209**, **12XX**	**Dual Async Adapter/A** System Board Any Serial Device
12XX	**Alternate Serial Adapter** Riser Card
1207	**Communications Cable** Dual Async Adapter/A
13XX	**Game Control Adapter** Riser Card
1402 Printer not ready.	Information only
1403 No-paper error, or interrupt failure.	Information only
1404 System board timeout failure.	**Run Advanced Diagnostics**
1405 Parallel adapter error.	**Run Advanced Diagnostics**
1406 Presence test error.	**Run Advanced Diagnostics**

Symptom / Error	FRU / Action
14XX Not listed above. Check printer before replacing system board.	**See "Printer" on page 5-24** System Board
15XX	**SDLC Adapter** Riser Card
1692 Boot sequence error.	**Run FDISK to ensure at least one active partition is set active**
16XX	**36/38 Workstation Adapter**
1762 Hard disk drive configuration error.	**Run Configuration/Setup Utility**
1780 (Disk Drive 0) **1781** (Disk Drive 1) **1782** (Disk Drive 2) **1783** (Disk Drive 3)	**See "Power-Supply Voltage Check (7585)" on page 5-25** System Board Hard Disk Drive Hard Disk Cable Power Supply
1962 Boot sequence error.	**Possible hard disk drive problem**
209X	**Diskette Drive** Diskette Cable 16-bit AT Fast SCSI Adapter
20XX Not listed above	**BSC Adapter** Riser Card
21XX	**SCSI Device** 16-bit AT Fast SCSI Adapter Alternate BSC Adapter Riser Card
2401, 2402 If screen colors change.	**Display**
2401, 2402 If screen colors are OK.	**System Board** Display
2409	**Display**
2410	**System Board** Display
2462 Video memory configuration error.	**Run Configuration** Video Memory Modules Video Adapter (if installed) System Board
3015, 3040 Check for missing wrap or terminator plug on the adapter.	**Network Attached?** LF Translator Cable Problem PC Network Adapter Riser Card
30XX	**PC Network Adapter** LF Translator Cable Problem? Riser Card

Symptom / Error	FRU / Action
3115, 3140	**Network Attached?** LF Translator Alternate PC Network-Adapter Cable Problem Riser Card
31XX	**Alternate PC Network Adapter** LF Translator Cable Problem? Riser Card
36XX	**GPIB Adapter** Riser Card
38XX	**DAC Adapter** Riser Card
4611, **4630**	**Multiport/2 Interface Board** Multiport/2 Adapter
4612, **4613 4640**, **4641**	**Memory Module Package** Multiport/2 Adapter
4650	**Multiport Interface Cable**
46XX Not listed above.	**Multiport/2 Adapter** Multiport/2 Interface Board Memory Module
5600	**Financial System Controller Adapter**
5962 CD-ROM configuration error.	**Run Configuration** CD-ROM Drive CD-ROM Adapter System Board
62XX	**1st Store Loop Adapter** Adapter Cable
63XX	**2nd Store Loop Adapter** Adapter Cable
64XX	**Network Adapter**
71XX	**Voice Adapter**
74XX	**Display Adapter** (if installed) Riser Card
76XX	**Page Printer Adapter**
78XX	**High Speed Adapter**
79XX	**3117 Adapter**
80XX	**PCMCIA Adapter**
84XX	**Speech Adapter** Speech Control Assembly Riser Card
8601, **8602**	**Pointing Device** (Mouse) System Board
8603, **8604**	**System Board** Pointing Device (Mouse)

Symptom / Error	FRU / Action
86XX Not listed above	**Mouse** System Board
89XX	**PC Music Adapter** MIDI Adapter Unit Riser Card
91XX	**Optical Drive** Adapter
96XX	**SCSI Adapter** Any SCSI Device System Board
10101, **10102**, **10104** **10105**, **10106**, **10107** **10108**, **10109**, **10111** **10112**, **10113**, **10114** **10115**, **10116**	**Have customer verify correct operating system device drivers are installed and operational** Modem
10103, **10110**, **101171**	**System Board** Data/Fax Modem
10117 Not listed above.	**Check system speaker** Check PSTN cable External DAA (if installed) Modem
10118	**Run Diagnostics and verify the correct operation of the modem slot** Modem
10119	**Diagnostics detected a non-IBM modem** Modem
10120	**Check PSTN Cable** External DAA (if installed) Modem
10132, **10133**, **10134** **10135**, **10136**, **10137** **10138**, **10139**, **10140** **10141**, **10142**, **10143** **10144**, **10145**, **10146** **10147**, **10148**, **10149** **10150**, **10151**, **10152**	**Modem**
10153	**Data/Fax Modem** System Board
101XX Not listed above.	**Modem Adapter/A** Data/Fax Modem System Board
10450, **10451**, **10490** **10491**, **10492**, **10499** Read/write error.	**Run Advanced Diagnostics** Riser Card Hard Disk Drive System Board
10452 Seek test error.	**Run Advanced Diagnostics**
10453 Wrong drive type?	Information only

Symptom / Error	FRU / Action
10454 Sector buffer test error.	**Run Advanced Diagnostics**
10455, **10456** Controller error.	**Run Advanced Diagnostics**
10459 Drive diagnostic command error.	Information only
10461 Drive format error	**Run Advanced Diagnostics**
10462 Controller seek error.	**Run Advanced Diagnostics**
10464 Hard Drive read error.	**Run Advanced Diagnostics**
10467 Drive non-fatal seek error.	**Run Advanced Diagnostics**
10468 Drive fatal seek error.	**Run Advanced Diagnostics**
10469 Drive soft error count exceeded.	**Run Advanced Diagnostics**
10470, **10471**, **10472** Controller wrap error.	**Run Advanced Diagnostics**
10473 Corrupt data. Low-level format might be required.	Information only
10480	**Hard Disk Drive** (ESDI) Drive Cable System Board
10481 ESDI drive D seek error.	**Run Advanced Diagnostics**
10482 Drive select acknowledgement bad.	**Run Advanced Diagnostics**
106X1	**Check Configuration** Ethernet Adapter
10635	**Power-off computer, wait ten seconds, then power-on the computer** Ethernet Adapter
10651, 10660	**Check Cables** Ethernet Adapter
106XX Not listed above.	**Ethernet Adapter**
107XX	**5.25-inch External Diskette Drive** 5.25-inch Diskette Drive Adapter/A
109XX Check the adapter cables.	**ActionMedia Adapter/A** System Board
112XX This adapter does not have cache.	**SCSI Adapter** Any SCSI Device System Board
119XX	**3119 Adapter**

Symptom / Error	FRU / Action
121XX	**Modem Adapter** Any Serial Device System Board
12902	**Run Diagnostics** System Board
12904	**Run Diagnostics** System Board
136XX	**ISDN Primary Rate Adapter** System Board
137XX	**System Board**
141XX	**Realtime Interface Co-Processor** **Portmaster Adapter/A**
143XX	**Japanese Display Adapter** System Board
14710, **14711**	**System Board Display Adapter** Adapter Video Memory
148XX	**Display Adapter**
14901, **14902** **1491X**, **14922**	**Display Adapter** System Board Display (any type)
14932	**External Display** Display Adapter
16101	**Riser Card Battery**
161XX	**FaxConcentrator Adapter**
164XX	**120MB Internal Tape Drive** Diskette Cable System Board
16500	**6157 Tape Attachment Adapter**
16520, **16540**	**6157 Streaming Tape Drive** 6157 Tape Attachment Adapter
166XX, 167XX	**Token Ring Adapter** System Board Riser Card
18001 to **18029**	**Wizard Adapter** Wizard Adapter Memory
18031 to **18039**	**Wizard Adapter Cable**
185XXXX	**DBCS Japanese Display Adapter/A** System Board
20001 to **20003**	**Image Adapter/A** **Image-I Adapter/A** Memory Module DRAM, VRAM
20004	**Memory Module DRAM, VRAM** Image Adapter/A Image-I Adapter/A
20005 to **20010**	**Image Adapter/A** **Image-I Adapter/A** Memory Module DRAM, VRAM

Symptom / Error	FRU / Action
200XX Not listed above.	**Image Adapter/A** **Image-I Adapter/A** Memory Module DRAM, VRAM System Board
20101 to **20103**	**Printer/Scanner Option** Image Adapter/A Memory Module DRAM, VRAM
20104	**Memory Module DRAM, VRAM** Printer/Scanner Option Image Adapter/A
20105 to **20110**	**Printer/Scanner Option** Image Adapter/A Memory Module DRAM, VRAM
206XX	**SCSI-2 Adapter** Any SCSI Device System Board
208XX Verify there are no duplicate SCSI ID settings on the same bus.	**Any SCSI Device**
210XXXX Internal bus, size unknown. **210XX**X**1** External bus, size unknown.	**SCSI Hard Disk Drive** SCSI Adapter or System Board SCSI Cable SCSI ID Switch (on some models)
212XX	**SCSI Printer** Printer Cable
213XX	**SCSI Processor**
214XX	**WORM Drive**
215XXXC **215XX**XD **215XX**XE **215XX**XU If an external device and power-on LED is off, check external voltages.	**CD-ROM Drive I** **CD-ROM Drive II** **Enhanced CD-ROM Drive II** **Any CD-ROM Drive** SCSI Cable SCSI Adapter or System Board
216XX	**Scanner**
217XX If an external device and power-on LED is off, check external voltages.	**Rewritable Optical Drive** SCSI Adapter or System Board SCSI Cable
218XX Check for multi-CD tray, or juke box.	**Changer**
219XX	**SCSI Communications Device**
24201Y0, **24210**Y0 Be sure wrap plug is attached.	**ISDN/2 Adapter** ISDN/2 Wrap Plug ISDN/2 Communications Cable
273XX	**1M bps Micro Channel Infrared LAN Adapter**
27501, **27503** **27506**, **27507**	**ServerGuard Adapter** System Board

Symptom / Error	FRU / Action
27502, **27504**, **27510** **27511**, **27533**, **27534** **27536**, **27537**	**ServerGuard Adapter**
27509	**Remove redundant adapters, run Auto Configuration program, then retest**
27512	**WMSELF.DGS diagnostics file missing** WMSELF.DGS diagnostics file incorrect.
27535	**3V Lithium Backup Battery** ServerGuard Adapter
27554	**Internal Temperature out of range** ServerGuard Adapter
27555, **27556**	**ServerGuard Adapter** Power Supply
27557	**7.2V NiCad Main Battery Pack** ServerGuard Adapter
27558, **27559** **27560**, **27561**	**PCMCIA Type II Modem** ServerGuard Adapter
27562	**External Power Control not connected** External Power Control ServerGuard Adapter
27563, **27564**	**External Power Control** ServerGuard Adapter
275XX	**Update Diagnostic Software**
27801 to **27879**	**Personal Dictation System Adapter** System Board
27880 to **27889**	**External FRU** (Speaker, Microphone)
I9990301 Hard disk reset failure.	**Possible hard disk drive problem**
I9990305 No startable device found.	**Reset computer from diskette, or check for valid startup sequence**
I999XXXX There is an optional SCSI adapter installed.	**SCSI Hard Disk Drive** SCSI Adapter SCSI Cable

DID YOU FIND YOUR POST ERROR CODE IN THE LIST?

Yes **No**

004

Error Range Is Not Listed

If the error code *range* presented is not listed in this index, it may be generated by a device that requires an additional service package. Refer to that service package.

005

(Step **005** continues)

005 (continued)

- **Action:**
  - **Change the FRU suspected**, go to "7585 Service Processor FRU / CD-ROM Exchange" on page 5-36.
  - **or perform the specified action.**

006

Check your service processor symptom with the following list.

ERROR MESSAGE

Symptom / Error	FRU / Action
Address Exceeds the Size of Your Memory An invalid memory address was entered. Diagnostics Tests display this message during the Locate Bad Chips option.	**Enter the correct address.** Memory Module System Board
Arithmetic Functions Failed An error was detected during the CPU Test.	**Microprocessor** System Board
Base Memory Test Failed An error was detected in base memory.	**Memory Module** System Board
Boot Sector Unreadable A boot sector read error was detected on the hard disk drive.	**Hard Disk Drive** Hard Disk Drive Cable Hard Disk Drive Adapter (if installed) System Board
Bus Noise Test Failed RAM Test detected an error in the memory bus.	**Memory Module** System Board
Butterfly Cylinder Access Test Failed Hard Disk Drive Test detected mismatch between the data read and the data stored on the drive.	**Hard Disk Drive** Hard Disk Drive Cable Hard Disk Drive Adapter (if installed) System Board
Clock Stopped Real-time clock has stopped working.	**Real-Time Clock Assembly** System Board
CMOS Clock Test Failed Time and Date Settings for CMOS and DOS **do not** Match.	**Real-Time Clock Assembly** System Board
Controller Diagnostic Test Failed An error was detected while testing the Hard Disk Controller (Adapter).	**Hard Disk Drive Adapter** (if installed) Hard Disk Drive System Board
Cylinder 0 errors Test detected an error reading the first cylinder of the hard disk drive.	**Hard Disk Drive** Hard Disk Drive Adapter (if installed) System Board
Device is Not Ready **Ready the Device...** **or** **Press Any Key**	**Ensure the device is powered-on.** Replace failing device Device Adapter (if installed) System Board

Symptom / Error	FRU / Action
Disk Error Encountered Opening Output File Press Any Key To Continue.	**Hard Disk Drive** Hard Disk Drive Adapter (if installed) System Board
DMA #X Failed Main Components Test detected an error while testing the DMA controller.	**System Board**
DMA Page Register Failed DMA page register error	**System Board**
Drive (x) Media (y) Mismatch FAT ID mismatch with installed drive.	**Check diskette and diskette drive capacity.** Diskette Drive System Board
Error in video buffer. **Bad bits.** Video memory test error.	**Video Adapter** System Board Display
Exception Interrupt In Protected Mode Diags Cannot Continue Server error, remove one adapter at a time until the symptom goes away.	**Any Adapter** System Board Processor
Extended Memory Test Failed Extended memory error.	**Memory Module** System Board
Floppy Drive Failed Diskette drive(s) failed.	**Diskette Drive** System Board Diskette Drive Cable
General Function Failed Remove one adapter at a time until the symptom goes away.	**Any Adapter** System Board Processor
Hard Drives Failed Hard Disk Drive test error.	**Hard Disk Drive** Hard Disk Drive Adapter (if installed) System Board
Incorrect DOS version	**Ensure you are using DOS version 3.0 or higher.**
INT Mask Register Failed INT Mask Register error.	**Microprocessor** System Board
Invalid Date Clock/DOS date mismatch.	**Real-Time Clock Assembly** System Board
Invalid Time Clock/DOS time mismatch. Back-up clock and DOS time of day settings do not match.	**Real-Time Clock Assembly** System Board
Linear Cylinder Access Test Failed Hard disk drive error.	**Hard Disk Drive** Hard Disk Drive Cable Hard Disk Drive Adapter (if installed) System Board
Logic Function Failed CPU Logic test error.	**Microprocessor** System Board
Loopback Error COM Port Test or Parallel Port error.	**System Board** Wrap Plug A wrap plug must be installed to successfully complete these tests

Symptom / Error	FRU / Action
Main Components Failed System board error.	**System Board** Processor
Memory test cannot run at this location in memory Not enough free memory available to start the memory test.	**Memory Module** System Board
Missing QAPlus/PRO Files(s) One or more diagnostic support files are missing.	**Diagnostic Diskette**
NO LOOP-BACK PLUG. Skipping External loopback test No wrap plug installed.	**Install wrap plug on the serial port, rerun test** System Board
Not ready Printer not on-line or not ready.	**Ready Printer** Printer Printer Cable System Board
No 'type-amatic' repeat At least one repeat key must be tested during this test or an error will occur. Type-amatic test error.	**Keyboard** System Board
Not used by any standard device IRQ is not currently being used by a non-standard device.	**System Board**
Numeric Proc Failed NPU test error.	**Microprocessor** System Board
Parallel Ports Failed Test Report Summary message.	**System Board**
Pass (N): ** Errors ** Drive (X) Failed Diskette drive read/write test error.	**Diskette Drive** System Board Diskette Drive Cable
Pass (N) Drive Not Ready Diskette drive door is open or defective.	**Ensure diskette drive is ready** Diskette Drive System Board Diskette Drive Cable
Pass (N): Drive (X) Write Protected or Unformatted	**Insert a non-write protected, formatted diskette into the diskette drive; then rerun the test** Diskette Drive System Board Diskette Drive Cable
Pass (N): Unknown Media Drive (X) Diskette Drive Test error.	**Diskette** Diskette Drive System Board Diskette Drive Cable
Place Hi-density Media in Drive Media/drive mismatch.	**Diskette** Diskette Drive System Board Diskette Drive Cable
Printer Failed Printer powered-on and ready?	**Printer** Printer Cable System Board

Symptom / Error	FRU / Action
Printer Fault Printer powered-on and ready?	**Printer** Printer Cable System Board
Printer Not Selected Ensure the printer is powered-on and ready.	**Printer** Printer Cable System Board
Program or File Not Found **Press Any Key** Diagnostics cannot find the USER(N).COM file.	**Diagnostic Diskette** Diskette Drive System Board
Program Too Big To Fit In Memory Too many Terminate and Stay Resident programs in memory.	**Reboot the system from the Diagnostic Diskette**
QAPlus/PRO Cannot Be Re-run Because Of Error In Relocating Program Diagnostics failed to relocate the Diagnostics Test programs so the memory space it resides in was not tested.	**Diagnostic Diskette** Memory Module System Board
RAM Memory Error in Block n. Bad bits n Memory error.	**Memory Module** System Board
RAM Test Failed Memory error.	**Memory Module** System Board
Read error on cylinder n Hard disk drive format error.	**Hard Disk Drive** Hard Disk Drive Adapter (if installed) System Board
Read Errors Diskette drive read error.	**Diskette** Diskette Drive System Board Diskette Drive Cable
Receive Error Serial Port loopback test error.	**Serial Port Cable** System Board
Refresh Failure Diagnostics Test detected an error while testing the DMA controller's RAM refresh cycle.	**Memory Module** System Board
RTC Interrupt Failure Diagnostics Test cannot detect the Real-Time clock interrupt.	**Real-Time Clock Assembly** System Board
Serial Chip Error COM Port error, general.	**Serial Port Cable** System Board
Serial Compare Error COM Port error, information transmitted is not the same as information received.	**Serial Port Cable** System Board
Serial Time-out Error COM Port error, time interval is too long between transmitted and received data.	**Serial Port Cable** System Board

Symptom / Error	FRU / Action
Serious Memory Error — Diags Cannot Continue Memory Test error.	**Memory Module** System Board
Sorry You Need A Mouse Mouse or mouse driver was not detected.	**Mouse** System Board
System Hangs Go to “Undetermined Problems” on page 5-26.	**Any device** Any adapter System Board
The Address Exceeds The Size Of Your Memory An invalid memory address was entered. The Diagnostics Tests display this message during the Locate Bad Chips option under the interact menu if an invalid memory address was entered at the "Enter Memory Address Of Bad Chip" prompt.	**Enter correct address** Memory Module System Board
That Number is Out Of Range An invalid bit number was entered. Diagnostics Tests display this message during the Locate Bad Chips option.	**Enter the correct number** Memory Module System Board
Too Many Errors — Test Aborted Too many errors, the Diagnostics Test cannot continue.	**Microprocessor** System Board
Transmit Error Internal or external serial port loopback test failure.	**Serial Port Cable** System Board
Video Adapter Failed Test Result Summary, displayed if "Fail" was at the Quit/Fail/Pass menu of any video test.	**Video Adapter** System Board Display
Write error on cylinder n Hard disk drive write error.	**Hard Disk Drive** Hard Disk Drive Adapter (if installed)
Write Errors Diskette drive write error.	**Diskette** Diskette Drive System Board Diskette Drive Cable
Write Protected or Unformatted Diskette is Write Protected or not formatted.	**Insert a non-write protected, formatted diskette into the diskette drive; then rerun the test** Diskette Drive System Board Diskette Drive Cable
You Cannot Delete the Motherboard "Remove Board" option was selected. The Diagnostics Tests display this message during the Locate Bad Chips option.	**Make the correct selection** Memory Module System Board Processor
Image Adapter/A Memory Test failure indicated by graphic of adapter.	**Replace memory module (shown in the graphic)**

Symptom / Error	FRU / Action
SCSI ID on rotary switch does not match SCSI ID set in configuration. Verify drive switches inside cover are set to zero.	**Rotary Switch Circuit Board** Circuit Board Cable Tape Drive

MISCELLANEOUS ERROR MESSAGES

Message/Symptom	FRU/Action
Changing colors.	**Display**
Clock Battery inaccurate.	**Clock Battery** System Board
Continuous beep.	**System Board**
Computer will **not** power-off.	**See "Power-Supply Voltage Check (7585)" on page 5-25** Power Switch System Board
Customer indicator lights not working, but computer works correctly.	**Customer Cable or Device** LED Board Power Supply (if used as power source) (Note: for easy checkout of LED board and power supply, swap the two LED cables.)
Dead computer.	**See "Power-Supply Voltage Check (7585)" on page 5-25** Power Switch Power Supply System Board
Diskette drive in-use light remains on or does not light when drive is active.	**Diskette Drive** System Board Diskette Drive Cable
Flashing cursor with an otherwise blank display.	**System Board** Primary Hard Disk Drive Hard Disk Drive Cable
Incorrect memory size during POST.	**Run the Memory tests** Memory Module System Board
"Insert a Diskette" icon appears with a known-good diagnostics diskette in the first 3.5-inch diskette drive.	**Diskette Drive** System Board Diskette Drive Cable Network Adapter
Intensity or color varies from left to right of characters and color bars.	**Display** System Board
No beep during POST but computer works correctly.	**Speaker** System Board

Message/Symptom	FRU/Action
No beep during POST.	**See "Undetermined Problems" on page 5-26** System Board Memory Module Any Adapter or Device Riser Card Power Cord Power Supply
No power, or fan not running.	**See "Power-Supply Voltage Check (7585)" on page 5-25**
Nonsystem disk or disk error-type message with a known-good diagnostic diskette.	**Diskette Drive** System Board Diskette Drive Cable
One long and two short beeps during POST.	**System Board**
One or both system cooling fans not running.	**See "Undetermined Problems" on page 5-26** Fan Cables Fan Power Supply
Other display symptoms not listed above (including blank or illegible display).	**See "Display" on page 5-23** System Board Display
Power-on indicator or hard disk drive in-use light not on, but computer works correctly.	**Power Supply** System Board LED Cables
Printer problems.	**See "Printer" on page 5-24**
Program loads from the hard disk with a known-good diagnostics diskette in the first 3.5-inch diskette drive.	**Check the Configuration/Setup Utility** Diskette Drive Diskette Drive Cable System Board Power Supply
Repeating short beeps.	**Keyboard (stuck key?)** Keyboard Cable System Board
Serial or parallel port device failure (system board port).	**External Device Self-Test OK?** External Device Cable System Board
Serial or parallel port device failure (adapter port).	**External Device Self-Test OK?** External Device Cable Alternate Adapter System Board Riser Card
Some or all keys on the keyboard do not work.	**Keyboard** Keyboard Cable System Board
Three short beeps during POST.	**See "RAM Memory Modules (SIMMs/DIMMs)" on page 5-28.** System Board

BEEP CODE INDEX

In the following Beep Code Index, the numbers indicate the sequence and number of beeps. For example, a “2-3-2” error symptom (a burst of two beeps, three beeps, then a burst of two beeps) indicates a memory-module problem. (Continue with the Symptom-to-FRU index below for other beep/no-beep symptoms.)

Beep Code	FRU/Action
1-1-3 CMOS read/write error	**Run Setup** System Board
1-1-4 ROM BIOS check error	**System Board**
1-2-X DMA error	**System Board**
1-3-X	**Memory Module** System Board
1-4-4	**Keyboard** System Board
1-4-X Error detected in first 64KB of RAM.	**Memory Module** System Board
2-1-1, 2-1-2	**Run Setup** System Board
2-1-X First 64KB of RAM failed.	**Memory Module** System Board
2-2-2	**Video Card** System Board
2-2-X First 64KB of RAM failed.	**Memory Module** System Board
2-3-X	**Memory Module** System Board
2-4-X	**Run Setup** Memory Module System Board
3-1-X DMA register failed.	**System Board**
3-2-4 Keyboard controller failed.	**System Board** Keyboard
3-3-4 Screen initialization failed.	**Video Adapter** System Board Display
3-4-1 Screen retrace test detected an error.	**Video Adapter** System Board Display
3-4-2 POST is searching for video ROM.	**Video Adapter** System Board
4	**Video Adapter** System Board
All other beep code sequences.	**System Board**

Beep Code	FRU/Action
One long and one short beep during POST. Base 640KB memory error or shadow RAM error.	**Memory Module** System Board
One long beep and two or three short beeps during POST. (Video error)	**Display Adapter, if installed.** System Board
Three short beeps during POST.	**System Board**
Continuous beep.	**System Board**
Repeating short beeps.	**Keyboard stuck key?** Keyboard Cable System Board

DID YOU FIND YOUR SYMPTOM IN THE LIST?

Yes **No**

007

Go to "Undetermined Problems" on page 7-25.

008

- **Action:**
  - **Change the suspected FRU**, go to "7585 Service Processor FRU / CD-ROM Exchange" on page 5-36.
  - **or perform the specified action.**

Display

If the screen is rolling, blooming, distorted, or cannot be adjusted for brightness and contrast, replace the display assembly with a known good display assembly, if possible. If that does not correct the problem, replace the system board.

Note: During the first two or three seconds after the display is powered on, the following might occur while the display synchronizes with the computer.

- Unusual patterns or characters
- Static, crackling, or clicking sounds
- A “power-on hum” on larger displays

A noticeable odor might occur on new displays or displays recently removed from storage.

These sounds, display patterns, and odors are normal; do not replace any parts.

To verify the operation of the display, do the following to run the display self-test.

Note: This test does not work on all displays. If the test does not work, but you suspect the display, replace it. If that does not solve the problem, reinstall the original display, then replace the system board.

1. Power off the computer and display.
2. Disconnect the display signal cable.
3. Power on the display.
4. Turn the brightness and contrast controls to their maximum setting.
5. Check for the following conditions:
   - The screen should be white or light gray, with a black margin (test margin) on the screen.
   - You should be able to vary the screen intensity by adjusting the contrast and brightness controls.

     Note: The location of the test margin varies with the type of display. The test margin might be on the top, bottom, or one or both sides.

   If you do not see any test margin on the screen, or if you cannot adjust either the brightness or contrast with their respective controls, replace the display.

   If you are unable to correct the problem, go to “Undetermined Problems” on page 5-26.

Keyboard

Note: If a mouse or other pointing device is attached, remove it to see if the error symptom goes away. If the symptom goes away, the mouse or pointing device is defective.

001

– Power-off the computer.
– Disconnect the keyboard cable from the system unit.
– Power-on the computer and check the keyboard cable connector on the system unit for the voltages shown.
  All voltages are ± 5%.

Pin	Voltage (Vdc)
1	+5.0
2	Not Used
3	Ground
4	+5.0
5	+5.0
6	Not Used

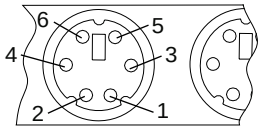


Figure 5-1. Keyboard Connector Voltages

ARE THE VOLTAGES CORRECT?
Yes No

002

Replace the system board.

003

On keyboards with a detachable cable, replace the cable. If the problem remains or if the cable is permanently attached to the keyboard, replace the keyboard. If the problem remains, replace the system board.

Printer

1. Make sure the printer is properly connected and powered on.
2. Run the printer self-test.

If the printer self-test does not run correctly, the problem is in the printer. Refer to the printer service manual.

If the printer self-test runs correctly, install a wrap plug in the parallel port and run the diagnostic tests to determine which FRU failed.

If the diagnostic test (with the wrap plug installed) do not detect a failure, replace the printer cable. If that does not correct the problem, replace the system board or adapter connected to the printer cable.

Power-Supply Voltage Check (7585)

If the power-on indicator is not on or if the power-supply fan is not running, check the power cord for proper installation and continuity. Verify that the voltage-selector switch is set for the correct voltage (See “Power Voltage Setting”).

If this setting is correct, check the power supply connector voltages shown in Figure 5-2. The power supply connector is located at the right rear of the system board.

Note: These voltages must be checked with the power supply cables connected to the system board.

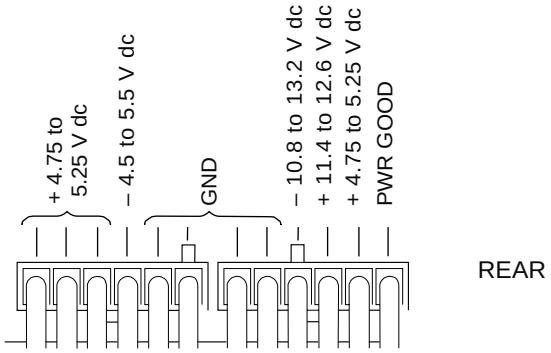


Figure 5-2. Power Supply Connector Voltages

If the voltages are not correct, do the following.

- Check the power cord for continuity.
- Check the on/off switch for continuity.
- Replace the power supply.

Power Voltage Setting

The power supply on the 7585-P02 has a switch on it that must be manually set before the computer is powered up. This switch is located in the area where the power cord plugs into the system unit. It is marked either "110/220" or "115/230".

Use the following instructions to set the switch. You can use a ball-point pen to slide the switch to the correct position.

- If the voltage range in your country is between 90 and 137 volts, set the switch so "110" or "115" is visible.
- If the voltage range in your country is between 180 and 265 volts, set the switch so "220" or "230" is visible.

Attention

Be sure the voltage selection switch is in the correct position. If you set this switch to the wrong position, you might damage your computer when you turn it on.

Undetermined Problems

If an undetermined problem exists, check the power supply voltages (see “Power-Supply Voltage Check (7585)” on page 5-25). If the voltages are correct, return here and continue with the following steps.

1. Power-off the computer.
2. Remove or disconnect the first (or next) of the following:
   a. Non-IBM devices
   b. External devices (modem, printer, or mouse)
   c. Any adapters
   d. Riser card
   e. Memory modules, other that Bank 0
   f. Extended video memory
   g. External Cache
   h. Hard drive
   i. Diskette drive
3. Power-on the computer to re-test the system.
4. Repeat steps 1 through 3 until you find the failing device or adapter.

If all devices and adapters have been removed, and the problem continues, replace the system board (see “Before Replacing a System Board”). If the problem continues after replacing the system board, reinstall the old system board and replace the microprocessor (see “7585 Service Processor FRU / CD-ROM Exchange” on page 5-36).

Before Replacing a System Board

The processor is not included with the system board FRU; it is a separate FRU.

If you are instructed to replace the system board, you should do the following.

- Install the processor from the old system board onto the new system board.
- If any options (RAM modules, cache, or video memory) are on the old system board, install them onto the new system board.
- Ensure that all the new system board jumper settings are the same as the old system board jumper settings.

If the new system board does not correct the problem, reinstall the options back onto the old system board, reinstall the old system board, and replace the processor with a new one.

Devices List

Follow the instructions on the screen for the installed devices list.

Attention:
A customized setup configuration (other than default settings) might exist on the computer you are servicing. Running the Configuration/Setup Utility program might alter those settings. Note the current configuration settings and verify that the settings are in place when service is complete.

If the number of diskette drives shown in the installed devices list is not correct, do the following.

1. Restart the computer.
2. Run the Configuration/Setup Utility program to correct the drive information.
3. Run the diagnostic tests.
4. If you cannot correct the drive information, replace FRUs, in the following order, until the problem goes away:
   - Diskette drive
   - Diskette-drive cable
   - System board

If the number of hard disk drives shown in the installed devices list is not correct, do the following.

1. Check the hard disk drive jumper settings. All supported hard disk drives use jumpers or tabs to set drives as either primary or secondary. Refer to the jumper instructions that came with your hard disk drives.
2. Check the voltages to the hard disk drives (see “Power-Supply Voltage Check (7585)” on page 5-25).
3. Restart the computer and check the configuration.
   - If the first drive is missing, replace the primary drive.
   - If any other drive is missing, replace that drive.
   - If all drives are missing, replace the primary drive.
   - If the problem remains, replace the drive cable.
   - If the problem still remains, replace the system board.

If any other adapter or device is missing from the installed devices list, run the Configuration/Setup Utility program. Check to see if any adapter or device is set to a conflicting address with any other adapter or device. Also be sure that any adapter or device missing from the list is not set to “disabled.”

Note: If the device is still missing from the list, run the diagnostics provided with that device.

RAM Memory Modules (SIMMs/DIMMs)

The 7585-P02 supports the following memory modules.

Dual In-line Memory Module (DIMM)

Bank 0 is populated with a single 168-pin DIMM. This module can be 8MB, 16MB, and 32MB with a speed of 60 nanoseconds.

Single In-line Memory Modules (SIMM)

Banks 1 and 2 are populated by pairs of 72-pin SIMMs. Memory SIMMs supported are 4MB, 8MB, 16MB, and 32MB with a speed of 60 nanoseconds. Memory SIMMs must be installed in pairs, one pair to a bank. Both SIMMs in either bank must be the same size and speed.

If a problem with memory modules is suspected, perform the memory test procedure. See “Memory Test” on page 5-29.

Memory Test

1 Power OFF the service processor.

2 Insert the Diagnostics diskette into drive A.

3 Power ON the service processor.

4 Make a note of any POST errors you receive. Disregard 164 errors (memory size).

5 Did you received a 2XX POST error?

Yes Go to **Step 20 on page 5-31** .
No Continue with **Step 6** .

6 Did the computer boot from the diagnostic diskette and the following logo screen appear?

```
            QAPlus/PRO
            by Diagsoft
                for
                IBM

  Press any key to continue
```

Yes Go to **Step 7** .
No You might have to press **Esc** to continue.

When the previous screen is displayed continue with **Step 7** .

If the computer did not boot from the diagnostic diskette with the previous diagnostic logo screen displayed, go to “MAP: 7585 Service Processor Troubleshooting” on page 5-2.

7 Follow the prompts until the following window is displayed.

```
              QAPlus/PRO

      QAPlus/PRO Advanced Diagnostic

      System is being analysed
```

8 Wait until the main Menu is displayed

```
            Main Menu

            Diagnostics
            System Info
            Reports
            Utility
            Exit
```

9 Select the **Diagnostics** option.

10 The **Diagnostics Menu** menu is displayed.

```
Diagnostics

Quick Check
Module Tests
Options
```

11 Select the **Module Tests** .

12 A window is displayed showing which group is tested. At the end of group testing follows the prompts.

13 Did the memory tests finish without an error?

No Follow the instructions on the display. If there are no instructions on the display, go to **Step 20 on page 5-31** .

Yes Your computer memory is now functioning correctly. If you suspect an intermittent problem, start an error log.

14 Press **Esc** to continue until the following screen is displayed:

```
QAPlus/PRO
by Diagsoft
    for
    IBM

Press any key to continue
```

15 Follow the prompts until the following window is displayed.

```
QAPlus/PRO

QAPlus/PRO Advanced Diagnostic

System is being analyzed
```

16 Wait until the main Menu is displayed

```
Main Menu

Diagnostics
System Info
Reports
Utility
Exit
```

17 Select the **Diagnostics** option.

18 The **Diagnostics Menu** menu is displayed.

19 Select the **Module Tests** .

20 A window is displayed showing which group is tested. At the end of group testing follows the prompts. If you cannot run the memory test or the test does not find a problem, replace the memory modules, one pair/bank at a time, until the problem goes away. When the problem goes away, replace the last memory module removed. If that does not fix the problem, replace the system board.

How to Run the 7585 Service Processor Diagnostics

Use the **Diagnostic** diskette to test the basic system hardware with the following procedure.

1. Power OFF the service processor.
2. Insert the **Diagnostic** diskette in drive A.
3. Power ON the service processor.
4. Do not press **F1** when the icon appears
5. If any POST errors appear after POST, make a note of the error(s) and press the **Esc** key.
6. The following window is displayed.

```
              QAPlus/PRO
              by Diagsoft
                  for
                  IBM

   Press any key to continue
```

7. Follow the prompts until the following window is displayed.

```
                 QAPlus/PRO

        QAPlus/PRO Advanced Diagnostic

        System is being analyzed
```

8. Wait until the main Menu is displayed

```
              Main Menu

              Diagnostics
              System Info
              Reports
              Utility
              Exit
```

9. Select the **Diagnostics** option.
10. The **Diagnostics Menu** menu is displayed.

```
              Diagnostics

              Quick Check
              Module Tests
              Options
```

11 Select the **Quick Check** option (for complete testing) or **Module Tests** (for testing part of your service processor).

12 A window is displayed showing which group is tested. At the end of group testing follows the prompts.

Note: Refer to the *7585 P02 Industrial Computer Installation, Operation, Hardware Maintenance*, S76H-3792 to identify the problem. Then if you have to exchange an FRU, go to “7585 Service Processor FRU / CD-ROM Exchange” on page 5-36.

How to Run the Diagnostic on Multiprotocol Adapter Card

1 Insert the **Multiprotocol Adapter Diagnostic** diskette into the service processor.

2 Power On the service processor.

3 Wait until the following screen is displayed:

```
      Important Information

--> Diagnostics for the ASYNCH/SDLC Communication Adapter Card (ASCA)
    has run successfully on the following machines:
    PS/ValuePoint (VP) 6382 - 486SLC 25/50 MHz
    PS/VP              6384 - 486SX  33 MHz and Pentium 60 Hz
    PS/VP              6387 - 486DX2 33/66 MHz

    Diagnostics may not run successfully on other machines.
    The ASCA Card should function properly on all ISA machines.
    Therefore, run the application to verify proper functioning
    of the card even though diagnotics may fail

    **** New Notes ****
    The diagnostics at this time require that the interrupt jumper
    positions be in the positions enabling interrupts 3 and 4.

--> DOSASCA.DOC details setup and installation of drivers for DOS
--> OS2ASCA.DOC details setup and installation of drivers for OS/2

Press any key to continue.
```

4 The following screen is displayed:

```
IBM ASYNC/SDLC ADAPTER
ADVANCED DIAGNOSTICS
Version 1.00
(C) Copyright IBM Corp.
    1993, 1996

SELECT AN OPTION

0 - ADAPTER TESTS
9 - END DIAGNOSTICS

SELECT THE ACTION DESIRED
?
```

5 Press **0** then **Enter**.

6 Follows the prompts to run the test on the adapter and install the wrap plug (PN 62X1071) when required.

7 Is the diagnostic error free?

No

- Remove the wrap plug at the rear of the multiprotocol adapter card.
- If you have already changed the suspected FRU, there is another problem. Go to “How to Run the 7585 Service Processor Diagnostics” on page 5-32. If you can not identify the problem contact your support for assistance.

- Otherwise, exchange the suspected FRU. Go to “7585 Service Processor FRU / CD-ROM Exchange” on page 5-36.

Yes

- Remove the wrap plug at the rear of the multiprocol adapter card.
- Reconnect the cable to the multiprotocol adapter card.
- Remove the **Multiprotocol Adapter Diagnostic** diskette from the service processor.
- Follow the prompts to re-boot the service processor. Return the service processor to the customer. Go to Chapter 8, “CE Leaving Procedure” on page 8-1.

7585 Service Processor FRU / CD-ROM Exchange

Before any service processor FRU exchange, perform the above procedure:

1. Switch OFF the display and the service processor using their respective power ON/OFF switch located on the front panel.
2. On the rear of the service processor disconnect all the cables.
3. If your service processor is installed in the controller rack go to Step **4** . Otherwise go to Step **5** .
4. Remove the four screws which secure the service processor in the rack. Slide out the service processor from the rack and install it on a table to continue the FRUs removal.

   Warning

   Be careful the weight of the processor is about 18 kg.

   FRU Exchange

5. Go to the *7585 P02 Industrial Computer Installation, Operation, Hardware Maintenance*, S76H-3792 to replace the suspected FRU, then **return here** and continue with Step **6** .

   Important

   Each time you change a FRU, check the presence of jumpers. Install the jumpers on the new FRU as they were on the defective FRU.

6. For Setting up the service processor after FRU exchange use the following steps:

   a. Re-install all the covers of the service processor.

   b. If the service processor was installed in a controller rack continue with Step **6c** . Otherwise go to Step **6e** .

   c. Slide the service processor into the rack.

   d. Secure the service processor using the four screws previously removed, then continue with Step **6e** .

   e. At the rear of the service processor re-connect all the cable previously removed.

7. Use the following table to find the procedure you need to follow after exchanging an FRU.

Service Processor FRU to Exchange	Action
Battery Board	Go to “7585 Service Processor Board or Battery Exchange” on page 5-38.
Hard Disk Drive	Go to “7585 Service Processor Hard Disk Drive Exchange” on page 5-44.
LAN Adapter	Go to “7585 Service Processor LAN Adapter Exchange” on page 5-40.
CD-ROM	Go to “How to Run the 7585 Service Processor Diagnostics” on page 5-32.
Other FRU	Go to “Other FRU Exchanges for the 7585 Service Processor” on page 5-48.

7585 Service Processor Board or Battery Exchange

You are here after battery or board exchange.

1 Power ON the service processor.

2 The following error screen is displayed:

```
          Post Startup Error(s)

The following error(s) were detected when the system was
started:

   161 Bad CMOS Battery                              note
  1801 PCI Error. No space available to shadow ROM.note

Select one of the following:
       Continue
       Exit Setup
```

Note: The errors displayed can be different from the errors shown in this screen.

3 Select the **continue** option. Another screen is displayed:

```
             Error

The configuration settings are invalid.
Select one of the following:

   Automatically reconfigure system and continue
   Continue with the corrupted value
   Exit Setup
```

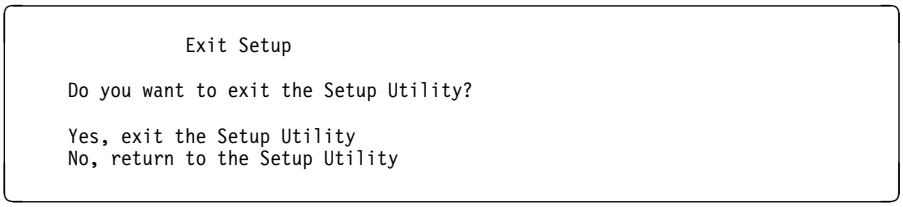
4 Select the **Automatically reconfigure system and continue** option. Another screen is displayed:

```
             Configuration Error

 Configuration errors were detected
 Select one of the following:

   Continue
   Exit Setup
```

5 Select the **Continue** option. The **Configuration / Setup Utility** menu is displayed. Refer to the “Service Processor Configuration Reference Based on 7585-P02” on page B-1 to check and change your configuration according to the configuration reference.

6 When it is done select the **Save Settings** option and follow the prompts.

7 Select **Exit Setup**. You have the following screen:



8 Select **Yes** that reboot the service processor.

9 Go to Chapter 8, “CE Leaving Procedure” on page 8-1.

7585 Service Processor LAN Adapter Exchange

You are here after LAN adapter card exchange.

Important

For this procedure be sure that the LAN cable **is not connected** to the LAN adapter card.

1 Install the **Token-Ring Adapter Card Configuration** diskette in the service processor.

2 Power ON the service processor and the attached display.

3 Wait until the following window is displayed:

```
LANAID V2.21 for IBM Auto/Turbo ISA Adapter

MAC Address                Alternate Format
xx-xx-xx-xx-xx-xx          xx-xx-xx-xx-xx

            Select a function Below

        -   Adapter Configuration

        -   Software Installation

        -   Diagnostics


Exit    Help
```

4 Using the **Tab** key select the **Adapter Configuration**, then press **Enter**.

5 The following window is displayed.

```
           View Adapter Configuration

 Configurable                  |                  Hardware

Select <Suggest> or <Change> to make changes to the configuration below
Then press <Store> to store these changes to the adapter.

 Mode            ISA 16       Adapter Plug and Play    Automatic
Remote IPL:     Disabled       Interrupt:               9(2)
Data Rate:      16 MBps        I/O Address:             A20-A23
Auto Sens       Disabled       ROM Address              CC000-C0FFF
Bus Width       16 bits        RAM Address              C0000-CBFFF


 Suggest     Change     Defaults      Store

 Done        Cancel     Help
```

6 Using the **Tab** key select the **Change** and press **Enter**.

7 The following window is displayed.

```
          Change Configuration Parameters

Adapters Mode   |    Plug and Play    |    Other Parameters

           Select each mode for a detailed description

          Adapter Modes

         - Enhanced Modes

         - Auto 16 Mode

         - ISA 16 Mode


OK          Cancel     Help
```

8 Using the **Up** and **Down** keys select the **ISA 16 Mode** and press simultaneously **Alt** and **P** keys to select the **Plug and Play** window.

9 The following window is displayed.

```
          Change Configuration Parameters

Adapters Mode   |    Plug and Play    |    Other Parameters

       Make any Changes to the configuration, then select <OK>


         - Plug and Play Automatic Configuration

         - Manual (locked) Configuration for Plug and Play systems

         - Manual Configuration for no Plug and Play (legacy) systems



OK          Cancel     Help
```

10 Press simultaneously the **Alt** and **R** keys.

11 The following window is displayed.

```
          Change Configuration Parameters

    Remote IPL                  Data Rates

    o Enable                    o 16 Mbps
    o Disable                   o  4 Mbps

    Auto Sense                  Bus Wide

    o Enable                    o 16 Mbps
    o Disable                   o  8 Mbps


OK          Cancel     Help
```

12 Using the **Up**, **Down**, and **Tab** keys select:

- Remote IPL: **Disable**
- Data Rates: **16 Mbps**

- Auto Sense: **Disable**
- Bus Wide: **16 bits**

Select **OK** and press **Enter**.

13 The following window is displayed.

```
            View Adapter Configuration

  Configurable                   |                   Hardware

Select <Suggest> or <Change> to make changes to the configuration below
Then press <Store> to store these changes to the adapter.

  Mode             ISA 16        Adapter Plug and Play    Automatic
 Remote IPL:      Disabled        Interrupt:               9(2)
 Data Rate:       16 MBps         I/O Address:             A20-A23
 Auto Sens        Disabled        ROM Address              CC000-C0FFF
 Bus Width        16 bits         RAM Address              C0000-CBFFF


  Suggest     Change     Defaults      Store

  Done        Cancel     Help
```

14 Using the **Up** and **Down** keys select the **Store**, then press **Enter**.

15 The adapter configuration is stored. Wait until the following window is displayed.

```
            Storing Configuration

The adapter configuration settings that you have chosen are
now stored.

NOTE: Changes made to the adapter do not become effective
until your computer is powered OFF and back ON: A reboot
will not activate the changes.


                         OK
```

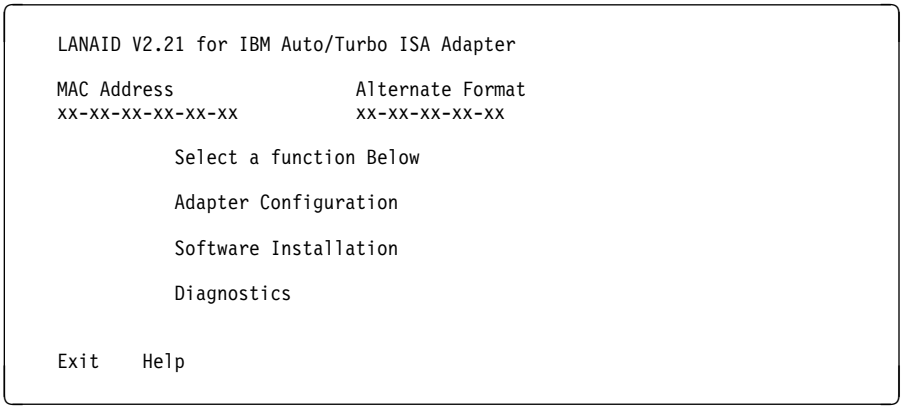
16 Press **Enter**.

17 The following window is displayed.

```
            View Adapter Configuration

  Configurable                   |                   Hardware

Select <Suggest> or <Change> to make changes to the configuration below
Then press <Store> to store these changes to the adapter.

  Mode             ISA 16        Adapter Plug and Play    Automatic
 Remote IPL:      Disabled        Interrupt:               9(2)
 Data Rate:       16 MBps         I/O Address:            A20-A23
 Auto Sens        Disabled        ROM Address              CC000-C0FFF
 Bus Width        16 bits         RAM Address              C0000-CBFFF


  Suggest     Change     Defaults      Store

  Done        Cancel     Help
```

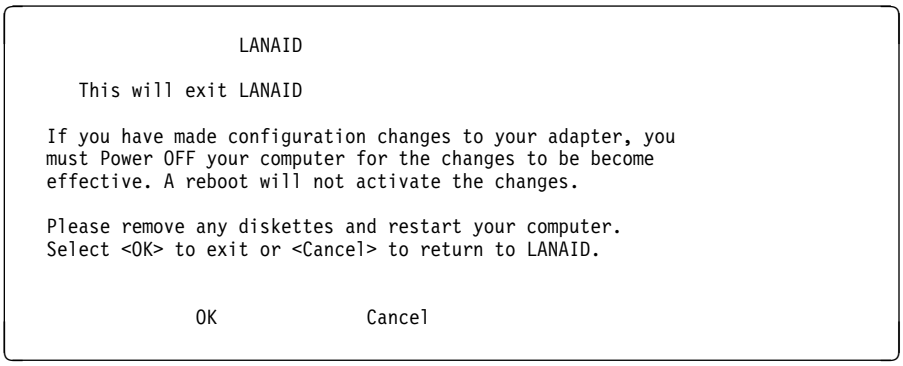
18 Using the **Tab** key, select **Done**, then press **Enter**.

19 The following window is displayed.



20 Using the **Tab** key, select **Exit**, then press **Enter**.

21 The following window is displayed.



22 Using the **Tab** key, select **OK**, then press **Enter**.

23 Power OFF the service processor.

24 Reconnect the LAN adapter cable to the rear of the LAN adapter card.

25 Power ON the service processor

26 Go to Chapter 8, “CE Leaving Procedure” on page 8-1.

7585 Service Processor Hard Disk Drive Exchange

You are here after hard disk drive exchange.

1 Insert the **Diagnostic Diskette**

2 Power On the service processor.

3 When the following is displayed

```
Adaptec AHA<2940 Ultra/Ultra WBios v1.2
(c) 1995 Adaptec, Inc. All rights Reserved.

<<<Press CCtrl><A> for SCSI Select (TM) Utility>>>
SCSI ID : LUN NUMBER - : - 4:0 - IBM CDRM00203    (Note)
SCSI ID : LUN NUMBER - : - 5:0 - FUJITSU  M2512A  (Note)
SCSI ID : LUN NUMBER - : - 6:0 - IBM XP32275W     (Note)
```

Note: The device identification may be different. CD-ROM and optical disk drive may be present together but according to the code level they are mutually exclusive. Up to EC D46130 only optical disk is used. From EC F12380 only CD-ROM is used.

4 Press simultaneously the **Ctrl** and the **A** key.

5 The following screen is displayed:

```
     AHA-2940- Ultra/Ulra W at Bus: Device 00:0Bh

Would you like to configure the host adapter, or run the
SCSI disk utilities? Select the option and press <Enter>.
Press <F5> to switch between color and monochrome modes.
                    Options
       Configure/View Host Adapter Settings
               SCSI Disk Utilities
```

6 Select the **SCSI Disk Utilities**

```
   Select SCSI Disk and Press <Enter>

SCSI ID -0 : No Device
SCSI ID -1 : No Device
SCSI ID -2 : No Device
SCSI ID -3 : No Device
SCSI ID -4 : IBM   CDRM00203       (Note)
SCSI ID -5 : FUJITSU M2512A        (Note)
SCSI ID -6 : IBM XP32275W          (Note)
SCSI ID -7 : AHA-2940 Ultra/Ultra W
SCSI ID -8 : No Device
SCSI ID -9 : No Device
SCSI ID -10: No Device
SCSI ID -11: No Device
SCSI ID -12: No Device
SCSI ID -13: No Device
SCSI ID -14: No Device
SCSI ID -15: No Device
```

Note: The device identification may be different. CD-ROM and optical disk drive may be present together but according to the code level they are

mutually exclusive. Up to EC D46130 only optical disk is used. From EC F12380 only CD-ROM is used.

7 Select the **SCSI ID -6: IBM XP32275W** (the device identification **IBM XP32275W** may be different).

```
Format Disk
Verify Disk Media
```

8 Select the **Verify Disk Media** option. the following screen is displayed:

```
SCSI ID -6 IBM XP32275W
Capacity: 2150 MBytes

This drive will be scanned for media defects. All
recoverable defects will be remapped.
           Verify Disk?
               Yes
               No
```

9 Select the **Yes** option. the following screen is while the diagnostic runs.

```
     Verifying IBM XP32275W

Sector - sssssss                 2150 Mbytes

             xx% Complete

         Press <Esc> to abort
```

10 At the end of the diagnostic you obtain:

```
         Disk Verification Complete
```

11 Click on the **ESC** key until the following screen is displayed:

```
         Exit Utility
             Yes
             No
```

12 Select **Yes** the following screen is displayed:

```
         Please press any key to reboot
```

13 Is the diagnostic error free?

No Restart the problem determination.

Yes You must restore the service processor hard disk after its replacement. Continue with **Step 14 on page 5-46** .

14 Remove the diagnostic diskette.

15 Install the 'Service Processor Installation Diskette 1' in the diskette drive (verify that write is enabled).

16 Install the CD-ROM which contains the latest version of the LIC in the drive.

17 Simultaneously press the **Ctrl/Alt/del** keys on the keyboard.

18 When the IBM logo is displayed press **Enter**.

19 The following window is displayed:

```
You are going to restore the SP hard disk from the CD-ROM.
During this procedure, you will be prompted to insert the
configuration parameter diskette.
Before proceding:
- Ensure that this diskette contains the latest customer
  configuration parameters.
- Press enter to proceed or escape to exit.
```

Press **Enter**.

20 Follow the prompts until the following window is displayed:

```
Please insert configuration parameters diskette 1
Press Enter to continue.
```

Insert the configuration parameters diskette then press **Enter**.

21 Follow the prompts to re-insert the service processor installation diskette, then press **Enter**.

22 Wait (time duration is about 25 minutes) until the following window is displayed:

```
LIC RESTORATION HAS SUCCESSFULLY COMPLETED
Press Enter to continue.
```

Press **Enter**, then follow the prompts.

23 The following windows appear successively:

```
Please wait fo the MOSS database building (10 mn)
```

```
Please wait fo the MOSS LSCT restoration (8 mn)
```

24 The **MOSS-E View** window is displayed followed by:

```
Service processor customization in progress.
It may take a few minutes to complete.
Please wait..
```

```
Service processor customization is terminated.
The service processor will reboot.
Please wait..
```

25 The **MOSS-E View** window is displayed followed by a window asking the password. Enter the password.

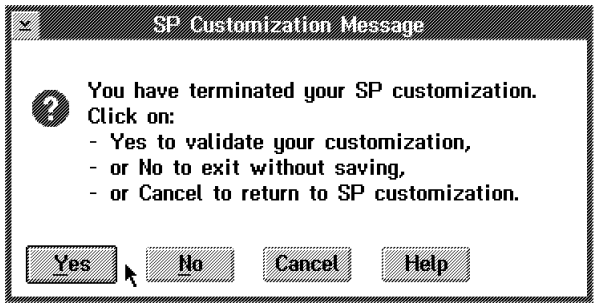
26 The **Installation Chaining Process** window is displayed:

```
You can now customize your service processor.

OK    Cancel
```

Click on **OK**

27 Check and modify parameters setting if necessary (refer to "Step 5 - Customizing Your Service Processor" on page 1-85 for details). Click on **Next>>** to go to the next windows.

28 When the following window is displayed:



Click on **Yes**.

29 Follow the prompts until the following window is displayed:

```
Customization ended
```

Click on **OK**.

Note: If the code level that you have just installed is different from the code installed on NNP you must also change it (refer to *Network Node Processor Installation and Maintenance (Based on 7585 or 3172)*, SY33-2112).

30 Then go to Chapter 8, "CE Leaving Procedure" on page 8-1.

Other FRU Exchanges for the 7585 Service Processor

1 Use the *7585 P02 Industrial Computer Installation, Operation, Hardware Maintenance*, S76H-3792 manual to replace an FRU.

Note: If you have to replace the display, you must remove the 'LOGO' from the used parts and put it on the new part received. You can order this part with the following reference:

- Display LOGO: PN 57G7480

2 If you have changed the multiprotocol adapter card, go to “How to Run the Diagnostic on Multiprotocol Adapter Card” on page 5-34 to run diagnostics. For other FRU exchanged, go to “How to Run the 7585 Service Processor Diagnostics” on page 5-32 to run diagnostics.

3 Is the diagnostic error free?

No	Restart the problem determination.
Yes	Return the service processor to the customer, then go to Chapter 8, “CE Leaving Procedure” on page 8-1.

Chapter 6. 3172 Service Processor

MAP: 3172 Service Processor Troubleshooting 6-2
Beep Symptoms 6-19
No-Beep Symptoms 6-19
Miscellaneous Symptoms 6-19
Display Self-Test 6-22
Keyboard Voltage Check 6-23
Power-Supply Voltage Check 6-24
Undetermined Problems 6-25
Record Customer Symptom 6-25
Devices List 6-26
Missing Non-SCSI Device 6-26
Missing SCSI Device 6-26
If both a non-SCSI device and a SCSI device are missing from the Devices List 6-27
SCSI Device Default Settings 6-27
SCSI Diagnostic Tests 6-28
Using SCSI ID to Help Isolate Failures 6-28
The Error Code Format 6-28
RDDD Codes for Adapters 6-29
RDDD Codes for Devices 6-29
Memory Problems 6-30
Determining Failing Memory Location 6-30
Determining Memory Type, Size and Speed 6-31
Finding the Failing Memory 6-31
Printer Errors 6-33
Real-Time Clock Problems 6-33
Restoring the System Partition 6-33
Using the Low-Level Format Program 6-34
When to Run the Low-Level Format Program 6-34
How to Run the Low-Level Format Program 6-34
Preparing the Hard Disk for Use 6-34
How to Test the 3172 Service Processor 6-35
How to Run the Service Processor Diagnostics 6-35
How to run Diagnostic On the CD-ROM 6-38
How to run Diagnostic On the Multiprotocol Adapter Card 6-39
3172 Service Processor FRU / CD-ROM Exchange 6-40
FRU Exchange Procedures 6-40
Service Processor FRU Exchange 6-41
How to identify your processor type 6-44
Adapter Card Exchange Procedure 6-45
Removing Adapter 6-45
Installing Adapter 6-47
Procedure after System Board or Battery Exchange 6-50
Procedure after LAN Adapter Exchange 6-53
Procedure after Hard Disk Drive Exchange 6-55
Procedure after Pentium Processor Card Exchange 6-60
Service Processor CD-ROM Exchange 6-61

© Copyright IBM Corp. 1998

MAP: 3172 Service Processor Troubleshooting

Note about POST error code

The zeros before and after the error code may be not present for some PS/2 models. Messages might appears on your screen as three-, four-, or five-characters messages. When this occurs, add two zeros after the last characters and one, two, or three zeros before the first character, so that you can look up the error as an eight-character message.

Example:

101 displayed means 00010100

1701 displayed means 00170100

16680 displayed means 01668000

001

- Power-off the system.
- Check all cables and power cords.
- Make sure there are no diskettes in the drives.
- Set all display controls to the middle position.
- Power-on the system.

Note: If you get a POST error code, press the pause key (while the error code is on the screen). Write down any error codes that are displayed, then press F1 to continue.

DID YOU RECEIVE A POST ERROR CODE?

Yes **No**

002

Go to Step 009 on page 6-18.

003

IS THE FIRST POST ERROR CODE WITHIN THE RANGE OF I999XXXX OR I998009X?

Yes **No**

004

Go to Step 006 on page 6-4.

005

Check your FIRST POST ERROR with the following list.

Symptom / Error	FRU / Action
I**998009**X	1. **Restore System Partition**

Symptom / Error	FRU / Action
I**999001X**, I**999002X**, I**999003X**, I**999004X**, (The actions for these errors are valid only when running the system from the hard disk.)	. 1. Restore the system partition. if you need assistance, see “Restoring the System Partition” on page 6-33.
I**9990053**, I**9990054**, I**9990056**, I**9990057**, I**9990059**, I**9990063**, I**9990067**, I**9990069** (The actions for these errors are valid only when running the system from the hard disk.)	1. Restart the computer from the Reference Diskette. If the same error code appears, try the new System diskettes.
I**999006X**	1. Power-Off the computer. Insert the Reference Diskette, toggle the override jumper, then power-ON the computer. Then restore the System Partition. If you need assistance, see “Restoring the System Partition” on page 6-33.
I**999007X**, I**999009X** (The actions for these errors are valid only when running the system from the hard disk.)	1. Restore the System Partition. if you need assistance, see “Restoring the System Partition” on page 6-33.
I**99900X1**, I**99900X2**, I**99900X3**, I**99900X4**, I**99900X6**, I**99900X7**, I**99900X9** (The actions for these errors are valid only when running the system from the System Diskette.)	1. Restart the computer from the Reference Diskette. If the same error code appears, try new System Diskettes.
I**99900X5** (Reference Diskette recovery prevented)	1. Power-off the computer, toggle the power-on password override jumper then, power-on the computer.
I**9990301** (Boot routine unable to read boot record. This is probably a hardware failure).	1. Cable Failure 2. Wrong Termination 3. SCSI Adapter/Controller 4. Hard Disk
I**9990302** (No operating system found on the default SCSI hard disk)	1. Install an operating system. 2. Check for a valid selectable startup sequence.
I**9990303** The IML code did not load from the System Partition.	1. Restore the System Partition. If you need assistance see “Restoring the System Partition” on page 6-33.
I**9990304** (No startable device found. This error is on ASCII console only.)	1. No operating system installed 2. Selectable startup sequence does not contain the default drive.
I**9990305** (No startable device found.)	1. No operating system installed. 2. Selectable startup sequence does not contain the default drive.

Symptom / Error	FRU / Action
I**9990306** (Invalid startup. trying to start from a CD ROM drive).	. 1. Restart the system from a startable diskette or hard disk.
I**9990401** (Unauthorized access. Type or erase the power-on password before replacing any FRUs.)	1. **System Board** **Processor Board** **Note**: Whichever contains the system ROM
I**9990402**, I**9990403**	1. **System Board** **Processor Board** **Note**: Whichever contains the system ROM
I**9990600**, I**9990607**, I**9990609** (Recovery prevented)	1. Power-off the computer. Insert the Reference Diskette, toggle the override jumper, then power-on the computer. Then, restore the system partition. If you need assistance, see “Restoring the System Partition” on page 6-33.

Note: I999002X will occur even when the hard disk drive is removed from the SCSI adapter, the SCSI configuration, and the set startup function.

006

Check your FIRST POST ERROR with the following list.

Symptom/Error	FRU/Action
000**101**XX (Interrupt failure. Possibly a bad battery or processor.)	1. **Run Advanced Diagnostics**
000**102**XX (ROM checksum or timer error. Possibly a bad battery or processor.)	1. **Run Advanced Diagnostics**
000**10300** (Checksum or timer error.)	1. **System Board**
000**102**XX, 000**103**XX 000**104**XX, 000**107**XX	1. **System Board** 2. Processor Board
000**105**XX (Command not accepted)	(Information only)
000**106**XX (Converting logic test failure)	1. **Run Advanced Diagnostics**
000**107**XX, 000**108**XX 000**109**XX (Interrupt memory or memory failure)	1. **System Board Memory** 2. System Board 3. Any Adapter 4. Bus Adapter
000**110**XX (Check memory)	1. **Memory Module Kit** 2. System Board
000**111**XX	1. **Adapter Memory** 2. Expansion Adapter

Symptom/Error	FRU/Action
000**112**XX, 000**113**XX (Possible timeout error)	1. **System Board**
000**114**XX (ROM error)	1. **Any Adapter** 2. Bus Adapter
000**115**XX (80386 protect mode failure, or BIOS checksum error)	1. **Run Advanced Diagnostics**
000**116**XX (Possible read/write problem)	1. **Run Advanced Diagnostics**
000**118**XX (Previously detected error. Run the Advanced Diagnostic test.)	1. **System Board Memory**
000**119**XX	2.88MB diskette drive is installed but not supported.
000**120**XX (Possible processor sel test failure)	1. **System Board**
000**12201**, 000**12202**XX 000**12203**, 000**12204**XX 000**12205**, 000**12206**XX 000**12207**, 000**12208**XX (Data error. Possible system board failure)	1. **Run Advanced Diagnostics**
000**130**00 (POST could not start the operating system. Operating system loaded? Is the boot drive in the selectable sequence?)	1. Check Drive Sequence.
000**130**01 (Security system is being used, but the computer is not totally secured because there is a diskette drive in the startup sequence.)	1. Delete diskette drive from the startup sequence if so desired.
000**130**02 (Drive startup sequence is corrupt or invalid.)	1. **Run Automatic Configuration** then reset the selectable drive startup sequence. If the problem still exists, replace the system board.
000**130**03 (EEPROM could not be read.)	1. **Run Automatic Configuration**. If the problem still exists, replace the system board.
000**131**XX	1. **System Board**.
000**132**XX (DMA extended registers error.)	1. **Run Advanced Diagnostics**.
000**133**XX (DMA verify function error. Logic failed.)	1. **Run Advanced Diagnostics**.
000**134**XX (DMA arbitration logic error.)	1. **Run Advanced Diagnostics**.
000**14905**	1. **System Board** 2. Processor Board

Symptom/Error	FRU/Action
000**14908**, 000**14909**	1. **System Board** 2. Tamper evident switches 3. Keylock assembly
000**152**XX Real time clock error. This is not always a hardware failure. Also see "Real-Time Clock Problems" on page 6-33.	1. **Run Advanced Diagnostics**
000**156**XX (Security error. The covers were removed without using the key. The tamper evident switch was tripped.)	1. Start the system from the Reference Diskette and reconfigure the system. 2. Security switch assembly 3. System Board
000**160**XX (System board ID not recognized. Possible system board failure.)	1. **Run Advanced Diagnostics**
000**161**XX **CAUTION** The Lithium battery (IBM part number 33F8534) in your computer presents a fire, explosion, or severe burn risk. Use of another battery could result in ignition or explosion of the battery.	1. **Battery** 2. System Board 3. Bus Adapter
000**162**XX Be sure all devices are powered-on. (Check enable/Disable settings) Configuration changed? If so, run Automatic configuration again.	1. **Any Device** 2. Battery
000**163**00 (Date and time error.)	1. **Set Date and Time**
000**160**00, 000**164**00 000**165**00, 000**167**00 000**169**00 (If setting configuration date and time does not solve the problem, see "Devices List" on page 6-26 before replacing any FRUs.)	1. **Set Configuration/Features** 2. System Board
000**166**XX (Reseat all adapters.)	1. **Run Advanced Diagnostics**
000**168**XX (Real time clock error. This is not always a hardware failure. Also see "Real-Time Clock Problems" on page 6-33.)	1. **Run Advanced Diagnostics**
000**169**XX Processor configuration error. (Run Auto Configuration, then verify that the processor configuration information is correct before replacing FRUs.)	1. **System Board**

Symptom/Error	FRU/Action
000**171**XX	1. **Battery** 2. System Board 3. Bus Adapter
000**172**XX	1. **System Board**
000**173**XX (Possibly a weak battery.)	1. **SEt Configuration/Features**
000**174**XX (If the configuration has been changed, run Automatic Configuration. Otherwise, run Advanced Diagnostics.) (Check “SCSI Device Default Settings” on page 6-27.)	1. **Any Device** 2. System Board 3. Bus Adapter
000**175**XX (Security error. The system board EEPROM failed.)	1. **System Board**
000**176**XX (Security error. The covers were removed without using the key. The tamper evident switch was tripped.)	1. Start the system from the Reference Diskette and reconfigure the system. 2. Security switch assembly 3. System Board
000**177**XX, 000**178**XX (Security error. Passwords corrupted.) Reset.	1. **System Board**
000**179**XX (System Error log might be full.)	1. Run the Advanced Diagnostic tests. If the problem remains, clear the error log.
000**181**XX (The computer requires a hard disk drive ID of 6 LUN 0 for IML. That was not detected.)	1. **Run Automatic Configuration** 2. Hard Disk Drive 3. System Board
000**182**XX (Privileged access password (PAP) is corrupted. To restore it, move jumper JMP2 to position "0" write enable.	(Information only)
000**183**XX (Wrong password entered.)	1. Enter the privileged access password (PAP) instead of the power-on password.
000**184**XX (Power-on password corrupted.)	1. User must reset the password.
000**185**XX (Selectable satrup sequence corrupted.)	1. Run **Select Startup Sequence** utility. Reset user's chosen startup sequence.
000**186**XX (Security error. Hardware failed.)	1. **System Board**

Symptom/Error	FRU/Action
000**187**XX Vital Data Product (VPD) errord. System serial number information corrupted.	1. Select **Set System Identification** from the Reference Diskettte, system partition and type the system serial number. If problem remains, suspect the system board.
000**188**XX Vital Data Product (VPD) error.	1. **Run Automatic Configuration**
000**189**XX (The wrong password was entered 3 times. Clear the system error log and restart the system.	(information only)
000**191**XX (82385 cache test failed)	1. **Run Advanced Diagnostics**
000**194**XX	1. **System Board Memory** 2. Memory Module Kit
000**199**XX (user indicated configuration invalid)	(Information only)
000**1XX**XX (not listed above)	1. **System Board** 2. Any Adapter 3. Bus Adapter
000**20X**X**Y**, **000217XY** (Check memeory. See “Memory Problems” on page 6-30)	1. **System Board Memory** 2. System Board
000**210**XX, 000**211**XX (Check memory. See “Memory Problems” on page 6-30)	1. **System Board Memory** 2. System Board
000**214**XX, 000**215**XX, 000**216**XX, 000**221**XX, 000**225**XX, 000**226**XX, 000**235**XX, 000**240**XX, 000**240**XX (Check memory. See “Memory Problems” on page 6-30)	1. **System Board Memory** 2. System Board 3. Bus Adapter
000**221**XX (ROM to RAM parity error)	1. **System Board**
000**231**XX	1. **Expanded Memory Option**
000**245**XX, 000**246**XX (Check memory. See “Memory Problems” on page 6-30)	1. **Processor Board** 2. System Board 3. System Board Memory
000**251**XX (Memory location changed on the memory expansion option)	(Information only)
000**252**XX	1. **System Board**
000**253**XX, 000**254**XX	1. **Processor Board**
000**255**XX (Check memory. See “Memory Problems” on page 6-30)	1. **System Board Memory** 2. System Board

Symptom/Error	FRU/Action
000**290**XX (Unsupported memory combination detected. See “Memory Problems” on page 6-30)	1. Correct the unsupported combination of ECC and parity memory modules. Run Automatic Configuration, rerun Advanced Diagnostics
000**291**XX, 000**292**XX, 000**293**XX, 000**294**XX (Checksum value mismatch)	1. **Run Automatic Configuration**, then rerun Advanced Diagnostics
000**295**XX, 000**296**XX (Check memory for an unsupported configuration or modules. See “Memory Problems” on page 6-30)	1. **System Board Memory**
000**298**XX (Checksum value mismatch)	1. **system Board Memory** **Run Automatic Configuration**, then rerun Advanced Diagnostics
000**301**XX, 000**302**XX	1. **Keyboard Cable** 2. System Board
000**303**XX, 000**304**XX	1. **System Board** 2. Keyboard Cable 3. Keyboard
000**305**XX (Keyboard voltage error. If no fuse in system, replace system board.)	1. **Fuse** 2. Keyboard Cable
000**306**XX (Wrong keyboard attached?)	1. Check for unsupported keyboard
000**307**XX	1. **Keyboard** 2. Keyboard Cable
000**401**XX	1. **System Board**
000**5XX**XX	1. **Display Adapter**
000**601**XX	1. **Defective Diskette** 2. Diskette Drive 3. System Board
000**602**XX (Invalid boot record)	1. **Defective Diskette**
000**604**XX (Check for an unsupported diskette drive.)	1. **Diskette Drive** 2. System Board 3. Diskettte Drive Cable
000**605**XX (Diskette Drive error)	1. **Run Advanced Diagnostics**

Symptom/Error	FRU/Action
000**606**XX, 000**607**XX, 000**610**XX, 000**621**XX, 000**622**XX, 000**623**XX, 000**624**XX, 000**630**XX, 000**631**XX, 000**632**XX, 000**633**XX, 000**640**XX, 000**641**XX, 000**642**XX, 000**643**XX, 000**650**XX, 000**651**XX, 000**652**XX, 000**653**XX, 000**654**XX, 000**656**XX, 000**657**XX, 000**658**XX, 000**659**XX, 000**660**XX (Generally, these are media erros. Try a known good diskette. If the error appears again, replace the drive.)	1. **Diskette** 2. Diskette Drive
000**655**XX	1. **System Board**
000**662**XX (Wrong drive type installed.)	(Information only)
000**663**XX (Wrong media type in the drive.)	(Information only)
000**668**XX	1. **Diskette Drive**
000**6XX**XX (Not listed above)	1. **Diskette Drive** 2. System Board 3. Diskette Drive Cable
0007**XX**XX For a 486 processor, erase COPROC.DGS from the backup Reference Diskette, then restore the system partition from the corrected backup Reference Diskette. Re-run Advanced Diagnostics.	1. **Math Coprocessor** 2. System Board
00**1002**03	1. **System Board**
00**1101**00 (Serial connector error, possible system board failure.)	1. **Run Advanced Diagnostics**
00**1101**XX, 00**1102**00, 00**1106**00, 00**1108**00, 00**1109**00	1. **System Board** 2. Any serial device
00**1107**00	1. **Communications Cable** 2. System Board
00**1102**XX (Card selected feedback error.)	1. **Run Advanced Diagnostics**
00**1103**XX (Port fails register check.)	1. **Run Advanced Diagnostics**
00**1106**XX (Serial option cannot be turned on.)	1. **Run Advanced Diagnostics**
00**1107**XX	1. **Serial Device Cable** 2. System Board
00**1110**XX (Register test failed.)	1. **Run Advanced Diagnostics**
00**1116**XX (16550 interrupt error.)	1. **Run Advanced Diagnostics**

Symptom/Error	FRU/Action
00**1117**XX (Failed baud rate test.)	1. **Run Advanced Diagnostics**
00**11XX**XX (Note listed above) (See "Power-Supply Voltage Check" on page 6-24 before replacing system board.)	1. **System Board**
00**1201**XX (Check voltages see "Power-Supply Voltage Check" on page 6-24)	1. **System Board** 2. Any Serial Device
00**1202**XX, 00**1206**XX, 00**1208**XX, 00**1209**XX, 00**12XX**XX	1. **Dual Asyn Adapter/A** 2. System Board 3. Any serial device
00**1207**XX	1. **Communications Cable** 2. Dual Async Adapter/A
00**1290**20 (Disk cache error.)	1. **Cached Processor option** 2. System Board
00**1402**XX (Printer not ready.)	(Information only)
00**1403**XX (No paper error, or interrupt failure.)	(Information only)
00**1404**XX (System board timeout failure.)	1. **Run Advanced Diagnostics**
00**1405**XX (Parallel adapter error.)	1. **Run Advanced Diagnostics**
00**1406**XX (Presence test error.)	1. **Run Advanced Diagnostics**
00**14XX**00 (Not listed above) (Check printer before replacing the system board, see "Printer Errors" on page 6-33)	1. **Printer** 2. System Board
00**1701**XX, 00**1703**XX, 00**1704**XX, 00**1714**XX, 00**17XX**XX (Not listed below)	1. **Hard Disk Drive** 2. Cable (ST506) 3. Hard Disk Adapter (ST506) 4. System Board 5. Power Supply
00**1702**XX	1. **Hard Disk Adapter**

Symptom/Error	FRU/Action
00**1705**XX, 00**1706**XX, 00**1707**XX, 00**1708**XX, 00**1710**XX, 00**1711**XX, 00**1712**XX, 00**1713**XX, 00**1715**XX, 00**1716**XX, 00**1717**XX, 00**1726**XX, 00**1735**XX, 00**1750**XX, 00**1751**XX, 00**1752**XX, 00**1753**XX, 00**1754**XX, 00**1755**XX, 00**1757**XX, 00**1780**XX, 00**1781**XX, 00**1782**XX, 00**1790**XX, 00**1791**XX (Read/write problem. Be sure the drive type is supported. if it is, try a low level format (see "Using the Low-Level Format Program" on page 6-34). if the error continues, replace the hard disk drive.)	1. **Format the Drive** 2. Hard Disk Drive
00**1803**00	1. **System Board**
00**186X**XX	1. **Set Configuration/Features** 2. Battery
00**18XX**XX (Not listed above.)	1. **System Board Expansion Unit**
00**2401**00, 00**2402**00 (If screen colors change.)	1. **Display** (any type)
00**2401**00, 00**2402**00 (If screen colors are OK.)	1. **System Board** (any type) 2. Display (any type)
00**2409**00	1. **Display** (any type)
00**2410**00	1. **System Board** (any type)
00**37XX**XX (This is usually caused by the SCSI controller built into the system board.)	1. **System Board** (any type) 2. Hard Disk Drive 3. Hard Disk Cable
00**4611**XX, 00**4630**XX	1. **Multiport/2 Interface Board** 2. Multiport/2 Adapter
00**4612**XX, 00**4613**XX, 00**4640**XX, 00**4641**XX	1. **Memory Module Package** 2. Multiport/2 Adapter
00**4650**00	1. **Multiport Interface Cable**
00**46XX**XX (Not listed above.)	1. **Multiport/2 Adapter** 2. Multiport/2 Interface Board 3. Memory Module Package
00**64XX**XX	1. **Network Adapter**
00**7509**XX (See "Display Self-Test" on page 6-22)	1. **Display Adapter** (any type) 2. Display (any type) 3. System Board 4. Video Memory
00**7510**XX (Check the display see"Display Self-Test" on page 6-22)	1. **XGA Adapter** 2. Video Memory
00**76XX**XX	1. **Page Printer Adapter** (any type)

Symptom/Error	FRU/Action
00**8601**XX, 00**8602**XX	1. **Pointing Device** (Mouse) 2. System Board
00**8603**XX, 00**8604**XX	1. **System Board** 2. Pointing Device (Mouse)
00**91XX**XX	1. **Optical Drive** 2. Adapter
00**96XX**XX	1. **SCSI Adapter** 2. Any SCSI Device 3. System Board
0**10001**XX (Multiprotocol Adapter/A not found.)	(information only)
0**10002**XX (Card selected feedback error.)	1. **Run Advanced Diagnostics**
0**10007**XX	1. **Communication Cable** 2. Multiprotocol Adapter/A
0**10008**XX, 0**10009**XX	1. **Multiprotocol Adapter/A** 2. Any Serial Device
0**100XX**XX (Not listed above.)	1. **Multiprotocol Adapter/A** 2. System board 3. Bus Adapter
0**101102**X, 0**101106**X 0**101108**X, 0**101109**X	1. **Modem Adapter/A** 2. Any Serial Device
0**10101**XX, 0**10102**XX, 0**10104**XX, 0**10105**XX, 0**10106**XX, 0**10107**XX, 0**10108**XX, 0**10109**XX, 0**10111**XX, 0**10112**XX, 0**10113**XX, 0**10114**XX, 0**10115**XX, 0**10116**XX,	1. **Have the customer verify that the correct operating sytem device drivers are installed and operational** 2. Modem
0**10103**XX, 0**10110**XX, 0**101171**X	1. **System Board**
0**10117**XX (not listed above)	1. **Check PSTN cable** 2. Modem
0**10118**XX	1. **Run System Diagnostics and verify the correct operation of the modem slot** 2. Modem
0**10119**XX	1. **Diagnotics detected a non-IBM modem** 2. Modem
0**10120**XX	1. **Check PSTN Cable** 2. Modem
0**10132**XX, 0**10133**XX, 0**10134**XX, 0**10135**XX, 0**10136**XX, 0**10137**XX, 0**10138**XX, 0**10139**XX, 0**10140**XX, 0**10141**XX, 0**10142**XX, 0**10143**XX, 0**10144**XX, 0**10145**XX, 0**10146**XX, 0**10147**XX, 0**10148**XX, 0**10149**XX, 0**10150**XX, 0**10151**XX, 0**10152**XX	1. **Modem**
0**10153**XX	1. **Data/Fax Modem** 2. System Board

Symptom/Error	FRU/Action
0**101XX**XX (Not listed above)	1. **Modem Adapter/A** 2. Data/Fax Modem 3. System Board
0**10450**XX, 0**10451**XX (Read/write error)	1. **Run Advanced Diagnostics**
0**10452**XX (Seek test error)	1. **Run Advanced Diagnostics**
0**10453**XX (Wrong drive Type?)	(information only)
0**10454**XX (Sector buffer test error)	1. **Run Advanced Diagnostics**
0**10455**XX, 0**10456**XX (Controller error)	1. **Run Advanced Diagnostics**
0**10459**XX (Drive diagnostic command error)	(Information only)
0**10461**XX (Drive format error)	1. **Run Advanced Diagnostics**
0**10462**XX (Controller seek error)	1. **Run Advanced Diagnostics**
0**10464**XX (Hard drive read error)	1. **Run Advanced Diagnostics**
0**10467**XX (Drive non fatal seek error)	1. **Run Advanced Diagnostics**
0**10468**XX (Drive fatal seek error)	1. **Run Advanced Diagnostics**
0**10469**XX (Drive soft error count exceeded)	1. **Run Advanced Diagnostics**
0**10470**XX, 0**10471**XX, 0**10472**XX (Controller wrap error)	1. **Run Advanced Diagnostics**
0**10473**XX (Corrupt data. Low level format might be required)	(Information only)
0**10480**XX	1. **Hard Disk Drive** 2. Drive Cable 3. Controller 4. System Board
0**10481**XX (ESDI drive D seek error)	1. **Run Advanced Diagnostics**
0**10482**XX (Drive select aknowledgement bad)	1. **Run Advanced Diagnostics**
0**10483**XX	1. **Hard Disk Adapter** (ESDI) 2. System Board
0**10490**XX, 0**10491** (Drive O, 1 read error)	1. **Run Advanced Diagnostics**
0**10499**XX (Drive controller error)	1. **Run Advanced Diagnostics**

Symptom/Error	FRU/Action
0**104XX**XX (Not listed above)	1. **Hard Disk Drive** 2. Hard Disk Adapter (ESDI) 3. Hard Disk Cable 4. Power Supply
0**112XX**XX (This adapter does not have a cache)	1. **SCSI Adapter** 2. Any SCSI Device 3. System Board
0**1290001**, 0**1290002**, 0**1290003**, 0**1290004**, 0**1290007**, 0**1290008** (Possibly a recoverable processor board error)	1. **Run Advanced Diagnostics**
0**1290050**, 0**1290051**, 0**1290052**, 0**1290053**, 0**1290054**, 0**1290055**, 0**1290056** (Probably a fatal error)	1. **Processor Board** 2. System Board
0**12901**00, 0**12902**XX, 0**12904**00, 0**12907**00, 0**12908**00 (Cache error)	1. **Processor Board** 2. System Board Cache 3. System Board
0**12903**XX (Math coprocessor error)	1. **Math Coprocessor** 2. Processor Board
0**1290X**XX (Note listed above)	1. **Processor Board** 2. System Board
0**12912**00, 0**12913**00, 0**12914**00, 0**12915**XX, 0**12916**XX, 0**12918**00, 0**12919**00, 0**1294040**, 0**1294041** (Possible processor board error)	1. **Run Advanced Diagnostics**
0**1294042** (POST/ BIOS EEPROM error. Update diskette is required.)	1. **Processor Board**
0**12944**00 (A hardware default interrupt occurred)	1. **Restart the system then run the Advanced Diagnostics**
0**1295050**, 0**1295056**, 0**1295060**, 0**1295061**, 0**1295070**, 0**1295071**, 0**1295072**, 0**1295073**, 0**1295074**, 0**1295075**, 0**1295076**, 0**1295077**, 0**1295078**, 0**1295079**, 0**1295080**, 0**1295081**, 0**1295082**, 0**1295083**, 0**1295085**, 0**1295086**, 0**1295087**, 0**1295088**, 0**1295090**, 0**1295091**, 0**1295094**, 0**1295095**, 0**1295096**, 0**1295097** (Processor board errors)	1. **Restart the system then run the Advanced Diagnostics**
0**12990**00 (VPD error; Processor board replaced? Processor board serial number detected does not match serial number stored)	1. **Run Automatic Configuration**
0**137XX**XX	1. **System Board**
0**143XX**XX	1. **Japanese Display Adapter** 2. System Board

Symptom/Error	FRU/Action
0**14710**00, O**14711**XX	1. **System Board Display Adapter** 2. System Board
0**148XX**00	1. **Display Adapter** (any type)
0**14901**XX, 0**14902**XX, **1491X**XX, 0**14922**XX	1. **Display Adapter** (any type) 2. System Board 3. Display (any type)
0**14932**XX	1. **External Display** (any type) 2. Display Adapter (any type)
0**152XX**XX	1. **XGA Display Adapter/A** (any type) 2. System Board
0**164XX**XX	1. **120MB Internal Tape Drive** 2. Diskette Cable 3. System Board
0**166XX**XX, 0**167XX**XX	1. **Token-Ring Network Adapter/A** 2. System Board 3. Bus Adapter
0**185XX**XX	1. **DBCS Japanese Display Adapter/A** 2. System Board
0**200XX**XX	1. **Memory Module DRAM VRAM** 2. System Board
0**20101**XX to 0**20103**XX	1. **Printer/Scanner Option** 2. Image Adapter/A 3. Memory Module DRAM VRAM
0**20104**XX	1. **Memory Module DRAM VRAM** 2. Printer/Scanner Option 3. Image Adapter/A
0**20105**XX to 0**20110**XX	1. **Printer/Scanner Option** 2. Image Adapter/A 3. Memory Module DRAM VRAM
Image Adapter/A memory test failure indictated by graphic representation of adapter.	1. **Replace Memory Module** (shown in graphic)
0**206XX**XX	1. **SCSI-2 Adapter** 2. Any SCSI Device 3. System Board
0**208XX**XX (Verify that there are no duplicate SCSI ID settings on the same bus)	1. **Any SCSI Device**

Symptom/Error	FRU/Action
0**210XX**XA (60MB) 0**210XX**XB (80MB) 0**210XX**XC (120MB) 0**210XX**XD (160MB) 0**210XX**XE (320MB) 0**210XX**XF (400MB) 0**210XX**XG (40MB) 0**210XX**XH (1GB) 92F0089 0**210XX**XI (104MB) 0**210XX**XJ (210MB) 0**210XX**XM (2GB, 8 bit, 68 pin) 0**210XX**XN (540MB) 92F0406 0**210XX**XO (1GB) 92F0428 0**210XX**XQ (540MB) 61G3788 0**210XX**XP (2GB, 8 bit, 50 pin) 0**210XX**XU(Size unknown) (If it is an external device, check the external voltages. See “SCSI Diagnostic Tests” on page 6-28 and “Using SCSI ID to Help Isolate Failures” on page 6-28 before replacing any FRU.)	1. **SCSI Hard Disk** 2. SCSI Adapter or the SCSI controller built into the system board 3. SCSI Cable 4. SCSI ID Switch (On some models)
0**211XX**XX (Check for any of the symptoms listed bellow.or if it is an external device, and the power-on LED is off, check the external voltages)	1. **SCSI Tape Drive** 2. SCSI Adapter or the SCSI controller built into the system board 3. SCSI Cable
The amber LED remains on.	1. **Tape Drive** 2. SCSI Cable (internal) 3. SCSI Adapter or the SCSI controller built into the system board.
The Green "in use" LED fails to come on.	1. **Tape Drive** 2. SCSI Adapter or the SCSI controller built into the system board. 3. SCSI Cable (internal) SCSI Cable (external)
The tape is automatically ejected from the drive.	1. **Tape Cassette** 2. Drive
SCSI ID on the rotary switch does not match the SCSI ID set in configuration. (verify the drive switches inside the cover are set to zero)	1. **Rotary Switch Circuit Board** 2. Circuit Board Cable 3. Tape Drive
Tape sticks/breaks in the drive. (verify that the tapes used meet ANSI standard X3B5)	1. **Tape Cassette** 2. Drive

Symptom/Error	FRU/Action
0**212XX**XX	1. **SCSI Printer** 2. Printer Cable
0**213XX**XX	1. **SCSI Processor**
0**214XX**XX	1. **WORM Drive**
0**217XX**XX (If it is an external device, and the power-on LED is off, check external voltages. See "SCSI Diagnostic Tests" on page 6-28.)	1. **SCSI Rewritable Optical Drive** 2. SCSI Adapter or the SCSI controller built into the system board. 3. SCSI Cable
0**219XX**XX	1. **SCSI Communications Device**
0**24201**Y0, 0**24210**Y0 (Be sure the wrap plug is not missing)	1. **ISDN/2 Adapter** 2. ISDN/2 Wrap Plug 3. ISDN/2 Communication Cable
0**243XX**XX	1. **XGA-2 Display Adapter/A**
0**258XX**XX Video might have failed. (Ensure that you are using diagnostic file XGAANI.DGS and XGAPNI.DGS dated 03/06/93 or later before you replace any FRUs. Earlier file cause erroneous errors)	1. **XGA-2 Display Adapter/A** 2. System Board
0**260XX**XX	1. **System Board** 2. Any SCSI Device

DID YOU FIND YOUR POST ERROR CODE IN THE LIST?

Yes **No**

007

Error Range Is Not Listed: If the error code *range* presented is not listed in this index, it may be generated by a device that requires an additional service package. Refer to that service package.

008

- **Action:**
  - **Change the FRU suspected**, go to "3172 Service Processor FRU / CD-ROM Exchange" on page 6-40.
  - **or perform the specified action.**

009

Check your service processor symptom with the following list.

Beep Symptoms

Symptom/Error	FRU/Action
One long and one short beep. (See “Display Self-Test” on page 6-22 before replacing any FRUs).	1. **Display Adapter** 2. System Board 3. Bus Adapter 4. Power Supply
One long and two short beeps. (See “Display Self-Test” on page 6-22 before replacing any FRUs).	1. **Display Adapter** 2. System Board 3. Bus Adapter 4. Power Supply
One long or two beeps and blank or unreadable display or a blinking cursor. (See “Display Self-Test” on page 6-22 before replacing any FRUs).	1. **Display Adapter** 2. System Board 3. Display 4. Bus Adapter 5. Power Supply
Continuous beep.	1. System Board 2. Power Supply
Repeating short beeps. (Check the keyboard for a stuck key)	1. System Board

No-Beep Symptoms

Symptom/Error	FRU/Action
No beep, fan runs power-ON LED lights memory may or may not count, and blinking cursor continuously loops.	1. Processor Board
No beep, power-ON LED does not come ON, and fan does not run.	1. Power Supply 2. Control/Speaker Assembly 3. System Board 4. Any device or Adapter 5. Bus Adapter
No beep, fan runs power-on LED is ON, and computer hangs during POST with no message displayed. (See “Undetermined Problems” on page 6-25)	1. System Board 2. Any device or Adapter 3. Bus Adapter

Miscellaneous Symptoms

Symptom/Error	FRU/Action
Intermittent failures. (See “Undetermined Problems” on page 6-25)	1. **Power Supply** 2. Power Supply Fans 3. Any Device or Adapter
Diskette drive LED stays ON.	1. **Diskette Drive**
Hard disk LED stays ON.	1. **Hard Disk Drive** 2. System Board
Hard disk LED not working, but computer is completely functional.	1. **Control/Speaker Assembly** 2. System Board

Symptom/Error	FRU/Action
Reference Diskette does not start.	1. **Diskette Drive** 2. System Board 3. Diskette Drive cable 4. Reference Diskette
Read/write errors on a 2.88MB diskette drive. (If the drive was just installed, either the computer has down level IML code loaded or that model does not support a 2.88MB drive).	1. Use **View configuration** to determine if the dislette drive is listed as a 2.88MB. If not, the latest level Reference Diskette must be loaded onto the System partition.
IML image has been updated, the diskette and F1 error prompt appears on the screen.	1. Verify an operating system has been loaded onto the default hard disk.
Program loads from the hard disk or a non system disk or disk error (with the Reference Diskette in drive A).	1. **Diskette Drive** 2. System Board 3. Power Supply 4. Reference Diskette
No colors on a color display. (Connect display to the VGA port and run the Enhanced VGA test to see if the display is the problem.	1. **Display** 2. VGA terminator
Screen colors change	1. **Display** 2. Display Adapter 3. System Board
One or more keys do not work and the computer is otherwise functional (See “Keyboard Voltage Check” on page 6-23 before replacing any FRUs).	1. **Keyboard** 2. Keyboard cable 3. System Board
Power-on indicator does not come ON, fan runs, and computer is functional.	1. **Control Speaker Assembly**
Power-on indicator does not come ON, fan runs, and computer is **not** functional.	1. **System Board** 2. Power Supply
Power-on indicator does not come ON, fan runs, and computer is not functional. (See “Undetermined Problems” on page 6-25 before replacing any FRUs).	1. **System Board** 2. Power Supply
Operating system does not work, or the system starts up in BASIC. Call your support for assistance before exchanging any FRU.	1. **Default Hard Disk Drive**
Real Time Clock loses time. (This is not always a hardware failure. See “Real-Time Clock Problems” on page 6-33 before replacing any FRUs).	1. **Default Hard Disk Drive**
Computer cannot be powered-OFF.	1. **Control/Speaker Assembly** 2. System Board 3. Power Supply

DID YOU FIND YOUR SYMPTOM IN THE LIST?

Yes **No**

010

Go to “Undetermined Problems” on page 6-25.

011

- **Action:**
  - **Change the suspected FRU**, go to “3172 Service Processor FRU / CD-ROM Exchange” on page 6-40.
  - **or perform the specified action.**

Display Self-Test

If the screen is rolling, replace the display assembly. If that does not correct the problem, replace FRUs in the following order until the problem goes away:

1. Display adapter
2. System board
3. Bus adapter

If the screen is not rolling, run the display self-test as follows:

1. Power-off the system unit and display.
2. Disconnect the display signal cable.
3. Power-on the display.
4. Turn the contrast to its maximum position.
5. Turn the brightness control to the center detent position.

Check for the following conditions:

- You should be able to vary the screen intensity by adjusting the contrast and brightness controls.
- The screen should be white or light gray, with a black margin (test margin) on the screen.

  Note: The location of the test margin varies with the type of display. The test margin might be on the top, bottom, or one or both sides.

If you do not see any test margin on the screen, replace the display. If there is a test margin on the screen, replace the FRUs, in the following order, until the problem goes away:

Note: Certain adapter failures can cause video problems. Before replacing any FRUs, remove any option adapters to see if the problem disappears.

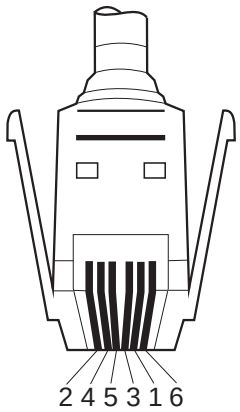
1. Display adapter
2. System board
3. Bus adapter
4. Display.

Keyboard Voltage Check

Note: If a mouse or other pointing device is attached, remove it and see if the error symptom goes away. If the symptom goes away, suspect that the mouse or pointing device is defective.

1. Power-off the system.
2. Disconnect the cable from the keyboard.
3. Power-on the system and check the connector for the voltages shown. All voltages are ± 5%.

Pin	Voltage (Vdc)
1	+5.0
2	0 (Not used)
3	Ground
4	+5.0
5	+5.0
6	0 (Not used)



If the voltages are correct, replace the keyboard.

If the voltages are not correct, suspect the keyboard cable, then the system board.

Power-Supply Voltage Check

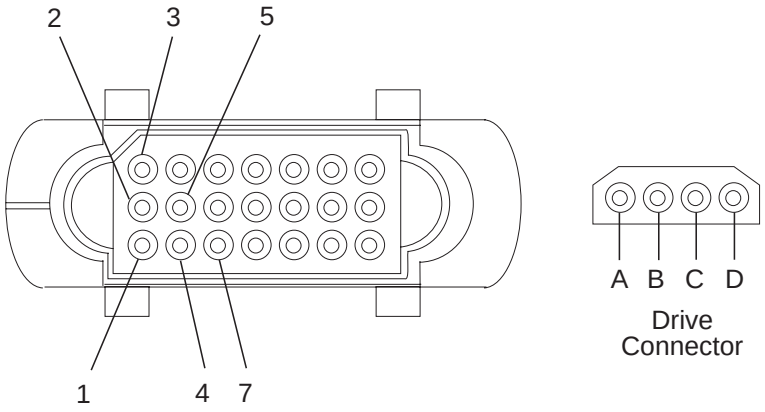
If the power-on indicator is not on, and if the power-supply fan is not running, check the power cord for proper installation and continuity.

Note: On the service processor, verify that the voltage-select switch is set for the correct voltage.

If the power cord is OK, either the power supply is defective or a device is causing the power supply to shut off. Check the power supply voltages.

Some of the power supplies used have a built-in test switch and LED on the side of the power supply (there is no need to check voltages). On those power supplies disconnect the power supply from the system board, and remove all cables except the power cord. If the LED lights up, and the power supply fan runs, the power supply is OK.

On all other power supplyes, short pin 1 to pin 2 and read the voltages on the other pins. If the voltages are correct, and the power supply fan runs, the power supply is OK.



-Lead Pin	+Lead Pin	V dc Minimum	V dc Maximum
5	3	+3.7	+6.2
5	4	+9.0	+15.0
5	7	-9.0	-15.0
B	D	+3.7	+6.2
B	A	+9.0	+15.0

If the power supply shut down, or appears to fail at power-on, you might have one of the following problems:

- Too many devices are set to start instantly.
- There are too many large-capacity devices installed. The nominal operating current of the devices installed collectively exceeds the available current of the power supply. See the "Personnal System/2 Installation Planning" guide (form number G41G-2927) for more information.

Return to the procedure that sent you here and continue. (If you have completed that procedure, go to “Undetermined Problems” on page 6-25.)

Undetermined Problems

You are here because the diagnostic tests did not identify which adapter or device failed, the Devices List is incorrect or the system is inoperative. Follow the isolation procedure below (do not isolate FRUs that are known to be good).

Check the power supply voltages. If the voltages are not correct, replace the power supply. If the voltages are correct, return here and do the following:

1. Power-off the system.
2. Remove or disconnect the following (one at a time) until you find the failure (power-on the system and reconfigure each time).

   Note: Minimum operating requirements are 1MB of system memory and the default hard disk.

   - Any external devices
   - Surge suppressor device (on the system)
   - Modem, printer, mouse, or non-IBM devices
   - Any adapter
   - Drives
   - Memory-module kits
   - Bus adapter
   - Math Coprocessor (if installed).
3. Power-on the system. If the problem remains, suspect the system board.

Note: If the problem goes away when you remove an adapter from the bus adapter, and replacing that adapter does not correct the problem, suspect the system board, then the bus adapter.

If you did not identified the problem, before calling your support collect the following information:

Record Customer Symptom

- Look at and record
  - What is on the screen? If blank is there a cursor?
  - Power LED
  - Hard disk LED
  - Floppy disk LED
  - R/W optical disk LED
  - Does **Cntl/Esc** give window list?
  - Keyboard and/or mouse dead
- Ask customer what happened to cause this condition.
  - Did power ON?
  - Was the service processor operationnal? Failed?
  - Did he try something?

Devices List

At the start of the Advance Diagnostic tests, the Devices List is displayed. Normally, all adapters and devices installed in the system appear on the list.

- If an adapter or device that appears on the list *is not* installed in the system, use the procedure in "Undetermined Problems" on page 6-25 to find the problem.
- If an adapter or device that *is* installed in the system does not appear on the list, you have one of the following conditions:
  - The diagnostic (DGS) files for the missing device are not loaded onto the System Partition (run **Copy an option diskette** using the option diskette).
  - The SCSI controller (built-in interface) on the system board might have failed.
  - An unrecognizable adapter is installed.
  - The missing device is defective or it requires an additional diskette or service manual.
  - A defective adapter is causing the device to disappear from the list.

If you are sure that the DGS files are loaded and all the options are supported, note which type of device (SCSI or non-SCSI) is missing from the Devices List, then continue.

Missing Non-SCSI Device

If a non-SCSI device is missing from the Devices List.

Replace the missing device.

If more than one non-SCSI device is missing, isolate them one at a time until you find the device causing the failure.

Note: If the number of diskette drives shown on the list is incorrect, an error can occur during the tests. If this is the case, restart the system, select **View configuration** from the Set configuration menu and verify that the drive information is correct, then continue testing.

Missing SCSI Device

If a SCSI device is missing from the Devices List, determine if the missing device is connected to the SCSI controller on the system board, or a SCSI adapter. Either the system board or the SCSI adapter might be defective. Continue with the following procedure.

1. Power-off the system and disconnect any internal and external SCSI devices from the system (except the default drive, if installed).
2. If the device is connected to a SCSI adapter, install the terminator onto the SCSI adapter (some SCSI adapters have both an internal and an external terminator).

   Note: For more information, see "Terminator Function" in the *Hardware Maintenance Manual*.
3. Power-on the system and run Automatic Configuration. If the SCSI adapter (or the SCSI controller on the system board) is not on the Devices List in advanced diagnostics, it is defective. If the SCSI adapter (or the SCSI

controller on the system board) *is* on the list, run the SCSI adapter or SCSI controller Advanced Diagnostic test.

4. If the SCSI adapter (or the SCSI controller on the system board) fails the test, replace it. If it passes the test, a different adapter or device might be causing the problem; if this is the case, continue with the next step.
5. Reconnect all the devices, then put all terminators back in the same positions they were in before service.
6. Use the procedure in "Undetermined Problems" on page 6-25 to find the problem.

If both a non-SCSI device and a SCSI device are missing from the Devices List

Use the procedure in "Undetermined Problems" on page 6-25 to find the problem.

SCSI Device Default Settings

You are here with a 000174XX error or you want to check the settings (defective devices can also cause incorrect settings).

The optional settings are intended to let the user share devices (usually external) between systems without having to reconfigure the system each time the device is moved. The settings apply to SCSI Presence Error Reporting devices (such as SCSI tape drives and CD-ROM drives, and on some systems, hard disks). After a device is in the configuration table, the default settings are "Enable" and "Keep." The only way to remove the device from the configuration table is to manually remove it by changing the settings. Running automatic configuration will not remove it from the configuration.

Enable and Disable Settings: If the user plans to leave the device turned off, or share the device periodically between different systems, that device should be set to "Disabled" (on the systems that will share the device). When disabled, the drive will remain in the configuration but POST will not report a configuration error when the device is removed. For example, before the user *temporarily* removes a SCSI tape drive, the setting should be changed to "Disabled." When the device is reinstalled and the user no longer chooses to share the device, the setting should be changed back to "Enabled."

Keep and Remove Settings: The only time that you will see the "Keep" and "Remove" options is when the device physically is disconnected from the system. At that time, you have the option of removing the device from the configuration table by changing the setting to "Remove."

Changing the Settings: To change the settings, do the following:

- Select **Set and View SCSI device configuration** from the Set configuration menu.
- Select the appropriate device on the list.
- Press **F6** to change the settings.
- Press **F10** to save the changes (in configuration).

SCSI Diagnostic Tests

The diagnostic tests usually identify the failing device, but because of the many dependencies, you can be misled by an error code. It is important to understand that all devices in a SCSI chain depend on an open line of communication on the SCSI data bus. Certain conditions can cause misleading error codes to appear. For example, a short circuit in the bus arbitration logic on the system board can inhibit communication betweeen the system board and a SCSI adapter. If this condition exists, the error code that appears would indicate that the SCSI adapter failed when the failure was really on the system board.

Using SCSI ID to Help Isolate Failures

Each device on a SCSI chain has a unique SCSI ID. Use the SCSI ID to help pinpoint which device is failing. For example, if diagnostics presents a “U” (size undetermined) as the last digit in the error code, suspect the device that has the SCSI ID indicated in the error code. For more information see “The Error Code Format.”

The Error Code Format

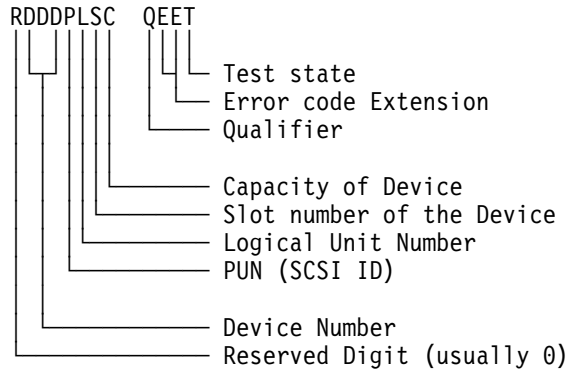
This section provides an explanation of the encoded SCSI and non-SCSI POST error codes and detail information about each code.

Error messages are displayed on the screen as three, four, five, or eight digits. An *X* in an error message can be any number. The shorter POST errors are highlighted in this index. Some digits will represent different information for SCSI errors versus non-SCSI errors.

The following figure shows which digits display the shorter POST errors. The figure also defines additional SCSI information.

Notes:

1. Non-IBM device error codes and documentation supersede this list.
2. Duplicate SCSI ID settings will cause misleading error symptoms or messages.



A number in slot "S" indicates an error on the adapter, (or device attached to the adapter) in slot "S". If "S" is 0 suspect the system board.

Example of SCSI ID:

- SCSI adapter ID=7
- Hard disk drive ID=6
- Read/Write Optical Disk ID=5

Notes:

1. SCSI adapter is integrated onto system board
2. R/W optical can be removed and deconfigured from service processor as a diagnostic technique to eliminate it as a cause of problem.
3. PN 64F4774 is an inline terminator and must be installed between SCSI cable and hard disk drive.

RDDD Codes for Adapters

RDDD	Device Type or Information
0**037**	SCSI on the system board
0**096**	SCSI adapter with cache
0**112**	SCSI adapter without cache
0**206**	SCSI-2 adapter

RDDD Codes for Devices

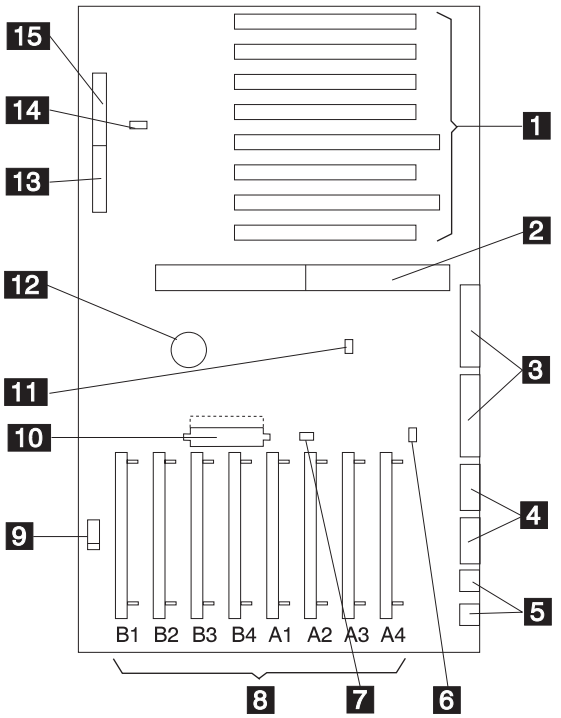
RDDD	Device Type or Information
0**208**	Unknown device type
0**209**	Direct access - removable media, and/or other 512 byte blocks
0**210**	Direct access - hard disk, 512 byte blocks
0**211**	Sequencial access (tape)
0**212**	Printer
0**213**	Processor
0**214**	Write Once, Read Multiple (W.O.R.M.)
0**215**	Read only (CD-ROM)
0**216**	Scanner
0**217**	Optical Memory (read/write optical disk)
0**218**	Changer (multiple tray CD-ROM)
0**219**	Communications

Memory Problems

The "X" digit of the POST error (for example, 00020x**X**x), indicates the connector location.

Determining Failing Memory Location

"X" Digit equals	Connector Location
X=1	A1
X=2	B1
X=3	A2
X=4	B2
X=4	A3
X=5	B3
X=6	A4
X=7	B4



1. 32-bit expansion slots (video extentions J9,J11)
2. Processor Connector
3. Parallel Ports
4. Serial Ports
5. Keyboard and Pointing -device
6. KickStart jumper (JMP4)
7. Password Override Jumper (JMP1)
8. Memory-module connectors
9. Cover-Interlock Jumper (JMP3)
10. Power-supply Connector
11. Privilege-Access Password Jumper (JMP2)
12. Battery
13. Diskette-Drive Connector
14. Remote Maintenance Service Jumper (JMP6)
15. Operator-Panel cable Connector

Figure 6-1. Memory-Module Connector Locations on the System Board

Determining Memory Type, Size and Speed

The "Y" digit of the POST error (for example, 00020xx**Y**), indicates the type, size, and speed.

"Y" Digit equals	Type	Size	Speed
Y=0	Parity	4MB	80ns
Y=1	Parity	2MB	100ns
Y=2	Parity	1MB	100ns
Y=4	Parity	4MB	70ns
Y=5	Parity	2MB	85ns
Y=6	Parity	1MB	85ns
Y=8	Parity	8MB	80ns
Y=9	Parity	2MB	80ns
Y=B	Parity	8MB	70ns
Y=C	Parity	2MB	70ns
Y=D	Parity	2MB	120ns
Y=E	Parity	1MB	120ns
Y=K	ECC	16MB	70ns
Y=Q	ECC	4MB	70ns
Y=R	ECC	32MB	70ns
Y=S	ECC	8MB	70ns
Y=T	ECC	2MB	70ns
Y=Z	Unknown		

If you are still unable to determine which memory-module kit failed, follow the isolation procedure under “Finding the Failing Memory.”

Finding the Failing Memory

Note: Running the diagnostic tests will deallocate defective memory. After you replace defective memory, run the Advanced Diagnostic memory test to enable the replacement memory. Then, restart the system and rerun the same test to validate the installed memory-module kits.

Use the following procedure when you suspect a problem with the system memory. Power-off the system before you remove or replace parts.

1. Run the Advanced Diagnostic memory test. If the test does not indicate which memory-module kit failed, or if the system hangs, try running the test from the System Diskettes. If you still cannot identify which memory-module kit failed, continue with the next step.

   Note: If a screen message appears asking if you have replaced a specific memory-module kit, suspect that *it* is the failing kit.

2. Using a known-good kit, exchange each kit, one at a time, and repeat the memory test until you find the defective kit. Replace *only* the defective kit. If the kits are not the problem, suspect the system board.

Either

- Multiple memory module kits are bad, try testing one at a time.
- System board bad
- An adapter is causing the problem
- Power supply is bad, check the power supply voltages for correct level and ripple (see “Power-Supply Voltage Check” on page 6-24).

Printer Errors

1. Make sure the printer is properly connected and powered-on.
2. Run the printer self-test.

If the printer self-test does not run correctly, the problem is in the printer. Refer to the printer service manual.

If the printer self-test runs correctly continue.

- If the printer is attached to any paralle port, press the print screen key to print any screen text. If the printer prints the screen, the problemis software related. If the printer does not print the screen continue.
- Install a wrap plug on the parallel port and run the Advanced Diagnostic tests to determine which FRU failed.
  If the Advanced Diagnostic tests (with the wrap plug installed) do not detect a failure, replace the printer cable. If that does not correct the problem, do one of the following:
- If the printer is attached to the parallel port on the system board, replace the system board.
- If the printer is attached to the parallel port on an adapter, replace FRUs, in the following order, until the problem goes away:
  1. Adapter
  2. System board
  3. Bus adapter

Real-Time Clock Problems

The software time-of-day clock (real-time clock) will not provide precise time under all circomstances. The clock is interrupt driven. The accuracy of the clock varies with the interrupt activity. Most likely, time variations are a result of multiple interrupts (over a long period of time), rather than a hardware failure. In circomstances where precise time is required, an alternate time keeping device should be used.

Check the system date/time using the Reference Diskette **Set Features** menu. If the date/time is accurate, the problem is with the software.

Restoring the System Partition

Use the following instructions to restore the System Partition to a hard disk drive that you have just replaced.

Use the Reference Diskette. You might have to recopy option files to the system partition if they are not on the Reference Diskette.

To restore the system partition:

1. Insert the **Reference Diskette** in the service processor.
2. Power ON the service processor.
3. The **IBM** logo appears on the screen, followed by the **Main Menu** of the system programs.
4. Select **Backup/Restore system programs** from the **Main Menu**
5. Select **Restore the System Partition** and follow the instructions on the screen.

Be sure to reset any customized configuration or drive startup information after replacing a defective hard disk drive.

Using the Low-Level Format Program

Warning

The advanced diagnostic format program (referred to as a *low-level format*), is different from the operating system format program. The operating-system format program will not erase the system partition; the low-level format format program *will*. It also will erase the system programs and completely clear the hard disk. If the hard disk is working, make a backup copy of the system partition and all the files on the hard disk before you use this program.

(It might take up to two hours to run the low-level format program, depending on the disk capacity.)

When to Run the Low-Level Format Program

There are three reasons to run this program:

1. You are installing software that requires a low-level format.
2. You get recurring messages from the diagnostic tests telling you to run the low-level format program on the hard disk.
3. You want to try this as a last resort before replacing a failing hard disk drive.

How to Run the Low-Level Format Program

1. Power ON the computer.
2. When the **F1**-key prompt appears on the screen, under the **IBM** logo press the **F1** key.
3. When the **Main Menu** appears on the screen, press **Ctrl** and **A** key.
4. When the **Advanced Diagnostic** menu appears, select **Format Hard Disk**. Then follow the instructions on the screen.

Preparing the Hard Disk for Use

When the low-level format program completes, you must copy all the files to the hard disk. Before you can copy the files, you must:

1. Create the system partition (if the hard disk had a system partition) using the Restore the System Partition utility program from the system programs on the System Diskettes.
2. Format the hard disk using the operating. (The commands vary with the operating system. Refer to the operating system manual for a description of the program commands to use.
3. Install the operating system.

You are now ready to reinstall the files.

How to Test the 3172 Service Processor

Before starting the test of the complete service processor, be sure that:

1. CD-ROM disk drive is powered On.
2. The LAN adapter cable is well connected to the rear of the LAN adapter but disconnected from the service processor access unit (8228).

How to Run the Service Processor Diagnostics

Important

If the **Main menu** is not displayed during the following procedure, refer to "MAP: 3172 Service Processor Troubleshooting" on page 6-2.

1 If you want run diagnostic on the service processor:

- From the hard disk go to **2**
- From the diskettes go to **7**

2 Power Off then power ON the service processor.

3 When the **F1**-key prompt appears on the screen, under the **IBM** logo press the **F1** key.

4 The Systems Programs **Main Menu** appears on the screen.

5 To start the Advanced Diagnostic program, press and hold **Ctrl**, then press **A**

6 Continue with **12**

7 Insert the **Reference Diskette** in the service processor.

8 Power OFF then power ON the service processor.

9 The **IBM** logo appears on the screen, followed by the **Main Menu** of the system programs.

10 To start the Advanced Diagnostic program, press and hold **Ctrl**, then press **A**
A message appears telling you to insert the Diagnostic Diskette, follow the prompts.

11 Continue with **12**

12 The **Advanced Diagnostic Menu** is displayed.

```
              Advanced Diagnostic Menu

  Select one

1- Run system checkout
2- Format the hard disk

Enter   F1=Help  F3=Exit
```

13 Select the **Run system checkout** option and press **Enter**.

14 An other screen is displayed with the installed devices detected by the diagnostic tests (refer to “Typical Devices List (3172)” on page B-15).

15 Press the **Y** key.

16 A **Test Selection Menu** is displayed.

```
                Test Selection Menu

  Select one

1- Run the Tests one Time
2- Run the Test continuously
3- Log or Display the errors
4- Display the device list
```

17 If you only want to run:

- The diagnostic tests, one at a time, select option **1** press the **Enter** key, then continue with step **18**
- The diagnostic tests, continuously one after the other, select option **2** press the **Enter** key, then continue with step **18**

18 A **Device test Menu** is displayed.

19 If you want to run:

- All the diagnostics on the service processor, select the **Test All devices** option, press the **Enter** key, then continue with step **20**
- A test on a specific entity of the service processor, use the scroll keys to select the desired entity, press the **Enter** key, then continue with step **20**

20 Follow the prompts displayed during the test.

21 To stop the test at any time, simultaneously press the **Ctrl/C** keys.

22 Are the diagnostics error free?

Yes Follow the prompts to re-boot the service processor. Return the service processor to the customer. Then go to Chapter 8, “CE Leaving Procedure” on page 8-1.

No

- If you have already changed the suspected FRU, there is another problem, call for assistance.
- Otherwise, exchange the suspected FRU. Go to “3172 Service Processor FRU / CD-ROM Exchange” on page 6-40.

Notes:

1. Advanced diagnostics allow individual selection of tests.
2. If a minimum of 896KB of memory is not active, the advanced diagnostics tests cannot be loaded.
3. When using the Reference Diskette, press the **Ctrl/A** when the **Main Menu** is displayed to load the advanced diagnostics.
4. If a device is not present in the devices list refer to “Devices List” on page 6-26.

How to run Diagnostic On the CD-ROM

Be sure that your CD-ROM drive is powered On

1. Power OFF then Power ON the service processor
2. When the **F1**-key prompt appears on the screen under the **IBM** logo press the **F1** key.
3. Select **Test the computer**, follows the prompt to insert the diagnostic diskette.
4. The **Advanced Diagnostic Menu** is displayed. Select the **Run System Checkout** option and press the **Enter** key.
5. The next window shows the configuration of your service processor. Press **Y** to continue.
6. The **Test Selection Menu** is displayed. Select the **Run the Test one time** option and press the **Enter** key.
7. On the **Device Test Menu**, select the **CD-ROM device(s)** option and press the **Enter** key.
8. Follow the prompts during test.
9. When the CD-ROM has been tested, the **Test Selection Menu** window is again displayed.
10. Press the eject pushbutton on the front of the CD-ROM.
11. Remove the CD disk then follow the prompts to exit.
12. Is the diagnostic error free?

    Yes Follow the prompts to re-boot the service processor. Return the service processor to the customer. Then go to Chapter 8, “CE Leaving Procedure” on page 8-1.

    No

    - If you have already changed the suspected FRU, there is another problem, go to “How to Test the 3172 Service Processor” on page 6-35
    - Otherwise, exchange the suspected FRU. Go to “3172 Service Processor FRU / CD-ROM Exchange” on page 6-40.

How to run Diagnostic On the Multiprotocol Adapter Card

1 Power OFF then Power ON the service processor

2 When the **F1**-key prompt appears on the screen under the **IBM** logo press the **F1** key.

3 When the **Main Menu** is displayed, simultaneously press the **Ctrl/A** keys.

4 The **Advanced Diagnostic Menu** is displayed. Select the **Run System Checkout** option and press the **Enter** key.

5 The next window shows the configuration of your service processor. Press **Y** to continue.

6 The **Test Selection Menu** is displayed. Select the **Run the Test one time** option and press the **Enter** key.

7 On the **Device Test Menu**, select the **1 Multiprotocol Adapters** option and press the **Enter** key.

8 Follow the prompts. When you are asked to use wrap on the multiprotocol adapter, press the **N** key.

9 Follow the prompt to disconnect the cable at the rear of the multiprotocol adapter card, then press the **Enter** key.

10 When the test is successfully completed the **Test Selection Menu** is displayed.

11 Reinstall the cable at the rear of the multiprotocol adapter card, then follow the prompts to exit.

12 Is the diagnostic error free?

Yes

- If you have changed the multiprotocol adapter card, follow the prompts to re-boot the service processor. Return the service processor to the customer. Then go to Chapter 8, “CE Leaving Procedure” on page 8-1.
- If you are investigating on modem problem and if modem is OK suspect the cable between the service processor and the modem.

No

- If you have already changed the suspected FRU, there is another problem, go to “How to Test the 3172 Service Processor” on page 6-35
- Otherwise, exchange the suspected FRU. Go to “3172 Service Processor FRU / CD-ROM Exchange” on page 6-40.

3172 Service Processor FRU / CD-ROM Exchange

FRU Exchange Procedures

You are here to exchange the display, or the FRU on the service processor.

Selection	Action
service processor FRU exchange	Go to “Service Processor FRU Exchange” on page 6-41
CD-ROM exchange	Go to “Service Processor CD-ROM Exchange” on page 6-61

Service Processor FRU Exchange

Before any FRU exchange, you must remove the service processor from the rack following the above procedure:

1 Switch OFF the display and the service processor using their respective power ON/OF switch located on the front panel.

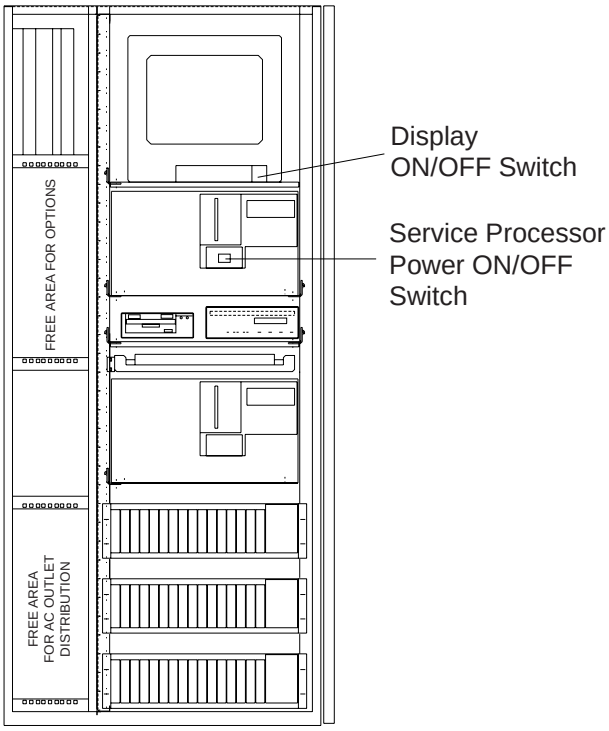


Figure 6-2. Rack Components Location

2 On the rear of the service processor disconnect all the cables.

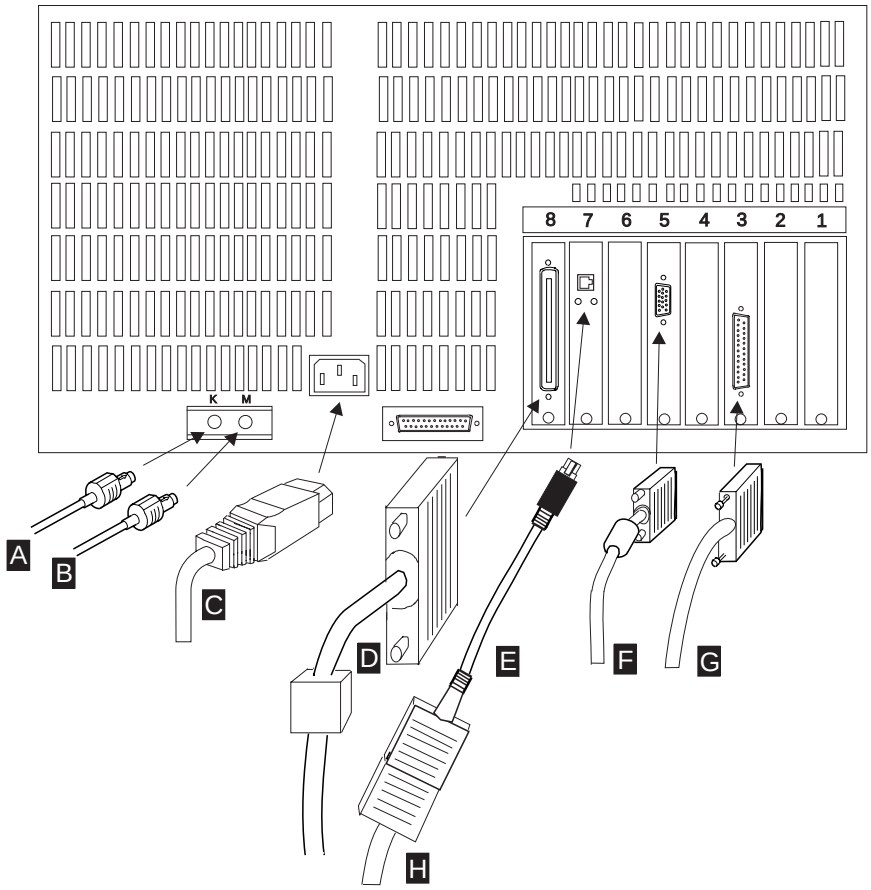


Figure 6-3. Service Processor Cables

3 Slide out the service processor from the rack and install it on a table to continue the FRUs removal.

Warning

Be carefull the weight of the processor is about 16 kg.

FRU Exchange

4 Use the following table to find the procedure you need to follow to exchange a FRU.

Service Processor FRU to Exchange	Action
LAN Adapter **XGA Adapter** **Multiprotocol Adapter** **SCSI**	Go to “Adapter Card Exchange Procedure” on page 6-45 for FRU replacement, then **return here** and continue with step **5 on page 6-43** .
Other FRU	1. Go to the *3172 Interconnect Controller Maintenance Information Model 3*, SY27-0334 manual chapter *Repairing the 3172 Model 3* for FRU replacement, then **return here**. (If you have to exchange the fixed disk to not forget to set its SCSI address to 6). 2. Continue with step **5 on page 6-43** .

5 For setting up the service processor after FRU exchange use the following steps:

a Re-install all the covers of the processor.

b Slide the processor into the rack.

c At the rear of the processor re-connect all the cable previously removed (see Figure 6-3 on page 6-42).

d **Some FRUs of the processor need and additional procedure after exchanging.** Use the following table to find the MAP you need to follow, according to the FRU that you have exchanged.

Service Processor FRU to Exchange	Action
System Board	Go to “Procedure after System Board or Battery Exchange” on page 6-50
Hard Disk Drive	Go to “Procedure after Hard Disk Drive Exchange” on page 6-55
LAN Adapter	Go to “Procedure after LAN Adapter Exchange” on page 6-53
Battery	Go to “Procedure after System Board or Battery Exchange” on page 6-50
Other FRUs	Go to “How to Test the 3172 Service Processor” on page 6-35

How to identify your processor type

The processor installed on your machine can be a Pentium** processor or 80486 DX2 processor. Check the processor type installed on your machine using the two following pictures.

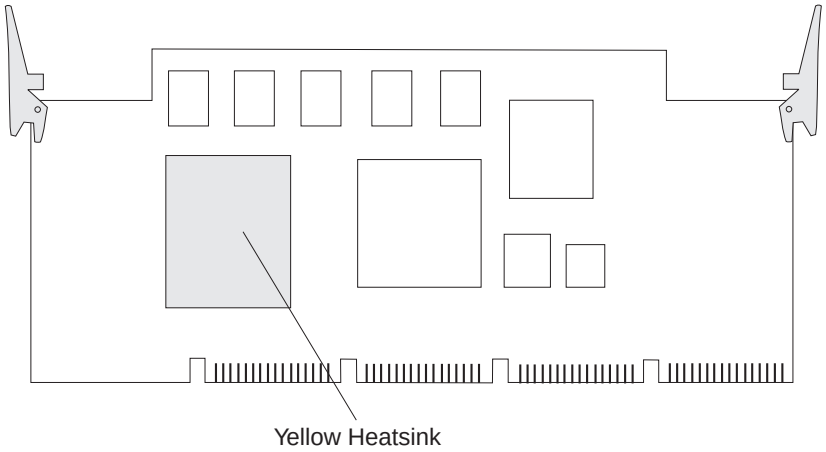


Figure 6-4. 80486 Processor Card

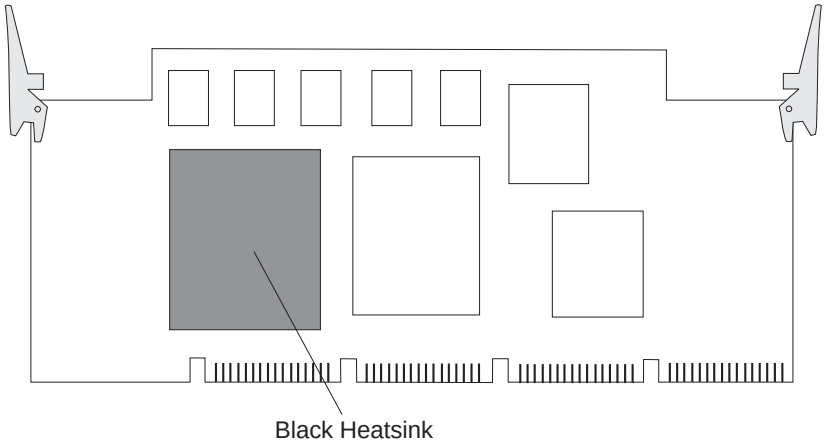
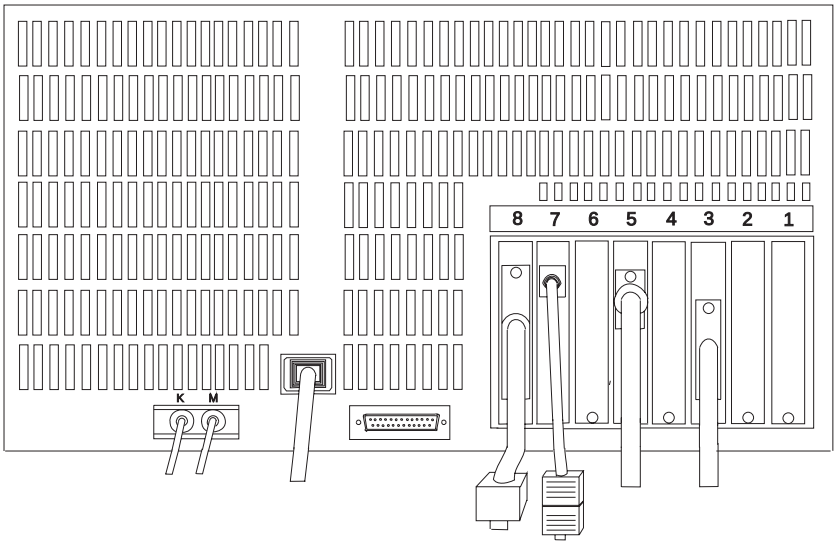


Figure 6-5. Pentium Processor Card

Adapter Card Exchange Procedure

Removing Adapter

1 Locate the adapter that you want to exchange.



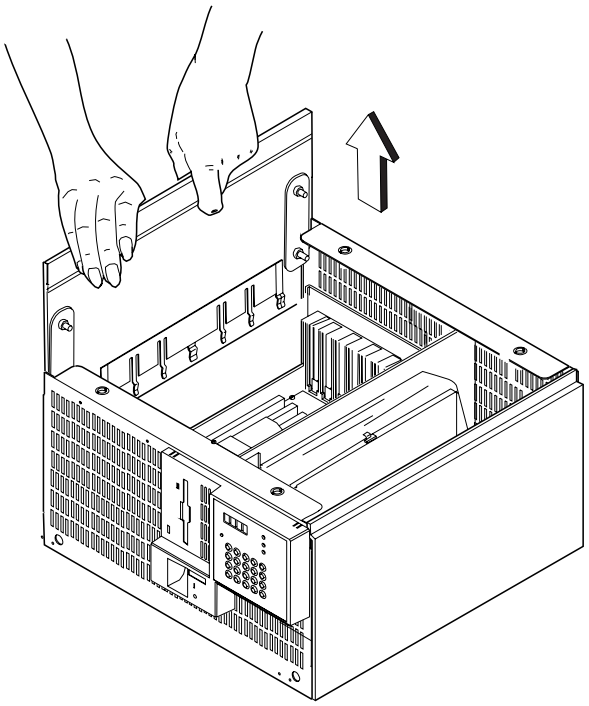
Card	Slot Location
Multiprotocol Adapter	Slot 3
XGA Adapter	Slot 5
LAN Adapter	Slot 7
SCSI	Slot 8

2 Remove the top cover

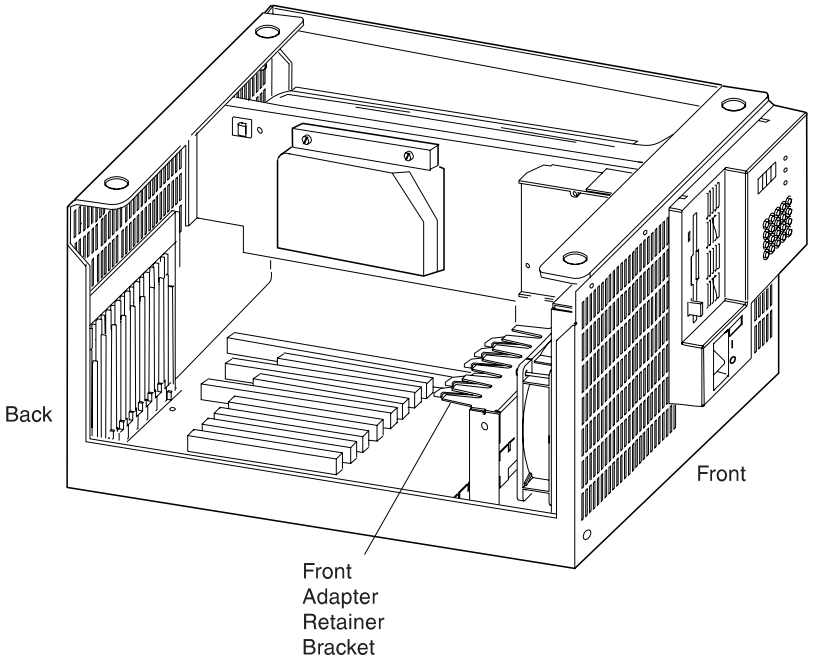
a. Loosen the quarter-turn fasteners on the top of the processor.
b. Hold the edges of the top and lift up.
c. As you remove the top, note the position of the plastic baffle attached to the inside surface. You must reinstall the top so that the baffle covers the left side of the processor.

3 To loosen the left side piece.

a. Loosen, but not remove, the four screws with a screwdriver.
b. Holding the top of the sidepiece with both hands, lift straight up.



4 Locate the adapter retainer bracket, and remove the two screws from the front adapter retainer bracket and raise the bracket.

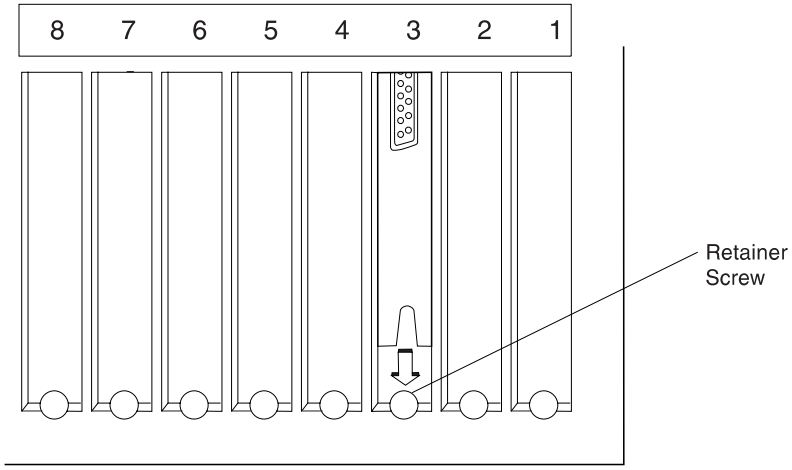


5 Loosen the retainer screw on the adapter you want to remove.

6 Pull the adapter firmly with both hands.

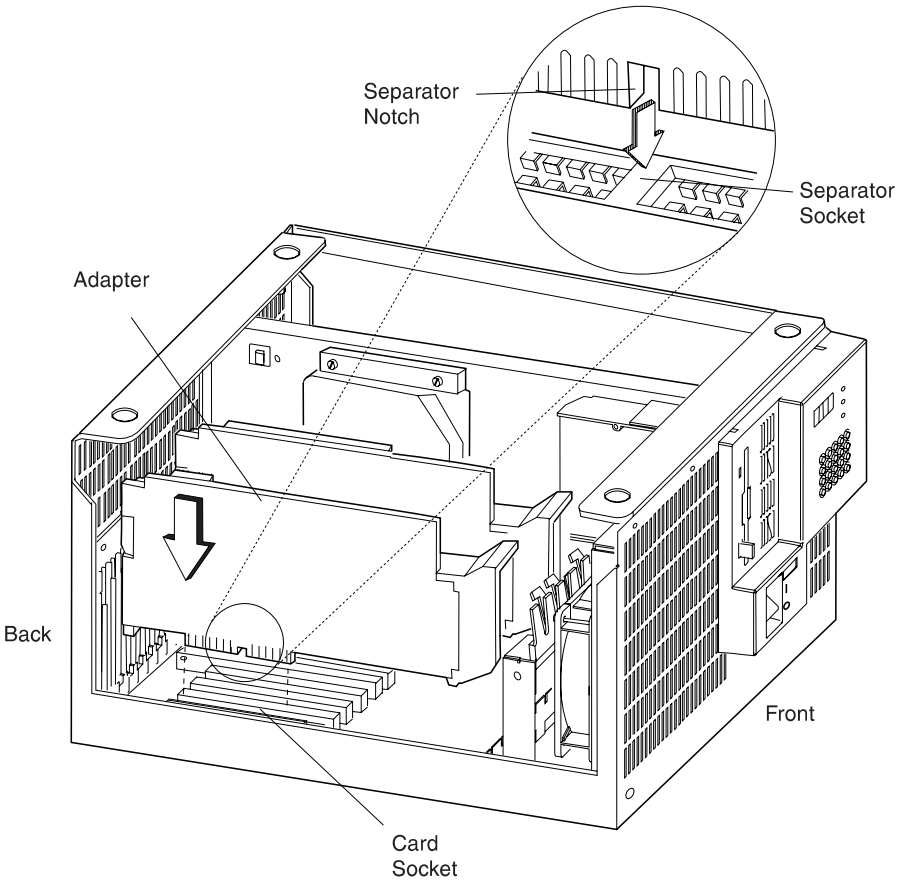
Installing Adapter

1 Slide the adapter down the back of the base uit, above the card socket you intend to use, until the notch on the bottom of the card retainer straddles the retainer screw.



Rear View

2 Align the separator notch on the edge connector of the adapter with the separator in the card socket.



3 Press the adapter into the notch at the bottom of the front retainer bracket.

4 Press the adapter firmly into the card socket.

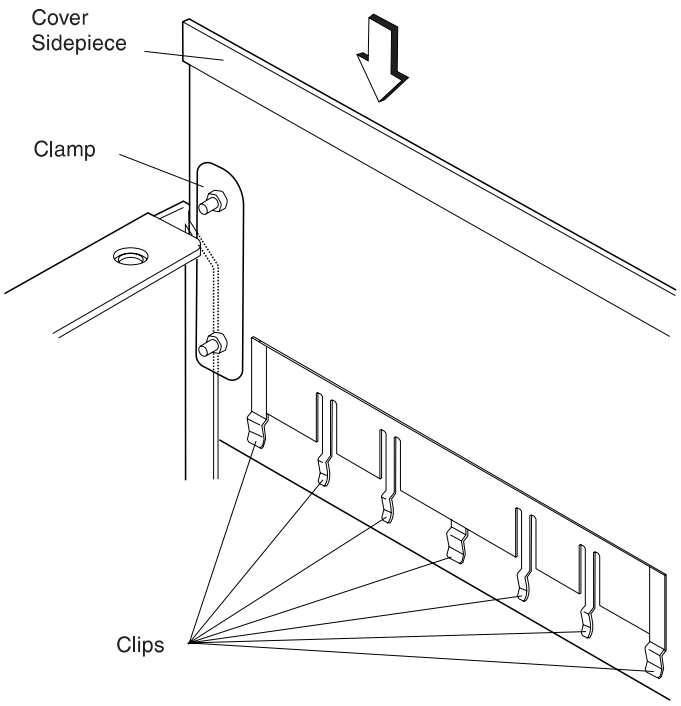
5 Tighten the adapter retainer screw with your fingers.

6 Secure the front retainer bracket with its two screws.

7 Reinstall the sidepiece of the cover:

a. Hold the sidepiece so that the clips are on the bottom.

b. Slide the sidepiece down, so that the lips on the sides of the processor are between the sidepiece and the clamps on the cover.



c. Make sure that the clips on the bottom of the sidepiece are attached firmly to the lip on the bottom of the processor.
d. Tighten the four retainer screws with a screwdriver to clamp the side firmly.

8 Reinstall the top of the cover:
a. Position the top so that the plastic baffle is inside the top on the left as you face the front of the processor.
b. Slide the top down, placing the top so that its edges overlap the top edges of the sidepiece.
c. Tighten the four retainer screws with a screwdriver.

9 Return and continue with step **5 on page 6-43** .

Procedure after System Board or Battery Exchange

1 After board or battery exchange, power ON the service processor.

2 Error message appears briefly:

```
Configuration not valid or system complex error
The Date and Time are not set
```

3 Then the following screens are displayed: Follow the prompts.

```
            Configuration error- 00173

Continue with the computer automatically configures
itself to the normal setting.

Then turn off the computer for 30 minutes or more.
Turn on the computer. If the errors appear again, then
replace the battery. (see the system documentation)
After the battery has been replaced, if the error
continues to appear, then have the system unit serviced.

Note: Some computer have a battery that must be

    F8=Fwd
```

Press the **F8** key.

```
            Configuration error- 00173

replaced by trained serive personel only.
If your system documenation has no information
about the battery, then have the system unit
serviced.

 Enter F7=Bwd
```

Press the **Enter** key.

```
            Message

Set the date and Time before running
automatic configuration.

 Enter
```

Press the **Enter** key.

```
            Set the Date and Time

Type the current Date and Time
     Current Date: MM-DD-YYYY
     Current Time: HH-MM-SS

 Enter
```

Set date and time and press the **Enter** key.

```
            Message

The date and time have
been updated

 Enter  Esc=Cancel
```

Press the **Enter** key.

```
            Message

The automatic configuration
is running
```

```
            Message

The automatic configuration program
is complete

 Enter
```

Press the **Enter** key.

```
            Message

The system will restart

 Enter
```

Press the **Enter** key.

4 When the **F1**-key prompt appears on the screen, under the **IBM** logo press the **F1** key.

5 The **Main Menu** is displayed after memory test.

6 On the **Main menu** window, select the **Set Configuration** option and press the **Enter** key.

7 A **Set Configuration** window is displayed.

8 Select the **Change Configuration** option and press the **Enter** key.

9 A **Change Configuration** window is displayed.

10 Check on slot 7 the parameter values for the IBM Token-Ring Network 16/4 Adapter. These values must be the same as indicated in “Service Processor Hardware Configuration Reference (3172)” on page B-16.

11 If these values need to be changed, use the **F6** key to change them.

- `Primary or alternate adapter....(Primary)` **1**
- `Adapter Data Rate..............(16 Mbps)` **1**
- `ROM Address Range..............(XXXXX-XXXXX)` **1**
- `RAM Size and Address Range......(16 KB / XXXXX-XXXXX)` **1**
- `Interrupt level.................Interrupt x` **2**

Notes:

a. **1** When there is a conflict for setting these parameters an '*' is displayed on right side of the screen.

b. **2** Interrupt level is set automatically by the service processor (see “Service Processor Hardware Configuration Reference (3172)” on page B-16).

12 When the changes has been done use the **F10** key to save the option, then press **Enter** and **F3** key to exit.

13 Follow the prompts to restart the system, then continue with step **14** .

14 The service processor continues its IML until the **MOSS-E View** window is displayed with a window prompting you to enter a password.

15 Is the **MOSS-E View** window displayed?

Yes Problem solved. Go to Chapter 8, “CE Leaving Procedure” on page 8-1.

No There is another problem. Restart the problem determination using the “MAP: Entry Point for Problem Isolation” on page 4-1.

Procedure after LAN Adapter Exchange

You are here after exchanging the LAN adapter card.

1 The default adapter data rate and the default RAM size must be changed using one of the following procedures.

Change the LAN Adapter configuration Using:	**Go to:**
The Service Processor Hard Disk	Step **2**
The Reference Diskette	Step **9**

2 Press the power ON button on the service processor front panel.

3 When the **F1**-key prompt appears on the screen, under the **IBM** logo press the **F1** key.

4 If a transient error message appears, ignore it.

5 If you obtain:

a The **Main Menu** window go to step **8** .

b The **Adapter Configuration Error** window, go to step **6** .

c A steady error, restart problem determination using the “MAP: Entry Point for Problem Isolation” on page 4-1.

6 Press the **N** key.

7 The **main Menu** is displayed.

8 On the **Main menu** window, select the **Set Configuration** option and press the **Enter** key, then go to step **13** .

9 Insert the **Reference Diskette** in the service processor.

10 Power ON the service processor.

11 When the **F1**-key prompt appears on the screen, under the **IBM** logo press the **F1** key.

12 On the **Main menu** window, select the **Set Configuration** option and press the **Enter** key.

13 A **Set Configuration** window is displayed.

14 Select the **Change Configuration** option and press the **Enter** key.

15 A **Change Configuration** window is displayed.

16 Check on slot 7 the parameter values for the IBM Token-Ring Network 16/4 Adapter. These values must be the same as indicated in “Service Processor Hardware Configuration Reference (3172)” on page B-16.

17 If these values need to be changed, use the **F6** key to change them.

- Primary or alternate adapter....(Primary) **1**
- Adapter Data Rate..............(16 Mbps) **1**
- ROM Address Range..............(XXXXX-XXXXX) **1**
- RAM Size and Address Range......(16 KB / XXXXX-XXXXX) **1**
- Interrupt level.................Interrupt x **2**

Notes:

a. **1** When there is a conflict for setting these parameters an '*' is displayed on right side of the screen.

b. **2** Interrupt level is set automatically by the service processor (see “Service Processor Hardware Configuration Reference (3172)” on page B-16).

18 When the changes has been done use the **F10** key to save the option, then press **Enter** and **F3** key to exit.

19 Follow the prompts to restart the system. Then continue with step **20** .

20 The service processor continues its IML until the **MOSS-E View** window is displayed with a window prompting you to enter a password.

21 Is the **MOSS-E View** window displayed?

Yes Problem solved. Go to Chapter 8, “CE Leaving Procedure” on page 8-1.

No There is another problem. Restart the problem determination using the “MAP: Entry Point for Problem Isolation” on page 4-1.

Procedure after Hard Disk Drive Exchange

Before starting this procedure check the processor type installed on your machine refer to "How to identify your processor type" on page 6-44 .

1 Run the advanced diagnostic tests using the following procedure:

a Insert the **Reference Diskette** in the diskette drive, then power On the service processor.

b If an IML error message is displayed, press **Enter**.

c The **IBM** logo appears on the screen, wait until the **Main Menu** of the system programs is displayed.

d To start the Advanced Diagnostic program, press and hold **Ctrl**, then press **A**. A message appears telling you to insert the diagnostic diskette, follow the prompts.

e The **Advanced Diagnostic Menu** is displayed. Select the **Run System Checkout** option and press **Enter**.

f Diagnotics are loaded, then you are asked to insert another diagnostic diskette. If the processor installed on your machine is:

- A Pentium processor, press the **N** key then go to Step **1h** .
- A 80486 processor insert the second diagnostic diskette, press the **Y** key then go to Step **1g** .

g When your are asked to insert another diagnostic diskette, remove the **Diagnostic diskette**, then press on the **N** key.

h The next window shows the configuration of your service processor. Press **Y** to continue.

i The **Test Selection Menu** is displayed. Select the **Run the Test one time** option and press **Enter**.

j On the **Device Test Menu**, select the **1-SCSI Hard Disk** option and press **Enter**.

k If you have:

- A Pentium processor continue with Step **1l** .
- A 80486 processor continue with Step **1n** .

l On the **Select the SCSI Hard Disk to test**, select the **Test All** option, then press **Enter**.

m On the **SCSI Hard Disk tests**, select the **Run all tests** option, then press **Enter**. Continue with Step **1o** .

n On the **Select the SCSI Hard Disk to test**, press **Enter**.

o Follow the prompts displayed during diagnostics.

p When the hard disk has been successfully tested the **Select the SCSI Hard Disk to Test** window is again displayed.

2 Is the diagnostic error free?

Yes **You must format, restore the partition, then restore the system on the service processor hard disk after its replacement**. Continue with the Step **3** .

No Go to the *3172 Interconnect Controller Maintenance Information Model 3*, SY27-0334 manual.

3 Perform the format of the hard disk using the following procedure.

a On the **Select the SCSI Hard Disk to Test** window, press **F3** to exit.

b On the **Test Selection Menu** window, press **F3** to exit.

c A window of instructions is displayed. Following the prompt remove the **Diagnostic diskette**, insert the **Reference diskette** in the diskette drive then press **Enter**.

d The **IBM** logo appears on the screen.

e If an IML error message is displayed, press **Enter**.

f The **IBM** logo appears on the screen, wait until the **Main Menu** of the system programs is displayed.

g Press and hold **Ctrl**, then press **A**. A message appears telling you to insert the diagnostic diskette, follow the prompts.

h The **Advanced Diagnostic Menu** is displayed. Select the **Format the Hard Disk** option and press **Enter**.

i On the **Select the SCSI Hard Disk Drive** select the disk to format the press **Enter**.

j On the **Select the Operation to Perform** window, select **Format a SCSI hard Disk** option then press **Enter**.

k Follow the prompts.

l When format is completed press **Enter** to return to the **Select the Operation to Perform** window. Use the **F3** key to exit, then continue with Step **4** .

4 Restore the partition on the hard disk using the following procedure.

a Remove the **diagnostic diskette** from the diskette drive. Install the **Reference Diskette** press **Enter**.

b The **IBM** logo appears on the screen, wait until the **Main Menu** of the system programs is displayed.

c Select **Backup/Restore system programs** option then press **Enter**.

d On the **Backup/Restore System Programs** window, select the **Restore the System Partion** option, then press **Enter**.

e Follow the prompts.

f When restore partition is complete insert the **Reference Diskette** then press **Enter**.

g Follow the prompts to exit.

h Continue with the Step **5** .

5 Restore the system on the service processor using the following procedure.

a Remove the diskette from the diskette drive.

b Install the 'Service Processor Installation Diskette 1' in the diskette drive (verify that write is enabled).

c Install the CD-ROM which contains the latest version of the LIC in the drive.

d Simultaneously press the **Ctrl/Alt/del** keys on the keyboard.

e When the IBM logo is displayed press **Enter**.

f The following window is displayed:

```
You are going to restore the SP hard disk from the CD-ROM.
During this procedure, you will be prompted to insert the
configuration parameter diskette.
Before proceding:
- Ensure that this diskette contains the latest customer
  configuration parameters.
- Press enter to proceed or escape to exit.
```

Press **Enter**.

g Follow the prompts until the following window is displayed:

```
Please insert configuration parameters diskette 1
Press Enter to continue.
```

Insert the configuration parameters diskette then press **Enter**.

h Follow the prompts to re-insert the service processor installation diskette, then press **Enter**.

i Wait (time duration is about 25 minutes) until the following window is displayed:

```
LIC RESTORATION HAS SUCCESSFULLY COMPLETED
Press Enter to continue.
```

Press **Enter**, then follow the prompts.

j The following windows appear successively:

```
Please wait fo the MOSS database building (10 mn)
```

```
Please wait fo the MOSS LSCT restoration (8 mn)
```

k The **MOSS-E View** window is displayed followed by:

```
Service processor customization in progress.
It may take a few minutes to complete.
Please wait..
```

```
Service processor customization is terminated.
The service processor will reboot.
Please wait..
```

l The **MOSS-E View** window is displayed followed by a window asking the password. Enter the password.

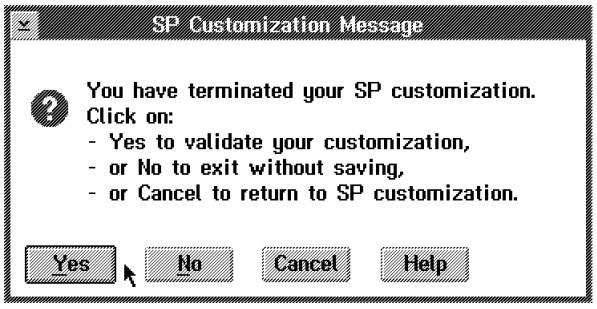
m The **Installation Chaining Process** window is displayed:

```
You can now customize your service processor.

OK    Cancel
```

Click on **OK**

n Check and modify parameters setting if necessary (refer to “Step 5 - Customizing Your Service Processor” on page 1-85 for details). Click on **Next>>** to go to the next windows.

o When the following window is displayed:



Click on **Yes**.

p Follow the prompts until the following window is displayed:

```
Customization ended
```

Click on **OK**.

Note: If the code level that you have just installed is different from the code installed on NNP you must also change it (refer to *Network Node Processor Installation and Maintenance (Based on 7585 or 3172)*, SY33-2112).

q Then go to Chapter 8, “CE Leaving Procedure” on page 8-1.

Procedure after Pentium Processor Card Exchange

1 Insert the **Post/Bios Update** diskette.

2 Switch ON the service processor

3 The IBM logo appears on the screen, the memory tests run (**Do not press any key**).

4 A new IBM Post/Bios Update appears briefly followed by the following screen.

```
            Instructions

There is important system-specific information
in the file READ004.ME, located on this
Diskette. You should read the information
before continuing with the procedure.

Press Enter to read the information now, or
press Esc to continue with the POST/BIOS
update. Press Ctrl+Alt+Del to cancel
this procedure and restart the system.

Enter  Esc=Cancel
```

5 Press the **Esc** key.

```
            Warning

This procedure will update the system
POST/BIOS code.

Press Enter to continue with the POST/BIOS
update or press Esc to cancel it.

Enter  Esc=Cancel
```

6 Press the **Enter** key and follow the prompts displayed on the screen.

7 When the POST/BIOS update is complete follow the prompt to remove the **Post/Bios Update** diskette, and press the **Enter** key.

8 The service processor continues its IML until the **MOSS-E View** window is displayed with a window prompting you to enter a password.

9 Is the **MOSS-E View** window displayed?

Yes Problem solved. Go to Chapter 8, “CE Leaving Procedure” on page 8-1.

No There is another problem. Restart the problem determination using the “MAP: Entry Point for Problem Isolation” on page 4-1.

Service Processor CD-ROM Exchange

Exchange the CD-ROM drive using the following procedure:

1. At the rear of the CD-ROM:
   a. Power OFF the CD-ROM drive using the power ON/OFF switch
   b. Disconnect the CD-ROM drive power cable from the ac outlet distribution box then from the rear of the unit.
   c. Disconnect the signal cable and the terminator plug.
2. Exchange the CD-ROM
3. On the new CD-ROM drive that you are exchanging, set the identification number (ID) as it was on the removed CD-ROM.

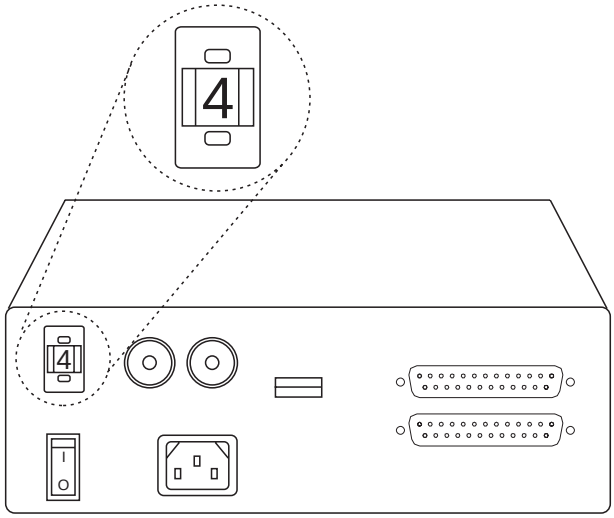


Figure 6-6. ID Setting on CD-ROM

4. To change the ID, press the little button on the top or bottom of the ID display.
5. At the rear of the CD-ROM drive:
   a. Install the terminator plug previously removed.
   b. Reconnect the signal cable.
   c. Connect the power cable at the rear of the unit, then in the ac outlet distribution box.
6. Power ON the CD-ROM drive.
7. Run the diagnostics on the CD-ROM. Go to “How to run Diagnostic On the CD-ROM” on page 6-38.

Chapter 7. 9585 Service Processor

MAP: 9585 Service Processor Troubleshooting 7-2
Beep Symptoms 7-19
No-Beep Symptoms 7-19
Miscellaneous Symptoms 7-19
Display Self-Test 7-22
Keyboard Voltage Check 7-23
Power-Supply Voltage Check (9585) 7-24
Undetermined Problems 7-25
Record Customer Symptom 7-25
Devices List 7-26
Missing Non-SCSI Device 7-26
Missing SCSI Device 7-26
If both a non-SCSI device and a SCSI device are missing from the Devices List 7-27
SCSI Device Default Settings 7-27
SCSI Diagnostic Tests 7-28
Using SCSI ID to Help Isolate Failures 7-28
The Error Code Format 7-28
RDDD Codes for Adapters 7-29
RDDD Codes for Devices 7-29
Memory Problems 7-30
Determining Failing Memory Location 7-30
Determining Memory Type, Size and Speed 7-31
Finding the Failing Memory 7-31
Printer Errors 7-33
Real-Time Clock Problems 7-33
Restoring the System Partition 7-33
Using the Low-Level Format Program 7-34
When to Run the Low-Level Format Program 7-34
How to Run the Low-Level Format Program 7-34
Preparing the Hard Disk for Use 7-34
Cover Lock and Tamper-Evident Switches 7-34
How to Run the 9585 Service Processor Diagnostics 7-35
1- Diagnostics Invocation from Diskettes 7-35
2- Diagnostics Invocation from the Hard Disk 7-35
Service Processor Advanced Diagnostics 7-35
9585 Service Processor FRU / CD-ROM Exchange 7-37
MAP: 9585 Service Processor Board Exchange 7-38
MAP: 9585 Service Processor LAN Adapter Exchange 7-39
MAP: 9585 Service Processor Hard Disk Drive Exchange 7-41
MAP: 9585 Service Processor Battery Exchange 7-44
MAP: 9585 Service Processor Integrated Modem Exchange 7-45
MAP: Other FRU Exchanges for the 9585 Service Processor 7-46
MAP: Service Processor CD-ROM Exchange 7-47
MAP: Set Time and Date 7-48
MAP: Recording the Vital Product Data on a New System Board 7-49

© Copyright IBM Corp. 1998

MAP: 9585 Service Processor Troubleshooting

Note about POST error code

The zeros before and after the error code may be not present for some PS/2 models. Messages might appears on your screen as three-, four-, or five-characters messages. When this occurs, add two zeros after the last characters and one, two, or three zeros before the first character, so that you can look up the error as an eight-character message.

Example:

101 displayed means 00010100

1701 displayed means 00170100

16680 displayed means 01668000

001

- Power-off the system.
- Check all cables and power cords.
- Make sure there are no diskettes in the drives.
- Set all display controls to the middle position.
- Power-on the system.

Note: If you get a POST error code, press the pause key (while the error code is on the screen). Write down any error codes that are displayed, then press F1 to continue.

DID YOU RECEIVE A POST ERROR CODE?

Yes **No**

002

Go to Step 009 on page 7-18.

003

IS THE FIRST POST ERROR CODE WITHIN THE RANGE OF I999XXXX OR I998009X?

Yes **No**

004

Go to Step 006 on page 7-4.

005

Check your FIRST POST ERROR with the following list.

Symptom / Error	FRU / Action
I**998009**X	1. **Restore System Partition**

Symptom / Error	FRU / Action
I**999001X**, I**999002X**, I**999003X**, I**999004X**, (The actions for these errors are valid only when running the system from the hard disk.)	. 1. Restore the system partition. if you need assistance, see “Restoring the System Partition” on page 7-33.
I**9990053**, I**9990054**, I**9990056**, I**9990057**, I**9990059**, I**9990063**, I**9990067**, I**9990069** (The actions for these errors are valid only when running the system from the hard disk.)	1. Restart the computer from the Reference Diskette. If the same error code appears, try the new System diskettes.
I**999006X**	1. Power-Off the computer. Insert the Reference Diskette, toggle the override jumper, then power-ON the computer. Then restore the System Partition. If you need assistance, see “Restoring the System Partition” on page 7-33.
I**999007X**, I**999009X** (The actions for these errors are valid only when running the system from the hard disk.)	1. Restore the System Partition. if you need assistance, see “Restoring the System Partition” on page 7-33.
I**99900X1**, I**99900X2**, I**99900X3**, I**99900X4**, I**99900X6**, I**99900X7**, I**99900X9** (The actions for these errors are valid only when running the system from the System Diskette.)	1. Restart the computer from the Reference Diskette. If the same error code appears, try new System Diskettes.
I**99900X5** (Reference Diskette recovery prevented)	1. Power-off the computer, toggle the power-on password override jumper then, power-on the computer.
I**9990301** (Boot routine unable to read boot record. This is probably a hardware failure).	1. Cable Failure 2. Wrong Termination 3. SCSI Adapter/Controller 4. Hard Disk
I**9990302** (No operating system found on the default SCSI hard disk)	1. Install an operating system. 2. Check for a valid selectable startup sequence.
I**9990303** The IML code did not load from the System Partition.	1. Restore the System Partition. If you need assistance see “Restoring the System Partition” on page 7-33.
I**9990304** (No startable device found. This error is on ASCII console only.)	1. No operating system installed 2. Selectable startup sequence does not contain the default drive.
I**9990305** (No startable device found.)	1. No operating system installed. 2. Selectable startup sequence does not contain the default drive.

Symptom / Error	FRU / Action
I**9990306** (Invalid startup. trying to start from a CD ROM drive).	. 1. Restart the system from a startable diskette or hard disk.
I**9990401** (Unauthorized access. Type or erase the power-on password before replacing any FRUs.)	1. **System Board** **Processor Board** **Note**: Whichever contains the system ROM
I**9990402**, I**9990403**	1. **System Board** **Processor Board** **Note**: Whichever contains the system ROM
I**9990600**, I**9990607**, I**9990609** (Recovery prevented)	1. Power-off the computer. Insert the Reference Diskette, toggle the override jumper, then power-on the computer. Then, restore the system partition. If you need assistance, see “Restoring the System Partition” on page 7-33.

Note: I999002X will occur even when the hard disk drive is removed from the SCSI adapter, the SCSI configuration, and the set startup function.

006

Check your FIRST POST ERROR with the following list.

Symptom/Error	FRU/Action
000**101**XX (Interrupt failure. Possibly a bad battery or processor.)	1. **Run Advanced Diagnostics**
000**102**XX (ROM checksum or timer error. Possibly a bad battery or processor.)	1. **Run Advanced Diagnostics**
000**10300** (Checksum or timer error.)	1. **System Board**
000**102**XX, 000**103**XX 000**104**XX, 000**107**XX	1. **System Board** 2. Processor Board
000**105**XX (Command not accepted)	(Information only)
000**106**XX (Converting logic test failure)	1. **Run Advanced Diagnostics**
000**107**XX, 000**108**XX 000**109**XX (Interrupt memory or memory failure)	1. **System Board Memory** 2. System Board 3. Any Adapter 4. Bus Adapter
000**110**XX (Check memory)	1. **Memory Module Kit** 2. System Board
000**111**XX	1. **Adapter Memory** 2. Expansion Adapter

Symptom/Error	FRU/Action
000**112**XX, 000**113**XX (Possible timeout error)	1. **System Board**
000**114**XX (ROM error)	1. **Any Adapter** 2. Bus Adapter
000**115**XX (80386 protect mode failure, or BIOS checksum error)	1. **Run Advanced Diagnostics**
000**116**XX (Possible read/write problem)	1. **Run Advanced Diagnostics**
000**118**XX (Previously detected error. Run the Advanced Diagnostic test.)	1. **System Board Memory**
000**119**XX	2.88MB diskette drive is installed but not supported.
000**120**XX (Possible processor sel test failure)	1. **System Board**
000**12201**, 000**12202**XX 000**12203**, 000**12204**XX 000**12205**, 000**12206**XX 000**12207**, 000**12208**XX (Data error. Possible system board failure)	1. **Run Advanced Diagnostics**
000**130**00 (POST could not start the operating system. Operating system loaded? Is the boot drive in the selectable sequence?)	1. Check Drive Sequence.
000**130**01 (Security system is being used, but the computer is not totally secured because there is a diskette drive in the startup sequence.)	1. Delete diskette drive from the startup sequence if so desired.
000**130**02 (Drive startup sequence is corrupt or invalid.)	1. **Run Automatic Configuration** then reset the selectable drive startup sequence. If the problem still exists, replace the system board.
000**130**03 (EEPROM could not be read.)	1. **Run Automatic Configuration**. If the problem still exists, replace the system board.
000**131**XX	1. **System Board**.
000**132**XX (DMA extended registers error.)	1. **Run Advanced Diagnostics**.
000**133**XX (DMA verify function error. Logic failed.)	1. **Run Advanced Diagnostics**.
000**134**XX (DMA arbitration logic error.)	1. **Run Advanced Diagnostics**.
000**14905**	1. **System Board** 2. Processor Board

Symptom/Error	FRU/Action
000**14908**, 000**14909** Before replacing any FRUs, see "Cover Lock and Tamper-Evident Switches" on page 7-34.	1. **System Board** 2. Tamper evident switches 3. Keylock assembly
000**152**XX Real time clock error. This is not always a hardware failure. Also see "Real-Time Clock Problems" on page 7-33.	1. **Run Advanced Diagnostics**
000**156**XX (Security error. The covers were removed without using the key. The tamper evident switch was tripped.)	1. Start the system from the Reference Diskette and reconfigure the system. 2. Security switch assembly 3. System Board
000**160**XX (System board ID not recognized. Possible system board failure.)	1. **Run Advanced Diagnostics**
000**161**XX **CAUTION** The Lithium battery (IBM part number 33F8534) in your computer presents a fire, explosion, or severe burn risk. Use of another battery could result in ignition or explosion of the battery.	1. **Battery** 2. System Board 3. Bus Adapter
000**162**XX Be sure all devices are powered-on. (Check enable/Disable settings) Configuration changed? If so, run Automatic configuration again.	1. **Any Device** 2. Battery
000**163**00 (Date and time error.)	1. **Set Date and Time**
000**160**00, 000**164**00 000**165**00, 000**167**00 000**169**00 (If setting configuration date and time does not solve the problem, see "Devices List" on page 7-26 before replacing any FRUs.)	1. **Set Configuration/Features** 2. System Board
000**166**XX (Reseat all adapters.)	1. **Run Advanced Diagnostics**
000**168**XX (Real time clock error. This is not always a hardware failure. Also see "Real-Time Clock Problems" on page 7-33.)	1. **Run Advanced Diagnostics**
000**169**XX Processor configuration error. (Run Auto Configuration, then verify that the processor configuration information is correct before replacing FRUs.)	1. **System Board**

Symptom/Error	FRU/Action
000**171**XX	1. **Battery** 2. System Board 3. Bus Adapter
000**172**XX	1. **System Board**
000**173**XX (Possibly a weak battery.)	1. **SEt Configuration/Features**
000**174**XX (If the configuration has been changed, run Automatic Configuration. Otherwise, run Advanced Diagnostics.) (Check “SCSI Device Default Settings” on page 7-27.)	1. **Any Device** 2. System Board 3. Bus Adapter
000**175**XX (Security error. The system board EEPROM failed.)	1. **System Board**
000**176**XX (Security error. The covers were removed without using the key. The tamper evident switch was tripped.)	1. Start the system from the Reference Diskette and reconfigure the system. 2. Security switch assembly 3. System Board
000**177**XX, 000**178**XX (Security error. Passwords corrupted.) Reset.	1. **System Board**
000**179**XX (System Error log might be full.)	1. Run the Advanced Diagnostic tests. If the problem remains, clear the error log.
000**181**XX (The computer requires a hard disk drive ID of 6 LUN 0 for IML. That was not detected.)	1. **Run Automatic Configuration** 2. Hard Disk Drive 3. System Board
000**182**XX (Privileged access password (PAP) is corrupted. To restore it, move jumper JMP2 to position "0" write enable.	(Information only)
000**183**XX (Wrong password entered.)	1. Enter the privileged access password (PAP) instead of the power-on password.
000**184**XX (Power-on password corrupted.)	1. User must reset the password.
000**185**XX (Selectable satrup sequence corrupted.)	1. Run **Select Startup Sequence** utility. Reset user's chosen startup sequence.
000**186**XX (Security error. Hardware failed.)	1. **System Board**

Symptom/Error	FRU/Action
000**187**XX Vital Data Product (VPD) errord. System serial number information corrupted.	1. Select **Set System Identification** from the Reference Diskettte, system partition and type the system serial number. If problem remains, suspect the system board.
000**188**XX Vital Data Product (VPD) error.	1. **Run Automatic Configuration**
000**189**XX (The wrong password was entered 3 times. Clear the system error log and restart the system.	(information only)
000**191**XX (82385 cache test failed)	1. **Run Advanced Diagnostics**
000**194**XX	1. **System Board Memory** 2. Memory Module Kit
000**199**XX (user indicated configuration invalid)	(Information only)
000**1XX**XX (not listed above)	1. **System Board** 2. Any Adapter 3. Bus Adapter
000**20X**X**Y**, **000217XY** (Check memeory. See “Memory Problems” on page 7-30)	1. **System Board Memory** 2. System Board
000**210**XX, 000**211**XX (Check memory. See “Memory Problems” on page 7-30)	1. **System Board Memory** 2. System Board
000**214**XX, 000**215**XX, 000**216**XX, 000**221**XX, 000**225**XX, 000**226**XX, 000**235**XX, 000**240**XX, 000**240**XX (Check memory. See “Memory Problems” on page 7-30)	1. **System Board Memory** 2. System Board 3. Bus Adapter
000**221**XX (ROM to RAM parity error)	1. **System Board**
000**231**XX	1. **Expanded Memory Option**
000**245**XX, 000**246**XX (Check memory. See “Memory Problems” on page 7-30)	1. **Processor Board** 2. System Board 3. System Board Memory
000**251**XX (Memory location changed on the memory expansion option)	(Information only)
000**252**XX	1. **System Board**
000**253**XX, 000**254**XX	1. **Processor Board**
000**255**XX (Check memory. See “Memory Problems” on page 7-30)	1. **System Board Memory** 2. System Board

Symptom/Error	FRU/Action
000**290**XX (Unsupported memory combination detected. See “Memory Problems” on page 7-30)	1. Correct the unsupported combination of ECC and parity memory modules. Run Automatic Configuration, rerun Advanced Diagnostics
000**291**XX, 000**292**XX, 000**293**XX, 000**294**XX (Checksum value mismatch)	1. **Run Automatic Configuration**, then rerun Advanced Diagnostics
000**295**XX, 000**296**XX (Check memory for an unsupported configuration or modules. See “Memory Problems” on page 7-30)	1. **System Board Memory**
000**298**XX (Checksum value mismatch)	1. **system Board Memory** **Run Automatic Configuration**, then rerun Advanced Diagnostics
000**301**XX, 000**302**XX	1. **Keyboard Cable** 2. System Board
000**303**XX, 000**304**XX	1. **System Board** 2. Keyboard Cable 3. Keyboard
000**305**XX (Keyboard voltage error. If no fuse in system, replace system board.)	1. **Fuse** 2. Keyboard Cable
000**306**XX (Wrong keyboard attached?)	1. Check for unsupported keyboard
000**307**XX	1. **Keyboard** 2. Keyboard Cable
000**401**XX	1. **System Board**
000**5XX**XX	1. **Display Adapter**
000**601**XX	1. **Defective Diskette** 2. Diskette Drive 3. System Board
000**602**XX (Invalid boot record)	1. **Defective Diskette**
000**604**XX (Check for an unsupported diskette drive.)	1. **Diskette Drive** 2. System Board 3. Diskettte Drive Cable
000**605**XX (Diskette Drive error)	1. **Run Advanced Diagnostics**

Symptom/Error	FRU/Action
000**606**XX, 000**607**XX, 000**610**XX, 000**621**XX, 000**622**XX, 000**623**XX, 000**624**XX, 000**630**XX, 000**631**XX, 000**632**XX, 000**633**XX, 000**640**XX, 000**641**XX, 000**642**XX, 000**643**XX, 000**650**XX, 000**651**XX, 000**652**XX, 000**653**XX, 000**654**XX, 000**656**XX, 000**657**XX, 000**658**XX, 000**659**XX, 000**660**XX (Generally, these are media erros. Try a known good diskette. If the error appears again, replace the drive.)	1. **Diskette** 2. Diskette Drive
000**655**XX	1. **System Board**
000**662**XX (Wrong drive type installed.)	(Information only)
000**663**XX (Wrong media type in the drive.)	(Information only)
000**668**XX	1. **Diskette Drive**
000**6XX**XX (Not listed above)	1. **Diskette Drive** 2. System Board 3. Diskette Drive Cable
0007**XX**XX For a 486 processor, erase COPROC.DGS from the backup Reference Diskette, then restore the system partition from the corrected backup Reference Diskette. Re-run Advanced Diagnostics.	1. **Math Coprocessor** 2. System Board
00**1002**03	1. **System Board**
00**1101**00 (Serial connector error, possible system board failure.)	1. **Run Advanced Diagnostics**
00**1101**XX, 00**1102**00, 00**1106**00, 00**1108**00, 00**1109**00	1. **System Board** 2. Any serial device
00**1107**00	1. **Communications Cable** 2. System Board
00**1102**XX (Card selected feedback error.)	1. **Run Advanced Diagnostics**
00**1103**XX (Port fails register check.)	1. **Run Advanced Diagnostics**
00**1106**XX (Serial option cannot be turned on.)	1. **Run Advanced Diagnostics**
00**1107**XX	1. **Serial Device Cable** 2. System Board
00**1110**XX (Register test failed.)	1. **Run Advanced Diagnostics**
00**1116**XX (16550 interrupt error.)	1. **Run Advanced Diagnostics**

Symptom/Error	FRU/Action
00**1117**XX (Failed baud rate test.)	1. **Run Advanced Diagnostics**
00**11XX**XX (Note listed above) (See "Power-Supply Voltage Check (9585)" on page 7-24 before replacing system board.)	1. **System Board**
00**1201**XX (Check voltages see "Power-Supply Voltage Check (9585)" on page 7-24)	1. **System Board** 2. Any Serial Device
00**1202**XX, 00**1206**XX, 00**1208**XX, 00**1209**XX, 00**12XX**XX	1. **Dual Asyn Adapter/A** 2. System Board 3. Any serial device
00**1207**XX	1. **Communications Cable** 2. Dual Async Adapter/A
00**1290**20 (Disk cache error.)	1. **Cached Processor option** 2. System Board
00**1402**XX (Printer not ready.)	(Information only)
00**1403**XX (No paper error, or interrupt failure.)	(Information only)
00**1404**XX (System board timeout failure.)	1. **Run Advanced Diagnostics**
00**1405**XX (Parallel adapter error.)	1. **Run Advanced Diagnostics**
00**1406**XX (Presence test error.)	1. **Run Advanced Diagnostics**
00**14XX**00 (Not listed above) (Check printer before replacing the system board, see "Printer Errors" on page 7-33)	1. **Printer** 2. System Board
00**1701**XX, 00**1703**XX, 00**1704**XX, 00**1714**XX, 00**17XX**XX (Not listed below)	1. **Hard Disk Drive** 2. Cable (ST506) 3. Hard Disk Adapter (ST506) 4. System Board 5. Power Supply
00**1702**XX	1. **Hard Disk Adapter**

Symptom/Error	FRU/Action
00**1705**XX, 00**1706**XX, 00**1707**XX, 00**1708**XX, 00**1710**XX, 00**1711**XX, 00**1712**XX, 00**1713**XX, 00**1715**XX, 00**1716**XX, 00**1717**XX, 00**1726**XX, 00**1735**XX, 00**1750**XX, 00**1751**XX, 00**1752**XX, 00**1753**XX, 00**1754**XX, 00**1755**XX, 00**1757**XX, 00**1780**XX, 00**1781**XX, 00**1782**XX, 00**1790**XX, 00**1791**XX (Read/write problem. Be sure the drive type is supported. if it is, try a low level format (see "Using the Low-Level Format Program" on page 7-34). if the error continues, replace the hard disk drive.)	1. **Format the Drive** 2. Hard Disk Drive
00**1803**00	1. **System Board**
00**186X**XX	1. **Set Configuration/Features** 2. Battery
00**18XX**XX (Not listed above.)	1. **System Board Expansion Unit**
00**2401**00, 00**2402**00 (If screen colors change.)	1. **Display** (any type)
00**2401**00, 00**2402**00 (If screen colors are OK.)	1. **System Board** (any type) 2. Display (any type)
00**2409**00	1. **Display** (any type)
00**2410**00	1. **System Board** (any type)
00**37XX**XX (This is usually caused by the SCSI controller built into the system board.)	1. **System Board** (any type) 2. Hard Disk Drive 3. Hard Disk Cable
00**4611**XX, 00**4630**XX	1. **Multiport/2 Interface Board** 2. Multiport/2 Adapter
00**4612**XX, 00**4613**XX, 00**4640**XX, 00**4641**XX	1. **Memory Module Package** 2. Multiport/2 Adapter
00**4650**00	1. **Multiport Interface Cable**
00**46XX**XX (Not listed above.)	1. **Multiport/2 Adapter** 2. Multiport/2 Interface Board 3. Memory Module Package
00**64XX**XX	1. **Network Adapter**
00**7509**XX (See "Display Self-Test" on page 7-22)	1. **Display Adapter** (any type) 2. Display (any type) 3. System Board 4. Video Memory
00**7510**XX (Check the display see"Display Self-Test" on page 7-22)	1. **XGA Adapter** 2. Video Memory
00**76XX**XX	1. **Page Printer Adapter** (any type)

Symptom/Error	FRU/Action
00**8601**XX, 00**8602**XX	1. **Pointing Device** (Mouse) 2. System Board
00**8603**XX, 00**8604**XX	1. **System Board** 2. Pointing Device (Mouse)
00**91XX**XX	1. **Optical Drive** 2. Adapter
00**96XX**XX	1. **SCSI Adapter** 2. Any SCSI Device 3. System Board
0**10001**XX (Multiprotocol Adapter/A not found.)	(information only)
0**10002**XX (Card selected feedback error.)	1. **Run Advanced Diagnostics**
0**10007**XX	1. **Communication Cable** 2. Multiprotocol Adapter/A
0**10008**XX, 0**10009**XX	1. **Multiprotocol Adapter/A** 2. Any Serial Device
0**100XX**XX (Not listed above.)	1. **Multiprotocol Adapter/A** 2. System board 3. Bus Adapter
0**101102**X, 0**101106**X 0**101108**X, 0**101109**X	1. **Modem Adapter/A** 2. Any Serial Device
0**10101**XX, 0**10102**XX, 0**10104**XX, 0**10105**XX, 0**10106**XX, 0**10107**XX, 0**10108**XX, 0**10109**XX, 0**10111**XX, 0**10112**XX, 0**10113**XX, 0**10114**XX, 0**10115**XX, 0**10116**XX,	1. **Have the customer verify that the correct operating sytem device drivers are installed and operational** 2. Modem
0**10103**XX, 0**10110**XX, 0**101171**X	1. **System Board**
0**10117**XX (not listed above)	1. **Check PSTN cable** 2. Modem
0**10118**XX	1. **Run System Diagnostics and verify the correct operation of the modem slot** 2. Modem
0**10119**XX	1. **Diagnotics detected a non-IBM modem** 2. Modem
0**10120**XX	1. **Check PSTN Cable** 2. Modem
0**10132**XX, 0**10133**XX, 0**10134**XX, 0**10135**XX, 0**10136**XX, 0**10137**XX, 0**10138**XX, 0**10139**XX, 0**10140**XX, 0**10141**XX, 0**10142**XX, 0**10143**XX, 0**10144**XX, 0**10145**XX, 0**10146**XX, 0**10147**XX, 0**10148**XX, 0**10149**XX, 0**10150**XX, 0**10151**XX, 0**10152**XX	1. **Modem**
0**10153**XX	1. **Data/Fax Modem** 2. System Board

Symptom/Error	FRU/Action
0**101XX**XX (Not listed above)	1. **Modem Adapter/A** 2. Data/Fax Modem 3. System Board
0**10450**XX, 0**10451**XX (Read/write error)	1. **Run Advanced Diagnostics**
0**10452**XX (Seek test error)	1. **Run Advanced Diagnostics**
0**10453**XX (Wrong drive Type?)	(information only)
0**10454**XX (Sector buffer test error)	1. **Run Advanced Diagnostics**
0**10455**XX, 0**10456**XX (Controller error)	1. **Run Advanced Diagnostics**
0**10459**XX (Drive diagnostic command error)	(Information only)
0**10461**XX (Drive format error)	1. **Run Advanced Diagnostics**
0**10462**XX (Controller seek error)	1. **Run Advanced Diagnostics**
0**10464**XX (Hard drive read error)	1. **Run Advanced Diagnostics**
0**10467**XX (Drive non fatal seek error)	1. **Run Advanced Diagnostics**
0**10468**XX (Drive fatal seek error)	1. **Run Advanced Diagnostics**
0**10469**XX (Drive soft error count exceeded)	1. **Run Advanced Diagnostics**
0**10470**XX, 0**10471**XX, 0**10472**XX (Controller wrap error)	1. **Run Advanced Diagnostics**
0**10473**XX (Corrupt data. Low level format might be required)	(Information only)
0**10480**XX	1. **Hard Disk Drive** 2. Drive Cable 3. Controller 4. System Board
0**10481**XX (ESDI drive D seek error)	1. **Run Advanced Diagnostics**
0**10482**XX (Drive select aknowledgement bad)	1. **Run Advanced Diagnostics**
0**10483**XX	1. **Hard Disk Adapter** (ESDI) 2. System Board
0**10490**XX, 0**10491** (Drive O, 1 read error)	1. **Run Advanced Diagnostics**
0**10499**XX (Drive controller error)	1. **Run Advanced Diagnostics**

Symptom/Error	FRU/Action
0**104XX**XX (Not listed above)	1. **Hard Disk Drive** 2. Hard Disk Adapter (ESDI) 3. Hard Disk Cable 4. Power Supply
0**112XX**XX (This adapter does not have a cache)	1. **SCSI Adapter** 2. Any SCSI Device 3. System Board
0**1290001**, 0**1290002**, 0**1290003**, 0**1290004**, 0**1290007**, 0**1290008** (Possibly a recoverable processor board error)	1. **Run Advanced Diagnostics**
0**1290050**, 0**1290051**, 0**1290052**, 0**1290053**, 0**1290054**, 0**1290055**, 0**1290056** (Probably a fatal error)	1. **Processor Board** 2. System Board
0**12901**00, 0**12902**XX, 0**12904**00, 0**12907**00, 0**12908**00 (Cache error)	1. **Processor Board** 2. System Board Cache 3. System Board
0**12903**XX (Math coprocessor error)	1. **Math Coprocessor** 2. Processor Board
0**1290X**XX (Note listed above)	1. **Processor Board** 2. System Board
0**12912**00, 0**12913**00, 0**12914**00, 0**12915**XX, 0**12916**XX, 0**12918**00, 0**12919**00, 0**1294040**, 0**1294041** (Possible processor board error)	1. **Run Advanced Diagnostics**
0**1294042** (POST/ BIOS EEPROM error. Update diskette is required.)	1. **Processor Board**
0**12944**00 (A hardware default interrupt occurred)	1. **Restart the system then run the Advanced Diagnostics**
0**1295050**, 0**1295056**, 0**1295060**, 0**1295061**, 0**1295070**, 0**1295071**, 0**1295072**, 0**1295073**, 0**1295074**, 0**1295075**, 0**1295076**, 0**1295077**, 0**1295078**, 0**1295079**, 0**1295080**, 0**1295081**, 0**1295082**, 0**1295083**, 0**1295085**, 0**1295086**, 0**1295087**, 0**1295088**, 0**1295090**, 0**1295091**, 0**1295094**, 0**1295095**, 0**1295096**, 0**1295097** (Processor board errors)	1. **Restart the system then run the Advanced Diagnostics**
0**12990**00 (VPD error; Processor board replaced? Processor board serial number detected does not match serial number stored)	1. **Run Automatic Configuration**
0**137XX**XX	1. **System Board**
0**143XX**XX	1. **Japanese Display Adapter** 2. System Board

Symptom/Error	FRU/Action
0**14710**00, O**14711**XX	1. **System Board Display Adapter** 2. System Board
0**148XX**00	1. **Display Adapter** (any type)
0**14901**XX, 0**14902**XX, **1491X**XX, 0**14922**XX	1. **Display Adapter** (any type) 2. System Board 3. Display (any type)
0**14932**XX	1. **External Display** (any type) 2. Display Adapter (any type)
0**152XX**XX	1. **XGA Display Adapter/A** (any type) 2. System Board
0**164XX**XX	1. **120MB Internal Tape Drive** 2. Diskette Cable 3. System Board
0**166XX**XX, 0**167XX**XX	1. **Token-Ring Network Adapter/A** 2. System Board 3. Bus Adapter
0**185XX**XX	1. **DBCS Japanese Display Adapter/A** 2. System Board
0**200XX**XX	1. **Memory Module DRAM VRAM** 2. System Board
0**20101**XX to 0**20103**XX	1. **Printer/Scanner Option** 2. Image Adapter/A 3. Memory Module DRAM VRAM
0**20104**XX	1. **Memory Module DRAM VRAM** 2. Printer/Scanner Option 3. Image Adapter/A
0**20105**XX to 0**20110**XX	1. **Printer/Scanner Option** 2. Image Adapter/A 3. Memory Module DRAM VRAM
Image Adapter/A memory test failure indictated by graphic representation of adapter.	1. **Replace Memory Module** (shown in graphic)
0**206XX**XX	1. **SCSI-2 Adapter** 2. Any SCSI Device 3. System Board
0**208XX**XX (Verify that there are no duplicate SCSI ID settings on the same bus)	1. **Any SCSI Device**

Symptom/Error	FRU/Action
0**210XX**XA (60MB) 0**210XX**XB (80MB) 0**210XX**XC (120MB) 0**210XX**XD (160MB) 0**210XX**XE (320MB) 0**210XX**XF (400MB) 0**210XX**XG (40MB) 0**210XX**XH (1GB) 92F0089 0**210XX**XI (104MB) 0**210XX**XJ (210MB) 0**210XX**XM (2GB, 8 bit, 68 pin) 0**210XX**XN (540MB) 92F0406 0**210XX**XO (1GB) 92F0428 0**210XX**XQ (540MB) 61G3788 0**210XX**XP (2GB, 8 bit, 50 pin) 0**210XX**XU(Size unknown) (If it is an external device, check the external voltages. See “SCSI Diagnostic Tests” on page 6-28 and “Using SCSI ID to Help Isolate Failures” on page 7-28 before replacing any FRU.)	1. **SCSI Hard Disk** 2. SCSI Adapter or the SCSI controller built into the system board 3. SCSI Cable 4. SCSI ID Switch (On some models)
0**211XX**XX (Check for any of the symptoms listed bellow.or if it is an external device, and the power-on LED is off, check the external voltages)	1. **SCSI Tape Drive** 2. SCSI Adapter or the SCSI controller built into the system board 3. SCSI Cable
The amber LED remains on.	1. **Tape Drive** 2. SCSI Cable (internal) 3. SCSI Adapter or the SCSI controller built into the system board.
The Green "in use" LED fails to come on.	1. **Tape Drive** 2. SCSI Adapter or the SCSI controller built into the system board. 3. SCSI Cable (internal) SCSI Cable (external)
The tape is automatically ejected from the drive.	1. **Tape Cassette** 2. Drive
SCSI ID on the rotary switch does not match the SCSI ID set in configuration. (verify the drive switches inside the cover are set to zero)	1. **Rotary Switch Circuit Board** 2. Circuit Board Cable 3. Tape Drive
Tape sticks/breaks in the drive. (verify that the tapes used meet ANSI standard X3B5)	1. **Tape Cassette** 2. Drive

Symptom/Error	FRU/Action
0**212XX**XX	1. **SCSI Printer** 2. Printer Cable
0**213XX**XX	1. **SCSI Processor**
0**214XX**XX	1. **WORM Drive**
0**217XX**XX (If it is an external device, and the power-on LED is off, check external voltages. See "SCSI Diagnostic Tests" on page 7-28.)	1. **SCSI Rewritable Optical Drive** 2. SCSI Adapter or the SCSI controller built into the system board. 3. SCSI Cable
0**219XX**XX	1. **SCSI Communications Device**
0**24201**Y0, 0**24210**Y0 (Be sure the wrap plug is not missing)	1. **ISDN/2 Adapter** 2. ISDN/2 Wrap Plug 3. ISDN/2 Communication Cable
0**243XX**XX	1. **XGA-2 Display Adapter/A**
0**258XX**XX Video might have failed. (Ensure that you are using diagnostic file XGAANI.DGS and XGAPNI.DGS dated 03/06/93 or later before you replace any FRUs. Earlier file cause erroneous errors)	1. **XGA-2 Display Adapter/A** 2. System Board
0**260XX**XX	1. **System Board** 2. Any SCSI Device

DID YOU FIND YOUR POST ERROR CODE IN THE LIST?

Yes **No**

007

Error Range Is Not Listed: If the error code *range* presented is not listed in this index, it may be generated by a device that requires an additional service package. Refer to that service package.

008

- **Action:**
  - **Change the FRU suspected**, go to "9585 Service Processor FRU / CD-ROM Exchange" on page 7-37.
  - **or perform the specified action.**

009

Check your service processor symptom with the following list.

Beep Symptoms

Symptom/Error	FRU/Action
One long and one short beep. (See “Display Self-Test” on page 7-22 before replacing any FRUs).	1. **Display Adapter** 2. System Board 3. Bus Adapter 4. Power Supply
One long and two short beeps. (See “Display Self-Test” on page 7-22 before replacing any FRUs).	1. **Display Adapter** 2. System Board 3. Bus Adapter 4. Power Supply
One long or two beeps and blank or unreadable display or a blinking cursor. (See “Display Self-Test” on page 7-22 before replacing any FRUs).	1. **Display Adapter** 2. System Board 3. Display 4. Bus Adapter 5. Power Supply
Continuous beep.	1. System Board 2. Power Supply
Repeating short beeps. (Check the keyboard for a stuck key)	1. System Board

No-Beep Symptoms

Symptom/Error	FRU/Action
No beep, fan runs power-ON LED lights memory may or may not count, and blinking cursor continuously loops.	1. Processor Board
No beep, power-ON LED does not come ON, and fan does not run.	1. Power Supply 2. Control/Speaker Assembly 3. System Board 4. Any device or Adapter 5. Bus Adapter
No beep, fan runs power-on LED is ON, and computer hangs during POST with no message displayed. (See “Undetermined Problems” on page 7-25)	1. System Board 2. Any device or Adapter 3. Bus Adapter

Miscellaneous Symptoms

Symptom/Error	FRU/Action
Intermittent failures. (See “Undetermined Problems” on page 7-25)	1. **Power Supply** 2. Power Supply Fans 3. Any Device or Adapter
Diskette drive LED stays ON.	1. **Diskette Drive**
Hard disk LED stays ON.	1. **Hard Disk Drive** 2. System Board
Hard disk LED not working, but computer is completely functional.	1. **Control/Speaker Assembly** 2. System Board

Symptom/Error	FRU/Action
Reference Diskette does not start.	1. **Diskette Drive** 2. System Board 3. Diskette Drive cable 4. Reference Diskette
Read/write errors on a 2.88MB diskette drive. (If the drive was just installed, either the computer has down level IML code loaded or that model does not support a 2.88MB drive).	1. Use **View configuration** to determine if the dislette drive is listed as a 2.88MB. If not, the latest level Reference Diskette must be loaded onto the System partition.
IML image has been updated, the diskette and F1 error prompt appears on the screen.	1. Verify an operating system has been loaded onto the default hard disk.
Program loads from the hard disk or a non system disk or disk error (with the Reference Diskette in drive A).	1. **Diskette Drive** 2. System Board 3. Power Supply 4. Reference Diskette
No colors on a color display. (Connect display to the VGA port and run the Enhanced VGA test to see if the display is the problem.	1. **Display** 2. VGA terminator
Screen colors change	1. **Display** 2. Display Adapter 3. System Board
One or more keys do not work and the computer is otherwise functional (See “Keyboard Voltage Check” on page 7-23 before replacing any FRUs).	1. **Keyboard** 2. Keyboard cable 3. System Board
Power-on indicator does not come ON, fan runs, and computer is functional.	1. **Control Speaker Assembly**
Power-on indicator does not come ON, fan runs, and computer is **not** functional.	1. **System Board** 2. Power Supply
Power-on indicator does not come ON, fan runs, and computer is not functional. (See “Undetermined Problems” on page 7-25 before replacing any FRUs).	1. **System Board** 2. Power Supply
Operating system does not work, or the system starts up in BASIC. Call your support for assistance before exchanging any FRU.	1. **Default Hard Disk Drive**
Real Time Clock loses time. (This is not always a hardware failure. See “Real-Time Clock Problems” on page 7-33 before replacing any FRUs).	1. **Default Hard Disk Drive**
Computer cannot be powered-OFF.	1. **Control/Speaker Assembly** 2. System Board 3. Power Supply

DID YOU FIND YOUR SYMPTOM IN THE LIST?

Yes **No**

010

Go to “Undetermined Problems” on page 7-25.

011

- **Action:**
  - **Change the suspected FRU**, go to “9585 Service Processor FRU / CD-ROM Exchange” on page 7-37.
  - **or perform the specified action.**

Display Self-Test

If the screen is rolling, replace the display assembly. If that does not correct the problem, replace FRUs in the following order until the problem goes away:

1. Display adapter
2. System board
3. Bus adapter

If the screen is not rolling, run the display self-test as follows:

1. Power-off the system unit and display.
2. Disconnect the display signal cable.
3. Power-on the display.
4. Turn the contrast to its maximum position.
5. Turn the brightness control to the center detent position.

Check for the following conditions:

- You should be able to vary the screen intensity by adjusting the contrast and brightness controls.
- The screen should be white or light gray, with a black margin (test margin) on the screen.

  Note: The location of the test margin varies with the type of display. The test margin might be on the top, bottom, or one or both sides.

If you do not see any test margin on the screen, replace the display. If there is a test margin on the screen, replace the FRUs, in the following order, until the problem goes away:

Note: Certain adapter failures can cause video problems. Before replacing any FRUs, remove any option adapters to see if the problem disappears.

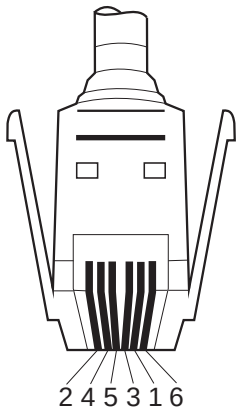
1. Display adapter
2. System board
3. Bus adapter
4. Display.

Keyboard Voltage Check

Note: If a mouse or other pointing device is attached, remove it and see if the error symptom goes away. If the symptom goes away, suspect that the mouse or pointing device is defective.

1. Power-off the system.
2. Disconnect the cable from the keyboard.
3. Power-on the system and check the connector for the voltages shown. All voltages are ± 5%.

Pin	Voltage (Vdc)
1	+5.0
2	0 (Not used)
3	Ground
4	+5.0
5	+5.0
6	0 (Not used)



If the voltages are correct, replace the keyboard.

If the voltages are not correct, suspect the keyboard cable, then the system board.

Power-Supply Voltage Check (9585)

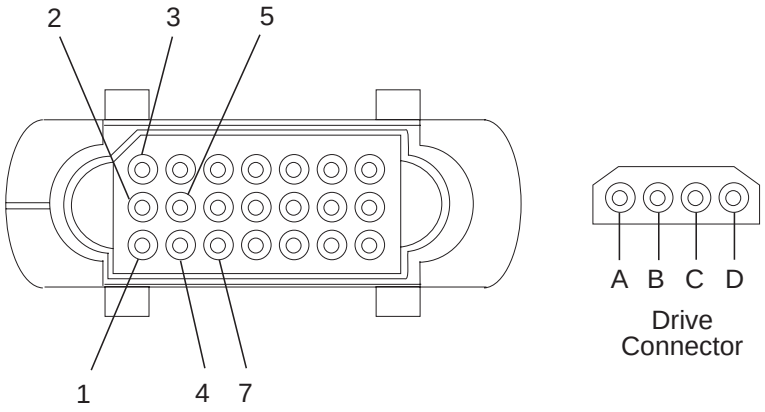
If the power-on indicator is not on, and if the power-supply fan is not running, check the power cord for proper installation and continuity.

Note: On the service processor, verify that the voltage-select switch is set for the correct voltage.

If the power cord is OK, either the power supply is defective or a device is causing the power supply to shut off. Check the power supply voltages.

Some of the power supplies used have a built-in test switch and LED on the side of the power supply (there is no need to check voltages). On those power supplies disconnect the power supply from the system board, and remove all cables except the power cord. If the LED lights up, and the power supplu fan runs, the power supply is OK.

On all other power supplyes, short pin 1 to pin 2 and read the voltages on the other pins. If the voltages are correct, and the power supply fan runs, the power supply is OK.



-Lead Pin	+Lead Pin	V dc Minimum	V dc Maximum
5	3	+3.7	+6.2
5	4	+9.0	+15.0
5	7	-9.0	-15.0
B	D	+3.7	+6.2
B	A	+9.0	+15.0

If the power supply shut down, or appears to fail at power-on, you might have one of the following problems:

- Too many devices are set to start instantly.
- There are too many large-capacity devices installed. The nominal operating current of the devices installed collectively exceeds the available current of the power supply. See the "Personnal System/2 Installation Planning" guide (form number G41G-2927) for more information.

Return to the procedure that sent you here and continue. (If you have completed that procedure, go to “Undetermined Problems” on page 7-25.)

Undetermined Problems

You are here because the diagnostic tests did not identify which adapter or device failed, the Devices List is incorrect or the system is inoperative. Follow the isolation procedure below (do not isolate FRUs that are known to be good).

Check the power supply voltages. If the voltages are not correct, replace the power supply. If the voltages are correct, return here and do the following:

1. Power-off the system.
2. Remove or disconnect the following (one at a time) until you find the failure (power-on the system and reconfigure each time).

   Note: Minimum operating requirements are 1MB of system memory and the default hard disk.

   - Any external devices
   - Surge suppressor device (on the system)
   - Modem, printer, mouse, or non-IBM devices
   - Any adapter
   - Drives
   - Memory-module kits
   - Bus adapter
   - Math Coprocessor (if installed).
3. Power-on the system. If the problem remains, suspect the system board.

Note: If the problem goes away when you remove an adapter from the bus adapter, and replacing that adapter does not correct the problem, suspect the system board, then the bus adapter.

If you did not identified the problem, before calling your support collect the following information:

Record Customer Symptom

- Look at and record
  - What is on the screen? If blank is there a cursor?
  - Power LED
  - Hard disk LED
  - Floppy disk LED
  - R/W optical disk LED
  - Does **Cntl/Esc** give window list?
  - Keyboard and/or mouse dead
- Ask customer what happened to cause this condition.
  - Did power ON?
  - Was the service processor operationnal? Failed?
  - Did he try something?

Devices List

At the start of the Advance Diagnostic tests, the Devices List is displayed. Normally, all adapters and devices installed in the system appear on the list.

- If an adapter or device that appears on the list *is not* installed in the system, use the procedure in "Undetermined Problems" on page 7-25 to find the problem.
- If an adapter or device that *is* installed in the system does not appear on the list, you have one of the following conditions:
  - The diagnostic (DGS) files for the missing device are not loaded onto the System Partition (run **Copy an option diskette** using the option diskette).
  - The SCSI controller (built-in interface) on the system board might have failed.
  - An unrecognizable adapter is installed.
  - The missing device is defective or it requires an additional diskette or service manual.
  - A defective adapter is causing the device to disappear from the list.

If you are sure that the DGS files are loaded and all the options are supported, note which type of device (SCSI or non-SCSI) is missing from the Devices List, then continue.

Missing Non-SCSI Device

If a non-SCSI device is missing from the Devices List.

Replace the missing device.

If more than one non-SCSI device is missing, isolate them one at a time until you find the device causing the failure.

Note: If the number of diskette drives shown on the list is incorrect, an error can occur during the tests. If this is the case, restart the system, select **View configuration** from the Set configuration menu and verify that the drive information is correct, then continue testing.

Missing SCSI Device

If a SCSI device is missing from the Devices List, determine if the missing device is connected to the SCSI controller on the system board, or a SCSI adapter. Either the system board or the SCSI adapter might be defective. Continue with the following procedure.

1. Power-off the system and disconnect any internal and external SCSI devices from the system (except the default drive, if installed).
2. If the device is connected to a SCSI adapter, install the terminator onto the SCSI adapter (some SCSI adapters have both an internal and an external terminator).

   Note: For more information, see "Terminator Function" in the *Hardware Maintenance Manual*.
3. Power-on the system and run Automatic Configuration. If the SCSI adapter (or the SCSI controller on the system board) is not on the Devices List in advanced diagnostics, it is defective. If the SCSI adapter (or the SCSI

controller on the system board) *is* on the list, run the SCSI adapter or SCSI controller Advanced Diagnostic test.

4. If the SCSI adapter (or the SCSI controller on the system board) fails the test, replace it. If it passes the test, a different adapter or device might be causing the problem; if this is the case, continue with the next step.
5. Reconnect all the devices, then put all terminators back in the same positions they were in before service.
6. Use the procedure in "Undetermined Problems" on page 7-25 to find the problem.

If both a non-SCSI device and a SCSI device are missing from the Devices List

Use the procedure in "Undetermined Problems" on page 7-25 to find the problem.

SCSI Device Default Settings

You are here with a 000174XX error or you want to check the settings (defective devices can also cause incorrect settings).

The optional settings are intended to let the user share devices (usually external) between systems without having to reconfigure the system each time the device is moved. The settings apply to SCSI Presence Error Reporting devices (such as SCSI tape drives and CD-ROM drives, and on some systems, hard disks). After a device is in the configuration table, the default settings are "Enable" and "Keep." The only way to remove the device from the configuration table is to manually remove it by changing the settings. Running automatic configuration will not remove it from the configuration.

Enable and Disable Settings: If the user plans to leave the device turned off, or share the device periodically between different systems, that device should be set to "Disabled" (on the systems that will share the device). When disabled, the drive will remain in the configuration but POST will not report a configuration error when the device is removed. For example, before the user *temporarily* removes a SCSI tape drive, the setting should be changed to "Disabled." When the device is reinstalled and the user no longer chooses to share the device, the setting should be changed back to "Enabled."

Keep and Remove Settings: The only time that you will see the "Keep" and "Remove" options is when the device physically is disconnected from the system. At that time, you have the option of removing the device from the configuration table by changing the setting to "Remove."

Changing the Settings: To change the settings, do the following:

- Select **Set and View SCSI device configuration** from the Set configuration menu.
- Select the appropriate device on the list.
- Press **F6** to change the settings.
- Press **F10** to save the changes (in configuration).

SCSI Diagnostic Tests

The diagnostic tests usually identify the failing device, but because of the many dependencies, you can be misled by an error code. It is important to understand that all devices in a SCSI chain depend on an open line of communication on the SCSI data bus. Certain conditions can cause misleading error codes to appear. For example, a short circuit in the bus arbitration logic on the system board can inhibit communication betweeen the system board and a SCSI adapter. If this condition exists, the error code that appears would indicate that the SCSI adapter failed when the failure was really on the system board.

Using SCSI ID to Help Isolate Failures

Each device on a SCSI chain has a unique SCSI ID. Use the SCSI ID to help pinpoint which device is failing. For example, if diagnostics presents a “U” (size undetermined) as the last digit in the error code, suspect the device that has the SCSI ID indicated in the error code. For more information see “The Error Code Format.”

The Error Code Format

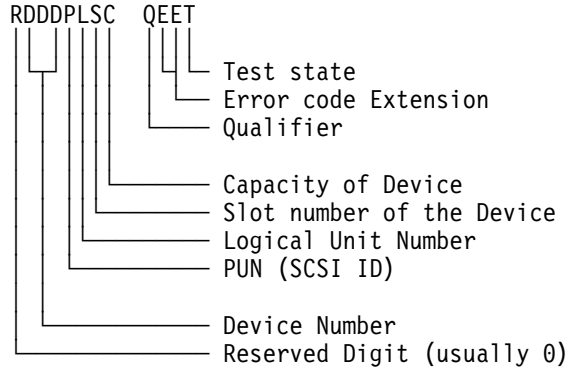
This section provides an explanation of the encoded SCSI and non-SCSI POST error codes and detail information about each code.

Error messages are displayed on the screen as three, four, five, or eight digits. An *X* in an error message can be any number. The shorter POST errors are highlighted in this index. Some digits will represent different information for SCSI errors versus non-SCSI errors.

The following figure shows which digits display the shorter POST errors. The figure also defines additional SCSI information.

Notes:

1. Non-IBM device error codes and documentation supersede this list.
2. Duplicate SCSI ID settings will cause misleading error symptoms or messages.



A number in slot "S" indicates an error on the adapter, (or device attached to the adapter) in slot "S". If "S" is 0 suspect the system board.

Example of SCSI ID:

- SCSI adapter ID=7
- Hard disk drive ID=6
- Read/Write Optical Disk ID=5

Notes:

1. SCSI adapter is integrated onto system board
2. R/W optical can be removed and deconfigured from service processor as a diagnostic technique to eliminate it as a cause of problem.
3. PN 64F4774 is an inline terminator and must be installed between SCSI cable and hard disk drive.

RDDD Codes for Adapters

RDDD	Device Type or Information
0**037**	SCSI on the system board
0**096**	SCSI adapter with cache
0**112**	SCSI adapter without cache
0**206**	SCSI-2 adapter

RDDD Codes for Devices

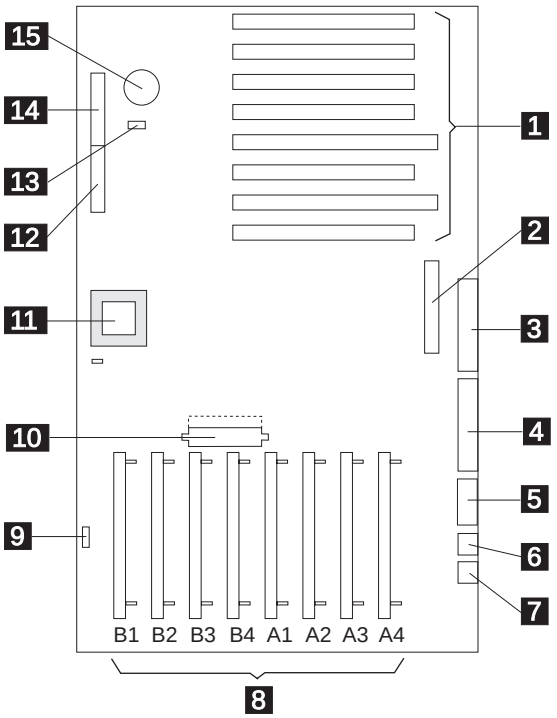
RDDD	Device Type or Information
0**208**	Unknown device type
0**209**	Direct access - removable media, and/or other 512 byte blocks
0**210**	Direct access - hard disk, 512 byte blocks
0**211**	Sequencial access (tape)
0**212**	Printer
0**213**	Processor
0**214**	Write Once, Read Multiple (W.O.R.M.)
0**215**	Read only (CD-ROM)
0**216**	Scanner
0**217**	Optical Memory (read/write optical disk)
0**218**	Changer (multiple tray CD-ROM)
0**219**	Communications

Memory Problems

The "X" digit of the POST error (for example, 00020x**X**x), indicates the connector location.

Determining Failing Memory Location

"X" Digit equals	Connector Location
X=1	A1
X=2	B1
X=3	A2
X=4	B2
X=4	A3
X=5	B3
X=6	A4
X=7	B4



1. 32-bit expansion slots (video extentions J9,J11)
2. Internal SCSI connector
3. External SCSI connector
4. Parallel port
5. Serial port
6. Pointing-device connector
7. Keyboard connector
8. Memory-module connectors
9. Recovery jumper (JMP5)
10. Power-supply connector
11. Optical-microprocessor socket
12. Diskette-drive cable connector
13. Power-on password override connector (JPM1)
14. Indicator-Panel connector
15. Battery

Figure 7-1. Memory-Module Connector Locations on the System Board

Determining Memory Type, Size and Speed

The "Y" digit of the POST error (for example, 00020xx**Y**), indicates the type, size, and speed.

"Y" Digit equals	Type	Size	Speed
Y=0	Parity	4MB	80ns
Y=1	Parity	2MB	100ns
Y=2	Parity	1MB	100ns
Y=4	Parity	4MB	70ns
Y=5	Parity	2MB	85ns
Y=6	Parity	1MB	85ns
Y=8	Parity	8MB	80ns
Y=9	Parity	2MB	80ns
Y=B	Parity	8MB	70ns
Y=C	Parity	2MB	70ns
Y=D	Parity	2MB	120ns
Y=E	Parity	1MB	120ns
Y=K	ECC	16MB	70ns
Y=Q	ECC	4MB	70ns
Y=R	ECC	32MB	70ns
Y=S	ECC	8MB	70ns
Y=T	ECC	2MB	70ns
Y=Z	Unknown		

If you are still unable to determine which memory-module kit failed, follow the isolation procedure under “Finding the Failing Memory.”

Finding the Failing Memory

Note: Running the diagnostic tests will deallocate defective memory. After you replace defective memory, run the Advanced Diagnostic memory test to enable the replacement memory. Then, restart the system and rerun the same test to validate the installed memory-module kits.

Use the following procedure when you suspect a problem with the system memory. Power-off the system before you remove or replace parts.

1. Run the Advanced Diagnostic memory test. If the test does not indicate which memory-module kit failed, or if the system hangs, try running the test from the System Diskettes. If you still cannot identify which memory-module kit failed, continue with the next step.

   Note: If a screen message appears asking if you have replaced a specific memory-module kit, suspect that *it* is the failing kit.

2. Using a known-good kit, exchange each kit, one at a time, and repeat the memory test until you find the defective kit. Replace *only* the defective kit. If the kits are not the problem, suspect the system board.

Either

- Multiple memory module kits are bad, try testing one at a time.
- System board bad
- An adapter is causing the problem
- Power supply is bad, check the power supply voltages for correct level and ripple (see “Power-Supply Voltage Check (9585)” on page 7-24).

Printer Errors

1. Make sure the printer is properly connected and powered-on.
2. Run the printer self-test.

If the printer self-test does not run correctly, the problem is in the printer. Refer to the printer service manual.

If the printer self-test runs correctly continue.

- If the printer is attached to any paralle port, press the print screen key to print any screen text. If the printer prints the screen, the problemis software related. If the printer does not print the screen continue.
- Install a wrap plug on the parallel port and run the Advanced Diagnostic tests to determine which FRU failed.
  If the Advanced Diagnostic tests (with the wrap plug installed) do not detect a failure, replace the printer cable. If that does not correct the problem, do one of the following:
- If the printer is attached to the parallel port on the system board, replace the system board.
- If the printer is attached to the parallel port on an adapter, replace FRUs, in the following order, until the problem goes away:
  1. Adapter
  2. System board
  3. Bus adapter

Real-Time Clock Problems

The software time-of-day clock (real-time clock) will not provide precise time under all circomstances. The clock is interrupt driven. The accuracy of the clock varies with the interrupt activity. Most likely, time variations are a result of multiple interrupts (over a long period of time), rather than a hardware failure. In circomstances where precise time is required, an alternate time keeping device should be used.

Check the system date/time using the Reference Diskette **Set Features** menu. If the date/time is accurate, the problem is with the software.

Restoring the System Partition

Use the following instructions to restore the System Partition to a hard disk drive that you have just replaced.

Use the Reference Diskette. You might have to recopy option files to the system partition if they are not on the Reference Diskette.

To restore the system partition:

1. Insert the **Reference Diskette** in the service processor.
2. Power ON the service processor.
3. The **IBM** logo appears on the screen, followed by the **Main Menu** of the system programs.
4. Select **Backup/Restore system programs** from the **Main Menu**
5. Select **Restore the System Partition** and follow the instructions on the screen.

Be sure to reset any customized configuration or drive startup information after replacing a defective hard disk drive.

Using the Low-Level Format Program

Warning

The advanced diagnostic format program (referred to as a *low-level format*), is different from the operating system format program. The operating-system format program will not erase the system partition; the low-level format format program *will*. It also will erase the system programs and completely clear the hard disk. If the hard disk is working, make a backup copy of the system partition and all the files on the hard disk before you use this program.

(It might take up to two hours to run the low-level format program, depending on the disk capacity.)

When to Run the Low-Level Format Program

There are three reasons to run this program:

1. You are installing software that requires a low-level format.
2. You get recurring messages from the diagnostic tests telling you to run the low-level format program on the hard disk.
3. You want to try this as a last resort before replacing a failing hard disk drive.

How to Run the Low-Level Format Program

1. Power ON the computer.
2. When the **F1**-key prompt appears on the screen, under the **IBM** logo press the **F1** key.
3. When the **Main Menu** appears on the screen, press **Ctrl** and **A** key.
4. When the **Advanced Diagnostic** menu appears, select **Format Hard Disk**. Then follow the instructions on the screen.

Preparing the Hard Disk for Use

When the low-level format program completes, you must copy all the files to the hard disk. Before you can copy the files, you must:

1. Create the system partition (if the hard disk had a system partition) using the Restore the System Partition utility program from the system programs on the System Diskettes.
2. Format the hard disk using the operating. (The commands vary with the operating system. Refer to the operating system manual for a description of the program commands to use.
3. Install the operating system.

You are now ready to reinstall the files.

Cover Lock and Tamper-Evident Switches

Some systems have an electro-mechanical cover lock. In the locked position, it mechanically prevents the cover from being removed. If the covers are forced open, the tamper-evident cover switches detect the intrusion. The next time the computer is powered on, POST displays a message informing the user that the system covers have been tampered with, and that you must run **Automatic configuration** to continue.

How to Run the 9585 Service Processor Diagnostics

The service processor diagnostics can be run from diskettes (see “1- Diagnostics Invocation from Diskettes”) or from the hard disk (see “2- Diagnostics Invocation from the Hard Disk”).

Important

If the **Main menu** is not displayed during the following procedure, refer to “MAP: 9585 Service Processor Troubleshooting” on page 7-2.

1- Diagnostics Invocation from Diskettes

- Insert the **Reference Diskette** in the service processor.
- Power ON the service processor.
- The **IBM** logo appears on the screen, followed by the **Main Menu** of the system programs.
- To start the Advanced Diagnostic program, press and hold **Ctrl**, then press **A** A message appears telling you to insert the Diagnostic Diskette, follow the prompts.
- Continue with “Service Processor Advanced Diagnostics.”

2- Diagnostics Invocation from the Hard Disk

- Power ON the service processor.
- When the **F1**-key prompt appears on the screen, under the **IBM** logo press the **F1** key.
- The Systems Programs **Main Menu** appears on the screen.
- To start the Advanced Diagnostic program, press and hold **Ctrl**, then press **A**
- Continue with “Service Processor Advanced Diagnostics.”

Service Processor Advanced Diagnostics

- The **Advanced Diagnostic Menu** is displayed.

```
               Advanced Diagnostic Menu

  Select one

1- Run system checkout
2- Format the hard disk

Enter   F1=Help  F3=Exit
```

- Select the **Run system checkout** option and press **Enter**.
- An other screen is displayed with the installed devices detected by the diagnostic tests (refer to “Typical Devices List (9585-0NT)” on page B-21).
- Press the **Y** key.
- A **Test Selection Menu** is displayed.

```
               Test Selection Menu

  Select one

1- Run the Tests one Time
2- Run the Test continuously
3- Log or Display the errors
4- Display the device list
```

- If you only want to run:
  - The diagnostic tests, one at a time, select option **1** and press the **Enter** key.
  - The diagnostic tests, continuously one after the other, select option **2** and press the **Enter** key.
- A **Device test Menu** is displayed.
- If you want to run:
  - All the diagnostics on the service processor, select the **Test All devices** option and press the **Enter** key.
  - A test on a specific entity of the service processor, use the scroll keys to select the desired entity and press the **Enter** key.
- Follow the prompts displayed during the test.
- To stop the test at any time, simultaneously press the **Ctrl/C** keys.

Notes:

1. Advanced diagnostics allow individual selection of tests.
2. If a minimum of 896KB of memory is not active, the advanced diagnostics tests cannot be loaded.
3. When using the Reference Diskette, press the **Ctrl/A** when the **Main Menu** is displayed to load the advanced diagnostics.
4. If a device is not present in the devices list refer to “Devices List” on page 7-26.

9585 Service Processor FRU / CD-ROM Exchange

If you want exchange the CD-ROM go to “MAP: Service Processor CD-ROM Exchange” on page 7-47. Otherwise, for the other FRUs continue the procedure.

Before any service processor FRU exchange, perform the above procedure:

1. Switch OFF the display and the service processor using their respective power ON/OF switch located on the front panel.
2. On the rear of the service processor disconnect all the cables.
3. If your service processor is installed in the controller rack go to step **4** . Otherwise go to step **5** .
4. Slide out the service processor from the rack and install it on a table to continue the FRUs removal.

   Warning

   Be carefull the weight of the processor is about 18 kg.

   FRU Exchange

5. Use the following table to find the procedure you need to follow to exchange a FRU.

Service Processor FRU to Exchange	Action
Board	Go to “MAP: 9585 Service Processor Board Exchange” on page 7-38
Hard Disk Drive	Go to “MAP: 9585 Service Processor Hard Disk Drive Exchange” on page 7-41
LAN Adapter	Go to “MAP: 9585 Service Processor LAN Adapter Exchange” on page 7-39
Integrated Modem	Go to “MAP: 9585 Service Processor Integrated Modem Exchange” on page 7-45
Battery	Go to “MAP: 9585 Service Processor Battery Exchange” on page 7-44
Other FRU	Go to “MAP: Other FRU Exchanges for the 9585 Service Processor” on page 7-46

MAP: 9585 Service Processor Board Exchange

001

- Go to the *IBM Personal System/2 Hardware Maintenance Manual* to replace the board.
- After board exchange, power ON the service processor.
- An error message 00016100 is briefly displayed, then the memory test are run before message prompts you to perform an automatic configuration.
- During automatic configuration several **information** windows are displayed. This automatic configuration takes several minutes.
- When the automatic configuration is finish press the **Enter**. key to start the system.
- When the **F1**-key prompt appears on the screen, under the **IBM** logo press the **F1** key.
- The **Main Menu** is displayed.
- On the **Main menu** window, select the **Set Configuration** option and press the **Enter** key.
- A **Set Configuration** window is displayed.

```
                Set Configuration

  Select one

1- View  configuration
2- Change configuration
3- Backup configuration
4- Restore configuration
5- Run automatic configuration
6- Set and view SCSI device configuration
7- Display memory map
```

- Select the **Change Configuration** option and press the **Enter** key.
- A **Change Configuration** window is displayed.
- Check on slot 2 and slot 3 the parameter values for the IBM Token-Ring Network 16/4 Adapter. These values must be the same as indicated in “Service Processor Hardware Configuration Reference (9585)” on page B-22.
- If these values need to be changed, use the PF keys to change them.
  - Primary or alternate adapter....(Primary) **1**
  - Adapter Data Rate..............(16 Mbps) **1**
  - RAM Size and Address Range......(16 KB / XXXXX-XXXXX) **1**
  - Interrupt level.................Interrupt x **2**

  Notes:

  1. **1** When there is a conflict for setting these parameters an '*' is displayed on right side of the screen.
  2. **2** Interrupt level is set automatically by the service processor (see “Service Processor Hardware Configuration Reference (9585)” on page B-22).
- When the changes has been done use the PF10 key to save the option then PF3 to exit.
- Go to “MAP: Set Time and Date” on page 7-48.

MAP: 9585 Service Processor LAN Adapter Exchange

You are here to exchange the LAN adapter card.

001

- Once you have identified the slot location of your LAN adapter card go to the *IBM Personal System/2 Hardware Maintenance Manual* to replace the LAN adapter card.
- The default adapter data rate and the default RAM size must be changed using one of the following procedures.

Change the LAN Adapter configuration Using:	**Go to:**
The Service Processor Hard Disk	Step 002
The Reference Diskette	Step 005

002

- Press the power ON button on the service processor front panel.
- When the **F1**-key prompt appears on the screen, under the **IBM** logo press the **F1** key.
- If a transient error message appears, ignore it.
- If you obtain:
  - The **Main Menu** window go to Step 004.
  - The **Adapter Configuration Error** window, go to Step 003
  - A steady error, restart problem determination using the “MAP: 9585 Service Processor Troubleshooting” on page 7-2.

003

- Press the **N** key.
- Go to Step 004.

004

- The **main Menu** is displayed.
- Select the **Set configuration** option and press the **Enter** key.
- On the **Set configuration** menu, select the **Restore Configuration** option and press the **enter** key.
- Follow the prompts. Then go to Step 006 on page 7-40

005

- Insert the **Reference Diskette** in the service processor.
- Power ON the service processor.
- The **IBM** logo appears on the screen, followed by the **Main Menu** of the system programs.

(Step **005** continues)

005 (continued)

- Select the **Set configuration** option and press the **Enter** key.
- On the next **Set configuration** menu, select the **Resore Configuration** option and press the **Enter** key.
- Follow the prompts then go to Step 006

006

The service processor continues its IML until the **MOSS-E View** window is displayed with a window prompting you to enter a password.

Is the MOSS-E View window displayed?

Yes **No**

007

There is another problem. Restart the problem determination using the "MAP: 9585 Service Processor Troubleshooting" on page 7-2.

008

Problem solved. Go to Chapter 8, "CE Leaving Procedure" on page 8-1.

MAP: 9585 Service Processor Hard Disk Drive Exchange

A Reference Diskette and a diagnostic diskette are shipped with the Service Processor. The diagnostic diskette contains all the diagnostics for the features installed on the machine. Use these diskettes to perform the following procedure.

001

- Go to the *IBM Personal System/2 Hardware Maintenance Manual* to replace the Disk drive (Change only the hardware, do not perform **Restore/Backup system programs** at this step, continue with the next bullet.
- After disk drive exchange restore the system partition (see “Restoring the System Partition” on page 7-33) then continue this procedure.
- Run the advanced diagnostic tests using the following procedure:
  - Insert the Reference diskette in the diskette drive.
  - Power On the service processor.
  - If an IML error message is displayed, press **Enter**.
  - The **IBM** logo appears on the screen, followed by the **Main Menu** of the system programs.
  - To start the Advanced Diagnostic program, press and hold **Ctrl**, then press **A**. A message appears telling you to insert the Diagnostic Diskette, follow the prompts.
  - The **Advanced Diagnostic Menu** is displayed. Select the **Run System Checkout** option and press **Enter**.
  - The next window shows the configuration of your service processor. Press **Y** to continue.
  - The **Test Selection Menu** is displayed. Select the **Run the Test one Time** option and press **Enter**.
  - On the **Device Test Menu**, select the **1-SCSI Hard Disk** option and press **Enter**.
  - Follow the prompts.
  - On the **Select the SCSI Hard Disk to test**, press **Enter**.
  - When the hard disk has been tested the **Select the SCSI Hard Disk to Test** window is again displayed, press **F3** to exit.
  - On the **Test Selection Menu** window, press **F3** to exit.
  - Follow the prompts.

Is the diagnostic error free?

Yes **No**

002

Go to the *IBM Personal System/2 Hardware Maintenance* manual.

003

You must restore the service processor hard disk after its replacement using the following Steps:

1. Remove the diagnostic diskette.
2. Install the 'Service Processor Installation Diskette 1' in the diskette drive (verify that write is enabled).
3. Install the CD-ROM which contains the latest version of the LIC in the drive.

(Step **003** continues)

003 (continued)

4. Simultaneously press the **Ctrl/Alt/del** keys on the keyboard.
5. When the IBM logo is displayed press **Enter**.
6. The following window is displayed:

```
You are going to restore the SP hard disk from the CD-ROM.
During this procedure, you will be prompted to insert the
configuration parameter diskette.
Before proceding:
- Ensure that this diskette contains the latest customer
  configuration parameters.
- Press enter to proceed or escape to exit.
```

   Press **Enter**.

7. Follow the prompts until the following window is displayed:

```
Please insert configuration parameters diskette 1
Press Enter to continue.
```

   Insert the configuration parameters diskette then press **Enter**.

8. Follow the prompts to re-insert the service processor installation diskette, then press **Enter**.
9. Wait (time duration is about 25 minutes) until the following window is displayed:

```
LIC RESTORATION HAS SUCCESSFULLY COMPLETED
Press Enter to continue.
```

   Press **Enter**, then follow the prompts.

10. The following windows appear successively:

```
Please wait fo the MOSS database building (10 mn)
```

```
Please wait fo the MOSS LSCT restoration (8 mn)
```

11. The **MOSS-E View** window is displayed followed by:

```
Service processor customization in progress.
It may take a few minutes to complete.
Please wait..
```

```
Service processor customization is terminated.
The service processor will reboot.
Please wait..
```

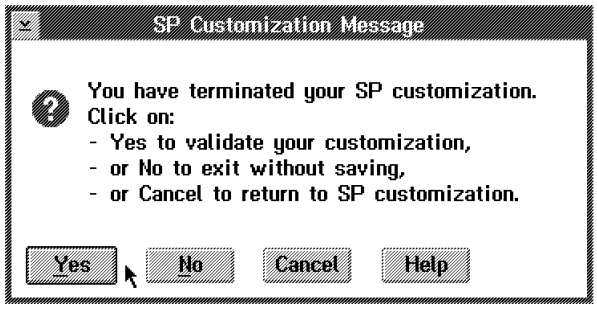
(Step **003** continues)

003 (continued)

12. The **MOSS-E View** window is displayed followed by a window asking the password. Enter the password.
13. The **Installation Chaining Process** window is displayed:

    ```
    You can now customize your service processor.

    OK    Cancel
    ```

    Click on **OK**
14. Check and modify parameters setting if necessary (refer to "Step 5 - Customizing Your Service Processor" on page 1-85 for details). Click on **Next>>** to go to the next windows.
15. When the following window is displayed:



    Click on **Yes**.
16. Follow the prompts until the following window is displayed:

    ```
    Customization ended
    ```

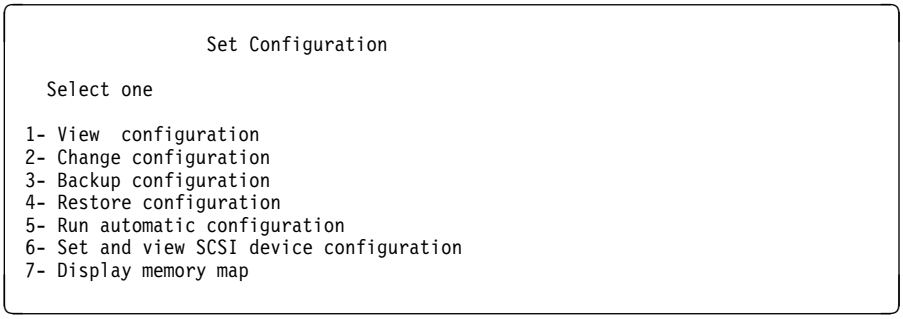
    Click on **OK**.

    Note: If the code level that you have just installed is different from the code installed on NNP you must also change it (refer to *Network Node Processor Installation and Maintenance (Based on 7585 or 3172)*, SY33-2112).
17. Then go to Chapter 8, "CE Leaving Procedure" on page 8-1.

MAP: 9585 Service Processor Battery Exchange

001

- Go to the *IBM Personal System/2 Hardware Maintenance Manual* to replace the battery.
- After battery exchange power ON the service processor.
- An error message 00016100 is briefly displayed, then the memory test are run before message prompts you to perform an automatic configuration.
- During automatic configuration several **information** windows are displayed. This automatic configuration takes several minutes.
- When the automatic configuration is finish press the **Enter**. key to start the system.
- When the **F1**-key prompt appears on the screen, under the **IBM** logo press the **F1** key.
- The Systems Programs **Main Menu** appears on the screen.
- On the **Main menu** window, select the **Set Configuration** option and press the **Enter** key.
- A **Set Configuration** window is displayed.



```
                Set Configuration

  Select one

1- View  configuration
2- Change configuration
3- Backup configuration
4- Restore configuration
5- Run automatic configuration
6- Set and view SCSI device configuration
7- Display memory map
```

- Select the **Change Configuration** option and press the **Enter** key.
- A **Change Configuration** window is displayed.
- Check on slot 1 the parameter values for the IBM Token-Ring Network 16/4 Adapter. These values must be the same as indicated in “Service Processor Hardware Configuration Reference (9585)” on page B-22.
- If these values need to be changed, use the PF keys to change them.
  - Primary or alternate adapter....(Primary) **1**
  - Adapter Data Rate.............(16 Mbps) **1**
  - RAM Size and Address Range......(16 KB / XXXXX-XXXXX) **1**
  - Interrupt level.................Interrupt x **2**

  Notes:

  1. **1** When there is a conflict for setting these parameters an '*' is displayed on right side of the screen.
  2. **2** Interrupt level is set automatically by the service processor (see “Service Processor Hardware Configuration Reference (9585)” on page B-22).
- When the changes has been done use the PF10 key to save the option then PF3 to exit.
- Go to “MAP: Set Time and Date” on page 7-48.

MAP: 9585 Service Processor Integrated Modem Exchange

001

- Go to the *IBM Personal System/2 Hardware Maintenance Manual* to replace the V.32 Modem/A.
- To install, configure and test the new V.32 Modem/A, go to the *IBM Asynchronous/SDLC V.32 Modem/A, Installation, Operation, and Problem Determination Guide*

Is the diagnostic error free?

Yes **No**

002

Refer to the problem determination chain of the *IBM Asynchronous/SDLC V.32 Modem/A; Installation, Operation, and Problem Determination Guide.*

003

Return the service processor to the customer. Then go to Chapter 8, “CE Leaving Procedure” on page 8-1.

MAP: Other FRU Exchanges for the 9585 Service Processor

001

- Use the *IBM Personal System/2 Hardware Maintenance Manual* to replace an FRU.

  Note: If you have to replace the display or the system unit cover, you must remove the 'LOGO' from the used parts and put it on the new part received. You can order these parts with the following references:

  – Display LOGO: PN 57G7480

  – System unit LOGO: PN 57G7477

- Run diagnostics.

Is the diagnostic error free?

Yes **No**

002

Go to the *IBM Personal System/2 Hardware Maintenance Service* manual.

003

Return the service processor to the customer, then go to Chapter 8, “CE Leaving Procedure” on page 8-1.

MAP: Service Processor CD-ROM Exchange

001

Exchange the CD-ROM drive using the following procedure:

1 At the rear of the CD-ROM:

a Power OFF the CD-ROM drive using the power ON/OFF switch

b Disconnect the CD-ROM drive power cable from the ac outlet distribution box then from the rear of the unit.

c Disconnect the signal cable and the terminator plug.

2 Exchange the CD-ROM

3 On the new CD-ROM drive that you are exchanging, set the identification number (ID) as it was on the removed CD-ROM.

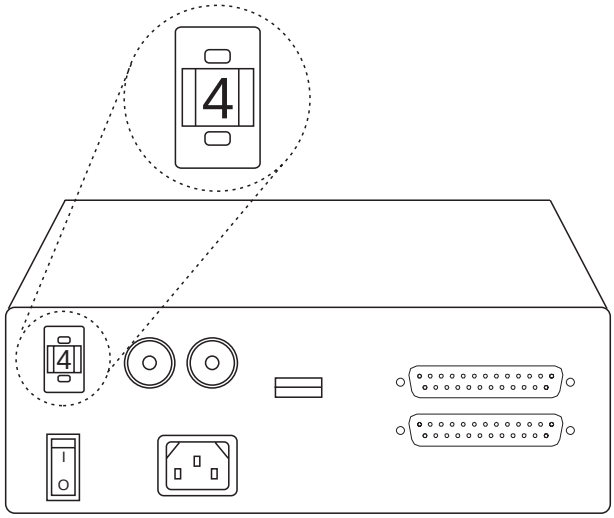


Figure 7-2. ID Setting on CD-ROM

4 To change the ID, press the little button on the top or bottom of the ID display.

5 At the rear of the CD-ROM drive:

a Install the terminator plug previously removed.

b Reconnect the signal cable.

c Connect the power cable at the rear of the unit, then in the ac outlet distribution box.

6 Power ON the CD-ROM drive.

7 Return the service processor to the customer. Then go to Chapter 8, “CE Leaving Procedure” on page 8-1.

MAP: Set Time and Date

001

- Power ON the service processor, if not already done, or simultaneously press the **Cntrl/Altr/Del** on the keyboard.
- When the **F1**-key prompt appears on the screen, under the **IBM** logo press the **F1** key.
- The Systems Programs **Main Menu** appears on the screen.
- On the **Main menu** window, select the **Set Features** option and press the **Enter** key.
- A **Set Features** window is displayed.
- Select the **Set Date and Time** option, then follow the prompts to enter the date and time.
- Press **Enter** first to validate, then to exit.
- If you have changed the service processor board go to “MAP: Recording the Vital Product Data on a New System Board” on page 7-49. Otherwise continue with the next step.
- Return the service processor to the customer. Then go to Chapter 8, “CE Leaving Procedure” on page 8-1.

MAP: Recording the Vital Product Data on a New System Board

001

The vital product data (serial number) is stored in the EPROM on the system board. When replacing a system board that has rewritable VPD, the system unit serial number must be recorded on the new system board. Use the following procedure to record the system unit serial number on the new system board.

- Power ON the service processor, if not already done, or simultaneously press the **Cntrl/Altr/Del** on the keyboard.
- When the **F1**-key prompt appears on the screen, under the **IBM** logo press the **F1** key.
- The Systems Programs **Main Menu** appears on the screen.
- Select the **More Utilities** option.
- On the **More Utilities** window, select the **Set System Identification** option.
- On the **Set and View System Identification** window, select the **Set System Identification** option.
- On the window displayed, enter the system unit serial number as indicated on the front side of the system processor, then follow the prompts.
- Return the service processor to the customer. Then go to Chapter 8, “CE Leaving Procedure” on page 8-1.

Chapter 8. CE Leaving Procedure

Check List

1 **Check that:**

a The service processor is properly installed.

b All the cables previously removed are properly connected.

c The service processor IML is complete with **MOSS-E View** window displayed.

d The 374X units are connected to the service processor.

- For 3745 check the control panel code.
- For 3746-9xx check that the **Service Processor not accessible** digit if **OFF** on the 3746-9xx control panel.

2 At the beginning of the problem determination, did you modify the "Remote Support Facility" parameters, using the procedure described in the *Maintenance Information Procedure* for 3745 and 3746-900, or in the *Service Guide* for 3746-950?

Yes Go to **3** .
No Go to **13 on page 8-2** .

3 On the "MOSS-E VIEW" window, double click on the service processor icon.

4 The "Service Processor Menu" window is displayed.

5 Click on the "Configuration Management" option.

6 Double click on the "Manage Remote Operations" option.

7 On the "Remote Operation Management" window, select the "Remote operations authorization" option and click on "OK".

8 On the "Remote Support Facility" window, select the two following options:

- "Enable Remote Support Facility"
- "Generate alerts"

and click on "OK".

9 Click on "Cancel" to return to "Service Processor Menu", then click on "Function" and "Exit" to return to the "MOSS-E View" window.

10 On the "MOSS-E VIEW" window, click on "Program" in the action bar.

11 Click on "Log off MOSS-E".

12 Continue with **13 on page 8-2** .

© Copyright IBM Corp. 1998

13 You should use the following list to ensure that the machine is in suitable condition for customer operation and that call information is recorded.

a If previously, you have worked on 3745 or 3746, be sure to have restore them at a correct status for customer application (MOSS online, 3746 online, FRU active in CDF-E).

b Ask the customer to restart his application.

c If you have a problem, call your support for assistance

Appendix A. Parameter Worksheets

The worksheets in this appendix are for the MOSS-E parameters that are needed during controller installation.
When applicable, default parameter values are included (in parentheses) in the tables. Complete these sheets and give them to the IBM service representative.

Controller Integration

Controller Names

Controller	Name

Set Power ON Schedule

Sunday	
Monday	
Tuesday	
Wednesday	
Thursday	
Friday	
Saturday	
Scheduling active	

MOSS-E Database Optimization

Optimize database	
If Weekly: Day of the week	
Time	

NCP Dump Transfer

Destination address	
Long session/LU name	(MOSSEEMU)
LU local address	(03 or greater)

© Copyright IBM Corp. 1998

Service Processor Integration

Definition of Service Processor LAN Address

Network adapter address	

Service Processor LAN Management Definition

C&SM LAN ID	(MOSSE)

Definition of the Service Processor in an SNA/Subarea Network

Network ID	(SYSTST)
Local node name	(MOSSNMVT)

Definition of Service Processor in an APPN/HPR Network

Network ID	(SYSTSTAP)
Local node name	(MOSSNMVT)

3746-900 Integration

Definition of 3746-900 LAN Address

Token-ring local address (MAC address)	

Definition of Service LAN IP Addresses

Table A-1. For the Service Processor	
IP address	(192.9.200.1)
Subnet mask	(255.255.255.240)

Table A-2. For the Network Node Processor Model A	
IP address	(192.9.200.2)
Subnet mask	(255.255.255.240)

Table A-3. For the Network Node Processor Model B	
IP address	(192.9.200.3)
Subnet mask	(255.255.255.240)

Table A-4. For the 3746 Nways Multiprotocol Controller	
IP address	(192.9.200.4)
Subnet mask	(255.255.255.240)

Network Routing Protocol for Each Processor Type

Select a routing protocol for each type of processor that you have.

Password

Table A-5. Service Processor Passwords

Mode	Password	Status	Attempts Threshold
Controller customer		---	
Controller maintenance			
Service processor customer		---	
Service processor maintenance			
Management password			

DCAF Remote Logon Password

Enable password	(Yes)
Password	(No default)

Disable Incoming Calls (to Service Processor)

Enable/Disable Service Processor Incoming Calls	(Enable)

Parameter Definitions for Reporting Alerts to NetView

Network Node Processor Alerts

Network identifier	(SYSTSTAP)
Control point name	

MOSS-E Alerts: Mainstream Path Definition

APPN/HPR Network

LAN destination address	

SNA/Subarea Network

LAN destination address	

MOSS-E Alerts: Alternate Path Definition

Telephone number for alert reporting on the switched SDLC link	

Generate MOSS-E Alerts

Problem management	(Generate alerts)

Performance Management CM/2 Parameters (NPM)

NPM **netid**	
PU name for CM/2	
NPA LU name	

Service Processor Parameters for DCAF using CM/2

For LAN-Attached Consoles

LU name	(DCAFLAN)

For SNA-Attached Consoles

LU name	(DCAFSNA)
Destination address	(400000502080)

For APPN/HPR-Attached Consoles

LU name	(DCAFAPPN)
Destination address	(400000502080)

For IP-Attached Consoles

Service Processor IP Address	(192.9.200.1)

For Modem-Attached Consoles

LU name	(DCAFSDLC)

Parameter Definitions for RSF

Customer Information

Company Name	
Address	
System location	
Contact person	
Company telephone number for voice communications	
Company telephone number for modem communications	

Remote Support Facility Authorization

Enable/Disable Remote Support Facility	(Disable)

Set Automatic Microcode Download Option

Yes/No	(No)

Appendix B. Service Processor Aids

Service Processor Based on 7585-P02

How to check the Device Configuration (7585-P02)

1. Power On the service Processor
2. Press the **F1** key to invoke the configuration/Setup utility after POST completion, and continue with the “Service Processor Configuration Reference Based on 7585-P02.”

Service Processor Configuration Reference Based on 7585-P02

The following window is displayed. From the following window select the different options and go to the new windows for checking.

```
Configuration/Setup Utility

Select Option:

- System Summary              1
- Product Data                2
- Device and I/O Ports        3
- Date and Time               4
- System Security             5
- Start Options               6
- Advanced Setup              7
- ISA Legacy Resources        8
- Advanced Power Management   9

Save Settings
Restore Settings
Load Default Settings

Exit Setup
```

© Copyright IBM Corp. 1998

1

```
          System Summary

Processor          Pentium
Processor Speed    200MHz
Math Coprocessor   Internal
System Memory      640 KB
Extended Memory    95 MB
Video Controller   S3 Incorporated. TRIO64V+
Cache Size         512 KB                    (Note 1)
Cache State        Enabled
Shadow RAM         384 KB
System ROM         F000h-FFFFFh
Memory Type        Parity
Diskette Drive A   1.44 MB 3.5"              (Note 2)
Diskette Drive B   Not Installed
Hard Disk Drive 0  Not Installed
Hard Disk Drive 1  Not Installed
Hard Disk Drive 2  Not Installed
Hard Disk Drive 3  Not Installed
```

Notes:

1. If the value of the **Cache Size** is not correct, set it before continuing (see “How to Set the Cache Size Value” on page B-12).
2. The diskette drive can also be a: 2.88 MB 3.5".

2

```
          Product Data

Machine type/ Model           7585LG2
Flash EEPROM Revision Level   LVKT27AUS
System Board Identifier       -A123456789
System Serial Number          xxxxxxx
BIOS Date                     02/27/97
```

3

```
          Device and I/O Ports

   Mouse                     (Installed)
   Diskette Drive A:         (1.44 MB 3.5") (Note)
   Diskette Drive B:         (Not Installed)

 - Serial Port Setup...
 - Parallel Port Setup...
 - Video Setup...
 - IDE Drives Setup...
```

Note: The diskette drive can also be 2.88 MB 3.5".

```
          Serial Port Setup

 Serial Port A Address           (3F8h)
 Serial Port A IRQ               (IRQ 4)
 Infra Red Port Address          (Disabled)
 Infra Red Port Address          (IRQ 3)
```

```
          Parallel Port Setup

 Parallel Port                   (Disabled)
 Parallel Port Mode              (Standard)
 Parallel Port Extended Mode     (Bidirectional)
 Parallel Port Extended Mode DMA (No DMA       )
 Parallel Port IRQ               (IRQ 7)
```

```
          Video Setup

 Video Controller                S3 Incorporated. trio64V+
 Video Memory                    1024 KB
 DDC Monitor checking            (Enabled)
 Video interrupt                 (Disabled)
 Palette Snooping                (Enabled)

 Video Display Type              (Custom       )
 Monitor Horizontal Frequency    (Not Supported)
 Refresh Rate for ( 640 X  480)  (60 Hz)
 Refresh Rate for ( 800 X  600)  (60 Hz)
 Refresh Rate for (1024 X  768)  (43 Hz Interlaced)
 Refresh Rate for (1180 X 1024)  (not supported)
 Refresh Rate for (1600 X 1200)  (not supported)
```

```
          IDE Drives Setup

- Hard Disk Drive 0
- Hard Disk Drive 1
- Hard Disk Drive 2
- Hard Disk Drive 3
```

```
          Hard Disk Drive x

Size                  (Not Installed)
```

4

```
          Date and Time

   Time                  HH/MM/SS
   Date                  MM/JJ/YY
```

5

```
          System Security

- Secure Hard Disk Drives and Diskettes Drives
- Power On Password
- Administrator Password
```

```
   Secure Hard Disk Drives and Diskette Drives

Hard Disk Access           (Enable )
Diskette Drive Access      (Enable )
```

```
          Power-On Password

Enter your new Power-on password twice.

Enter Power-on Password        (       )
Enter Power-on Password Again  (       )

Set or Change Power-on Password
Delete Power-on Password

Password Prompt                (ON)
```

```
          Administrator Password

  Enter your new Administrator password twice.

  Enter Administrtor Password          (       )
  Enter Administrator Password Again   (        )

  Set or Change Administrator Password
  Delete Administrator Password

  Power-on Passeword changeable by user (NO)
```

6

```
         Start Options

Keyboard Numlock State     (ON)
Keyboard Speed             (Fast)
Diskettes Operation        (Disabled)
Monitorles Operation       (Disabled)
Keyboardles Operation Mode (Disabled)

First Startup Device       (Diskette Drive 0)
Second Startup Device      (Hard Disk 0     )
Third Startup Device       (Disabled        )
Fourth Startup Device      (Disabled        )

Power On Self-Test         (quick)    (Note)
Power On Log               (Enabled )
Power On F1/Esc Option     (Enabled )
Virus detection            (Disabled)
```

Note: If you want have the complete testing of the service processor at power ON, set this option to: Enhanced.

7

```
         Advanced Setup

Warning:

Items on the following menus control advanced Hardware features
if they are configured incorrectly, the system might
malfunction.

- Memory Control
- Cache Control
- ROM Shadowing
- PCI Control
- Plug and Play Control
```

```
         Memory Control

  Memory Access Speed  (60ns Access)
```

```
         Cache Control

  Cache State          (Enabled    )
  Cache Size           512 KB          (note)
```

Note: You cannot set this value in this procedure. For changing the **Cache Size** value see the “How to Set the Cache Size Value” on page B-12.

```
          ROM Shadowing

  F0000h-FFFFFh (System BIOS)         (Enabled)
  E8000h-EFFFFh                       (Enabled)
  E0000h-E7FFFh                       (Enabled)
  DC000h-DF000h                       (Disabled)
  D8000h-DB000h                       (Disabled)
  D4000h-D7000h                       (Disabled)
  D0000h-D3000h                       (Disabled)
  CC000h-CF000h                       (Disabled)
  C8000h-CB000h                       (Disabled)
  C0000h-C7FFFh (Adapter Video BIOS)  (Enabled)
```

```
               PCI Control

    PCI Burst Mode       (Enabled    )
```

```
            Plug and Play Control

    Set Device Mode      (Enabled    )
```

8

```
          ISA Legacy Resources

Information: ISA legacy Resources (DMA, Interrupts, Memory,
             and I/O Ports) are resources that are used by
             ISA adapter which are not Plug-and-Play adapters.
             Use this menus to indicate which resources are
             Used by ISA Legacy adapters. Resources used by
             the system are already indicated.

- Memory Resources
- I/O Ports Resources
- DMA Resources
- Interrupt Resources
```

```
          Memory Resources

 A0000h-A3FFFh               (System Resource)
   -      -                       -
 C6000h-C7FFFh               (System Resource)
 C8000h-C9FFFh               (Available      )
   -      -                       -
 DE000h-DFFFFh               (Available      )
 E0000h-FFFFFh               (System Resource)
100000h-1FFFFh               (Available      )
   -      -                       -
E00000h-EFFFFFh               (Available      )
F00000h-FFFFFFh               (Available      )
```

```
   I/O Port Resources

100h-103h    (System Resource)
104h-107h    (System Resource)
108h-10Bh    (Available      )
  -   -          -
170h-173h    (System Resource)
174h-177h    (System Resource)
178h-17Bh    (Available      )
  -   -          -
1ECh-1EFh    (Available      )
1F0h-1F3h    (System Resource)
1F4h-1F7h    (System Resource)
1F8h-1FBh    (Available      )
  -   -          -
2F4h-2F7h    (Available      )
2F8h-2FBh    (Available      )
2FCh-2FFh    (Available      )
300h-303h    (Available      )
  -   -          -
370h-373h    (Available      )
374h-377h    (System Resource)
378h-37Bh    (Available      )
  -   -          -
3B0h-3B3h    (Available      )
3B4h-3B7h    (System Resource)
3B8h-3BBh    (System Resource)
3BCh-3BFh    (Available      )
3C0h-3C3h    (System Resource)
  -   -          -
3DCh-3DFh    (System Resource)
3E0h-3E3h    (Available      )
  -   -          -
3ECh-3EFh    (Available      )
3F0h-3F3h    (System Resource)
  -   -          -
3FCh-3FFh    (System Resource)
```

```
   DMA Resources

Channel 0      (Available      )
Channel 1      (Available      )
Channel 2      (System Resource)
Channel 3      (Available      )
Channel 4      (Available      )
Channel 5      (Available      )
Channel 6      (Available      )
Channel 7      (Available      )
```

```
      Interrupt Resources

     0          (System Resource)
     1          (System Resource)
     2          (System Resource)
     3          (Available      )
     4          (System Resource)
     5          (Available      )
     6          (System Resource)
     7          (Available      )
     8          (System Resource)
     9          (Available      )
    10          (Available      )
    11          (Available      )
    12          (System Resource)
    13          (System Resource)
    14          (Available      )
    15          (Available      )
```

9

```
       Advanced Power Management

 APM BIOS Mode               (Enabled        )

 - Automatic Hardware Power Management
 - Activity Monitor
 - Automatic Power On
```

```
         Automatic Hardware Power Management

Automatic Hardware Power Management  (Enabled)
  Time to Level 1 Power Management   (15 min)
       System Power                  (ON)
       Processor Speed               (25%  )
       Display                       (Standby)
  Time to Level 2 Power Management   (30 min)
       System Power                  (ON)
       Processor Speed               (01%  )
       Display                       (Suspend)
  Time to Level 3 Power Management   (1 hr  )
       System Power                  (ON)
       Processor Speed               (01%  )
       Display                       (OFF    )
  Hard File                          (Enabled)
```

```
          Activity Monitor

    Hard Files    (Enabled)
    IRQ 1         (Enabled)
    IRQ 2         (Enabled)
    IRQ 3         (Enabled)
    IRQ 4         (Enabled)
    IRQ 5         (Enabled)
    IRQ 6         (Enabled)
    IRQ 7         (Enabled)
    IRQ 8         (Enabled)
    IRQ 9         (Disabled)
    IRQ10         (Disabled)
    IRQ11         (Disabled)
    IRQ12         (Enabled)
    IRQ13         (Enabled)
    IRQ14         (Disabled)
    IRQ15         (Disabled)
```

```
          Automatic Power On

   Serial Port Ring Detect     (Enabled)
   Modem Ring Detect           (Enabled)

   Wake Up on Alarm            (Disabled)
     Alarm Date MM/DD/YY       (MM/DD/YY)
     Alarm Time                (HH:mm)

- LAN Wake Up
```

```
          LAN Wake Up

   Warning

   The following item controls LAN wake up
   requests only if a network adapter is
   installed in your system, the network
   adapter supports wake up requests,
   and the network adapter is configured
   properly

   LAN Wake UpDetect            (Disabled)
```

How to Set the Cache Size Value

1. From the **Configuration/Setup Utility** select the **Load Default Settings** option, then press the **Enter** key.

2. Exit from the **Configuration/Setup Utility** by selecting **Exit Setup** option.

```
        Settings were changed
        Do you want save them

  Yes, save and exit the Setup utility
  No, exit the Setup Utility without saving
  No, return to the Setup Utility
```

3. Select the **Yes, save and exit the Setup utility** option, then press the **Enter** key.

4. When the IBM logo is displayed, press the **F1** key to display again the **Configuration/Setup Utility** and check that the **Cache Size** is well set at 512 KB.

5. Return to the procedure where you came from.

How to check the SCSI Device Configuration (7585-P02)

1 Power On the service processor.

2 When the following is displayed

```
Adaptec AHA<2940 Ultra/Ultra WBios v1.2
(c) 1995 Adaptec, Inc. All rights Reserved.

<<<Press CCtrl><A> for SCSI Select (TM) Utility>>>
SCSI ID : LUN NUMBER - : - 4:0 - IBM CDRM00203      (Note)
SCSI ID : LUN NUMBER - : - 5:0 - FUJITSU M2512A     (Note)
SCSI ID : LUN NUMBER - : - 6:0 - IBM DFH5S2F        (Note)
```

Note: The device identification may be different. CD-ROM and optical disk drive may be present together but according to the code level they are mutually exclusive. Up to EC D46130 only optical disk is used. From EC F12380 only CD-ROM is used.

3 Press simultaneously the **Control** and the **A** key.

4 The following screen is displayed:

```
      AHA-2940- Ultra/Ulra W at Bus: Device 00:0Bh

   Would you like to configure the host adapter, or run the
   SCSI disk utilities? Select the option and press <Enter>.
   Press <F5> to switch between color and monochrome modes.
                        Options
          Configure/View Host Adapter Settings
                  SCSI Disk Utilities
```

5 Select the **Configure/View Host Adapter Settings**

```
      AHA-2940- Ultra/Ulra W at Bus: Device 00:0Bh

     Configuration

   SCSI Bus Interface Definition
    Host Adapter SCSI ID           7
    SCSI Parity Checking           Enabled
    Host Adapter SCSI Termination  Automatic

   Additional Option
    Boot Device Options            Press<Enter>
    SCSI Device Configuration      Press<Enter>
    Advanced Configuration Options Press<Enter>

       <F6> - Reset to Host Addapter Defaults
```

6 Press **Esc** to return to the following screen.

7 Select **SCSI Disk Utilities** option, then press **Enter**.

```
     AHA-2940- Ultra/Ulra W at Bus: Device 00:0Bh

   Would you like to configure the host adapter, or run the
   SCSI disk utilities? Select the option and press <Enter>.
   Press <F5> to switch between color and monochrome modes.
                      Options
          Configure/View Host Adapter Settings
                  SCSI Disk Utilities
```

8 The following window appears while the SCSI ID number is icrementing.

```
Scaning SCSI ID: LUN Number  : xx:0
```

9 The following window is displayed.

```
         AHA-2940 Ultra/Ultra W at Bus Device 00:0Bh

         Select SCSI Disk and Press Enter

   SCSI ID  0: No Device
        ID  1: No Device
        ID  2: No Device
        ID  3: No Device
        ID  4: IBM   CDRM00203     (Note)
        ID  5: FUJISTU M2512A      (Note)
        ID  6: IBM  XP32275W       (Note)
        ID  7: AHA-2940 Ultra/ultra W
        ID  8: No Device
        ID  9: No Device
        ID 10: No Device
        ID 11: No Device
        ID 12: No Device
        ID 13: No Device
        ID 14: No Device
        ID 15: No Device
```

Note: The device identification may be different. CD-ROM and optical disk drive may be present together but according to the code level they are mutually exclusive. Up to EC D46130 only optical disk is used. From EC F12380 only CD-ROM is used.

Press the **Esc** key until a message ask you if you want to exit from the **Utility**.

Select the **Yes** option and press the **Enter** key. Follow the prompts.

Service Processor Based on 3172

Typical Devices List (3172)

How to Display the Devices List

1. Power OFF then Power ON the service processor
2. When the **F1**-key prompt appears on the screen under the **IBM** logo press the **F1** key.
3. When the **Main Menu** is displayed, simultaneously press the **Ctrl/A** keys.
4. The **Advanced Diagnostic Menu** is displayed. Select the **Run System Checkout** option and press the **Enter** key.
5. The next window shows the configuration of your service processor. Press **Y** to continue.
6. The **Test Selection Menu** is displayed. Select the **Display the device list** option and press the **Enter** key.
7. The **Device Test Menu**, is displayed showing the following device list.

```
  90MHZ Pentium(tm) CPU Processor Board (Note 1)
  Model 95 XP System Board
32MB System Memory, 32MB Enabled (Note 2)
  Keyboard
1 Diskette Drive(s)
  System Board Async port
  Mouse Port
1 Cached SCSI I/O Adapter
1 Multiprotocol Adapter
Token-Ring Adapter 1
1 SCSI Hard Disks
1 Optical Drive(s)
1 XGA-2 Display Adapter A
```

Notes:

1. If on your machine the processor is not a Pentium but a 80486 you will have:

   ```
   80486DX2-66 Processor Board
   ```

2. The memory size depends of your configuration and may be larger.

To exit follow the prompts.

Service Processor Hardware Configuration Reference (3172)

How to Check the Hardware Configuration

Before starting this procedure check your the processor type installed on your machine, refer to “How to identify your processor type” on page 6-44 .

1. Power OFF then Power ON the service processor
2. When the **F1**-key prompt appears on the screen under the **IBM** logo press the **F1** key.
3. On the **Main Menu** window select the **Set Configuration** option then press the **Enter** key.
4. On the **Set Configuration** window, select the **View Configuration** option and press the **Enter** key.
5. If the processor installed on your machine is:
   - A Pentium processor refer to **6 on page B-17** .
   - A 80486 processor refer to **7 on page B-18** .

6 Configuration Reference for Machine with Pentium Processor

View Configuration

Total System Memory

```
Installed Memory..................... 32768KB (32.0MB) (Note)
Usable Memory........................ 32384KB (31.6MB) (Note)
```

Built in Features

```
Installed Memory..................... 32768KB (32.0MB) (Note)
Diskette Drive 0 Type................ 2.88MB 3.5"
Diskette Drive 1 Type................ Not Installed
Diskette Drive 2 Type................ Not Installed
Math Coprocessor..................... Installed
Display F1 Prompt to Access System pro. YES
Serial Port.......................... SERIAL 1
Serial Transmit Arbitration Level..... Shared 4
Serial Received Arbitration Level..... Shared 3
Parallel Port Arbitration Level....... PARALLEL 1
Parallel Port Arbitration Level....... Shared 7
Preempt Enable/Disable............... Enable
Usable System-Board Memeory.......... ECC
Bypass System Progress on Error...... Disable
Processor............................ 90MHZ Pentium(tm) CPU
```

Slot 1 - Empty

Slot 2 - Empty

Slot 3 - IBM Multi-Protocol Communication Adapter (note 1)

```
Communication Port................... SDLC 1, Arb 1
```

Slot 4 - Empty

Slot 5 - XGA-2 Display Adapter/A

```
Video I/O Address.................... Instance 6: 2160h - 216Fh
1 MB VRAM Aperture Base Address...... Disabled
Video Arbitration Level.............. Arbitration Level 13
Video Fairness....................... Fairness On
ROM Address Range.................... C0000h - C1FFFh
```

Slot 7 - IBM Token-Ring Network 16/4 Adapter/A

```
Primary or Alternate adapter......... Primary
Adapter Data Rate.................... 16 Mbps
ROM Address Range.................... DA000/DBFFF
RAM Size and Address Range........... 16 KB /DC000-DFFFF
Interrupt Level...................... Interrupt 2
```

Slot 8 - IBM PS/2 SCSI AdapterW/Cache

```
I/O Address.......................... 3540-3547
DMA Arbitration Level................ Level C
Fairness On/Off...................... On
ROM Wait State Disable............... Enable Wait State
SCSI Adapter Address (ID)............ 7
ROM Address Range.................... No Ressources Allocated
```

To exit follow the prompts.

7 Configuration Reference for Machine with 80486 Processor

View Configuration

Total System Memory

```
Installed Memory..................... 32768KB (32.0MB) (Note)
Usable Memory........................ 32384KB (31.6MB) (Note)
```

Built in Features

```
Installed Memory..................... 32768KB (32.0MB) (Note)
Diskette Drive 0 Type................ 2.88MB 3.5"
Diskette Drive 1 Type................ Not Installed
Diskette Drive 2 Type................ Not Installed
Math Coprocessor..................... Not Installed
Display F1 Prompt to Access System pro. YES
Serial Port.......................... SERIAL 1
Second Serial Port................... SERIAL 2, IRQ 3
Parallel Port........................ PARALLEL 1
Parallel Port DMA Arbitration Level.... Shared Level 7
Serial Transmit Arbitration Level..... Shared 4
Serial Received Arbitration Level..... Shared 3
Parallel Port Arbitration Level....... PARALLEL 1
Parallel Port Arbitration Level....... Shared 7
Preempt Enable/Disable............... Enable
Usable System-Board Memory........... ECC
Bypass System Progress on Error...... Disable
Processor............................ 66MHZ 80486 DX2
```

Slot 1 - Empty
Slot 2 - Empty
Slot 3 - IBM Multi-Protocol Communication Adapter (note 1)

```
Communication Port................... SDLC 1, Arb 1
```

Slot 4 - Empty

Slot 5 - XGA-2 Display Adapter/A

```
Video I/O Address.................... Instance 6: 2160h - 216Fh
1 MB VRAM Aperture Base Address...... Disabled
Video Arbitration Level.............. Arbitration Level 13
Video Fairness....................... Fairness On
ROM Address Range.................... C0000h - C1FFFh
```

Slot 7 - IBM Token-Ring Network 16/4 Adapter/A

```
Primary or Alternate adapter......... Primary
Adapter Data Rate.................... 16 Mbps
ROM Address Range.................... DA000/DBFFF
RAM Size and Address Range........... 16 KB /DC000-DFFFF
Interrupt Level...................... Interrupt 2
```

Slot 8 - IBM PS/2 SCSI AdapterW/Cache

```
I/O Address.......................... 3540-3547
DMA Arbitration Level................ Level C
Fairness On/Off...................... On
ROM Wait State Disable............... Enable Wait State
SCSI Adapter Address (ID)............ 7
ROM Address Range.................... No Ressources Allocated
```

Note: : The memory size depends of your configuration and may be larger.

To exit follow the prompts.

3172 SCSI Device Configuration

How to Check the SCSI Device Configuration

Before starting this procedure check your the processor type installed on your machine, refer to "How to identify your processor type" on page 6-44 .

1 Power OFF then Power ON the service processor

2 When the **F1**-key prompt appears on the screen under the **IBM** logo press the **F1** key.

3 On the **Main Menu** window select the **Set Configuration** option then press the **Enter** key.

4 On the **Set Configuration** window, select the **Set and View SCSI Configuration** option and press the **Enter** key.

5 If the processor installed on your machine is:

- A Pentium processor refer to 6.
- A 80486 processor refer to 7 on page B-20.

6 **SCCI Device Configuration for Machine with Pentium Processor**

```
                Set and View SCSI Device Configuration

SCSI Configuration Verification......... (ENABLED)

Slot 8 -  IBM PS/2 SCSI Adapter W/Cache - 512KB Cache
    SCSI Address (ID)................... (7)
    SCSI Device Type.................... Hard Disk
         Device Address (ID, LUN)....... 6,0
         Device Size.................... 2255MB
         Presence Error Reporting....... (ENABLED)
         Operational Error Reporting.... (ENABLED)
    SCSI Device
         Device Type.................... ROM Device (Note)
         Device Address (ID, LUN)....... 4,0
         Presence Error Reporting....... (ENABLED)
         Operational Error Reporting.... (ENABLED)
    SCSI Device
         Device Type.................... Optical Memory (Note)
         Device Address (ID, LUN)....... 5,0
         Presence Error Reporting....... (ENABLED)
         Operational Error Reporting.... (ENABLED)
```

Note: Either a CD-ROM or an optical disk drive is present according to the level of the code. Up to EC D46130 only optical disk is used. From EC F12380 only CD-ROM is used.

To exit follow the prompts.

7 SCCI Device Configuration for Machine with 80486 Processor

```
                Set and View SCSI Device Configuration

SCSI Configuration Verification......... (ENABLED)

Slot 8 -  IBM PS/2 SCSI Adapter W/Cache
   SCSI Address (ID)................... 7
   SCSI Device Type.................... Hard Disk
        Device Address (ID, LUN)....... 6,0
        Device Size.................... 1052MB
        Presence Error Reporting....... (ENABLED)
   SCSI Device
        Device Type.................... ROM Device (Note)
        Device Address (ID, LUN)....... 4,0
        Presence Error Reporting....... (ENABLED)
        Operational Error Reporting.... (ENABLED)
   SCSI Device
        Device Type.................... Optical Memory (Note)
        Device Address (ID, LUN)....... 5,0
        Presence Error Reporting....... (ENABLED)
        Operational Error Reporting.... (ENABLED)
```

Note: Either a CD-ROM or an optical disk drive is present according to the level of the code. Up to EC D46130 only optical disk is used. From EC F12380 only CD-ROM is used.

To exit follow the prompts.

Service Processor Based on 9585

Typical Devices List (9585-0NT)

```
   Server 85 System Board
32MB System Memory, 32MB Enabled  (Note)
  Keyboard
  System Board Parallel Port
1 Diskette Drive(s)
  System Board Async port 1
  SCSI on the System Board
  Mouse Port
  Cache Memory Kit
1 Multiprotocol Adapter or IBM V.32 Modem/A
  Primary Token-Ring Adapter
1 SCSI Hard Disks
1 Optical Memory Drive(s)
1 SVGA Adapter/A
```

Note: The memory size depends of your configuration and may be larger.

Service Processor Hardware Configuration Reference (9585)

How to Check the Hardware Configuration

- Power On the service processor
- When the **F1**-prompt key appears on the screen, press the **F1** key.
- From the **Main Menu** window select the **Set Configuration** option, then the **View Configuration** option.

The following windows are displayed.

```
                    View Configuration

Total System Memory

   Installed Memory..................... 32768KB (32.0MB) (Note 1)
   Usable Memory........................ 32384KB (31.6MB) (Note 1)

Built in Features

   Installed Memory..................... 32768KB (32.0MB) (Note 1)
   Diskette Drive 0 Type................ 2.88MB 3.5"
   Diskette Drive 1 Type................ Not Installed
   Diskette Drive 2 Type................ Not Installed
   Math Coprocessor..................... Installed
   Num Lock............................. Off
   Display F1 prompt to access System Pro Yes
   Serial Port.......................... SERIAL 1, IRQ 4
   Parallel Port........................ PARALLEL 1
   Parallel Port DMA Arbitration Level... Shared Level 7
   SCSI Address (ID).................... 7
   SCSI I/O Address Select.............. 3540h-3547h
   SCSI DMA Arbitration Level........... Level C
   Move Mode Support.................... Enabled
   Wait State Support................... Enabled
   Selected Feedback Return Exception.... Ignored
   100ns Streaming Data transfer Support. Enabled
   Target Mode.......................... Enabled
   SCSI Disconnect...................... Enabled
   Fast SCSI-External................... Disabled
   Wide SCSI Messages - External........ Enabled
   Wide SCSI Messages - Internal........ Enabled
   Processor............................ 66 Mhz 80486DX2
   Bypass System Programs on Error...... Disabled
   Memory-Checking Method............... ECC
```

Slot 1 - IBM Token-Ring Network 16/4 Adapter/A

Primary or Alternate adapter..... Primary
Adapter Data Rate..... 16 Mbps
ROM Address Range..... D4000/D5FFF
RAM Size and Address Range..... 16 KB /D8000-DBFFF
Interrupt Level..... Interrupt 2

Slot 2 - Not used
Slot 3 - IBM V.32 Modem/A **(Note 2)**

Communication Port..... SDLC 1, Arb 1

Slot 3 - IBM Multi-Protocol Communication Adapter **(Note 2)**

Communication Port..... SDLC 1, Arb 1

Slot 4 - Empty
Slot 5 - SVGA Adapter/A

Video I/O Address..... Instance 6: 2160h - 216Fh

Slot 6 - Empty
Slot 7 - Empty
Slot 8 - Empty

Notes:

1. The memory size depends of your configuration and may be larger.
2. These cards are mutually exclusive.

How to Check the SCSI Device Configuration (9585)

- Power On the service processor
- When the **F1**-prompt key appears on the screen, press the **F1** key.
- From the **Main Menu** window select the **Set Configuration** option, then the **Set and View SCSI Configuration** option.

The following window is displayed.

```
                Set and View SCSI Device Configuration

SCSI Configuration Verification

IBM PS/2 System Board SCSI
    SCSI Address (ID)................... 7
    SCSI Device
         Device Type..................... Hard Disk
         Device Address (ID, LUN)....... 6,0
         Device Size..................... 1052MB
         Presence Error Reporting....... (ENABLED)

    SCSI Device
         Device Type..................... ROM Device (Note)
         Device Address (ID, LUN)....... 4,0
         Presence Error Reporting....... (ENABLED)

    SCSI Device
         Device Type..................... Optical Memory (Note)
         Device Address (ID, LUN)....... 5,0
         Presence Error Reporting....... (ENABLED)
```

Note: CD-ROM and optical disk drive may be present together but according to the code level they are mutually exclusive. Up to EC D46130 only optical disk is used. From EC F12380 only CD-ROM is used.

Service Processor Part Numbers (9585)

```
096F9275 MOUSE
092F0428 HARD DISK(1 GB)
064F0204 DISKETTE DRIVE
061G2402 SYSTEM BOARD
092F2637 POWER SUPP 288 W
060G2950 MEMORY 16MB
066G7510 OPTICAL DISK
074F9415 TOKEN-RING CARD
085F0004 MULTIPROTOCOL CARD
068G1440 COLOR DISPLAY
01392090 KBR (keyboard) US
01392118 KB (keyboard) CORD
033F8354 BATTERY
061G3736 DISPLAY ADAPTER CARD
093F1574 INTEGRATED MODEM V 32
```

Appendix C. Service Processor External Cable References

Service Processor and Network Node Processor Cables for the 3746-900

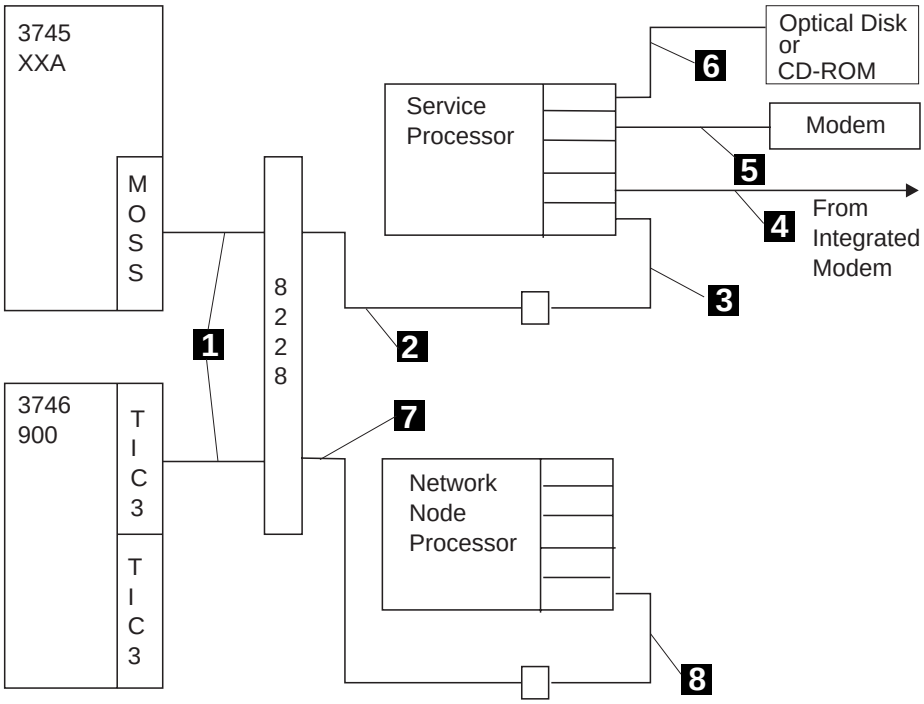


Figure C-1. Service Processor and Network Node Processor Cables for 3746-900

Notes:

1. For cable **1** refer to the appropriate *External Cable References* manual.
2. For cable **2** refer to "Cable from the Service Processor Processor to the 8228" on page C-4.
3. For cable **3** refer to "Cable from the Service Processor to the External Modem for RSF" on page C-6.
4. For cable **4** refer to "Cable From the Service Processor (Integrated Modem) to the Line for RSF" on page C-8.
5. For cable **5** refer to "Cable from the Service Processor Processor to the 8228" on page C-4.
6. For cable **6** refer to "Cable from the Service Processor Processor to the Optical Disk Drive" on page C-9. The service processor based on 7585 has an integrated CD-ROM.
7. For cable **7** and **8** refer to the appropriate *Network Node Processor Installation and Maintenance* manual.

© Copyright IBM Corp. 1998

Service Processor and Network Node Processor Cables for the 3746-950

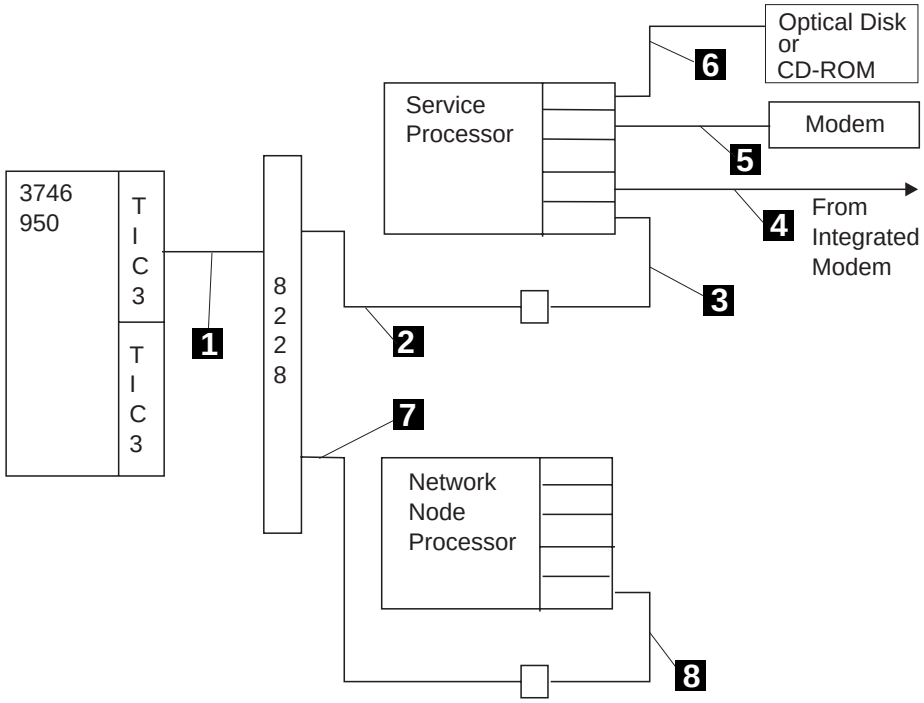


Figure C-2. Service Processor and Network Node Processor Cables for 3746-950

Notes:

1. For cable 1 refer to the appropriate *External Cable References* manual.
2. For cable 2 refer to "Cable from the Service Processor Processor to the 8228" on page C-4.
3. For cable 3 refer to "Cable from the Service Processor to the External Modem for RSF" on page C-6.
4. For cable 4 refer to "Cable From the Service Processor (Integrated Modem) to the Line for RSF" on page C-8.
5. For cable 5 refer to "Cable from the Service Processor Processor to the 8228" on page C-4.
6. For cable 6 refer to "Cable from the Service Processor Processor to the Optical Disk Drive" on page C-9. The service processor based on 7585 has an integrated CD-ROM.
7. For cable 7 and 8 refer to the appropriate *Network Node Processor Installation and Maintenance* manual.

Service Processor Cables for the 3745 Models 21A, 31A, 41A, 61A, and 17A

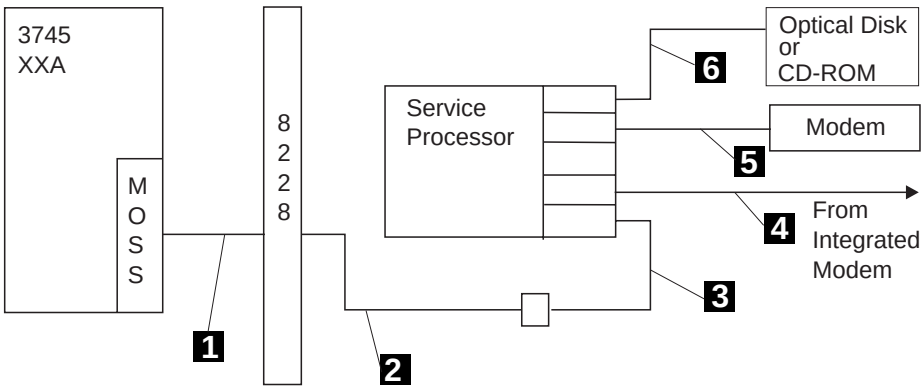


Figure C-3. Service Processor Cables for 3745 Models xxA

Notes:

1. For cable **1** refer to the appropriate *External Cable References* manual.
2. For cable **2** refer to "Cable from the Service Processor Processor to the 8228" on page C-4.
3. For cable **3** refer to "Cable from the Service Processor to the External Modem for RSF" on page C-6.
4. For cable **4** refer to "Cable From the Service Processor (Integrated Modem) to the Line for RSF" on page C-8.
5. For cable **5** refer to "Cable from the Service Processor Processor to the 8228" on page C-4.
6. For cable **6** refer to "Cable from the Service Processor Processor to the Optical Disk Drive" on page C-9. The service processor based on 7585 has an integrated CD-ROM.

Cable from the Service Processor Processor to the 8228

Refer to Figure C-1 on page C-1 and Figure C-2 on page C-2 reference **2** for details. This cable is a standard LAN cable.

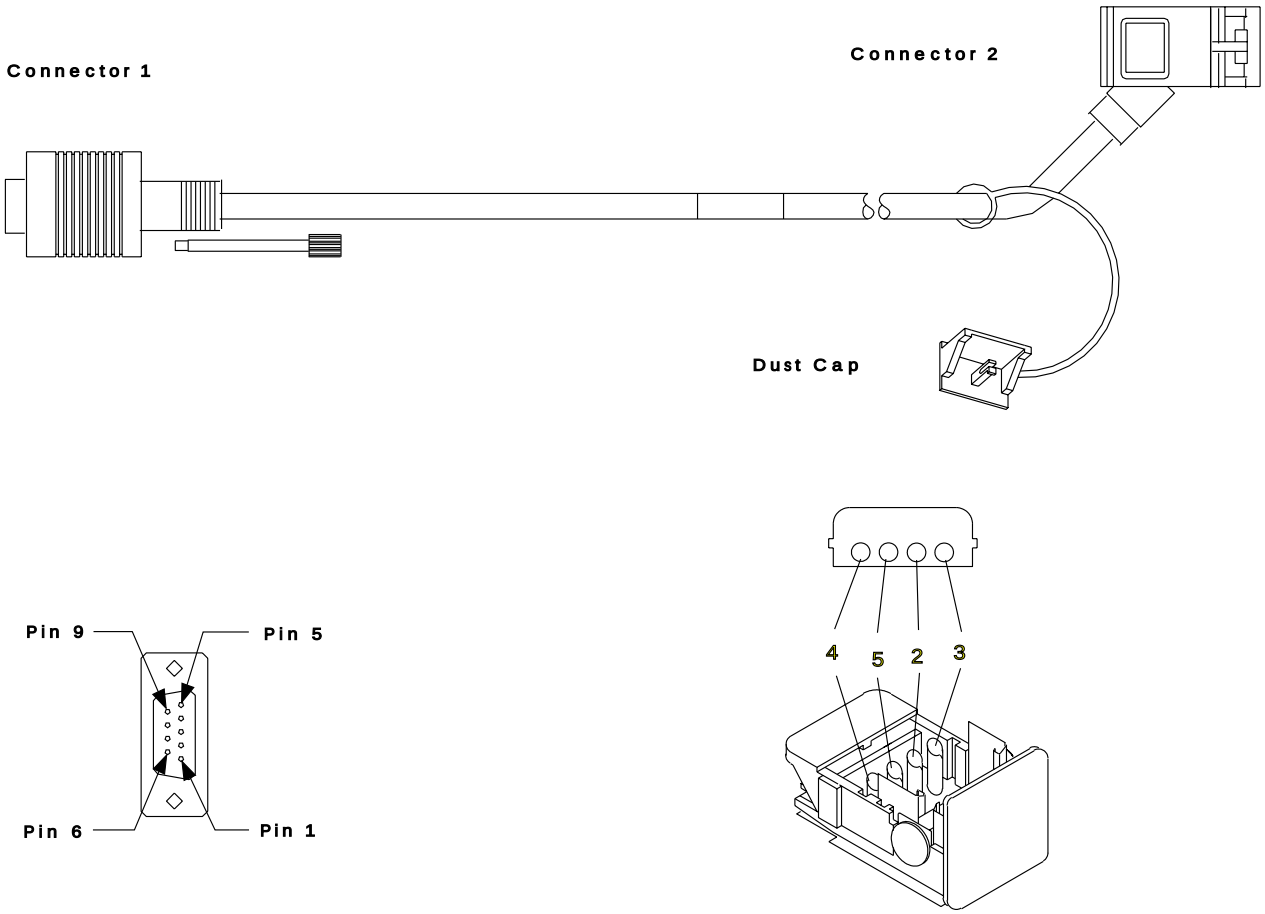


Figure C-4. LAN Cable

Interchange Circuit for Standard LAN Cable

Table C-1. LAN Cable Pin Assignment

Wire Nbr	Wire Color	Connector 1 Position	Connector 2 Position
1	SHIELD	GND	SHIELD
2	ORN	9	ORN
3	BLACK	5	BLACK
4	RED	1	RED
5	GREEN	6	GREEN

Table C-2. Cable from Service Processor or Network Node Processor to 8228

Cable Type	Length, m (ft)	Feature Code	Cable PN
Standard Fixed	2.4 m (8)	9088	6339098

Note: Some service processor or network node processor have new LAN adapter cards with an RJ45 connector. An additional adapter cable **3** (PN 60G1066) is needed to connect the standard LAN cable.

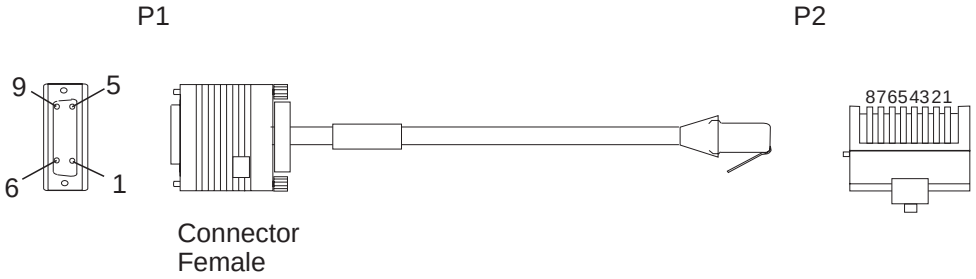


Figure C-5. Adapter Cable (PN 60G1066)

Table C-3. Adapter Cable Pin Assignment

9 Pin D Connector (P1)	**RJ45 Connector (P2)**	**Wire color**
9	6	ORN
5	3	BLK
1	4	RED
6	5	GRN

Cable from the Service Processor to the External Modem for RSF

Refer to Figure C-1 on page C-1 and Figure C-2 on page C-2 reference **5** for details.

This cable depends on the configuration and may done with one or with the two cables provided according to the service processor type.

Modem Cable (PN 0782985)

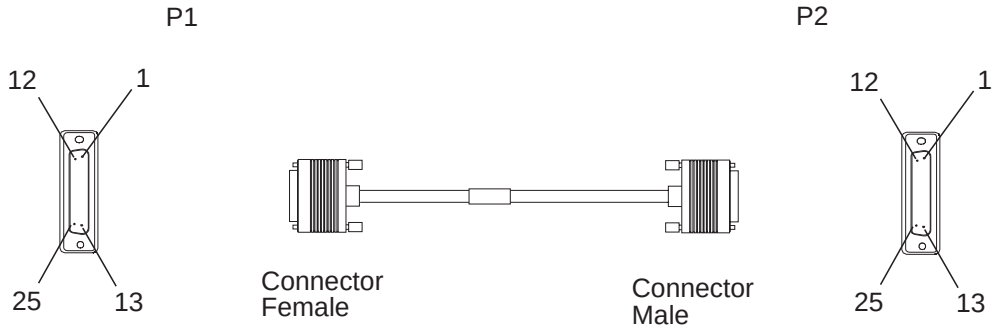


Figure C-6. Cable between the Service Processor and the Modem (PN 0782985)

Interchange Circuits for the Cables between the Service Processor and the Modem

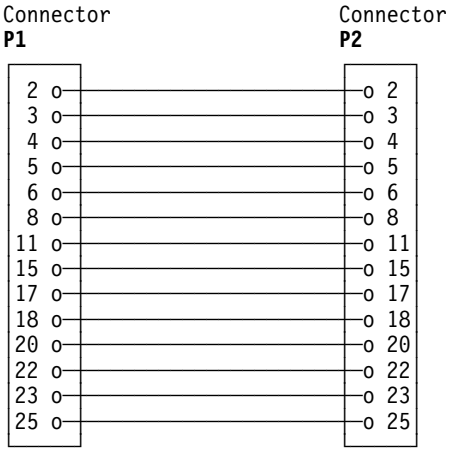


Figure C-7. Modem Cables Pin Assignments (PN 0782985)

Table C-4. Cable between the Service Processor and the Modem

Cable Type	Length	Cable PN
Standard Fixed	5 m (17 ft.)	0782985

Modem Cable (PN 0782984)

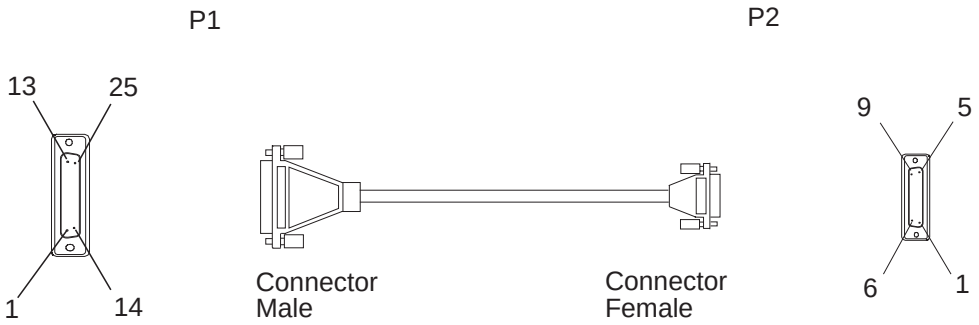


Figure C-8. Modem Cable Adapter (PN 0782984)

Interchange Circuits for the Modem Adapter Cable

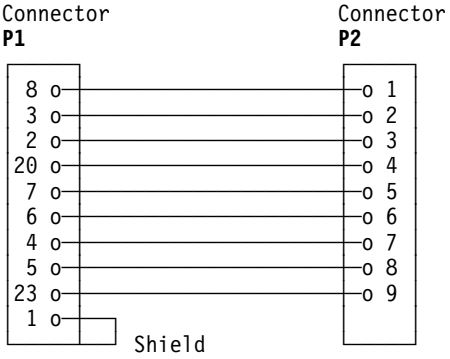


Figure C-9. Modem Cables Pin Assignments (PN 0782984)

Table C-5. Modem Adapter Cable		
Cable Type	**Length, m (ft)**	**Cable PN**
Standard Fixed	1 m (3)	0782984

Cable From the Service Processor (Integrated Modem) to the Line for RSF

Refer to Figure C-1 on page C-1 and Figure C-2 on page C-2 reference **4** for details.

This cable is present on service processor with integrated modem.

Table C-6. Cable from the Service Processor (Integrated Modem) to the Line

Cable Type	Length, m (ft)	Feature Code	Cable PN
Standard Fixed	15 m (50)	2067	58G5297

Cable from the Service Processor Processor to the Optical Disk Drive

Refer to Figure C-1 on page C-1 and Figure C-2 on page C-2 reference **6** for details.

This cable depends on the configuration and may done with several cables. Use the following table for checking.

Note: This cable is not present in all configuration. The optical disk drive may be integrated in the service processor.

Table C-7. Cable from a Service Processor to Optical Disk Drive

Service Processor Type	Length, m (ft)	Cable Part Number
3172	1.2 (4)	33F4606
7585	0.9 (3)	06H6036 and adapter 0782983

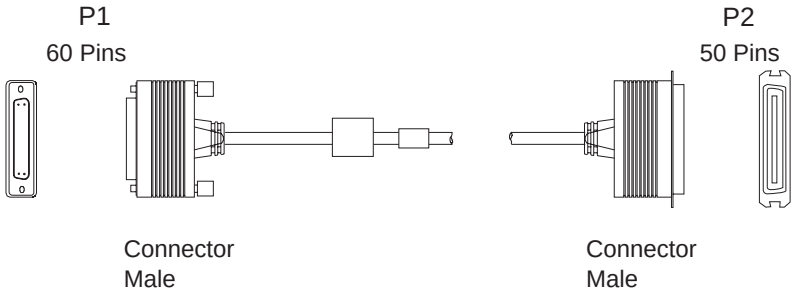


Figure C-10. SCSI Cable (PN 33F4606)

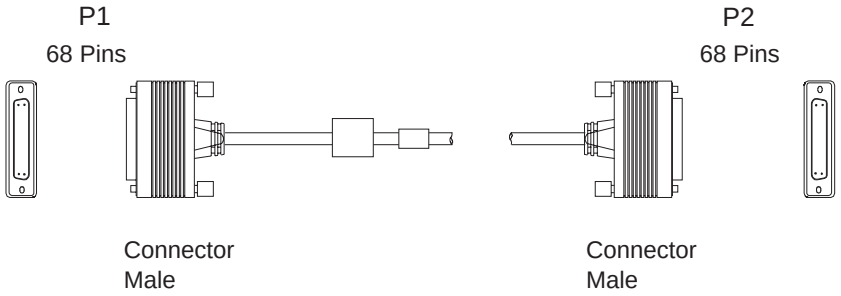


Figure C-11. SCSI Cable (PN 06H6036)

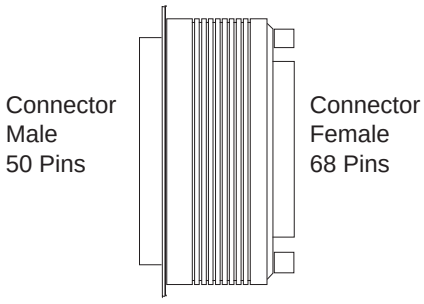


Figure C-12. SCSI Adapter Cable (PN 0782983)

Cable from the Service Processor Processor to the CD-ROM Disk Drive

Refer to Figure C-1 on page C-1 and Figure C-2 on page C-2 reference **6** for details.

This cable depends on the configuration. Use the following table for checking.

Note: This cable is not present in all configuration. The CD-ROM disk drive may be integrated in the service processor.

Table C-8. Cable from a Service Processor to CD-ROM Disk Drive

Service Processor Type	Length, m (ft)	Cable Part Number
3172	1.2 (4)	33F4606
9585	1.5 (5)	92F2559

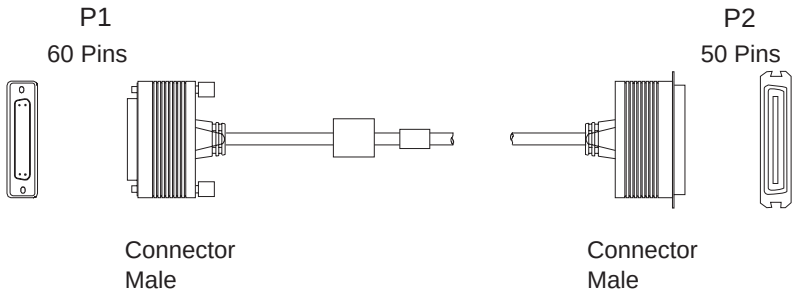


Figure C-13. SCSI Cable (PN 33F4606)

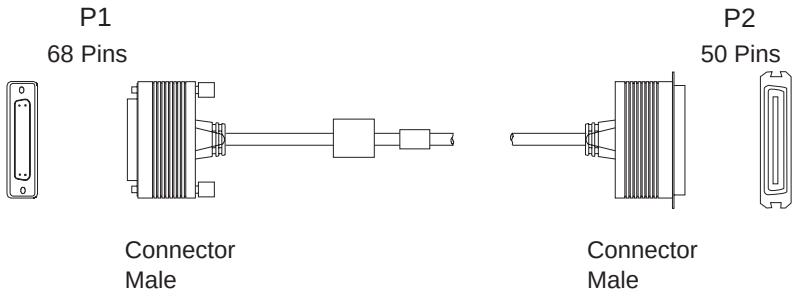


Figure C-14. SCSI Cable (PN 92F2559)

Cable between the Service Processor and the Display

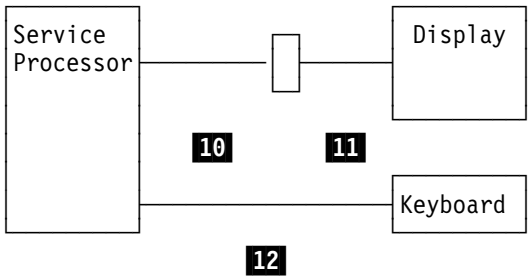


Figure C-15. Cables between the Service Processor and the Display and Keyboard

The display is shipped with its own attached cable (refer to Figure C-15 reference **11**) nevertheless if the display is installed far away from the service processor an extender cable is available **10** .

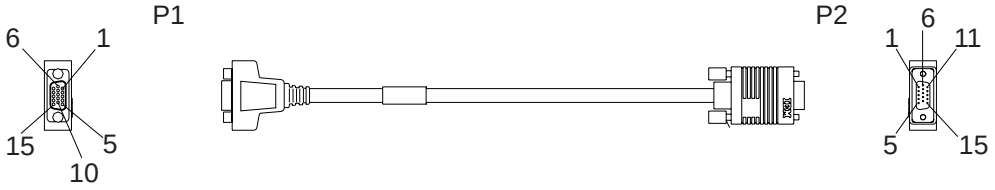


Figure C-16. Extender Cable for Service Processor and Display connection

Interchange Circuits for the Extender Cable Between the Service Processor and the Display

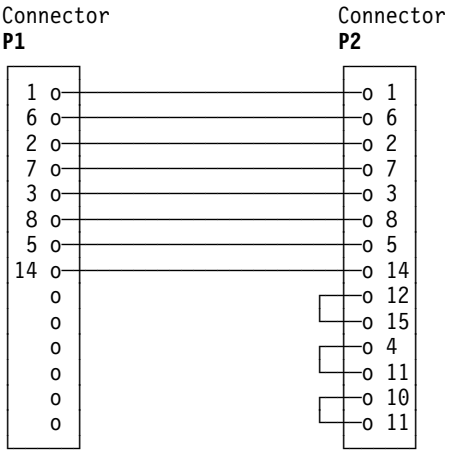


Table C-9. Extender Cable for Service Processor and Display Connection		
Cable Type	**Length**	**Cable PN**
Standard Fixed	4 m (13 ft.)	59G1270

Cable between the Service Processor and the Keyboard

Two lengths of keyboard cables are available according to the distance between the service processor and the keyboard (refer to Figure C-15 on page C-11 reference **12**).

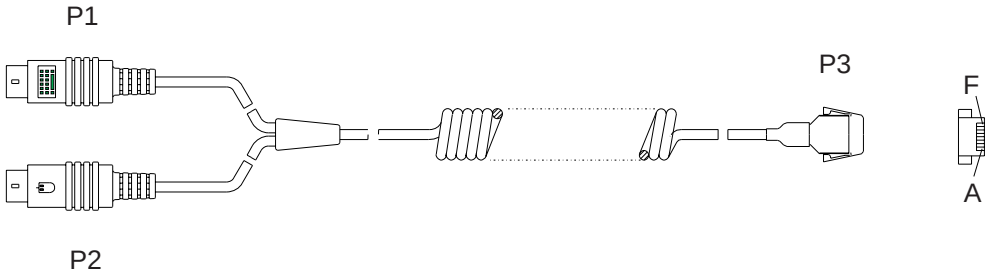


Figure C-17. Cable between the Service Processor and the Keyboard

Interchange Circuits for the Cable between the Service Processor and the Keyboard

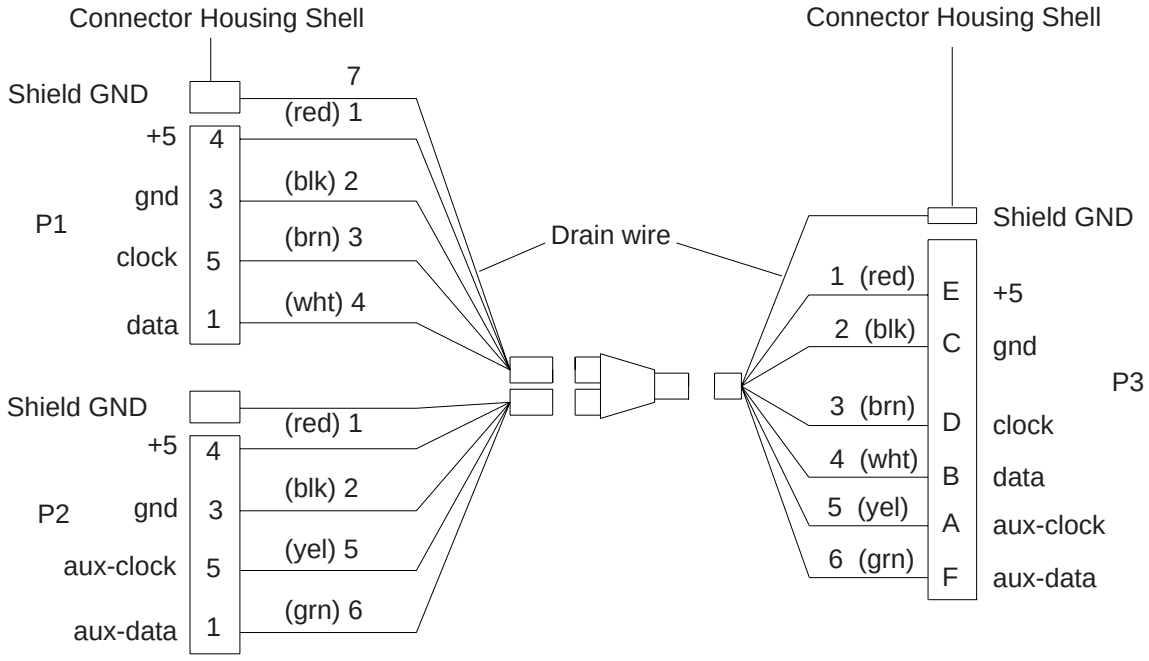


Figure C-18. Pin Assignement of the Keyboard Cable

From P1 Connector	From P2 Connector	From P3 Connector	Function
4	4	E	+ 5
3	3	C	Ground
5		D	Clock
1		B	+Data
	5	A	Aux-Clock
	1	F	Aux-Data
Shell	Shell	Shell	Shield Ground

Table C-10. Cable between the Service Processor and the Keyboard

Cable Type	Length	Cable PN
Standard Fixed	1.5 m (5 ft.)	1398014
Standard Fixed	4 m (13 ft.)	59G1271

Appendix D. Supported Connections between the Service Processor and a Remote Workstation

The following tables show the **compatibility** between the modems and ports used between the **remote workstation** and the **service processor**. For details about the remote workstation settings, refer to *3745 and 3746 Model 900 Console Setup Guide*, SA33-0158 if you are working on a **3746-900** or *3746 Nways Multiprotocol Controller Model 950 User's Guide*, SA33-0356 if you are working on a **3746-950**.

If you have a:

- **7585**, refer to Table D-1.
- **3172**, refer to Table D-2.
- **9585**, refer to Table D-3 on page D-2.

Table D-1. Modem connections between a remote workstation and a target service processor 7585

7585 (Connection Type and Mode)	Modem Type	Remote Workstation (DCAF Modem Type)									
		MPA Card Connection			COM1 Port Connection						
		7855	7857	7858	7855	7857		7858		Hayes	
		SYNC			ASY	ASY	AUTO	ASY	AUTO	ASY	AUTO
COM1 ASY	7857	-	-	-	OK	OK	-	OK	-	OK	-
	7858	-	-	-	OK	OK	-	OK	-	OK	-
	Hayes	-	-	-	OK	OK	-	OK	-	OK	-

Table D-2. Modem connections between a remote workstation and a target service processor 3172

3172 (Connection Type and Mode)	Modem Type	Remote Workstation (DCAF Modem Type)									
		MPA Card Connection			COM1 Port Connection						
		7855	7857	7858	7855	7857		7858		Hayes	
		SYNC			ASY	ASY	AUTO	ASY	AUTO	ASY	AUTO
MPA Card SYNC	7855	OK	OK	OK	-	-	OK	-	OK	-	OK
	7857	OK	OK	OK	-	-	OK	-	OK	-	OK
	7858	OK	OK	OK	-	-	OK	-	OK	-	OK
COM1 ASY	7857	-	-	-	OK	OK	-	OK	-	OK	-
	7858	-	-	-	OK	OK	-	OK	-	OK	-
	Hayes	-	-	-	OK	OK	-	OK	-	OK	-
MPA Card COM2	7857	-	-	-	OK	OK	-	OK	-	OK	-
	7858	-	-	-	OK	OK	-	OK	-	OK	-

© Copyright IBM Corp. 1998

Table D-3. Modem connections between a remote workstation and a target service processor 9585

9585 (Connection Type and Mode)	Modem Type	Remote Workstation (DCAF Modem Type)									
		MPA Card Connection			COM1 Port Connection						
		7855	7857	7858	7855	7857		7858		Hayes	
		SYNC			ASY	ASY	AUTO	ASY	AUTO	ASY	AUTO
MPA Card SYNC	7855	OK	OK	OK	-	-	OK	-	OK	-	OK
	7857	OK	OK	OK	-	-	OK	-	OK	-	OK
	7858	OK	OK	OK	-	-	OK	-	OK	-	OK
	INT	OK	OK	OK	-	-	OK	-	OK	-	OK
COM1 ASY	7857	-	-	-	OK	OK	-	OK	-	OK	-
	7858	-	-	-	OK	OK	-	OK	-	OK	-
	Hayes	-	-	-	OK	OK	-	OK	-	OK	-

Appendix E. Use of the 7855 Buttons: ←, ↑, →, and ↓

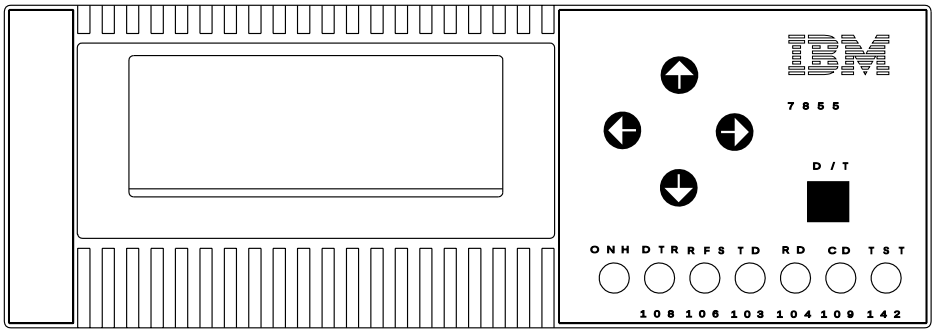


Figure E-1. 7855 Front Panel

There are four round buttons with arrows on their tips (see Figure E-1). They are used to move around in the configuration menus and to make configuration selections as you move around. You use one by pressing and then releasing it and if you use one at a time, they do the following:

← This button is analogous to an “enter” or “run” button. Use it to put your configuration choices into working memory unless you are in the view only menu. You can also use it to make the modem start a test or start dialing a number.

↑ This button is used to select one out of several choices. When the choices are numerical, this button increments the numbers.

↓ This button is also used to select one out of several choices. When the choices are numerical, this button decrements the numbers.

→ This button makes the modem show additional detail. When the LCD is showing a multiple-digit field, this button moves the cursor one position to the right. Use this button to find out if there are additional configuration choices in a category.

If you press and release any of these buttons quickly, the display moves one position in the tree structure. If you hold one of the buttons pressed for more than approximately one second, the display will start to change quickly as it moves through multiple positions in the tree structure.

Warning: Pressing the ← button may change configuration parameters.

© Copyright IBM Corp. 1998

Appendix F. 6553 Display Adjustment Controls

Key:

1. Color adjustment
2. Image roll and pincushion/barrel adjustment
3. Vertical and horizontal size adjustment
4. Vertical and horizontal image alignment
5. Factory settings button
6. Power on/off
7. Contrast adjustment -
8. Contrast adjustment +
9. Brightness adjustment -
10. Brightness adjustment +

Power On/Off

- Press 6

Color Adjustment

- Press 1
- Press 7 and 8 to manually adjust color
- Press 9 and 10 to select either 5K preset or 9.3K preset
- Press 1

Image Roll and Pincushion/Barrel Adjustment

- Press 2
- Press 7 to rotate image anticlockwise
- Press 8 to rotate image clockwise
- Press 9 to 'Bend' the sides inwards (pincushion)
- Press 10 to 'Bend' the sides outwards (barrel)
- Press 3

© Copyright IBM Corp. 1998

Vertical and Horizontal Size Adjustment

- Press 3
- Press 7/8 for vertical adjustment
- Press 9/10 for horizontal adjustment
- Press 3

Vertical and Horizontal Image Adjustment

- Press 4
- Press 7/8 for vertical adjustment
- Press 9/10 for horizontal adjustment
- Press 4

Appendix G. Controller Expansion Component Locations

If you want more information about:	Refer to
• Positioning the units in the front side of the controller expansion	• Figure G-1 on page G-2
• Positioning the units in the rear side of the controller expansion	• Figure G-2 on page G-3
• Installing captive nuts and brackets (for 7585)	• Figure G-3 on page G-4
• Installing captive nuts and brackets (for 3172, 9585, or 9577)	• Figure G-4 on page G-5
• Installing captive nuts for LCBs	• Figure G-5 on page G-6
• Installing captive nuts for 8229s	• Figure G-6 on page G-7
• Installing captive nuts and brackets for MAE	• Figure G-7 on page G-8
• Installing brackets for processor type 7585	• Figure G-8 on page G-9
• Installing brackets for processor type 3172	• Figure G-9 on page G-10
• Example of units installation (processor type 7585)	• Figure G-10 on page G-11
• Example of units installation (processor type 7585 + MAE)	• Figure G-11 on page G-11
• Example of units installation (processor type 3172)	• Figure G-12 on page G-12
• Example of units installation (processor type 9585)	• Figure G-13 on page G-12
• Example of units installation (processor type 9577)	• Figure G-14 on page G-13
• Connecting the units to the ac Outlet Distribution Box.	• Figure G-15 on page G-13

© Copyright IBM Corp. 1998

Use this drawing to setup the **units** on the **front side** of the controller expansion, for the units that can be installed on the rear, refer to Figure G-2 on page G-3.

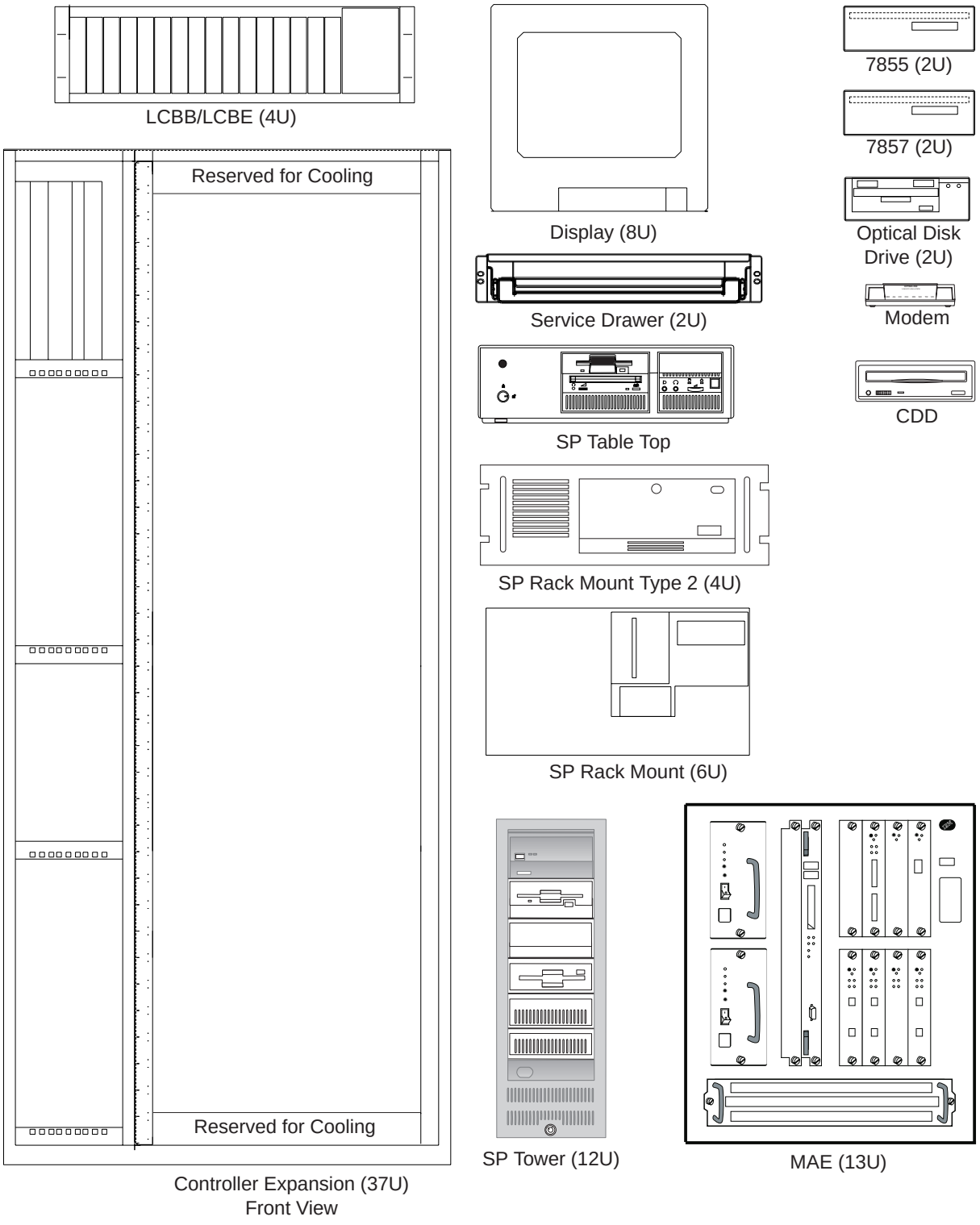


Figure G-1. Controller Expansion Inventory Chart (Front View).

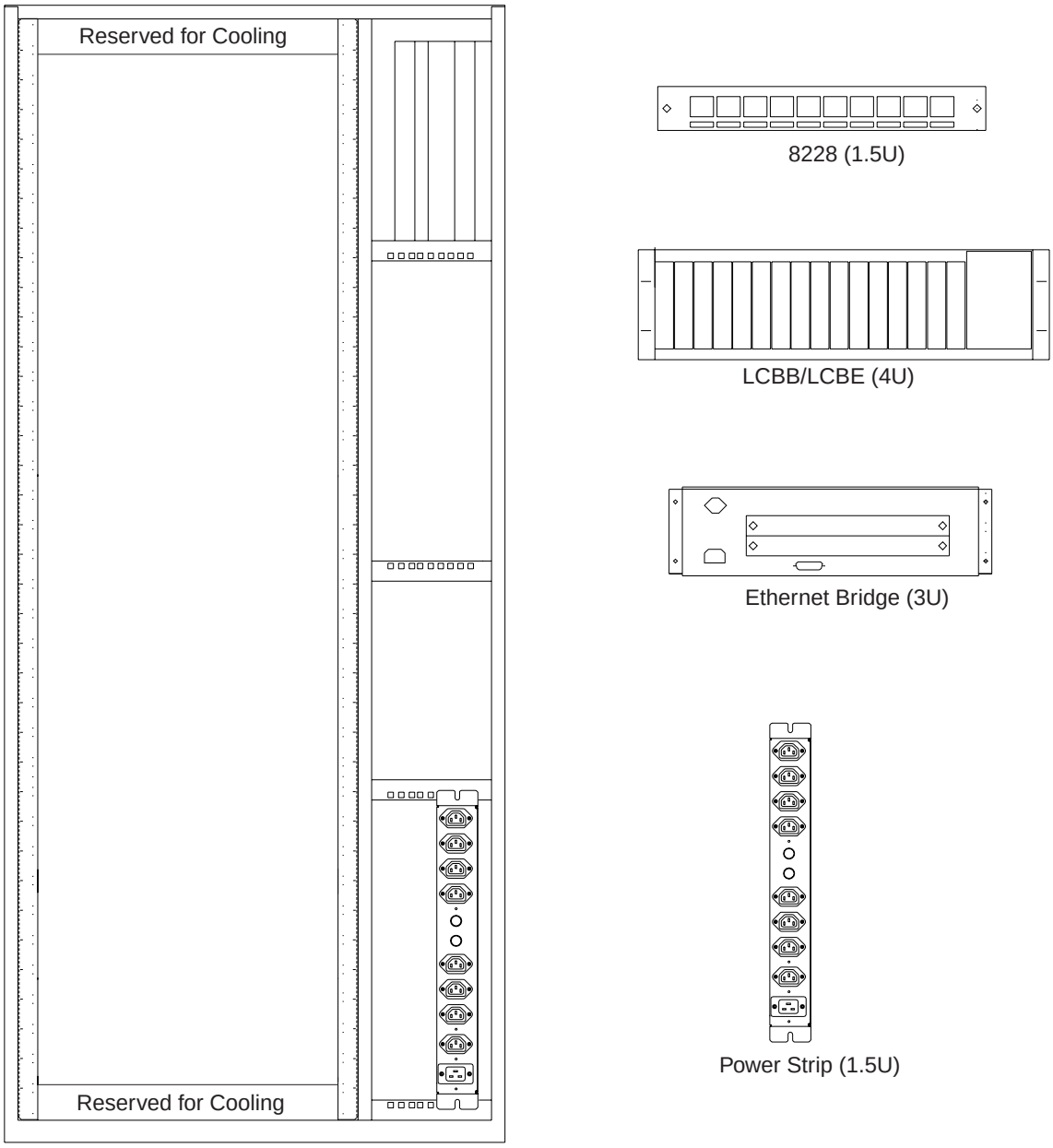


Figure G-2. Controller Expansion Inventory Chart (Rear View).

Notes:

1. The units dimensions are scaled to the size of the controller expansion diagram. The values represent the size used to setup the units in the controller expansion, it is not the size of the units themself.
2. The attachment holes along each side of the controller expansion are divided into units of measure called EIA units. Each EIA unit (U) equals 44.5 millimeters (1.75 inches).
3. The controller expansion is 37 U high but only 35 are usable, one U must be reserved at the top and at the bottom for proper cooling.

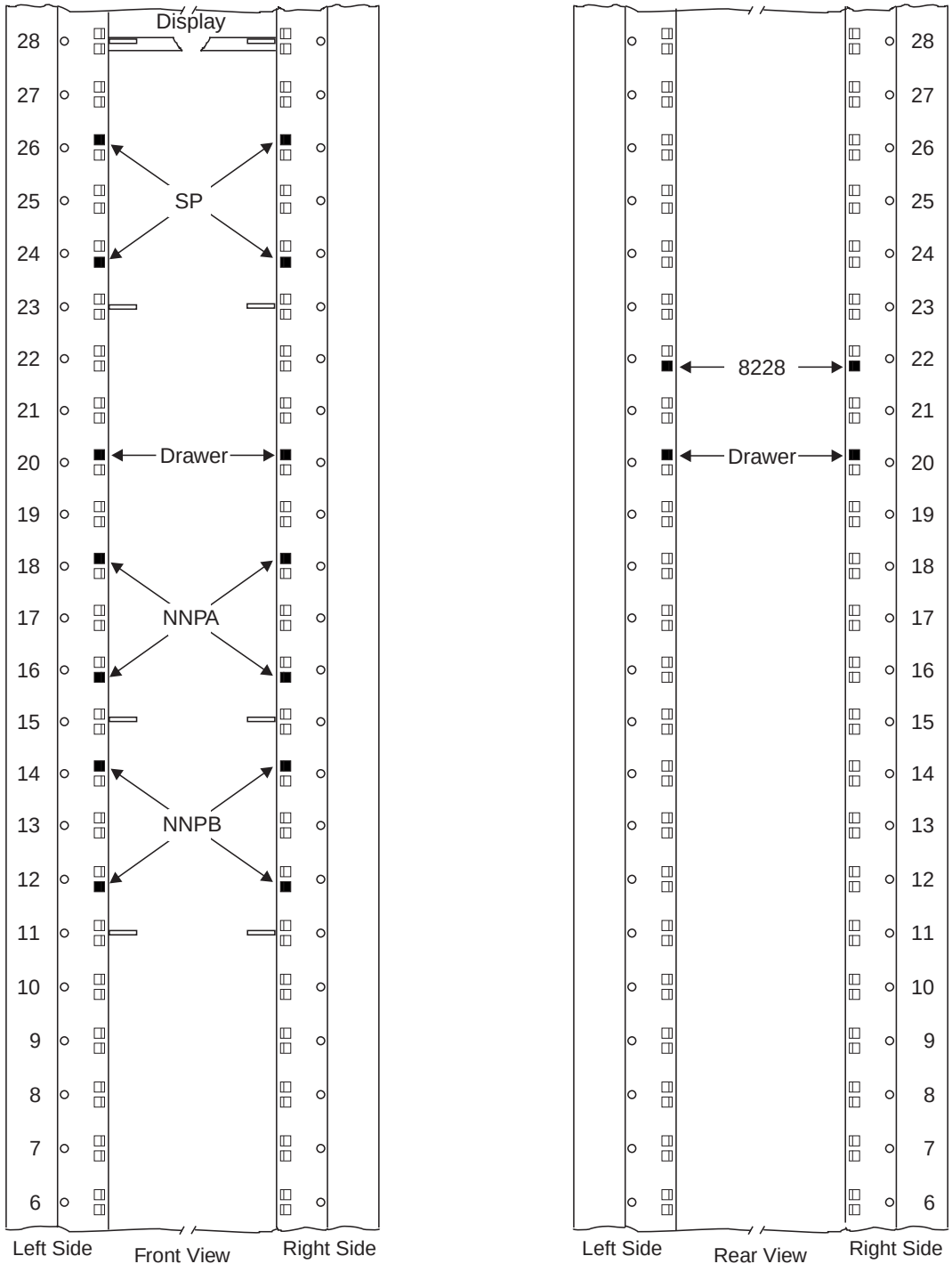


Figure G-3. Installing Captive Nuts and Brackets for the Display, Drawer, SP and NNP Type 7585

Note: This symbol '■' identify the locations to install the captive nuts.

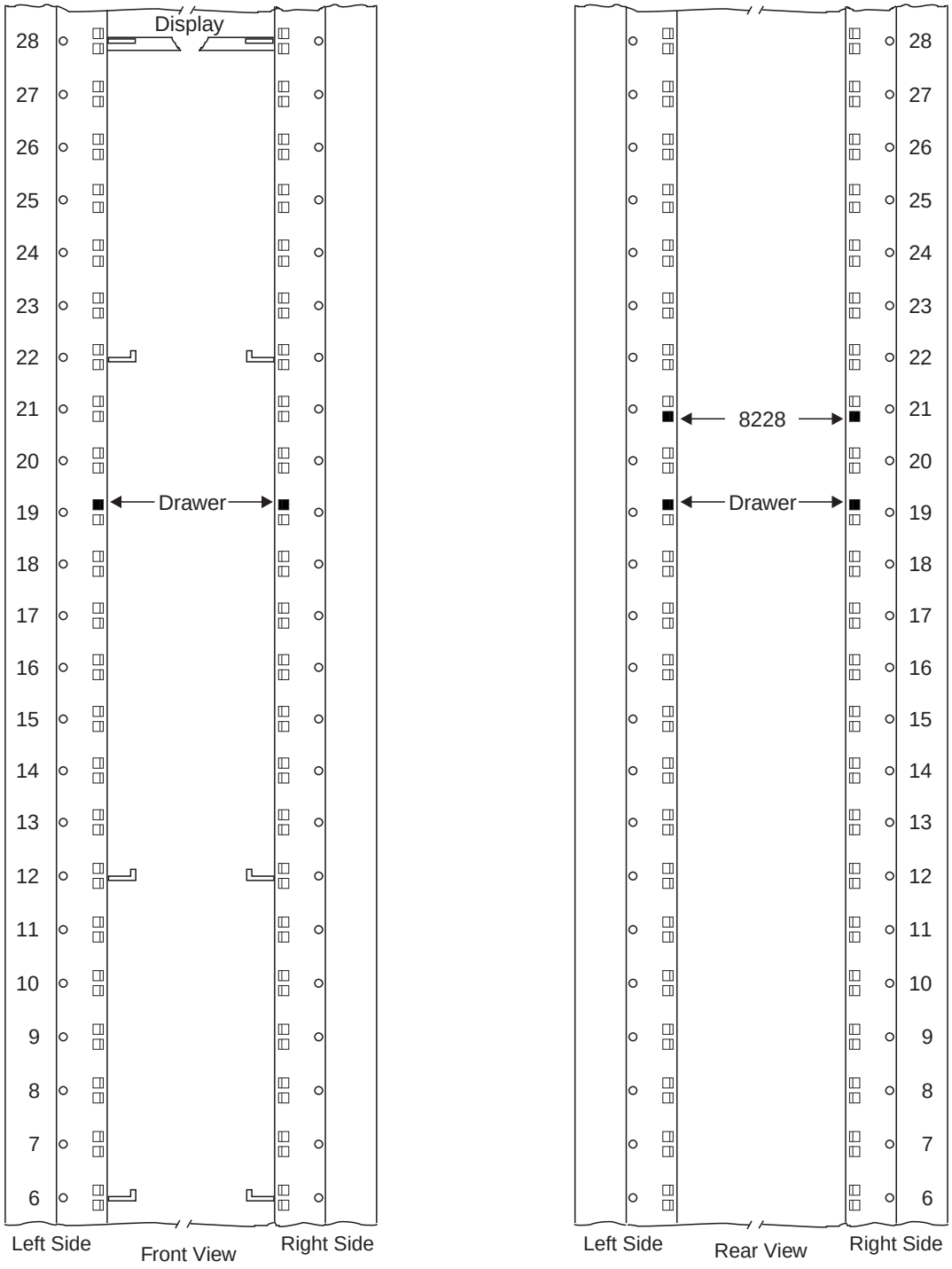


Figure G-4. Installing Captive Nuts and Brackets for the Display, Drawer, SP and NNP Type 3172

Notes:

1. This drawing can be used to setup the SP type **9585** or **9577**
2. This symbol '■' identify the locations to install the captive nuts.

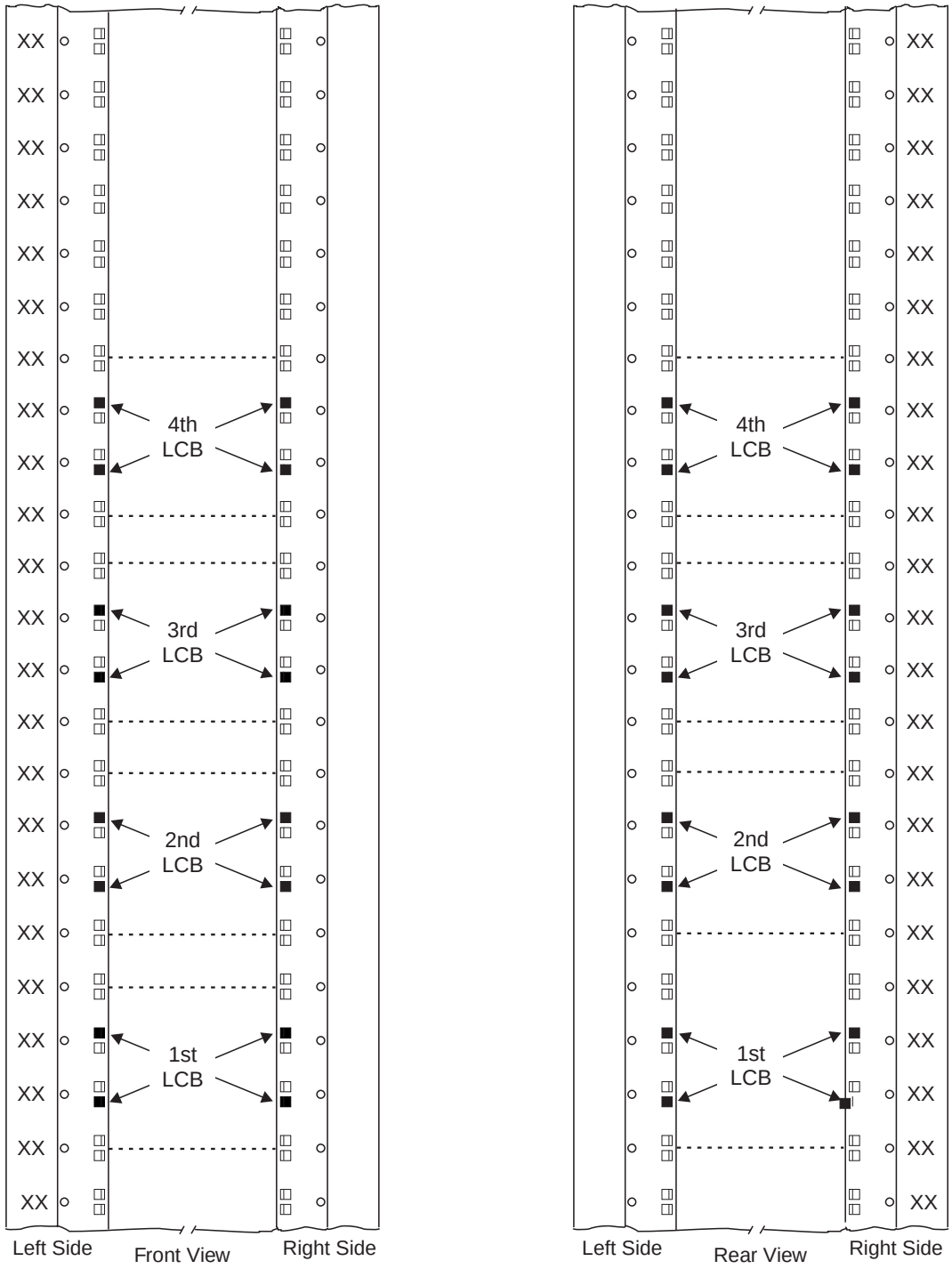


Figure G-5. Installing Captive Nuts for LCBs

Note: This symbol '■' identify the locations to install the captive nuts.

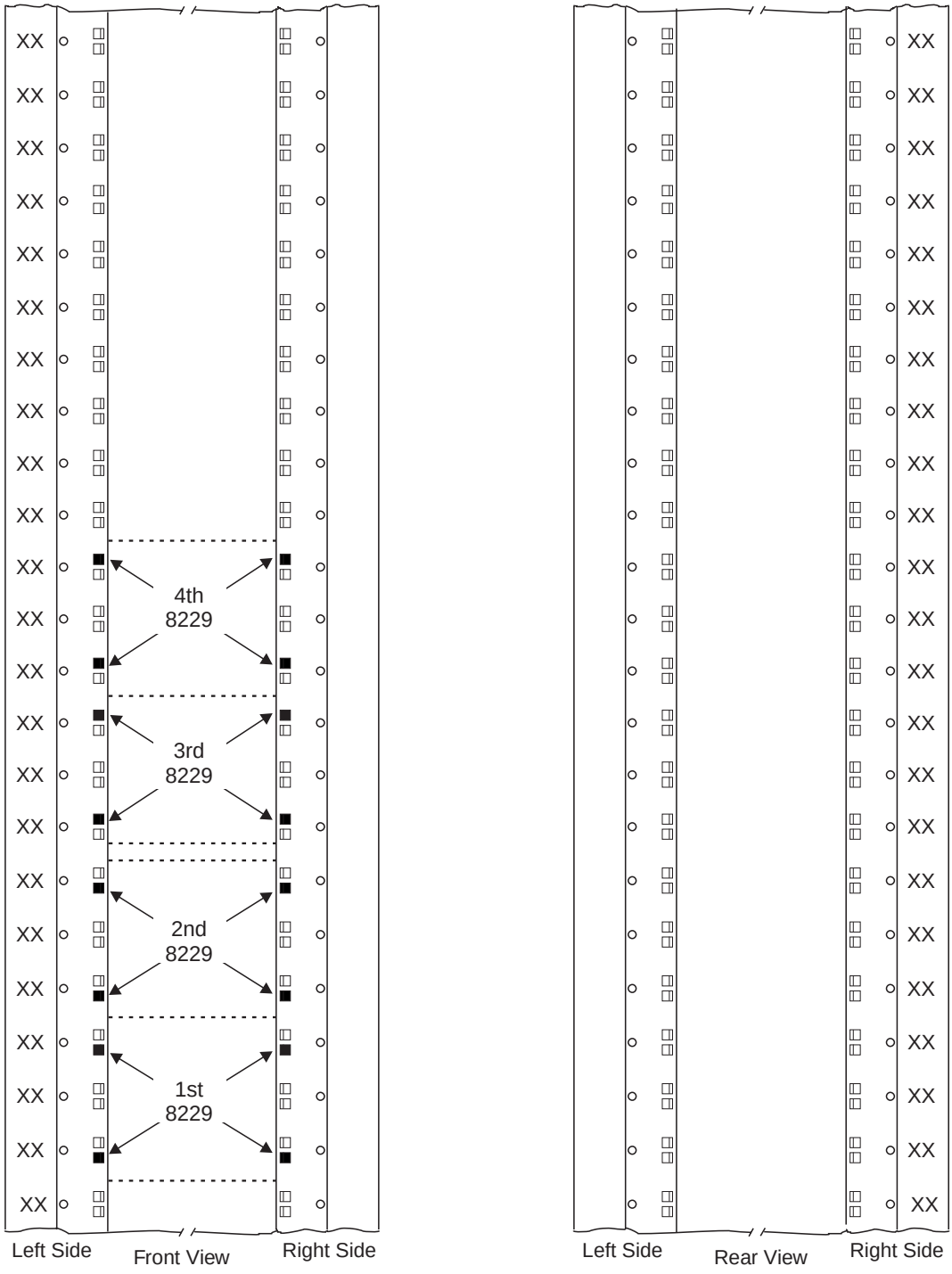


Figure G-6. Installing Captive Nuts for 8229s

Note: This symbol '■' identify the locations to install the captive nuts.

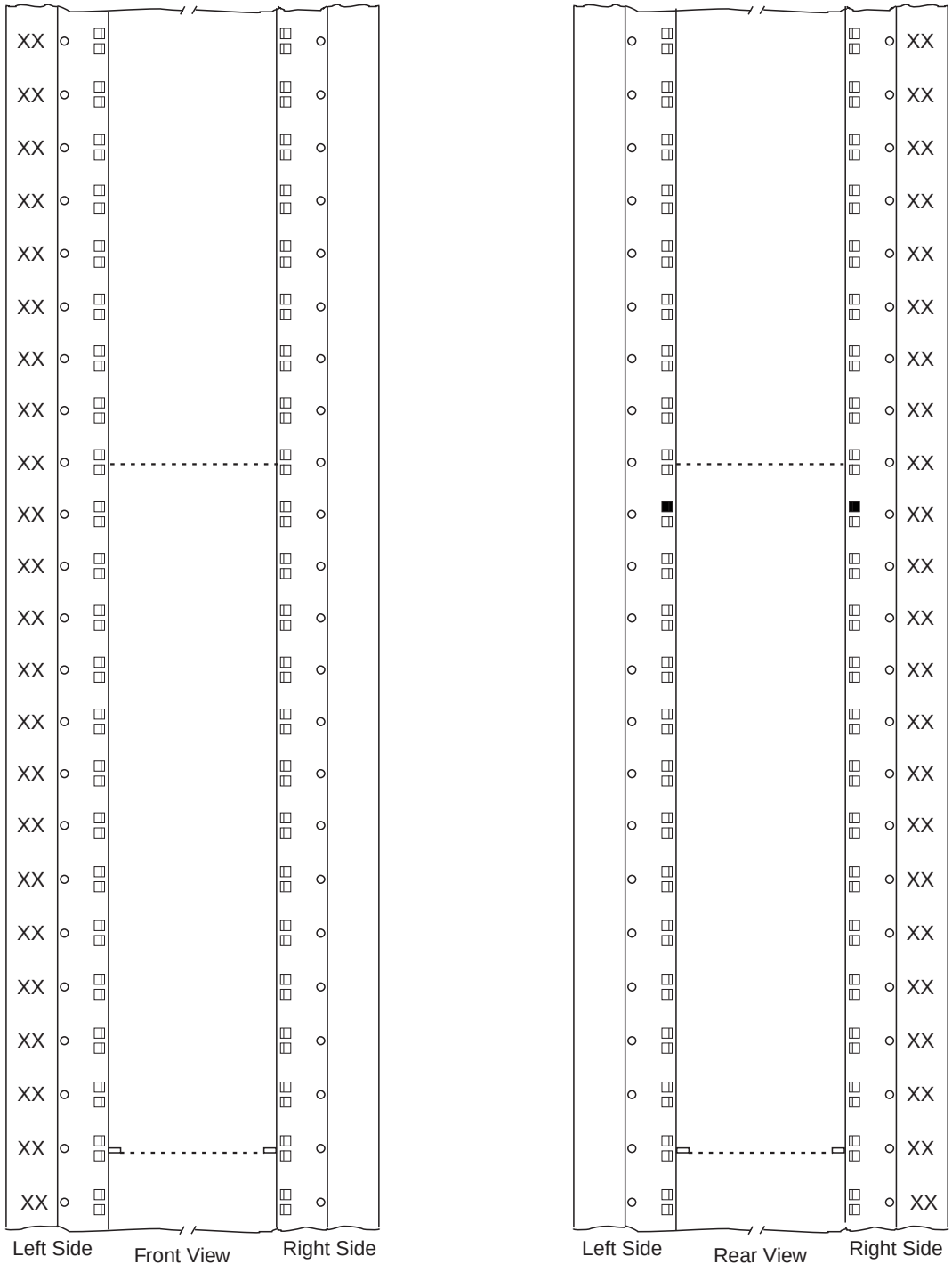


Figure G-7. Installing Captive Nuts and Brackets for MAE

Note: This symbol '■' identify the locations to install the captive nuts.

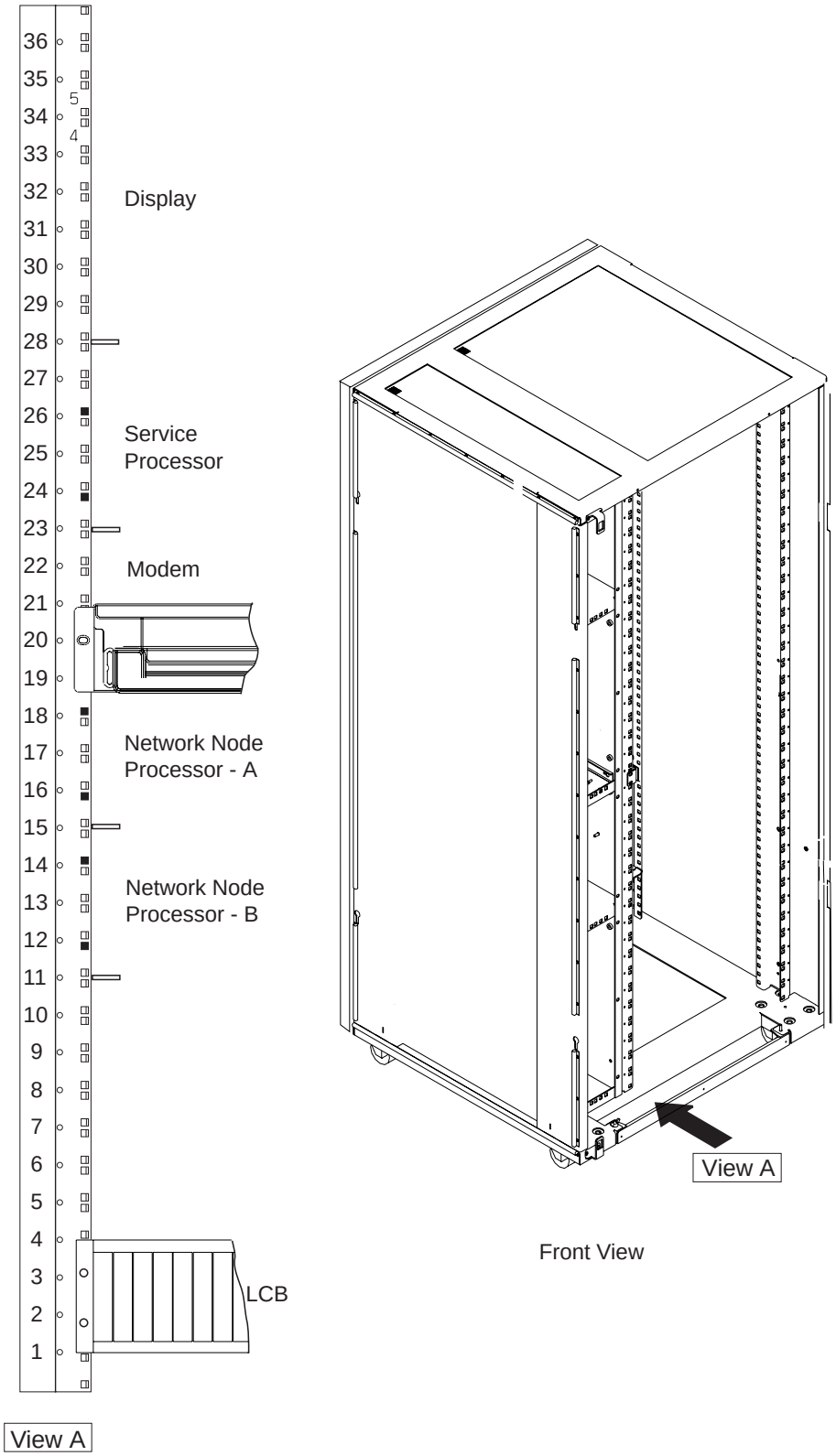


Figure G-8. Installing Brackets (PN 58G5752) for Processor Type 7585

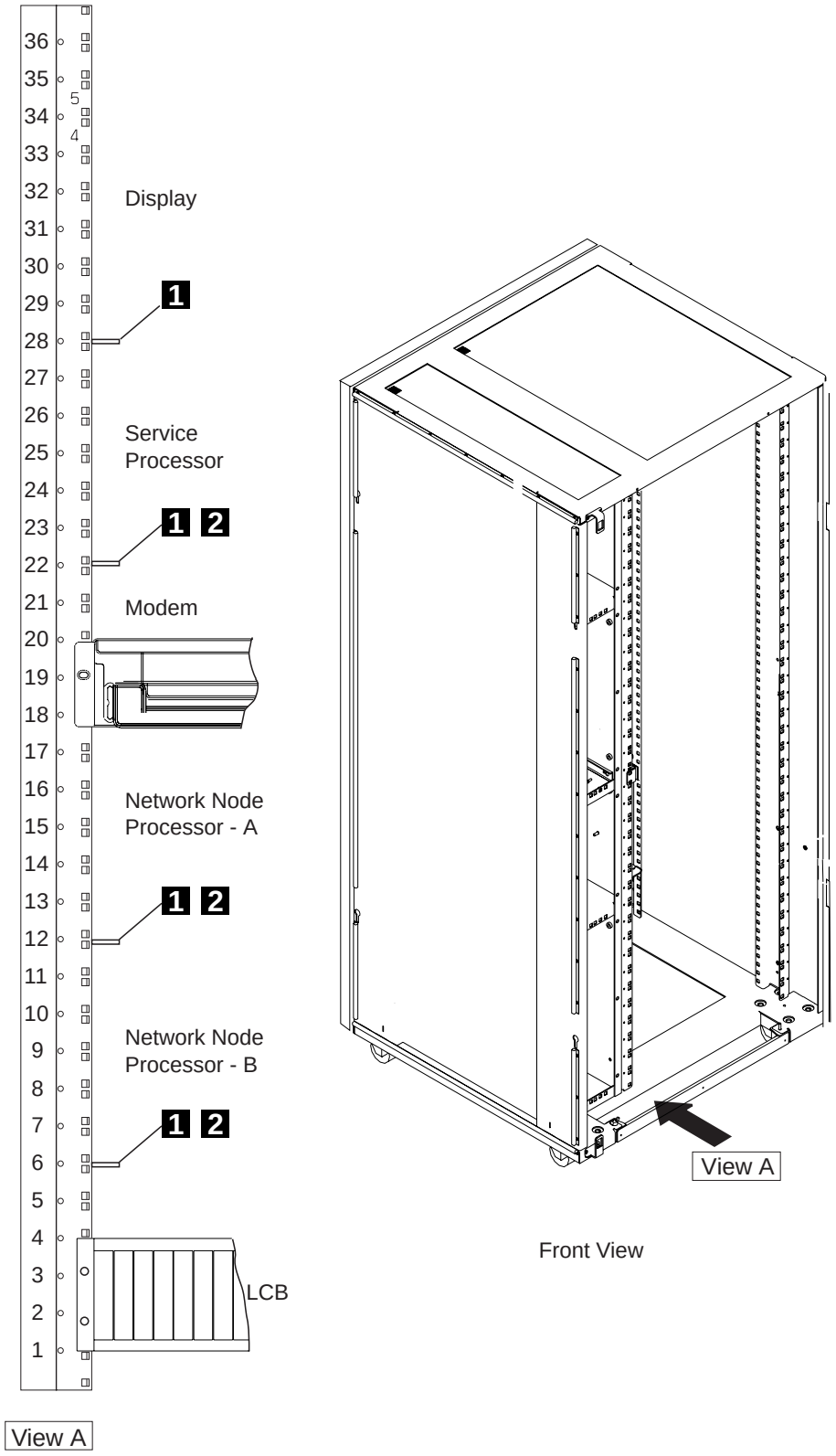


Figure G-9. Installing Brackets for Processor Type 3172

- **1** bracket used to install the display (PN 58G5752)
- **2** screws used to install the SP and NNP (PN 0782986)

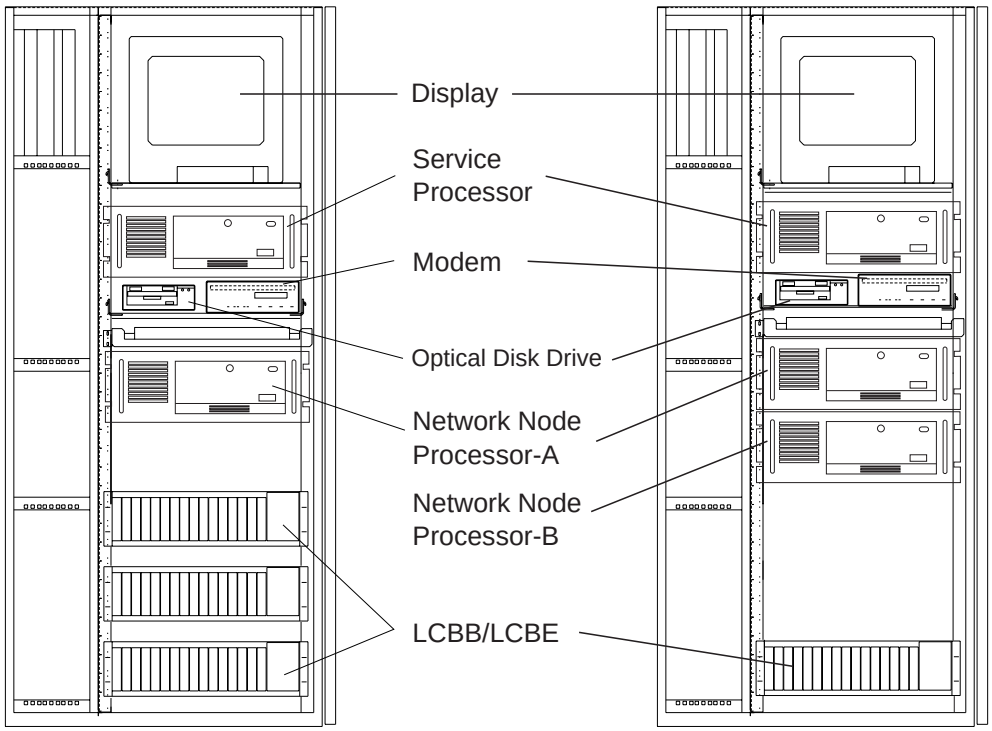


Figure G-10. Units Installation in the Controller Expansion (SP Type 7585)

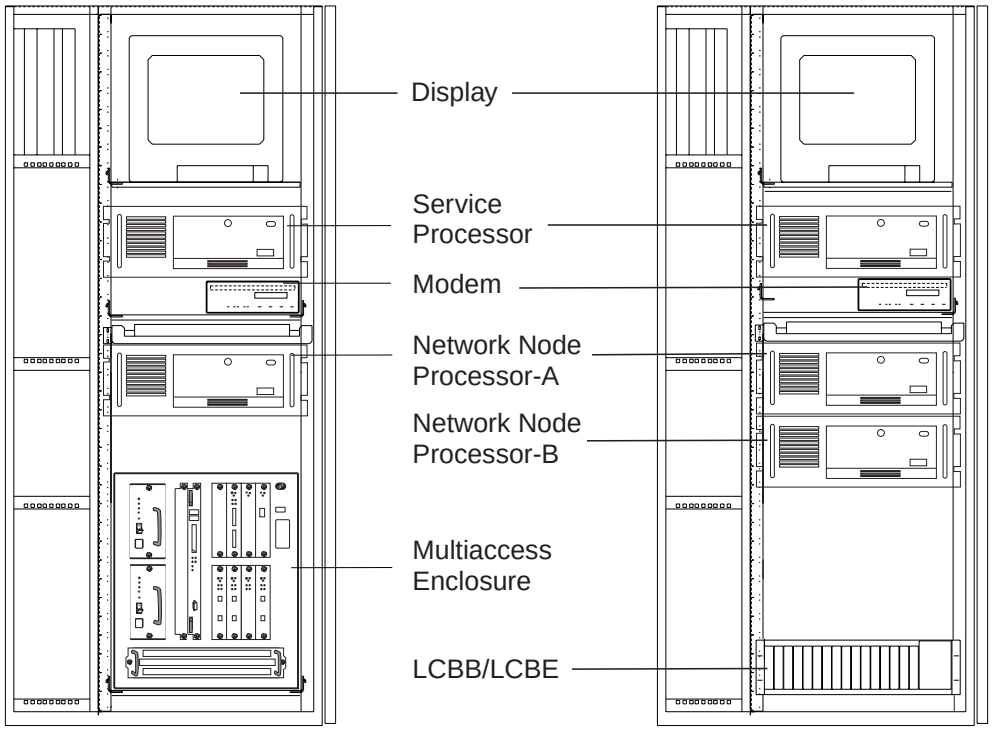


Figure G-11. Units Installation in the Controller Expansion (SP Type 7585 + MAE)

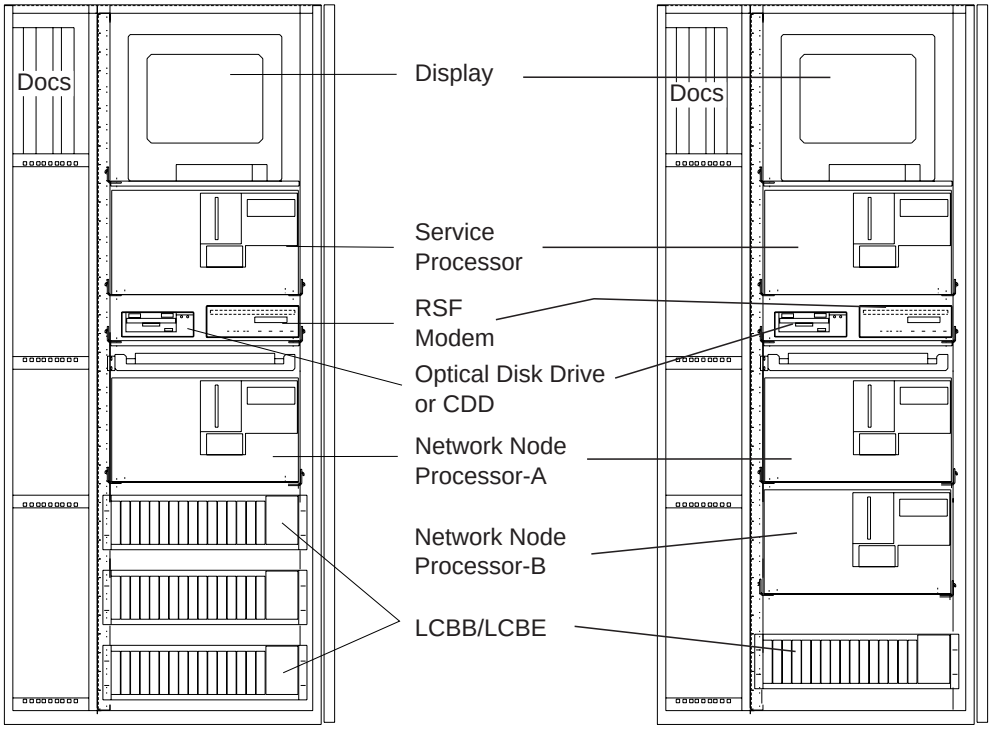


Figure G-12. Units Installation in the Controller Expansion (SP Type 3172)

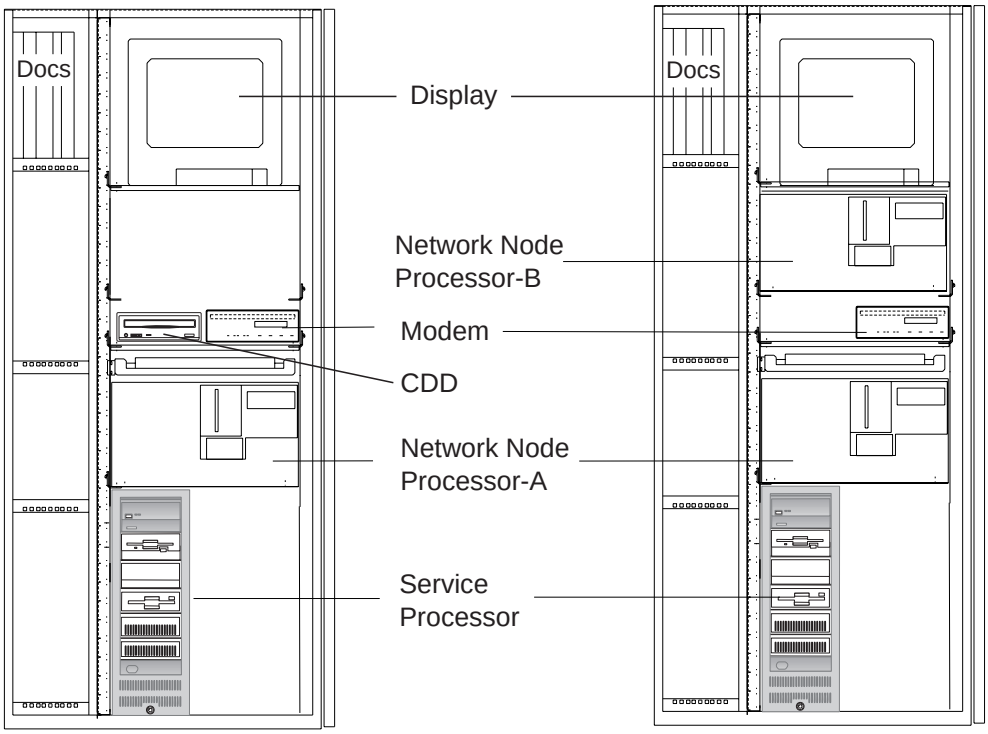


Figure G-13. Units Installation in the Controller Expansion (SP Type 9585)

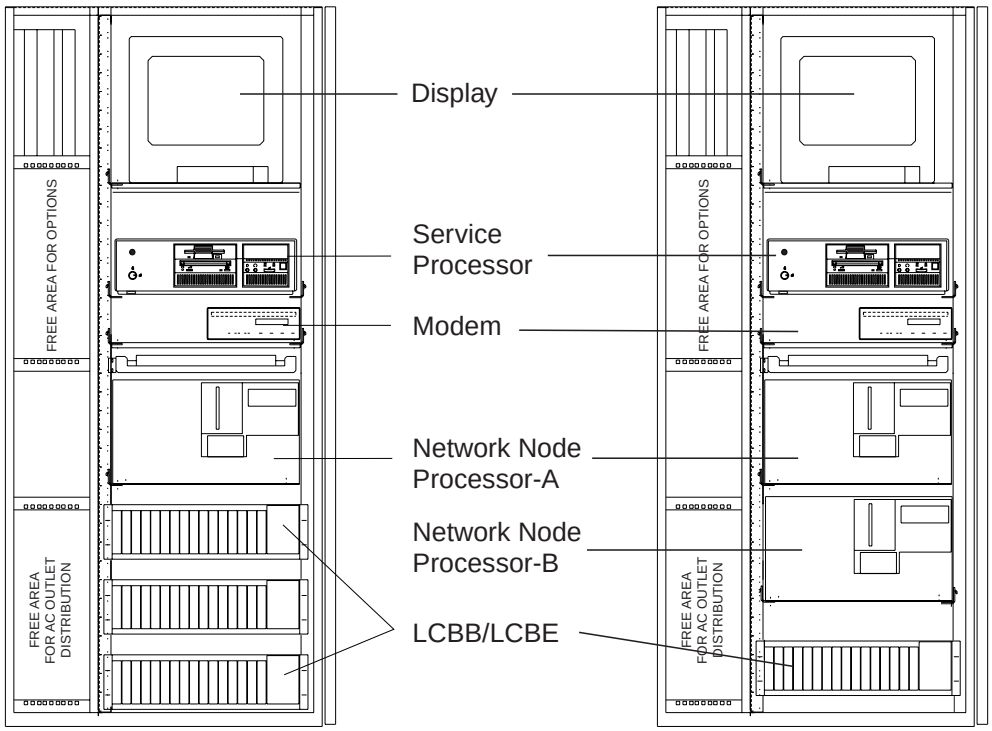


Figure G-14. Units Installation in the Controller Expansion (SP Type 9577)

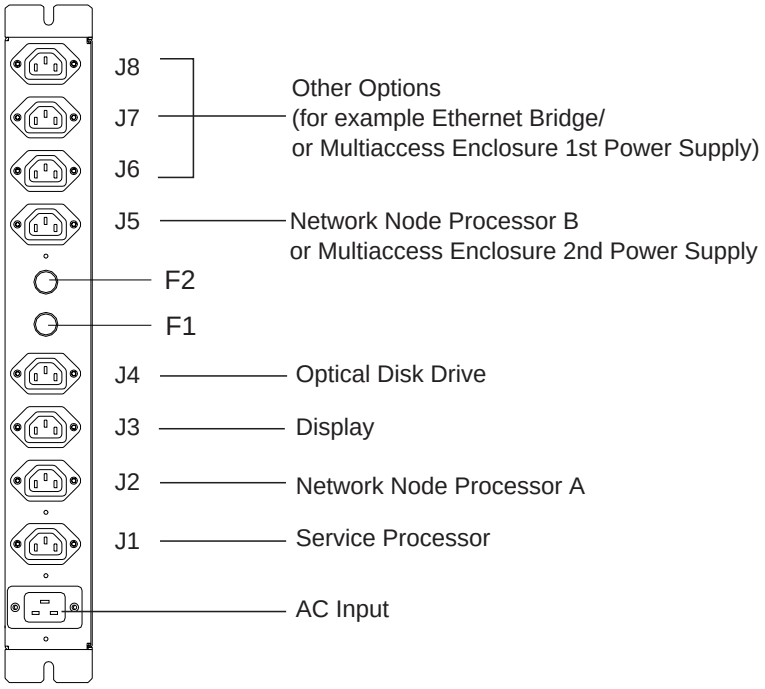


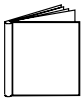
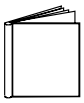
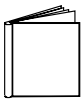
Figure G-15. Connecting the Units to the ac Outlet Distribution Box.

Appendix H. Bibliography

Customer Documentation for the 3746 Model 950

Table H-1 (Page 1 of 2). Customer Documentation for the 3746 Model 950

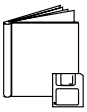
This customer documentation has the following formats:

Finding Information		
		3745 Models A and 3746 Books Starting with engineering change (EC) F12380, all of the books in the 3745 Models A and 3746 library are available on the CD-ROM that contains the Licensed Internal Code (LIC) for this EC.
Preparing for Operation		
	GA33-0400	***IBM 3745 Communication Controller All Models***[1] ***IBM 3746 Expansion Unit Model 900*** ***IBM 3746 Nways Multiprotocol Controller Model 950*** ***Safety Information***[2] Provides general safety guidelines
Evaluating and Configuring		
	GA33-0180	***IBM 3745 Communication Controller Models A***[3] ***IBM 3746 Nways Multiprotocol Controller*** ***Models 900 and 950*** ***Overview*** Gives an overview of connectivity capabilities within SNA, APPN, and IP networking.
	GA33-0457	***IBM 3745 Communication Controller Models A***[2] ***IBM 3746 Expansion Unit Model 900*** ***Models 900 and 950*** ***Planning Guide*** Planning for: • Field upgrades • Service processor and alert management configuration • Network integration (NCP, APPN, and IP control) • Physical installation.

© Copyright IBM Corp. 1998

Table H-1 (Page 2 of 2). Customer Documentation for the 3746 Model 950

Operating and Testing



SA33-0356

IBM 3746 Nways Multiprotocol Controller Model 950

***User's Guide*[2]**

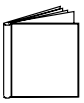
Explains how to:

- Carry out daily routine operations on Nways controller
- Install, test, and customize the Nways controller after installation
- Configure user's workstations to remotely control the service processor using:
  - DCAF program
  - Telnet client program.

On-line information

Controller Configuration and Management Application

Provides a graphical user interface for configuring and managing a 3746 APPN/HPR network node and IP Router, and its resources.
Is also available as a stand-alone application, using an OS/2 workstation.
Defines and explains all the 3746 Network Node and IP Router configuration parameters through its on-line help.



SH11-3081

IBM 3746 Nways Multiprotocol Controller Models 900 and 950

***Controller Configuration and Management: User's Guide*[2]**

Explains how to use CCM and gives examples of the configuration process.

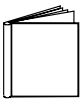
Managing Problems

On-line information

Problem Analysis Guide

An on-line guide to analyze alarms, events, and control panel codes on:

- IBM 3745 Communication Controller Models A[3]
- IBM 3746 Nways Multiprotocol Controller Models 900 and 950.



SA33-0175

***IBM 3745 Communication Controller Models A*[3]**
IBM 3746 Expansion Unit Model 900
IBM 3746 Nways Multiprotocol Controller Model 950

Alert Reference Guide

Provides information about events or errors reported by alerts for:

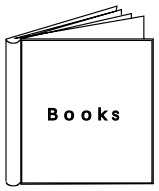
- IBM 3745 Communication Controller Models A[3]
- IBM 3746 Nways Multiprotocol Controller Models 900 and 950.

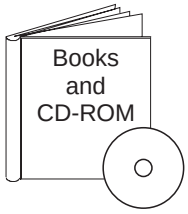
[1] Models 130 to 61A.
[2] Documentation shipped with the 3746-950
[3] 3745 Models 17A to 61A.

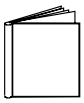
Service Documentation for the IBM 3746 Model 950

Table H-2 (Page 1 of 2). Service Documentation for the 3746 Model 950

This service documentation has the following formats:





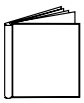


SY33-2107

IBM 3746 Nways Multiprotocol Controller Model 950

Installation Guide[1]

Provides instructions for installing or relocating the Nways Controller.

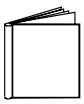


SY33-2108

IBM 3746 Nways Multiprotocol Controller Model 950

Service Guide[1]

Provides procedures for isolating and fixing the IBM 3746-950 problems.

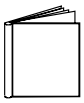


SY33-2115

IBM 3745 Communication Controller Models A[2]
IBM 3746 Expansion Unit Model 900
IBM 3746 Nways Multiprotocol Controller Model 950

Service Processor Installation and Maintenance[3]
(Based on the 7585, 3172, 9585, or 9577)

Provides information on installing and maintaining the service processor based on PS/2 Types 7585, 3172, 9585, or 9577. Can be for systems with microcode that has up to and including EC D46130 (any level) installed.

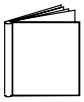


SY33-2120

IBM 3745 Communication Controller Models A[3]
IBM 3746 Expansion Unit Model 900
IBM 3746 Nways Multiprotocol Controller Model 950

Service Processor Installation and Maintenance[4]
(Based on the 7585, 3172, or 9585)

Provides information on installing and maintaining the service processor based on PS/2 Types 7585, 3172, or 9585. Can be for systems with microcode EC F12380 or higher installed.



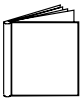
SY33-2118

IBM 3746 Nways Multiprotocol Controller Models 900 and 950

Multiaccess Enclosure Installation and Maintenance[4]

Provides information on installing and maintaining the Multiaccess Enclosure (MAE).

Table H-2 (Page 2 of 2). Service Documentation for the 3746 Model 950

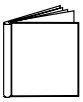


SY33-2124

IBM 3746 Nways Multiprotocol Controller Models 900 and 950

Multiaccess Enclosure Installation and Maintenance[4]
(Starting from EC F12430 and Above)

Provides information on installing and maintaining the Multiaccess Enclosure (MAE). For systems with microcode EC F12430 or higher installed.

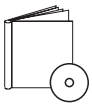


SY33-2112

IBM 3746 Nways Multiprotocol Controller Models 900 and 950

Network Node Processor Installation and Maintenance[3]
(Based on the 7585 or 3172)

Provides information on installing and maintaining the network node processor based on the PS/2 Type 7585 or 3172.

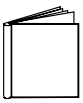


SY33-2117

IBM 3746 Nways Multiprotocol Controller Models 900 and 950

External Cable Reference[4]

Provides references to console and line cables used for connecting the IBM 3746 Models 900 and 950.

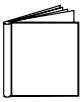


S135-2015

IBM 3746 Nways Multiprotocol Controller Models 900 and 950

Parts Catalog[4]

Provides reference information for ordering parts for the IBM 3746 Models 900 and 950.



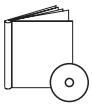
S135-2014

IBM Controller Expansion

Parts Catalog

Provides reference information for ordering parts for the controller expansion attached to the IBM 3745 Models A[2], and 3746 Models 900 and 950.

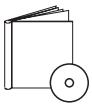
CD-ROM Bibliography



ZK2T-8214

IBM Networking Softcopy Collection Kit

Allows service manuals consulting via CD-ROM viewer. EMEA version.



ZK2T-8187

IBM Networking Softcopy Collection Kit

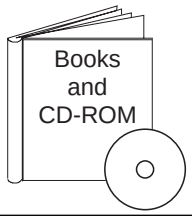
Allows service manuals consulting via CD-ROM viewer. US version.

[1] Documentation shipped with the 3746 Model 950
[2] 3745 Models 17A to 61A
[3] Documentation shipped with the processor
[4] Documentation shipped with the 3746 Models 900 and 950

Customer Documentation for the 3745 (Models 210, 310, 410, 610, 21A, 31A, 41A, and 61A), and 3746 (Model 900)

Table H-3 (Page 1 of 4). Customer Documentation for the 3745 Models X10 and X1A, and 3746 Model 900

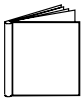
This customer documentation has the following formats:



Finding Information

3745 Models A and 3746 Books

Starting with engineering change (EC) F12380, all of the books in the 3745 Models A and 3746 library are available on the CD-ROM that contains the Licensed Internal Code (LIC) for this EC.



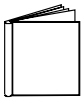
SA33-0172

IBM 3745 Communication Controller
Models 210 to 61A
IBM 3746 Expansion Unit Model 900

Customer Master Index[1]

Provides references for finding information in the customer documentation library.

Evaluating and Configuring



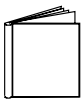
GA33-0092

IBM 3745 Communication Controller
Models 210, 310, 410, and 610

Introduction

Gives an introduction of the IBM Models 210 to 610 capabilities.

For Models A refer to the *Overview*, GA33-0180.



GA33-0180

IBM 3745 Communication Controller Models A[2]
IBM 3746 Nways Multiprotocol Controller
Models 900 and 950

Overview

Gives an overview of connectivity capabilities within SNA, APPN, and IP networking.

Table H-3 (Page 2 of 4). Customer Documentation for the 3745 Models X10 and X1A, and 3746 Model 900

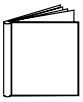
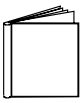
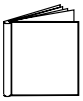
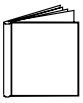
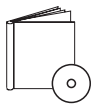
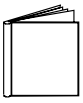
	GA33-0457	***IBM 3745 Communication Controller Models A***[2] ***IBM 3746 Expansion Unit Model 900*** ***Models 900 and 950*** ***Planning Guide*** Planning for: • Field upgrades • Service processor and alert management configuration • Network integration (NCP, APPN, and IP control) • Physical installation.
Preparing Your Site		
	GC22-7064	***IBM System/360, System/370, 4300 Processor*** ***Input/Output Equipment Installation Manual-Physical Planning*** (Including Technical News Letter GN22-5490) Provides information for physical installation for the 3745 Models 130 to 610. For 3745 Models A and 3746 Model 900, refer to the *Planning Guide*, GA33-0457.
	GA33-0127	***IBM 3745 Communication Controller*** ***Models 210, 310, 410, and 610*** ***Preparing for Connection*** Helps for preparing the 3745 Models 210 to 610 cable installation. For 3745 Models A refer to the *Connection and Integration Guide*, SA33-0129.
Preparing for Operation		
	GA33-0400	***IBM 3745 Communication Controller All Models***[3] ***IBM 3746 Nways Multiprotocol Controller*** ***Models 900 and 950*** ***Safety Information***[1] Provides general safety guidelines.
	SA33-0129	***IBM 3745 Communication Controller All Models***[3] ***IBM 3746 Nways Multiprotocol Controller Model 900*** ***Connection and Integration Guide***[1] Contains information for connecting hardware and integrating network of the 3745 and 3746-900 after installation.
	SA33-0416	***Line Interface Coupler Type 5 and Type 6*** ***Portable Keypad Display*** ***Migration and Integration Guide*** Contains information for moving and testing LIC types 5 and 6.

Table H-3 (Page 3 of 4). Customer Documentation for the 3745 Models X10 and X1A, and 3746 Model 900

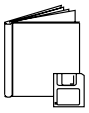
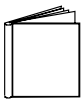
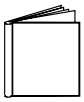
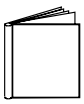
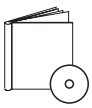
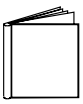
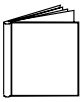
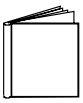
	SA33-0158	***IBM 3745 Communication Controller All Models***[3] ***IBM 3746 Nways Multiprotocol Controller Model 900*** ***Console Setup Guide***[1] Provides information for: • Installing local, alternate, or remote consoles for 3745 Models 130 to 610 • Configuring user workstations to remotely control the service processor for 3745 Models A and 3746 Model 900 using: – DCAF program – Telnet Client program.
Customizing Your Control Program		
	SA33-0178	***Guide to Timed IPL and Rename Load Module*** Provides VTAM procedures for: • Scheduling an automatic reload of the 3745 • Getting 3745 load module changes transparent to the operations staff.
Operating and Testing		
	SA33-0098	***IBM 3745 Communication Controller All Models***[4] ***Basic Operations Guide***[1] Provides instructions for daily routine operations on the 3745 Models 130 to 610.
	SA33-0177	***IBM 3745 Communication Controller Models A***[2] ***IBM 3746 Nways Multiprotocol Controller Model 900*** ***Basic Operations Guide***[1] Provides instructions for daily routine operations on the 3745 Models 17A to 61A, and 3746 Model 900 operating as an SNA node (using NCP), APPN/HPR Network Node, and IP Router.
	SA33-0097	***IBM 3745 Communication Controller All Models***[3] ***Advanced Operations Guide***[1] Provides instructions for advanced operations and testing, using the 3745 MOSS console.
	On-line Information	***Controller Configuration and Management Application*** Provides a graphical user interface for configuring and managing a 3746 APPN/HPR Network Node and IP Router, and its resources. Is also available as a stand-alone application, using an OS/2 workstation. Defines and explains all the 3746 Network Node and IP Router configuration parameters through its online help.

Table H-3 (Page 4 of 4). Customer Documentation for the 3745 Models X10 and X1A, and 3746 Model 900

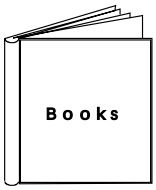
	SH11-3081	***IBM 3746 Nways Multiprotocol Controller Models 900 and 950*** ***Controller Configuration and Management: User's Guide***[5] Explains how to use CCM and gives examples of the configuration process.
Managing Problems		
	SA33-0096	***IBM 3745 Communication Controller All Models***[3] ***Problem Determination Guide***[1] A guide to perform problem determination on the 3745 Models 130 to 61A.
	On-line Information	***Problem Analysis Guide*** An online guide to analyze alarms, events, and control panel codes on: • IBM 3745 Communication Controller Models A[2] • IBM 3746 Nways Multiprotocol Controller Models 900 and 950.
	SA33-0175	***IBM 3745 Communication Controller Models A***[2] ***IBM 3746 Expansion Unit Model 900*** ***IBM 3746 Nways Multiprotocol Controller Model 950*** ***Alert Reference Guide*** Provides information about events or errors reported by alerts for: • IBM 3745 Communication Controller Models A[2] • IBM 3746 Nways Multiprotocol Controller Models 900 and 950.

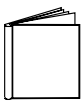
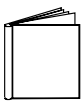
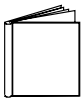
[1] Documentation shipped with the 3745.
[2] 3745 Models 17A to 61A.
[3] 3745 Models 130 to 61A.
[4] Except 3745 Models A.
[5] Documentation shipped with the 3746-900.

Additional Customer Documentation for the 3745 Models 130, 150, 160, 170, and 17A

Table H-4. Additional Customer Documentation for the 3745 Models 130 to 17A

This customer documentation has the following format:



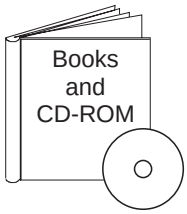
Finding Information		
	SA33-0142	***IBM 3745 Communication Controller Models 130, 150, 160, 170, and 17A IBM 3746 Nways Multiprotocol Controller Model 900*** ***Customer Master Index***[1] Provides references for finding information in the customer documentation library.
Evaluating and Configuring		
	GA33-0138	***IBM 3745 Communication Controller Models 130, 150, and 170*** ***Introduction*** Gives an introduction about the IBM Models 130 to 170 capabilities, including Model 160. For Model 17A refer to the *Overview*, GA33-0180.
Preparing Your Site		
	GA33-0140	***IBM 3745 Communication Controller Models 130, 150, 160, and 170*** ***Preparing for Connection*** Helps for preparing the 3745 Models 130 to 170 cable installation. For 3745 Model 17A refer to the *Connection and Integration Guide*, SA33-0129.

[1] Documentation shipped with the 3745.

Service Documentation for the IBM 3745 (Models 210, 21A, 310, 31A, 410, 41A, 610, and 61A) and 3746 (Model 900)

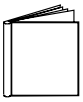
Table H-5 (Page 1 of 4). Service Documentation for the 3745 Models x10 and x1A, and 3746 Model 900

This service documentation has the following formats:



3745 Models A and 3746 Books

Starting with engineering change (EC) F12380, all of the books in the 3745 Models A and 3746 library are available on the CD-ROM that contains the Licensed Internal Code (LIC) for this EC.

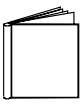


SY33-2080

IBM 3745 Communication Controller
Models 210 to 61A

Service Master Index[1]

Provides references for finding information in the IBM 3745 Models X10 and X1A shipping group documentation.

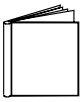


SY33-2057

IBM 3745 Communication Controller
Models 210 to 61A

Installation Guide[1]

Provides instructions for installing or relocating the IBM 3745 Models X10 and X1A.

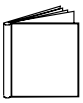


SY33-2114

IBM 3746 Nways Multiprotocol Controller
Model 900

Installation Guide[2]

Provides instructions for installing or relocating a 3746-900.

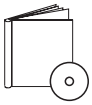


SY33-2116

IBM 3746 Nways Multiprotocol Controller
Model 900

Service Guide[2]

Provides procedures for isolating and fixing the IBM 3746-900 problems.



SY33-2055

IBM 3745 Communication Controller
Models 210, 310, 410, and 610

IBM 3746 Expansion Units
Models A11, A12, L13, L14, and L15

Service Functions[1]

Describes MOSS functions using the IBM 3745 Models X10 and X1A consoles.

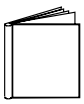
Table H-5 (Page 2 of 4). Service Documentation for the 3745 Models x10 and x1A, and 3746 Model 900

SY33-2054

IBM 3745 Communication Controller
Models 210 to 61A

Maintenance Information Procedures[1]

Provides procedures for isolating and fixing the IBM 3745 Models X10 and X1A problems.

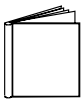


SY33-2115

IBM 3745 Communication Controller Models A[3]
IBM 3746 Expansion Unit Model 900
IBM 3746 Nways Multiprotocol Controller Model 950

Service Processor Installation and Maintenance[4]
(Based on the 7585, 3172, 9585, or 9577)

Provides information on installing and maintaining the service processor based on PS/2 Types 7585, 3172, 9585, or 9577.
Can be for systems with microcode that has up to and including EC D46130 (any level) installed.



SY33-2120

IBM 3745 Communication Controller Models A[3]
IBM 3746 Expansion Unit Model 900
IBM 3746 Nways Multiprotocol Controller Model 950

Service Processor Installation and Maintenance[4]
(Based on the 7585, 3172, or 9585)

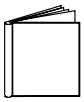
Provides information on installing and maintaining the service processor based on PS/2 Types 7585, 3172, or 9585.
Can be for systems with microcode EC F12380 or higher installed.

SY33-2118

IBM 3746 Nways Multiprotocol Controller Models 900 and 950

Multiaccess Enclosure Installation and Maintenance[4]

Provides information on installing and maintaining the Multiaccess Enclosure (MAE).

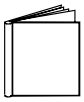


SY33-2124

IBM 3746 Nways Multiprotocol Controller Models 900 and 950

Multiaccess Enclosure Installation and Maintenance[4]
(Starting from EC F12430 and Above)

Provides information on installing and maintaining the Multiaccess Enclosure (MAE). For systems with microcode EC F12430 or higher installed.



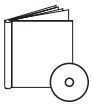
SY33-2112

IBM 3746 Nways Multiprotocol Controller
Models 900 and 950

Network Node Processor Installation and Maintenance[4]
(Based on the 7585 or 3172)

Provides information on installing and maintaining the network node processor based on the PS/2 Type 7585 or 3172.

Table H-5 (Page 3 of 4). Service Documentation for the 3745 Models x10 and x1A, and 3746 Model 900

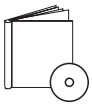


SY33-2056

IBM 3745 Communication Controller
Models 210 to 61A

Maintenance Information Reference[1]

Provides in-depth hardware reference information on the IBM 3745 Models X10 and X1A.

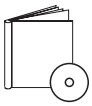


SY33-2075

IBM 3745 Communication Controller
All Models[5]

External Cable References[1]

Provides references to console and line cables used for connecting the IBM 3745 Models 130 to 61A.

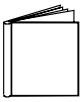


SY33-2117

IBM 3746 Nways Multiprotocol Controller
Models 900 and 950

External Cable Reference[6]

Provides references to console and line cables used for connecting the IBM 3746 Models 900 and 950.

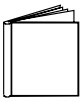


S135-2015

IBM 3746 Nways Multiprotocol Controller
Models 900 and 950

Parts Catalog[6]

Provides reference information for ordering parts for the IBM 3746 Models 900 and 950.

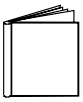


S135-2010

IBM 3745 Communication Controller
Models 210 to 61A

Parts Catalog[1]

Provides reference information for ordering IBM 3745 Models X10 and X1A parts.



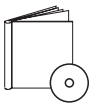
S135-2014

IBM Controller Expansion

Parts Catalog

Provides reference information for ordering parts for the controller expansion attached to the IBM 3745 Models A[3], and 3746 Models 900 and 950.

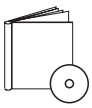
CD-ROM Bibliography



ZK2T-8214

IBM Networking
Softcopy Collection Kit

Allows service manuals consulting via CD-ROM viewer. EMEA version.



ZK2T-8187

IBM Networking
Softcopy Collection Kit

Allows service manuals consulting via CD-ROM viewer. US version.

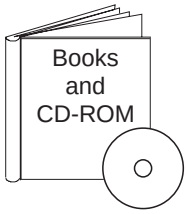
Table H-5 (Page 4 of 4). Service Documentation for the 3745 Models x10 and x1A, and 3746 Model 900

[1] Documentation shipped with the 3745.
[2] Documentation shipped with the 3746-900.
[3] 3745 Models 17A to 61A.
[4] Documentation shipped with the processor.
[5] 3745 Models 130 to 61A.
[6] Documentation shipped with the 3746 Models 900 and 950.

Additional Service Documentation for the IBM 3745 Models 130, 150, 160, 170, and 17A

Table H-6 (Page 1 of 2). Additional Service Documentation for the 3745 Models 1x0 and 17A

This service documentation has the following formats:



SY33-2079	***IBM 3745 Communication Controller Models 130, 150, 160, 170, and 17A*** ***Service Master Index***[1] Provides references for finding information in the IBM 3745 Models 1X0 and 17A shipping group documentation.
SY33-2067	***IBM 3745 Communication Controller Models 130, 150, 160, 170, and 17A*** ***Installation Guide***[1] Provides instructions for installing or relocating the IBM 3745 Models 1X0 and 17A.
SY33-2069	***IBM 3745 Communication Controller Models 130, 150, 160, and 170*** ***Service Functions***[1] Describes MOSS functions using the IBM 3745 Models 1x0 and 17A consoles.
SY33-2070	***IBM 3745 Communication Controller Models 130 to 17A*** ***Maintenance Information Procedures***[1] Provides procedures for isolating and fixing the IBM 3745 Models 1X0 and 17A problems.
S135-2012	***IBM 3745 Communication Controller Models 130 to 17A*** ***Parts Catalog***[1] Provides reference information for ordering IBM 3745 Models 1X0 and 17A parts.
SY33-2066	***IBM 3745 Communication Controller Models 130, 150, 160, and 170*** ***Hardware Maintenance Reference***[1] Provides in-depth hardware reference information on the IBM 3745 Models 1X0 and 17A.

Table H-6 (Page 2 of 2). Additional Service Documentation for the 3745 Models 1x0 and 17A
[1] Documentation shipped with the 3745.

Glossary

ac. alternating current

ACPW. AC power (box)

AFD. airflow detector

alarm. A message sent to the MOSS console. In case of an error a reference code identifies the nature of the error.

alert. A message sent to the host console. In case of an error a reference code identifies the nature of the error.

AMD. air moving device

APPN. advanced peer-to-peer networking

ARC. active remote connector

ARC1A1. ARC V.24 DCE attachment with 5 meter tethered cable

ARC1A2. ARC V.24 DCE attachment with 15 meter tethered cable

ARC1B. ARC V.24 DTE attachment with 15 meter tethered cable

ARC1C. ARC V.24 DCE 3745 interface with 5 meter tethered cable

ARC1D. ARC V.24 DTE 3745 interface with 5 meter tethered cable

ARC1E. ARC V.24 3174 AEA interface (1)

ARC1F. ARC V.24 3174 PCA EIA interface (1)

ARC2A. ARC V.25 autocall interface with 5 meter tethered cable

ARC2C. ARC V.25 autocall interface 3745 with 5 meter tethered cable

ARC3A1. ARC V.35 DCE attachment with 5 meter tethered cable

ARC3A2. ARC V.35 DCE attachment with 15 meter tethered cable

ARC3B. ARC V.35 DTE attachment with 15 meter tethered cable

ARC3C. ARC V.35 DCE 3745 interface with 5 meter tethered cable

ARC3D. ARC V.35 DTE 3745 interface with 5 meter tethered cable

ARC4A1. ARC X.21 DCE attachment with 5 meter tethered cable

ARC4A2. ARC X.21 DCE attachment with 15 meter tethered cable

ARC4B. ARC X.21 DTE attachment with 15 meter tethered cable

ARC4C. ARC V.21 DCE 3745 interface with 5 meter tethered cable

ARC4D. ARC V.21 DTE 3745 interface with 5 meter tethered cable

ARC5A. Reserved

ARC5B. Reserved

ARC5C. ARC RS-422 3708 interface (or RJ-11 connection) (1)

ARC5D. ARC RS-422 IBM Cabling System interface (1)

ARC6A. ARC V.25 autocall interface with 15 meter tethered cable

ARC6C. ARC V.25 autocall 3745 interface with 15 meter tethered cable

BA. basic access

BAS. basic board

BATS. basic assurance tests

BER. box event record

BLPU. basic level packaging unit

BMI. bit multiplex interface

box event record (BER). Information about an event detected by the controller. It is recorded on the disk/diskette and can be displayed on the operator console for event analysis.

bps. bits per second

BSC. binary synchronous communication

BSI. bus synchronism interface

C. Celsius

© Copyright IBM Corp. 1998

C&SM. customer and service information

CA. channel adapter

cache. A high-speed buffer storage that contains frequently accessed instructions and data; it is used to reduce access time.

CB. circuit breaker

CBA. controller bus adapter

CBC. controller bus coupler

CBR. circuit burst request

CBSA. controller bus and service adapter (CBSP+CBC+TIC3)

CBSP. controller bus and service processor

CBTRA. controller bus and token-ring adapter (TRP+CBC+TIC3)

CBTRM. cable terminator (IOC and DMA buses)

CCITT. Comite Consultatif International Telephonique et telegraphique

CCU. central control unit

CDF. configuration data file (3745)

CDF-E. configuration data file extended (37CS)

CE. customer engineer

CEPT. Comite Europeen des Postes et Telecommunications

CLA. communication line adapter (CLP+LICnn)

CLDP. controller load/dump program

clear channel. Mode of data transmission where the data passes through the DCE and network, and arrives at the receiving communication controller (for example, the IBM 3745) unchanged from the data transmitted. The DCE or network can modify the data during transmission because of certain network restrictions, but must ensure the received data stream is the same as the transmitted data stream.

CLP. communication line processor

CMIP. common management interface protocol

CNM. communication network management

CP. 1.communication processor 2.control program 3.circuit protector 4.control point

CPLR. coupler

CPN. customer problem number

CPx. FRU name of circuit protector

CRC. cyclic redundancy check character

CS. connectivity switch

CSA. common subassembly

CSB. connectivity switch bus

CSC. connectivity switch cable

CSCE. connectivity switch cable extension

CSM. centralized support module

CSP. central service point

CSS. control subsystem (3745)

CTDA. configuration target device (processor) address

dc. direct current

DCAF. Distributed Console Access Facility (licensed program)

DCCS. DC to connectivity subsystem

DCE. data circuit-terminating equipment

DCDP. DC distribution and protection (box)

DCM. diagnostic control monitor

DCPW. DC power box

DICO. DMA IOC connection card

DM. distribution manager

DMA. direct memory access

DS. data storage

DSB. data storage bus

DSI. data storage interface

DSM. data storage manager

DSS. data storage interface for SBA

DSU. data service unit (DCE-like for high-speed communication lines)

DTE. data terminal equipment

EC. engineering change

EE. extended edition

EIA. Electronic Industries Association

EPO. emergency power-off

EPROM. eraseable PROM

ESCA. ESCON adapter

ESCC. ESCON coupler

ESCON*. Enterprise Systems Connection

ESCP. ESCON processor

ESD. electrostatic discharge

EXP. expansion enclosure

EXP1. first expansion enclosure

EXP2. second expansion enclosure

FCS. frame check sequence

FRU. field-replaceable unit

HCS. Hardware Central Service

HDLC. high-level data link control

hex. hexadecimal

host processor. (1) A processor that controls all or part of a user application network. (2) In a network, the processing unit in which the access method for the network resides. (3) In an SNA network, the processing unit that contains a system services control point (SSCP). (4) A processing unit that executes the access method for attached communication controllers. Also called *host.*

HPPB. high-performance parallel bus

HSC. hardware support center

HSF. hardware service facility

Hz. Hertz

IBM service representative. An individual in IBM who performs maintenance services for IBM products or systems.

IEEE. Institute of Electrical and Electronics Engineers

IML. initial microcode load

initial microcode load (IML). The process of loading the microcode into a scanner or into MOSS.

initial program load (IPL). The initialization procedure that causes the 3745 control program to commence operation.

IO. input/output

IOC. input/output control

IOCB. input/output control bus

IPL. initial program load

IRAM. instruction random access memory

ISO. International Organization for Standardization

kbps. kilobits per second

LA. line adapter

LAN. local area network

LCB. line connection box

LED. light-emitting diode

LIC. line interface coupler

LICx. FRU name of line interface coupler type x (3745)

LLC. logical link control

LS. local storage

LSA. link service architecture

LSCT. LIM software configuration table

LSM. local storage manager

LSSD. level-sensitive scan design (total hardware latches chain collection)

LU. logical unit

MAC. medium access control

MAE. Multiaccess enclosure

MAP. maintenance analysis-procedure

MAU. multistation access unit

MB. megabyte; 1 048 576 bytes

MCF. microcode fix

MCL. microcode change level

MES. miscellaneous equipment specification

MG. motor generator

MI. maskable interrupt

microcode. A program, that is loaded in a processor (for example, the MOSS processor)

MLA. MOSS LAN adapter

MMIO. memory mapped input/output

maintenance and operator subsystem (MOSS). The part of the controller that provides operating and servicing facilities to the customer's operator and the IBM service representative.

MOSS. maintenance and operator subsystem (3745)

MOSS-E. maintenance and operator subsystem extended (37CS)

NA. network addressable

NCP. Network Control Program

NDM. netview distribution manager

NetView. An IBM licensed program used to monitor a network, manage it, and diagnose its problems.

Network Control Program (NCP). An IBM licensed program that provides communication controller support for single-domain, multiple-domain, and interconnected network capability.

NMI. non-maskable interrupt

NMVT. network management vector transport

NNP. network node processor

NODA. next origin device (processor) address

NPM. NetView performance monitor

NTDA. next target device (processor) address

OEMI. original equipment manufacturer's interface

OLT. online test

online tests. Testing of a remote data station concurrently with the execution of the user's programs (that is, with only minimal effect on the user's normal operation).

OSI. open system interconnect

PA. primary access

PBC. packet burst control

PBG. packet burst grant

PCR. 1.pico-processor command register 2.power check reset

PICA. process and intertask communication architecture

PMH. problem management hardware

PN. part number

PNL. control panel

POR. power-ON reset

PP. pico-processor

PPB. primary power box

PPC. PowerPC (system card of MAE)

PRC. processor

PRDA. packet request device (processor) address

PROM. programable read-only memory

PS. power supply

PSI. packet switch interface

PSN. public switched network

PTCE. product-trained CE

PTF. program temporary fix

PTT. Post, Telephone and Telegraph (agency)

PU. physical unit

RETAIN. Remote Technical Assistance Information Network

RNR. receiver not ready

RPL. remote program load

RPO. remote power-off

RSC. remote service center

RSF. remote support facility

RVX. stands for RS232, RS422, V.24-35, X.21-2x connections

SAC. switch adapter card

SATS. specific assurance tests

SBA. switch bus adapter

SBI. switch bus interface

SC. switch control

SDLC. synchronous data link control

SIE. switch interface extender

SL. service logic

SNA. Systems Network Architecture

SNMP. Simple network management protocol

SPD1. signal and power distribution type 1

SPD2. signal and power distribution type 2

SPDL. signal and power distribution card in LCB

SPS. service and power support

SQL. structured query language

SRC. system reference code

SSA. system service architecture

SSCP. system services control point

STCn. signal transfer card n

SSS. subsystem support service

Systems Network Architecture (SNA). The description of the logical structure, formats, protocols, and operational sequences for transmitting information through a user application network. The structure of SNA allows the users to be independent of specific telecommunication facilities.

TB. terminator block

TDM. time division multiplexing

TDR. technical data record

TERC. terminator card

TIC1. token-ring interface coupler type 1 (3745) running at speed of 4 Mbits

TIC2. token-ring interface coupler type 2 (3745) running at speed of 4 or 16 Mbits

TIC3. token-ring interface coupler type 3 (37CS) running at speed of 4 or 16 Mbits

time out. The time interval allotted for certain operations to occur.

TPS. two-processor switch

TR. token-ring

TRA. token-ring adapter (TRP+TIC3)

TRFM. transformer

TRP. token-ring processor

TRS. transmitter/receiver subassembly

UEPO. unit emergency power-off

URSF. universal remote support facility

UTP. Unshielded twisted pair cable

V. volt

V.24. CCITT V.24 recommendation

V.25. CCITT V.25 recommendation

V.28. CCITT V.28 recommendation

V.35. CCITT V.35 recommendation

VPD. vital product data

VTAM*. Virtual Telecommunications Access Method

VTL. vendor technology logic

W. watt

X.21. CCITT X.21 recommendation

X.25. CCITT X.25 recommendation

YZxxx. wiring diagram

Index

Special Characters

← button E-1

Numerics

3745
  power on schedule A-1
3746-900
  LAN address A-2
7585 Service Processor
  other FRU exchange 5-48
7855
  Use of the 7855 buttons E-1

A

addresses
  3746-900 in the LAN A-2
  IP on service LAN A-2

C

cable
  between the service processor and the display C-11
  between the service processor and the keyboard C-12
  From the service processor to the 8228, or network node processor to 8228 C-4
  From the service processor to the CD-ROM disk drive C-10
  from the service processor to the external modem C-6
  From the service processor to the optical disk drive C-9
  From the service processor with integrated modem C-8
Configuration parameters 3-4, 3-5
controller
  names A-1
Controller Expansion Component locations G-1
Controller Expansion locations
customer
  specific information A-5

D

↑ button E-1
database optimization of MOSS-E A-1
DCAF
  definitions for RSF A-5
  remote logon password A-3
DCAF *(continued)*
  service processor (CM/2) parameters A-4
definitions
  for RSF A-5
  service processor LAN management A-2
  service processor SNA A-2
Delete
  The engineering data 3-6
diagnostics
  how to run
    service processor diagnostics 5-32, 6-35, 7-35
display
  adjustment (6553) F-1
dump transfer, NCP A-1

E

EEPROM Upgrade/downgrade 3-15
  overview 3-15
engineering data 3-6
  deleting 3-6
  saving 3-6

F

Function
  changing the active code 3-8
Functions
  accessing the 3745 maintenance controller functions 2-12
  accessing the 3746-9x0 controller maintenance functions 2-10
  accessing the Service Processor maintenance functions 2-7

H

How to
  check the hardware configuration B-16, B-22
  check the SCSI device configuration B-19, B-24
  run the service processor diagnostics 5-32, 6-35, 7-35
  test the service processor 6-35

I

Information
  displaying the code level 3-2
  search information 2-4
Installation
  8228 1-19, 1-36, 1-53
  documentation 1-3
  preparation 1-9, 1-23, 1-40

© Copyright IBM Corp. 1998

Installation *(continued)*
scenarios 1-4
service processor 1-1
System unit, display, and keyboard 1-10, 1-24, 1-41
tasks 1-9, 1-23, 1-40
installation procedure 1-69
Installing
7855 1-77
7857 1-68
7858 1-57
Hayes 1-65
integrated modem 1-84
installing the modem 1-77, 1-79
integration
controller
service processor A-2
Introducing the Service Processor 2-1

L

LAN
management definition and the service processor A-2
leaving procedure
Licensed Internal Code
installing a new version 3-7

M

Machine status
3745 status display 2-6
3746-900 status display 2-5
Maintaining the Service Processor 3-1
Maintenance procedures 3-2
MCF on the LIC
applying MCFs on the LIC 3-11
removing MCFs on the LIC 3-14
microcode download, automatic A-5
MOSS-E
database optimization A-1

N

NCP
dump transfer A-1
NetView
generate MOSS-E alerts A-4
path parameter definitions A-3
network node processor C-1, C-2, C-3
cables for 3746-900 C-1, C-3
cables for 3746-950 C-2

P

parameter
worksheets A-1
parts for service processor B-24
Password 3-17
CCM/Telnet user profiles management 3-17
changing the controller and maintenance passwords 3-17
changing the DCAF password 3-20
DCAF remote logon A-3
restoring the passwords 3-21
passwords A-3
processor
hard disk drive exchange 6-55
LAN adapter exchange 6-53

R

RETAIN
Manual Call to RETAIN from a 3745 - XXA 3-9
Manual Call to RETAIN from a 3746-9x0 3-10
RSF
authorization A-5
parameter definitions A-5

S

Saving/restoring data on the hard disk
Restoring the non-active code from a CD-ROM 3-3
service processor C-1, C-2, C-3
3172 overview 1-22
7585 overview 1-8
9585 overview 1-39
battery exchange 6-50, 7-44
board exchange 5-38, 7-38
cables for 3746-900 C-1, C-3
cables for 3746-950 C-2
cd-rom exchange 6-61, 7-47
CM/2 parameters for DCAF A-4
diagnostics 5-32, 6-35, 7-35
disable service processor incoming calls A-3
external cable references C-1
FRU exchange 5-36, 6-40, 7-37
general information 2-2
hard disk drive exchange 5-44, 7-41
hardware configuration B-16, B-22
integrated modem exchange 7-45
integration A-2
LAN
management definition A-2
LAN adapter exchange 5-40, 7-39
other FRU exchange 7-46
parts numbers B-24
problem determination 4-1
processor card exchange 6-60
service processor aids B-1
SNA definitions A-2
system board exchange 6-50
troubleshooting 5-2, 6-2, 7-2

service processor *(continued)*
typical devices list B-15, B-21
service processor configuration (7585-P02) B-1
Set time and date
Shutting down the Service Processor 3-2
SNA
network definitions for the service processor A-2
SP customization 1-85

T

telecommunication cables part number 1-69
↓ button E-1

U

unpacking the modem 1-77

V

Vital product data

Y

→ button E-1

Readers' Comments — We'd Like to Hear from You

3745 Communication Controller Models A
3746 Expansion Unit Model 900
3746 Nways Multiprotocol Controller Model 950
Service Processor
Installation and Maintenance
(Based on 7585, 3172, or 9585)

Publication No. SY33-2120-01

Please send us your comments concerning this book. We will greatly appreciate them and will consider them for later releases of the present book.

If you prefer sending comments by FAX or electronically, use:

- FAX: 33 4 93 24 77 97
- IBM Internal Use: LGERCF at IBMFR
- Internet: lgercf@fr.ibm.com

In advance, thank you.

Your comments:

Name

Address

Company or Organization

Phone No.

Readers' Comments — We'd Like to Hear from You
SY33-2120-01

Cut or Fold
Along Line

Fold and Tape | **Please do not staple** | Fold and Tape

PLACE
POSTAGE
STAMP
HERE

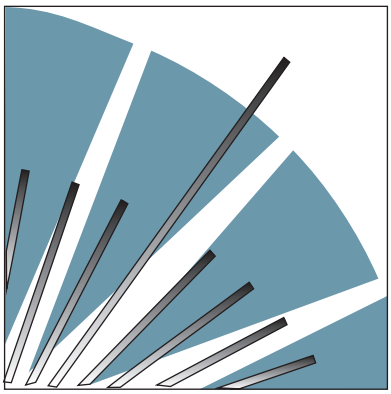
IBM France
Centre d'Etudes et Recherches
Service 0798 - BP 79
06610 La Gaude
France

Fold and Tape | **Please do not staple** | Fold and Tape

Cut or Fold
Along Line

Part Number: 02L3503

Printed in Denmark by IBM Danmark A/S



02L3503

SY33-2120-01