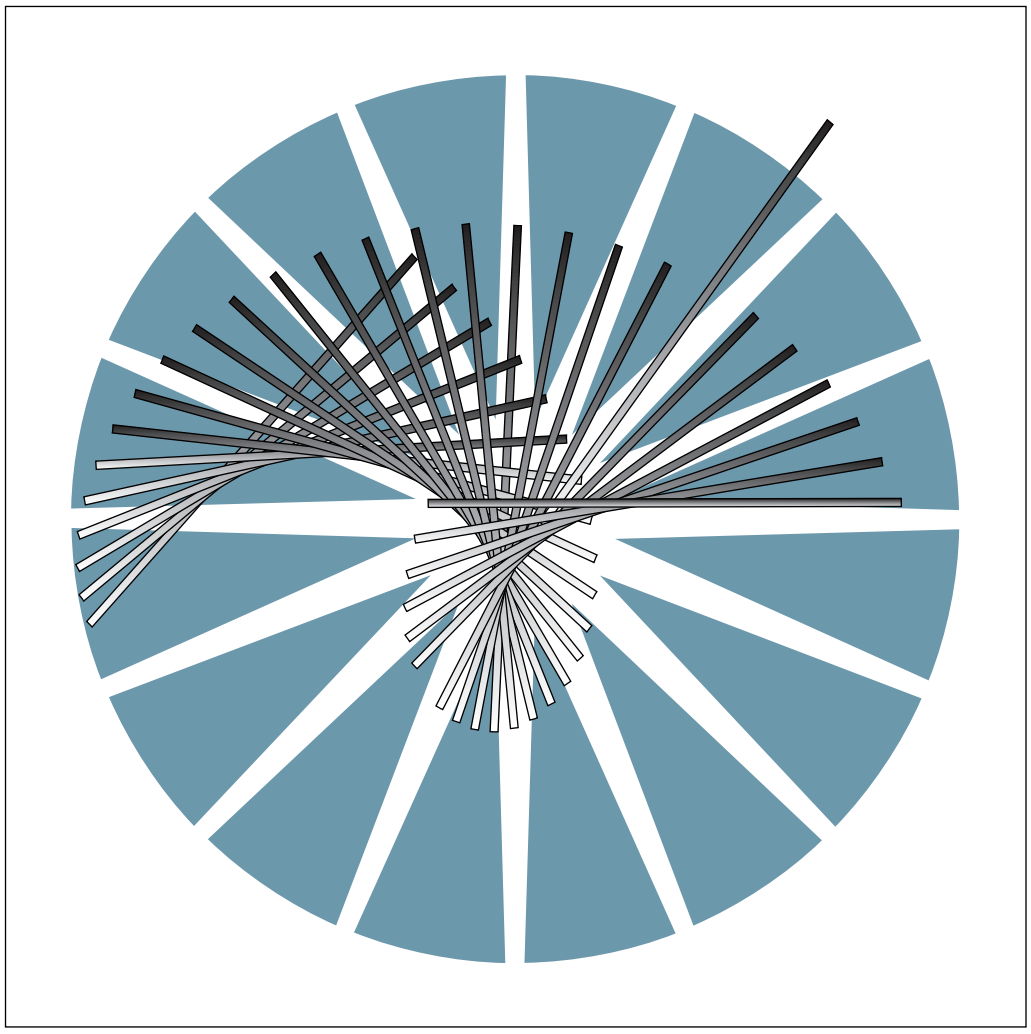
IBM 3745 Communication Controller
Models 130 to 17A

Maintenance Information Procedures



SY33-2070-09

IBM 3745 Communication Controller
Models 130 to 17A

Maintenance Information Procedures

SY33-2070-09

Note!

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

Tenth Edition (June 1997)

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

Changes have been made throughout this edition, and this manual should be read in its entirety.

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Contents

Figures ix

Tables xiii

Notices xv
European Union (EU) Statement xv
Electronic Emission Notices xv
Trademarks and Service Marks xvi

Product Safety Information xvii
General Safety xvii
Service Inspection Safety Procedures xvii
Service Inspection Safety Procedures for the 3745, 3746-900, and Controller Expansion xviii
Introduction xviii
Control Panel LED Status Versus 3746-900 States xxx
3745/3746-900 Power Supply CP/CB and Fuse Reference xxx
Controller Expansion Fuse Reference xxx
Sicherheitsüberprüfungen für IBM 3745, 3746-900 und die Erweiterung der Steuereinheit xxxi
Einführung xxxi
Bedeutung der LEDs am Bedienungsfeld der 3746-900 xlii
Stromversorgung der 3745/3746-900, Sicherungsautomaten (CB), Überstromschutzschalter (CP) und Sicherungen (F) xliii
Sicherungen der Erweiterung der Steuereinheit xliii
Safety Label Locations lvii
Safety Labels on the 3745 lvii
Safety Label on the 3746-900 lix
Safety Label on LCB lix
3745/3746-900 Safety Label Identifications lx
LCB Safety Label lxii
Controller Expansion Label Location lxii
Safety Label Part Numbers by Country lxiii

Preface lxv
About this Manual lxv
Who Should Read this Manual lxv
How this Manual Is Organized lxv

Summary of Changes lxvii

Chapter 1. START: How to Begin Troubleshooting 1-1
Console Use for Maintenance 1-1
Service Processor Window Overview 1-3
Selection Table 1-4
3745 Maintenance Actions 1-6
Problems During Machine, EC, or MES Installation 1-7
Selection Table 1-7
Symptom Index 1-8
General Verbal Symptoms 1-8

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3745 Console Symptoms . . . 1-10
3745 Control Panel Symptoms . . . 1-11
3745 Power Symptoms . . . 1-12
Miscellaneous Information . . . 1-13
Using Reference Codes . . . 1-14
3745 Control Panel Codes . . . 1-15
Using the MIP FRU Group Table . . . 1-48
3745 FRU Group Table . . . 1-49
3745 Cable Location . . . 1-52
3745 FRU List . . . 1-53
3745 and Service Processor Maintenance Using a CPN . . . 1-55
Service Processor Maintenance Using an SRC Sequence Number . . . 1-57
Engineering Data Transfer . . . 1-58
Overview . . . 1-58
Transferring Engineering Data from the Local Service Processor . . . 1-58
Transferring 3745 Engineering Data to MOSS-E . . . 1-58
Logon on the Remote Service Processor . . . 1-58
Transferring Engineering Data to the Remote Service Processor . . . 1-59
3745 Diagnostic Requirement . . . 1-60
Disabling Procedure 0110: Preparing a CA for Maintenance . . . 1-61
Disabling Procedure 0120: Preparing a TSS/HPTSS/ESS for Maintenance 1-62
Disabling Procedure 0130: How to Put the MOSS Offline: Preparing the MOSS for Maintenance . . . 1-65
Disabling Procedure 0140: Preparing a TRSS for Maintenance . . . 1-66
Disabling Procedure 0150: Preparing LIC Type 1, 3, 4, 5, 6 for Maintenance . . . 1-69
LIC/Line Address Table . . . 1-73
3745 Control Panel Use . . . 1-78
Purpose of the Control Panel . . . 1-78
Uses of the Control Panel . . . 1-78
Explanation of 3745 Panel Keys, LEDs, and Switches . . . 1-79
Power On Indicator . . . 1-79
Control Panel Display Description . . . 1-79
How to Perform 3745 Control Panel Operations . . . 1-82
Power On Reset . . . 1-82
General IPL . . . 1-82
MOSS IML . . . 1-82
MOSS Dump . . . 1-82
Request Local Console . . . 1-83
Force Local Console . . . 1-83
Panel Test and Console Link Tests . . . 1-83
Load from Diskette . . . 1-83
Loop on MOSS Diagnostics . . . 1-83
Display Stacked Errors . . . 1-83

Chapter 2. Map for FRU Isolation . . . 2-1
IOC Bus MAPs . . . 2-1
MAP 0100: IOC Bus Trouble Shooting . . . 2-1
3745 MOSS MAPs . . . 2-3
MAP 3200: MOSS Control Panel Code 001 . . . 2-3
MAP 3210: MOSS Control Panel Code 059 . . . 2-4
MAP 3220: Undefined Panel Message . . . 2-5
MAP 3230: Console Link Procedure . . . 2-6
3745 Line Adapter MAPs . . . 2-7

MAP 3500: Activate/Deactivate Line Problem or Line Errors on the TSS . . 2-7
MAP 3520: Activate/Deactivate Ring Problems or Ring Errors on the TRSS 2-8
MAP 3530: Activate/Deactivate Line Problems or Line Errors on the HPTSS/ESS 2-9
3745 Channel MAPs 2-10
MAP 3700: CA Isolation Procedure 2-10
3745 Power MAPs 2-12
MAP 3900: Overcurrent on Power Supply 1 2-12
MAP 3905: Power ON Problem in Host Mode or Host Power Sequence Problem 2-16
MAP 3910: Overcurrent on Power Supply 2 2-18
Power MAP 3920: Air Flow Detector Fault 2-19
Power MAP 3925: Scheduled Power on Problems 2-20
Power MAP 3930: Power Control Subsystem Problems 2-21
Power MAP 3935: Power OFF not Possible in Host Mode 2-25
Power MAP 3945: Power OFF not Possible in Local Mode 2-26
Power MAP 3950: PCC-Detected Error on MOSS Reset 2-27
Power MAP 3960: Power OFF not Possible in Network Mode 2-28
Power MAP 3970: PCC-Detected Error on CCU Reset or on Remote Power OFF 2-30
3745 LAN MAP 2-31
MAP 4500: 3745 Models 17A Permanent Console Link Problem 2-31
3745 Control Panel Code 2-32
3745 RSF MAP 2-33
MAP 4510: 3745 Model 17A Manual Call 2-33
3745/3746-900/Service Processor MAPs 2-37
MAP 5200: 3745/3746-900/Service Processor/Network Node Processor Icon Color Symptoms 2-37
MAP 5205: LAN Checking 2-41
Service Processor MAPs 2-42
MAP 5600: LAN Problem on the LAN Attached to the Service Processor 2-42

Chapter 3. How to Run 3745 Diagnostics 3-1
Diagnostic Description 3-2
3745 Diagnostics 3-2
Errors During Diagnostics 3-2
Diagnostic Monitoring 3-2
Checkout Diagnostics 3-2
CBA Diagnostic 3-3
How to Run MOSS Diagnostics 3-4
How to Loop MOSS Diagnostics 3-5
How to Run the Console Link Test for 3745 Models 130, 150, 160, and 170 . 3-6
Local/Remote or Alternate/RSF Link Tests 3-6
How to Run the Control Panel Test 3-8
How to Run Internal Function Tests 3-9
How to Run the LIC Wrap Test with IFTs 3-13
How to Run the Wrap Test (WTT) for TSS, HPTSS, or 3746-900 3-15
Wrap Test Initial Selection for TSS 3-16
Wrap Test Initial Selection for HPTSS 3-18
Wrap Test Initial Selection for 3746-900 3-19
Available Wrap Options 3-20
How to Run the Channel Wrap Test 3-25

Chapter 4. 3745 FRU Exchange 4-1

Exchange Precautions 4-1
List of 3745 FRUs 4-2
FRU Physical Locations 4-3
3745 Frame 4-3
Basic Board, Cards, Connectors, and Crossovers 4-5
MOSS Board, Cards, and Connectors 4-11
LIC Board Type 1 4-13
LIC Board Type 2 4-13
LIC Board Type 3 4-14
DMUX and SMUX Packaging 4-14
LIC Board Type 1 Packaging for LICs Type 1 to 4 4-15
LIC Board Type 2 Packaging for LIC Type 5 4-18
LIC Board Type 2 Packaging for LIC Type 6 (Low Speed) 4-19
LIC Board Type 2 Packaging for LIC Type 6 (High Speed) 4-20
LIC Board Type 3 Packaging for LIC Types 1 to 4 4-21
Ethernet Lines Tailgate 4-22
High Speed Lines Tailgate 4-23
Token-Ring Tailgate 4-24
Channel Tailgate 4-25
Console Operator Tailgate For 3745 Models 1X0 4-26
Console Operator Tailgate for 3745 Model 17A 4-26
EPO Tailgate 4-26
3745 Control Panel 4-28
Flexible Diskette Drive 4-29
Hard Disk Drive 4-29
Primary Power Box 4-30
Power Supply 1 4-31
3745 Power Supply Cross Reference 4-31
Power Supply 2 4-32
Fan 1 4-33
Fan 2 4-33
3745 FRU Exchange Procedures 4-34
Card Exchange Procedure 4-34
DCREG Exchange Procedure 4-38
DMUX Exchange Procedure 4-39
SMUXA/B Exchange Procedure 4-41
LIC Exchange Procedure 4-44
Control Panel Exchange Procedure 4-46
Battery Exchange Procedure 4-48
Fan 1 Exchange Procedure 4-50
Fan 2 Exchange Procedure 4-51
FDD Exchange Procedure 4-52
HDD Exchange Procedure 4-56
TERMC/TERMR Exchange Procedure 4-61
TERMD/TERMI Exchange Procedure 4-62
ESS Tailgate Exchange Procedure 4-64
PS1 Exchange Procedure 4-67
PS2 and Primary Power Box Exchange Procedure 4-69
EPO Exchange Procedure 4-73
Basic Board Exchange Procedure 4-77
LIC Board Type 1 and 3 Exchange Procedure 4-84
LIC Board Type 2 Exchange Procedure 4-88
MOSS Board Exchange Procedure 4-92
Channel Tailgate Exchange Procedure 4-96

Action to Take After a Diagnostic Run or an FRU Exchange 4-99
Diagnostic and Exchange Result Analysis 0000 4-99
CE Leaving Procedure 4-102

Appendix A. Maintenance Aids A-1
Contacting Support A-1
Control Program Maintenance Aids A-1
MOSS Microcode Maintenance Aids A-2
Scanner Microcode Maintenance Aids A-2
Special Tools A-3
General Purpose Tools A-3
ESD Kit A-3
Shipping Group Tools A-4
PKD (Portable Keypad Display) Maintenance Aids for LIC 5 and 6 . . . . . A-5

Appendix B. 3745 Bibliography B-1
Service Personnel Definitions B-1
Customer Documentation for the 3745 (Models 130, 150, 160, 170, and 17A) and 3746 (Model 900) B-2
Service Documentation for the 3745 (Models 130, 150, 160, 170, and 17A) and 3746 (Model 900) B-6
Related Signal Converter Product Information B-9
Related NCP Service Information B-10
World Wide Web B-10

List of Abbreviations X-1

Glossary X-7

Figures

0-1. 3745/3746-900 Power Control Cable Routing xx
0-2. Ground Wire Connection on Controller Expansion xxi
0-3. Ground Wire Connection Between Attached Controller Expansions . xxii
0-4. Ground Wire Connection Between Controller Expansions at Less than Six Meters xxiii
0-5. Ground Wire Connection Between Controller Expansions at More than Six Meters xxiv
0-6. Ground Pin on Mainline ac/dc Power Cable xxv
0-7. Ground Pin of the Controller Expansion ac Outlet Distribution Box . . xxv
0-8. LCB Grounding Via Screws xxvi
0-9. LCB Grounding Via Ground Wire xxvi
0-10. Ground Wire Connection xxvii
0-11. Führung des Stromversorgungskabels bei der 3745/3746-900 . . . xxxiii
0-12. Schutzleiteranschluß an der Erweiterung der Steuereinheit xxxiv
0-13. Schutzleiteranschluß zwischen angeschlossenen Erweiterungen der Steuereinheit. xxxv
0-14. Schutzleiteranschluß bei einem Abstand von weniger als 6 Meter zwischen den Erweiterungen der Steuereinheit xxxvi
0-15. Schutzleiteranschluß bei einem Abstand über 6 Meter zwischen den Erweiterungen der Steuereinheit xxxvii
0-16. Schutzleiterkontakt am Hauptstromversorgungskabel xxxviii
0-17. Schutzleiterkontakt des Wechselstromverteilerkastens der Erweiterung der Steuereinheit xxxviii
0-18. Erdung des Verteilerkastens über Schrauben xxxix
0-19. Erdung des Verteilerkastens über Schutzleiter xxxix
0-20. Schutzleiteranschluß xl
0-21. 3745 Label and Power Rating Plate Locations (Back) lvii
0-22. 3745 Label and Power Rating Plate Locations (Front) lviii
0-23. 3746 Model 900 (Frame 07) Label Locations lix
0-24. LCB Safety Label Location lix
0-25. 3745/3746-900 Safety Labels lx
0-26. 3745/3746-900 Safety Labels lxi
0-27. LCB Safety Label (PN 80G3928) lxii
0-28. Controller Expansion Power Rating Plate Location lxii
1-1. Reference Code Screen 1-14
1-2. TSS Service Screen 1-63
1-3. Select/Release Screen 1-63
1-4. Mode Control Screen 1-64
1-5. TSS/HPTSS/ESS Diagnostic Selection Screen 1-64
1-6. TRSS Service Screen 1-67
1-7. Select Screen 1-67
1-8. Connect/Disconnect Screen 1-68
1-9. TRSS Diagnostic Selection Screen 1-68
1-10. TSS/HPTSS Diagnostic Selection Screen 1-72
1-11. TSS Service Screen 1-74
1-12. Select/Release Screen 1-74
1-13. Mode Control Screen 1-75
1-14. LIC Types 1 and 4 Wrap Plug (PN 65X8927) 1-75
1-15. LIC Type 3 Wrap Cable (PN 65X8928) 1-75
1-16. LIC Types 5 and 6 Wrap Plug (PN 11F4815) 1-76

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1-17. LIC Types 1, 3, and 4 . . . 1-76
1-18. LIC Types 5 and 6 . . . 1-77
1-19. 3745 Control Panel Layout . . . 1-80
2-1. Console Outputs . . . 2-6
2-2. EPO Location 01S . . . 2-16
2-3. UEPO Switch . . . 2-21
2-4. EPO Location 01S . . . 2-25
2-5. LAN Attached to the Service Processor . . . 2-42
3-1. CBA Diagnostic Coverage . . . 3-3
3-2. Console Output . . . 3-6
3-3. Cable Configurations . . . 3-7
3-4. Maintenance Functions Menu . . . 3-9
3-5. How to Select Diagnostics . . . 3-10
3-6. How to Enter Options . . . 3-11
3-7. Error Menu . . . 3-12
3-8. LICs Type 1 and 4 (Wrap Plug PN 65X8927) . . . 3-23
3-9. LIC Type 3 (Wrap Cable PN 65X8928) . . . 3-23
3-10. LIC Types 1, 3, and 4 . . . 3-23
3-11. LICs Type 5 and 6 (Wrap Plug PN 11F4815) . . . 3-24
3-12. LIC Types 5 and 6 . . . 3-24
4-1. 3745 Frame (Front) . . . 4-3
4-2. 3745 Frame (Back) . . . 4-4
4-3. Card Locations . . . 4-5
4-4. 3745 Model 17X Basic Board (without TPS, HPTSS, or ESS) . . . 4-6
4-5. 3745 Model 17X (Basic Board with TPS and HPTSS or ESS) . . . 4-7
4-6. 3745 Model 130 (Basic Board with TPS) . . . 4-8
4-7. 3745 Model 150 (Basic Board) . . . 4-9
4-8. 3745 Model 160 (Basic Board) . . . 4-10
4-9. 3745 Models 130, 150, 160, and 170 (MOSS Board, Cards, and Connectors) . . . 4-11
4-10. 3745 Model 17A (MOSS Board, Cards, and Connectors) . . . 4-12
4-11. 3745 LIC Unit Type 1 Board and Connectors (for LIC Types 1,3, and 4 in Models 150, 160, and 170) . . . 4-13
4-12. 3745 LIC Unit Type 2 Board and Connectors (for LIC Types 5 and 6 in Models 150 and 170) . . . 4-13
4-13. 3745 LIC Unit Type 3 Board and Connectors (for LIC Types 1,3, and 4 in Model 150) . . . 4-14
4-14. 3745 LIC Board 01M-A2 Packaging . . . 4-15
4-15. 3745 LIC Board 01M-A1 Packaging . . . 4-16
4-16. 3745 LIC Board 01L-A2 Packaging . . . 4-17
4-17. 3745 LIC Board 01L-A2 Packaging (LICs Type 5) . . . 4-18
4-18. 3745 LIC Board 01L-A1 Packaging (LIC type 5) . . . 4-18
4-19. 3745 LIC Board 01L-A2 Packaging (LICs Type 6 Low Speed) . . . 4-19
4-20. 3745 LIC Board 01L-A1 Packaging (LICs Type 6 Low Speed) . . . 4-19
4-21. 3745 LIC Board 01L-A2 Packaging (LIC Type 6 High Speed) . . . 4-20
4-22. 3745 LIC Board 01L-A1 Packaging (LIC Type 6 High Speed) . . . 4-20
4-23. 3745 LIC Board 01M-A2 Packaging . . . 4-21
4-24. 3745 Ethernet Lines Tailgate . . . 4-22
4-25. 3745 High-Speed Lines Tailgate . . . 4-23
4-26. 3745 Token-Ring Tailgate . . . 4-24
4-27. 3745 Channel Tailgate . . . 4-25
4-28. 3745 Channel Tailgate Details. For more details see YZ052 Sheet 2. . . . 4-25
4-29. 3745 Models 1X0 Console Operator Tailgate . . . 4-26

4-30. 3745 Models 17A Console Operator Tailgate 4-26
4-31. 3745 EPO 4-27
4-32. 3745 Control Panel 4-28
4-33. 3745 Flexible Diskette Drive 4-29
4-34. 3745 Hard Disk Drive 4-29
4-35. 3745 Primary Power Box Components 4-30
4-36. 3745 Power Supply 1 Components 4-31
4-37. 3745 Power Supply 2 Components 4-32
4-38. 3745 Fan 1 Components 4-33
4-39. 3745 Fan 2 Components 4-33
4-40. CB1 Location. 4-34
4-41. Covers 4-35
4-42. Shipping Springs 4-35
4-43. Channel Tailgate Location 4-36
4-44. Select Out Switch 4-36
4-45. Basic Board and CB1 Locations 4-38
4-46. Location of the LIC Boards 4-39
4-47. DMUX Cover 4-39
4-48. DMUX Location 4-40
4-49. DMUX 4-40
4-50. Location of the LIC Boards Type 2 4-41
4-51. SMUX Cover 4-41
4-52. SMUX Location 4-42
4-53. SMUX Link and Cable 4-42
4-54. Location of the LIC Boards 4-44
4-55. LIC 6 4-44
4-56. LIC Board Type 1 and 2 4-45
4-57. LIC Board Type 3 4-45
4-58. Panel, MOSS, and CB1 Locations 4-46
4-59. MOSS Right Cover 4-46
4-60. Panel Cable Location on MOSS Board 4-47
4-61. Panel 4-47
4-62. Panel Location 4-48
4-63. Battery Location 4-48
4-64. Power Services Screen 4-49
4-65. Acknowledge Screen 4-49
4-66. Fan 1 and CB1 Locations 4-50
4-67. Fan 1 Air Flow Detector and Power Cables 4-50
4-68. Fan 2 and CB1 Locations 4-51
4-69. Fan 2 Air Flow Detector and Power Cables 4-51
4-70. FDD and CB1 Location 4-52
4-71. PS1 4-53
4-72. MOSS Covers 4-54
4-73. FDD Removal 4-54
4-74. FDD Connectors 4-55
4-75. HDD and CB1 Locations 4-56
4-76. HDD Removal 4-57
4-77. New Type of HDD 4-58
4-78. HDD Installation 4-58
4-79. HDD Connectors and Jumpers 4-60
4-80. HDD Connectors and Jumpers 4-60
4-81. Basic Board and CB1 Locations 4-61
4-82. CB1 Location 4-62
4-83. Basic Board Grid 4-62

4-84. Terminator Card Locations 4-62
4-85. CB1 Location 4-64
4-86. ESS Tailgate Location 4-64
4-87. ESS Tailgate and Basic board 4-65
4-88. ESS Cables 4-65
4-89. EAC Card 4-65
4-90. Power Supply 1 (PS1) and CB1 Locations 4-67
4-91. Power Supply 1 (PS1) Cover 4-67
4-92. Primary Power Box 4-68
4-93. Power Supply 1 4-68
4-94. Primary Power Box, Power Supply 2, and CB1 Locations 4-69
4-95. Cable Locations on Primary Power Box 4-70
4-96. PS2 in Primary Power Box 4-70
4-97. PS2 and Primary Power Box Assembly 4-71
4-98. Primary Power Box and CB1 Locations 4-73
4-99. EPO Location 4-73
4-100. Cables on Primary Power Box 4-74
4-101. Primary Power Box and PS2 Cover Removal 4-74
4-102. EPO Assembly 4-75
4-103. Basic Board, MOSS Board, and CB1 Locations 4-77
4-104. Basic Board and MOSS Covers 4-78
4-105. Basic Board Grid 4-78
4-106. FDS and Multivoltage Cable Locations on the PS1 4-78
4-107. Fan2 Air Flow Detector and Power Connectors 4-79
4-108. MOSS to Basic Cable Locations 4-79
4-109. Basic Board Enclosure 4-79
4-110. Basic Board Cables 4-80
4-111. Basic Assembly 1 4-81
4-112. Basic Assembly 2 4-82
4-113. Y and Z Rows 4-83
4-114. CB1 Location 4-84
4-115. LIC Board Type 1 Locations 4-84
4-116. DMUX Cover 4-85
4-117. LIC Locations 4-86
4-118. LIC Board Assembly 4-87
4-119. CB1 Location 4-88
4-120. SMUX Cover 4-88
4-121. LIC Board Type 2 Locations 4-89
4-122. SMUX Link and Cable 4-89
4-123. LIC Locations 4-90
4-124. LIC Board Assembly 4-90
4-125. MOSS Board and CB1 Locations 4-92
4-126. MOSS Board Covers 4-92
4-127. MOSS Board Cards and Cables 4-93
4-128. MOSS Board Enclosure 4-94
4-129. CB1 Location 4-96
4-130. Select Out Switch 4-96
4-131. Channel Tailgate and Basic Board Grid 4-97
4-132. Channel Tailgate, Cables, and Basic Board 4-97

Tables

0-1. Part Numbers xxviii
0-2. ac Input Adjustment xxviii
0-3. LED Status Versus 3746-900 States xxx
0-4. 3745 Power Supply CP/CB and Fuse Reference xxx
0-5. Teilenummern xli
0-6. Einstellung der Spannung des Wechselstromeingangs xli
0-7. Bedeutung der LEDs am Bedienungsfeld der 3746-900 xlii
0-8. Stromversorgung der 3745, Sicherungsautomaten (CB), Überstromschutzschalter (CP) und Sicherungen (F) xliii
0-9. Safety Label Numbers by Country lxiii
1-1. General Symptoms 1-8
1-2. 3745 Console Symptoms 1-10
1-3. Control Panel Symptoms 1-11
1-4. Power Symptoms 1-12
1-5. Panel Codes 1-15
1-6. 3745 FRU Table 1-49
1-7. 3745 Cable Location 1-52
1-8. 3745 Diagnostic Requirements 1-60
1-9. Diagnostic Selection 1-65
1-10. Panel Display Values 1-81
2-1. Wrap plug PN 2-6
2-2. 3745 Control Panel Code 2-32
2-3. Icons Color Selection Table 2-38
3-1. Wrap Plugs for Testing ARC Assembly A and ARC Assembly B (with Cable) 3-22
3-2. Wrap Plugs for LIC Testing 3-22
3-3. Wrap Plugs for Testing ARC Assembly B (without Cable) 3-22
4-1. TIC Position and Ring Address 4-5
4-2. Basic Board Configurations 4-6
4-3. DMUX Packaging 4-14
4-4. SMUX Packaging 4-14
4-5. 3745 Ethernet Line Locations 4-22
4-6. 3745 High-Speed Line Locations 4-23
4-7. 3745 Token-ring Line Locations 4-24
4-8. Channel Interface 4-25
4-9. 3745 Power Supply Cross Reference 4-31
4-10. Select Out Switches According to CADR Cards 4-36
4-11. Voltage Test Points 4-53
B-1. Customer Documentation for the 3745 Models 130 to 17A and 3746 Model 900 . . . . . B-2
B-2. Service Documentation for the 3745 Models 1x0 and 17A, and 3746 Model 900 . . . . . B-6

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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.

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Industry Canada Compliance Statement

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.

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.

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Tektronix	Tektronix, Incorporated.

Product Safety Information

General Safety

This product meets IBM safety standards.

For more information, see the following manual:

IBM 3745 Communication Controller All Models
IBM 3746 Nways Multiprotocol Controller Models 900 and 950
Safety Information, GA33-0400.

Service Inspection Safety Procedures

Service Inspection Safety Procedures for the 3745, 3746-900, and Controller Expansion - English ***xviii***
Sicherheitsüberprüfungen für IBM 3745, 3746-900 und die Erweiterung der Steuereinheit - Deutsch ***xxxi***
服务检查安全程序一简体中文版 ***xliii***

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Service Inspection Safety Procedures for the 3745, 3746-900, and Controller Expansion

Important

This procedure addresses the 3745, 3746-900, and the controller expansion. If one of these machines is not present, ignore the statement concerning this machine in the following procedure.

Introduction

A safety inspection procedure for the 3745, 3746-900, and controller expansion should be performed:

- When it is inspected for an IBM agreement
- When IBM service is requested and no service has recently been performed by IBM
- When an alterations and attachments review is performed
- When changes have been made to the equipment that might affect its safety.

If the inspection indicates unacceptable safety conditions, the conditions must be corrected before IBM services the machine.

Note: The correction of any unsafe condition is the responsibility of the owner of the equipment.

The 3745, 3746-900, and controller expansion areas and functions checked through these procedures are:

1. External covers
2. Safety labels
3. Safety covers and shields
4. Grounding (earthing)
5. Circuit breaker and protector rating
6. Input power voltage
7. Power control switch
8. Power ON indicator.

Note: The 3746-900 is powered ON and OFF through the basic 3745 frame, from a host, locally, or from the service processor.

Hazardous voltages are still present in some areas of the 3745 and the 3746-900 when power is OFF.

Steps 1 through 6 must be performed after **power OFF** as follows:

- **CB1s** are switched OFF on the 3745 and 3746-900.
- **All equipment installed in the controller expansion (if present) is powered OFF**.
- **Power supplies for the 3745, 3746-900, and controller expansion at customer's premises are switched OFF.**

  Do not remove the power cord and ground strap **A** of the controller expansion in order to maintain the ground protection (see Figure 0-2 on page xxi, Figure 0-3 on page xxii, Figure 0-4 on page xxiii, or Figure 0-5 on page xxiv).

1 External Covers

Check that:

- They are all present on the 3745, 3746-900, and controller expansion.
- They are locked with two kinds of locks: flat blade screw for the IBM access area and hex head for the customer access area (refer to the *IBM 3745 Communication Controller Models 130 to 17A, Parts Catalog*, S135-2012).
- They can be fully opened.

- Appropriate service clearance and access are provided around the frames with external covers opened.

  Leave all external covers opened to allow further safety inspection steps.

2 Safety Labels

Check that:

- All the safety labels are at the places indicated by letters in “Safety Label Locations” on page lvii.
- Each label is of the model corresponding to the letter as shown in “3745/3746-900 Safety Label Identifications” on page lx.

3 Safety Covers and Shields

Referring to the FRU location (Chapter 4), check that:

- All the safety covers are present and secured with screws.
- All the voltage terminal boards (TBs) are protected by a plastic shield screwed on top of the TB.

4 Grounding (Earthing)

Note

In this book, "ground" means that the equipment must be connected to the earth.

a Grounding on the 3745

Refer to YZ110 for grounding jumper/contact locations. .

Check that:

- **Electrical continuity is assured between the frame ground and the terminals indicated on the ground distribution diagrams.**
- Electrical continuity is assured between the 3745, frame grounds, and to the premises grounding system, through the 3745 power cord.

b Grounding on the 3746-900 and Controller Expansion to the Premises Grounding System

- Electrical continuity is assured between their frame ground and premises grounding system through their power cords.
- The 3746-900 is grounded to the 3745 via the power control cable (see Figure 0-1 on page xx).
- For the controller expansion, an additional ground wire **A** is also used (see Figure 0-2 on page xxi, Figure 0-3 on page xxii, Figure 0-4 on page xxiii, or Figure 0-5 on page xxiv).

1 3745/3746-900 Power Control Cable

Check that the power ground cable is correctly connected in the 3745 **D** and in the 3746-900 **C** .

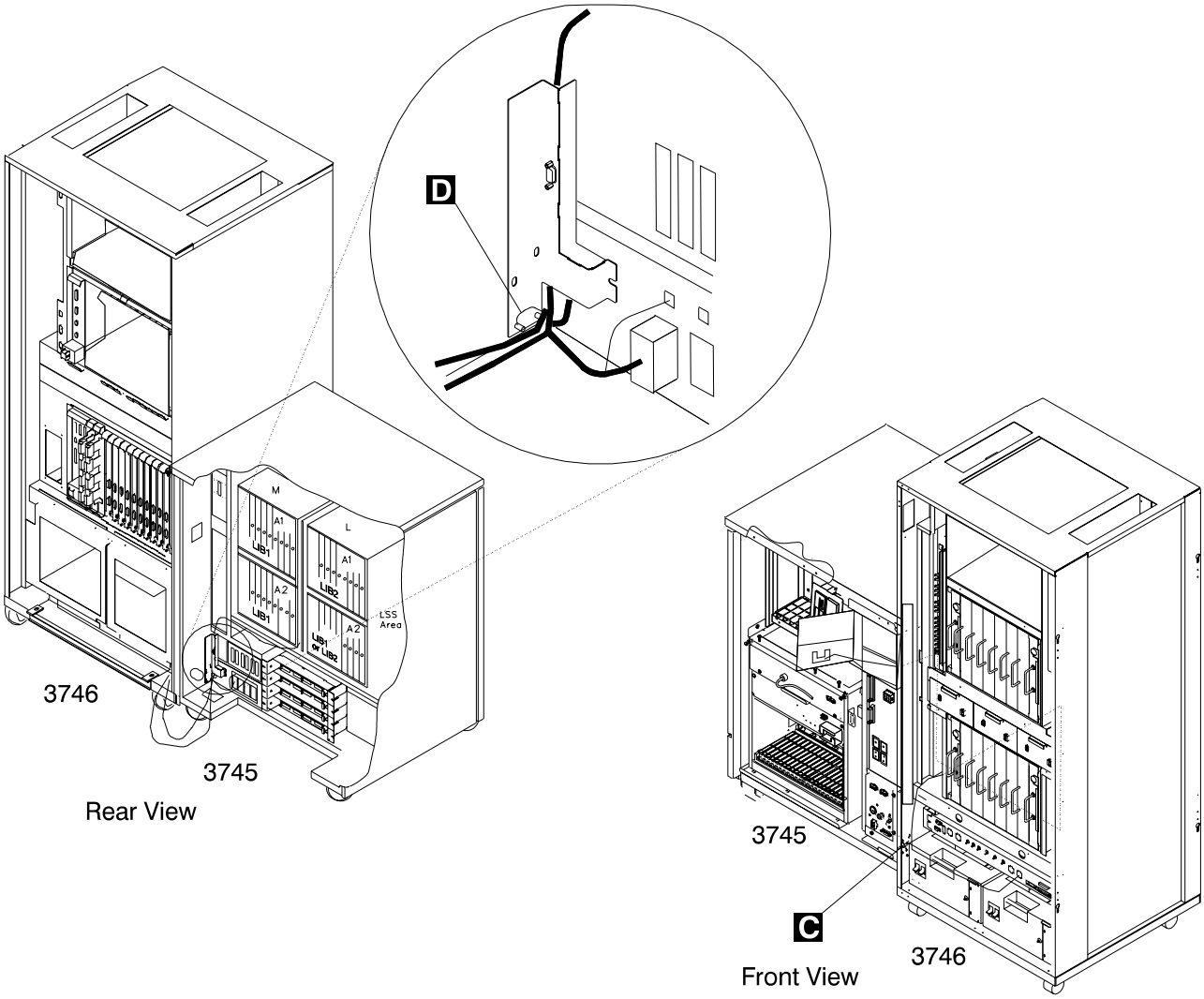


Figure 0-1. 3745/3746-900 Power Control Cable Routing

Notes:

a) **D** Lock washer (PN 17G5853) and nut (PN 1622404).

b) **C** Screw (PN 61F4511), star washer (PN 17G5852), and lock washer (PN 1622318).

2 Controller Expansion Ground Wire Cable

- If you have only one controller expansion installed, check that the ground wire **A** is installed (see Figure 0-2 on page xxi).
- If you have several controller expansions installed, check that the ground wires **A** are installed according to your configuration (see Figure 0-3 on page xxii, Figure 0-4 on page xxiii, or Figure 0-5 on page xxiv).

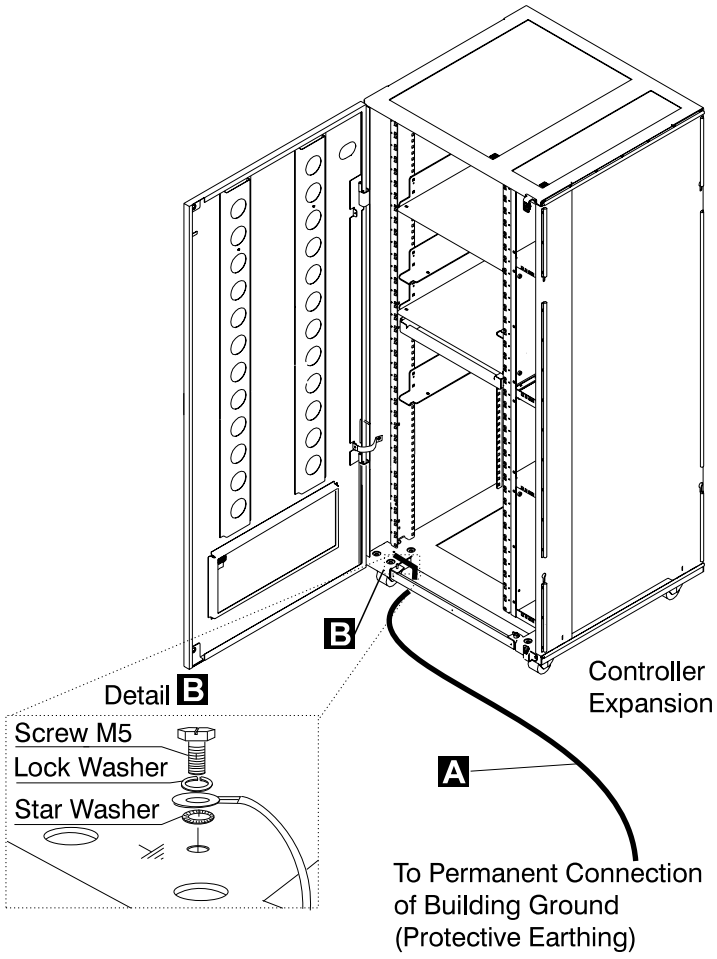


Figure 0-2. Ground Wire Connection on Controller Expansion

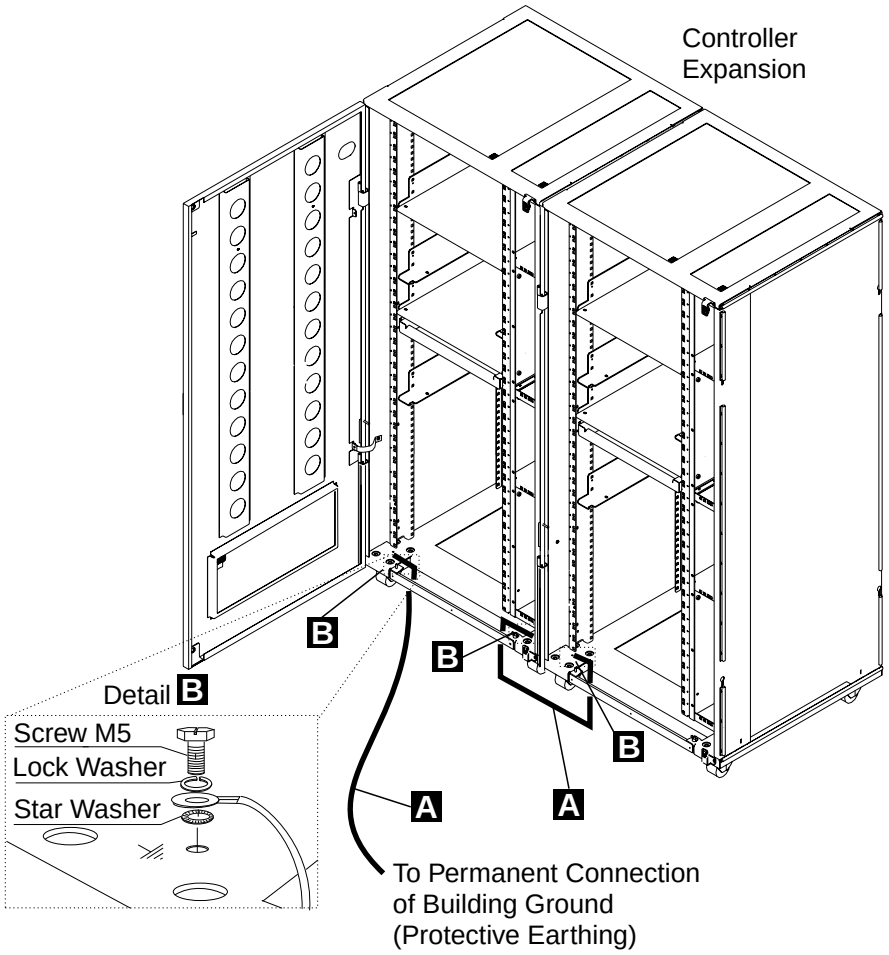


Figure 0-3. Ground Wire Connection Between Attached Controller Expansions

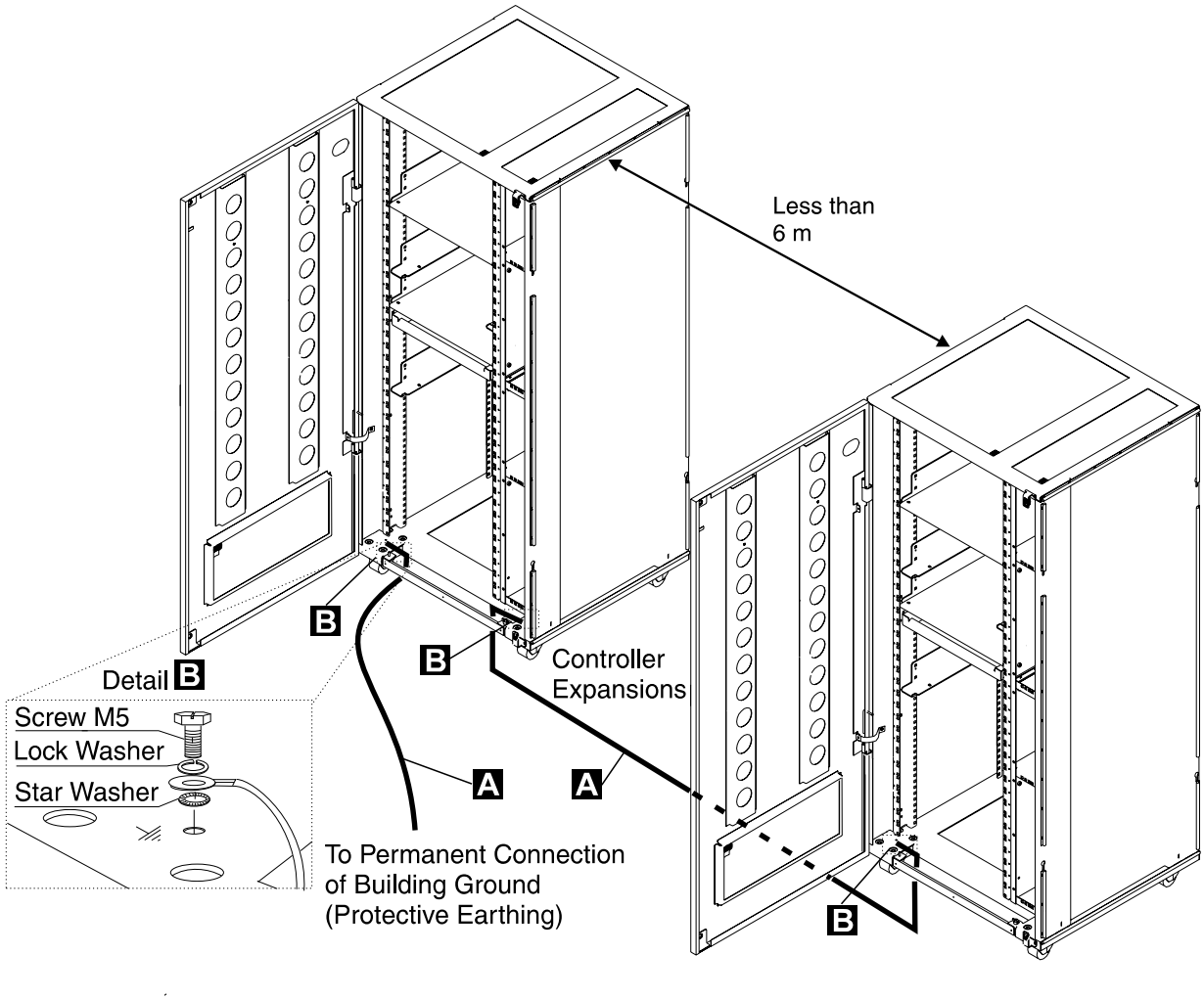


Figure 0-4. Ground Wire Connection Between Controller Expansions at Less than Six Meters

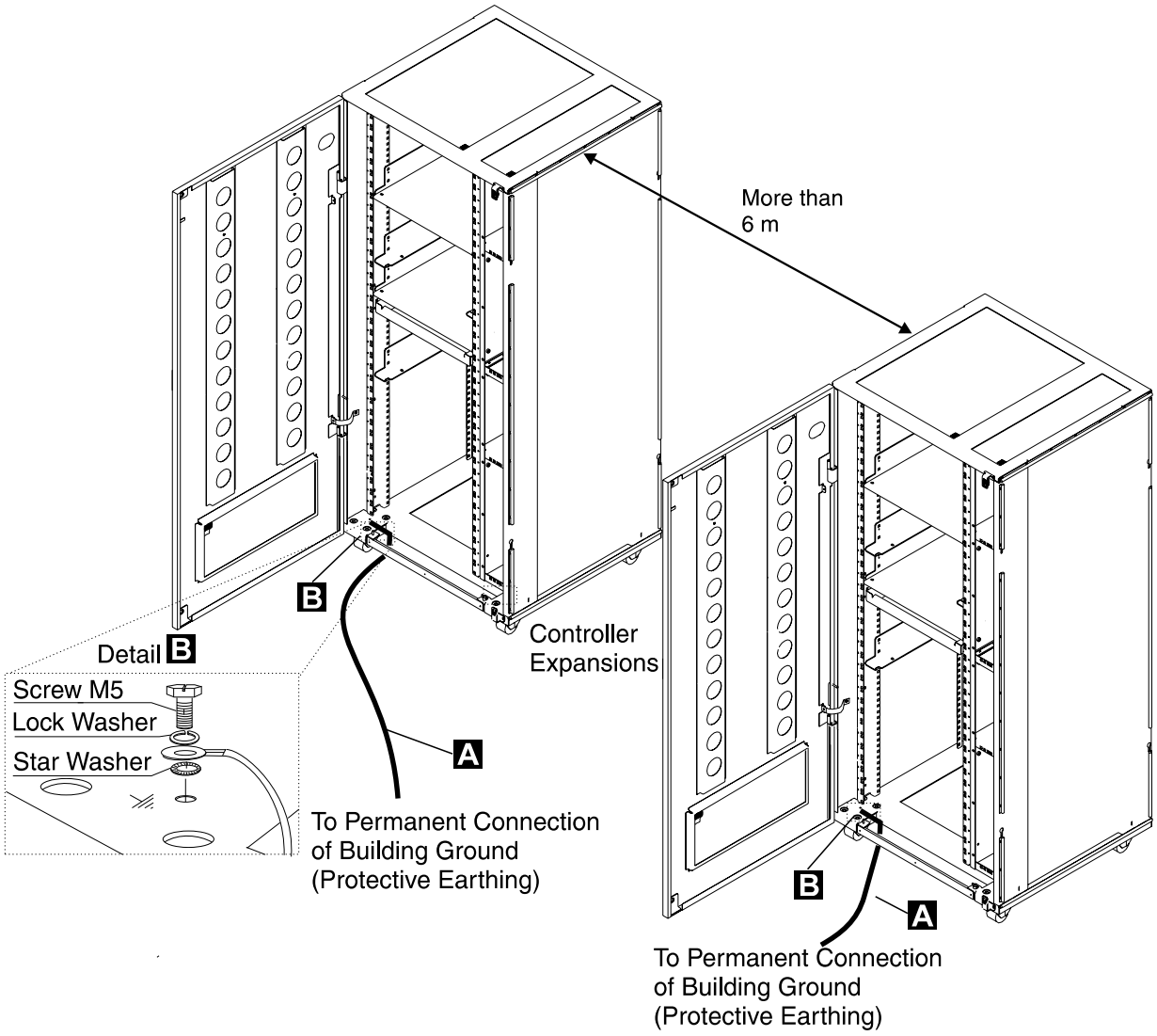


Figure 0-5. Ground Wire Connection Between Controller Expansions at More than Six Meters

Notes:

a) **A** Ground wire (PN 58G5691)

b) **B** Screw (PN 61F4513), star washer (PN 1622347) or (PN 17G5853), and lock washer (PN 1622319).

3 ac/dc Power Cable Ground Wire

- Check the mainline ac/dc power cable for damaged or burned pins and broken insulation.
- Measure the resistance of the disconnected mainline ac/dc power cable from ground pin on one end to the ground pin on the other end.

The measurement should be 0.1 ohm or less.

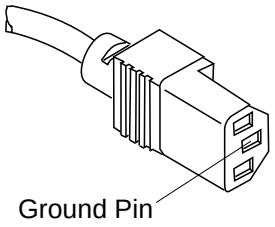


Figure 0-6. Ground Pin on Mainline ac/dc Power Cable

c Internal Grounding in the 3746-900 and Controller Expansion

On the 3746-900

- Check that electrical continuity is assured between the LCB housing and 3746-900 frame, if LCBs are present. This operation must be performed before any network connection.

On the Controller Expansion

- Check that electrical continuity is assured between each machine installed in the controller expansion (service processor, network node processor, modem, optical disk drive, and so on) and the ground pin of the ac outlet distribution box (see Figure 0-7).
- Check that electrical continuity is assured between the ground pin of the ac outlet distribution box and the controller expansion mount frame.

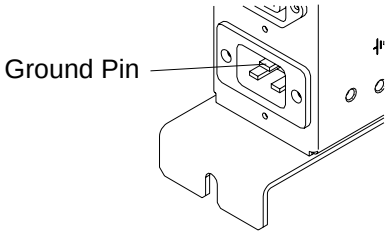


Figure 0-7. Ground Pin of the Controller Expansion ac Outlet Distribution Box

- Check that electrical continuity is assured between the LCB housing and the controller expansion frame, if LCBs are present. This operation must be performed before any network connection (see Figure 0-8 on page xxvi).

  Note: All the previous measurements should indicate 0.1 ohm or less.

d Grounding of Line Connection Boxes (LCBs) not Installed in the 3746-900 or Controller Expansion

Check that electrical continuity is assured between the LCB housing and the premises grounding system.

There are two ways to ensure proper grounding of the LCB depending on where it is installed:

1) Grounding is ensured by the four screws which secure the LCB on the rack if the frame of the rack is connected to the premises ground system.

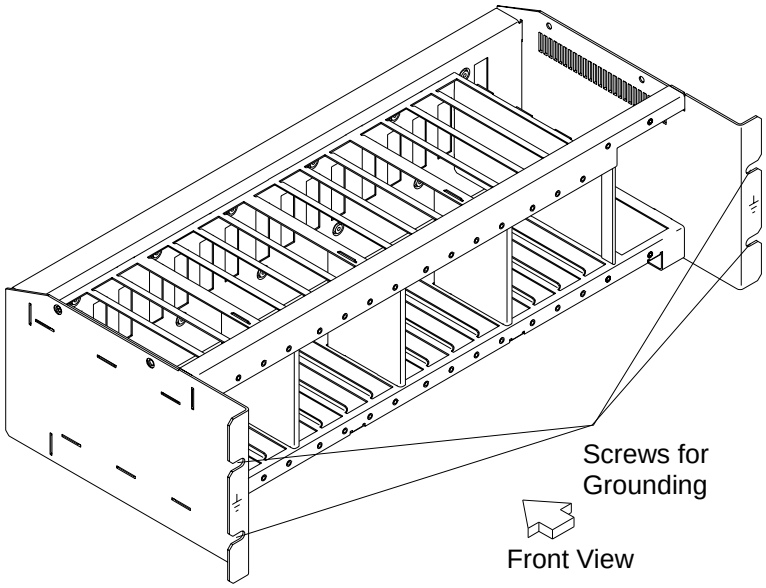


Figure 0-8. LCB Grounding Via Screws

2) Grounding is ensured by a wire connected from the LCB to the premises ground system.

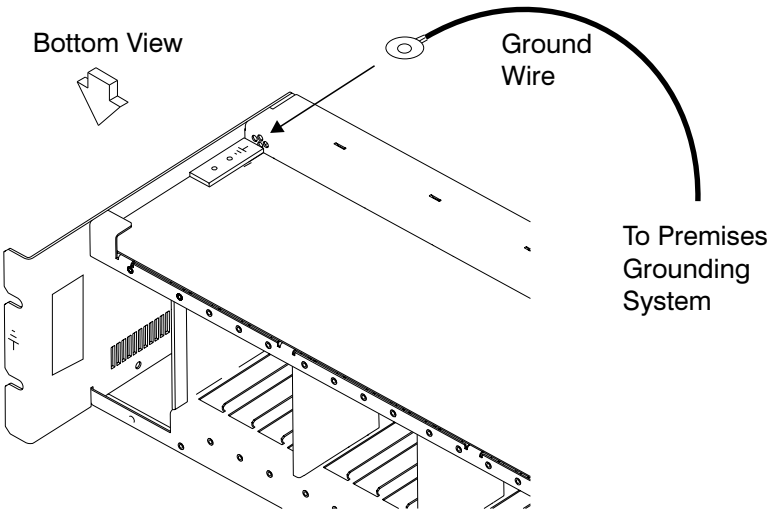


Figure 0-9. LCB Grounding Via Ground Wire

IBM does not provide this wire. In order to ensure correct grounding, this ground wire must be made using a wire AWG 12 (minimum 2.5 square millimeters).

Screw: 5 mm in diameter, length from 6 to 10 mm (refer to Figure 0-10 on page xxvii).

Connection of Ground Wire to LCB

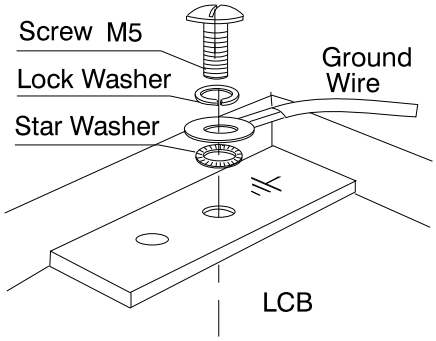


Figure 0-10. Ground Wire Connection

This operation must be performed before any network connection.

Note: All the previous measurements should indicate 0.1 ohm or less.

e Building Grounding

- **Check that there is less than 1 V ac between the metal housings of plugs, connectors, receptacles, and so on., and any grounded point in the building. This can be any grounded metal structure, such as the stanchions of a raised floor (if they are electrically connected to building ground), a metal water pipe, building steel, and so on**.

  Notes:

  1) When probing a painted metal part, ensure that the meter probe tip penetrates the paint.
  2) Also check plugs of incoming cables.

5 Circuit Breaker and Protector Rating

Refer to Table 0-4 on page xxx for CB and CP locations.

Check that:

- All CBs and CPs in the 3745 and 3746-900 are rated at the indicated value in Table 0-4 on page xxx. If the rating is not indicated, check the part number against one of the following:
  - *IBM 3745 Communication Controller Models 130 to 17A, Parts Catalog*, S135-2012
  - *IBM 3746 Expansion Unit Model 900, Parts Catalog*, S135-2013
  - *IBM 3746 Nways Multiprotocol Controller Models 900 and 950, Parts Catalog*, S135-2015.
- The fuses in the controller expansion ac outlet distribution box must be 7 A, 250 V slow (PN 58G5782).

6 Input Power Voltage

The power rating plate indicates the voltage range available (200/220/240) and the frequency (50/60 Hz).

3745 Input Power voltage

The voltage label (label **J**) indicates the input voltage for which the 3745 is wired. This information must be in accordance with Switch 1 on PS2.

Performing a power conversion Inspection.

- A power conversion inspection must be performed on any 3745 Communication Controller that has been converted from 50 Hz to 60 Hz, or from 60 Hz to 50 Hz.
- The following is used only for the primary power box. Refer to Figure 4-1 on page 4-3 for location.
- Check Table 0-1 on page xxviii for the correct part numbers for the specified 50 Hz or 60 Hz use. In case of discrepancy, contact your support structure.

Table 0-1. Part Numbers	
Frequencies	**Part Numbers**
50 Hz	PN 03F4745
60 Hz	PN 03F4569

Refer to Figure 0-21 on page lvii for voltage label and power rating plate location, and to page YZ060, sheet 1 for the PS2 box voltage adjustment by SW1.

Check that:

- The power rating plate and the voltage label of the 3745 are consistent with the frequency and the voltage measured at the customer's power supply. If they are inconsistent, inform your branch office.

3746-900 Input Power voltage

The power rating plate indicates the voltage range available (200/220/240) and the frequency (50/60&rlb.Hz).

The 3746-900 voltage range is 200/220/240.

Check that:

- The power rating plate of the 3746-900 is consistent with the frequency and the voltage measured at the customer's power supply. If they are inconsistent inform your branch office. Refer to “3745/3746-900 Safety Label Identifications” on page lx for the power rating plate location.

  dc Input Voltage

  For dc input, the customer's voltage must be within -40.0 V to -60.0 V. There is **no adjustment** for the optional dc input.

  ac Input Voltage

  For ac input, the customer's voltage must be within 180 V to 260 V.

  Adjustment of the input voltage can be done according to the customer voltage on TB1 of the transformers located at the rear of the 3746-900.

Table 0-2. ac Input Adjustment		
Voltage Measured	**Wire Position**	**Nominal Voltage**
From 180 to 210 Volts	TB1-2	200/208 Volts
From 210 to 230 Volts	TB1-3	220 Volts
From 230 to 260 Volts	TB1-4	240 Volts

Important Note:

Since the 3745 can be remotely powered ON, all the following procedures must be performed with the power control function on the 3745 and the 3746-900 control panel set to **local mode.**

Controller Expansion Input Power Voltage

The power rating plate indicates the voltage range available (200/240) and the frequency (50/60 Hz).

Check that the power rating plate of the controller expansion is consistent with the frequency and the voltage measured at the customer's power supply. If they are inconsistent inform your branch office. Refer to “Controller Expansion Label Location” on page lxii for power rating plate location.

7 Test of the Emergency Power OFF

a. Ask the customer to connect the power cord to the customer's mains supply.
b. Put CB1 ON.
c. Power ON the 3745 and the 3746-900 (power control function to Local on the control panel).
d. Operate the EMERGENCY switch to POWER OFF (**O**) and check that:
   1) The 3745 and the 3746-900 are powered OFF.

   Note

   In the 3746-900, the primary powers (ACDC) or filters section (DCDC) stay energized.

   For total disconnection:

   1. Turn the CBs OFF.
   2. Remove all the power plugs from supply outlets or shutdown the installation.

   2) The diskette and disk drives are stopped.
   3) All the fans are stopped.
e. Relatch the EMERGENCY switch, then power ON the controller.

8 Power ON Indicator

Once the controller is powered ON, check that:

a. The Power ON indicator on the 3745 control panel is lit.
b. The Ready LED and the Standby LED (on the 3746-900 control panel) are lit according to the table shown in “Control Panel LED Status Versus 3746-900 States” on page xxx.

Control Panel LED Status Versus 3746-900 States

Table 0-3. LED Status Versus 3746-900 States

Standby LED	Ready LED	3746-900 State	Comment
Blinking	OFF	AC ON	Initialization of the CBSP hardware, and the 3746-900 waits for first recognition by the MOSS-E on LAN connection.
ON	OFF	Standby	The 3746-900, initially recognized by the MOSS-E, waits for a power ON condition (only the CBSP EEPROM code is running).
OFF	Blinking	Power ON	IML loading in all 3746-900 processors.
OFF	ON	Ready	The 3746-900 is now available.

3745/3746-900 Power Supply CP/CB and Fuse Reference

Table 0-4. 3745 Power Supply CP/CB and Fuse Reference

Frame	CB/CP/F	Location	Rating	PS
Frame 1	CB1	01H-A1	10 A	ALL
	CP2	01H-A1	1,5 A	PS2
	CP3	01H-B1	2 A	Fans
	F1	01H-B1	0.2 A	PS2
Frame 7: 3746-900	CB1 AC	07K-A1/07J-A1	15 A/220 V	ac Power
	CB1 DC	07J-A1	50 A	dc Power
	CP1	07K-A1/07J-A1	5 A	dc Power
	CP2	07H-A1	12 A	dc Power
	CP3	07H-A1	12 A	dc Power
	CP4	07H-A1	12 A	dc Power
	CP5	07H-A1	12 A	dc Power

Controller Expansion Fuse Reference

The ac outlet distribution box of the controller expansion contains two fuses: 7 A 250 V slow.

Sicherheitsüberprüfungen für IBM 3745, 3746-900 und die Erweiterung der Steuereinheit

Wichtige Informationen

Dieses Verfahren bezieht sich auf IBM 3745, 3746-900 und die Erweiterung der Steuereinheit. Sollte eine dieser Maschinen nicht vorhanden sein, die diesbezügliche Anweisung im folgenden Verfahren ignorieren.

Einführung

Sicherheitsprüfungen für 3745, 3746-900 und die Erweiterung der Steuereinheit sind in folgenden Fällen erforderlich:

- Bei einer Prüfung nach Absprache mit IBM
- Wenn eine IBM Wartungsleistung angefordert wird und in der letzten Zeit keine Wartung durch IBM durchgeführt worden war.
- Wenn Änderungen am Gerät oder Anschlüsse überprüft werden.
- Wenn Änderungen am Gerät vorgenommen worden sind, die möglicherweise die Sicherheit beeinträchtigen.

Wenn bei der Überprüfung ein unzureichender Sicherheitszustand festgestellt wird, müssen die Mängel behoben werden, bevor IBM das Gerät wartet.

Anmerkung: Für die Behebung von Sicherheitsmängeln ist der Besitzer des Geräts verantwortlich.

Folgende Bereiche und Funktionen der 3745, 3746-900 und der Erweiterung der Steuereinheit werden geprüft:

1. Äußere Abdeckungen
2. Sicherheitsaufkleber
3. Sicherheitsabdeckungen
4. Erdung
5. Sicherungsautomat und Überstromschutzschalter
6. Netzeingangsspannung
7. Netzkontrollschalter
8. Betriebsanzeige

Anmerkung: Die IBM 3746-900 wird über den Grundrahmen der IBM 3745, von einem Host, lokal oder vom Serviceprozessor aus ein- und ausgeschaltet.

Auch nach dem Ausschalten liegt in einigen Bereichen der 3745 und 3746-900 eine gefährliche Spannung an.

Vor der Ausführung der Schritte 1-6 muß die Stromzufuhr wie folgt **unterbrochen** werden:

- Die **Sicherungsautomaten (CB1)** der 3745 und 3746-900 ausschalten (Stellung: OFF).
- **Alle Geräte in der Erweiterung der Steuereinheit (wenn vorhanden) ausschalten**.
- **Stromversorgungen der 3745, 3746-900 und der controller expansion beim Kunden ausschalten**

  Netzkabel und Schutzleiter **A** der Erweiterung der Steuereinheit nicht entfernen, damit die Erdung gewährleistet ist (siehe Figure 0-12 on page xxxiv, Figure 0-13 on page xxxv, Figure 0-14 on page xxxvi bzw. Figure 0-15 on page xxxvii).

1 Äußere Abdeckungen

Prüfen, ob

- alle äußeren Abdeckungen an der 3745, 3746-900 und an der Erweiterung der Steuereinheit angebracht sind.
- die äußeren Abdeckungen auf zwei Arten verschlossen sind: mit Schlitzschrauben im IBM Zugriffsbereich und mit Sechskantschrauben im Zugriffsbereich des Kunden (siehe *IBM 3745 Communication Controller Models 130 to 17A, Parts Catalog*, S135-2012).
- die Abdeckungen vollständig geöffnet werden können.
- um die Rahmen genügend Raum und Zugänge für Wartungsarbeiten sind, wenn die äußeren Abdeckungen geöffnet sind.

  Alle äußeren Abdeckungen für weitere Überprüfungen offen lassen.

2 Sicherheitsaufkleber

Prüfen, ob

- sich alle Sicherheitsaufkleber an den mit Buchstaben gekennzeichneten Stellen befinden, wie unter “Safety Label Locations” on page lvii beschrieben.
- die Aufkleber dem jeweiligen Buchstaben gemäß “3745/3746-900 Safety Label Identifications” on page lx entsprechen.

3 Sicherheitsabdeckungen

Bezüglich des Standorts der durch den Kundendienst austauschbaren Funktionseinheit (Kapitel 4) prüfen, ob

- alle Sicherheitsabdeckungen vorhanden und mit Schrauben gesichert sind.
- alle Spannungsklemmleisten durch eine Plastikabdeckung an der Oberseite der Klemmleiste geschützt sind.

4 Erdung

Hinweis

Im vorliegenden Handbuch bedeutet "erden", daß das Gerät mit der Schutzerdung verbunden werden muß.

a Erdung der 3745

Positionen der Erdungsbrücken/Kontakte siehe YZ110. .

Prüfen, ob

- **der elektrische Durchgang zwischen der Rahmenerdung und den Anschlüssen, die auf den Schemazeichnungen für Erdung eingezeichnet sind, sichergestellt ist** .
- der elektrische Durchgang zwischen 3745, den Rahmenerdungen und dem Erdungssystem des Gebäudes durch das Netzkabel der 3745 sichergestellt wird.

b Schutzleiterverbindung der 3746-900 und der Erweiterung der Steuereinheit an das Erdungssystem des Gebäudes

- Der elektrische Durchgang zwischen der Rahmenerdung und dem Erdungssystem des Gebäudes wird über die Netzkabel sichergestellt.
- Die 3746-900 wird über das Stromversorgungskabel an der 3745 geerdet (siehe Figure 0-11 on page xxxiii).
- Bei der Erweiterung der Steuereinheit wird zusätzlich ein Schutzleiter **A** verwendet (siehe Figure 0-12 on page xxxiv, Figure 0-13 on page xxxv, Figure 0-14 on page xxxvi bzw. Figure 0-15 on page xxxvii).

1 Stromversorgungskabel für 3745/3746-900

Prüfen, ob der Schutzleiter des Stromversorgungskabels ordnungsgemäß an die 3745 (**D**) und die 3746-900 (**C**) angeschlossen ist.

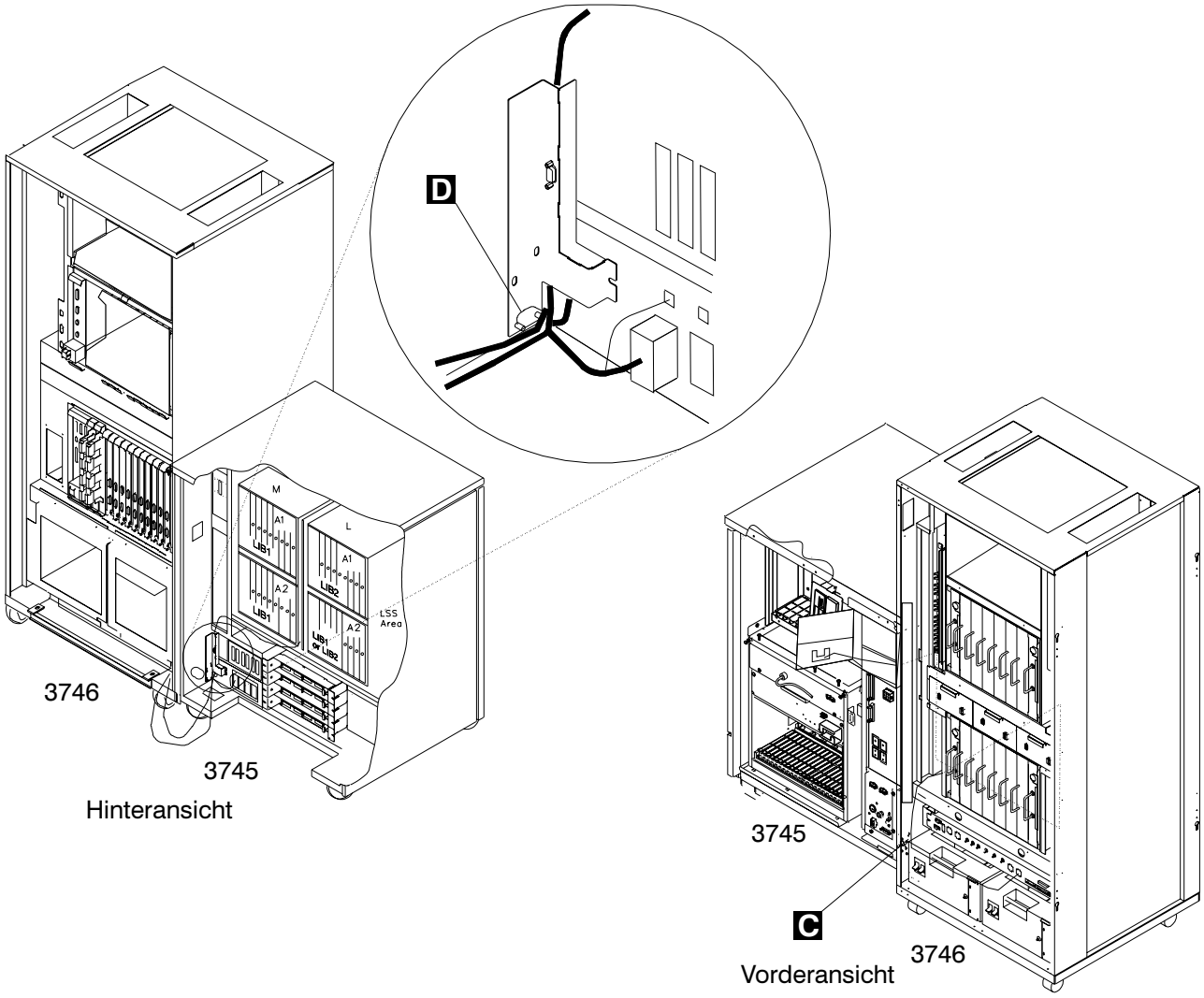


Figure 0-11. Führung des Stromversorgungskabels bei der 3745/3746-900

Anmerkungen:

a) **D** Sicherungsring (Teilenummer 17G5853) und Mutter (Teilenummer 1622404).

b) **C** Schraube (Teilenummer 61F4511), Zahnscheibe (Teilenummer 17G5852) und Sicherungsring (Teilenummer 1622318)

2 **Schutzleiter für die Erweiterung der Steuereinheit**

- Wenn nur eine Erweiterung der Steuereinheit installiert ist, prüfen, ob der Schutzleiter **A** angeschlossen ist (siehe Figure 0-12 on page xxxiv).
- Wenn mehrere Erweiterungen der Steuereinheit installiert sind, prüfen, ob die Schutzleiter **A** gemäß Konfiguration angebracht wurden (siehe Figure 0-13 on page xxxv, Figure 0-14 on page xxxvi bzw. Figure 0-15 on page xxxvii).

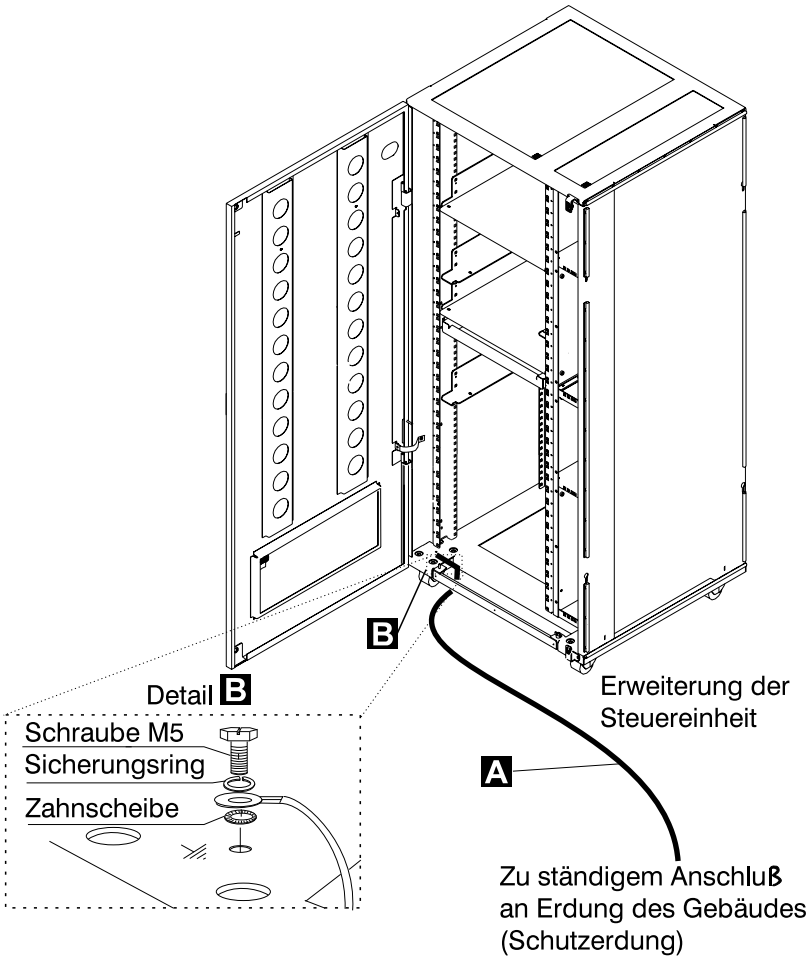


Figure 0-12. Schutzleiteranschluß an der Erweiterung der Steuereinheit

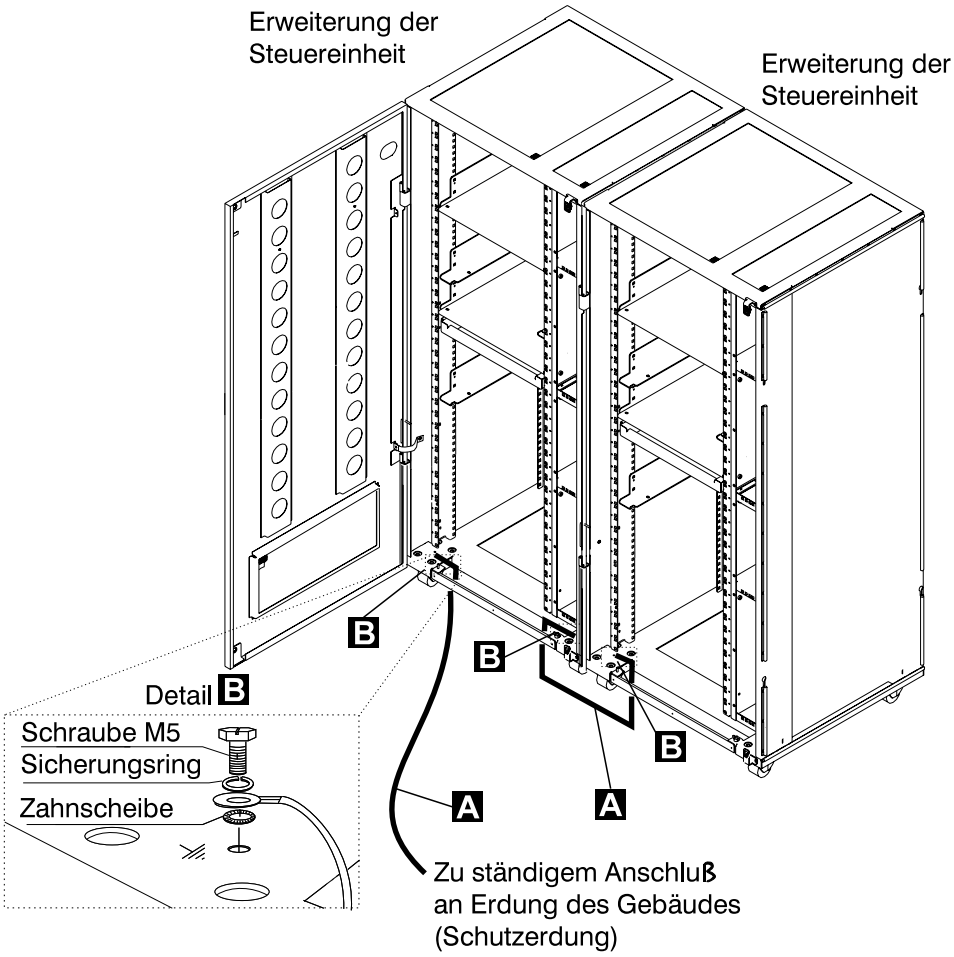


Figure 0-13. Schutzleiteranschluß zwischen angeschlossenen Erweiterungen der Steuereinheit.

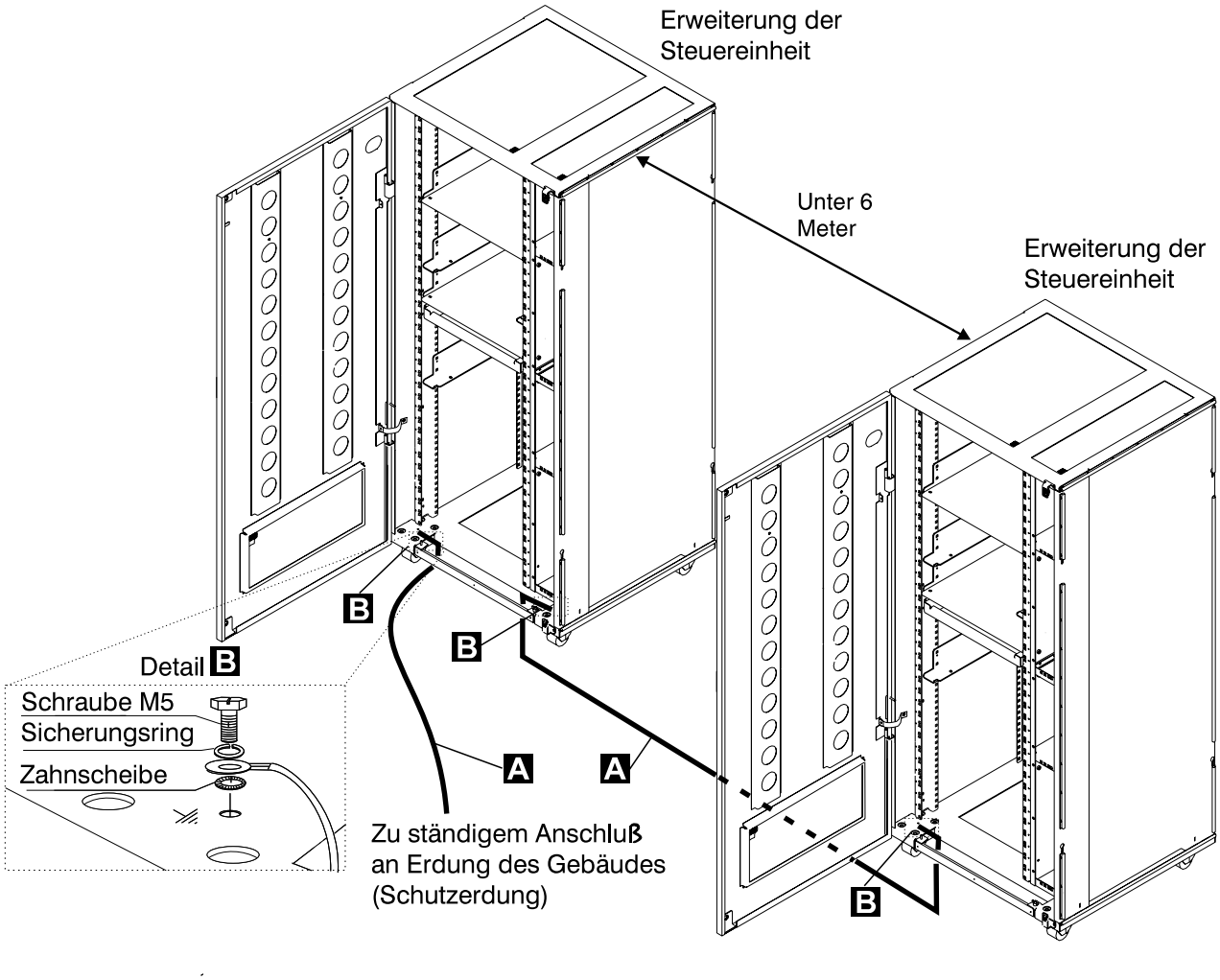


Figure 0-14. Schutzleiteranschluß bei einem Abstand von weniger als 6 Meter zwischen den Erweiterungen der Steuereinheit

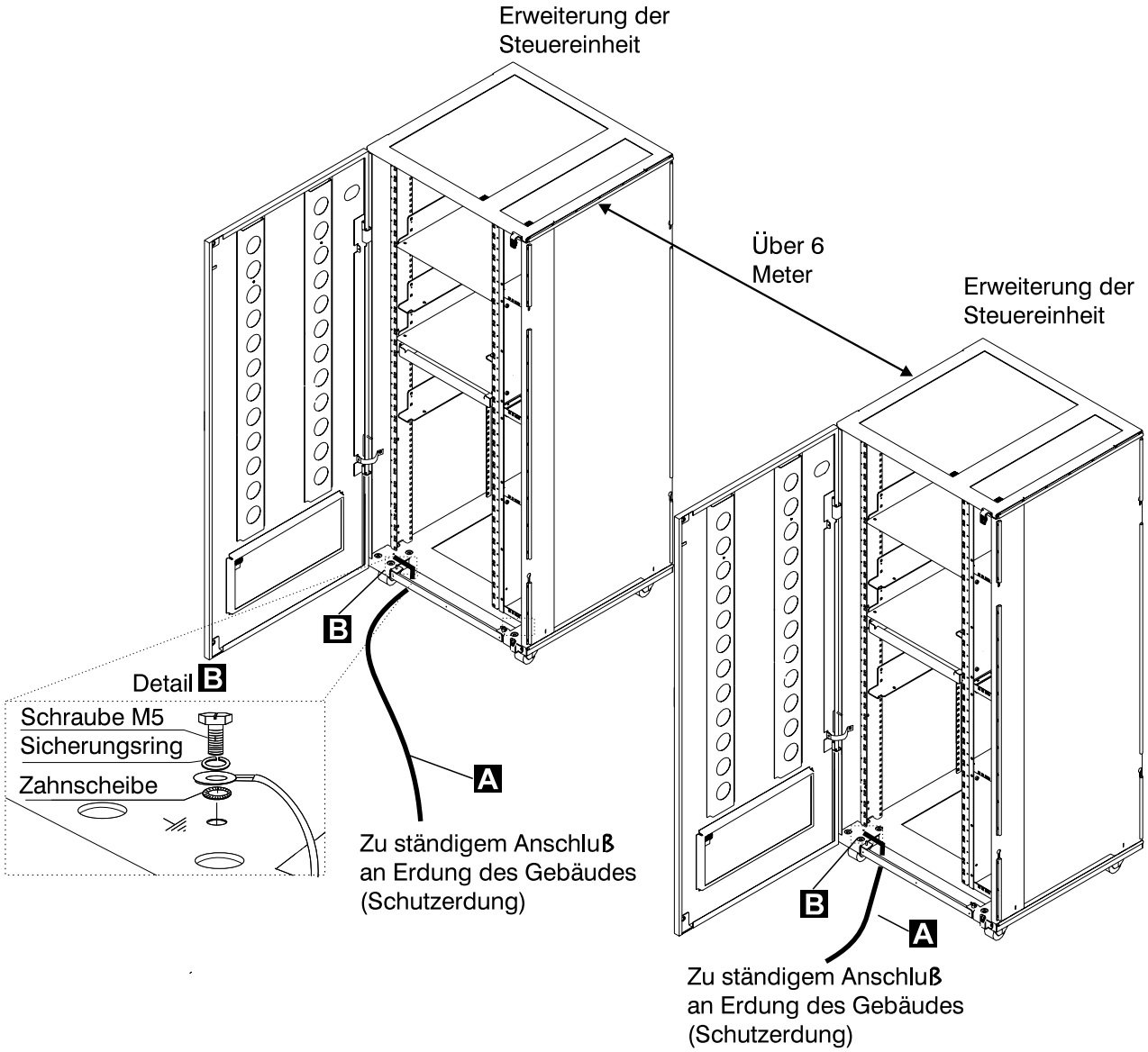


Figure 0-15. Schutzleiteranschluß bei einem Abstand über 6 Meter zwischen den Erweiterungen der Steuereinheit

Anmerkungen:

a) **A** Schutzleiter (Teilenummer 58G5691)

b) **B** Schraube (Teilenummer 61F4513), Zahnscheibe (Teilenummer 1622347) oder (Teilenummer 17G5853) und Sicherungsring (Teilenummer 1622319).

3 **Schutzleiter des AC/DC Stromversorgungskabels**

- Hauptstromversorgungskabel auf beschädigte oder verbrannte Kontakte und beschädigte Isolierung prüfen.
- Den Widerstand des nicht angeschlossenen Hauptstromversorgungskabels zwischen dem Schutzleiterkontakt am einen und dem Schutzleiterkontakt am anderen Ende messen.

Der Widerstand darf maximal 0,1 Ohm betragen.

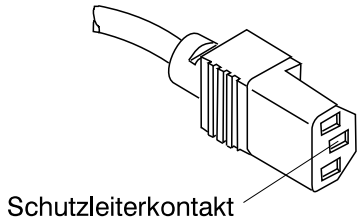


Figure 0-16. Schutzleiterkontakt am Hauptstromversorgungskabel

c Interne Erdung in der 3746-900 und der Erweiterung der Steuereinheit

An der 3746-900

- Prüfen, ob der elektrische Durchgang zwischen dem Gehäuse des Verteilerkastens und dem Rahmen der 3746-900 gewährleistet ist, sofern Verteilerkästen vorhanden sind. Dieser Schritt muß vor dem Anschluß von Signalkabeln erfolgen.

An der Erweiterung der Steuereinheit

- Prüfen, ob der elektrische Durchgang zwischen allen in der Erweiterung der Steuereinheit installierten Einheiten (Serviceprozessor, Netzknotenprozessor, Modem, optisches Plattenlaufwerk usw.) und dem Schutzleiterkontakt des Wechselstromverteilerkastens gewährleistet ist (siehe Figure 0-17).
- Prüfen, ob der elektrische Durchgang zwischen dem Schutzleiterkontakt des Wechselstromverteilerkastens und dem Montagerahmen der Erweiterung der Steuereinheit gewährleistet ist.

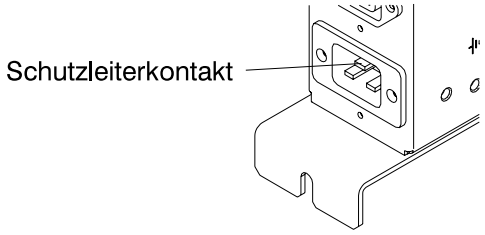


Figure 0-17. Schutzleiterkontakt des Wechselstromverteilerkastens der Erweiterung der Steuereinheit

- Prüfen, ob der elektrische Durchgang zwischen dem Gehäuse des Verteilerkastens und dem Rahmen der Erweiterung der Steuereinheit gewährleistet ist, sofern Verteilerkästen vorhanden sind. Dieser Schritt muß vor dem Anschluß von Signalkabeln erfolgen (siehe Figure 0-18 on page xxxix).

  Anmerkung: Bei allen vorherigen Prüfungen sollten maximal 0,1 Ohm gemessen werden.

d Erdung der nicht in der 3746-900 oder in der Erweiterung der Steuereinheit installierten Verteilerkästen

Prüfen, ob der elektrische Durchgang zwischen dem Gehäuse des Verteilerkastens und dem Erdungssystem des Gebäudes gewährleistet ist.

Je nach Installationsort kann der Verteilerkasten auf zweierlei Arten geerdet werden:

1) Erdung über die vier Schrauben, mit denen der Verteilerkasten am Gehäuse befestigt ist, falls der Gehäuserahmen mit dem Erdungssystem des Gebäudes verbunden ist.

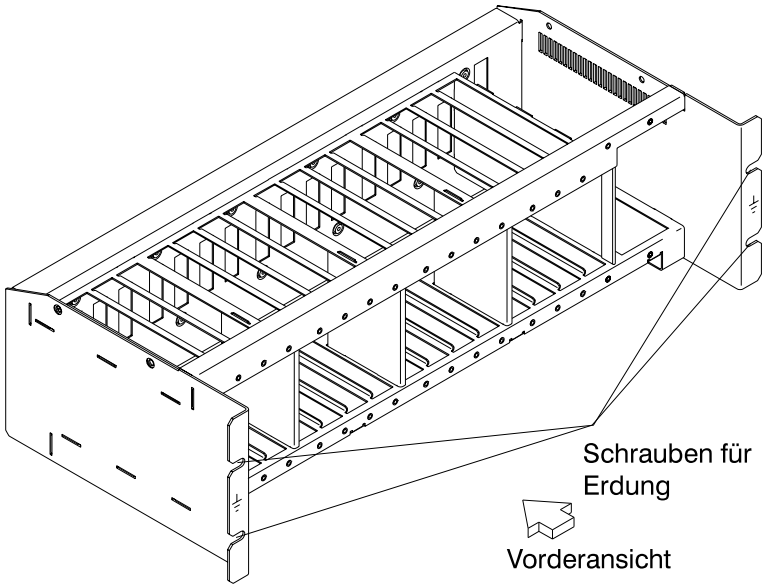


Figure 0-18. Erdung des Verteilerkastens über Schrauben

2) Erdung über einen Schutzleiter, der den Verteilerkasten mit dem Erdungssystem des Gebäudes verbindet.

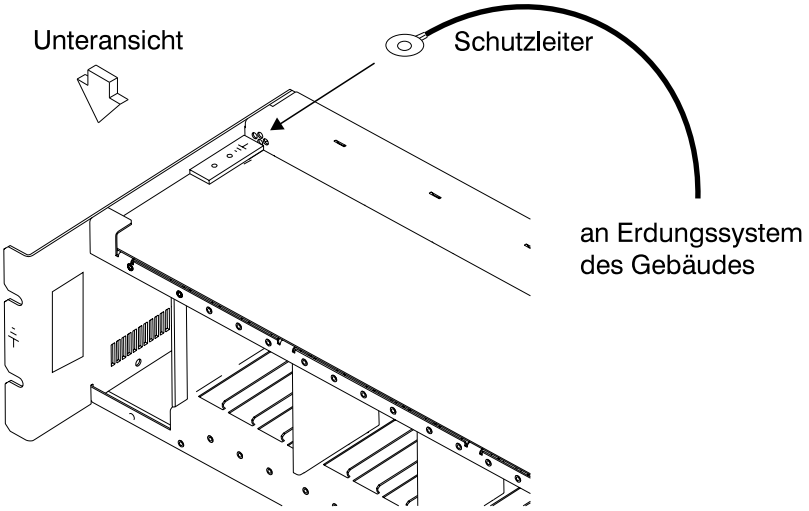


Figure 0-19. Erdung des Verteilerkastens über Schutzleiter

IBM liefert diesen Schutzleiter nicht mit. Der Schutzleiter muß aus einem AWG12-Leiter (mind. 2,5 mm2) bestehen, damit eine korrekte Erdung gewährleistet ist.

Schraube: Durchmesser 5 mm, Länge 6 bis 10 mm (siehe Figure 0-20 on page xl).

Verbindung des Schutzleiters mit dem Verteilerkasten

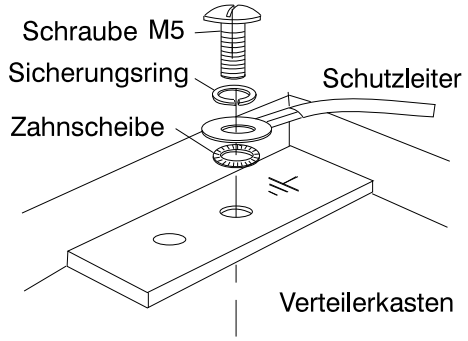


Figure 0-20. Schutzleiteranschluß

Dieser Schritt muß vor dem Anschluß von Signalkabeln erfolgen.

Anmerkung: Bei allen vorherigen Prüfungen sollten maximal 0,1 Ohm gemessen werden.

e Gebäudeerdung

- **Sicherstellen, daß zwischen den Metallgehäusen von Steckern, Buchsen usw. und jeder geerdeten Stelle im Gebäude eine Wechselspannung von weniger als 1 V anliegt. Dies kann jedes geerdete Metallteil sein, wie z.B. die Stützen eines Doppelbodens (wenn sie mit dem Gebäudeerder verbunden sind), ein metallisches Wasserrohr, Baustahl usw..**

  Anmerkungen:

  1) Beim Prüfen an einem lackierten Metallteil sicherstellen, daß die Prüfspitze die Farbe durchbohrt.
  2) Stecker der anzuschließenden Kabel ebenfalls prüfen.

5 Sicherungsautomat und Überstromschutzschalter

Positionen der Sicherungsautomaten (CB) und Überstromschutzschalter (CP) siehe Table 0-8 on page xliii.

Prüfen, ob

- alle Sicherungsautomaten und Überstromschutzschalter in der 3745 und 3746-900 die unter Table 0-8 on page xliii angegebene Leistung haben. Wenn die Leistung nicht aufgeführt ist, die Teilenummer in einem der folgenden Kataloge prüfen:
  - *IBM 3745 Communication Controller Models 130 to 17A, Parts Catalog*, S135-2012
  - *IBM 3746 Expansion Unit Model 900, Parts Catalog*, S135-2013
  - *IBM 3746 Nways Multiprotocol Controller Models 900 and 950, Parts Catalog*, S135-2015.
- Bei den Sicherungen im Wechselstromverteilerkasten der Erweiterung der Steuereinheit muß es sich um träge Sicherungen mit 7 A, 250 V handeln (Teilenummer 58G5782).

6 Eingangsspannung

Der zulässige Spannungsbereich (200/220/240V) und die Frequenz (50/60 Hz) sind dem Typenschild zu entnehmen.

Eingangsspannung an der 3745

Der Aufkleber für die Versorgungsspannungen (Aufkleber **J**) gibt die Eingangsspannung für die 3745 an. Die Angaben müssen Schalter 1 an PS2 entsprechen.

Stromumwandlung prüfen

- Die Stromumwandlung muß bei jeder DFV-Steuereinheit IBM 3745 geprüft werden, die von 50 Hz auf 60 Hz oder von 60 Hz auf 50 Hz umgerichtet wurde.
- Folgendes bezieht sich ausschließlich auf das Netzspannungsgehäuse. Die Position kann Figure 4-1 on page 4-3 entnommen werden.
- Die entsprechenden Teilenummern für die Verwendung bei 50 oder 60 Hz sind Table 0-5 on page xli zu entnehmen. Bei Unstimmigkeiten das KD-Unterstützungspersonal benachrichtigen.

Table 0-5. Teilenummern	
Frequenzen	**Teilenummern**
50 Hz	03F4745
60 Hz	03F4569

Die Positionen des Auflebers für die Versorungsspannungen und des Typenschildes sind Figure 0-21 on page lvii zu entnehmen. Informationen zur Spannung?? im Netzteil PS-2 durch SW1 siehe Seite YZ060, Blatt 1.

Prüfen, ob

- die Angaben auf dem Typenschild und dem Spannungsaufkleber der 3745 mit der an der Netzstromversorgung des Kunden gemessenen Frequenz und Spannung übereinstimmen. Wenn dies nicht der Fall ist, zuständige Geschäftsstelle informieren.

Eingangsspannung an der 3746-900

Der zulässige Spannungsbereich (200/220/240V) und die Frequenz (50/60 Hz) sind dem Typenschild zu entnehmen.

Der Spannungsbereich für die 3746-900 liegt bei 200/220/240V.

Prüfen, ob

- die Angaben auf dem Typenschild an der 3746-900 mit der am Netzteil des Kunden gemessenen Spannung und Frequenz übereinstimmen. Wenn dies nicht der Fall ist, zuständige Geschäftsstelle informieren. Die Position des Typenschildes ist “3745/3746-900 Safety Label Identifications” on page lx zu entnehmen.

  Spannung am Gleichstromeingang

  Am Gleichstromeingang muß die Spannung beim Kunden zwischen -40,0 V und -60,0 V liegen. Der optionale Gleichstromeingang **kann nicht eingestellt werden**.

  Spannung am Wechselstromeingang

  Am Wechselstromeingang muß die Spannung beim Kunden zwischen 180 V und 260 V liegen.

  Die Einstellung der Eingangsspannung gemäß der Spannung beim Kunden kann an der Klemmleiste 1 der Transformatoren an der Rückseite der 3746-900 erfolgen.

Table 0-6. Einstellung der Spannung des Wechselstromeingangs		
Gemessene Spannung	**Position des Leiters**	**Nenn-Spannung**
180 bis 210 Volt	Klemmleiste TB 1-2	200/208 Volt
210 bis 230 Volt	Klemmleiste TB 1-3	220 Volt
230 bis 260 Volt	Klemmleiste TB 1-4	240 Volt

Wichtiger Hinweis:

Die 3745 kann über Fernsteuerung eingeschaltet werden. Deshalb muß bei Ausführung der folgenden Verfahren die Stromsteuerfunktion am Bedienungsfeld der 3745 und 3746-900 auf **Lokal** eingestellt sein.

Eingangsspannung der Erweiterung der Steuereinheit

Der zulässige Spannungsbereich (200/240 V) und die Frequenz (50/60 Hz) sind dem Typenschild zu entnehmen.

Prüfen, ob die Angaben auf dem Typenschild an der Erweiterung der Steuereinheit mit der an der Netzstromversorgung des Kunden gemessenen Spannung und Frequenz übereinstimmen. Wenn dies

nicht der Fall ist, zuständige Geschäftsstelle informieren. Die Position des Typenschildes ist “Controller Expansion Label Location” on page lxii zu entnehmen.

7 Prüfung des Notaus-Schalters

a. Den Kunden bitten, das Netzkabel an die Netzstromversorgung anzuschließen.
b. Sicherungsautomat (CB1) einschalten.
c. Die 3745 und 3746-900 einschalten (Stromsteuerfunktion am Bedienungsfeld muß auf **Lokal** eingestellt sein).
d. Den NOTSCHALTER ausschalten (**O**) und prüfen, ob:
   1) die 3745 und die 3746-900 ausgeschaltet sind.

> **Hinweis**
>
> In der 3746-900 stehen die primären Versorgungs- (ACDC) oder die Filterbereiche (DCDC) weiterhin unter Spannung.
>
> Komplettes Abschalten:
>
> 1. Die Sicherungsautomaten (CBs) ausschalten.
> 2. Alle Netzstecker aus den Steckdosen ziehen oder die Netzstromversorgung abschalten.

   2) die Disketten- und Plattenlaufwerke angehalten sind.
   3) die Lüfter abgeschaltet sind.
e. Notschalter entriegeln und Steuereinheit einschalten.

8 Betriebsanzeige

Nach Einschalten der Steuereinheit prüfen, ob

a. die Betriebsanzeige am Bedienungsfeld der 3745 leuchtet.
b. die Betriebs-LED und die Bereitschafts-LED (am Bedienungsfeld des 3746-900) gemäß den Angaben der Tabelle “Bedeutung der LEDs am Bedienungsfeld der 3746-900” leuchten.

Bedeutung der LEDs am Bedienungsfeld der 3746-900

Table 0-7. Bedeutung der LEDs am Bedienungsfeld der 3746-900

LED Bereitschaft	LED Betrieb	Status 3746-900	Kommentar
Blinken	AUS	Wechselstrom EIN	Initialisierung der CBSP-Hardware. Die 3746-900 wartet auf erste Erkennung durch den MOSS-E beim LAN-Anschluß.
EIN	AUS	Bereitschaft	Die eingangs vom MOSS-E erkannte 3746-900 wartet auf das Einschalten (nur das CBSP EEPROM-Programm ist aktiv).
AUS	Blinken	Einschalten	Alle 3746-900-Prozessoren werden hochgefahren (IML).
AUS	EIN	Betrieb	Die 3746-900 ist nun betriebsbereit.

Stromversorgung der 3745/3746-900, Sicherungsautomaten (CB), Überstromschutzschalter (CP) und Sicherungen (F)

Table 0-8. Stromversorgung der 3745, Sicherungsautomaten (CB), Überstromschutzschalter (CP) und Sicherungen (F)

Rahmen	CB/CP/F	Position	Nennwerte	PS (Stromvers.)
Rahmen 1	CB1	01H-A1	10 A	ALLE
	CP2	01H-A1	1,5 A	PS2
	CP3	01H-B1	2 A	Ventilatoren
	F1	01H-B1	0,2 A	PS2
Rahmen 7: 3746-900	CB1 AC	07K-A1/07J-A1	15 A/220 V	Wechselstrom
	CB1 DC	07J-A1	50 A	Gleichstrom
	CP1	07K-A1/07J-A1	5 A	Gleichstrom
	CP2	07H-A1	12 A	Gleichstrom
	CP3	07H-A1	12 A	Gleichstrom
	CP4	07H-A1	12 A	Gleichstrom
	CP5	07H-A1	12 A	Gleichstrom

Sicherungen der Erweiterung der Steuereinheit

Der Wechselstromverteilerkasten der Erweiterung der Steuereinheit enthält zwei Sicherungen: 7 A 250 V träge.

3745，3746-900 和控制器扩展的安全检测服务程序

重要

这个程序是针对3745，3746-900 和控制器扩展的。如果这些机器中有一个不存在，请忽略下列程序中有关这个机器的叙述。

介绍

在下列条件下有关3745，3746-900 和控制器扩展的安全检测程序应该被执行：

- 当进行IBM协议检测时
- 当请求IBM服务并且最近没有进行IBM服务时
- 当执行设备或附件改变时
- 当对设备进行改变时可能会影响安全性时。

如果检测出不可接受的不安全性因素时，在IBM为机器服务前必须被改正。

注：　设备的主人必须负责改正不安全因素。

3745，3746-900 和控制器扩展范围和功能通过这些程序检查：

1. 外壳
2. 安全标记
3. 安全遮盖和屏蔽
4. 接地
5. 电路冲击和保险丝额定值
6. 输入电压
7. 电源控制开关
8. 电源打开指示器。

注：
3746-900的打开和关闭是通过基本的3745机柜，或者是一个本地的主机，或者是服务处理器。

在某些地方当3745和3746-900电源关闭时也会有危险的电压。

在电源关闭后必须做如下第一步到第六步：

- 在3745和3746-900之上CB1s已关闭。
- 所有安装在控制器扩展上的设备（如果存在的话）都已关闭。
- 对3745，3746-900和控制器扩展在用户条件下的电源供应被关闭。

  为了保持接地保护，不要移动控制器扩展中的电源线和接地线 A（参照第4页的图2，第5页的图3，第6页的图4，或第7页的图5）。

1 外壳

检查：

- 它们在3745，3746和控制器扩展上都存在。
- 它们被两种锁锁定：在IBM进入处是遍平带刃的螺丝而在用户进入处是六角形的头（参考IBM3745通讯控制器型号130到17A，部件目录，S135-2012）。
- 它们能被彻底地打开。
- 在外壳打开时对机柜提供适当的服务界面。
  让所有的外壳打开以允许进一步的安全检测。

2 安全标签

检查：

- 在所有标有“Safety Label Locations”的地方都有安全标签。
- 每个标签的型号都和“3745/3746-900 Label Identifications”上显示的一致。

3 安全遮盖和屏蔽

参考FRU（第四章 Chapter 4）的位置检查：

- 所有的安全遮盖都完好并被螺丝加固。
- 所有的终端板上的电压处都有塑料的遮盖并用螺丝固定。

4 接地

> 指示
> 在这本书中，“接地”指的是设备必须连接到地上。

a 在3745上接地

参考页YZ110中接地的跳线和触点位置。

检查：

- 接地分布图中显示了机柜地和终端间的电路保证连通。
- 通过3745的电源线，3745，机柜接地和前导接地系统间的电路保证连通。

b 在3746-900和控制器扩展的接地到前导接地系统

- 通过电源线机柜地到前导接地系统的电路保证连通。
- 通过电源控制线，3746-900接地到3745（参照第3页的图1）。
- 对控制器扩展，附加的接地线 A 也被采用（参照第4页的图2，第5页的图3，第6页的图4，或第7页的图5）。

1 3745/3746-900 电源控制线

检查电源地线在3745上 D 和在3746-900上 C 正确地连接。

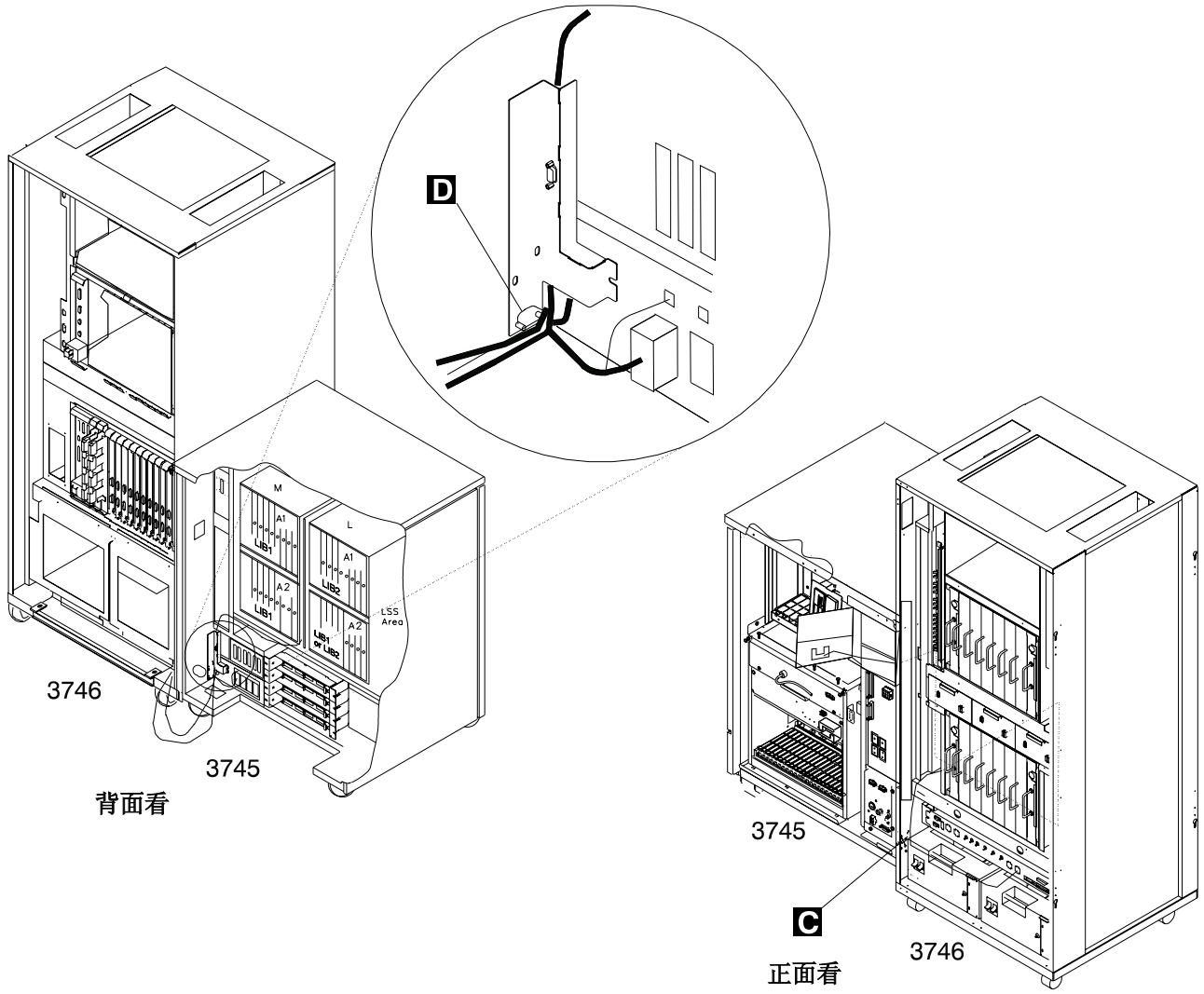


图 1. 3745/3746-900 电源控制线路由

注：

a） D 锁定垫圈（PN 17G5853）和螺母（PN 1622404）。

b） C 螺丝（PN 61F4511），星型垫圈（PN 17G5852），和锁定垫圈（PN 1622318）。

2 控制器扩展接地线

- 如果你只安装了一个控制器扩展的话，检查地线 A 是否被安装了（参照第4页的图2）。
- 如果你安装了一些控制器扩展的话，检查地线 A 是不是根据你的配置安装的（参照第5页的图3，第6页的图4，或第7页的图5）。

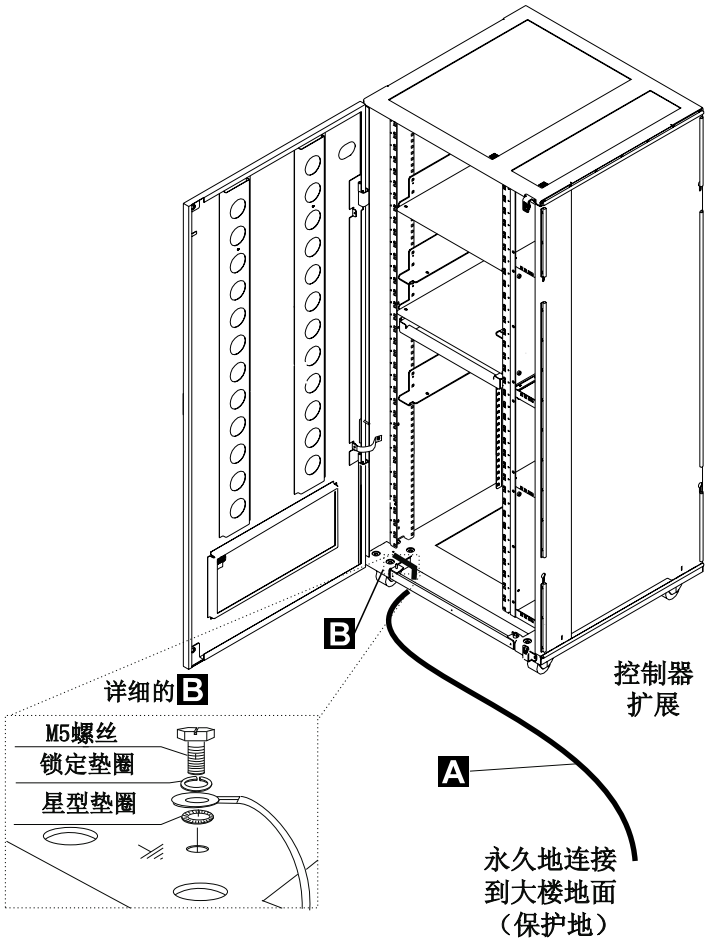


图 2. 在控制器扩展上的地线连接

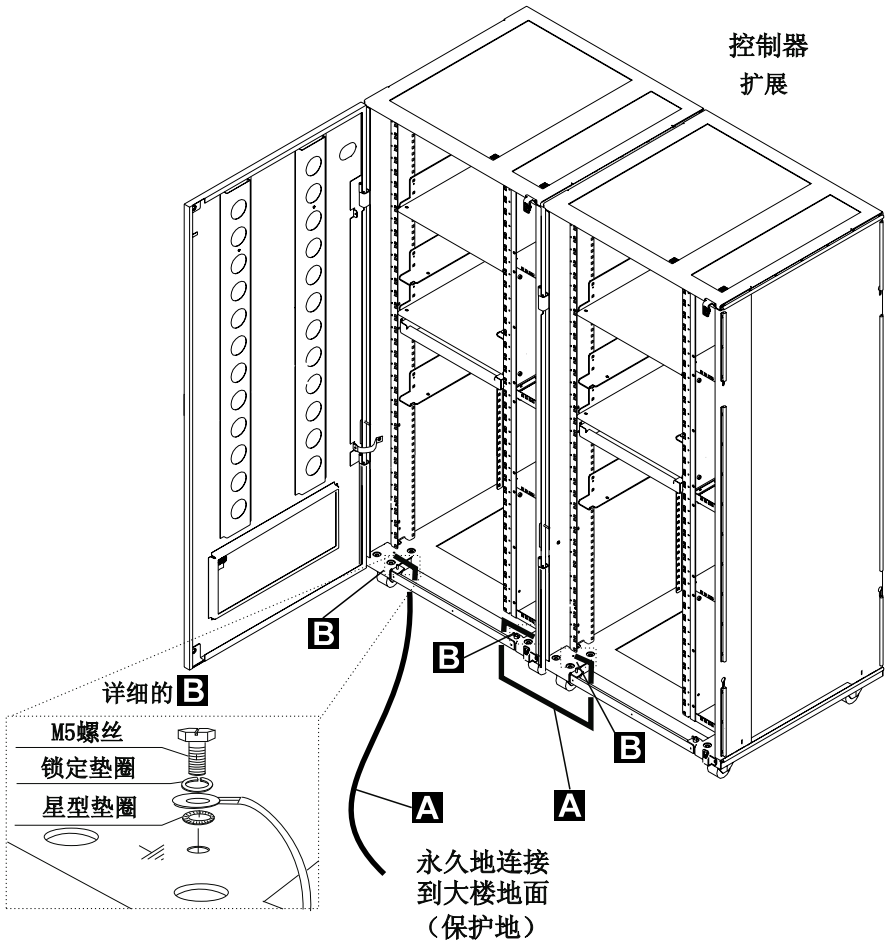


图 3. 在附加控制器扩展间的地线连接

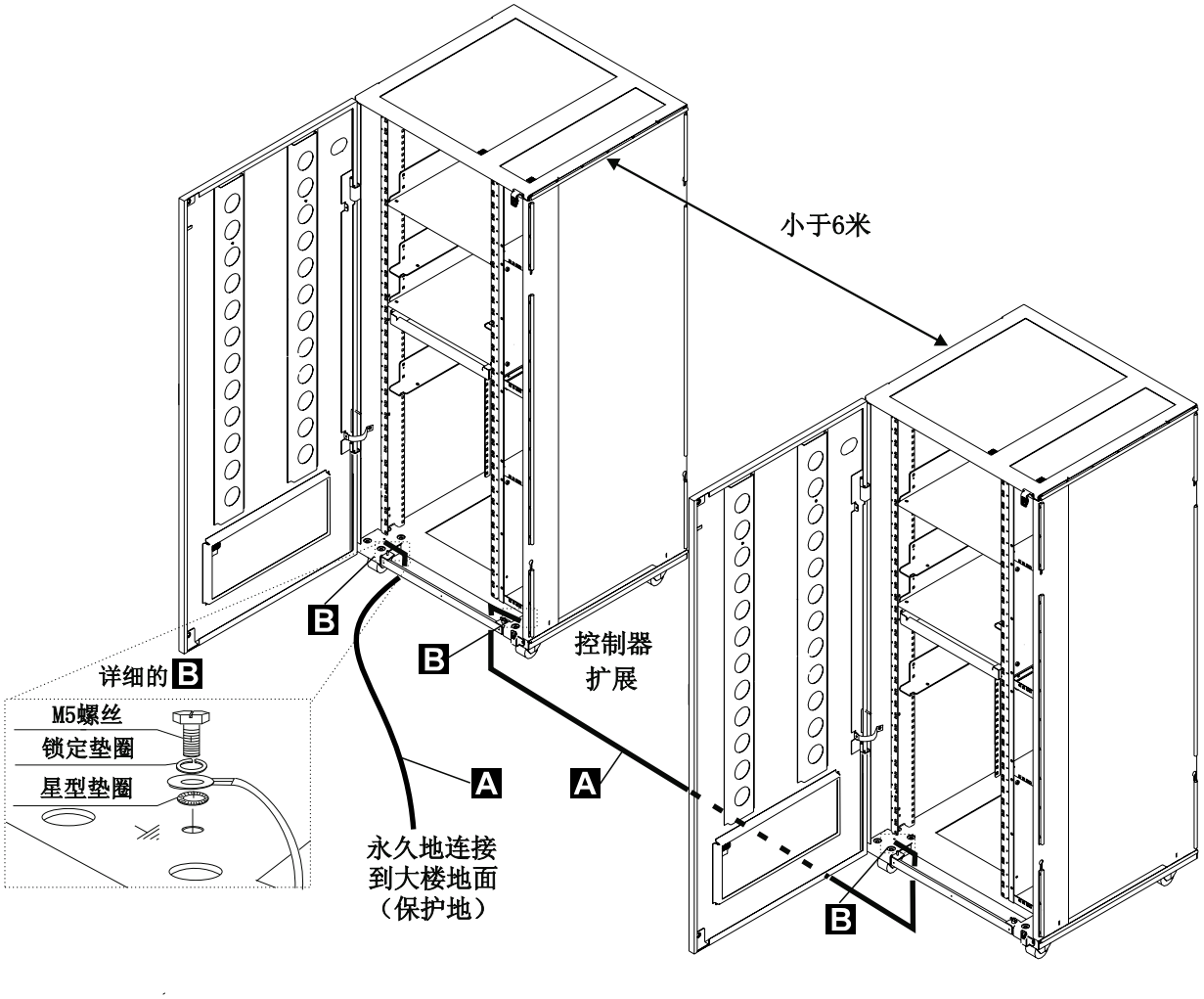


图 4. 小于6米的控制器扩展之间的地线连接

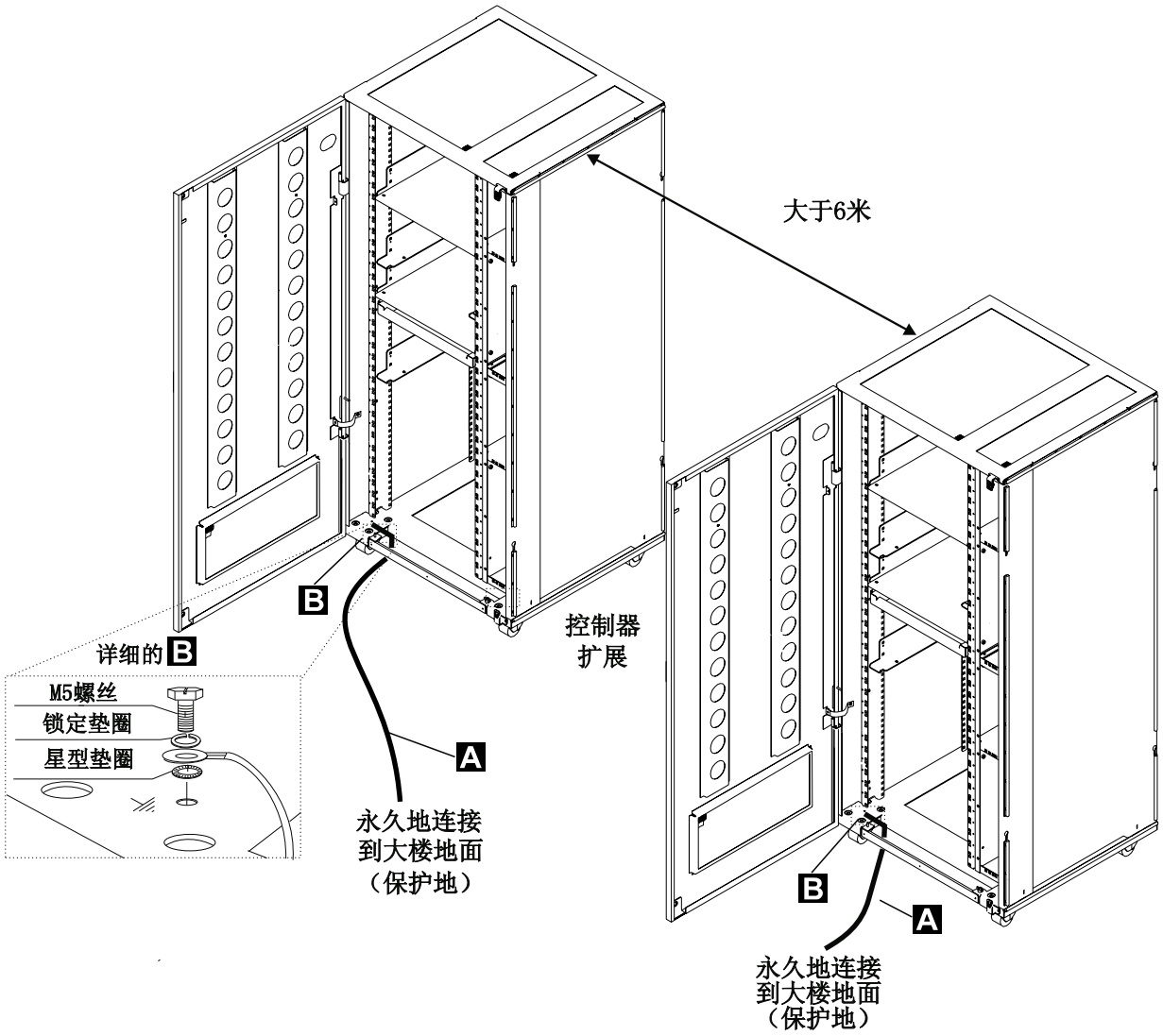


图 5. 大于6米的控制器扩展之间的地线连接

注：

a） A 地线（PN 58G5691）

b） B 螺丝（PN 61F4513），星型垫圈（PN 1622347）或（PN 17G5853），和锁定垫圈（PN 1622319）。

3 ac/dc 电源线接地

- 检查主导ac/dc电源线是否损坏或烧坏引脚和损坏绝缘。
- 测量挂断主导ac/dc电源线从一个接地端到另一个接地端的电阻。

测量值必须小于或等于 0.1欧姆。

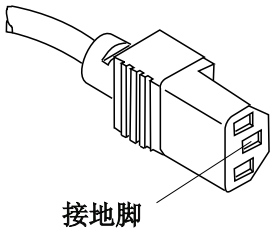


图 6. 在主导ac/dc电源线上的接地脚

c 在3746-900和控制器扩展的内部接地

在3746-900上

- 如果有LCB的话，检查LCB外壳和3746-900机柜间保证电路连通。这个操作必须在网络连接之前做。

在控制器扩展上

- 检查在控制器扩展上安装的机器保证电路连通（服务处理器，网络节点处理器，调制解调器，驱动器等等）以及ac引线分配盒的接地脚（参照图7）。
- 检查在引线分配盒的接地脚和控制器扩展的支持机柜间的电路保证连通。

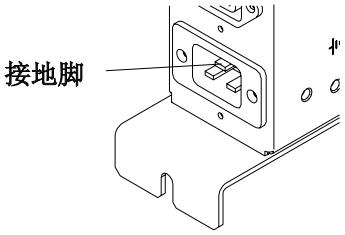


图 7. 控制器扩展ac引线分配盒的接地脚

- 如果有LCB的话，检查LCB外壳和控制器扩展机柜之间的电路保证连通。这个操作必须在网络连接之前做（参照第9页的图8）。

注： 所有前面的操作应该显示小于或等于0.1欧姆。

d 没有安装在3746-900或控制器扩展上的线路连接盒（LCBs）的接地

检查LCB外壳和前导接地系统间的电路保证连通。

依据LCB安装在哪里有两种方法确保适当的接地：

1）如果机柜支架连接到前导接地系统上，由四颗螺丝把LCB固定在支架上，接地是确保的。

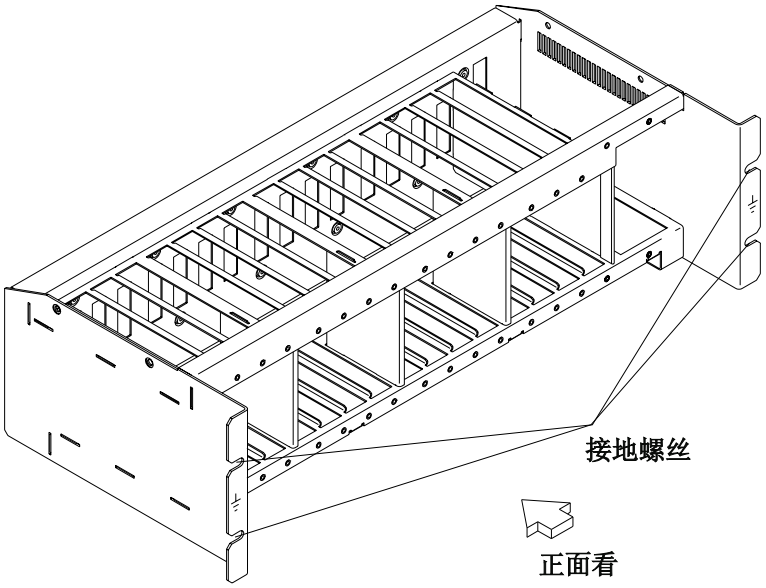


图 8. LCB 接地通过螺丝

2）用一根线连接LCB和前导接地系统可确保接地。

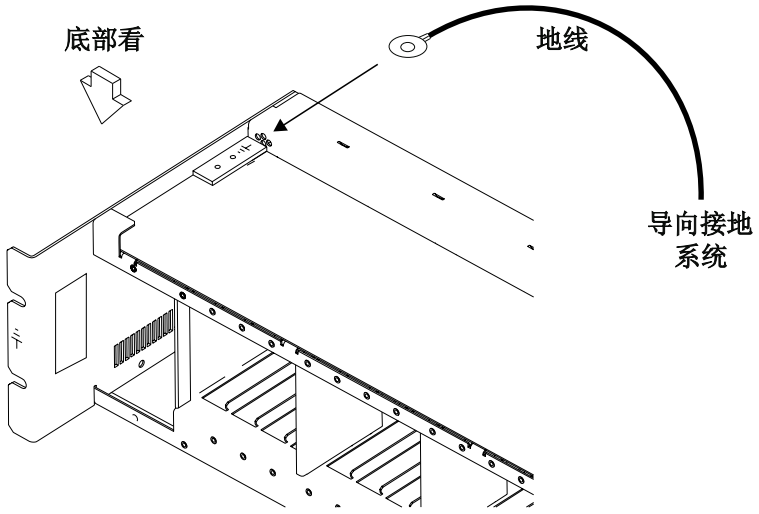


图 9. LCB 接地通过地线

IBM不提供这根电线。为了确保正确接地，这种地线必须用线AWG 12（最小2.5平方毫米）制作。

螺丝：直径 5mm，长6到 10mm（参考第10页的图10）。

地线连接到LCB

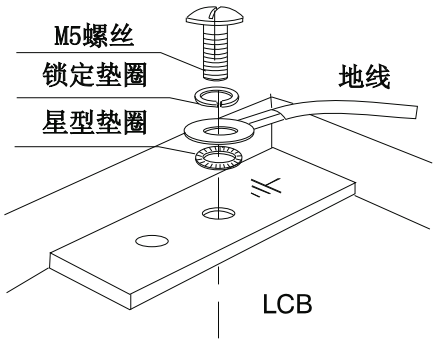


图 10. 地线连接

这个操作必须在网络连接之前做。
注： 所有前面的测量应该显示小于或等于0.1欧姆。

e 大楼接地

检查大楼内金属壳插头，连接头，插座等和接地点之间的电压小于1V ac。接地点可以是任何金属接地结构，如地板支柱（如果能接大楼地），金属水管，大楼钢筋等。

注：
1）如果检测到有漆的部分，应确保检测表头穿过漆层接触到金属。
2）也检测一下输入线插头。

5 电路冲击和保险丝额定值

参考第14页的表4 CB和CP的位置。

检查：

- 在3745和3746-900中所有的CBs和CPs都有指定的额定值（见第14页的表4）。如果额定值未指定，检查以下的部件号：
  - —— IBM3745通讯控制器型号130到17A，部件目录，S135-2012
  - —— IBM3746扩展部件型号900，部件目录，S135-2013
  - —— IBM3746扩展部件型号900，IBM3746 N路多协议控制器型号950，部件目录，S135-2015。
- 在控制器扩展ac引线分配盒中的保险丝必须为 7A，250V（PN 58G5782）慢速。

6 输入电源电压

电源额定牌指出可供电压范围（200/220/240V）和频率（50/60Hz）。
3745输入电源电压
电压标记（标记J）指出3745连接的输入电压。这个信息必须与PS2上的开关1一致。
进行电源转换检测。

- 当任何3745通讯控制器被转换成从50Hz到60Hz，或从60Hz到50Hz时，电源转换检测必须执行。
- 以下只对主电源盒使用。参考“Chapter 4”中的位置。

- 检查第11页的表1中50Hz或60Hz主电源使用的部件号。如有不符合，
  请与你的服务支持部门联系。

表 1. 部件号	
频率	部件号
50Hz	PN 03F4745
60Hz	PN 03F4569

参考“Safety Labels on 3745”中电压标签和电源额定牌的位置，以及
页YZ060表1中的用SW1调整PS-2盒的电压。

检查：

- 3745的电源额定牌和电压标签是否和用户电源供应的频率和电压测量值一致。
  如果不是的话，通知你的分支机构。

3746-900输入电源电压

电源额定牌指出可供电压范围（200/220/240V）和频率（50/60Hz）。

3746-900电压范围为200/220/240V。

检查：

- 3746-900的电源额定牌应与用户电源供应的频率和电压一致。如果不是的话，
  通知你的分支机构。参考“3745/3746-900 Safety Label Identifications”
  中的电源额定牌的位置。

  dc输入电压

  对dc输入来说，用户电压必须在-40.0V到-60.0V之间。就是说没有调
  整可选dc输入。

  ac输入电压

  对ac输入来说，用户电压必须在180V到260V之间。

  根据3746-900的背面变压器TB1上的用户电压可调整输入电压。

表 2. ac 输入调整		
电压 测量	电线 位置	名义上的 电压
从 180 到 210 伏	TB1-2	200/208 伏
从 210 到 230 伏	TB1-3	220 伏
从 230 到 260 伏	TB1-4	240 伏

重要的提示：

因为3745能被远程打开，所有以下有关3745和3746-900控制板的电源控制功能的程序必须设置为本地模式（Local mode）。

控制器扩展输入电源电压

电源额定牌指明可供电压范围（200/240V）频率（50/60Hz）。

检查控制器扩展的电源额定牌应与用户电源供应的频率和电压一致。如果不是的话，通知你的分支机构。参考“Controller Expansion Label Location”可见电源额定牌的位置。

7 测试紧急电源关闭

a. 要求用户把电源线接到用户主供应电源上。

b. 打开CB1s。

c. 打开3745和3746-900（控制板上电源控制功能为本地 Local）。

d. 把紧急开关关闭（0）并检查：

1）3745和3746-900已被关闭。

> 指示
>
> 在3746-900里，主电源（ACDC）或过滤部分（DCDC）保持正常。
> 全部断连：
> 1. 关闭CBs
> 2. 拔下所有插座上的插头或关闭设备。

2）磁盘和磁盘驱动器停止工作。

3）所有的风扇都停止转动。

e. 打开紧急开关，打开控制器。

8 打开指示器

一旦控制器打开后，检查：

a. 3745控制板上的打开（Power ON）指示器点亮。

b. 3746-900控制板上的工作LED和备用LED是否根据“控制板LED状态比较3746-900状态”的表上显示点亮。

控制板LED状态比较3746-900状态

表 3. LED 状态比较3746-900状态			
备用LED	工作LED	3746-900状态	注解
闪烁	关闭	AC 打开	初始化CBSP硬件，3746-900等待LAN连接上的MOSS-E的第一次识别。
打开	关闭	备用	3746-900在初始化被MOSS-E识别后，等待电源打开（只运行CBSP EEPROM代码）。
关闭	闪烁	电源打开	在所有的3746-900处理器中加载IML。
关闭	打开	准备好了	现在3746-900已可用了。

3745/3746-900 电源供应 CP/CB 和保险丝参考

表 4. 3745电源供应CP/CB和保险丝参考				
结构	CB/CP/F	位置	额定值	PS
结构 1	CB1	01H-A1	10A	所有
	CP2	01H-A1	1.5A	PS2
	CP3	01H-B1	2A	风扇
	F1	01H-B1	0.2A	PS2
结构 7：3746-900	CB1 AC	07K-A1/07J-A1	15A/220V	ac 电源
	CB1 DC	07J-A1	50A	dc 电源
	CP1	07K-A1/07J-A1	5A	dc 电源
	CP2	07H-A1	12A	dc 电源
	CP3	07H-A1	12A	dc 电源
	CP4	07H-A1	12A	dc 电源
	CP5	07H-A1	12A	dc 电源

控制器扩展保险丝参考

控制器扩展的ac输出分配盒包括两个保险丝：7A 250V 慢速。

Safety Label Locations

Safety Labels on the 3745

On the following figures, labels are designated by letters. A particular wording corresponds to each letter (see “3745/3746-900 Safety Label Identifications” on page lx).

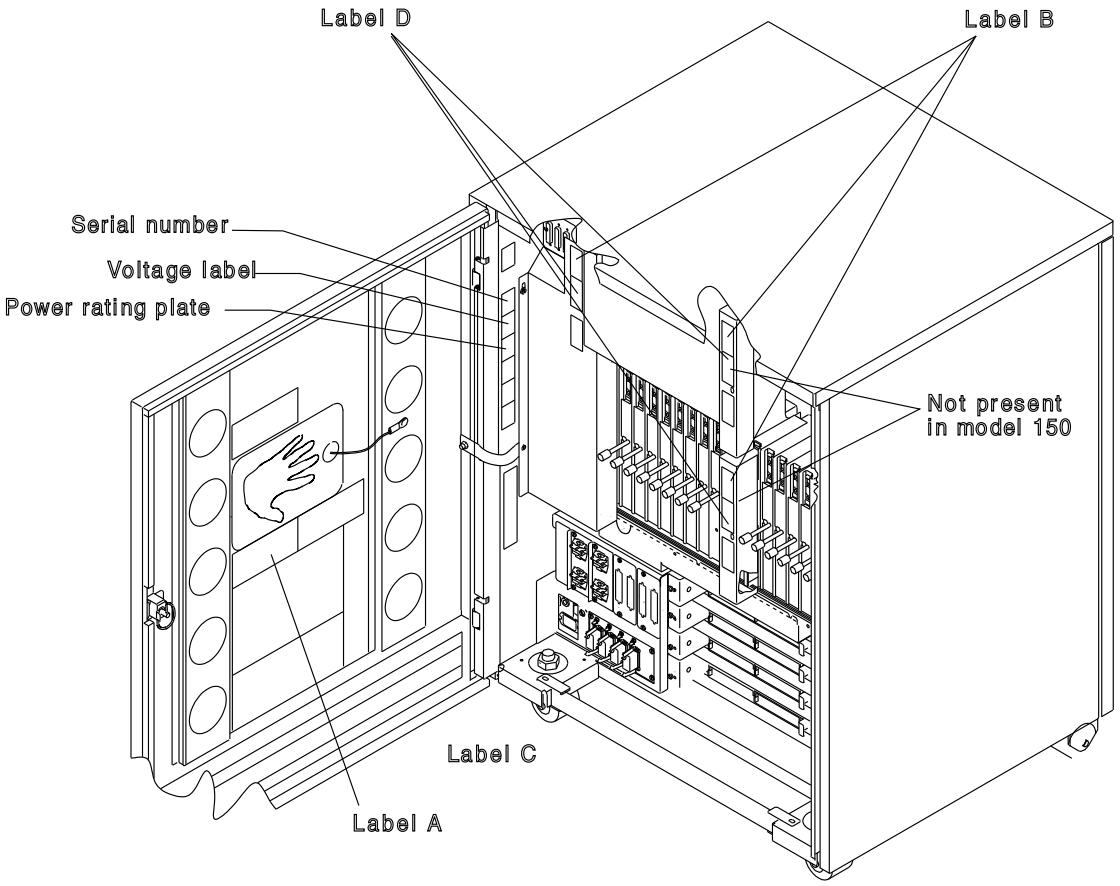


Figure 0-21. 3745 Label and Power Rating Plate Locations (Back)

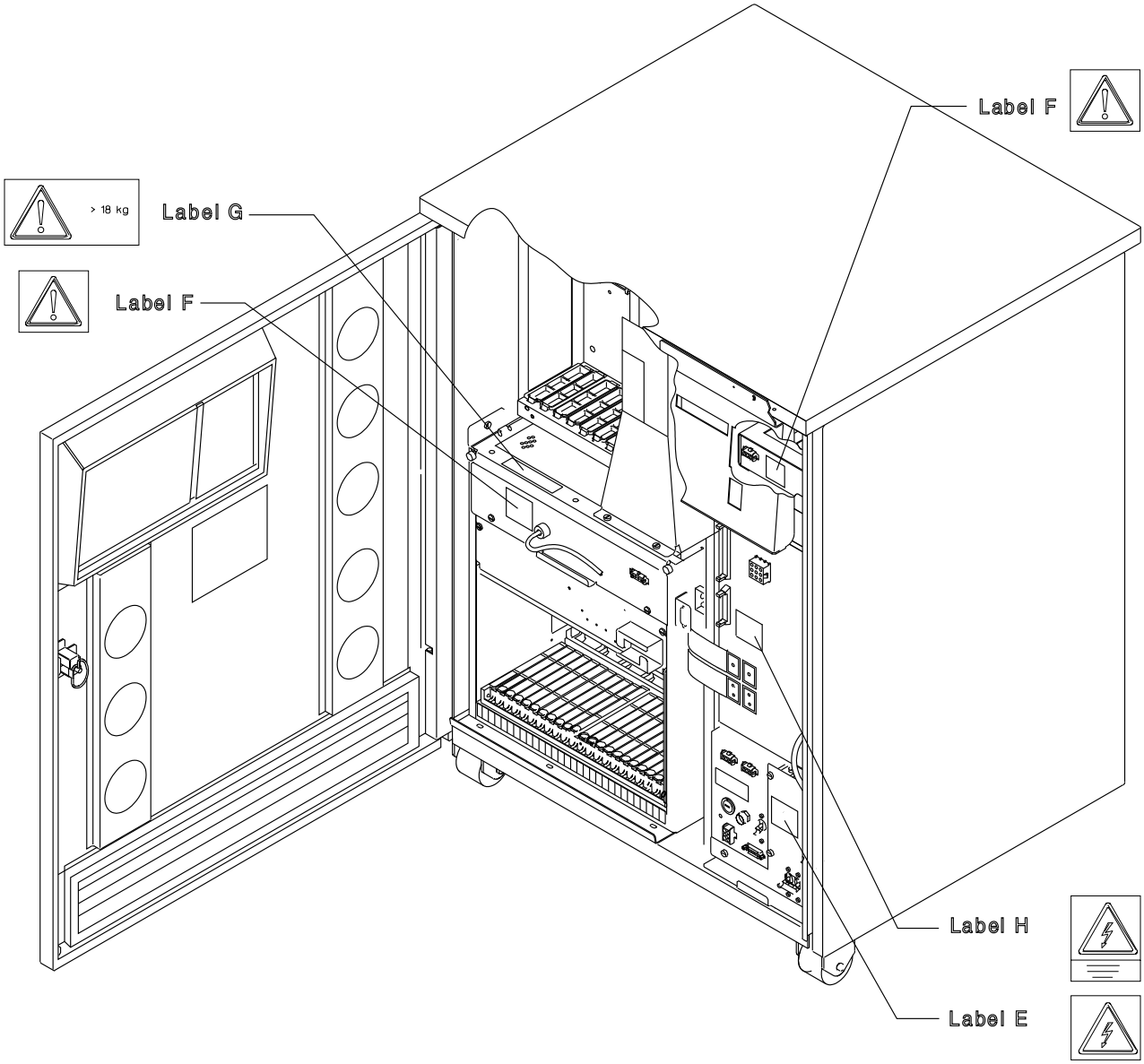


Figure 0-22. 3745 Label and Power Rating Plate Locations (Front)

Safety Label on the 3746-900

On the following figures, labels are designated by letters. A particular wording corresponds to each letter (see “3745/3746-900 Safety Label Identifications” on page lx).

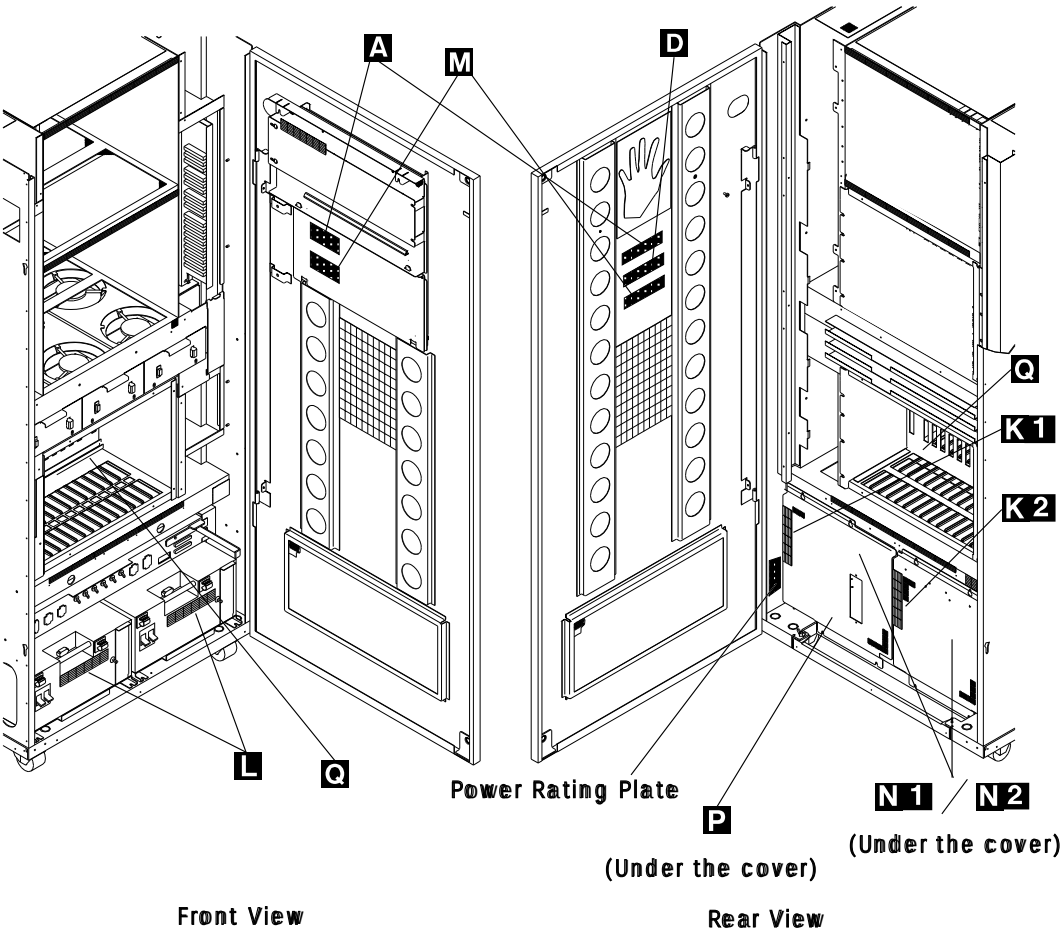


Figure 0-23. 3746 Model 900 (Frame 07) Label Locations

Safety Label on LCB

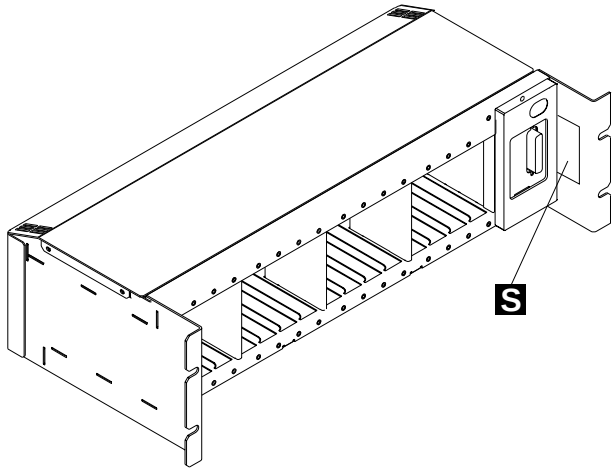
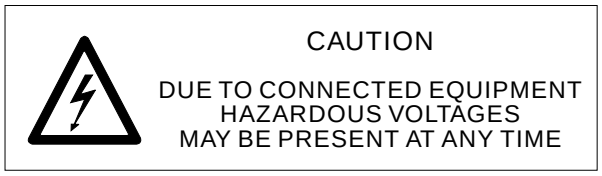


Figure 0-24. LCB Safety Label Location

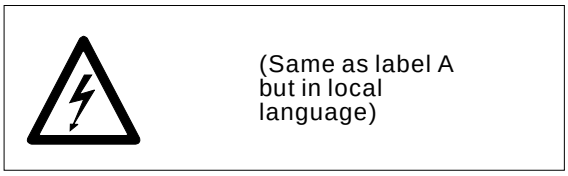
3745/3746-900 Safety Label Identifications

The safety labels shown in Figure 0-25 on page lx and in Figure 0-26 on page lxi are in the English language. They are also available in other languages. See “Safety Label Part Numbers by Country” on page lxiii for ordering.

LABEL A

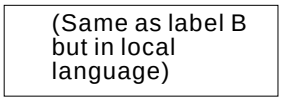


LABEL C

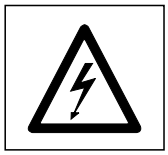


LABEL B

LABEL D

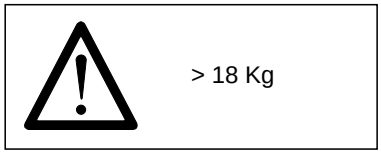


LABEL E



LABEL F

LABEL G

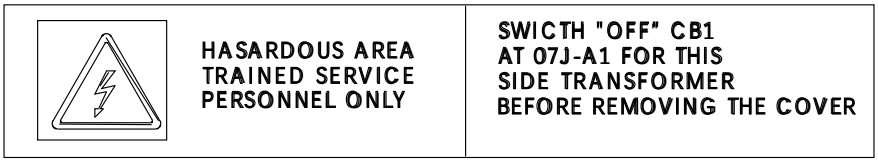


LABEL H

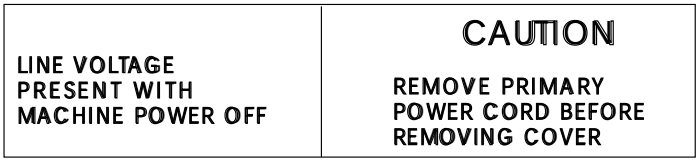
Figure 0-25. 3745/3746-900 Safety Labels

LABEL K1

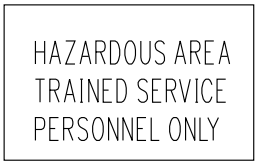
LABEL K2



LABEL L

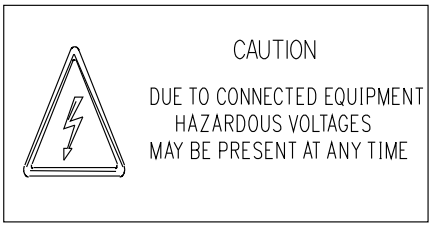


LABEL A

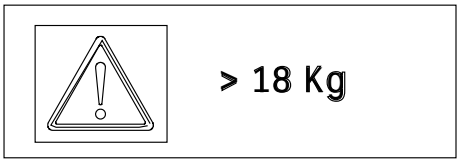


LABEL M

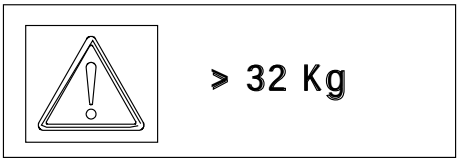
LABEL D



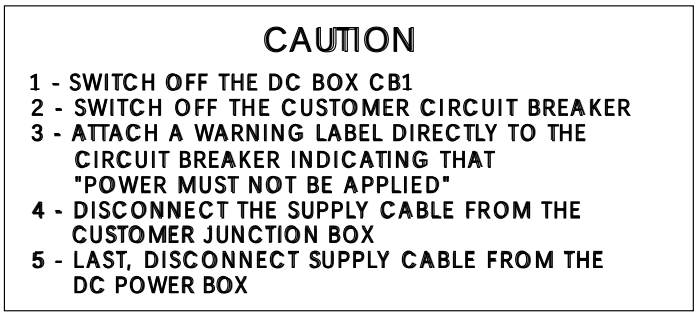
LABEL N1



LABEL N2



LABEL P



LABEL Q

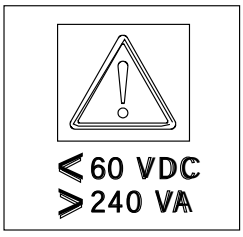


Figure 0-26. 3745/3746-900 Safety Labels

LCB Safety Label

LABEL S

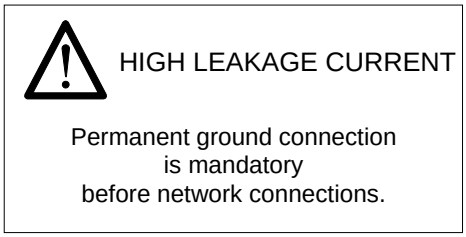


Figure 0-27. LCB Safety Label (PN 80G3928)

Controller Expansion Label Location

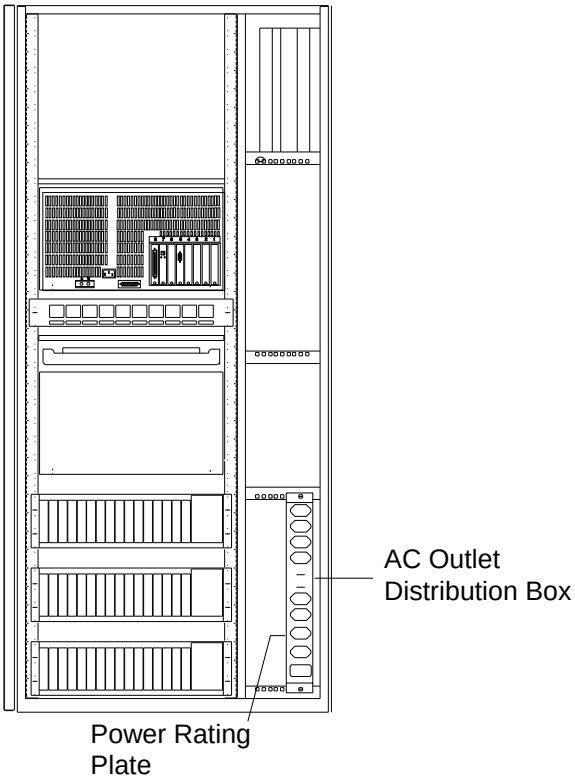


Figure 0-28. Controller Expansion Power Rating Plate Location

Safety Label Part Numbers by Country

The following table gives the label group part number according to the language(s) of the country in which the 3745 is installed.

Table 0-9. Safety Label Numbers by Country

Language	3745 Frame 1 Part Number	3746-900 Part Number	3746-900 Label Q	LCB Label S
Canadian French	03F4861		17G5876	80G3928
Danish	03F4869	72F0673	17G5876	80G3928
Dutch	03F4872	72F0676	17G5876	80G3928
English	03F4860	72F0664	17G5876	80G3928
Finnish	03F4870	72F0674	17G5876	80G3928
French	03F4862	72F0665	17G5876	80G3928
French/Dutch	03F4871		17G5876	80G3928
German	03F4863	72F0666	17G5876	80G3928
Italian	03F4864	72F0667	17G5876	80G3928
Japanese	03F4867	72F0670	17G5876	80G3928
Norwegian	03F4868	72F0671	17G5876	80G3928
Portuguese	03F4865	72F0668	17G5876	80G3928
Spanish	03F4866	72F0669	17G5876	80G3928
Swedish	03F4873	72F0677	17G5876	80G3928

Preface

About this Manual

This MIP is a guide for fault isolation and repair of the 3745 Communication Controller. It is expected that the customer has used the .*Problem Determination Guide*, SA33-0096 or the 3745 Models A, *Problem Analysis Guide* (online document) prior to calling IBM for service. The MIP does not duplicate the tasks done by the *Problem Determination Guide*.

The MIP gives the service representative information needed to:

- Analyze problems or symptoms reported by the system user.
- Restore normal 3745 operation.

Who Should Read this Manual

The person using this manual should be:

- Trained to service the 3745 and 3746-900.
- Familiar with the configuration of the system to which the 3745 is connected.
- Familiar with the operation of the 3745, as described in the *IBM 3745 Hardware Maintenance Reference*, SY33-2066 and *IBM 3745 Communication Controller Service Function*, SY33-2069, which are part of this Maintenance Library.

The intended audience for this manual are Product-Trained Customer Engineers (PT CE). The Product Support-Trained Customer Engineer (PST CE) is also expected to refer to this manual when he is required to perform the same tasks as the PT CE.

How this Manual Is Organized

This manual is organized as follows:

- Safety information is at the start of the manual.
- From Chapter 1 through Chapter 4, this manual is designed so that the information is presented to the user in the same order as he will require it during the majority of service calls. The user is told where to go next for each path through this part of the manual.
- At the back of the manual are:
  - Appendix A, Maintenance Aids
  - Appendix B, Bibliography
  - Appendix X: Abbreviation list and glossary.

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Summary of Changes

All MAPs, exchange procedures, and so on, referring to the 3746-900, have been removed in this edition except for the "Service Inspection Safety Procedures".

For information concerning the 3746 Model 900 refer to the *IBM 3746 Nways Multiprotocol Controller Model 900 Service Guide*, SY33-2116.

Corrections and improvements relating to the previous edition have also been inserted.

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Chapter 1. START: How to Begin Troubleshooting

Important

- Your personal safety can never be over-emphasized.
- You have been taught safety procedures since the earliest phase of your IBM training.
- Your safety is part of every maintenance call.
- You are the only one who can make a maintenance call safe.
- Specific information can be found in “Product Safety Information” on page xvii and “Safety Label Locations” on page lvii.

Start here when you use this manual to repair a 3745/3746 hardware failure.

- **Remember that the 3745/3746 are machines which are designed to be repaired while the customer is still using the operational areas. This is called Concurrent Maintenance. Before changing FRUs, you will be directed to ensure that you have the correct area of the machine ready for maintenance.**
- **When a power supply is shared between adapters, the disabling procedures apply to both 'suspected' and 'associated' adapters.**
- **During a call for service, it will normally be necessary to use the 3745 console. To log ON at a 3745 console, proceed as directed in “Console Use for Maintenance.”**

Console Use for Maintenance

001

Is the 3745 a Model 17A?
Yes No

002

The 3745 is a Model 130, 150, 160, or 170.

The 3745 has password protection for functions controlled via a console. Several types of password exist for different activities. They are described in the *IBM 3745 Advanced Operation Guide*, SA33-0097.

Obtain the maintenance password from the customer so that you can log on at the 3745 console (local, remote, or alternate). This password will give you access to Menu 3 **Maintenance Functions**, in addition to Menu 1 and Menu 2.
If the 3745 failure prevents correct operation of the 3745 console, continue at **“Selection Table” on page 1-4** .

Log ON at the 3745 console as follows:

1. Ensure that the customer is not using the console and that he has logged OFF. The channel enable/disable screen is displayed.
2. Press **F4**: MOSS FUNCTIONS.
3. The password screen is displayed.
4. Enter the maintenance password.

Note: Remember to log OFF the console and to re-IML the MOSS at the end of the service call. See “CE Leaving Procedure” on page 4-102 for more information.

Continue with “Selection Table” on page 1-4.

003

The 3745 is a Model 17A.
(Step **003** continues)

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003 (continued)

Is the service processor operational?

Yes **No**

004

Continue with "Selection Table" on page 1-4.

005

Obtain the service processor maintenance password from the customer so that you can log ON at the service processor console.

To log ON:

1. On the **MOSS-E View** window, click on **Program** (in the action bar).
2. Click on **Log On MOSS-E**.
3. Enter the password.

Are you here to investigate a RSF problem?

If you do not know, continue with Step 006.

Yes **No**

006

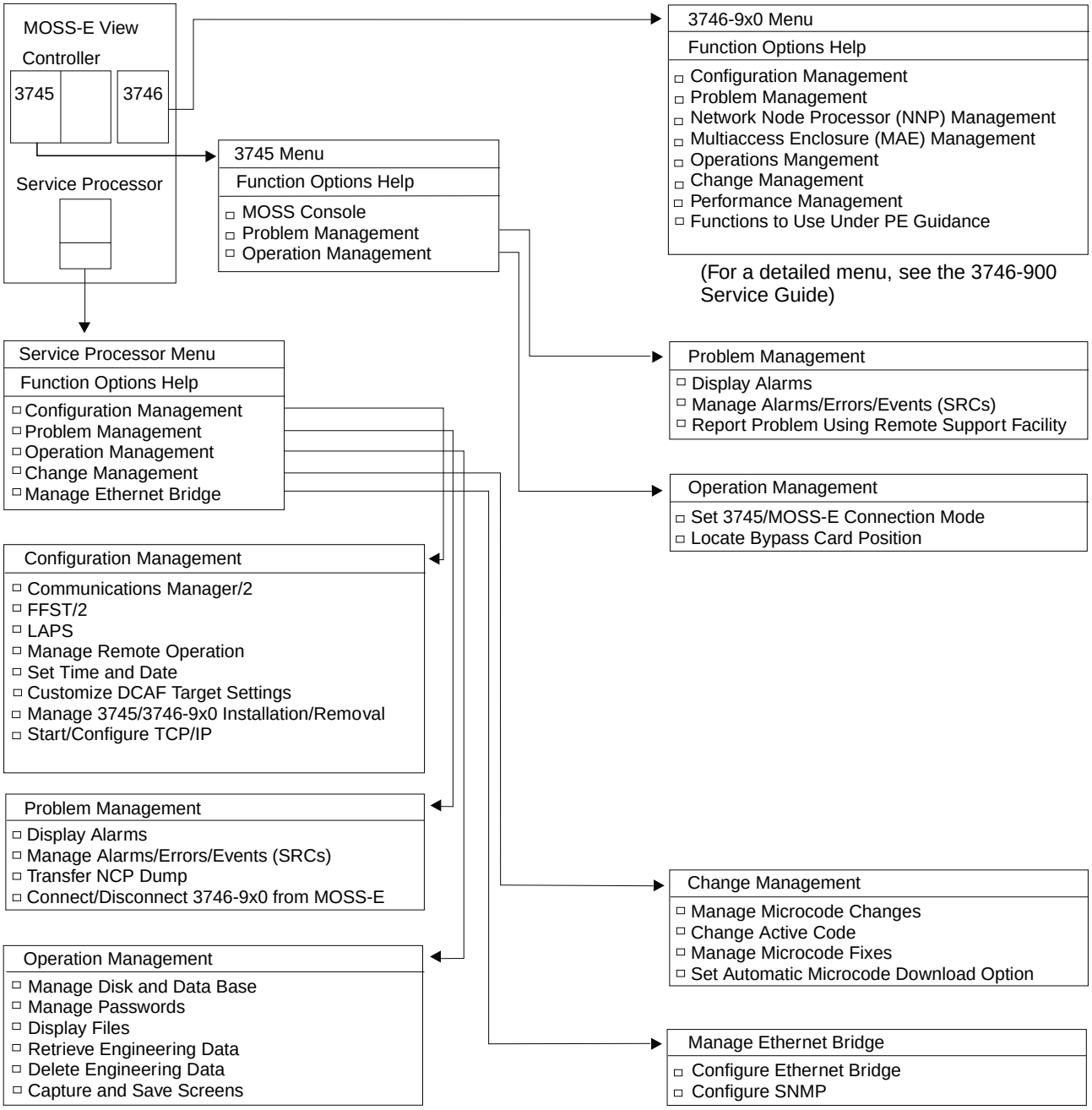
1. On the **MOSS-E View** window, double-click on the service processor icon.
2. The **Service Processor Menu** window is displayed.
3. Click on the **Configuration Management** option.
4. Double-click on the **Manage Remote Operations** option.
5. On the **Remote Operation Management** window, select the **Remote operations authorization** option and click on **OK**.
6. On the **Remote Support Facility** window, select the following two options:
   - **Disable Remote Support Facility**
   - **Do not generate alerts**
7. Click on **OK**.
8. Continue with Step 007.

007

Continue with "Selection Table" on page 1-4 .

See "Service Processor Window Overview" on page 1-3 for the main panels used to perform the procedures documented in this manual.

Service Processor Window Overview



Selection Table

Going from top to bottom in the table, select the first entry point which fits your situation.

If You Have a:	Then Go to:
General Verbal Symptoms	The “General Verbal Symptoms” on page 1-8.
Color symptom for 3745/3746-900 icons on **MOSS-E View** window.	“MAP 5200: 3745/3746-900/Service Processor/Network Node Processor Icon Color Symptoms” on page 2-37
Customer problem number (CPN)	The “3745 and Service Processor Maintenance Using a CPN” on page 1-55
Maintenance actions	The “3745 Maintenance Actions” on page 1-6.
Problem during installation	The “Problems During Machine, EC, or MES Installation” on page 1-7.
Problem while installing an EC or MES	The “Problems During Machine, EC, or MES Installation” on page 1-7.
3745/3746-900 power symptoms	The “3745 Power Symptoms” on page 1-12.
3745 reference code	“Using Reference Codes” on page 1-14.
3745 FRU group number to exchange	“Using the MIP FRU Group Table” on page 1-48.
3745 FRU list to exchange	The “3745 FRU List” on page 1-53.
3745 control panel code reported	The “3745 Control Panel Codes” on page 1-15.
3745 control panel symptoms	The “3745 Control Panel Symptoms” on page 1-11.
3745 service processor link symptom	“MAP 5600: LAN Problem on the LAN Attached to the Service Processor” on page 2-42
3745 IOC bus symptoms	“MAP 0100: IOC Bus Trouble Shooting” on page 2-1.
3745 console symptoms	The “3745 Console Symptoms” on page 1-10.
3745 'Disk not ready' message on the 3745 console or 'Disk error' message or 'Diskette error' message	“How to Perform 3745 Control Panel Operations” on page 1-82. Perform a MOSS IML, and restart, using the control panel code reported.
3745 console message displayed	Most messages are self explanatory. If necessary, go to the *3745 Problem Determination Guide*, *3745 Service Functions* or “3745 Advanced Operations Guide”.
Alarm reported on the 3745 Model 17A	The *Problem Analysis Guide* (online book)
3745-XXA apply a microcode fix	The *Service Processor Installation and Maintenance* manual. Use the "Handling the Microcode Change Levels" procedure in the chapter "Maintaining the Code Loaded on the Service Processor".
3745-XXA RSF link down	“MAP 4510: 3745 Model 17A Manual Call” on page 2-33
Service processor symptom	The "Service Processor Problem Determination" in the corresponding *Service Processor Installation and Maintenance* manual.
Network node processor symptom	The "Network Node Processor Problem Determination" in the corresponding *Network Node Processor Installation and Maintenance* manual.
Service processor system reference code sequence number	The “Service Processor Maintenance Using an SRC Sequence Number” on page 1-57.
Service processor apply a microcode change	"Handling the Microcode Change Level" in the chapter "Maintaining the Code Loaded on the Service Processor" in the corresponding *Service Processor Installation and Maintenance* manual.
Problem with the service processor integrated modem	"How to Run the Service Processor Diagnostics" in the corresponding *Service Processor Installation and Maintenance* manual, and run the integrated V.32 modem test, or refer to the *IBM Asynchronous/SDLC V.32 Modem/A; Installation, Operation, and Problem Determination Guide*.
Problem on the external modem attached at the service processor	Refer to the modem documentation. • For IBM the 7855 modem refer to the problem determination chapter in the *7855 Modem Model 10, Guide to Operation*. • For IBM the 7857 modem refer to the problem determination chapter in the *IBM 7857 Modem Guide to Operation*. • For the Hayes** modem, refer to the corresponding manual.

If You Have a:	Then Go to:
Problem on the 3746-900, or attached features	The *IBM 3746 Nways Multiprotocol Controller Model 900 Service Guide*, SY33-2116.

3745 Maintenance Actions

If You Want to:	Then Go to:
Run 3745 diagnostics in offline mode (ODG)	The “3745 Diagnostic Requirement” on page 1-60.
Run 3745 diagnostics in concurrent maintenance mode (CDG)	The “3745 Diagnostic Requirement” on page 1-60.
Run the 3745/3746-900 LIC wrap test (WTT)	“How to Run the Wrap Test (WTT) for TSS, HPTSS, or 3746-900” on page 3-15.
Find information about using the 3745 control panel	“3745 Control Panel Use” on page 1-78.
Know the definition of a 3745 control panel code	The “3745 Control Panel Codes” on page 1-15.
Install a 3745	The *3745/3746-900 Installation Guide*, SY33-2067
Find information about using the 3745 MOSS console	The *3745 Service Functions Guide*, SY33-2069.
Find information about connected consoles	The *3745 Console Setup Guide*, SA33-0158.
Find the level of a FRU installed.	The *3745 Service Functions Guide*, SY33-2069.
Check voltages on 3745	The 3745 YZ pages
Change parameters for the 3745 LIC type 5 or 6.	Appendix B, “PKD (Portable Keypad Display) Maintenance Aids for LIC 5 and 6” on page A-5.
Apply a Microcode Fix on the 3745-17A	"Handling the Microcode Change Level" in the chapter "Maintaining the Code Loaded on the Service Processor" in the corresponding *Service Processor Installation and Maintenance* manual.
Find information about using the service processor console	The *3745 Models A, Basic Operations Guide*, SA33-0177.
Test the 3745-17A RSF link	“MAP 4510: 3745 Model 17A Manual Call” on page 2-33.
Find information about customer console on 3745-17A	The *3745 Console Setup Guide*, SA33-0158.
Perform Engineering Data Transfer	The “Engineering Data Transfer” on page 1-58.
Run diagnostics on the service processor	"How to Run the Service Processor Diagnostics" in the corresponding *Service Processor Installation and Maintenance* manual.
Run diagnostics on the network node processor	The "Network Node Processor Problem Determination" in the corresponding *Network Node Processor Installation and Maintenance* manual.
Apply a microcode change on a service processor	"Handling the Microcode Change Level" in the chapter "Maintaining the Code Loaded on the Service Processor" in the corresponding *Service Processor Installation and Maintenance* manual.
Find the modem setting for RSF	The *Service Processor Installation and Maintenance* manual. Use the "Installing and Connecting the RSF Modem to the Service Processor" procedure according to your modem type.
Run diagnostics on the 3746-900 or attached features	The *IBM 3746 Nways Multiprotocol Controller Model 900 Service Guide*, SY33-2116.
Find miscellaneous information	“Miscellaneous Information” on page 1-13.

Problems During Machine, EC, or MES Installation

When installing a 3745, the *3745 Installation Guide*, SY33-2067 should be used. When installing an EC or an MES, the supplied instructions should be used. It is possible that the task or diagnostic you were asked to perform during the installation detected an error, and you were requested to start troubleshooting using this manual.

The primary purpose of this manual is to resolve problems that occur in an operational environment after a successful installation. That is, the machine has worked previously and is now failing.

At installation time, or after an EC or MES is installed, it is possible that errors may occur due to conditions which would not exist in an operational environment.

- Cables plugged incorrectly
- Terminators missing
- Mismatch between CDF and machine configuration
- Mismatch between line characteristics and setups
- Wrong address set
- Top card connectors incorrectly installed
- Loose cards.

During your path through the MIP, you should remember these possibilities and, when the failing area is identified, check with the aid of the *3745 Hardware Maintenance Reference*, SY33-2066 and YZ pages that these conditions do not exist prior to changing FRUs.

Now, starting at the top of the “Selection Table,” work down until you find an entry that matches the symptom detected during the installation.

Be sure to read “Exchange Precautions” on page 4-1 before removing any FRUs from this machine.

Selection Table

If You Have a:	Then Go to:
Reference code (see the "3745 Problem Determination/Analysis Guide", Alarms)	“Using Reference Codes” on page 1-14.
3745 control panel code reported	“3745 Control Panel Codes” on page 1-15.
3745 Power Symptoms	“3745 Power Symptoms” on page 1-12.
IOC bus symptoms	“MAP 0100: IOC Bus Trouble Shooting” on page 2-1.
3745 console symptom	“3745 Console Symptoms” on page 1-10.
3745 control panel symptom	“3745 Control Panel Symptoms” on page 1-11.
General verbal symptom	“General Verbal Symptoms” on page 1-8.
Error detected by diagnostics on the 3745	“Diagnostic and Exchange Result Analysis 0000” on page 4-99.
3745 console message displayed	Most messages are self explanatory. If needed go to the "3745 Problem Determination Guide", "3745 Service Functions", or "Advanced Operation Guide".
CDF undefined error	Correct the CDF using the manual update function (option **S**). Refer to the *IBM 3745 Communication Controller Service Function*, SY33-2069.

Symptom Index

General Verbal Symptoms

Table 1-1 (Page 1 of 2). General Symptoms

If the:	Symptom:	Then:
Host	Has detected • Channel errors on this 3745 • Route inop • Missing interrupt	Go to “MAP 3500: Activate/Deactivate Line Problem or Line Errors on the TSS” on page 2-7.
	Has detected channel errors on the 3746-900	Refer to the *IBM 3746 Nways Multiprotocol Controller Model 900 Service Guide*, SY33-2116.
3745 using a channel	Is unable to load/dump the control program via the 3745 CA	Go to “MAP 3500: Activate/Deactivate Line Problem or Line Errors on the TSS” on page 2-7.
	Is unable to load/dump the control program via the 3746-900 ESCA	Refer to the *IBM 3746 Nways Multiprotocol Controller Model 900 Service Guide*, SY33-2116.
	Is unable to activate an ESCA or there is no traffic on the ESCA	Refer to the *IBM 3746 Nways Multiprotocol Controller Model 900 Service Guide*, SY33-2116.
3745 using the MOSS HDD	Is unable to load/dump the control program	• Refer to “How to Run MOSS Diagnostics” on page 3-4 and continue with the error detected. • If no error is detected, go to the "Service Function Guide" for HDD problems.

Table 1-1 (Page 2 of 2). General Symptoms

If the:	Symptom:	Then:
3745	Is unable to activate (start) a line or a ring	1. For TSS: go to "MAP 3500: Activate/Deactivate Line Problem or Line Errors on the TSS" on page 2-7. 2. For TRSS : go to "MAP 3520: Activate/Deactivate Ring Problems or Ring Errors on the TRSS" on page 2-8. 3. For HPTSS or ESS : go to "MAP 3530: Activate/Deactivate Line Problems or Line Errors on the HPTSS/ESS" on page 2-9.
	Has errors while running lines or rings	
	Is unable to activate (start) a ring or has errors while running a ring connected to a 3746-900	Refer to the *IBM 3746 Nways Multiprotocol Controller Model 900 Service Guide*, SY33-2116.
	Is unable to activate (start) or has a problem on all the lines of a 3746-900 CLP.	Refer to the *IBM 3746 Nways Multiprotocol Controller Model 900 Service Guide*, SY33-2116.
	Is unable to activate (start) or has a problem on all the lines of a 3746-900 LIC11.	Refer to the *IBM 3746 Nways Multiprotocol Controller Model 900 Service Guide*, SY33-2116.
	Is unable to activate or has a problem on all the lines of the same ARC group	Refer to the *IBM 3746 Nways Multiprotocol Controller Model 900 Service Guide*, SY33-2116.
	Is unable to activate or has a problem on all the lines of the same line connection box expansion (LCBE)	Refer to the *IBM 3746 Nways Multiprotocol Controller Model 900 Service Guide*, SY33-2116.
	Is unable to activate or has a problem on all the lines of a 3746-900 LIC12	Refer to the *IBM 3746 Nways Multiprotocol Controller Model 900 Service Guide*, SY33-2116.
	Is unable to activate or has a problem on all the lines of a 3746-900 LIC16	Refer to the *IBM 3746 Nways Multiprotocol Controller Model 900 Service Guide*, SY33-2116.
	Has a suspected program loop or hang	Call your support structure for assistance with this problem. Refer to "Contacting Support" on page A-1.
	Has unexpected re-IPLs	• If a message with a reference code is generated, go to "Using Reference Codes" on page 1-14. • If no message with a reference code is generated at the re-IPL, contact your support structure for assistance. Refer to "Contacting Support" on page A-1.
Hardware central service	Is unable to activate an RSF link	• Run the RSF console link test, refer to "How to Run the Console Link Test for 3745 Models 130, 150, 160, and 170" on page 3-6. • If no error is detected suspect the modem or line. Ask the customer to perform problem determination or call the appropriate service representative.
	The 3745 Model 17A, has the RSF link down	Go to "MAP 4510: 3745 Model 17A Manual Call" on page 2-33.
Service processor	Is unable to establish a link with a 3745 or 3746-900	Go to "MAP 5600: LAN Problem on the LAN Attached to the Service Processor" on page 2-42.

3745 Console Symptoms

Table 1-2. 3745 Console Symptoms

If a:	Then:
Local/Remote/RSF or alternate console appears not to function or functions incorrectly	Ensure that the Problem Determination Guide has been followed.
"Disk not ready" message or "Disk error" message or "Diskette error" message	Perform a MOSS IML. See “How to Perform 3745 Control Panel Operations” on page 1-82. Restart using the reported Control Panel code.
3745 console message is displayed	Most messages are self explanatory. If necessary, refer to the: • *Problem Determination Guide*, SA33-0096 • *IBM 3745 Communication Controller Service Function*, SY33-2069 • *IBM 3745 Advanced Operation Guide*, SA33-0097.
On 3745 Models 17A, the RSF link is down	Go to “MAP 4510: 3745 Model 17A Manual Call” on page 2-33.
Service processor is failing or Service processor symptom appears	Refer to the "Service Processor Problem Determination" in the corresponding *Service Processor Installation and Maintenance* manual.

3745 Control Panel Symptoms

Table 1-3. Control Panel Symptoms

If the 3745	Then:
Control panel displays any wrong character or all segments of all characters are ON	• Run the Control Panel test. Refer to "How to Run the Control Panel Test" on page 3-8. • When a FRU group is called for an error, go to "3745 FRU Group Table" on page 1-49. • If no error is detected and the problem still exists, call your support structure for a possible microcode problem. Refer to "Contacting Support" on page A-1.
Control panel display has a missing character	• Run the Control Panel test. Refer to "How to Run the Control Panel Test" on page 3-8. • When a FRU group is called for an error, go to "3745 FRU Group Table" on page 1-49. • If no error is detected and the problem still exists, call your support structure for a possible microcode problem. Refer to "Contacting Support" on page A-1.
Has one or more control panel keys that do not work	• Run the Control Panel test. Refer to "How to Run the Control Panel Test" on page 3-8. • When a FRU group is called for an error, go to "3745 FRU Group Table" on page 1-49. • If no error is detected and the problem still exists, call your support structure for a possible microcode problem. Refer to "Contacting Support" on page A-1.
MOSS message indicator is always ON without a console pending message	• Run the Control Panel test. Refer to "How to Run the Control Panel Test" on page 3-8. • When a FRU group is called for an error, go to "3745 FRU Group Table" on page 1-49. • If no error is detected and the problem still exists, call your support structure for a possible microcode problem. Refer to "Contacting Support" on page A-1.
MOSS inoperative indicator is always ON even if MOSS is operating	• Run the Control Panel test. Refer to "How to Run the Control Panel Test" on page 3-8. • When a FRU group is called for an error, go to "3745 FRU Group Table" on page 1-49. • If no error is detected, go to "How to Run MOSS Diagnostics" on page 3-4.
Control panel display is blank	Go to "Power MAP 3930: Power Control Subsystem Problems" on page 2-21.
"All Channel Adapters Disabled" indicator is in an invalid state	• Run the Control Panel test. Refer to "How to Run the Control Panel Test" on page 3-8. • When a FRU group is called for an error, go to "3745 FRU Group Table" on page 1-49. • If no error is detected, go to "How to Run MOSS Diagnostics" on page 3-4.
"Console in Use" indicator shows the wrong console	• Refer to "How to Run MOSS Diagnostics" on page 3-4 and continue with the error detected. • If no error is detected, exchange the FRU group 52. Go to page 1-49.
Power On Indicator is not ON	Go to "Power MAP 3930: Power Control Subsystem Problems" on page 2-21.

3745 Power Symptoms

Table 1-4. Power Symptoms

If the:	Symptom:	Then:
3745	Will not power ON	Go to “Power MAP 3930: Power Control Subsystem Problems” on page 2-21.
	Will not perform a scheduled power ON	Go to “Power MAP 3925: Scheduled Power on Problems” on page 2-20.
	Host power ON sequence stops at the 3745	Go to “MAP 3905: Power ON Problem in Host Mode or Host Power Sequence Problem” on page 2-16.
	Power On Indicator is not ON	Go to “Power MAP 3930: Power Control Subsystem Problems” on page 2-21.
	Control panel display is blank	
	Will not power OFF	Go to “Power MAP 3935: Power OFF not Possible in Host Mode” on page 2-25. or Go to “Power MAP 3945: Power OFF not Possible in Local Mode” on page 2-26.
	Will not power OFF when a power OFF command is sent by the control program	Go to “Power MAP 3960: Power OFF not Possible in Network Mode” on page 2-28.

Miscellaneous Information

If You Want to:	Then Go to:
Find information about the 3745 console • Maintenance • Setup • Customer MOSS functions	• *IBM 3745 Communication Controller Service Function*, SY33-2069 • *IBM 3745 Console Setup Guide*, SA33-0158 • *IBM 3745 Advanced Operation Guide*, SA33-0097
Find the level of an installed FRU	*IBM 3745 Communication Controller Service Function*, SY33-2069 CDF chapter.
Check voltages	YZ pages, and *IBM 3745 Hardware Maintenance Reference* (specifications chapter).
Find information about the maintenance aids for: • Control program • Microcode • Special tools • PKD and LIC5/6	See this manual appendix A

Using Reference Codes

Reference Codes (8 digits) are always displayed at the rightmost position of the alarm on the 3745 console. They are generated by the microcode which runs within the MOSS to provide an automatic analysis of box event records (BERs). This function is known as auto-BER and is part of the AUTOMAINT facility. Reference codes are also generated when diagnostics detect an error.

If several alarms have been generated for the same problem, resulting in multiple reference codes, use the reference code beginning with BX, if any. If there are no BX codes, use the reference code given by the earliest alarm.

To analyze a reference code to find the correct action to take, use the following procedure on the 3745 console:

1. From the Maintenance Functions on Menu 3, select the **BRC** function.

   The reference code screen will be displayed (see Figure 1-1).

```
CUSTOMER ID:                            3745            SERIAL NUMBER:
CCU-A SELECTED PROCESS MOSS-OFFLINE       X71:020415
                                          X72:000085


RUN-REQ
------------------------------------------------------------- 03/01/89 01:22
FUNCTION ON SCREEN: BER CORRELATION
                              REFERENCE CODE INTERPRETATION

  ENTER REFERENCE CODE  ==>




===>

F1:END  F2:MENU2  F3:ALARM   F5:BER CORRELATION    F6:ADDITIONAL INFO
```

Figure 1-1. Reference Code Screen

2. Type in the 8-digit reference code you want to analyze in the input area of the screen. Refer to Figure 1-1.
3. Press **SEND** the action you are required to perform will appear on the screen.

   Note

   When the microcode is a possible cause of the error, it is recommended that you check:

   1. If you have the highest level of microcode for your machine.
   2. That any applicable MCFs are installed.

   Your support structure will have this information.

4. **Hit F6 for additional information** (on associated components and customer resources for TSS, HPTSS and ESS), and record the data for later usage.

   Note: If the CDF is not correct, this information can be wrong.
5. When the FRU list is given, record the types and location, then use the “3745 FRU List” on page 1-53.

If the reference code is reported as 'INVALID' or 'DUMMY', check that you have entered the same code as reported. If so, an error in the BER analysis or BER logging has occurred. Contact your support structure for assistance. See “Contacting Support” on page A-1.

3745 Control Panel Codes

For the 3746 Model 900 panel code, refer to the *IBM 3746 Nways Multiprotocol Controller Model 900 Service Guide*, SY33-2116.

Table 1-5 (Page 1 of 33). Panel Codes. An ¹ following a panel code denotes that the code should 'Blink'.

Panel Code	Definition	Action: Go to "3745 FRU Group Table" on page 1-49 or to MAP number
000	SUCCESSFUL IPL COMPLETION: THE CONTROL PROGRAM IS LOADED AND MOSS IS OPERATIONAL.	No action required
001	ROS CODE DOES NOT GET CONTROL OR DOES NOT EXECUTE SCHEDULED PROCESSING (CODE DISPLAYED BY THE PCC)	Go to "MAP 3200: MOSS Control Panel Code 001" on page 2-3
002	MMIO INTERFACE NOT OK (CODE DISPLAYED BY THE PCC)	Exchange the FRU group 22
003	MOSS REIML has been initiated . Progression code.	If permanently displayed, exchange the FRU group 22
004	Problem detected with MOSS POR signal (not the same as the PCC one).	Go to "Power MAP 3950: PCC-Detected Error on MOSS Reset" on page 2-27
005	Problem detected with CCU POR signals (not the same as the PCC one) .	Go to "Power MAP 3970: PCC-Detected Error on CCU Reset or on Remote Power OFF" on page 2-30
006	ac input fault detected . (always sent on panel even if MOSS IMLed). An alarm and reference code will have been produced on the 3745 console CB1 has been set OFF then ON (during an exchange procedure for instance).	Power on 3745 if it was previously in 'local mode'. Refer to "Using Reference Codes" on page 1-14 Do not take into account the Panel Code
007	PCC battery down . (always sent on panel even if MOSS IMLed)	Exchange the FRU group 39
008	Problem detected with RPO signal (always ON : CCU or cable problem)	Exchange the FRU group 49
009 and 00A	Unused	Go to "MAP 3220: Undefined Panel Message" on page 2-5
00B	Problem detected on power supply 1 " OVERCURRENT FAULT " . This code can occur if the 3745 is powered ON less than 10 seconds after a power OFF	Go to "MAP 3900: Overcurrent on Power Supply 1" on page 2-12 This code is normal and no FRUs need to be replaced. Wait at least 10 seconds after power OFF before you try to power ON again
00C	Problem detected on power supply 1 " POWER SUPPLY FAULT " (overvoltage, undervoltage) . This code can occur if the 3745 is powered ON less than 10 seconds after a power OFF	Exchange the FRU group 50 This code is normal and no FRUs need to be replaced. Wait at least 10 seconds after power OFF before you try to power ON again
00D	Unused This code can occur if the 3745 is powered ON less than 10 seconds after a power OFF	Go to "MAP 3220: Undefined Panel Message" on page 2-5 This code is normal and no FRUs need to be replaced. Wait at least 10 seconds after power OFF before you try to power ON again
00E	Problem detected on power 2 "OVER-CURRENT FAULT".	Go to "MAP 3910: Overcurrent on Power Supply 2" on page 2-18
00F	Unused This code can occur if the 3745 is powered ON less than 10 seconds after a power OFF	Go to "MAP 3220: Undefined Panel Message" on page 2-5 This code is normal and no FRUs need to be replaced. Wait at least 10 seconds after power OFF before you try to power ON again

Table 1-5 (Page 2 of 33). Panel Codes. An ¹ following a panel code denotes that the code should 'Blink'.

Panel Code	Definition	Action: Go to "3745 FRU Group Table" on page 1-49 or to MAP number
010	Machine powered OFF because power supply or blower faults	Use the function 'B' to display the four stacked errors. Refer to "Display Stacked Errors" on page 1-83.
011 to 02F	Unused	Go to "MAP 3220: Undefined Panel Message" on page 2-5
030	Problem detected with Power supply Fan	Go to "Power MAP 3920: Air Flow Detector Fault" on page 2-19
031	Problem detected with MOSS and basic board Fan	
032	Problem detected with MOSS and basic board Fan	
033 to 04F	Unused	Go to "MAP 3220: Undefined Panel Message" on page 2-5
050	INITIAL MOSS PROCESSOR RESET STATE NOT OK	Exchange the FRU group 1 .
051	Unused	Go to "MAP 3220: Undefined Panel Message" on page 2-5
052	INITIAL MOSS PROCESSOR STATE OK (PROGRESSION CODE) Progression code.	If permanently displayed, exchange the FRU group 2
053	UNEXPECTED LEVEL 0 INTERRUPT PRESENT IN THE IOIRV.	Exchange the FRU group 3
054	UNEXPECTED LEVEL 1 INTERRUPT PRESENT IN THE IOIRV.	
055	UNEXPECTED LEVEL 2 INTERRUPT PRESENT IN THE IOIRV.	Exchange the FRU group 4
056	UNEXPECTED LEVEL 3 INTERRUPT PRESENT IN THE IOIRV.	Exchange the FRU group 3
057	UNEXPECTED LEVEL 4 INTERRUPT PRESENT IN THE IOIRV.	Exchange the FRU group 3
058	UNEXPECTED LEVEL 5 INTERRUPT PRESENT IN THE IOIRV.	Exchange the FRU group 7
059	UNEXPECTED LEVEL 6 OR 7 INTERRUPT PRESENT IN THE IOIRV.	Go to "MAP 3210: MOSS Control Panel Code 059" on page 2-4
05A	MOSS PROCESSOR CONDITIONS CODES NOT OK	Exchange the FRU group 2
05B	Unused	Go to "MAP 3220: Undefined Panel Message" on page 2-5
05C	MOSS PROCESSOR CACHE NOT OK	Exchange the FRU group 2
05D	MOSS PROCESSOR INSTRUCTION TEST PART 1 NOT OK	
05E	Unused	Go to "MAP 3220: Undefined Panel Message" on page 2-5
05F	ROS CHECKSUM NOT OK	Exchange the FRU group 2
060	ROS BAD PARITY LOCATION NOT DETECTED	
061	Unused	Go to "MAP 3220: Undefined Panel Message" on page 2-5
062	EIRV DOES NOT REPORT FORCED ERRORS	Exchange the FRU group 2
063	Unused	Go to "MAP 3220: Undefined Panel Message" on page 2-5
070	PIO BUS TEST DID NOT RUN COMPLETELY	Exchange the FRU group 1 .
071	SOME ERROR(S) OCCURRED DURING THE PIO BUS TEST PARTICULARLY ON MPC I/Os.	
072	SOME ERROR(S) OCCURRED DURING THE PIO BUS TEST PARTICULARLY ON DFA I/Os.	Exchange the FRU group 7
073	SOME ERROR(S) OCCURRED DURING THE PIO BUS TEST PARTICULARLY ON MPC AND DFA I/Os.	Exchange the FRU group 6
074	SOME ERROR(S) OCCURRED DURING THE PIO BUS TEST PARTICULARLY ON MCCU OR MCAD I/Os ON MCC	Exchange the FRU group 3
075	SOME ERROR(S) OCCURRED DURING THE PIO BUS TEST PARTICULARLY ON MPC I/Os AND ON MCCU OR MCAD I/Os ON MCC.	Exchange the FRU group 1 .

Table 1-5 (Page 3 of 33). Panel Codes. An ¹ following a panel code denotes that the code should 'Blink'.

Panel Code	Definition	Action: Go to "3745 FRU Group Table" on page 1-49 or to MAP number
076	SOME ERROR(S) OCCURRED DURING THE PIO BUS TEST PARTICULARLY ON DFA I/Os AND ON MCCU OR MCAD I/Os ON MCC.	Exchange the FRU group 8
077	SOME ERROR(S) OCCURRED DURING THE PIO BUS TEST PARTICULARLY ON MPC I/Os AND ON DFA I/Os AND ON MCCU OR MCAD I/Os ON MCC.	Exchange the FRU group 6
078	SOME ERROR(S) OCCURRED DURING THE PIO BUS TEST PARTICULARLY ON PCA'S I/Os ON MCC	Exchange the FRU group 3
079	SOME ERROR(S) OCCURRED DURING THE PIO BUS TEST PARTICULARLY ON MPC AND PCA'S I/Os ON MCC	Exchange the FRU group 1 .
07A	SOME ERROR(S) OCCURRED DURING THE PIO BUS TEST PARTICULARLY ON DFA AND PCA'S I/Os ON MCC	Exchange the FRU group 8
07B	SOME ERROR(S) OCCURRED DURING THE PIO BUS TEST PARTICULARLY ON MPC I/Os , DFA I/Os AND PCA'S I/Os ON MCC.	Exchange the FRU group 6
07C	SOME ERROR(S) OCCURRED DURING THE PIO BUS TEST PARTICULARLY ON MCC I/Os (MCCU,MCAD AND PCA'S).	Exchange the FRU group 3
07D	SOME ERROR(S) OCCURRED DURING THE PIO BUS TEST PARTICULARLY ON MPC AND MCC I/Os.	Exchange the FRU group 1 .
07E	SOME ERROR(S) OCCURRED DURING THE PIO BUS TEST PARTICULARLY ON DFA AND MCC I/Os.	Exchange the FRU group 8
07F	SOME ERROR(S) OCCURRED DURING THE PIO BUS TEST ERRORS WERE DETECTED ON ALL ADAPTERS	Exchange the FRU group 1 .
080 to 096	Unused	Go to "MAP 3220: Undefined Panel Message" on page 2-5
097	PIO TEST PART 1 SUCCESSFUL PROBLEM IN PIO BUS TEST PART 2	Exchange the FRU group 9
098¹	PIO TEST PART 2 NOT SUCCESSFUL	Exchange the FRU group 5
099	PIO TEST PART 2 SUCCESSFUL Progression code.	If permanently displayed, exchange the FRU group 2
09A to 09C	Unused	Go to "MAP 3220: Undefined Panel Message" on page 2-5
09D	PROBLEM WITH PCC	Exchange the FRU group 12
09E	INFORMATION DEFINING THE ORIGIN OF THE ACTIVATION OF THE MOSS DIAGNOSTICS IS NOT VALID. (RUN THE PANEL TEST TO CHECK THE CONTROL PANEL).	Exchange the FRU group 10
09F	CONTROL LOST IN THE MAINLINE CONTROLLER AFTER CHECKING THE REQUEST	Exchange the FRU group 2
0A0	MOSS STORAGE TEST ENTRY CODE Progression code.	If permanently displayed, exchange the FRU group 2
0A1¹	EIRV REGISTER IS NOT X'00' IN TEST 1	Exchange the FRU group 2
0A2¹	EIRV REGISTER IS NOT X'00' IN TEST 2	Exchange the FRU group 11
0A3¹	DISABLE THE VALID OPTION KO IN TEST 1	Exchange the FRU group 12
0A4¹	RECONFIGURE BIT IS ALWAYS 'ON' IN TOD ADAPTER	Exchange the FRU group 13
0A5¹	ADDRESS NOT INCREMENTED IN TEST 2	Exchange the FRU group 13
0A6¹	DIFFERENT LOADED AND STORED CONTENTS IN TEST 2	Exchange the FRU group 11
0A7¹	INVALID ADDRESS IN THE ROS IN TEST 2	Exchange the FRU group 13
0A8¹	INVALID ADDRESS AFTER 512K OR 1MEG IN TEST 2	Exchange the FRU group 13
0A9¹	NO MEMORY LOCATION WITHOUT ERROR IS FOUND IN TEST 2	Exchange the FRU group 11
0AA¹	EIRV REGISTER IS NOT X'00' IN TEST 4	Exchange the FRU group 13
0AB to 0AC	Unused	Go to "MAP 3220: Undefined Panel Message" on page 2-5

Table 1-5 (Page 4 of 33). Panel Codes. An ¹ following a panel code denotes that the code should 'Blink'.		
Panel Code	**Definition**	**Action: Go to "3745 FRU Group Table" on page 1-49 or to MAP number**
0AD¹	NO SINGLE ERROR CORRECTION IN TEST 3	Exchange the FRU group 13
0AE¹	BAD SINGLE ERROR CORRECTION IN TEST 3	
0AF	Unused	Go to "MAP 3220: Undefined Panel Message" on page 2-5
0B0¹	NO DOUBLE ERROR DETECTION IN TEST 3	Exchange the FRU group 13
0B1¹	DIFFERENT LOADED AND STORED CONTENTS IN TEST 4	Exchange the FRU group 11
0B2¹	RECONFIGURE BIT IN TOD ADAPTER CAN NOT BE SET IN TEST 5	Exchange the FRU group 13
0B3	Unused	Go to "MAP 3220: Undefined Panel Message" on page 2-5
0B4¹	DIFFERENT LOADED AND STORED CONTENTS IN TEST 7	Exchange the FRU group 11
0B5¹	DOUBLE UNCORRECTABLE ERROR IN TEST 6	Exchange the FRU group 13
0B6¹	ENABLE VALID OPTION KO IN TEST 9	Exchange the FRU group 12
0B7¹	EIRV REGISTER IS NOT X'00' IN TEST 9	Exchange the FRU group 13
0B8 to 0BE	Unused	Go to "MAP 3220: Undefined Panel Message" on page 2-5
0BF	MOSS MEMORY TEST EXIT CODE Progression code.	If permanently displayed, exchange the FRU group 2
0C0	PROBLEM IN ROS MAINLINE CONTROLLER INITIAL-IZATION	Exchange the FRU group 14
0C1	CONTROL LOST AFTER INITIALIZING THE ROS MAINLINE CONTROLLER	Exchange the FRU group 2
0C2	CONTROL LOST DURING PSV SWAP TEST	Exchange the FRU group 13
0C3¹	STORAGE CHECK (WHEN ACCESSING THE REG-ISTER SPACE)	Exchange the FRU group 11
0C4¹	SCHEDULED PROGRESSION NOT PERFORMED DURING THE PSV SWAP TEST	Exchange FRU group 13
0C5¹	CACHE IN/CACHE OUT OPERATION NOT SUC-CESSFUL	
0C6	Unused	Go to "MAP 3220: Undefined Panel Message" on page 2-5
0C7	PSV SWAP TEST SUCCESSFUL Progression code.	If permanently displayed, exchange the FRU group 2
0C8 to 0CF	Unused	Go to "MAP 3220: Undefined Panel Message" on page 2-5
0D0¹	DISK ADAPTER TEST ENTRY CODE Progression code.	If permanently displayed, exchange the FRU group 2
0D1¹	EIRV REGISTER IS NOT X'00' IN TEST 1	Exchange the FRU group 54
0D2¹	IOIRV REGISTER IS NOT X'00' IN TEST 1	Exchange the FRU group 15
0D3¹	ADAPTER NOT IN BUSY STATE OR NOT ENABLE BSTAT BITS 0,1 ARE NOT B'10' IN TEST 1	
0D4	Unused	Go to "MAP 3220: Undefined Panel Message" on page 2-5
0D5¹	ADAPTER NOT IN IDLE STATE IN TEST 1 BSTAT BITS 0,1 ARE NOT B'00'	Exchange the FRU group 15
0D6¹	DIFFERENT LOADED AND READ CONTENTS IN TEST 2	
0D7¹	REGISTER NOT RESET AFTER A RESET COMMAND IN TEST 2	Exchange the FRU group 15
0D8¹	INVALID PIO COMMAND	
0D9¹	EIRV REGISTER IS NOT X'00' IN TEST 2	
0DA¹	IOIRV REGISTER IS NOT X'00' IN TEST 2	
0DB¹	ADAPTER IN BUSY STATE IN TEST 1 BSTAT BITS 0,1 ARE NOT B'00'	Exchange the FRU group 15
0DC¹	EIRV REGISTER IS NOT X'00' IN TEST 3	
0DD¹	IOIRV REGISTER IS NOT X'00' IN TEST 2	
0DE¹	EIRV REGISTER IS NOT X'00' IN TEST 3	

Table 1-5 (Page 5 of 33). Panel Codes. An ¹ following a panel code denotes that the code should 'Blink'.

Panel Code	Definition	Action: Go to "3745 FRU Group Table" on page 1-49 or to MAP number
0DF¹	IOIRV REGISTER IS X'00' IN TEST 2 NO INTERRUPT REQUESTED	Exchange the FRU group 15
0E0¹	CHIO TRANSFER KO	
0E1¹	ADAPTER IN BUSY STATE IN TEST 4 BSTAT BITS 0,1 ARE NOT B'00' OR ADAPTER NOT ENABLE BSTAT BIT 6 IS NOT ONE RUN DIAGNOSTIC COMMAND TEST	
0E2¹	DATA TRANSMISSION ERROR HSTAT BITS 0,1,2,3,6,7 ARE NOT ZERO RUN DIAGNOSTIC COMMAND TEST	
0E3¹	DIFFERENT CONTENTS IN THE FIRST AND THE SECOND PART OF THE SECTOR BUFFER RUN DIAGNOSTIC COMMAND TEST	Exchange the FRU group 15
0E4¹	ERROR IN SSB BYTE 0 RUN DIAGNOSTIC COMMAND TEST	Exchange the FRU group 21
0E5¹	ERROR IN SSB BYTE 1 AND 2 RUN DIAGNOSTIC COMMAND TEST	Exchange the FRU group 15
0E6¹	ADAPTER IN BUSY STATE IN TEST 5 BSTAT BITS 0,1 ARE NOT B'00' OR ADAPTER NOT ENABLE BSTAT BIT 6 IS NOT ONE DRIVES INITIALIZATION	Exchange the FRU group 16
0E7¹	IOIRV REGISTER IS X'00' IN TEST 5 NO INTERRUPT RECEIVED DRIVES INITIALIZATION	
0E8¹	EIRV REGISTER IS NOT X'00' IN TEST 5 DRIVES INITIALIZATION	
0E9¹	DATA TRANSMISSION ERROR HSTAT BITS 0,1,2,3,6,7 ARE NOT ZERO DRIVES INITIALIZATION	
0EA¹	ADAPTER IN BUSY STATE IN TEST 6 BSTAT BITS 0,1 ARE NOT B'00' OR ADAPTER NOT ENABLE BSTAT BIT 6 IS NOT ONE SEEK COMMAND BEFORE RECALIBRATE TEST	Exchange the FRU group 16
0EB¹	IOIRV REGISTER IS X'00' IN TEST 6 NO INTERRUPT RECEIVED SEEK COMMAND BEFORE RECALIBRATE TEST	
0ED¹	ADAPTER IN BUSY STATE IN TEST 6 BSTAT BITS 0,1 ARE NOT B'00' OR ADAPTER NOT ENABLE BSTAT BIT 6 IS NOT ONE RECALIBRATE COMMAND TEST	
0EE¹	IOIRV REGISTER IS X'00' IN TEST 6 NO INTERRUPT RECEIVED RECALIBRATE COMMAND TEST	
0EF¹	EIRV REGISTER IS NOT X'00' IN TEST 6 RECALIBRATE COMMAND TEST	Exchange the FRU group 16
0F0	Unused	Go to "MAP 3220: Undefined Panel Message" on page 2-5
0F1¹	DATA TRANSMISSION ERROR HSTAT BITS 0,1,2,3,6,7 ARE NOT ZERO DRIVES INITIALIZATION RECALIBRATE COMMAND TEST	Exchange the FRU group 16
0F2¹	NO CYLINDER ZERO IN SSB BYTE0 BIT 7 RECALIBRATE COMMAND TEST	
0F3¹	ERROR IN SSB BYTE 0 RECALIBRATE COMMAND TEST	Exchange the FRU group 16
0F4¹	ERROR IN SSB BYTE 1 AND 2 RECALIBRATE COMMAND TEST	
0F5¹	ADAPTER IN BUSY STATE IN TEST 7 BSTAT BITS 0,1 ARE NOT B'00' OR ADAPTER NOT ENABLE BSTAT BIT 6 IS NOT ONE READ ID COMMAND TEST	
0F6¹	IOIRV REGISTER IS X'00' IN TEST 7 NO INTERRUPT RECEIVED READ ID COMMAND TEST	

Table 1-5 (Page 6 of 33). Panel Codes. An ¹ following a panel code denotes that the code should 'Blink'.

Panel Code	Definition	Action: Go to "3745 FRU Group Table" on page 1-49 or to MAP number
0F7¹	EIRV REGISTER IS NOT X'00' IN TEST 7 READ ID COMMAND TEST	Exchange the FRU group 16
0F8¹	DATA TRANSMISSION ERROR HSTAT BITS 0,1,2,3,6,7 ARE NOT ZERO READ ID COMMAND TEST	
0F9¹	ERROR ON HEAD ADDRESSING MECHANISM READ ID COMMAND TEST	
0FA¹	ERROR IN SSB BYTE 0 READ ID COMMAND TEST	
0FB¹	ERROR IN SSB BYTE 1 AND 2 READ ID COMMAND TEST	Exchange the FRU group 16
0FC¹	ADAPTER IN BUSY STATE IN TEST 8 BSTAT BITS 0,1 ARE NOT B'00' OR ADAPTER NOT ENABLE BSTAT BIT 6 IS NOT ONE RECALIBRATE COMMAND BEFORE SEEK TEST	
0FD¹	IOIRV REGISTER IS X'00' IN TEST 8 NO INTERRUPT RECEIVED RECALIBRATE COMMAND BEFORE SEEK TEST	
0FE	Unused	Go to "MAP 3220: Undefined Panel Message" on page 2-5
0FF¹	ADAPTER IN BUSY STATE IN TEST 8 BSTAT BITS 0,1 ARE NOT B'00' OR ADAPTER NOT ENABLE BSTAT BIT 6 IS NOT ONE SEEK COMMAND TEST	Exchange the FRU group 16
100	Unused	Go to "MAP 3220: Undefined Panel Message" on page 2-5
101	HARD DISK INITIAL STATE IS NOT OK. A RECOVERY PROCEDURE IS RUNNING.	Exchange the FRU group 16
102	HARD DISK INITIAL STATE NOT OK (EVEN AFTER A RECOVERY PROCEDURE).	
103 to 110	Unused	Go to "MAP 3220: Undefined Panel Message" on page 2-5
111¹	IOIRV REGISTER IS X'00' IN TEST 8 NO INTERRUPT RECEIVED SEEK COMMAND TEST	Exchange the FRU group 16
112¹	EIRV REGISTER IS NOT X'00' IN TEST 8 SEEK COMMAND TEST	
113¹	DATA TRANSMISSION ERROR HSTAT BITS 0,1,2,3,6,7 ARE NOT ZERO SEEK COMMAND TEST	
114¹	DIFFERENT HEAD NUMBERS SEEK COMMAND TEST	
115¹	ERROR IN SSB BYTE 0 SEEK COMMAND TEST	Exchange the FRU group 16
116¹	ERROR IN SSB BYTE 1 AND 2 SEEK COMMAND TEST	
117¹	ADAPTER IN BUSY STATE IN TEST 9 BSTAT BITS 0,1 ARE NOT B'00' OR ADAPTER NOT ENABLE BSTAT BIT 6 IS NOT ONE READ/WRITE A SECTOR COMMAND	
118¹	IOIRV REGISTER IS X'00' IN TEST 9 NO INTERRUPT RECEIVED READ/WRITE A SECTOR COMMAND	
119¹	EIRV REGISTER IS NOT X'00' IN TEST 9 READ/WRITE A SECTOR COMMAND	Exchange the FRU group 16
11A¹	DATA TRANSMISSION ERROR HSTAT BITS 0,1,2,3,6,7 ARE NOT ZERO READ/WRITE A SECTOR COMMAND	
11B¹	DIFFERENT WRITTEN AND READ SECTORS READ/WRITE A SECTOR COMMAND	
11C¹	ERROR IN SSB BYTE 0 READ/WRITE A SECTOR COMMAND	

Table 1-5 (Page 7 of 33). Panel Codes. An ¹ following a panel code denotes that the code should 'Blink'.

Panel Code	Definition	Action: Go to "3745 FRU Group Table" on page 1-49 or to MAP number
11D¹	ERROR IN SSB BYTE 1 AND 2 READ/WRITE A SECTOR COMMAND	Exchange the FRU group 16
11E¹	ADAPTER IN BUSY STATE IN TEST 10 BSTAT BITS 0,1 ARE NOT B'00' OR ADAPTER NOT ENABLE BSTAT BIT 6 IS NOT ONE READ/WRITE A FULL TRACK COMMAND	
11F¹	IOIRV REGISTER IS X'00' IN TEST 10 NO INTERRUPT RECEIVED READ/WRITE A FULL TRACK COMMAND	
120¹	EIRV REGISTER IS NOT X'00' IN TEST 10 READ/WRITE A FULL TRACK COMMAND	
121¹	DATA TRANSMISSION ERROR HSTAT BITS 0,1,2,3,6,7 ARE NOT ZERO READ/WRITE A FULL TRACK COMMAND	Exchange the FRU group 16
122¹	DIFFERENT WRITTEN AND READ TRACKS READ/WRITE A FULL TRACK COMMAND	
123¹	ERROR IN SSB BYTE 0 READ/WRITE A FULL TRACK COMMAND	
124¹	ERROR IN SSB BYTE 1 AND 2 READ/WRITE A FULL TRACK COMMAND	
125¹	ADAPTER IN BUSY STATE IN TEST 11 BSTAT BITS 0,1 ARE NOT B'00' OR ADAPTER NOT ENABLE BSTAT BIT 6 IS NOT ONE READ/WRITE NO DATA COMMAND	Exchange the FRU group 16
126¹	IOIRV REGISTER IS X'00' IN TEST 11 NO INTERRUPT RECEIVED READ/WRITE NO DATA COMMAND	
127¹	EIRV REGISTER IS NOT X'00' IN TEST 11 READ/WRITE NO DATA COMMAND	
128¹	DATA TRANSMISSION ERROR HSTAT BITS 0,1,2,3,6,7 ARE NOT ZERO READ/WRITE NO DATA COMMAND	
129¹	DIFFERENT WRITTEN AND READ SECTORS READ/WRITE NO DATA COMMAND	Exchange the FRU group 16
12A¹	ERROR IN SSB BYTE 0 READ/WRITE NO DATA COMMAND	
12B¹	ERROR IN SSB BYTE 1 AND 2 READ/WRITE NO DATA COMMAND	
12C¹	ADAPTER IN BUSY STATE IN TEST 12 BSTAT BITS 0,1 ARE NOT B'00' OR ADAPTER NOT ENABLE BSTAT BIT 6 IS NOT ONE READ CHECK/WRITE VERIFY COMMAND	
12D¹	IOIRV REGISTER IS X'00' IN TEST 12 NO INTERRUPT RECEIVED READ CHECK/WRITE VERIFY COMMAND	Exchange the FRU group 16
12E¹	EIRV REGISTER IS NOT X'00' IN TEST 12 READ CHECK/WRITE VERIFY COMMAND	
12F¹	DATA TRANSMISSION ERROR HSTAT BITS 0,1,2,3,6,7 ARE NOT ZERO READ CHECK/WRITE VERIFY COMMAND	
130¹	ERROR IN SSB BYTE 0 READ CHECK/WRITE VERIFY COMMAND	
131¹	ERROR IN SSB BYTE 1 AND 2 READ CHECK/WRITE VERIFY COMMAND	Exchange the FRU group 16
132¹	DIFFERENT WRITTEN AND READ SECTORS READ CHECK/WRITE VERIFY COMMAND	
133¹	ADAPTER IN BUSY STATE IN TEST 13 BSTAT BITS 0,1 ARE NOT B'00' OR ADAPTER NOT ENABLE BSTAT BIT 6 IS NOT ONE ECC CORRECTION TEST	
134¹	IOIRV REGISTER IS X'00' IN TEST 13 NO INTERRUPT RECEIVED ECC CORRECTION TEST	

Table 1-5 (Page 8 of 33). Panel Codes. An ¹ following a panel code denotes that the code should 'Blink'.

Panel Code	Definition	Action: Go to "3745 FRU Group Table" on page 1-49 or to MAP number
135¹	EIRV REGISTER IS NOT X'00' IN TEST 13 ECC CORRECTION TEST	Exchange the FRU group 16
136¹	DATA TRANSMISSION ERROR HSTAT BITS 0,1,2,3,6,7 ARE NOT ZERO ECC CORRECTION TEST	
137¹	ERROR ON A SELECTED SECTOR ECC CORRECTION TEST	
138¹	NO ERROR IN SSB WHILE EXPECTED ECC CORRECTION TEST	
139¹	NO CORRECTION ECC CORRECTION TEST	Exchange the FRU group 16
13A¹	NO DETECTION ECC CORRECTION TEST	
13C¹	ERROR SSB BYTE 0 ECC CORRECTION TEST	
13D¹	ERROR SSB BYTE 1 AND 2 ECC CORRECTION TEST	
13E¹	DIFFERENT WRITTEN AND READ CONTENTS IN TEST 13	Exchange the FRU group 16
13F¹	DISKETTE CHANGE INFORMATION IS NOT PRESENT	Exchange the FRU group 18
140¹	ADAPTER IN BUSY STATE IN TEST 5 BSTAT BITS 0,1 ARE NOT B'00' OR ADAPTER NOT ENABLE BSTAT BIT 6 IS NOT ONE DRIVES INITIALIZATION DISKETTE	Exchange the FRU group 17
141¹	IOIRV REGISTER IS X'00' IN TEST 5 NO INTERRUPT RECEIVED DRIVES INITIALIZATION DISKETTE	Exchange the FRU group 19
142¹	EIRV REGISTER IS NOT X'00' IN TEST 5 DRIVES INITIALIZATION DISKETTE	Exchange the FRU group 17
143¹	DATA TRANSMISSION ERROR HSTAT BITS 0,1,2,3,6,7 ARE NOT ZERO DRIVES INITIALIZATION DISKETTE	Exchange the FRU group 19
144¹	ADAPTER IN BUSY STATE IN TEST 6 BSTAT BITS 0,1 ARE NOT B'00' OR ADAPTER NOT ENABLE BSTAT BIT 6 IS NOT ONE SEEK COMMAND BEFORE RECALIBRATE TEST DISKETTE	Exchange the FRU group 17
145¹	IOIRV REGISTER IS X'00' IN TEST 6 NO INTERRUPT RECEIVED SEEK COMMAND BEFORE RECALIBRATE TEST DISKETTE	Exchange the FRU group 19
146	Unused	Go to "MAP 3220: Undefined Panel Message" on page 2-5
147¹	ADAPTER IN BUSY STATE IN TEST 6 BSTAT BITS 0,1 ARE NOT B'00' OR ADAPTER NOT ENABLE BSTAT BIT 6 IS NOT ONE RECALIBRATE COMMAND TEST DISKETTE	Exchange the FRU group 17
148¹	IOIRV REGISTER IS X'00' IN TEST 6 NO INTERRUPT RECEIVED RECALIBRATE COMMAND TEST DISKETTE	Exchange the FRU group 17
149¹	EIRV REGISTER IS NOT X'00' IN TEST 6 RECALIBRATE COMMAND TEST DISKETTE	Exchange the FRU group 19
14A¹	DATA TRANSMISSION ERROR HSTAT BITS 0,1,2,3,6,7 ARE NOT ZERO DRIVES INITIALIZATION RECALIBRATE COMMAND TEST DISKETTE OR NO DISKETTE (OR BAD DISKETTE) IN DRIVE	Exchange the FRU group 21
14B¹	NO CYLINDER ZERO IN SSB BYTE0 BIT 7 RECALIBRATE COMMAND TEST2DRIVE DISKETTE	
14C¹	ERROR IN SSB BYTE 0 RECALIBRATE COMMAND TEST DISKETTE	
14D¹	ERROR IN SSB BYTE 1 AND 2 RECALIBRATE COMMAND TEST DISKETTE	
14E¹	ADAPTER IN BUSY STATE IN TEST 7 BSTAT BITS 0,1 ARE NOT B'00' OR ADAPTER NOT ENABLE BSTAT BIT 6 IS NOT ONE READ ID COMMAND TEST DISKETTE	Exchange the FRU group 17

Table 1-5 (Page 9 of 33). Panel Codes. An ¹ following a panel code denotes that the code should 'Blink'.

Panel Code	Definition	Action: Go to "3745 FRU Group Table" on page 1-49 or to MAP number
14F¹	IOIRV REGISTER IS X'00' IN TEST 7 NO INTER-RUPT RECEIVED READ ID COMMAND TEST DISKETTE	Exchange the FRU group 19
150¹	EIRV REGISTER IS NOT X'00' IN TEST 7 READ ID COMMAND TEST DISKETTE	Exchange the FRU group 17
151¹	DATA TRANSMISSION ERROR HSTAT BITS 0,1,2,3,6,7 ARE NOT ZERO READ ID COMMAND TEST DISKETTE	Exchange the FRU group 19
152¹	ERROR ON HEAD ADDRESSING MECHANISM READ ID COMMAND TEST DISKETTE	Exchange the FRU group 21
153¹	ERROR IN SSB BYTE 0 READ ID COMMAND TEST DISKETTE	
154¹	ERROR IN SSB BYTE 1 AND 2 READ ID COMMAND TEST DISKETTE	
155¹	ADAPTER IN BUSY STATE IN TEST 8 BSTAT BITS 0,1 ARE NOT B'00' OR ADAPTER NOT ENABLE BSTAT BIT 6 IS NOT ONE RECALIBRATE COMMAND BEFORE SEEK TEST DISKETTE	Exchange the FRU group 17
156¹	IOIRV REGISTER IS X'00' IN TEST 8 NO INTER-RUPT RECEIVED RECALIBRATE COMMAND BEFORE SEEK TEST DISKETTE	Exchange the FRU group 19
158¹	ADAPTER IN BUSY STATE IN TEST 8 BSTAT BITS 0,1 ARE NOT B'00' OR ADAPTER NOT ENABLE BSTAT BIT 6 IS NOT ONE SEEK COMMAND TEST DISKETTE	Exchange the FRU group 17
159¹	IOIRV REGISTER IS X'00' IN TEST 8 NO INTER-RUPT RECEIVED SEEK COMMAND TEST DISKETTE	Exchange the FRU group 19
15A¹	EIRV REGISTER IS NOT X'00' IN TEST 8 SEEK COMMAND TEST DISKETTE	Exchange the FRU group 17
15B¹	DATA TRANSMISSION ERROR HSTAT BITS 0,1,2,3,6,7 ARE NOT ZERO SEEK COMMAND TEST DISKETTE	Exchange the FRU group 19
15C¹	DIFFERENT HEAD NUMBERS SEEK COMMAND TEST	Exchange the FRU group 21
15D¹	ERROR IN SSB BYTE 0 SEEK COMMAND TEST	
15E¹	ERROR IN SSB BYTE 1 AND 2 SEEK COMMAND TEST DISKETTE	
15F	END OF DISK ADAPTER TEST Progression code.	If permanently displayed, exchange the FRU group 2
170	ROS CODE GETS CONTROL FOR A RE-IML BUT THE RE-IML RESET SEQUENCE IS NOT PER-FORMED	Exchange the FRU group 2
171	RE-IML SEQUENCE COMPLETELY PERFORMED BUT ERROR IN MOSS PROCESSOR RESET STATE TEST	
172 to 177	Unused	Go to "MAP 3220: Undefined Panel Message" on page 2-5
178	CONTROL LOST DURING THE PROCESSING OF THE 'MOSS DIAGS BY-PASS' REQUEST. A PCC ERROR IS ALSO SUSPECTED.	Exchange the FRU group 22
179	Unused	Go to "MAP 3220: Undefined Panel Message" on page 2-5
17A	INFORMATION DEFINING THE ORIGIN OF THE ACTI VATION OF THE MOSS DIAGNOSTICS IS NOT VALID. (RUN THE PANEL TEST TO CHECK THE CONTROL PA NEL).	Exchange the FRU group 10
17B	CONTROL LOST DURING THE PROCESSING OF THE 'MOSS DIAGS BY-PASS' REQUEST	Exchange the FRU group 23
17C	Unused	Go to "MAP 3220: Undefined Panel Message" on page 2-5
17D	STORAGE ACCESS PROBLEM. DUMP REQUEST CAN NOT BE PROCESSED	Exchange the FRU group 11

Table 1-5 (Page 10 of 33). Panel Codes. An [1] following a panel code denotes that the code should 'Blink'.		
Panel Code	**Definition**	**Action: Go to "3745 FRU Group Table" on page 1-49 or to MAP number**
17E	Unused	Go to "MAP 3220: Undefined Panel Message" on page 2-5
17F	COMPLETION OF ROS PART OF MOSS DIAGNOSTICS Progression code.	If permanently displayed, exchange the FRU group 24
180	ENTRY INTO RAM PART OF MOSS DIAGNOSTICS Progression code.	If permanently displayed, exchange the FRU group 25
181[1]	CURRENT PROGRAM LEVEL NOT AS EXPECTED (SHOULD HAVE BEEN 6)	Exchange the FRU group 25
182	RAM DIAG CONTROLLER HAS FULL CONTROL Progression code.	If permanently displayed, exchange the FRU group 25
183 to 187	Unused	Go to "MAP 3220: Undefined Panel Message" on page 2-5
188	CONTROL LOST DURING INSTRUCTION TEST PART 2	Exchange the FRU group 25
189[1]	MOSS PROCESSOR INSTRUCTION TEST PART 2 NOT OK	
18A	MOSS PROCESSOR INSTRUCTION TEST PART 2 SUCCESSFULLY RUN Progression code.	If permanently displayed, exchange the FRU group 25
18B	Unused	Go to "MAP 3220: Undefined Panel Message" on page 2-5
18C	CONTROL LOST DURING TOD ADAPTER TEST	Exchange the FRU group 6
18D	END OF TOD TEST (SUCCESSFUL OR NOT) Progression code.	If permanently displayed, exchange the FRU group 2
18E to 18F	Unused	Go to "MAP 3220: Undefined Panel Message" on page 2-5
190	START OF MCC TEST Progression code.	If permanently displayed, exchange the FRU group 9
191[1]	HARDWIRED CONDITIONS IMPOSSIBLE TO GET IN PCA 1	Exchange the FRU group 5
192[1]	ERROR IN PCA 1 TEST ASYNCHRONOUS	Exchange the FRU group 26
193[1]	UNEXPECTED LEVEL 0 INTERRUPT DURING PCA1 TEST	Exchange the FRU group 5
194[1]	ERROR IN PCA 1 INTERNAL WRAP ASYNCHRONOUS TEST.	Exchange the FRU group 26
195[1]	UNEXPECTED LEVEL 0 INTERRUPT DURING PCA1 TEST	Exchange the FRU group 6
196[1]	HARDWIRED CONDITIONS IMPOSSIBLE TO GET IN PCA 2	Exchange the FRU group 5
197[1]	ERROR IN PCA 2 TEST ASYNCHRONOUS	Exchange the FRU group 26
198[1]	UNEXPECTED LEVEL 0 INT. DURING PCA2 TEST	Exchange the FRU group 5
199[1]	ERROR IN PCA 2 INTERNAL WRAP ASYNCHRONOUS TEST.	Exchange the FRU group 26
19A[1]	UNEXPECTED INT. (<> LEVEL 0) IN PCA2 TEST	Exchange the FRU group 6
19B[1]	HARDWIRED CONDITIONS IMPOSSIBLE TO GET IN PCA 3	Exchange the FRU group 5
19C[1]	ERROR IN PCA 3 TEST SYNCHRONOUS	Exchange the FRU group 26
19D[1]	UNEXPECTED LEVEL 0 INT. DURING PCA3 TEST	Exchange the FRU group 5
19E[1]	ERROR IN PCA 3 INTERNAL WRAP SYNCHRONOUS TEST.	Exchange the FRU group 26
19F[1]	UNEXPECTED INT. (<> LEVEL 0) IN PCA3 TEST	Exchange the FRU group 5
1A0	WRAP BLOCK DOES NOT SEEM TO BE PRESENT ON LOCAL PORT , OR SIGNALS TESTED ARE NOT OK.	Exchange the FRU group 27
1A1	LOCAL CONSOLE CABLE DOWN (WHEN WRAP BLOCK INSTALLED)	Exchange the FRU group 28
1A2	LOCAL CONSOLE PCA ERROR	Exchange the FRU group 26
1A3	WRAP BLOCK DOES NOT SEEM TO BE PRESENT ON REMOTE PORT , OR SIGNALS TESTED ARE NOT OK.	Exchange the FRU group 27

Table 1-5 (Page 11 of 33). Panel Codes. An ¹ following a panel code denotes that the code should 'Blink'.

Panel Code	Definition	Action: Go to "3745 FRU Group Table" on page 1-49 or to MAP number
1A4	REMOTE/ALTERNATE CONSOLE CABLE DOWN (WHEN WRAP BLOCK INSTALLED)	Exchange the FRU group 29
1A5	REMOTE/ALTERNATE CONSOLE PCA ERROR	Exchange the FRU group 26
1A6	WRAP BLOCK DOES NOT SEEM TO BE PRESENT ON RSF PORT , OR SIGNALS TESTED ARE NOT OK.	Exchange the FRU group 27
1A7	RSF CONSOLE CABLE DOWN (WHEN WRAP BLOCK INSTALLED)	Exchange the FRU group 30
1A8	RSF CONSOLE PCA ERROR	Exchange the FRU group 26
1A9 TO 1AF	Unused	Go to "MAP 3220: Undefined Panel Message" on page 2-5
1B0	COMPLETION OF MCC TEST Progression code.	If permanently displayed, exchange the FRU group 2
1B1	START OF LOCAL CONSOLE LINK TEST	INFORMATION ONLY
1B2	SUCCESSFUL LOCAL CONSOLE LINK TEST	
1B3	START OF REMOTE/ALT CONSOLE LINK TEST	
1B4	SUCCESSFUL REMOTE /ALT CONSOLE LINK TEST	
1B5	START OF RSF CONSOLE LINK TEST	INFORMATION ONLY
1B6	SUCCESSFUL RSF CONSOLE LINK TEST	
1B7 to 1B9	Unused	Go to "MAP 3220: Undefined Panel Message" on page 2-5
1D0	START OF MCAC TEST.Progression code.	If permanently displayed, exchange the FRU group 2
1D1	Unused	Go to "MAP 3220: Undefined Panel Message" on page 2-5
1D2¹	SOLID ERROR IN MCAD REGISTERS (1 FRU)	Exchange the FRU group 26
1D3¹	100 MS TIMER OF MCAD KO	
1D4¹	PERMANENT IR 1 IN IOIRV	Exchange the FRU group 5
1D5¹	PERMANENT IR 4 IN IOIRV	
1D6¹	IR LEVEL 1 OF MCAD NOT REPORTED TO MOSS PROCESSOR.	
1D7¹	'MOSS INOP BIT' NOT ON AFTER RESET BY THE RESET LINE IN MCCU	Exchange the FRU group 26
1D8¹	Unused	Go to "MAP 3220: Undefined Panel Message" on page 2-5
1D9¹	PERMANENT IR 0 IN IOIRV	Exchange the FRU group 5
1DA¹	SOLID ERROR IN MCCU REGISTERS	
1DB¹	SOLID ERROR IN MCCU REGISTERS	Exchange the FRU group 26
1DC to 1DF	Unused	Go to "MAP 3220: Undefined Panel Message" on page 2-5
1E0¹	IOC TAG RESET FUNCTION KO	Go to "MAP 0100: IOC Bus Trouble Shooting" on page 2-1
1E1¹	Unused	Go to "MAP 3220: Undefined Panel Message" on page 2-5
1E2¹	WATCHDOG INTERRUPT BIT ON IN MCCU	Exchange the FRU group 26
1E3¹	MOSS INOP BIT NOT SETTABLE IN MCCU	Exchange the FRU group 5
1E4 to 1E6	Unused	Go to "MAP 3220: Undefined Panel Message" on page 2-5
1E7¹	NO INTERRUPT REPORTING POSSIBLE IN MCCU	Exchange the FRU group 26
1E8 to 1EE	Unused	Go to "MAP 3220: Undefined Panel Message" on page 2-5
1EF	END OF MCAC TEST Progression code.	If permanently displayed, exchange the FRU group 2
1F0 to 1FD	Unused	Go to "MAP 3220: Undefined Panel Message" on page 2-5
1FE¹	Control lost during return to RAM IML processor	Exchange the FRU group 25
1FF	Completion of MOSS diagnostics RAM part	Exchange the FRU group 2

Table 1-5 (Page 12 of 33). Panel Codes. An [1] following a panel code denotes that the code should 'Blink'.		
Panel Code	**Definition**	**Action: Go to "3745 FRU Group Table" on page 1-49 or to MAP number**
200 to 9FF	Unused	Go to "MAP 3220: Undefined Panel Message" on page 2-5
A00[1]	Moss level 0 error detection; MCCU A or SWAD Adapter is 'down'; Excess spurious errors	Exchange the FRU group 5
A01[1]	Moss level 0 error detection; PCA1; Adapter is 'down'	
A02[1]	Moss level 0 error detection; PCA1; PIO Bus Check; Inbound parity	
A03[1]	Moss level 0 error detection; PCA1; PIO Bus Check; Adapter not detected	
A04[1]	Moss level 0 error detection; PCA1; PIO Timeout; Outbound; Address parity check	Exchange the FRU group 5
A05[1]	Moss level 0 error detection; PCA1; PIO Timeout; Outbound; Command/data parity check	
A06[1]	Moss level 0 error detection; PCA2; Adapter is 'down'	
A07[1]	Moss level 0 error detection; PCA2; PIO Bus Check; Inbound parity	
A08[1]	Moss level 0 error detection; PCA2; PIO Bus Check; Adapter not detected	Exchange the FRU group 5
A09[1]	Moss level 0 error detection; PCA2; PIO Timeout; Outbound; Address parity check	
A0A[1]	Moss level 0 error detection; PCA2; PIO Timeout; Outbound; Command/data parity check	
A0B[1]	Moss level 0 error detection; PCA3; Adapter is 'down'	
A0C[1]	Moss level 0 error detection; PCA3; PIO Bus Check; Inbound parity	Exchange the FRU group 5
A0D[1]	Moss level 0 error detection; PCA3; PIO Bus Check; Adapter not detected	
A0E[1]	Moss level 0 error detection; PCA3; PIO Timeout; Outbound; Address parity check	
A0F[1]	Moss level 0 error detection; PCA3; PIO Timeout; Outbound; Command/data parity check	
A10[1]	Moss level 0 error detection; MCCU A; Adapter is 'down'	Exchange the FRU group 5
A11[1]	Moss level 0 error detection; MCCU A; Adapter is 'down'; Excess spurious errors	
A12[1]	Moss level 0 error detection; MCCU A; Adapter check; 1 usec counter parity	
A13[1]	Moss level 0 error detection; MCCU A; Adapter check; MIOC/CCU timeout parity	Exchange the FRU group 20
A14[1]	Moss level 0 error detection; MCCU A; CHIO Bus check	
A15[1]	Moss level 0 error detection; MCCU A; CHIO Timeout	
A16[1]	Moss level 0 error detection; MCCU A; CHIO; Storage ECC error; Register space parity during main store.	Exchange the FRU group 42
A17[1]	Moss level 0 error detection; MCCU A; CHIO; Storage ECC error; Multiple bits in DIV Register	
A18[1]	Moss level 0 error detection; MCCU A; CHIO; Storage ECC error; No bits active in DIV Register	Exchange the FRU group 5. Record the following action for use if the problem is not corrected by the FRU exchange; A MOSS microcode problem is suspected. Call your support structure, refer to "Contacting Support" on page A-1.
A19[1]	Moss level 0 error detection; MCCU A; CHIO; Exception; Address exception on main store data access	
A1A[1]	Moss level 0 error detection; MCCU A; CHIO; Exception; Operation exception; CHCV Register invalid	
A1B[1]	Moss level 0 error detection; MCCU A; CHIO; Exception; Register precision; CHP Register bits 0-7 are not zero	

Table 1-5 (Page 13 of 33). Panel Codes. An [1] following a panel code denotes that the code should 'Blink'.

Panel Code	Definition	Action: Go to "3745 FRU Group Table" on page 1-49 or to MAP number
A1C[1]	Moss level 0 error detection; MCCU A; CHIO; Exception; Specification exception with invalid address on main store data access	Exchange the FRU group 5. Record the following action for use if the problem is not corrected by the FRU exchange; A MOSS microcode problem is suspected. Call your support structure, refer to "Contacting Support" on page A-1.
A1D[1]	Moss level 0 error detection; MCCU A; CHIO; Exception; Multiple bits in DIV Register	
A1E[1]	Moss level 0 error detection; MCCU A; CHIO; Exception; No bits active in DIV Register	
A1F[1]	Moss level 0 error detection; MCCU A; CHIO; Internal check; Cache parity check	Exchange the FRU group 5
A20[1]	Moss level 0 error detection; MCCU A; CHIO; Internal check; Invalid address on CHP Register access	
A21[1]	Moss level 0 error detection; MCCU A; CHIO; Internal check; Multiple bits in DIV Register	
A22[1]	Moss level 0 error detection; MCCU A; CHIO; Adapter check; Step counter parity	
A23[1]	Moss level 0 error detection; MCCU A; CHIO; Adapter check; Half word/burst counter parity	Exchange the FRU group 5
A24[1]	Moss level 0 error detection; MCCU A; CHIO; Adapter check; CCU busy; Time out	Exchange the FRU group 20
A25[1]	Moss level 0 error detection; MCCU A; CHIO; Adapter check; MIOC time out	
A26[1]	Moss level 0 error detection; MCCU A; CHIO; Adapter check; MIOC parity check - in	
A27[1]	Moss level 0 error detection; MCCU A; CHIO; Adapter check; MIOC parity check - out	
A28[1]	Moss level 0 error detection; MCCU A; CHIO; Adapter check; Adapter failure	Exchange the FRU group 9
A29[1]	Moss level 0 error detection; MCCU A; CHIO; Adapter check; Multiple bits detected in Stat reg	
A2A[1]	Moss level 0 error detection; MCCU A; CHIO; Adapter check; No CHIO in progress in Adapter Control Block	
A2B[1]	Moss level 0 error detection; MCCU A; CHIO; Multiple bits detected in EIRV reg	
A2C[1]	Moss level 0 error detection; MCCU A; CHIO; No CHIO in progress in Adapter Control Block	Exchange the FRU group 9
A2D[1]	Moss level 0 error detection; MCCU A; Device; Adapter check; Step counter parity	Exchange the FRU group 5
A2E[1]	Moss level 0 error detection; MCCU A; Device; Adapter check; MIOC timeout	Exchange the FRU group 20
A2F[1]	Moss level 0 error detection; MCCU A; Device; Adapter check; MIOC parity check - in	
A30[1]	Moss level 0 error detection; MCCU A; Device; Adapter check; MIOC parity check - out	
A31[1]	Moss level 0 error detection; MCCU A; Device; Adapter check; Adapter failure	Exchange the FRU group 5
A32[1]	Moss level 0 error detection; MCCU A; Device; Adapter check; Multiple bits detected in Stat reg	
A33[1]	Moss level 0 error detection; MCCU A; Device; Adapter check; No Common Adapter Code running	
A34[1]	Moss level 0 error detection; MCCU A; PIO; Bus check; Inbound parity	Exchange the FRU group 20
A35[1]	Moss level 0 error detection; MCCU A; PIO; Bus check; Adapter failure	
A36[1]	Moss level 0 error detection; MCCU A; PIO; Bus check; Adapter not detected	
A37[1]	Moss level 0 error detection; MCCU A; PIO; Timeout; Invalid command	

Table 1-5 (Page 14 of 33). Panel Codes. An [1] following a panel code denotes that the code should 'Blink'.		
Panel Code	**Definition**	**Action: Go to "3745 FRU Group Table" on page 1-49 or to MAP number**
A38[1]	Moss level 0 error detection; MCCU A; PIO; Timeout; Outbound address parity check	Exchange the FRU group 20
A39[1]	Moss level 0 error detection; MCCU A; PIO; Timeout; Adapter not detected	
A3A[1]	Moss level 0 error detection; MCCU A; PIO; Timeout; Adapter failure	
A3B[1]	Moss level 0 error detection; MCCU A; PIO; Timeout; Multiple bits detected in Stat reg	
A3C to A67	Unused	Go to "MAP 3220: Undefined Panel Message" on page 2-5
A68[1]	Moss level 0 error detection; SWAD; Adapter is 'down'	Exchange the FRU group 5
A69[1]	Moss level 0 error detection; SWAD; Adapter is 'down'; Excess spurious errors	
A6A[1]	Moss level 0 error detection; SWAD; Adapter check; Internal clock check 1	
A6B[1]	Moss level 0 error detection; SWAD; Adapter check; Internal clock check 2	
A6C[1]	Moss level 0 error detection; SWAD; Adapter check; Multiple bits detected in Disconnect reg	Exchange the FRU group 5
A6D[1]	Moss level 0 error detection; SWAD; Device; Adapter check; State counter parity	
A6E[1]	Moss level 0 error detection; SWAD; Device; Adapter check; Shift pulse counter parity	
A6F[1]	Moss level 0 error detection; SWAD; Device; Adapter check; Ground fault detected on a driver line	
A70[1]	Moss level 0 error detection; SWAD; Device; Adapter check; Interface check	Exchange the FRU group 5
A71[1]	Moss level 0 error detection; SWAD; Device; Adapter check; Interface timeout	
A72[1]	Moss level 0 error detection; SWAD; Device; Adapter check; Interface parity check	
A73[1]	Moss level 0 error detection; SWAD; Device; Adapter check; Multiple bits detected in EB Stat reg	
A74[1]	Moss level 0 error detection; SWAD; Device; Adapter check; Switch interface error	Exchange the FRU group 5
A75[1]	Moss level 0 error detection; SWAD; Device; Adapter check; Switch driver fault	
A76[1]	Moss level 0 error detection; SWAD; Device; Adapter check; Switch serial link parity	
A77[1]	Moss level 0 error detection; SWAD; Device; Adapter check; Switch invalid command	
A78[1]	Moss level 0 error detection; SWAD; Device; Adapter check; Multiple bits detected in Device stat reg	Exchange the FRU group 5
A79[1]	Moss level 0 error detection; SWAD; Device; Adapter check; Adapter failure	
A7A[1]	Moss level 0 error detection; SWAD; Device; Adapter check; No Common Adapter Code running	
A7B[1]	Moss level 0 error detection; SWAD; PIO; Bus check; Inbound parity	
A7C[1]	Moss level 0 error detection; SWAD; PIO; Bus check; Adapter failure	Exchange the FRU group 5
A7D[1]	Moss level 0 error detection; SWAD; PIO; Bus check; Adapter not detected	
A7E[1]	Moss level 0 error detection; SWAD; PIO; Timeout; Invalid command	
A7F[1]	Moss level 0 error detection; SWAD; PIO; Timeout; Outbound address parity check	

Table 1-5 (Page 15 of 33). Panel Codes. An [1] following a panel code denotes that the code should 'Blink'.

Panel Code	Definition	Action: Go to "3745 FRU Group Table" on page 1-49 or to MAP number
A80[1]	Moss level 0 error detection; SWAD; PIO; Timeout; Overrun	Exchange the FRU group 5
A81[1]	Moss level 0 error detection; SWAD; PIO; Timeout; Adapter not detected	
A82[1]	Moss level 0 error detection; SWAD; PIO; Timeout; Adapter failure	
A83[1]	Moss level 0 error detection; SWAD; PIO; time out; Multiple bits detected in Stat register	
A84[1]	Moss level 0 error detection; MCAD; Adapter is 'down'	Exchange the FRU group 5
A85[1]	Moss level 0 error detection; MCAD; PIO; Bus check; Inbound parity	
A86[1]	Moss level 0 error detection; MCAD; PIO; Bus check; Adapter failure	
A87[1]	Moss level 0 error detection; MCAD; PIO; Bus check; Adapter not detected	
A88[1]	Moss level 0 error detection; MCAD; PIO; time out; Invalid command	Exchange the FRU group 5
A89[1]	Moss level 0 error detection; MCAD; PIO; time out; Outbound parity check	
A8A[1]	Moss level 0 error detection; MCAD; PIO; time out; Adapter not detected	
A8B[1]	Moss level 0 error detection; MCAD; PIO; time out; Adapter failure	
A8C[1]	Moss level 0 error detection; MCAD; PIO; time out; Multiple bits detected in Stat reg	Exchange the FRU group 5
A8D[1]	Moss level 0 error detection; DFA; Adapter is 'down'	If loading from diskette (function 9 from the control panel) then exchange the FRU group 45; if loading from HDD then exchange the FRU group 46
A8E[1]	Moss level 0 error detection; DFA; CHIO Bus check	
A8F[1]	Moss level 0 error detection; DFA; CHIO time out	
A90[1]	Moss level 0 error detection; DFA; CHIO; Storage ECC error; Register space parity during main store.	Exchange the FRU group 43
A91[1]	Moss level 0 error detection; DFA; CHIO; Storage ECC error; Multiple bits in DIV Register	
A92[1]	Moss level 0 error detection; DFA; CHIO; Storage ECC error; No bits active in DIV Register	Exchange the FRU group 15. Record the following action for use if the problem is not corrected by the FRU exchange; A MOSS microcode problem is suspected. Call your support structure, refer to "Contacting Support" on page A-1.
A93[1]	Moss level 0 error detection; DFA; CHIO; Exception; Operation exception; CHCV Reg invalid	
A94[1]	Moss level 0 error detection; DFA; CHIO; Exception; Register precision; CHP Reg bits 0-7 are not zero	
A95[1]	Moss level 0 error detection; DFA; CHIO; Exception; Specification exception with invalid address on main store data access	
A96[1]	Moss level 0 error detection; DFA; CHIO; Exception; Address exception on main store data access	Exchange the FRU group 15. Record the following action for use if the problem is not corrected by the FRU exchange; A MOSS microcode problem is suspected. Call your support structure, refer to "Contacting Support" on page A-1.
A97[1]	Moss level 0 error detection; DFA; CHIO; Exception; Multiple bits in DIV Register	
A98[1]	Moss level 0 error detection; DFA; CHIO; Exception; No bits active in DIV Register	
A99[1]	Moss level 0 error detection; DFA; CHIO; Internal check; Cache parity check	If loading from diskette (function 9 from the control panel) then exchange the FRU group 45; if loading from HDD then exchange the FRU group 46
A9A[1]	Moss level 0 error detection; DFA; CHIO; Internal check; Invalid address on CHP Reg access	
A9B[1]	Moss level 0 error detection; DFA; CHIO; Internal check; Multiple bits in DIV Register	
A9C[1]	Moss level 0 error detection; DFA; CHIO; Multiple bits detected in EIRV reg	

Table 1-5 (Page 16 of 33). Panel Codes. An [1] following a panel code denotes that the code should 'Blink'.		
Panel Code	**Definition**	**Action: Go to "3745 FRU Group Table" on page 1-49 or to MAP number**
A9D[1]	Moss level 0 error detection; DFA; CHIO; No CHIO in progress in Adapter Control Block	If loading from diskette (function 9 from the control panel) then exchange the FRU group 45; if loading from HDD then exchange the FRU group 46
A9E[1]	Moss level 0 error detection; DFA; PIO; Bus check; Inbound parity	
A9F[1]	Moss level 0 error detection; DFA; PIO; Bus check; Adapter failure	
AA0[1]	Moss level 0 error detection; DFA; PIO; Bus check; Adapter not detected	
AA1[1]	Moss level 0 error detection; DFA; PIO; time out; Invalid command	If loading from diskette (function 9 from the control panel) then exchange the FRU group 45; if loading from HDD then exchange the FRU group 46
AA2[1]	Moss level 0 error detection; DFA; PIO; time out; Out-bound address parity check	
AA3[1]	Moss level 0 error detection; DFA; PIO; time out; Out-bound command/data parity check	
AA4[1]	Moss level 0 error detection; DFA; PIO; time out; Adapter failure	
AA5[1]	Moss level 0 error detection; DFA; PIO; time out; Multiple bits detected in Stat reg	If loading from diskette (function 9 from the control panel) then exchange the FRU group 45; if loading from HDD then exchange the FRU group 46
AA6[1]	Moss level 0 error detection; TOD; Adapter is 'down'	Exchange the FRU group 2
AA7[1]	Moss level 0 error detection; TOD; PIO; Bus check; Inbound parity	
AA8[1]	Moss level 0 error detection; TOD; PIO; Bus check; Adapter not detected	
AA9[1]	Moss level 0 error detection; TOD; PIO; time out; Out-bound address parity check	
AAA[1]	Moss level 0 error detection; TOD; PIO; time out; Out-bound command/data parity check	Exchange the FRU group 2
AAB[1]	Moss level 0 error detection; PLC; Adapter is 'down'	Exchange the FRU group 12
AAC to AAD	Unused	Go to "MAP 3220: Undefined Panel Message" on page 2-5
AAE[1]	Moss level 0 error detection; PLC; MMIO Interface error OR Invalid address during main store data access (ON level 2)	exchange the FRU group 12. Record the following action for use if the problem is not corrected by the FRU exchange; A MOSS microcode problem is suspected. Call your support structure, refer to "Contacting Support" on page A-1.
AAF[1]	Moss level 0 error detection; PLC; MMIO Parity error OR Memory storage; Storage ECC; Data parity (ON level 2)	Exchange the FRU group 12
AB0	Unused	Go to "MAP 3220: Undefined Panel Message" on page 2-5
AB1[1]	Moss level 0 error detection; UC Bus; Bus is 'down'	Exchange the FRU group 1
AB2[1]	Moss level 0 error detection; Register Storage; PIO Storage ECC; Data parity whilst accessing MPC	Exchange the FRU group 11. Record the following action for use if the problem is not corrected by the FRU exchange; A MOSS microcode problem is suspected. Call your support structure, refer to "Contacting Support" on page A-1.
AB3[1]	Moss level 0 error detection; Register Storage; PIO Storage ECC; Data parity whilst accessing MSC	
AB4[1]	Moss level 0 error detection; Register Storage; PIO Storage ECC; Unresolved problem	
AB5[1]	Moss level 0 error detection; Register Storage; Storage ECC; Check during PSV swap	
AB6[1]	Moss level 0 error detection; Memory Storage; CHIO Storage ECC; Data parity	Exchange the FRU group 11. Record the following action for use if the problem is not corrected by the FRU exchange; A MOSS microcode problem is suspected. Call your support structure, refer to "Contacting Support" on page A-1.
AB7[1]	Moss level 0 error detection; Memory Storage; Storage ECC; Data parity (NOT ON level 2)	
AB8[1]	Moss level 0 error detection; Memory Storage; Storage ECC; Instruction fetch parity	

Table 1-5 (Page 17 of 33). Panel Codes. An ¹ following a panel code denotes that the code should 'Blink'.

Panel Code	Definition	Action: Go to "3745 FRU Group Table" on page 1-49 or to MAP number
AB9¹	Moss level 0 error detection; Loop; Excessive MOSS IML loop is detected via a TOD interrupt	Exchange the FRU group 13 the FRU exchange; A MOSS microcode problem is suspected. Call your support structure, refer to "Contacting Support" on page A-1.
ABA¹	Moss level 0 error detection; Erroneous MOSS code; Program error; IO address is not authorized Record the following action for use if the problem is not corrected by	
ABB¹	Moss level 0 error detection; Diag code; Program error; Power on reset / start; Unresolved	
ABC¹	Moss level 0 error detection; Level 0 code; Program error; Invalid BER set during Checkpoint Retry Recovery	
ABD¹	Moss level 0 error detection; Level 0 code; Program error; Invalid BER set during Postponed Retry Recovery	Exchange the FRU group 13. Record the following action for use if the problem is not corrected by the FRU exchange; A MOSS microcode problem is suspected. Call your support structure, refer to "Contacting Support" on page A-1.
ABE¹	Moss level 0 error detection; Level 0 code; Program error; Invalid BER set during Transparent Retry Recovery your support structure, refer to "Contacting Support" on page A-1.	
ABF¹	Moss level 0 error detection; Level 0 code; Program error; Program request dispatcher - module CHGH0PGM - is in an unexpected state	
AC0¹	Moss level 0 error detection; Level 0 code; Program error; Invalid adaptor ID present in module CHGH0BUS	
AC1¹	Moss level 0 error detection; Level 0 code; Program error; Ram processor is in an unexpected state	Exchange the FRU group 13. Record the following action for use if the problem is not corrected by the FRU exchange; A MOSS microcode problem is suspected. Call your support structure, refer to "Contacting Support" on page A-1.
AC2¹	Moss level 0 error detection; Level 0 code; Program error; Ros processor is in an unexpected state your support structure, refer to "Contacting Support" on page A-1.	
AC3¹	Moss level 0 error detection; Level 0 code; Program error; Call address stack table is full	
AC4¹	Moss level 0 error detection; Level 0 code; Program error; Return address stack table is empty	
AC5¹	Moss level 0 error detection; Level 0 code; Program error; The type of BER created does not exist in the BER table	Exchange the FRU group 13. Record the following action for use if the problem is not corrected by the FRU exchange; A MOSS microcode problem is suspected. Call your support structure, refer to "Contacting Support" on page A-1.
AC6¹	Moss level 0 error detection; Level 0 code; Program error; Moss already IML'd routine before the IML routine your support structure, refer to "Contacting Support" on page A-1.	
AC7¹	Moss level 0 error detection; Unexpected spurious interrupt; CHIO error detected	
AC8¹	Moss level 0 error detection; Unexpected spurious interrupt; Level 0 interrupt detected	
AC9¹	Moss level 0 error detection; Unexpected spurious interrupt; Level 0 interrupt in IOIRV detected	Exchange the FRU group 5. Record the following action for use if the problem is not corrected by the FRU exchange; A MOSS microcode problem is suspected. Call your support structure, refer to "Contacting Support" on page A-1.
ACA¹	Moss level 0 error detection; Unexpected spurious interrupt; PIO Bus check; No adaptor found with Last Priority Level	Exchange the FRU group 9. Record the following action for use if the problem is not corrected by the FRU exchange; A MOSS microcode problem is suspected. Call your support structure, refer to "Contacting Support" on page A-1.
ACB¹	Moss level 0 error detection; Unexpected spurious interrupt; PIO Bus check; Instruction was not an IO type	
ACC¹	Moss level 0 error detection; Unexpected spurious interrupt; PIO Bus check; Detected on level 2	
ACD¹	Moss level 0 error detection; Unexpected spurious interrupt; PIO Bus check; Detected on level 6	

Table 1-5 (Page 18 of 33). Panel Codes. An [1] following a panel code denotes that the code should 'Blink'.		
Panel Code	**Definition**	**Action: Go to "3745 FRU Group Table" on page 1-49 or to MAP number**
ACE[1]	Moss level 0 error detection; Unexpected spurious interrupt; PIO time out; No adaptor found with Last Priority Level	Exchange the FRU group 9. Record the following action for use if the problem is not corrected by the FRU exchange; A MOSS microcode problem is suspected. Call your support structure, refer to "Contacting Support" on page A-1.
ACF[1]	Moss level 0 error detection; Unexpected spurious interrupt; PIO time out; Instruction was not an IO type	
AD0[1]	Moss level 0 error detection; Unexpected spurious interrupt; PIO time out; Detected on level 2	
AD1[1]	Moss level 0 error detection; Unexpected spurious interrupt; PIO time out; Detected on level 6	
AD2[1]	Moss level 0 error detection; Unexpected spurious interrupt; Program request detected in PIRV	Exchange the FRU group 9. Record the following action for use if the problem is not corrected by the FRU exchange; A MOSS microcode problem is suspected. Call your support structure, refer to "Contacting Support" on page A-1.
AD3[1]	Moss level 0 error detection; Unresolved Exception error; Addressing exception during Instruction fetch	Exchange the FRU group 11. Record the following action for use if the problem is not corrected by the FRU exchange; A MOSS microcode problem is suspected. Call your support structure, refer to "Contacting Support" on page A-1.
AD4[1]	Moss level 0 error detection; Unresolved Exception error; Addressing exception during Main store data access	
AD5[1]	Moss level 0 error detection; Unresolved Exception error; Fixed point overflow exception	Exchange the FRU group 11. Record the following action for use if the problem is not corrected by the FRU exchange; A MOSS microcode problem is suspected. Call your support structure, refer to "Contacting Support" on page A-1.
AD6[1]	Moss level 0 error detection; Unresolved Exception error; Invalid address exception during non main store access	
AD7[1]	Moss level 0 error detection; Unresolved Exception error; Multiple bits detected in DIV	
AD8[1]	Moss level 0 error detection; Unresolved Exception error; Multiple bits detected in EIRV	
AD9[1]	Moss level 0 error detection; Unresolved Exception error; Operation exception; Invalid opcode detected	Exchange the FRU group 11. Record the following action for use if the problem is not corrected by the FRU exchange; A MOSS microcode problem is suspected. Call your support structure, refer to "Contacting Support" on page A-1.
ADA[1]	Moss level 0 error detection; Unresolved Exception error; Register precision exception	
ADB[1]	Moss level 0 error detection; Unresolved Exception error; Specification exception; Invalid address during Instruction fetch	
ADC[1]	Moss level 0 error detection; Unresolved Exception error; Specification exception; Invalid address during Main store data access (NOT ON level 2)	
ADD[1]	Moss level 0 error detection; Unresolved Exception error; Specification exception; Invalid address during non GPR access	Exchange the FRU group 11. Record the following action for use if the problem is not corrected by the FRU exchange; A MOSS microcode problem is suspected. Call your support structure, refer to "Contacting Support" on page A-1.
ADE[1]	Moss level 0 error detection; Unresolved Exception error; Specification exception; Invalid execution of KI instruction	
ADF[1]	Moss level 0 error detection; Unresolved Exception error; Specification exception; PSV bits (40-44-47) are not zero	
AE0[1]	Moss level 0 error detection; Unresolved Internal Check; Cache register parity check	

Table 1-5 (Page 19 of 33). Panel Codes. An [1] following a panel code denotes that the code should 'Blink'.

Panel Code	Definition	Action: Go to "3745 FRU Group Table" on page 1-49 or to MAP number
AE1[1]	Moss level 0 error detection; Unresolved Internal Check; Invalid address during GPR access	Exchange the FRU group 11. Record the following action for use if the problem is not corrected by the FRU exchange; A MOSS microcode problem is suspected. Call your support structure, refer to "Contacting Support" on page A-1.
AE2[1]	Moss level 0 error detection; Unresolved Internal Check; Invalid address during PSV swap	
AE3[1]	Moss level 0 error detection; Unresolved Internal Check; Multiple bits detected in DIV	
AE4[1]	Moss level 0 error detection; Unresolved Internal Check; Multiple bits detected in EIRV	
AE5[1]	Moss level 0 error detection; Unresolved Storage/ECC Check; Multiple bits detected in DIV	Exchange the FRU group 11. Record the following action for use if the problem is not corrected by the FRU exchange; A MOSS microcode problem is suspected. Call your support structure, refer to "Contacting Support" on page A-1.
AE6[1]	Moss level 0 error detection; Unresolved Storage/ECC Check; Multiple bits detected in EIRV	
AE7[1]	Moss level 0 error detection; Unresolved Storage/ECC Check; No bits detected in DIV	
AE8 to BFE	Unused	Go to "MAP 3220: Undefined Panel Message" on page 2-5
B01	MLA internal diagnostic error	Exchange the FRU group 55.
B02	Error during MPC-MLA interface test	Exchange the FRU group 56.
B03	MOSS LAN adapter (MLA) hardware initialization error	Exchange the FRU group 57.
B8D to B8E	Hardware MMIO error	Exchange the FRU group 55. Record the following action for use if the problem is not corrected by the FRU exchange. A MOSS microcode problem is suspected. Contact your support structure, refer to "Contacting Support" on page A-1.
B8F	Lan adapter check	Exchange the FRU group 55.
B90	MOSS LAN adapter (MLA) hardware initialization error	Exchange the FRU group 55.
B91	MOSS microcode error	A MOSS microcode problem is suspected. Contact your support structure, refer to "Contacting Support" on page A-1.
B92	Ring lobe media test failure	Check LAN cable connections, if problem persists: Exchange the FRU group 55.
B93	Ring signal lost while opening	A LAN ring problem is suspected. Use the *Token-Ring Network, Problem Determination Guide* SX27-3710.
B94	Ring wire fault while opening	Check the LAN cable connections, if the problem persists: A LAN ring problem is suspected. Use the *Token-Ring Network, Problem Determination Guide* SX27-3710.
B95	Ring open frequency error	A LAN ring problem is suspected. Use the *Token-Ring Network, Problem Determination Guide* SX27-3710.
B96	Ring time out while opening	
B97	Ring failure while opening	
B98	Ring beaconing while opening	
B99	Ring duplicate node address	Duplicate Node address. Exchange the FRU group 55. Record the following action for use if the problem is not corrected by the FRU exchange. A MOSS microcode problem is suspected. Contact your support structure, refer to "Contacting Support" on page A-1.
B9A	Ring open request parameters	A LAN ring problem is suspected. Use the *Token-Ring Network, Problem Determination Guide* SX27-3710.
B9B	Ring open remove received	
B9C	Ring open IMPL force received	
B9D	Ring no monitor for RPL at open	

Table 1-5 (Page 20 of 33). Panel Codes. An [1] following a panel code denotes that the code should 'Blink'.		
Panel Code	**Definition**	**Action: Go to "3745 FRU Group Table" on page 1-49 or to MAP number**
B9E	Ring lobe wire fault at open	Check the LAN cable connections, if the problem persists: Exchange the FRU group 55.
B9F	Remote station connection time out	Check that the service processor is powered On, if yes: there was a LAN time out or a LAN problem or a service processor problem is suspected. Go to *Service Processor Installation and Maintenance* manual, chapter "Service Processor Problem Determination".
BB0	Ring link lost	Communication lost between MOSS and MOSS-E. • Check the physical connection between the 3745 and the service processor. • Check that the service processor is powered ON. • Review the configuration of stations connected to the LAN. The MOSS-to-MOSS-E connection will be automatically recovered when the number of broadcast frames goes under 200 per second. If the problem continues a Service Processor problem is suspected, go to *Service Processor Installation and Maintenance* manual, chapter "Service Processor Problem Determination" or a MOSS microcode problem is suspected. Contact your support structure, refer to "Contacting Support" on page A-1.
BB1	Ring DM/DISC received/acked	A Service Processor problem is suspected, go to *Service Processor Installation and Maintenance* manual, chapter "Service Processor Problem Determination" or a MOSS microcode problem is suspected. Contact your support structure, refer to "Contacting Support" on page A-1.
BB2	Ring FRMR received	
BB3	Ring SABME received	
BB4	Ring TI timer expired	
BB5	Ring FRMR sent	
BB6	Ring unexpected SABME received	
BC0	Permanent ring beaconing	A LAN ring problem is suspected. Use the *Token-Ring Network, Problem Determination Guide* SX27-3710.
BC1	Ring lobe wire fault	Check the LAN cable connections, if the problem persists: Exchange the FRU group 55.
BC2	Auto removal while beaconing	Exchange the FRU group 55.
BC3	Ring remove received	A LAN problem is suspected. Use the *Token-Ring Network, Problem Determination Guide* SX27-3710.
BC4	Ring auto removal	Check the LAN cable connections, if the problem persists: Exchange the FRU group 55.
BD0	FSM time out	A Service Processor problem is suspected. Go to *Service Processor Installation and Maintenance* manual, chapter "Service Processor Problem Determination".
BE0	Watchdog time out	

Table 1-5 (Page 21 of 33). Panel Codes. An [1] following a panel code denotes that the code should 'Blink'.

Panel Code	Definition	Action: Go to "3745 FRU Group Table" on page 1-49 or to MAP number
BFF[1]	Moss level 0 Incoherence; Problem within the level 0 code	Exchange the FRU group 2. Record the following action for use if the problem is not corrected by the FRU exchange; A MOSS microcode problem is suspected. Call your support structure, refer to "Contacting Support" on page A-1.
C00 to C03	Unused	Go to "MAP 3220: Undefined Panel Message" on page 2-5
C04[1]	Moss level 0 error detection; MOSS ABEND; Supervisor; Invalid SVTTRC	A MOSS microcode problem is suspected. Contact your support structure, refer to "Contacting Support" on page A-1.
C05[1]	Moss level 0 error detection; MOSS ABEND; Supervisor; More than one request	
C06[1]	Moss level 0 error detection; MOSS ABEND; Supervisor; Invalid SVTDRC	
C07[1]	Moss level 0 error detection; MOSS ABEND; Supervisor; Invalid TCB ID	
C08[1]	Moss level 0 error detection; MOSS ABEND; Supervisor; Invalid Adapter ID	A MOSS microcode problem is suspected. Contact your support structure, refer to "Contacting Support" on page A-1.
C09[1]	Moss level 0 error detection; MOSS ABEND; Supervisor; Invalid Timer request	
C0A[1]	Moss level 0 error detection; MOSS ABEND; Supervisor; Lost BER counter is full	Refer to logged BERs leading to overflow, or: exchange the FRU group 46.
C0B[1]	Moss level 0 error detection; MOSS ABEND; Supervisor; BER length null	A MOSS microcode problem is suspected. Contact your support structure, refer to "Contacting Support" on page A-1.
C0C[1]	Moss level 0 error detection; MOSS ABEND; Supervisor; Invalid macro ID in CHGSUBEM	A MOSS microcode problem is suspected. Contact your support structure, refer to "Contacting Support" on page A-1.
C0D[1]	Moss level 0 error detection; MOSS ABEND; Supervisor; Invalid adaptor ID in CHGSUBEA	
C0E[1]	Moss level 0 error detection; MOSS ABEND; Keyboard/Display Support; Invalid function request	
C0F[1]	Moss level 0 error detection; MOSS ABEND; Keyboard/Display Support; End I/O without FRB	
C10[1]	Moss level 0 error detection; MOSS ABEND; Keyboard/Display Support; Program interrupt without FRB	A MOSS microcode problem is suspected. Contact your support structure, refer to "Contacting Support" on page A-1.
C11[1]	Moss level 0 error detection; MOSS ABEND; Keyboard/Display Support; Invalid interrupt	
C12[1]	Moss level 0 error detection; MOSS ABEND; Disk/Diskette Support; Invalid function request	
C13	Unused	Go to "MAP 3220: Undefined Panel Message" on page 2-5
C14[1]	Moss level 0 error detection; MOSS ABEND; Disk/Diskette Support; Invalid header label	A MOSS microcode problem is suspected. Contact your support structure, refer to "Contacting Support" on page A-1.
C15 to C16	Unused	Go to "MAP 3220: Undefined Panel Message" on page 2-5
C17[1]	Moss level 0 error detection; MOSS ABEND; Disk/Diskette Support; Invalid LM elements	A MOSS microcode problem is suspected. Contact your support structure, refer to "Contacting Support" on page A-1.
C18	Unused	Go to "MAP 3220: Undefined Panel Message" on page 2-5
C19[1]	Moss level 0 error detection; MOSS ABEND; Disk/Diskette Support; Invalid completion status with preemptive request	A MOSS microcode problem is suspected. Contact your support structure, refer to "Contacting Support" on page A-1.
C1A	Unused	Go to "MAP 3220: Undefined Panel Message" on page 2-5

Table 1-5 (Page 22 of 33). Panel Codes. An [1] following a panel code denotes that the code should 'Blink'.		
Panel Code	**Definition**	**Action: Go to "3745 FRU Group Table" on page 1-49 or to MAP number**
C1B[1]	Moss level 0 error detection; MOSS ABEND; Disk/Diskette Support; Control record found	A MOSS microcode problem is suspected. Contact your support structure, refer to "Contacting Support" on page A-1.
C1C[1]	Moss level 0 error detection; MOSS ABEND; Disk/Diskette Support; Invalid completion status with exception detected	
C1D[1]	Moss level 0 error detection; MOSS ABEND; Disk/Diskette Support; Program problem detected by CAC	
C1E[1]	Moss level 0 error detection; MOSS ABEND; Disk/Diskette Support; Invalid completion status with error detected	
C1F[1]	Moss level 0 error detection; MOSS ABEND; Disk/Diskette Support; Invalid completion status with complete but with neither exception nor error detected	A MOSS microcode problem is suspected. Contact your support structure, refer to "Contacting Support" on page A-1.
C20[1]	Moss level 0 error detection; MOSS ABEND; Disk/Diskette Support; Unexpected completion status or interrupt.	
C21[1]	Moss level 0 error detection; MOSS ABEND; Disk/Diskette Support; Bad disk IOCS initialize	
C22[1]	Moss level 0 error detection; MOSS ABEND; Disk/Diskette Support; Threshold exceeded on unexpected interrupt	
C23[1]	Moss level 0 error detection; MOSS ABEND; CCU Support; No action for Scanner AC hit	A MOSS microcode problem is suspected. Contact your support structure, refer to "Contacting Support" on page A-1.
C24	Unused	Go to "MAP 3220: Undefined Panel Message" on page 2-5
C25[1]	Moss level 0 error detection; MOSS ABEND; CCU Support; Undefined interrupt	A MOSS microcode problem is suspected. Contact your support structure, refer to "Contacting Support" on page A-1.
C26[1]	Moss level 0 error detection; MOSS ABEND; CCU Support; Unexpected Mailbox IN rejected	
C27[1]	Moss level 0 error detection; MOSS ABEND; CCU Support; Invalid ID from scanner selected	
C28[1]	Moss level 0 error detection; MOSS ABEND; CCU Support; Invalid adaptor address	
C29[1]	Moss level 0 error detection; MOSS ABEND; CCU Support; Undefined CHIO request	A MOSS microcode problem is suspected. Contact your support structure, refer to "Contacting Support" on page A-1.
C2A[1]	Moss level 0 error detection; MOSS ABEND; CCU Support; Switch adaptor CAC requests an ABEND	
C2B to C2D	Unused	Go to "MAP 3220: Undefined Panel Message" on page 2-5
C2E[1]	Moss level 0 error detection; MOSS ABEND; CCU Support; Invalid PCW command	A MOSS microcode problem is suspected. Contact your support structure, refer to "Contacting Support" on page A-1.
C2F to C30	Unused	Go to "MAP 3220: Undefined Panel Message" on page 2-5
C31[1]	Moss level 0 error detection; MOSS ABEND; Operator Control; Load module not found	A MOSS microcode problem is suspected. Contact your support structure, refer to "Contacting Support" on page A-1.
C32[1]	Moss level 0 error detection; MOSS ABEND; Operator Control; Logical Disk error	
C33[1]	Moss level 0 error detection; MOSS ABEND; Operator Control; Invalid cancel request	
C34[1]	Moss level 0 error detection; MOSS ABEND; Operator Control; Moss IML request by operator	

Table 1-5 (Page 23 of 33). Panel Codes. An [1] following a panel code denotes that the code should 'Blink'.

Panel Code	Definition	Action: Go to "3745 FRU Group Table" on page 1-49 or to MAP number
C35[1]	Moss level 0 error detection; MOSS ABEND; Operator Control; Data stream out is greater than 1024 bytes	A MOSS microcode problem is suspected. Contact your support structure, refer to "Contacting Support" on page A-1.
C36[1]	Moss level 0 error detection; MOSS ABEND; CCU Functions; End of DCF application	
C37[1]	Moss level 0 error detection; MOSS ABEND; CCU Functions; Incorrect load module identified	
C38[1]	Moss level 0 error detection; MOSS ABEND; CCU Functions; Logical disk error	
C39[1]	Moss level 0 error detection; MOSS ABEND; CCU Functions; Unknown operator control return code	A MOSS microcode problem is suspected. Contact your support structure, refer to "Contacting Support" on page A-1.
C3A[1]	Moss level 0 error detection; MOSS ABEND; Transient Tasks; Load module not found	
C3B[1]	Moss level 0 error detection; MOSS ABEND; Transient Tasks; Logical disk error	
C3C[1]	Moss level 0 error detection; MOSS ABEND; Transient Tasks; Unknown operator control return code	
C3D[1]	Moss level 0 error detection; MOSS ABEND; Transient Tasks; Conflicting dump file information	A MOSS microcode problem is suspected. Contact your support structure, refer to "Contacting Support" on page A-1.
C3E[1]	Moss level 0 error detection; MOSS ABEND; Transient Tasks; Scanner not installed or SCB not flagged "auto dump"	
C3F[1]	Moss level 0 error detection; MOSS ABEND; Transient Tasks; Control program invalid answer	
C40[1]	Moss level 0 error detection; MOSS ABEND; Transient Tasks; Disconnect not allowed	
C41[1]	Moss level 0 error detection; MOSS ABEND; Transient Tasks; Buffer limit reached	A MOSS microcode problem is suspected. Contact your support structure, refer to "Contacting Support" on page A-1.
C42[1]	Moss level 0 error detection; MOSS ABEND; Box Error Logging; Invalid BER stack	
C43[1]	Moss level 0 error detection; MOSS ABEND; Mail Box Support; Load module not found	
C44[1]	Moss level 0 error detection; MOSS ABEND; Mail Box Support; Mail box request rejected	
C45[1]	Moss level 0 error detection; MOSS ABEND; Mail Box Support; Unsolicited call	A MOSS microcode problem is suspected. Contact your support structure, refer to "Contacting Support" on page A-1.
C46[1]	Moss level 0 error detection; MOSS ABEND; Mail Box Support; Invalid RU	
C47[1]	Moss level 0 error detection; MOSS ABEND; Macro Invocation; Started bit in request	
C48[1]	Moss level 0 error detection; MOSS ABEND; System IPL; Start IPL refused	
C49[1]	Moss level 0 error detection; MOSS ABEND; Disk Functions; Disk unusable	A MOSS microcode problem is suspected. Contact your support structure, refer to "Contacting Support" on page A-1.
C4A[1]	Moss level 0 error detection; MOSS ABEND; Disk Functions; Unable to load CHGDFINT	
C4B[1]	Moss level 0 error detection; MOSS ABEND; Power Functions; Incorrect access to PCST	
C4C[1]	Moss level 0 error detection; MOSS ABEND; Power Functions; Invalid data - threshold	
C4D[1]	Moss level 0 error detection; MOSS ABEND; Power Functions; Next request received before RP	A MOSS microcode problem is suspected. Contact your support structure, refer to "Contacting Support" on page A-1.
C4E[1]	Moss level 0 error detection; MOSS ABEND; Level 1; Permanent HLIR - kill MOSS	
C4F[1]	Moss level 0 error detection; MOSS ABEND; Level 1; Excess amount of spurious errors	
C50[1]	Moss level 0 error detection; MOSS ABEND; Level 1; Soft checker - snapshot	

Table 1-5 (Page 24 of 33). Panel Codes. An [1] following a panel code denotes that the code should 'Blink'.		
Panel Code	**Definition**	**Action: Go to "3745 FRU Group Table" on page 1-49 or to MAP number**
C51[1]	Moss level 0 error detection; MOSS ABEND; MSD; Invalid frame number	A MOSS microcode problem is suspected. Contact your support structure, refer to "Contacting Support" on page A-1.
C52[1]	Moss level 0 error detection; MOSS ABEND; IMIN2; No timer IMIN2	
C53[1]	Moss level 0 error detection; MOSS ABEND; TRSS; NCP pointer not found	
C54[1]	Moss level 0 error detection; MOSS ABEND; TRSS; Invalid field format received	
C55[1]	Moss level 0 error detection; MOSS ABEND; TRSS; Invalid TIC storage	A MOSS microcode problem is suspected. Contact your support structure, refer to "Contacting Support" on page A-1.
C56[1]	Moss level 0 error detection; MOSS ABEND; TRSS; TRA/TIC not installed or ASB not flagged "Auto TIC Dump"	
C57 to C61	Unused	Go to "MAP 3220: Undefined Panel Message" on page 2-5
C62 to C7A	MOSS microcode error	A MOSS microcode problem is suspected. Contact your support structure, refer to "Contacting Support" on page A-1.
C7B to D00	Unused	Go to "MAP 3220: Undefined Panel Message" on page 2-5
D01[1]	Moss level 0 error detection; Disk errors during IML/Dump; Adapter busy - attn	Exchange the FRU group 44
D02[1]	Moss level 0 error detection; Disk errors during IML/Dump; FRB busy	
D03 to D04	Unused	Go to "MAP 3220: Undefined Panel Message" on page 2-5
D05[1]	Moss level 0 error detection; Disk errors during IML/Dump; Adapter busy - CHIO	Exchange the FRU group 44
D06[1]	Moss level 0 error detection; Disk errors during IML/Dump; Adapter busy - reset	
D07	Unused	Go to "MAP 3220: Undefined Panel Message" on page 2-5
D08	Moss level 0 error detection; Disk errors during IML/Dump; SCA 1 not open	Exchange the FRU group 45
D09[1]	Moss level 0 error detection; Disk errors during IML/Dump; SCA 2 not open	Exchange the FRU group 46
D0A[1]	Moss level 0 error detection; Disk errors during IML/Dump; Adapter not open	Exchange the FRU group 44
D0B[1]	Moss level 0 error detection; Disk errors during IML/Dump; Pre-emptive request complete	
D0C[1]	Moss level 0 error detection; Disk errors during IML/Dump; Pre-emptive request rejected	
D0D[1]	Moss level 0 error detection; Disk errors during IML/Dump; SCA 1 already open	
D0E[1]	Moss level 0 error detection; Disk errors during IML/Dump; SCA 2 already open	Exchange the FRU group 44
D0F to D10	Unused	Go to "MAP 3220: Undefined Panel Message" on page 2-5
D11[1]	Moss level 0 error detection; Disk errors during IML/Dump; FRB Program check	Exchange the FRU group 44
D12[1]	Moss level 0 error detection; Disk errors during IML/Dump; BCL Program check	Exchange the FRU group 44
D13[1]	Moss level 0 error detection; Disk errors during IML/Dump; Invalid PIO command (hardware & equipment checks)	Exchange the FRU group 44
D14to D1F	Unused	Go to "MAP 3220: Undefined Panel Message" on page 2-5

Table 1-5 (Page 25 of 33). Panel Codes. An ¹ following a panel code denotes that the code should 'Blink'.

Panel Code	Definition	Action: Go to "3745 FRU Group Table" on page 1-49 or to MAP number
D20¹	Moss level 0 error detection; Disk errors during IML/Dump; Indeterminate equipment check (hardware error in adapt.)	Exchange the FRU group 44
D21	Unused	Go to "MAP 3220: Undefined Panel Message" on page 2-5
D22¹	Moss level 0 error detection; Disk errors during IML/Dump; Device (SCA) ready (hardware error in adaptor)	If loading from diskette (function 9 from the control panel) then exchange the FRU group 45; if loading from HDD then exchange the FRU group 46
D23 to D27	Unused	Go to "MAP 3220: Undefined Panel Message" on page 2-5
D28¹	Moss level 0 error detection; Disk errors during IML/Dump; Seek check (DATA transmission problems)	Exchange the FRU group 44
D29 to D2F	Unused	Go to "MAP 3220: Undefined Panel Message" on page 2-5
D30¹	Moss level 0 error detection; Disk errors during IML/Dump; Device (SCA) not ready (no error)	If loading from diskette (function 9 from the control panel) then ensure the diskette is correctly inserted and that the diskette drive operator handle is closed. If no problem in this area, then exchange the FRU group 45 If loading from HDD then exchange the FRU group 46
D31¹	Moss level 0 error detection; Disk errors during IML/Dump; Control record found (error/not successful class. sequence errors)	If loading from diskette (function 9 from the control panel) then exchange the FRU group 45; if loading from HDD then exchange the FRU group 46
D32¹	Moss level 0 error detection; Disk errors during IML/Dump; Sector Buffer Parity error	Exchange the FRU group 44
D33¹	Moss level 0 error detection; disk errors during IML/dump; Termination error with no specific error	If loading from diskette (function 9 from the control panel) then exchange the FRU group 45 if loading from HDD then exchange the FRU group 46
D34¹	Moss level 0 error detection; disk errors during IML/dump; Cylinder overrun	
D35¹	Moss level 0 error detection; disk errors during IML/dump; Write/Protect fault with FDD	The installed diskette is 'Write protected'. Replace the diskette with an equivalent which permits writing.
D36¹	Moss level 0 error detection; disk errors during IML/dump; Write fault with HDD	Go to *IBM 3745 Service Functions*
D37¹	Moss level 0 error detection; disk errors during IML/dump; Halt during a CHIO operation	Exchange the FRU group 7
D38¹	Moss level 0 error detection; disk errors during IML/dump; I/O bus parity error	
D39¹	Moss level 0 error detection; disk errors during IML/dump; CCB with no active CSB	Exchange the FRU group 44
D3A¹	Moss level 0 error detection; disk errors during IML/dump; Invalid command in CCB or SSB	
D3B¹	Moss level 0 error detection; disk errors during IML/dump; ERP invoked by DFA	If loading from diskette (function 9 from the control panel) then exchange the FRU group 45; if loading from HDD then exchange the FRU group 46
D3C¹	Moss level 0 error detection; disk errors during IML/dump; internal parity error	Exchange the FRU group 44
D3D¹	Moss level 0 error detection; disk errors during IML/dump; data error (SSB byte 1)	If loading from diskette (function 9 from the control panel) then exchange the FRU group 21 If loading from HDD then go to *IBM 3745 Service Functions*

Table 1-5 (Page 26 of 33). Panel Codes. An [1] following a panel code denotes that the code should 'Blink'.

Panel Code	Definition	Action: Go to "3745 FRU Group Table" on page 1-49 or to MAP number
D3E[1]	Moss level 0 error detection; disk errors during IML/dump; record not found (L/operator intervention required)	If loading from diskette (function 9 from the control panel) then exchange the FRU group 45; if loading from HDD then exchange the FRU group 46
D3F	Unused	Go to "MAP 3220: Undefined Panel Message" on page 2-5
D40[1]	Moss level 0 error detection; disk errors during IML/dump; CRC/ECC error on ID	Go to *IBM 3745 Service Functions*
D41[1]	Moss level 0 error detection; disk errors during IML/dump; CRC/ECC error on data	
D42[1]	Moss level 0 error detection; disk errors during IML/dump; bad track detected	
D43[1]	Moss level 0 error detection; disk errors during IML/dump; format error detected	
D44[1]	Moss level 0 error detection; disk errors during IML/dump; unable to find ID	Go to *IBM 3745 Service Functions*
D45[1]	Moss level 0 error detection; diskette errors during IML/dump; format error detected	Exchange the FRU group 47
D46 to D4F	Unused	Go to "MAP 3220: Undefined Panel Message" on page 2-5
D50[1]	Moss level 0 error detection; disk errors during IML/dump; disk change information	If loading from diskette (function 9 from the control panel) then ensure the diskette is correctly inserted and that the diskette drive operator handle is closed. If no problem in this area, then exchange the FRU group 45 If loading from HDD then exchange the FRU group 46
D51 to D75	Unused	Go to "MAP 3220: Undefined Panel Message" on page 2-5
D76[1]	Moss level 0 error detection; disk errors during IML/dump; PIO MCK (non-recursive)	Exchange the FRU group 7
D77 to DF5	Unused	Go to "MAP 3220: Undefined Panel Message" on page 2-5
DF6[1]	Moss level 0 error detection; disk errors during IML/dump; PIO MCK (recursive) - (preemptive request class.)	Exchange the FRU group 7
DF7	Unused	Go to "MAP 3220: Undefined Panel Message" on page 2-5
DF8[1]	Moss level 0 error detection; device errors during IML/dump; dump directory entry not found	If loading from diskette (function 9 from the control panel) then the problem may be a possible incorrect diskette in the drive. If OK then try the backup diskette. If problem still exists then exchange the FRU group 18 OR If loading is from the disk then restore the disk. Refer to *IBM 3745 Service Functions* If problem still exists then exchange the FRU group 48. Record the following action for use if the problem is not corrected by the FRU exchange; A MOSS microcode problem is suspected. Contact your support structure, refer to "Contacting Support" on page A-1.

Table 1-5 (Page 27 of 33). Panel Codes. An [1] following a panel code denotes that the code should 'Blink'.

Panel Code	Definition	Action: Go to "3745 FRU Group Table" on page 1-49 or to MAP number
DF9[1]	Moss level 0 error detection; Device errors during IML/dump; hard disk not initialized	Restore the disk. Refer to *IBM 3745 Service Functions* If problem still exists then exchange the FRU group 48 go to page 1-49. Record the following action for use if the problem is not corrected by the FRU exchange; A MOSS microcode problem is suspected. Contact your support structure, refer to "Contacting Support" on page A-1.
DFA[1]	Moss level 0 error detection; Device errors during IML/dump; hard disk not formatted	
DFB[1]	Moss level 0 error detection; Device errors during IML/dump; invalid IML request	If loading from diskette (function 9 from the control panel) then the problem may be a possible incorrect diskette in the drive. If OK then try the backup diskette. If problem still exists then exchange the FRU group 18 OR If loading is from the disk then restore the disk. Refer to *IBM 3745 Service Functions* If problem still exists then exchange the FRU group 48. Record the following action for use if the problem is not corrected by the FRU exchange; A MOSS microcode problem is suspected. Contact your support structure, refer to "Contacting Support" on page A-1.
DFC[1]	Moss level 0 error detection; Device errors during IML/dump; volume IML check	
DFD[1]	Moss level 0 error detection; Device errors during IML/dump; data compare check	
DFE[1]	Moss level 0 error detection; Device errors during IML/dump; disk time out	Exchange the FRU group 46. Record the following action for use if the problem is not corrected by the FRU exchange; A MOSS microcode problem is suspected. Call your support structure, refer to "Contacting Support" on page A-1.
DFF[1]	Moss level 0 error detection; Device errors during IML/dump; diskette time out	Exchange the FRU group 45. Record the following action for use if the problem is not corrected by the FRU exchange; A MOSS microcode problem is suspected. Call your support structure, refer to "Contacting Support" on page A-1.
E00 to EFF	Unused	Go to "MAP 3220: Undefined Panel Message" on page 2-5
F00	Status/progression step; Start of MOSS dump	Normal progression code. If this code is displayed for more than 2 minutes, then a MOSS microcode problem is suspected. Contact your support structure, refer to "Contacting Support" on page A-1.
F01	Status/progression step; MOSS dump has been completed without error	n/a
F02	Status/progression step which occurs during the IML sequence; IML Initialization	Normal progression code. If this code is displayed for more than 2 minutes, then a MOSS microcode problem is suspected. Contact your support structure, refer to "Contacting Support" on page A-1.
F03	Status/progression step which occurs during the IML sequence; open adaptor	
F04	Status/progression step which occurs during the IML sequence; open secondary component address (either disk or diskette)	
F05	Status/progression step which occurs during the IML sequence; check disk or diskette ID	
F06 to F07	Unused	Go to "MAP 3220: Undefined Panel Message" on page 2-5

Table 1-5 (Page 28 of 33). Panel Codes. An [1] following a panel code denotes that the code should 'Blink'.

Panel Code	Definition	Action: Go to "3745 FRU Group Table" on page 1-49 or to MAP number
F08	Status/progression step which occurs during the IML sequence; find directory entry	Normal progression code. If this code is displayed for more than 2 minutes, then a MOSS microcode problem is suspected. Contact your support structure, refer to "Contacting Support" on page A-1.
F09	Status/progression step which occurs during the IML sequence; IML end - go to MOSS loader	
F0A	Status/progression step which occurs during the IML sequence; Ram entry (Start of MOSS Init step 1)	
F0B	Status/progression step which occurs during the IML sequence; end of MOSS init step 1	Normal progression code. If this code is displayed during the 1st installation, a manual intervention is required to exchange the wrap block.
F0C	Status/progression step which occurs during the IML sequence; start of MOSS init step 2 (Moss level 7)	Normal progression code. If this code is displayed for more than two minutes, then suspect any adapters attached to the MOSS, or microcode problem is suspected. Contact your support structure, refer to "Contacting Support" on page A-1.
F0D	Status/progression step which occurs during the IML sequence; IML complete with errors detected during MOSS diagnostics.	MOSS diagnostics detected an error during the IML. • Normally a reference code will have been produced on the 3745 console. Refer to "Using Reference Codes" on page 1-14. • This code may be caused by a console problem which prevents the display of the reference code. If this is the case, go to "3745 Console Symptoms" on page 1-10.
F0E	Status/progression step which occurs during the IML sequence; IML complete - MOSS ALONE	N/A
F0F	Status/progression step which occurs during the IML sequence; IML Complete - CCU connected - MOSS OFFLINE	If this code appear without requested IML (MOSS become alone during normal operations) look at the console for messages and go to "3745 Console Symptoms" on page 1-10
F10	Errors detected during the IPL sequence; Solid error during MIOC operation	A reference code will have been produced on the 3745 console. Refer to "Using Reference Codes" on page 1-14.
F11	Errors detected during the IPL sequence; CCU hardcheck during a CCU IPL in progress	
F12	Errors detected during the IPL sequence; Host IPL request during CCU IPL in progress	
F13	Errors detected during the IPL sequence; Unidentified IPL selection	
F14	Errors detected during the IPL sequence; CDS not correctly built by the CDF	A reference code will have been produced on the 3745 console. Refer to "Using Reference Codes" on page 1-14.
F15	Unused	Go to "MAP 3220: Undefined Panel Message" on page 2-5
F16	Errors detected during the IPL sequence; CCU memory test failed	A reference code will have been produced on the 3745 console. Refer to "Using Reference Codes" on page 1-14.
F17	Errors detected during the IPL sequence; CCU test failed	If this code is displayed during IML: 1. Run IOC bus diagnostics to ensure that there is no adapter problem. 2. Run CCU diagnostics.

Table 1-5 (Page 29 of 33). Panel Codes. An [1] following a panel code denotes that the code should 'Blink'.

Panel Code	Definition	Action: Go to "3745 FRU Group Table" on page 1-49 or to MAP number
F18	Errors detected during the IPL sequence; IOC BUS test failed	A reference code will have been produced on the 3745 console. Refer to "Using Reference Codes" on page 1-14.
F19	Errors detected during the IPL sequence; IPL port table has been incorrectly built via the CDF	
F1A	Errors detected during the IPL sequence; CLDP not accessible	
F1B	Errors detected during the IPL sequence; CLDP/SALT abend. (output 70)	
F1C	Errors detected during the IPL sequence; CLDP/MOSS interface error	A reference code will have been produced on the 3745 console. Refer to "Using Reference Codes" on page 1-14.
F1D	Errors detected during the IPL sequence; NCP/EP init abend	
F1E	Errors detected during the IPL sequence; CLDP time out on 'IN MAILBOX' acknowledgement	
F1F	Errors detected during the IPL sequence; MOSS time out on waiting NCP/EP init MB out	
F20	Errors detected during the IPL sequence; MOSS time out on waiting NCP/EP init MB in acknowledgement	A reference code will have been produced on the 3745 console. Refer to "Using Reference Codes" on page 1-14.
F21	Errors detected during the IPL sequence; NCP/EP INIT/MOSS interface error acknowledgement	
F22 to F23	Unused	Go to "MAP 3220: Undefined Panel Message" on page 2-5
F24	Errors detected during the IPL sequence; no scanner IMLed after scanner IML routine (Phase 3)	A reference code will have been produced on the 3745 console. Refer to "Using Reference Codes" on page 1-14.
F25	Errors detected during the IPL sequence; no valid scanner in CDS	
F26	Errors detected during the IPL sequence; LSSD residual count > 7	
F27	Errors detected during the IPL sequence; LSSD string select error during a read or write LSSD	
F28	Errors detected during the IPL sequence; IPL phase 1A load module not accessible	There is a defect with the hard disk. Contact your support structure, refer to "Contacting Support" on page A-1.
F29	Errors detected during the IPL sequence; IPL phase 1B load module not accessible	
F2A	Errors detected during the IPL sequence; IPL phase 2 load module not accessible	
F2B	Errors detected during the IPL sequence; IPL phase 3 load module not accessible	
F2C	Errors detected during the IPL sequence; IPL phase 4 load module not accessible	
F2D	Errors detected during the IPL sequence; too many CCU RE-IPL (PGM abend or hardcheck)	A reference code will have been produced on the 3745 console. Refer to "Using Reference Codes" on page 1-14.
F2E	Errors detected during the IPL sequence; wrong CCU LSSD initialization	
F2F	Errors detected during the IPL sequence; no IPL port is available (neither link nor channel) and no load module on the disk is available	
F30	Errors detected during the IPL sequence; CPIT error: • CPIT length different from CHGCONCP • Some CPIT fields not initialized	
F31	Errors detected during the IPL sequence; IPL phase 1C load module not accessible	
F32	Errors detected during the IPL sequence; CCU check occurred during phase 1C	
F33	Errors detected during the IPL sequence; SALT not accessible	
F34	Errors detected during the IPL sequence; CCU memory failure	
F35	Errors detected during the IPL sequence; Dispcrepancy between CLDP and 3746-900 CDF information	

Table 1-5 (Page 30 of 33). Panel Codes. An [1] following a panel code denotes that the code should 'Blink'.		
Panel Code	**Definition**	**Action: Go to "3745 FRU Group Table" on page 1-49 or to MAP number**
F36 to F47	Unused	Go to "MAP 3220: Undefined Panel Message" on page 2-5
F48	Errors detected during the IPL sequence; CCU and CACHE checkout failed SCTL checkout failed	A reference code will have been produced on the 3745 console. Refer to "Using Reference Codes" on page 1-14.
F49	Unused	Go to "MAP 3220: Undefined Panel Message" on page 2-5
F4A	Errors detected during the IPL sequence; SCTL initialization failed	A reference code will have been produced on the 3745 console. Refer to "Using Reference Codes" on page 1-14.
F4B	Errors detected during the IPL sequence; switch checkout failed	
F4C	Errors detected during the IPL sequence; permanent level 1 in CCU, no need to load CLDP	
F4D	Errors detected during the IPL sequence; channel monitoring failure in normal monitor mode, during FB or SB	
F4E	Errors detected during the IPL sequence; reset adapters can not be performed during FB or SB	
F4F	Errors detected during the IPL sequence; problem detected by the CDF	
F50	Errors detected during the IPL sequence; CP not set ONLINE by the fallback or switchback	
F51	Errors detected during the IPL sequence; bus switching operation unsuccessful	
F52	Errors detected during the IPL sequence; problem detected with the MCAD interface	A reference code will have been produced on the 3745 console. Refer to "Using Reference Codes" on page 1-14.
F53	Error detected during the IPL sequence; fallback function not supported	
F54	Errors detected during the IPL sequence; no buffer available for NCP during fallback	
F55	Errors detected during the IPL sequence; NCP / MOSS fallback interface error	
F56	Errors detected during the IPL sequence; interface problem between fallback-switchback and channel monitoring	
F57	Errors detected during the IPL sequence; CCU power has dropped during the IPL	A reference code will have been produced on the 3745 console. Refer to "Using Reference Codes" on page 1-14.
F58	Errors detected during the IPL sequence; error during SBK protocol	
F59	Error detected during MOSS IML diagnostics; IPL can not be performed on the selected CCU	
F5A	Errors detected during the IPL sequence; CA configuration from CDF does not match the actual configuration	
F60	Error detected during MOSS IML Diagnostics; IPL can not be performed on CCU	
F61	IPL cancelled after IPL abort	
F62	Error detected during MOSS IML Diagnostics; IPL cancelled after a stop in phase 1 diagnostic	
F63 to FD5	Unused	Go to "MAP 3220: Undefined Panel Message" on page 2-5
FD6	Status/progression step which occurs during the IPL sequence; the control program loading is started from the Disk	If this code is displayed for more than 2 minutes, when the load/dump is via the disk, then refer to "How to Run MOSS Diagnostics" on page 3-4 to aid problem isolation and refer to *IBM 3745 Service Functions*, "Hard Disk Trouble Analysis".
FD7	Status/progression step; dump control program on MOSS disk in progress	
FD8	Status / Progression step; save control program on MOSS disk in progress	
FD9 to FE0	Unused	Go to "MAP 3220: Undefined Panel Message" on page 2-5

Table 1-5 (Page 31 of 33). Panel Codes. An [1] following a panel code denotes that the code should 'Blink'.

Panel Code	Definition	Action: Go to "3745 FRU Group Table" on page 1-49 or to MAP number
FE1	Errors detected during IML sequence; disk initialization failure	A reference code will have been produced on the 3745 console. Refer to "Using Reference Codes" on page 1-14. Be aware that the *IBM 3745 Service Functions, Chapter 11* may be used later during the investigation.
FE2	Errors detected during IML sequence; disk load operation failure	
FE3	Errors detected during IML sequence; power error A - get end of IML data	A reference code will have been produced on the 3745 console. Refer to "Using Reference Codes" on page 1-14.
FE4	Unused	Go to "MAP 3220: Undefined Panel Message" on page 2-5
FE5	Errors detected during IML sequence; panel error	A reference code will have been produced on the 3745 console. Refer to "Using Reference Codes" on page 1-14. Record "How to Run the Control Panel Test" on page 3-8 which may assist problem isolation.
FE6	Errors detected during IML sequence; MIOC error with CCU operation	A reference code will have been produced on the 3745 console. Refer to "Using Reference Codes" on page 1-14.
FE7	Unused	Go to "MAP 3220: Undefined Panel Message" on page 2-5
FE8	Errors detected during IML sequence; disk error when reading CDF	A reference code will have been produced on the 3745 console. Refer to "Using Reference Codes" on page 1-14. Be aware that the *IBM 3745 Service Functions, Chapter 11* may be used later during the investigation.
FE9	Errors detected during IML sequence; CDF not created	A reference code will have been produced on the 3745 console. Refer to "Using Reference Codes" on page 1-14. Be aware that the *IBM 3745 Service Function Chapter 9 and 11* may be used later during the investigation.
FEA	Errors detected during IML sequence; CDF access function(s) error	
FEB	Errors detected during IML sequence; NCP time out on mailbox to CCU A	A reference code will have been produced on the 3745 console. Refer to "Using Reference Codes" on page 1-14. Record whether this code can be resolved by use of the *Problem Determination Guide*, SA33-0096. Perform a MOSS IML but if problem occurs again Contact your support structure.
FEC to FED	Unused	Go to "MAP 3220: Undefined Panel Message" on page 2-5
FEE	Errors detected during IML sequence; MOSS data saving error	A reference code will have been produced on the 3745 console. Refer to "Using Reference Codes" on page 1-14. Record whether this code can be resolved by use of the *Problem Determination Guide*, SA33-0096. Perform a MOSS IML but if problem occurs again Contact your support structure.
FEF	Errors detected during IML sequence; disk error when reading Port swap file.	A reference code will have been produced on the 3745 console. Refer to "Using Reference Codes" on page 1-14. Be aware that the *IBM 3745 Service Functions, Chapter 11* may be used later during the investigation.

Table 1-5 (Page 32 of 33). Panel Codes. An [1] following a panel code denotes that the code should 'Blink'.

Panel Code	Definition	Action: Go to "3745 FRU Group Table" on page 1-49 or to MAP number
FF0	Status/progression step which occur during the IPL sequence; IPL entered	If this code is displayed for more than 2 minutes, then a MOSS microcode problem is suspected. Contact your support structure, refer to "Contacting Support" on page A-1.
FF1	Status/progression step which occurs during the IPL sequence; IPL phase 1 started	
FF2	Status/progression step which occurs during the IPL sequence; IPL phase 2 started	
FF3	Status/progression step which occurs during the IPL sequence; IPL phase 3 entered	
FF4	Status/progression step which occurs during the IPL sequence; IPL phase 4 entered	If this code is displayed for more than 2 minutes when: 1. The load/dump is via a channel, then go to "MAP 3500: Activate/Deactivate Line Problem or Line Errors on the TSS" on page 2-7. 2. The load/dump is via the disk, then run "How to Run MOSS Diagnostics" on page 3-4 to aid problem isolation and refer to *IBM 3745 Service Functions*, "Hard Disk Trouble Analysis". OR if this code is displayed for more than 10 - 20 minutes (depending on IPL link speed) when: 3. The load/dump is via a link, then follow carefully the PD Guide.
FF5	Status/progression step which occurs during the IPL sequence; the control program load/dump is started on a channel-attached 3745	If this code is displayed for more than 2 minutes, then go to "MAP 3500: Activate/Deactivate Line Problem or Line Errors on the TSS" on page 2-7.
FF6	Status/progression step which occurs during the IPL sequence; the control program load/dump is started on a link-attached 3745	If this code is displayed for more than 10 - 20 minutes (depending on IPL link speed) then follow the PD guide.
FF7	Status/progression step which occurs during the IPL sequence; control program is loaded and initialization has started	If this code is displayed for more than 2 minutes, then the CCU failed to initialize the control program. A control program problem is suspected. Contact your support structure, refer to "Contacting Support" on page A-1.
FF8	Status/Progression step which occurs during the IPL sequence; control program Load/Dump is started on a ESCA attached 3756-900.	No action required
FF9	Unused	Go to "MAP 3220: Undefined Panel Message" on page 2-5
FFA	Status/progression step which occurs during the IPL sequence; IPL has completed but has detected a PCA1 adapter error; local console may not be accessible	Go to "How to Run the Console Link Test for 3745 Models 130, 150, 160, and 170" on page 3-6 and run the local console link test. Record: exchange the FRU group 26 for possible exchange if problem still exists.
FFB	Status/progression step which occurs during the IPL sequence; IPL was cancelled by the 3745 console operator	No action required
FFC	Unused	Go to "MAP 3220: Undefined Panel Message" on page 2-5
FFD	Status/progression step which occurs during the IPL sequence; IPL has completed; The MOSS IML was performed from the diskette; the control program is loaded and MOSS is operational	No action required
FFE	Status/progression step which occurs during the IPL sequence; IPL has been completed but has detected some error during the sequence.	A reference code will have been produced on the 3745 console. Refer to "Using Reference Codes" on page 1-14.

Table 1-5 (Page 33 of 33). Panel Codes. An [1] following a panel code denotes that the code should 'Blink'.		
Panel Code	**Definition**	**Action: Go to "3745 FRU Group Table" on page 1-49 or to MAP number**
FFF	Status/MOSS offline function is successfully ended.	No action required

Using the MIP FRU Group Table

Very important

The MIP FRU group table lists the FRU groups likely to be called in this manual.

This table covers MOSS/POWER FRU group for failures that prevent correct operation of the BRC function.

- Each FRU group contains from one to three FRUs, listed by name and location.
- The “1st FRU” is the most likely to be failing. The “3rd FRU” is the least likely.
- Usually, only one FRU in an FRU group is failing, and you should **try to reduce the FRU group to the one failing FRU.**
- If you can reproduce the 3745 failure, exchange FRUs one at a time until the failing FRUs are isolated.
- **As soon as you have recorded the FRU and location in the FRU Group, go to “3745 FRU List” on page 1-53.**

Always

1. Ensure that the failing area of the machine is available for service.
2. Consult the “Exchange Precautions” on page 4-1 before removing any FRUs.
3. Check for loose cards, cables, and crossovers before exchanging FRUs.
4. Run diagnostics after any repair action.
5. Follow the 'CE leaving' procedure before returning the machine to the customer.

The FRU group table starts on the next page.

3745 FRU Group Table

Very important

Read the previous page before using this table.

Table 1-6 (Page 1 of 3). 3745 FRU Table

FRU Group	1st FRU Name Location	2nd FRU Name Location	3rd FRU Name Location	Cable Location
1	MPC/MPC2 01A-X0E	MCC/MAC 01A-X0H	DFA 01A-X0G	
2	MPC/MPC2 01A-X0E			
3	MCC/MAC 01A-X0H	MPC/MPC2 01A-X0E	DFA 01A-X0G	
4	PCC 01A-X0B	MPC/MPC2 01A-X0E	MCC/MAC 01A-X0H	
5	MCC/MAC 01A-X0H	MPC/MPC2 01A-X0E		
6	MPC/MPC2 01A-X0E	DFA 01A-X0G	MCC/MAC 01A-X0H	
7	DFA 01A-X0G	MPC/MPC2 01A-X0E	MCC/MAC 01A-X0H	
8	DFA 01A-X0G	MCC/MAC 01A-X0H	MPC/MPC2 01A-X0E	
9	MPC/MPC2 01A-X0E	MCC/MAC 01A-X0H		
10	PCC 01A-X0B	CONTROL PANEL	MPC/MPC2 01A-X0E	01A-Y0D1 to 01C-A1J1
11	MSC 01A-X0F	MPC/MPC2 01A-X0E		
12	PCC 01A-X0B	MPC/MPC2 01A-X0E		
13	MPC/MPC2 01A-X0E	MSC 01A-X0F		
14	MPC/MPC2 01A-X0E	PCC 01A-X0B		
15	DFA 01A-X0G	MPC/MPC2 01A-X0E		
16	DFA 01A-X0G	HDD 01D	MPC/MPC2 01A-X0E	01A-Y0C4 to 01D-A1J2 01A-Y0D4 to 01D-A1J1 01F-A1J3 to 01D-A1J3 and 01B-A1J2
17	DFA 01A-X0G	FDD 01B	MPC/MPC2 01A-X0E	01A-Y0C1 to 01B-A1J1 01F-A1J3 to 01D-A1J3 and 01B-A1J2
18	FDD 01B			01A-Y0C1 to 01B-A1J1 01F-A1J3 to 01D-A1J3 and 01B-A1J2

Table 1-6 (Page 2 of 3). 3745 FRU Table

FRU Group	1st FRU Name Location	2nd FRU Name Location	3rd FRU Name Location	Cable Location
19	FDD 01B	DFA 01A-X0G	MPC/MPC2 01A-X0E	01A-Y0C1 to 01B-A1J1 01F-A1J3 to 01D-A1J3 and 01B-A1J2
20	MCC/MAC 01A-X0H	MPC/MPC2 01A-X0E	PUC 01G-V	
21	Diskette	DFA 01A-X0G	FDD 01B	01A-Y0C1 to 01B-A1J1 01F-A1J3 to 01D-A1J3 and 01B-A1J2
22	MPC/MPC2 01A-X0E	PCC 01A-X0B	MSC 01A-X0F	
23	MPC/MPC2 01A-X0E	MSC 01A-X0F	PCC 01A-X0B	
24	MPC/MPC2 01A-X0E	DFA 01A-X0G	MSC 01A-X0F	
25	MPC/MPC2 01A-X0E	MSC 01A-X0F	DFA 01A-X0G	
26	MCC/MAC 01A-X0H			
27	MCC/MAC 01A-X0H	Wrap Block		
28	Local Console	Console Cable		01A-Y0C5 to 01R-A1J3
29	Remote Console			01A-Y0B5 to 01R-A1J2
30	RSF	Console Cable		01A-Y0A5 to 01R-A1J1
31	PCC 01A-X0B	MPC/MPC2 01A-X0E	MSC 01A-X0F	
32	PCC 01A-X0B	MOSS Power	MPC/MPC2 01A-X0E	
33	MCC/MAC 01A-X0H	PUC 01G-V		01A-Y0A2 to 01G-A1YR 01A-Y0B2 to 01G-A1YQ
34	MSC 01A-X0F			
35	CONTROL PANEL	PCC 01A-X0B	MPC/MPC2 01A-X0E	01A-Y0D1 to 01C-A1J1
36	PCC 01A-X0B	CONTROL PANEL		01A-Y0D1 to 01C-A1J1
37	CONTROL PANEL	PCC 01A-X0B		01A-Y0D1 to 01C-A1J1
38	PCC 01A-X0B			
39	Battery 01C-D1	PCC 01A-X0B		01A-Y0B1 to 01C-D1J1 and 01C-B1J1
40	PS Fan 01K	PCC 01A-X0B		01A-Y0A1 to 01E-A0J1 and 01K-A0J1
41	Logic Fan 01E	PCC 01A-X0B		01A-Y0A1 to 01E-A0J1 and 01K-A0J1
42	MSC 01A-X0F	MCC/MAC 01A-X0H	MPC/MPC2 01A-X0E	
43	MSC 01A-X0F	DFA 01A-X0G	MPC/MPC2 01A-X0E	
44	DFA 01A-X0G			

Table 1-6 (Page 3 of 3). 3745 FRU Table

FRU Group	1st FRU Name Location	2nd FRU Name Location	3rd FRU Name Location	Cable Location
45	DFA 01A-X0G	FDD 01B		01A-Y0C1 to 01B-A1J1 01F-A1J3 to 01D-A1J3 and 01B-A1J2
46	DFA 01A-X0G	HDD 01D		01A-Y0C4 to 01D-A1J2 01F-A1J3 to 01D-A1J3 and 01B-A1J2
47	FDD 01B	DFA 01A-X0G		01A-Y0C1 to 01B-A1J1 01F-A1J3 to 01D-A1J3 and 01B-A1J2
48	HDD 01D			01A-Y0C4 to 01D-A1J2 01F-A1J3 to 01D-A1J3 and 01B-A1J2
49	PUC 01G-V	PCC 01A-X0B		01A-Y0A2 to 01G-A1YR 01A-Y0B2 to 01G-A1YQ
50	PS1 01F	PCC 01A-X0B		
51	PCC 01A-X0B	PS2 in PPB 01H		01A-Y0D2 to 01H-B1J8
52	MPC/MPC2 01A-X0E	PCC 01A-X0B	MCC/MAC 01A-X0H	
53	PCC 01A-X0B	EPO box 01S		
54	DFA 01A-X0G	MPC/MPC2 01A-X0E	MSC 01A-X0F	
55	MLA 01A-X0D			
56	MLA 01A-X0D	MPC2 01A-X0E		
57	MLA 01A-X0D	MPC2 01A-X0E	MOSS Board	
58	MLA 01A-X0D	MPC2 01A-X0E	PCC 01A-X0B	

3745 Cable Location

Table 1-7. 3745 Cable Location

From	To	Name
01A-Y0A1	01E-A0J1 01K-A0J1	AFD CCU/Power. Sense to PCC
01A-Y0A2	01G-A1YR	CCU from/to MCC, PUC (cable 1)
01A-Y0A3	01G-A1YP	POR PCC to CCU, LA, CA
01A-Y0A5	01R-A1J1	RSF console from/to MCC
01A-Y0B1	01C-D1J1 01C-B1J1	Panel: Battery/Ready LED
01A-Y0B2	01G-A1YQ	CCU from/to MCC, PUC (cable 2)
01A-Y0B3	01G-A1YN	Channel from/to MCC, CAs
01A-Y0B5	01R-A1J2	Remote console from/to MCC
01A-Y0C1	01B-A1J1	Diskette data/control from/to DFA
01A-Y0C3	01L-B1J1 01L-B2J1	ac FAIL / POR
01A-Y0C4	01D-A1J2	Disk data from/to DFA
01A-Y0C5	01R-A1J3	Local console from/to MCC
01A-Y0D1	01C-A1J1	Panel display from/to PCC
01A-Y0D2	01H-B1J8	5 Volts to PCC from PPB
01A-Y0D4	01D-A1J1	Disk control from/to DFA
01A-Y0E3	01H-B1J9	PS2 power Control.
01A-Y0E4	01F-A1J2	PWR ENT/Control from PS1 to PCC
01F-A1J3	01D-A1J3 01B-A1J2	Disk / Diskette power from PS1
01H-B1J8	01C-C1	EPO switch from panel to PPB
01H-B1J6	01E-A0J2	CCU fan box (Power) from PS2
01H-B1J7	01K-A0J2	Power fan box (Power) from PS2
01F-A1J5	01M-A1A3	LIB1
01F-A1J6	01M-A2A3	LIB1 or LIB3
01F-A1J8 via 01L-B1	01L-A1A3	LIB2
01F-A1J7 via 01L-B2	01L-A2A3	LIB1 or LIB2
01H-A1J11	01S-A0J5/6/7/8	Customer EPO
01F-A1J4	01G-A1YE	Multi voltage to CCU

3745 FRU List

FRU Code	Type	FRU Name	Text
BATT	04C	Battery	It is not necessary to disable any part of the machine or run diagnostics. Go to “Exchange Precautions” on page 4-1.
CADR	06C	CADR	Channel adapter driver receiver card. Go to “Disabling Procedure 0110: Preparing a CA for Maintenance” on page 1-61
CAL6	07C	CAL	Channel adapter logic card. Go to “Disabling Procedure 0110: Preparing a CA for Maintenance” on page 1-61.
CAL7	08C	CAL	Channel adapter logic card. Go to “Disabling Procedure 0110: Preparing a CA for Maintenance” on page 1-61.
CBSP	850 8A0	CBSP CBSP2 CBSP3	Controller bus and service processor. Refer to the *IBM 3746 Nways Multiprotocol Controller Model 900 Service Guide*, SY33-2116.
CBC	430	CBC	Controller bus coupler. Refer to the *IBM 3746 Nways Multiprotocol Controller Model 900 Service Guide*, SY33-2116.
CSC	70C	CSC	Scanner for medium low speed. Go to “Disabling Procedure 0120: Preparing a TSS/HPTSS/ESS for Maintenance” on page 1-62.
CSP	0EC	CSP	Communication scanner processor (associated with FESH card for high high speed lines. Go to “Disabling Procedure 0120: Preparing a TSS/HPTSS/ESS for Maintenance” on page 1-62.
DCRG	73C	DCREG	DC regulator card Go to “Exchange Precautions” on page 4-1.
DFA	0FC	DFA	Disk file adapter card. Go to “Disabling Procedure 0130: How to Put the MOSS Offline: Preparing the MOSS for Maintenance” on page 1-65.
DSKTE	10C	Diskette	Remove the diskette from the FDD and exchange it.
DMUX	12C	DMUX	Double multiplex card. Go to “Disabling Procedure 0120: Preparing a TSS/HPTSS/ESS for Maintenance” on page 1-62.
EAC	14C	EAC	Ethernet adapter card. Go to “Disabling Procedure 0120: Preparing a TSS/HPTSS/ESS for Maintenance” on page 1-62.
Fan1	7EC	Fan1	“Exchange Precautions” on page 4-1.
Fan2	7FC	Fan2	“Exchange Precautions” on page 4-1.
FDD	17C	FDD	Flexible disk drive. Go to “Disabling Procedure 0130: How to Put the MOSS Offline: Preparing the MOSS for Maintenance” on page 1-65.
FESH	18C	FESH	Front-end scanner (high speed). Go to “Disabling Procedure 0120: Preparing a TSS/HPTSS/ESS for Maintenance” on page 1-62.
HDD	1AC	HDD	Hard disk drive. Go to “Disabling Procedure 0130: How to Put the MOSS Offline: Preparing the MOSS for Maintenance” on page 1-65.
LIC1	20C	LIC1	Line interface coupler type 1 card. Go to “Disabling Procedure 0150: Preparing LIC Type 1, 3, 4, 5, 6 for Maintenance” on page 1-69.
LIC3	22C	LIC3	Line interface coupler type 3 card. Go to “Disabling Procedure 0150: Preparing LIC Type 1, 3, 4, 5, 6 for Maintenance” on page 1-69.
LIC4	23C	LIC4	Line interface coupler type 4 card. Go to “Disabling Procedure 0150: Preparing LIC Type 1, 3, 4, 5, 6 for Maintenance” on page 1-69.
LIC5	24C	LIC5	Line interface coupler type 5 card. Go to “Disabling Procedure 0150: Preparing LIC Type 1, 3, 4, 5, 6 for Maintenance” on page 1-69.
LIC6	25C	LIC6	Line interface coupler type 6 card. Go to “Disabling Procedure 0150: Preparing LIC Type 1, 3, 4, 5, 6 for Maintenance” on page 1-69.
MAC	84C	MAC	MOSS adapter card for 3745 Model 17A. Go to “Disabling Procedure 0130: How to Put the MOSS Offline: Preparing the MOSS for Maintenance” on page 1-65.
MCC	7BC	MCC	MOSS control card. Go to “Disabling Procedure 0130: How to Put the MOSS Offline: Preparing the MOSS for Maintenance” on page 1-65.
MLA	44C	MLA	MOSS LAN adapter card. Go to “Disabling Procedure 0130: How to Put the MOSS Offline: Preparing the MOSS for Maintenance” on page 1-65.
MPC	2BC	MPC	MOSS processor card. Go to “Disabling Procedure 0130: How to Put the MOSS Offline: Preparing the MOSS for Maintenance” on page 1-65.
MPC2	2CC	MPC2	MOSS processor card (specific for Model 17A). Go to “Disabling Procedure 0130: How to Put the MOSS Offline: Preparing the MOSS for Maintenance” on page 1-65.

FRU Code	Type	FRU Name	Text
MSC	2DC	MSC	MOSS storage card. Go to “Disabling Procedure 0130: How to Put the MOSS Offline: Preparing the MOSS for Maintenance” on page 1-65
MSC2	2EC	MSC2	MOSS storage card (specific for Model 17A). Go to “Disabling Procedure 0130: How to Put the MOSS Offline: Preparing the MOSS for Maintenance” on page 1-65.
PCC	7AC	PCC	Power control card. Go to “Disabling Procedure 0130: How to Put the MOSS Offline: Preparing the MOSS for Maintenance” on page 1-65.
PNLC	079C	Control Panel	Go to “Disabling Procedure 0130: How to Put the MOSS Offline: Preparing the MOSS for Maintenance” on page 1-65.
PS1	71C	PS1	Power supply number 1. Go to “Exchange Precautions” on page 4-1.
PS2	72C	PS2	Power supply number 2. Go to “Exchange Precautions” on page 4-1.
PUC	87C	PUC	CCU card. Go to “3745 Diagnostic Requirement” on page 1-60 and follow 'CCU/IOC bus' requirements.
SALC	75C	SALC	Scanner ALC. Refer to *Airline Line Control Scanner RPQ 7L1148 Supplement to Service Documentation* SY33-2077.
SCTL	3AC	SCTL	Storage control card. Go to “3745 Diagnostic Requirement” on page 1-60 and follow 'CCU/IOC bus' requirements.
SMUXA/B	3DC	SMUXA/B	Single multiplex card. Go to “Disabling Procedure 0120: Preparing a TSS/HPTSS/ESS for Maintenance” on page 1-62.
STO4	76C	STO4	Storage card. Go to “3745 Diagnostic Requirement” on page 1-60 and follow 'CCU/IOC bus' requirements.
STO8	77C	STO8	Storage card. Go to “3745 Diagnostic Requirement” on page 1-60 and follow 'CCU/IOC bus' requirements.
TIC2	46C	TIC2	Token-ring interface coupler type 2. Go to “Disabling Procedure 0140: Preparing a TRSS for Maintenance” on page 1-66.
TRM	47C	TRM	Token-ring multiplexer card; Go to “Disabling Procedure 0140: Preparing a TRSS for Maintenance” on page 1-66.
TERMC	85C	TERMC	Channel adapter IOC terminator card (specific for Model 17A). Go to “3745 Diagnostic Requirement” on page 1-60 and follow 'CCU/IOC bus' requirements.
TERMD	7CC	TERMD	DMA terminator card. Go to “Disabling Procedure 0120: Preparing a TSS/HPTSS/ESS for Maintenance” on page 1-62
TERMI	7DC	TERMI	IOC terminator card. Go to “3745 Diagnostic Requirement” on page 1-60 and follow 'CCU/IOC bus' requirements.
TERMR	86C	TERMR	IOC terminator card (specific for Model 17A). Go to “3745 Diagnostic Requirement” on page 1-60 and follow 'CCU/IOC bus' requirements.

3745 and Service Processor Maintenance Using a CPN

The service processor console should be logged ON. If it is not go to “Console Use for Maintenance” on page 1-1 for logging ON and return here.

1. On the **MOSS-E View** window, click on **Program** (in the action bar).
2. Click on **Search CPN**.
3. Enter the CPN.
4. The controller icon corresponding to the CPN is highlighted. On the bottom line of the **MOSS-E View** window the type of controller (3745 or 3746-900) and its serial number are displayed.
5. Note the type of controller and double-click on the highlighted controller icon.

001

Was a 3745 Controller icon highlighted?
Yes No

002

Was a 3746-900 Controller icon highlighted?
Yes No

003

Go to Step 008.

004

Refer to the *IBM 3746 Nways Multiprotocol Controller Model 900 Service Guide*, SY33-2116.

005

The selected machine is a 3745.

Are you here for a hardware problem (with FRU)?
Yes No

006

For a 3745 microcode problem refer to the *Service Processor Installation and Maintenance* manual. Use the "Handling the Microcode Change Levels" procedure in the "Maintaining the Code Loaded on the Service Processor" chapter.

007

- The **3745 Menu** window is displayed.
- Click on the **Problem Management** option.
- Double-click on the **Display Alarms** option.
- On the next window, double-click on the alarm which has the CPN corresponding to your call.
- You obtain a FRU or a list of FRUs with the FRU location.
- Note this information and go to “3745 FRU List” on page 1-53 for FRU replacement.

008

The service processor icon is highlighted.

Are you here for a hardware problem (with FRU)?
Yes No

009

For a service processor microcode problem, refer to the *Service Processor Installation and Maintenance* manual. Use the "Handling the Microcode Change Levels" procedure in the "Maintaining the Code Loaded on the Service Processor" chapter.

010

- On the **MOSS-E View** window, double click on the service processor icon.

(Step **010** continues)

010 (continued)
- The **Service Processor Menu** window is displayed.
- Click on the **Problem management** option.
- Double-click on the **Display Alarms** option.
- The **Display Alarms** window is displayed.
- Record the SRC number of the alarm which has the CPN corresponding to your call.
- Return to the **Problem management** window.
- Double-click on the **Manage Alarms/Errors/Events (SRCs)**.
- Select **Alarms** then click on **OK**.
- Double-click on the alarm which has the SRC number previously recorded.
- A FRU or a list of FRUs with the FRU location is displayed.
- Record this FRU list with each card fault probability.
- Go to "Service Processor Problem Determination" in the corresponding *Service Processor Installation and Maintenance* manual.

Service Processor Maintenance Using an SRC Sequence Number

The service processor console should be logged ON. If it is not, go to “Console Use for Maintenance” on page 1-1 for logging ON and return here.

1. On the **MOSS-E View** window, double click on the service processor icon.
2. The **Service Processor Menu** window is displayed.
3. Click on the **Problem management** option.
4. Double-click on the **Manage Alarms/Errors/Events (SRCs)** option.
5. Select the **Alarm** option then click on **OK**.
6. On the next window, double-click on the alarm which has the SRC number that you want.
7. A FRU or a list of FRUs with the FRU location is displayed.
8. Record this FRU list with each card fault probability.
9. Go to "Service Processor Problem Determination" in the corresponding *Service Processor Installation and Maintenance* manual.

Engineering Data Transfer

Overview

The engineering data can be transferred in two main ways:

- Optical disk or diskettes
- DCAF (Distributed Console Access Facility) via LAN, or SDLC.

The transfer can be done from:

- The local service processor using optical disk or diskettes
- The remote service processor using DCAF.

Transferring Engineering Data from the Local Service Processor

- You should be logged ON.
- On the **MOSS-E View** window, double-click on the service processor icon.
- On the **Service Processor Menu**, click on the **Operation Management** option.
- Double-click on the **Retrieve Engineering Data** option.
- The **Retrieve Engineering Data** window is displayed, askin g if you have transferred the 3745 engineering data.
  - If you click on **YES**:
    The **Engineering Data Retrieval** window is displayed with a wait message. The **Save/Transfer Engineering Data** window becomes available for selection.
    - Click on your **Copy to Diskette** or **Copy to Optical Disk** option. Then follow the information displayed.
    - At the end of the copy, double click on the **Delete Engineering data** window to delete the engineering data file on MOSS-E.
  - If you click on **NO** you are directed to the MIP: **Start page - 3745/3746-900 Maintenance Actions**. See “Transferring 3745 Engineering Data to MOSS-E.”

Transferring 3745 Engineering Data to MOSS-E

- From the **MOSS-E View** window, double-click on the 3745 icon.
- On the **3745 Menu** window, click on the **MOSS Console** option.
- A MOSS window is displayed. Enter the PEM command on this window, and press **Enter**.
- On the same window enter the **SD** (Super Diagnostic) function and press **Enter**.
- On the **Super Diagnostic** window, select **function 5** (transfer file to MOSS-E).
- Enter the file names to be transferred as specified hereafter and press **Enter**.
  - CHGCDF for CDF
  - CHGCIL for BERs

  For other dump files, type DDD in menu 3 to check their availability :
  - CHGDMP
  - CHHDMPA
  - CHHDMPB
  - CHGTRSSA
  - CHGTRSSB
  - CHGCADSA
  - CHGCADSB
- Enter PEM and press **Enter** to end.

Logon on the Remote Service Processor

Note

Before continuing, establish the physical connection with the local service processor.

- On the desk top screen, double-click on the **Distributed Console Access Facility** icon.
- A **Distributed Console Access Facility-Icon View** is displayed.
- Double-click on the **Controlling for the DCAF** option.
- On the **Product Information** window, click on **OK**.
- On the **Distributed Console Access Facility**, click on **Services** in the action bar.

- Click on the **Select a link Record** option.
- On the **DCAF Link Record Directory** window, double-click on the desired link (LAN, SDLC)
- On the **DCAF Target Password** window, enter the password and click on **OK**.
- The **DCAF Target/Monitoring/ALT+T** is displayed.
- Return to the **SDLC State Monitoring** and click on **Session** in the action bar.
- Click on **Active**.

Transferring Engineering Data to the Remote Service Processor

- On the **SDLC State Active-Key Stroke Remote** window, click on **Services** in the action bar.
- Click on **Start File Transfer**.
- The **DCAF - File Transfer Utilities** window is displayed.
- On this window:
  - Enter the source file name:
    K:|pedat|xxxxxxxx.zip (Note)
  - Enter the destination file name (which can be the same).
  - Do **not** select the **compress** option.
  - Click on **Receive**.
- A **DCAF - File Transfer Utility** window is displayed showing the status.
- When the transfer is done, the message **File Transfer Performed successfully** is displayed. Click on **OK**.
- Click on the **Delete Engineering Data** to delete engineering data file on MOSS-E.

Note: xxxxxxxx = Manufacturing plant and serial number of service processor.

3745 Diagnostic Requirement

If all of the machine is available and the MOSS is running alone, go to "How to Run Internal Function Tests" on page 3-9 and run the appropriate diagnostic or perform other maintenance as required.

Table 1-8. 3745 Diagnostic Requirements

Diagnostic	Go to
CA	"Disabling Procedure 0110: Preparing a CA for Maintenance" on page 1-61.
CA wrap tests	"Disabling Procedure 0110: Preparing a CA for Maintenance" on page 1-61.
ESS	"Disabling Procedure 0120: Preparing a TSS/HPTSS/ESS for Maintenance" on page 1-62.
HPTSS	"Disabling Procedure 0120: Preparing a TSS/HPTSS/ESS for Maintenance" on page 1-62.
MOSS	"Disabling Procedure 0130: How to Put the MOSS Offline: Preparing the MOSS for Maintenance" on page 1-65.
TRSS	"Disabling Procedure 0140: Preparing a TRSS for Maintenance" on page 1-66.
TSS	"Disabling Procedure 0120: Preparing a TSS/HPTSS/ESS for Maintenance" on page 1-62.
LIC wrap test (IFT)	"Disabling Procedure 0150: Preparing LIC Type 1, 3, 4, 5, 6 for Maintenance" on page 1-69.
LIC wrap test (WTT)	"How to Run the Wrap Test (WTT) for TSS, HPTSS, or 3746-900" on page 3-15.
CCU/IOC bus/CBA	The entire machine is required. Notify the operator to deactivate all the lines attached to the 3745 and to deactivate NCP. Run the requested diagnostics. If necessary refer to "How to Run Internal Function Tests" on page 3-9. Then go to "Diagnostic and Exchange Result Analysis 0000" on page 4-99. For CBA diagnostic you need the whole 3745 powered ON and in Offline mode, while the 3746-900 must be powered ON, error free, setted in Online mode with the CBC and its CBSP available in the CDF-E and **not** in concurrent mode. To run the requested diagnostics, refer to "How to Run Internal Function Tests" on page 3-9 then go to "Diagnostic and Exchange Result Analysis 0000" on page 4-99.

Disabling Procedure 0110: Preparing a CA for Maintenance

Important

Before using this procedure, ensure that the MOSS is online. Refer to "How to Put the MOSS Online" on page 4-105 for more information.

Note: For information about any specific console message, refer to the *IBM 3745 Service Functions Guide*.

1. Ask the customer to disable the channel adapter and the associated channel adapter, if applicable.

   Associated CAs:

   - CA5 and CA6
   - CA7 and CA8
2. At the 3745 console, select MENU 3 and type **CAS** for channel adapter services.
3. Press **SEND**.
4. Type **4** for concurrent mode commands.
5. Press **SEND** and type the channel adapter number corresponding to the suspected CA (in the CA number ===> field).
6. Press **SEND**.
7. Type **SHT** for shutdown in the command ===> field.
8. Press **SEND**.
9. Follow the instructions on the screen, then press **SEND**.
10. After the **COMMAND COMPLETED** has been displayed, press **PF6** twice (in order to go back two screens) and enter the channel adapter number corresponding to the associated CA if required in the CA number ===> field.
11. Press **SEND**.
12. Type **SHT** for shutdown in the command ===> field.
13. Press **SEND**.
14. Follow the instructions on the screen, then press **SEND**.
15. Wait for **COMMAND COMPLETED**.
16. Referring to "How to Run Internal Function Tests" on page 3-9, run the diagnostics on the suspected channel adapter.
17. Go to "Diagnostic and Exchange Result Analysis 0000" on page 4-99.

.

Disabling Procedure 0120: Preparing a TSS/HPTSS/ESS for Maintenance

Important

Before using this procedure, ensure that the MOSS is online. If at this time MOSS is offline, set MOSS online to perform this procedure. Refer to "How to Put the MOSS Online" on page 4-105 for more information.

If you are coming from MAP 2100 or MAP 2130, go to Step 002.

001

Is the FRU a CSP card (CSP is one of the 2 HPTSS/ESS cards) ?
Yes No

002

1. Ask the customer to deactivate all the lines attached to the line adapter (recorded as affected lines).

   Wait until the customer has completed deactivating the lines.

2. Using the 3745 console, disconnect the line adapter from the NCP as follows:
   a. From menu 3, select **TSS Services** by entering **TSS** in the selection area.
   b. From the **TSS Services** screen, choose **select/release** by entering **1** in the selection area. See Figure 1-2 on page 1-63.
   c. In the input area, enter an **S** followed by the line adapter number. See Figure 1-3 on page 1-63.
   d. Enter **3** in the selection area to choose **Mode Control**.
   e. If, in the MSA display (upper part of the screen), the status of the scanner is **Unknown Mode**, then enter **RT** on the **Mode Control** screen enter and continue with the next Step 2f
   f. On **Mode Control** screen, enter **DS** to disconnect the line adapter. See Figure 1-4 on page 1-64.

      If deactivation of all the lines driven by this line adapter was not done, a screen showing the still active lines will be displayed. If the customer is unable to deactivate these lines, request his approval to force deactivation for these lines.
      To force deactivation, enter **F** on the displayed screen.
      Continue with the next step only when all lines have been deactivated and the line adapter has been disconnected.
   g. Enter **1** in the selection area to choose **select/release**. See Figure 1-2 on page 1-63.
   h. Enter **REL** in the input area to release the disabled line adapter. See Figure 1-3 on page 1-63.

Run the requested diagnostics (TSS, HPTSS, or ESS).
Refer to Figure 1-5 on page 1-64. If necessary, refer to "How to Run Internal Function Tests" on page 3-9. Then go to "Diagnostic and Exchange Result Analysis 0000" on page 4-99

003

The entire machine is required. Ask the customer to deactivate all the lines attached to the 3745 and to deactivate NCP. Then refer to "How to Run Internal Function Tests" on page 3-9.

Note: You must never run the HPTSS/ESS diagnostics under concurrent maintenance before exchanging a probably defective CSP card. This would cause other line adapters to go down.

```
CUSTOMER ID:                          3745            SERIAL NUMBER:
CCU-A SELECTED PROCESS MOSS-ONLINE      X71:020415
                                        X72:000085


RUN-REQ
------------------------------------------------------------- 02/14/87 00:15
FUNCTION ON SCREEN: TSS SERVICES
 1 SELECT/RELEASE :
 2 DUMP/IML       :
 3 MODE CONTROL   :
 4 DPLY/ALT STORE :
 5 DPLY/ALT BLOCKS:
 6 DPLY/ALT LSR   :
 7 DPLY/ALT XREG  :
 8 ADDRESS COMPARE:
 9 CHK-POINT TRACE:
10 D/ALT HPTSS/ESS:
                  :
                  :
                  :
===>

F1:END  F2:MENU2  F3:ALARM
```

Figure 1-2. TSS Service Screen

```
CUSTOMER ID:                          3745            SERIAL NUMBER:
CCU-A SELECTED PROCESS MOSS-ONLINE      X71:020415
                                        X72:000085


RUN-REQ
------------------------------------------------------------- 04/13/87 05:20
FUNCTION ON SCREEN: TSS SERVICES
 1 SELECT/RELEASE :
 2 DUMP/IML       : - TO SELECT A SCANNER, ENTER:
 3 MODE CONTROL   :
 4 DPLY/ALT STORE :       THE LINE ADAPTER NUMBER PRECEDED BY S (S1 TO S32)
 5 DPLY/ALT BLOCKS:       OR
 6 DPLY/ALT LSR   :       THE LINE ADDRESS
 7 DPLY/ALT XREG  :          (TSS: 0 TO 895,  HPTSS: 1024 TO 1039)
 8 ADDRESS COMPARE:          (ESS: 1056 TO 1071                  )     ==>
 9 CHK-POINT TRACE: - TO RELEASE SELECTED SCANNER, ENTER REL
10 D/ALT HPTSS/ESS:
                  :
                  :
                  :
===>

F1:END  F2:MENU2  F3:ALARM
```

Figure 1-3. Select/Release Screen

```
CUSTOMER ID:                          3745            SERIAL NUMBER:
CCU-A SELECTED PROCESS MOSS-ONLINE      X71:020415
                                        X72:000085


RUN-REQ
------------------------------------------------------------------ 03/01/87 01:22
FUNCTION ON SCREEN: TSS SERVICES
 1 SELECT/RELEASE :
 2 DUMP/IML       :
 3 MODE CONTROL   : - SELECT SCANNER CONTROL COMMAND(SP, ST, CT, DS, RT) ==>
 4 DPLY/ALT STORE :
 5 DPLY/ALT BLOCKS:      SP = STOP
 6 DPLY/ALT LSR   :      ST = START
 7 DPLY/ALT XREG  :      CT = CONNECT
 8 ADDRESS COMPARE:      DS = DELAYED DISCONNECT
 9 CHK-POINT TRACE:      RT = RESET
10 D/ALT HPTSS/ESS:
                  :
                  :
                  :
===>

F1:END  F2:MENU2  F3:ALARM
```

Figure 1-4. Mode Control Screen

```
CUSTOMER ID:                          3745            SERIAL NUMBER:
CCU-A SELECTED PROCESS MOSS-ONLINE      X71:020415
                                        X72:000085


RUN-REQ
------------------------------------------------------------------ 03/01/87 01:22
FUNCTION ON SCREEN: OFFLINE DIAGS
GROUP : ADP#: LINE:
1 ALL :     :     :
2 CCU :     :     :
3 IOCB: 1- 4:     :
4 CA  : 1- 8:     :
5 TSS : 1-32: 0-31:
6 TRSS: 1- 2: 1- 2:
7 HTSS: 1- 8:     :
8 OLT : 1- 8:     :
9 ESS : 1- 8:     :
OPT=  Y IF MODIFY :
OPTION REQUIRED   :
                  : ENTER REQUEST ACCORDING TO THE DIAG MENU
                  : DIAG==>(A)      ADP#==>(B)    LINE==>     OPT==>
===>

F1:END  F2:MENU2  F3:ALARM              F6:QUIT
```

(A) Enter **5** here for TSS diagnostics or **7** for HPTSS/ESS.

(B) Enter the number of the suspected adapter here.

Figure 1-5. TSS/HPTSS/ESS Diagnostic Selection Screen

Disabling Procedure 0130: How to Put the MOSS Offline: Preparing the MOSS for Maintenance

The MOSS can be disabled via the 3745 console or via the control panel. It is recommanded to use the console to put MOSS offline. If this is not possible, the control panel can be used.

Using the 3745 Console

1. Ensure that the customer is not using any of the 3745 consoles or the control panel.
2. On the control panel, check if the **MOSS Inop** indicator is ON or **B** is displayed. If so, it is not necessary to take the MOSS offline. Go to 6.
3. Select **MENU 2**.
4. Enter **MOF** to put the MOSS offline.
5. Press **SEND**.

   (**MOSS OFFLINE** will be displayed on the console screen).
6. Then :
   a. If you were sent to this procedure from another procedure, return there now.
   b. If the panel test or console link test was used to detect the FRU to be exchanged, go to “Exchange Precautions” on page 4-1.
   c. If not, using the table Table 1-9 run the appropriate diagnostics. Refer to Chapter 3, “How to Run 3745 Diagnostics” on page 3-1. Go to “Diagnostic and Exchange Result Analysis 0000” on page 4-99.

Using the Control Panel

1. Ensure that the customer is not using any of the 3745 consoles or the control panel.
2. MOSS IML
   a. Ensure that the service mode is either **0** or **1**.
   b. Select function **1** on the control panel.
   c. Press **Valid**.

   When the MOSS IML starts, the MOSS will automatically become disabled and MOSS diagnostics will be run.
3. Then :
   a. If you were sent to this procedure from another procedure, return there now.
   b. If the panel test or console link test was used to detect the FRU to be exchanged, go to “Exchange Precautions” on page 4-1.
   c. If not, using the table Table 1-9, run the appropriate diagnostics. Refer to Chapter 3, “How to Run 3745 Diagnostics” on page 3-1. (MOSS diagnostics will have been started if a MOSS IML was done). Then go to “Diagnostic and Exchange Result Analysis 0000” on page 4-99.

Table 1-9. Diagnostic Selection

FRU Location	Diagnostic to be Run	Suspected Area	Associated Area
DFA 01A-X0G	MOSS	MOSS	N/A
FDD 01B	MOSS (load from diskette)	MOSS	N/A
HDD 01D	MOSS	MOSS	N/A
MCC/MAC 01A-X0H	MOSS and console link test	MOSS	N/A
MPC/MPC2 01A-X0E	MOSS	MOSS	N/A
MSC 01A-X0F	MOSS	MOSS	N/A
PCC 01A-X0B	MOSS and panel test	PCSS	MOSS
CONTROL PANEL	Panel test	PCSS	MOSS

Disabling Procedure 0140: Preparing a TRSS for Maintenance

Important

Before using this procedure, ensure that the MOSS is online. Refer to “How to Put the MOSS Online” on page 4-105 for more information.

1. Ask the customer to deactivate all the lines attached to this adapter.
   - Wait until the customer has completed deactivating the rings.
2. Using the 3745 console, disconnect the TRA from the NCP as follows:
   a. From Menu 3, select **TRSS Services** by entering **TRS** in the selection area.
   b. From the **TRSS Services** screen, choose **select** by entering **1** in the selection area. See Figure 1-6 on page 1-67.
   c. In the input area, enter the number of the TRA. See Figure 1-7 on page 1-67.
   d. Enter **2** in the selection area to choose 'Connect/Disc'. See Figure 1-6 on page 1-67.
   e. On **Connect/Disc** screen, enter **DS** to disconnect the TRA. See Figure 1-8 on page 1-68.
   If the TRSS can not successfully be disconnected (msg:function not performed), contact your support structure. Refer to “Contacting Support” on page A-1.
3. Run the concurrent TRSS diagnostics using the adapter number. Refer to Figure 1-9 on page 1-68. If necessary, refer to “How to Run Internal Function Tests” on page 3-9. Go to “Diagnostic and Exchange Result Analysis 0000” on page 4-99.

```
CUSTOMER ID:                          3745             SERIAL NUMBER:
CCU-A SELECTED PROCESS MOSS-ONLINE      X71:020415
                                        X72:000085


RUN-REQ
------------------------------------------------------------- 03/01/87 01:22
FUNCTION ON SCREEN: TRSS SERVICES
 1 SELECT         :
 2 CONNECT/DISC   :
 3 TRM REGS       :
 4 TIC INTR REG   :
 5 DPLY STORAGE   :
 6 DUMP           :
 7 DPLY SCB, SSB  :
 8 DPLY PARM BLK  :
 9 TIC ERR STAT   :
                  :
                  :
                  :
                  :
===>1

F1:END  F2:MENU2  F3:ALARM
```

Figure 1-6. TRSS Service Screen

```
CUSTOMER ID:                          3745             SERIAL NUMBER:
CCU-A SELECTED PROCESS MOSS-ONLINE      X71:020415
                                        X72:000085


RUN-REQ
------------------------------------------------------------- 02/10/87 03:30
FUNCTION ON SCREEN: TRSS SERVICES
 1 SELECT         :                          TRA SELECTION
 2 CONNECT/DISC   :
 3 TRM REGS       :  ENTER THE TRA # ==>2   TRA#   LINE ADDRESS  TIC  CCU
 4 TIC INTR REG   :                          1      1088  1089    YY   B
 5 DPLY STORAGE   :                          2      1090  1090    YN   B
 6 DUMP           :
 7 DPLY SCB, SSB  :
 8 DPLY PARM BLK  :
 9 TIC ERR STAT   :
                  :
                  :
                  :  PRESS SEND TO CONFIRM
                  :
===>

F1:END  F2:MENU2  F3:ALARM
```

Figure 1-7. Select Screen

```
CUSTOMER ID:                          3745             SERIAL NUMBER:
CCU-A SELECTED PROCESS MOSS-ONLINE      X71:020415
                                        X72:000085


RUN-REQ
------------------------------------------------------------------ 10/19/90 09:32
FUNCTION ON SCREEN: TRSS SERVICES
 1 SELECT         :                    TRA CONNECT/DISCONNECT
 2 CONNECT/DISC   :
 3 TRM REGS       :
 4 TIC INTR REG   :
 5 DPLY STORAGE   :    TYPE CT TO CONNECT
 6 DUMP           :         DS TO DISCONNECT ==>
 7 DPLY SCB, SSB  :
 8 DPLY PARM BLK  :
 9 TIC ERR STAT   :
                  :
                  :
                  :    PRESS SEND TO CONFIRM
                  :
===>

F1:END  F2:MENU2  F3:ALARM
```

Figure 1-8. Connect/Disconnect Screen

```
CUSTOMER ID:                          3745             SERIAL NUMBER:
CCU-A SELECTED PROCESS MOSS-ONLINE      X71:020415
                                        X72:000085


RUN-REQ
------------------------------------------------------------------ 03/01/87 01:22
FUNCTION ON SCREEN: ONLINE DIAGS
GROUP : ADP#: LINE:
1 ALL            :
2 CCU :     :    :
3 IOCB: 1- 4:    :
4 CA  : 1- 8:    :
5 TSS : 1-32: 0-31:
6 TRSS: 1- 2: 1- 2:
7 HTSS: 1- 8:    :
8 OLT : 1- 8:    :
9 ESS : 1- 8:    :
OPT=  Y IF MODIFY :
OPTION REQUIRED   :
                  : ENTER REQUEST ACCORDING TO THE DIAG MENU
                  : DIAG==>(A)      ADP#==>(B)    LINE==>     OPT==>
===>

F1:END  F2:MENU2  F3:ALARM              F6:QUIT
```

(A) Enter **6** here for TRSS diagnostics.

(B) Enter the number of the suspected adapter here.

Figure 1-9. TRSS Diagnostic Selection Screen

Disabling Procedure 0150: Preparing LIC Type 1, 3, 4, 5, 6 for Maintenance

Important

Before using this procedure, ensure that the MOSS is online. Refer to "How to Put the MOSS Online" on page 4-105 for more information.

You should have recorded the following information from the reference code and from the additional information (PF6) for use during this service call.

- FRU and location
- Suspected adapter
- Affected lines.

If necessary, use the LIC/Line address tables to find the affected lines. Refer to "LIC/Line Address Table" on page 1-73.

What you should do next:

001

– Ask the customer to stop the lines connected to the suspected LIC or pair of LICs for LIC type 5 and 6. A LIC pair is an odd numbered LIC plus an even numbered LIC. Refer to the IBM 3745 Connection and Integration Guide.

– Run the automatic wrap test on the LIC unit (option 1) and the wrap test at tailgate level (option 2). Refer to "How to Run the Wrap Test (WTT) for TSS, HPTSS, or 3746-900" on page 3-15.

Did you get the message: 'Wrap test completed. The LIC is OK'?
Yes No

002

Go to Chapter 4, "3745 FRU Exchange" on page 4-1, then exchange the LIC card.

003

Has "Disabling Procedure 0120: Preparing a TSS/HPTSS/ESS for Maintenance" on page 1-62 already been performed, or is the 3745 fully available?
Yes No

004

Ask the customer to deactivate all the lines attached to the suspected adapter.

Wait until the customer has completed deactivating the lines.

Using the 3745 console, disconnect the line adapter from the NCP as follows:

a. From Menu 3, select **TSS Services** by entering **TSS** in the selection area.

b. From the **TSS Services** screen, choose **select/release** by entering **1** in the selection area. See Figure 1-11 on page 1-74.

c. In the input area, enter an **S** followed by the suspected adapter number. See Figure 1-12 on page 1-74.

d. Enter **3** in the selection area to choose **Mode Control**. See Figure 1-11 on page 1-74.

e. On the **Mode Control** screen, enter **DS** to disconnect the line adapter. See Figure 1-13 on page 1-75.

If deactivation of all the lines driven by this line adapter was not done, a screen showing active lines will be displayed. If the customer is unable to deactivate these lines, request his approval to force deactivation for these lines.
To force deactivation, enter **F** on the displayed screen.
Continue with the next action only when all lines have been deactivated and the line adapter has been disconnected.

f. Enter **1** in the selection area to choose **select/release**. See Figure 1-11 on page 1-74.

g. Enter **REL** in the input area to release the disconnected line adapter. See Figure 1-13 on page 1-75.

Continue with Step 005.

005

– Run the concurrent TSS diagnostics using the number of the suspected adapter. Refer to Figure 1-10 on page 1-72.
If necessary, refer to "How to Run Internal Function Tests" on page 3-9.

(Step **005** continues)

005 (continued)

Did the diagnostics run without error?
Yes **No**

006

Go to "Diagnostic and Exchange Result Analysis 0000" on page 4-99.

007

– Note their positions and remove the modem or line cables from the LIC.
– If the LIC is type 1 or 4, install the wrap plug (PN 65X8927) on the uppermost socket. See Figure 1-17 on page 1-76 and Figure 1-14 on page 1-75.
– If the LIC is type 3, install the LIC wrap cable (PN 65X8928) between the two sockets. See Figure 1-17 on page 1-76 and Figure 1-15 on page 1-75.
– If the LIC is type 5 or 6, unplug the line cable at the customer wall frame and install the wrap plug (PN 11F4815) on the uppermost socket of the cassette. See Figure 1-18 on page 1-77 and Figure 1-16 on page 1-76.

Is the LIC type 1, 3, or 4?
Yes **No**

008

– Using the **LID** function, enter the line address in the input area of the displayed screen and record the line number displayed on the next sceen.
– Run only the **RH59** routine of the concurrent TSS diagnostics using the number of the suspected adapter, and the line number recorded above, refer to Figure 1-10 on page 1-72.
If necessary, refer to "How to Run Internal Function Tests" on page 3-9.

Did the diagnostics run without error?
Yes **No**

009

Go to "Diagnostic and Exchange Result Analysis 0000" on page 4-99.

010

– Change the wrap plug to the other socket, if any (LIC type 5).
– Rerun the **RH59** routine of the TSS diagnostics.
(Step **010** continues)

010 (continued)

Did the diagnostics run without error?
Yes **No**

011

Go to "Diagnostic and Exchange Result Analysis 0000" on page 4-99.

012

No trouble was found with this LIC.

– Remove the wrap plug.

Go to "Diagnostic and Exchange Result Analysis 0000" on page 4-99.

013

– Using the **LID** function, enter the line address in the input area of the displayed screen and record the line number displayed on the next screen.
– Run only the **RC01** routine of the concurrent TSS diagnostics, using the number of the suspected adapter, and the line number recorded above. Refer to Figure 1-10 on page 1-72.
If necessary, refer to "How to Run Internal Function Tests" on page 3-9.

Did the diagnostics run without error?
Yes **No**

014

Go to "Diagnostic and Exchange Result Analysis 0000" on page 4-99.

015

Is the LIC type other than 3?
Yes **No**

016

Go to Step 024 on page 1-71.

017

Is the LIC type 1 or 4A?
Yes **No**

018

No trouble was found with this LIC.

– Remove the wrap plug and reconnect the modem cable.

Go to "Diagnostic and Exchange Result Analysis 0000" on page 4-99.

019

– Change the wrap plug to the next downward socket of the LIC.

– Rerun the **RC01** routine of the concurrent TSS diagnostics using the number of the suspected adapter. Refer to Figure 1-10 on page 1-72. If necessary, refer to "How to Run Internal Function Tests" on page 3-9.

Did the diagnostics run without error?
Yes **No**

020

Go to "Diagnostic and Exchange Result Analysis 0000" on page 4-99.

021

Have you tested all the ports of this LIC with the wrap plug on?
Yes **No**

022

Go to Step 019.

023

No trouble was found with this LIC.

– Remove the wrap plug.

Go to "Diagnostic and Exchange Result Analysis 0000" on page 4-99.

024

– Turn the wrap cable around between the LIC sockets.

– Rerun the **RC01** routine of the concurrent TSS diagnostics using the number of the suspected adapter. Refer to Figure 1-10 on page 1-72. If necessary, refer to "How to Run Internal Function Tests" on page 3-9.

Did the diagnostics run without error?
Yes **No**

025

– Remove the wrap cable.

Go to "Diagnostic and Exchange Result Analysis 0000" on page 4-99.

026

No trouble was found with this LIC.

– Remove the Wrap cable.
(Step **026** continues)

026 (continued)

Go to "Diagnostic and Exchange Result Analysis 0000" on page 4-99.

```
CUSTOMER ID:                            3745           SERIAL NUMBER:
CCU-A SELECTED PROCESS MOSS-ONLINE       X71:020415
                                         X72:000085


RUN-REQ
------------------------------------------------------------------ 03/01/87 01:22
FUNCTION ON SCREEN: ONLINE DIAGS
GROUP :ADP# :LINE :
1 ALL             :
2 CCU :     :     :
3 IOCB: 1- 4:     :
4 CA  : 1- 8:     :
5 TSS : 1-32: 0-31:
6 TRSS: 1- 2: 1- 2:
7 HTSS: 1- 8:     :
8 OLT : 1- 8:     :
9 ESS : 1- 8:     :
OPT=  Y IF MODIFY :
OPTION REQUIRED   :
                  : ENTER REQUEST ACCORDING TO THE DIAG MENU
                  : DIAG==>(A)      ADP#==>(B)    LINE==>(C)
===>

F1:END  F2:MENU2  F3:ALARM              F6:QUIT
```

(A) Enter **5** here for TSS diagnostics or **7** for HPTSS.

(B) Enter the number of the suspected adapter here.

(C) Enter the number of the line (00-15) or (00-31) here.

Figure 1-10. TSS/HPTSS Diagnostic Selection Screen

LIC/Line Address Table

Location	Line Address for LIC Type				
	1 - 4	3	5	6 LS	6 HS
01M-A1-C1	032-035	032	N/A	N/A	N/A
01M-A1-D1	036-039	036	N/A	N/A	N/A
01M-A1-E1	040-043	040	N/A	N/A	N/A
01M-A1-F1	044-047	044	N/A	N/A	N/A
01M-A1-G1	048-051	048	N/A	N/A	N/A
01M-A1-H1	052-055	052	N/A	N/A	N/A
01M-A1-J1	056-059	056	N/A	N/A	N/A
01M-A1-K1	060-063	060	N/A	N/A	N/A
01M-A2-C1	000-003	000	N/A	N/A	N/A
01M-A2-D1	004-007	004	N/A	N/A	N/A
01M-A2-E1	008-011	008	N/A	N/A	N/A
01M-A2-F1	012-015	012	N/A	N/A	N/A
01M-A2-G1	016-019	016	N/A	N/A	N/A
01M-A2-H1	020-023	020	N/A	N/A	N/A
01M-A2-J1	024-027	024	N/A	N/A	N/A
01M-A2-K1	028-031	028	N/A	N/A	N/A
01L-A1-C1	N/A	N/A	080-081	080	080
01L-A1-D1	N/A	N/A	082-083	082	080
01L-A1-E1	N/A	N/A	084-085	084	084
01L-A1-F1	N/A	N/A	086-087	086	084
01L-A1-G1	N/A	N/A	088-089	088	088
01L-A1-H1	N/A	N/A	090-091	090	088
01L-A1-J1	N/A	N/A	092-093	092	092
01L-A1-K1	N/A	N/A	094-095	094	092
01L-A2-C1	128-131	128	064-065	064	064
01L-A2-D1	132-135	132	066-067	066	064
01L-A2-E1	136-139	136	068-069	068	068
01L-A2-F1	140-143	140	070-071	070	068
01L-A2-G1	144-147	144	072-073	072	072
01L-A2-H1	148-151	148	074-075	074	072
01L-A2-J1	152-155	152	076-077	076	076
01L-A2-K1	156-159	156	078-079	078	076

```
CUSTOMER ID:                          3745           SERIAL NUMBER:
CCU-A SELECTED PROCESS MOSS-ONLINE     X71:020415
                                       X72:000085


RUN-REQ
------------------------------------------------------------- 02/14/87 00:15
FUNCTION ON SCREEN: TSS SERVICES
 1 SELECT/RELEASE :
 2 DUMP/IML       :
 3 MODE CONTROL   :
 4 DPLY/ALT STORE :
 5 DPLY/ALT BLOCKS:
 6 DPLY/ALT LSR   :
 7 DPLY/ALT XREG  :
 8 ADDRESS COMPARE:
 9 CHK-POINT TRACE:
10 D/ALT HPTSS/ESS:
                  :
                  :
                  :
===>

F1:END  F2:MENU2  F3:ALARM
```

Figure 1-11. TSS Service Screen

```
CUSTOMER ID:                          3745           SERIAL NUMBER:
CCU-A SELECTED PROCESS MOSS-ONLINE     X71:020415
                                       X72:000085


RUN-REQ
------------------------------------------------------------- 04/13/87 05:20
FUNCTION ON SCREEN: TSS SERVICES
 1 SELECT/RELEASE :
 2 DUMP/IML       : - TO SELECT A SCANNER, ENTER:
 3 MODE CONTROL   :
 4 DPLY/ALT STORE :       THE LINE ADAPTER NUMBER PRECEDED BY S (S1 TO S32)
 5 DPLY/ALT BLOCKS:       OR
 6 DPLY/ALT LSR   :       THE LINE ADDRESS
 7 DPLY/ALT XREG  :          (TSS: 0 TO 895,  HPTSS: 1024 TO 1039)
 8 ADDRESS COMPARE:          (ESS: 1056 TO 1071                  )     ==>
 9 CHK-POINT TRACE: - TO RELEASE SELECTED SCANNER, ENTER REL
10 D/ALT HPTSS/ESS:
                  :
                  :
                  :
===>

F1:END  F2:MENU2  F3:ALARM
```

Figure 1-12. Select/Release Screen

```
CUSTOMER ID:                              3745            SERIAL NUMBER:
CCU-A SELECTED PROCESS MOSS-ONLINE         X71:020415
                                           X72:000085


RUN-REQ
------------------------------------------------------------------ 03/01/87 01:22
FUNCTION ON SCREEN: TSS SERVICES
 1 SELECT/RELEASE :
 2 DUMP/IML       :
 3 MODE CONTROL   : - SELECT SCANNER CONTROL COMMAND(SP, ST, CT, DS, RT) ==>
 4 DPLY/ALT STORE :
 5 DPLY/ALT BLOCKS:      SP = STOP
 6 DPLY/ALT LSR   :      ST = START
 7 DPLY/ALT XREG  :      CT = CONNECT
 8 ADDRESS COMPARE:      DS = DELAYED DISCONNECT
 9 CHK-POINT TRACE:      RT = RESET
10 D/ALT HPTSS/ESS:
                  :
                  :
                  :
===>

F1:END  F2:MENU2  F3:ALARM
```

Figure 1-13. Mode Control Screen

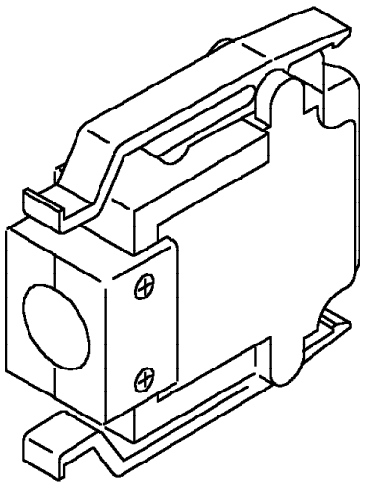


Figure 1-14. LIC Types 1 and 4 Wrap Plug (PN 65X8927)

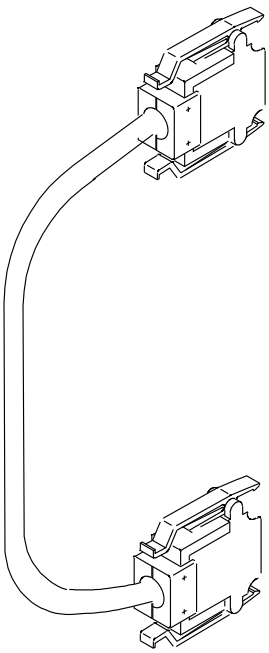


Figure 1-15. LIC Type 3 Wrap Cable (PN 65X8928)

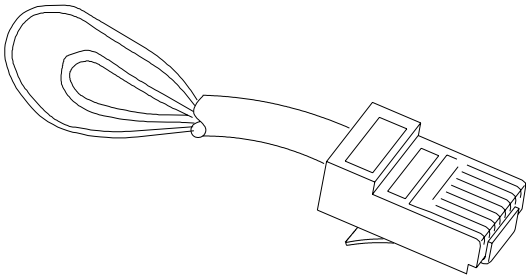
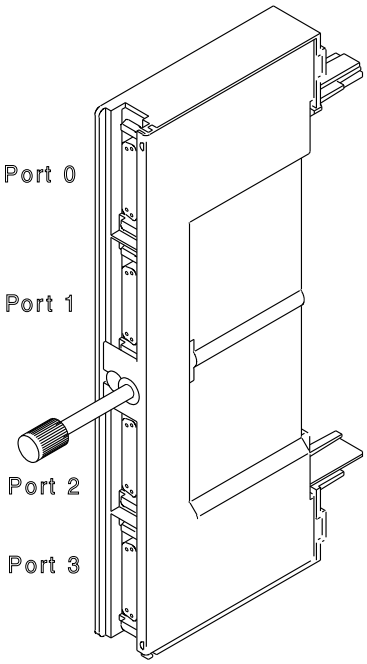
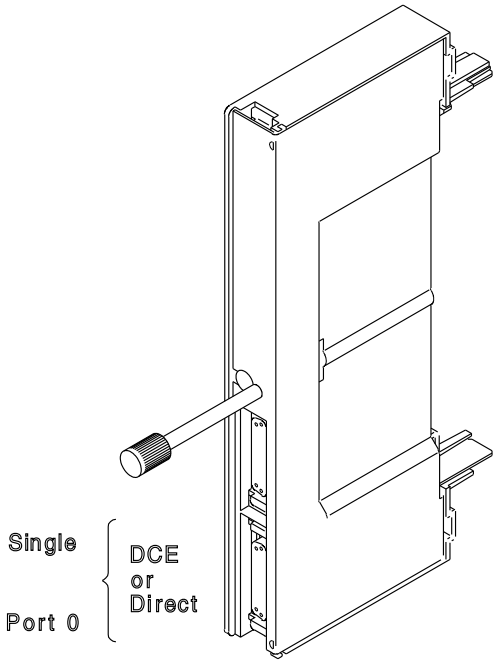


Figure 1-16. LIC Types 5 and 6 Wrap Plug (PN 11F4815)



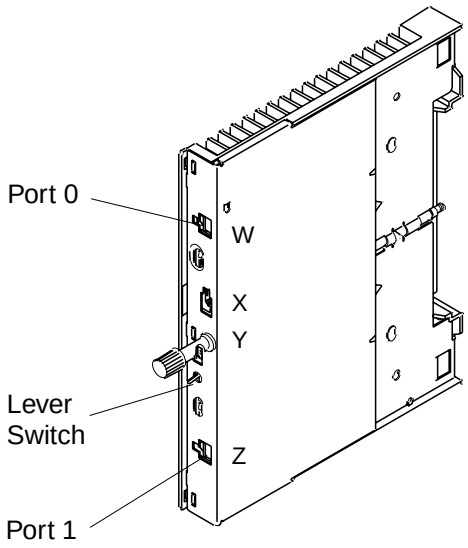
Type	KNOB Color
LIC1	Brown
LIC4A	Green
LIC4B	Green



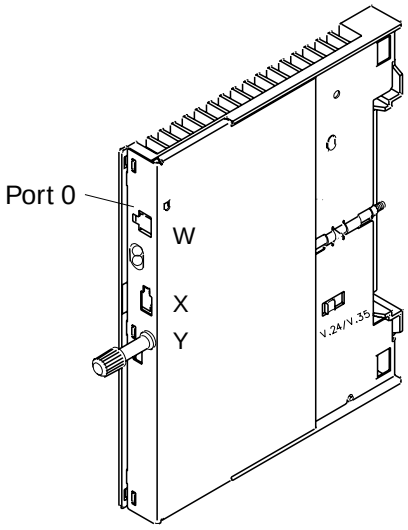
Type	KNOB Color
LIC3	Blue

Note: LIC 4B uses only port 0.

Figure 1-17. LIC Types 1, 3, and 4



TYPE	Knob Color
LIC5	Black



TYPE	Knob Color
LIC6	Black

Figure 1-18. LIC Types 5 and 6

3745 Control Panel Use

Attention: Providing that the UEPO switch has not been activated, the control panel always has power and will display information on power control and service even though the 3745 is powered OFF.

Purpose of the Control Panel

The control panel allows the execution of functions which:

1. Are not possible via the console.
2. Must to be operational before the MOSS is IMLed.

Uses of the Control Panel

The control panel is used to:

- Control the power

  Operations from the panel for power are:

  - Set Power Control Mode to Network, Local, or Remote
  - Power On/Power On reset
  - Power Off
  - Unit Emergency Power Off
- Perform basic functions which are:
  - General IPL from disk
  - MOSS IML from disk
  - MOSS dump
  - Request local console
  - Force local console
  - Panel test
  - Remote/Alternate console link test
  - RSF console link test
  - Local console link test
  - Load from diskette
  - Loop on MOSS diagnostics
  - Display stacked errors
- Indicate the machine status via indicators which show:
  - Function selected
  - Hex code displayed
  - Current service mode
  - Power control mode
  - Console in use
  - All channel adapters disabled
  - MOSS inoperative
  - MOSS message waiting
  - Power On Indicator ON
- Sound an audible alarm if an invalid action is attempted.

Explanation of 3745 Panel Keys, LEDs, and Switches

Refer to Figure 1-19 on page 1-80 for the location of the keys and switches.

The following three keys allow the customer to scroll the different options available.

1. Function
2. Service Mode.
3. Power Control

Each scrolled digit is set blinking on the panel display.

Validate Key: After pressing this key, the selected digit stops blinking and the chosen option is performed.

Any options not validated disappear after a time out of 60 seconds.

Exit Key: Pressing this key will cancel the scrolled option.

Power On/Reset Key: When the function digit is '0' and service mode is '0' or '1', this key will start a power on reset sequence followed by a general IPL. Power On should not be pressed until after a 10-second delay from Power Off.

Power Off Key: This key initiates a 'power down' sequence.

Unit Emergency Power Off (UEPO) Switch: When this switch is switched downwards, power is removed from the machine and a mechanical interlock locks the switch in the OFF position. The machine can not be powered ON until a CE resets the interlock and sets the switch upwards which enables power ON.

Power On Indicator

This indicator is a green LED. It turns ON when the 3745 starts to power ON and turns OFF as soon as the machine powers down. Refer to Figure 1-19 on page 1-80. It is located to the right of the Power On/Reset key.

Control Panel Display Description

The control panel display is a gaz panel with various fields that can have different values. The meaning of each value is given in Table 1-10 on page 1-81.

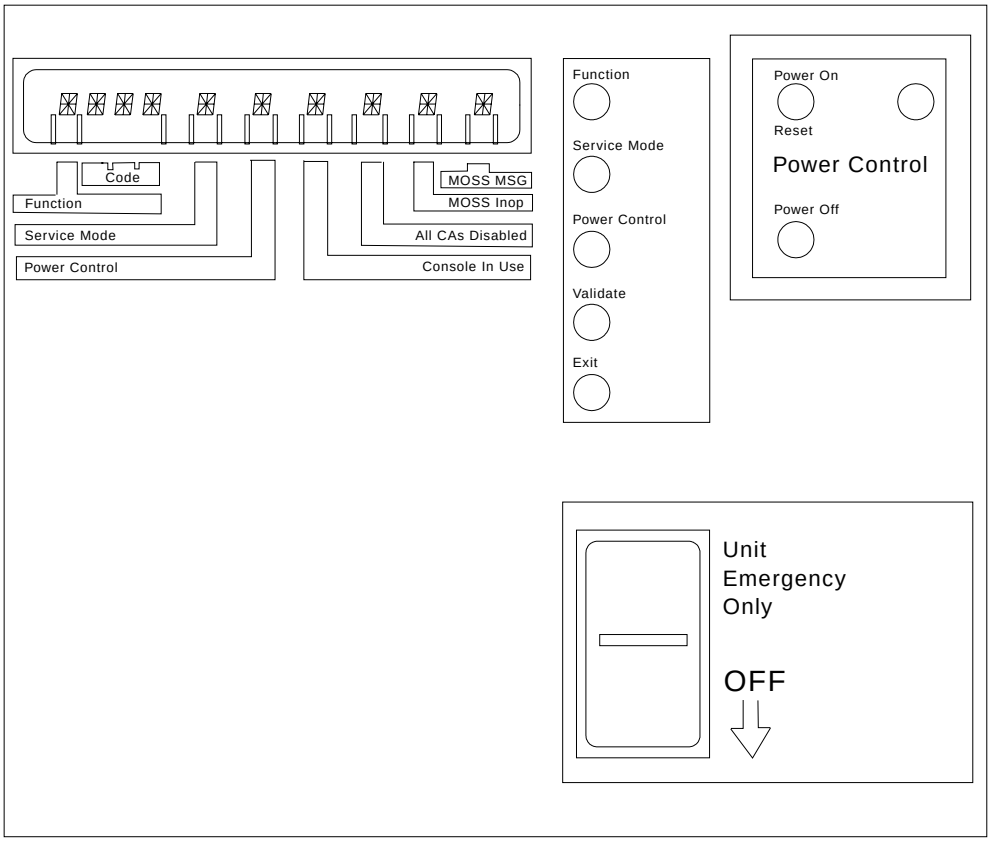


Figure 1-19. 3745 Control Panel Layout

Table 1-10. Panel Display Values

Indicator	Display	Description
Function	0	General IPL.
	1	MOSS IML.
	2	MOSS dump.
	3	Request local console.
	4	Force local console.
	5	Panel test.
	6	Remote/Alternate console link test.
	7	RSF console link test.
	8	Local console link test.
	9	IML from diskette. This function must **not** be used with service function mode 2.
	A	Loop on MOSS diagnostics.
	B	Display stacked errors.
Code	000 to FFF	A 3 hex character code which shows function progress codes and error codes. A code which blinks indicates an error condition has been detected. For more information on the meaning of these codes, refer to the "3745 Control Panel Codes" on page 1-15.
Service Mode	0	Normal: the functions from 0 to 9 are available.
	1	Maintenance 1: the functions from 0 to B are available.
	2	Maintenance 2: for functions 1, 2, MOSS diagnostics will be bypassed.
	3	Maintenance 3: used for installation. Allows function 9 only.
	A to D	Used with the Display Stacked Error function.
Power Control	1	Host: the 3745 is powered ON or OFF from the host systems. If ac power is lost then restored, an *Auto Restart* will be performed.
	2	Network: the 3745 is powered ON by either a scheduled power ON or **Power On Reset** on the control panel. If ac power is lost then restored, an *Auto Restart* will be performed. The 3745 is powered OFF by a command received via NCP.
	3	Local: the 3745 is powered ON from **Power On Reset** and powered OFF from **Power Off** on the control panel.
Console in Use	1	The remote or alternate console is in use.
	2	The RSF modem-to-console connection is in use.
	3	The local console is in use.
All CAs Disabled	✳	Indicator ON: indicates all channel adapters are disabled.
	Blank	Indicator OFF: indicates that at least one channel adapter is enabled.
MOSS Inoperative	✳	Indicator ON: the MOSS is not available for the CCU.
	Blank	Indicator OFF: the MOSS is powered ON and available.
MOSS Message	✳	Indicator ON: a message is displayed on the 3745 console.
	Blank	Indicator OFF: no messages are waiting to be displayed on the 3745 console.

How to Perform 3745 Control Panel Operations

Important

Before working on non-customer access areas of the 3745, power control should be set to Local Mode. This can be done as follows:

1. Using **Power Control**, scroll till the value is **3**, Local Mode.
2. Press **Validate**.

Power On Reset

To perform this function:

Start from machine power OFF with **Service Mode** either **0** or **1** and the default value for **Function** digit at **0**.

1. Allow a 10-second delay from power OFF.
2. Press **Power On Reset**.

A power ON reset sequence will be executed followed by a general IPL. At successful completion of the operation, the display will be as follows:

0FF4	x 3	x x x x

Or, when NCP is IPLed from the hard disk:

0000	x 3	x x x x

x = variable values.

General IPL

1. Using **Function**, scroll till the value is **0**, General IPL.
2. Press **Validate**.

A general reset, MOSS IML, CCU IPL, and a scanner IML is executed and the CLDP is loaded.

At successful completion of the operation, the display will be as follows:

0FF4	x 3	x x x x

Or, when NCP is IPLed from the hard disk:

0000	x 3	x x x x

x = variable values.

MOSS IML

1. Using **Function**, scroll till the value is **1**, MOSS IML.
2. Press **Validate**.
3. This initiates a MOSS reset followed by a MOSS IML.

At successful completion of the operation, the display will be as follows:
When MOSS was alone prior to the IML:

1F0E	x 3	x x x x

Or, when MOSS was not alone prior to the IML:

1F0F	x 3	x x x x

x = variable values.

MOSS Dump

1. Using **Function**, scroll till the value is **2**, MOSS DUMP.
2. Press **Validate**. A MOSS reset and dump of MOSS microcode onto disk will be executed. At successful conclusion of the operation, the display will be as follows:

2F01	x 3	x x x x

   x = variable values.
3. Perform a MOSS IML to return to normal mode (see preceding procedure).

Request Local Console

1. Using **Function**, scroll till the value is **3**, Request local console.
2. Press **Validate**.

A message is sent to inform the remote/alternate or RSF console customer that the local console customer wants to log on at the local console.

Force Local Console

1. Using **Function**, scroll till the value is **4**, Force local console.
2. Press **Validate**.

The link to the remote/alternate or RSF console is disconnected to allow the local console customer to log on.

Panel Test and Console Link Tests

See the separate detailed procedures in Chapter 3, “How to Run 3745 Diagnostics” on page 3-1.

Load from Diskette

1. Insert diskette 1 into the diskette drive.
2. Close the diskette drive (by turning or pulling the door latch).
3. Two options are available:

Option A:

1. Using **Service Mode**, scroll till the value is **0**, Normal mode.
2. Press **Validate**.
3. Using **Function**, scroll till the value is **9**, Load from diskette.
4. Press **Validate**.

A general reset, MOSS IML, CCU IPL, and a scanner IML is executed and the CLDP is loaded.

Option B:

1. Using **Service Mode**, scroll till the value is **1**, Maintenance 1 mode.
2. Press **Validate**.
3. Using **Function**, scroll till the value is **9**, Load from diskette.
4. Press **Validate**.

A MOSS reset followed by a MOSS IML will be executed.

Loop on MOSS Diagnostics

1. Using **Service Mode**, scroll till the value is **1**, Maintenance 1 mode.
2. Press **Validate**.
3. Using **Function**, scroll till the value is **A**, Loop on MOSS diagnostics.
4. Press **Validate**.

The diagnostic MOSS code loops until an error is detected and the error code is displayed.

Press **Exit** to terminate the diagnostic loop.

Display Stacked Errors

1. Using **Service Mode**, scroll till the value is **1**, Maintenance 1 mode.
2. Press **Validate**.
3. Using **Function**, scroll till the value is **B**, Display stacked errors
4. Press **Validate**.
5. Using **Service Mode**, scroll till the value is **A**, Display the First Stacked Error
6. Press **Validate**.
7. Using **Service Mode**, scroll till the value is **B**, Display the Second Stacked Error
8. Press **Validate**.
9. Similary stacked errors 3 and 4 are displayed by selecting **Service Mode C** and **D**.

Chapter 2. Map for FRU Isolation

IOC Bus MAPs

MAP 0100: IOC Bus Trouble Shooting

Symptom Explanation	Conditions That Could Cause This Symptom
IOC bus error detected but not fixed by diagnostics or autoBER.	• PUC • TERMI • TERMC • TERMR • LAs (TRM/CSP/CSC) • CAL • Basic board

If you have an intermittent problem, consider that any of the conditions given in the above table can cause the problem.

001

Are the FRUs: PUC, TERMI, TREMC, or TERMR indicated by the diagnostics or reference code?
Yes No

002

The problem origin can be the channel adapter or line adapter

– Power the 3745 OFF as follows:
  • Put the power control in local mode:
    – Using **Power Control**, scroll till the value is **3**.
    – Press **Validate**.
  • Press **Power Off**.
– Remove all line adapters
– Press **Power On Reset**.
– Run the channel adapter diagnostics

Are they running error free?
Yes No

003

Go to Step 008.

004

One line adapter may be failing. Go to Step 017 on page 2-2.

005

– Press **Power Off**.
(Step **005** continues)

005 (continued)

– Change the TERMI and/or PUC accordingly.
– See “Card Exchange Procedure” on page 4-34.
– And/or “TERMD/TERMI Exchange Procedure” on page 4-62.
– Change the TERMC and/or TERMR accordingly. See “TERMC/TERMR Exchange Procedure” on page 4-61.
– Press **Power On Reset**.
– Run the diagnostics.

Are they running error free?
Yes No

006

Go to Step 002.

007

Go to “CE Leaving Procedure” on page 4-102.

008

– Press **Power Off**.
– Replug all line adapters.
– Unplug all channel adapters.
– Press **Power On Reset**.
– Run the line adapter diagnostics.

Are they running error free?
Yes No

009

Change the basic board. Go to “Exchange Precautions” on page 4-1.

010

(Step **010** continues)

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010 (continued)

– Press **Power Off**.
– Replug the first channel adapter.
– Press **Power On Reset**.
– Run the channel adapter diagnostics on this channel.

Are they running error free?
Yes **No**

011

– Press **Power Off**.
– Change the channel adapter you have just replugged.
– Press **Power On Reset**.
– Run channel adapter diagnostics on this channel.

Are they running error free?
Yes **No**

012

Change the basic board. Go to "Exchange Precautions" on page 4-1.

013

Go to "CE Leaving Procedure" on page 4-102.

014

– Press **Power Off**.
– Replug next channel adapter.
– Press **Power On Reset**.
– Run the channel adapter diagnostics on this channel.

Are they running error free?
Yes **No**

015

Change the channel adapter you have just replugged.

016

Go to Step 014.

017

– Press **Power Off**.
– Replug first line adapter.
– Press **Power On Reset**.
– Run the line adapter diagnostics.

Are they running error free?
Yes **No**

018

(Step **018** continues)

018 (continued)

– Press **Power Off**.
– Change the line adapter you have just replugged.
– Press **Power On Reset**.
– Run the line adapter diagnostics.

Are they running error free?
Yes **No**

019

Change the basic board. Go to "Exchange Precautions" on page 4-1.

020

Go to "CE Leaving Procedure" on page 4-102.

021

– Press **Power Off**.
– Replug the next line adapter.
– Press **Power On Reset**.
– Run the line adapter diagnostics.

Are they running error free?
Yes **No**

022

Change the line adapter you have just replugged.

023

Go to Step 021.

3745 MOSS MAPs

MAP 3200: MOSS Control Panel Code 001

Symptom Explanation	Conditions That Could Cause This Symptom
001 displayed on control panel	• PCC • MPC • MSC • PS1

If the problem is intermittent, consider that any of the conditions given in the above box can be involved.

If the nature of the fault does not allow control panel actions, exchange the FRU group 36 on page 1-51.

001

There is a LED mounted on the MPC card (01A-X0E).

Is the MPC LED permanently ON or blinking?
Yes **No**

002

Was the MPC LED ON during the reset function execution?
Yes **No**

003

Exchange the FRU group 32. Go to "3745 FRU Group Table" on page 1-49.

004

Exchange the FRU group 22. Go to "3745 FRU Group Table" on page 1-49.

005

Is the MPC LED permanently ON?
Yes **No**

006

Exchange the FRU group 31. Go to "3745 FRU Group Table" on page 1-49.

007

Exchange the FRU group 22. Go to "3745 FRU Group Table" on page 1-49.

MAP 3210: MOSS Control Panel Code 059

Symptom Explanation	Conditions That Could Cause This Symptom
Code 059 displayed on control panel	• MPC • MCC • DFA

001

This MAP should be used only if the problem can be reproduced.

If you have an intermittent problem, exchange the FRU group 1. Go to "3745 FRU Group Table" on page 1-49.

– Power the 3745 OFF as follows:
  - Put the power control in local mode:
    • Using **Power Control**, scroll till the value is **3**.
    • Press **Validate**.
  - Press **Power Off**.
– **Switch the CB1 OFF**. Refer to Figure 4-40 on page 4-34
– **Attention:** Use the ESD kit and procedures.
– Refer to Figure 4-9 on page 4-11.
– Unplug the DFA card (01A-X0G).
– **Attention: The following sequence should always be observed.**
– Remove the cable which is attached to the MCC card (01A-X0H).
– Unplug the MCC card (01A-X0H).
– Press **Power On Reset**.
– Switch the CB1 ON.

Is code 07E displayed?
Yes **No**

002

– Press **Power Off**.
– **Switch the CB1 OFF**.
– Replug all cards and reinstall the cable on the MCC card.

Exchange the MPC card. Go to Step 006.

003

– Press **Power Off**.
– **Switch the CB1 OFF**.
– Replug the MCC card (01A-X0H).
– Install the cable to the MCC card (01A-X0H).
– Press **Power On Reset**.
– Switch the CB1 ON.

(Step **003** continues)

003 (continued)

Is code 072 displayed?
Yes **No**

004

– Press **Power Off**.
– **Switch the CB1 OFF**.
– Remove the cable which is attached to the MCC card (01A-X0H).

Exchange the MCC card, install the cable on the MCC card. Go to Step 006.

005

– Press **Power Off**.
– **Switch the CB1 OFF**.

Exchange the DFA card (01A-X0G). Continue with Step 006.

006

– Reinstall any remaining unplugged cards.
– Press **Power On Reset**.
– **Switch the CB1 ON**.

Is an error detected during IML?
Yes **No**

007

Go to "CE Leaving Procedure" on page 4-102.

008

Is the panel code displaying the same code as when you started this MAP?
Yes **No**

009

Go to "3745 Control Panel Codes" on page 1-15 and follow the procedure given by the table.

010

Go to "Contacting Support" on page A-1.

MAP 3220: Undefined Panel Message

Symptom Explanation	Conditions That Could Cause This Symptom
The message on the control panel is undefined	• Loose cables/cards • PCC card failing • Control panel failing • MPC card failing • Microcode update

001

You may have loose cables and/or cards.

If the nature of the fault does not allow control panel actions, exchange the FRU group 37. Go to page "3745 FRU Group Table" on page 1-49.

– Power the 3745 OFF as follows:
  • Put the power control in local mode:
    – Using **Power Control**, scroll till the value is **3**.
    – Press **Validate**.
  • Press **Power Off**.
– **Switch the CB1 OFF**.
– **Attention:** Use the ESD kit and procedures.
– Refer to Figure 4-9 on page 4-11.
– Carefully check and reseat any loose cables or cards (especially the MPC, PCC, and MSC).
– **Switch the CB1 ON**.

Are Power Control and Service Mode indicators displayed on the control panel?
Yes No

002

The initial power checkouts on the PLC card did not complete successfully.

– Exchange the FRU group 37. Go to "3745 FRU Group Table" on page 1-49.

003

– Press **Function** on the control panel until the **MOSS IML** function **1** is displayed.
– Press **Validate**.
– Press **Power On Reset**.
– When the IML is complete, retry the operation that displayed the unexpected hex display code.

Is the unexpected hex display code problem resolved?
Yes No

004

Referring to "How to Run the Control Panel Test" on page 3-8, run the diagnostic. If an FRU group is called, go to "3745 FRU Group Table" on page 1-49.
(Step **004** continues)

004 (continued)

– If no errors are detected, consult the Support Center for any microcode update which may not be reflected in the MIP.

Have you received more information from support?
Yes No

005

– Exchange the FRU group 22. Go to "3745 FRU Group Table" on page 1-49.

006

– Take action as directed.

Is the problem solved?
Yes No

007

– Exchange the FRU group 22. Go to "3745 FRU Group Table" on page 1-49.

008

– In the CE Leaving Procedure you will be instructed to set the time of day clock, and set any required scheduled power ON time.

Go to page "CE Leaving Procedure" on page 4-102.

009

Did the unexpected hex code occur while you were using the MIP for another reason?
Yes No

010

Go to Step 008.

011

Restart with Chapter 1, "START: How to Begin Troubleshooting" on page 1-1.

MAP 3230: Console Link Procedure

The display code that sent you to this procedure defines the connector or cable referred to in this procedure.

- 1A0 or 1A1 local
- 1A3 or 1A4 remote
- 1A6 or 1A7 RSF.

001

– A console wrap plug should be installed at the 3745 console connector (see Figure 2-1), or at the far end of the cable which should be disconnected from the relevant console/modem. See Table 2-1 for the wrapplug part number to be used.

Table 2-1. Wrap plug PN

PN	Console Type
6398697	31XX
2667737	3727
26f0320	Personal computer or PS/2*

Was a console wrap plug installed?
Yes No

002

Install the console wrap plug and go to Step 7 of "How to Run the Console Link Test for 3745 Models 130, 150, 160, and 170" on page 3-6.

003

Was the console wrap plug installed on the cable?
Yes No

004

The console wrap plug could be faulty. Change it and go to Step 7 on page 3-6, or exchange the FRU group 26 on page 1-51 (see page 1-49).

005

– Install a console wrap plug at the 3745 console connector (see Figure 2-1) and refer to Step 7 on page 3-6 to repeat the test.

Is the code displayed the same as the one with which you entered this procedure?
Yes No

006

If 1A1, 1A4, or 1A7 is displayed, the cable from the 3745 is faulty.

– Repair or exchange the cable.

– Verify the repair by re-running the console link test with the console wrap plug installed on the cable.

(Step **006** continues)

006 (continued)

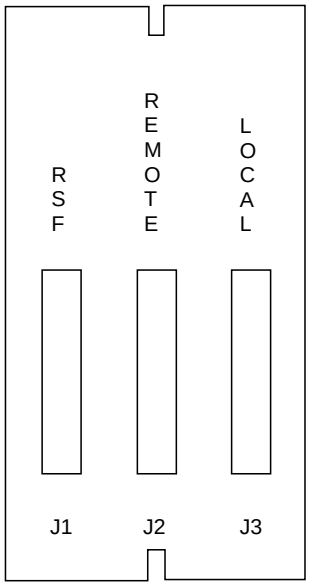
– or –

If any other code is displayed, go to "3745 Control Panel Codes" on page 1-15 and follow the instructions.

007

The console wrap plug could be faulty.

Change the console wrap plug and go to step 7 on page 3-6, or exchange the FRU group 26 on page 1-51. Go to page 1-49.



Location: 01R

Figure 2-1. Console Outputs

3745 Line Adapter MAPs

MAP 3500: Activate/Deactivate Line Problem or Line Errors on the TSS

Symptom Explanation	Conditions That Could Cause This Symptom
You are unable to activate or deactivate a line, or errors are occurring while lines are running.	• See below

001

– Ensure that the customer has completed his *Problem Determination* guide procedure. If not done, follow this problem determination procedure yourself before continuing this map.

Does the problem still exist?
Yes **No**

002

– Problem is solved.

003

– Using the 3745 console, determine the number of the line adapter driving the suspected line as follows:

1. From Menu 3, select the TSS services by entering **TSS** in the selection area.
2. From the TSS services screen, choose **select/release** by entering **1** in the selection area.
3. On the displayed select/release screen, enter the address of the suspected line.

   The line adapter number will be displayed in the machine status area (MSA) and in the selection area.
4. Enter **REL** in the input area to release the line adapter

Does the operator accept to deactivate all the lines attached to this line adapter?
Yes **No**

004

Go to Step 009.

005

Go to "Disabling Procedure 0120: Preparing a TSS/HPTSS/ESS for Maintenance" on page 1-62 and follow the procedure until you have run the TSS diagnostics for this line adapter (scanner). **Then return here.**

Did the diagnostics run error free?
Yes **No**

006

(Step **006** continues)

006 (continued)

Diagnostics have detected an error. With the diagnostic reference code, go to "Diagnostic and Exchange Result Analysis 0000" on page 4-99.

007

– Go to "Disabling Procedure 0150: Preparing LIC Type 1, 3, 4, 5, 6 for Maintenance" on page 1-69 for LIC type 1-6.

– Follow the procedure until you have run the **RC01** (for LIC type 1-4) or **RH59** (for LIC type 5, 6) routine of the TSS diagnostics with the appropriate wrap plug/cable installed.

– Then return here.

Did the diagnostics run error free?
Yes **No**

008

Diagnostics have detected an error. With the diagnostic reference code, go to "Diagnostic and Exchange Result Analysis 0000" on page 4-99.

009

The problem has not been resolved.

– Collect any related RECMS (MDR) records and contact your support structure for assistance. Refer to "Contacting Support" on page A-1.

MAP 3520: Activate/Deactivate Ring Problems or Ring Errors on the TRSS

Symptom Explanation	Conditions That Could Cause This Symptom
You are unable to activate or deactivate a ring, or errors are occurring while rings are running.	• See below

001

– Ensure that the customer has completed his *Problem Determination* guide procedure. If not done, follow this problem determination procedure yourself before continuing this map.

Does the problem still exist?
Yes No

002

– Problem is solved.

003

– Using the 3745 console, determine the number of the TRA driving the suspected ring as follows:

1. From Menu 3, select the TRSS services by entering **TRS** in the selection area.
2. From the TRSS services screen, choose **select/release** by entering **1** in the selection area.

The TRA numbers will be displayed with the ring addresses connected to.

Does the operator accept to deactivate all the lines attached to this adapter?
Yes No

004

Go to Step 007.

005

– Go to Step 2c on page 1-66 and follow the disabling procedure until you have run the TRSS diagnostics for this line adapter (TRA).

– **Then return here.**

Did the diagnostics run error free?
Yes No

006

Diagnostics have detected an error. With the diagnostic reference code, go to "Diagnostic and Exchange Result Analysis 0000" on page 4-99.

007

The problem has not been resolved. Collect any related RECMS (MDR) records and call your support structure for assistance. Refer to "Contacting Support" on page A-1.

MAP 3530: Activate/Deactivate Line Problems or Line Errors on the HPTSS/ESS

Symptom Explanation	Conditions That Could Cause This Symptom
You are unable to activate or deactivate a line, or errors are occurring while lines are running.	• See below

001

– Ensure that the customer has completed his *Problem Determination* guide procedure. If not done, follow this problem determination procedure yourself before continuing this map.

Does the problem still exist?
Yes No

002

– Problem is solved.

003

– Using the 3745 console, determine the number of the line adapter driving the suspected line as follows:

1. From Menu 3, select the TSS services by entering **TSS** in the selection area.
2. From the TSS services screen, choose **select/release** by entering **1** in the selection area.
3. On the displayed select/release screen, enter the address of the suspected line.

   The line adapter number will be displayed in the machine status area (MSA) and in the selection area.
4. Enter **REL** in the input area to release the line adapter.

Does the operator accept to deactivate all the lines attached to this adapter?
Yes No

004

Go to Step 009.

005

– Go to "Disabling Procedure 0120: Preparing a TSS/HPTSS/ESS for Maintenance" on page 1-62 and follow the procedure until you have run the HPTSS/ESS diagnostics for this line adapter. **Then return here.**

Did the diagnostics run error free?
Yes No

006

Diagnostics have detected an error. With the diagnostic reference code, go to "Diagnostic and Exchange Result Analysis 0000" on page 4-99.

007

– Replace the modem cable on the failing port by the wrap plug (PN 58X9349 for V.35, PN 58X9354 for X.21, or PN 70X8670 for ESS).

– Update the CDF. Run the **VI** and **VK** for V.35, **VJ** and **VK** for X.21, or **UF02** and **UF03** for ESS routines of the HPTSS or ESS diagnostics.

– **Return here**.

Did the diagnostics run error free?
Yes No

008

Diagnostics have detected an error. With the diagnostic reference code, go to "Diagnostic and Exchange Result Analysis 0000" on page 4-99.

009

The problem has not been resolved, collect any related RECMS (MDR) records and contact your support structure for assistance. Refer to "Contacting Support" on page A-1.

3745 Channel MAPs

MAP 3700: CA Isolation Procedure

You are here for a channel reported problem at the host console or you are unable to load or dump the control program for a channel-attached 3745.

Symptom Explanation	Conditions That Could Cause This Symptom
Condition code 3 (CC3) Interface control check Channel data check CPU hang Load/dump CP problem CA enable not possible	• Channel disabled • CADR card • CAL card • External conditions: – Channel – Channel cables – Other Control Units – Switch unit

If you have an intermittent problem, consider that any of the conditions given in the above table can cause the problem.

If the 3745 is stopped in IPL phase 4 and a **U** is displayed in the MSA: exchange the CAL card of the channel.

001

Is an interface control check or channel data check reported?
Yes **No**

002

On the 3745 console select, the **CID** function (from Menu 2) and check at the E/D request field for the involved channel adapter.

Is E displayed?
Yes **No**

003

– Enter **E** in the CHANGE E/D REQUEST ==> area.
– Press **SEND** and re-initiate the operation.

004

Go to Step 006.

005

Go to Step 011.

006

– Check the physical path (channel switch, host channel, and channel cables).
(Step **006** continues)

006 (continued)

Is everything OK?
Yes **No**

007

Correct the problem and re-initiate unit initialization.

008

– Select the **CAS** function with option **1** (display CA statuses).

Is INIT status displayed in the Internal Status field?
Yes **No**

009

Is ERRXXX or * displayed?**
Yes **No**

010

For any other status displayed, see *IBM 3745 Service Functions* and contact your support structure if the problem can not be corrected.

011

– Ask the customer to disable the channel adapter.

Is NCP loaded?
Yes **No**

012

Referring to ""How to Run Internal Function Tests" on page 3-9", run the diagnostics on the channel adapter.
(Step **012** continues)

012 (continued)

Did the diagnostics run error free?
Yes **No**

013

Go to "Action to Take After a Diagnostic Run or an FRU Exchange" on page 4-99.

014

– Ask the operator to put the channel offline from the host.
– Interface cables must be removed from the 3745.
– Run routines **LG02, LI03, LI04, LJ03, LK02** and **LO01** which need manual intervention. Refer to "How to Run Internal Function Tests" on page 3-9

Did the routines run error free?
Yes **No**

015

Go to "Action to Take After a Diagnostic Run or an FRU Exchange" on page 4-99

016

Reconnect the interface cables on the 3745.

If you are here for an interface control check, determine if the channel works properly from the host when you set the **Select out bypass switch** to the **bypass** position. Refer to Figure 4-28 on page 4-25.

Is the channel working properly?
Yes **No**

017

You probably have an external problem. Check the interface cables and the other control units, if any.

018

– Exchange CADR and CAL. Go to "Exchange Precautions" on page 4-1 and refer to "Basic Board, Cards, Connectors, and Crossovers" on page 4-5 for the failing channel CADR location.

019

– At the 3745 console select Menu 3 and enter **CAS** for channel adapter services.
– Enter **4** for concurrent mode commands.
– Enter the channel adapter number corresponding to the suspected CA, in the CA number ===> field. Enter **SHT** for shutdown in the command ===> field.
– Press **SEND** twice.
– Go to Step 012 on page 2-10.

020

– Refer to the *IBM 3745 Communication Controller Service Function* (CDF chapter) and check the CDF for a correct configuration.

Is the CDF OK?
Yes **No**

021

Correct the CDF and re-initiate the operation.

022

Go to Step 011 on page 2-10

3745 Power MAPs

MAP 3900: Overcurrent on Power Supply 1

Symptom Explanation	Conditions That Could Cause This Symptom
Overcurrent on power supply 1. Power ON executed less than 10 seconds after a power OFF. This is a normal operation.	• Short circuit in: – - MOSS Board or cable from 01A-Y0E4 to 01F-A1J2 – - Basic Board or flat cable from 01F-A1TB1/3 to 01G-A1YF/H or flat cable from 01F-A1TB2/4 to 01G-A1YA/D or cable from 01F-A1J4 to 01G-A1YE – - any LIB1 or LIB2 or cable from 01F-A1J5 to 01M-A1A3 or cable from 01F-A1J6 to 01M-A2A3 or cable from 01F-A1J8 via 01L-B1 to 01L-A1A3 or cable from 01F-A1J7 via 01L-B2 to 01L-A2A3 – - HDD or FDD or cable from 01F-A1J3 to 01D-A1J3 and 01B-A1J2 • PCC • PS1

001

Notes:

1. Panel codes 00B and 00C can occur if the 3745 is powered ON less than 10 seconds after a power OFF. This is a normal operation. Wait at least 10 seconds after a power OFF before you try to power ON again.
2. You will have to disconnect (area by area) the elements connected to PS1. Depending on the configuration of your 3745, the panel code 00C (overvoltage, undervoltage) can be displayed at power ON when one board is disconnected. **During this MAP consider only panel code 00B (overcurrent).**

Power ON the machine. Wait at least 10 seconds then power ON. If the trouble remains, continue with this step. If not, gather all information from the BER file and contact your support group.

– Unplug the Basic board power cable 01F-J4 from PS1.

– Unscrew the Basic board 5V laminar bus 01F-A1TB1/2/3 and 4. Refer to Figure 4-36 on page 4-31.

– Power ON the 3745 as follows:

  • Set the power control in local mode:

    – Using **Power Control** scroll till the value is **3**, local mode.

(Step **001** continues)

001 (continued)

– Press **Validate**.

– Press **Power On reset**.

Is the panel code 00B still displayed?
Yes No

002

– Press **Power Off**.

– Replug the basic board power cables.

– Unplug the basic board card by card from 01G-A1A2 to 01G-A1X2 and try to power the 3745 ON after each one.

Is the panel code 00B still displayed?
Yes No

003

– Press **Power Off**.

– Exchange the faulty card you have just unplugged when **00B** (oc) disappeared.

004

– Exchange the basic board. Go to “Basic Board Exchange Procedure” on page 4-77.

005

(Step **005** continues)

005 (continued)

– Replug the basic board power cables.

– Unplug the HDD/FDD power cable 01F-A1J3 from PS1.

– Press **Power On Reset**.

Is the panel code 00B still displayed?
Yes No

006

– Press **Power Off**.

– Replug the HDD/FDD power cable.

– Unplug the FDD power cable 01B-A1J2. Refer to Figure 4-33 on page 4-29.

– Press **Power On Reset**.

Is the panel code 00B still displayed?
Yes No

007

– Exchange the FDD. Go to "FDD Exchange Procedure" on page 4-52.

008

– Exchange the HDD. Go to "HDD Exchange Procedure" on page 4-56.

009

– Replug the HDD/FDD power cable.

– Unplug the LIB1 power cable (01F-A1J6) from PS1, if any. If there is no cable, go to Step 015.

Press **Power On Reset**.

Is the panel code 00B still displayed?
Yes No

010

– Replug the LIB1 power cable.

– Unplug all LICs of LIB1 from 01M-A2C2 to 01M-A2K2 with their cable.

– Press **Power On Reset**.

Is the panel code 00B still displayed?
Yes No

011

– Relug the LICs, one by one, and exchange the faulty one. Go to "LIC Exchange Procedure" on page 4-44.

012

– Unplug the DMUX (01M-A2B2) with its cables.

– Press **Power On Reset**.
(Step **012** continues)

012 (continued)

Is the panel code 00B still displayed?
Yes No

013

– Exchange the DMUX. Go to "DMUX Exchange Procedure" on page 4-39.

014

– Exchange the LIB1 01M-A2. Go to "LIC Board Type 1 and 3 Exchange Procedure" on page 4-84.

015

– Replug the LIB1 power cable.

– Unplug the LIB1 power cable (01F-A1J5) from the PS1, if any. If there is no cable, go to Step 021.

Press **Power On Reset**.

Is the panel code 00B still displayed?
Yes No

016

– Replug the LIB1 power cable.

– Unplug all LICs of LIB1 from 01M-A1C2 to 01M-A1K2 with their cables.

– Press **Power On Reset**.

Is the panel code 00B still displayed?
Yes No

017

– replug the LICs one by one and exchange the faulty one. Go to "LIC Exchange Procedure" on page 4-44.

018

– Unplug the DMUX 01M-A1B2 with its cables.

– Press **Power On Reset**.

Is the panel code 00B still displayed?
Yes No

019

– Exchange the DMUX. Go to "DMUX Exchange Procedure" on page 4-39.

020

– Exchange the LIB1 01M-A1. Go to "LIC Board Type 1 and 3 Exchange Procedure" on page 4-84.

021

(Step **021** continues)

021 (continued)

– Replug the LIB1 power cable.

– Unplug the LIB2 or LIB1 power cable 01F-A1J7 from PS1. if any. If there is no cable go to Step 027.

– Press **Power On Reset**.

Is the panel code 00B still displayed?
Yes No

022

– Replug the LIB2 or LIB1 power cable.

– Unplug all LICs of LIB1 or LIB2 from 01L-A2C2 to 01L-A2K2 with their cables.

– Press **Power On Reset**.

Is the panel code 00B still displayed?
Yes No

023

– Replug the LICs one by one and exchange the faulty one. Go to "LIC Exchange Procedure" on page 4-44.

024

– Unplug the SMUX or DMUX (01L-A2B2) with its cables.

– Press **Power On Reset**.

Is panel code 00B still displayed?
Yes No

025

– Exchange the SMUX. Go to "SMUXA/B Exchange Procedure" on page 4-41.

– For the DMUX go to "DMUX Exchange Procedure" on page 4-39.

026

– Exchange the LIB1 (01M-A1). Go to "LIC Board Type 1 and 3 Exchange Procedure" on page 4-84.

– or exhange the LIB2. Go to "LIC Board Type 2 Exchange Procedure" on page 4-88.

027

– Replug LIB2 or LIB1 power cable.

– Unplug LIB1 power cable 01F-A1J8 from PS1.

– Press **Power On Reset**.

Is the panel code 00B still displayed?
Yes No

028

(Step **028** continues)

028 (continued)

– Replug the LIB2 power cable.

– Unplug all LICs from LIB2 from 01L-A1C2 to 01L-A1K2 with their cables.

– Press **Power On Reset**.

Is the panel code 00B still displayed?
Yes No

029

– replug the LICs one by one and exchange the faulty one. Go to "LIC Exchange Procedure" on page 4-44.

030

– Unplug the SMUX (01L-A1B2) with its cables.

– Press **Power On Reset**.

Is the panel code 00B still displayed?
Yes No

031

– Exchange the SMUX. Go to "SMUXA/B Exchange Procedure" on page 4-41.

032

– Exchange the LIB2 (01L-A1). Go to "LIC Board Type 2 Exchange Procedure" on page 4-88.

033

– Replug the LB1 power cable

– Unplug the MOSS cards (from 01A-X0E to 01A-X0H). **Do not remove the** PCC card (01A-X0B).

– Press **Power On Reset**.

Is the panel code 00B still displayed?
Yes No

034

– Press **Power Off**.

– Replug the MOSS card by card and try to power 3745 ON after each one.

– Exchange the faulty card you replugged when the over current appeared.

035

– Exchange the PCC card (01A-X0B). Go to "Card Exchange Procedure" on page 4-34.

Is the panel code 00B still displayed?
Yes No

036

Go to "CE Leaving Procedure" on page 4-102.

037

– Exchange the PS1. Go to “PS1 Exchange Procedure” on page 4-67.

– Press **Power On Reset**.

Is the panel code 00B still displayed?

Yes **No**

038

Go to “CE Leaving Procedure” on page 4-102.

039

– Exchange the MOSS board. Go to “MOSS Board Exchange Procedure” on page 4-92.

MAP 3905: Power ON Problem in Host Mode or Host Power Sequence Problem

Symptom Explanation	Conditions That Could Cause This Symptom
Power ON is not possible in host mode. The host system detects errors during the power ON sequence.	• The Power Control is not in host mode • Host or host cable problem • Remote power control box (EPO) • PCC card

Attention

Power may be present when nothing is displayed on the control panel.

001

When the power control is in host mode, a **1** is displayed on the control panel.

Is the power control in host mode?
Yes No

002

– If the panel is blank; go to "Power MAP 3930: Power Control Subsystem Problems" on page 2-21.

– If not, put the power control in host mode:

- Using **Power Control**, scroll till the value is **1**.
- Press **Validate**.
- Re-initiate the command.

Continue with Step 003.

003

Is the 3745 powered ON?
Yes No

004

Go to Step 010.

005

– Check for 28 V between the frame ground and the back of the host connector which initiated the command at EPO 01S, pins 3 and 4. Refer to Figure 2-2 and to Figure 4-2 on page 4-4.

Is 28 V present on pin 3?
Yes No

006

There is a host problem, or an external host cable problem.

If no problem was found, contact your support structure. Refer to "Contacting Support" on page A-1.

007

(Step **007** continues)

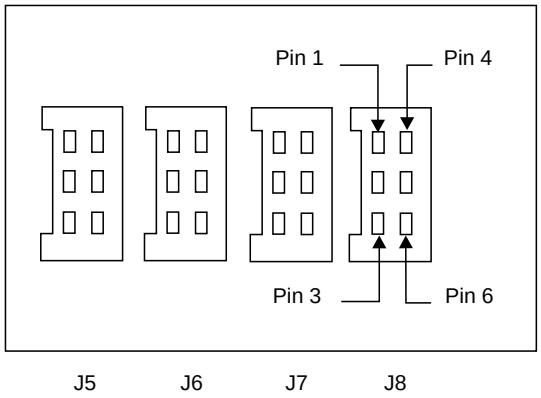


Figure 2-2. EPO Location 01S

007 (continued)

Is 28 V present on pin 4?
Yes No

008

– Exchange the FRU group 53 "3745 FRU Group Table" on page 1-49

009

There is a Host problem, or an external host cable problem.

If no problem was found, contact your support structure. Refer to "Contacting Support" on page A-1.

010

– Try to power ON in local mode:

- Using **Power Control** scroll till the value is **3**.
- Press **Validate**.

Is Power ON possible in local mode?
Yes No

011

Go to "Power MAP 3930: Power Control Subsystem Problems" on page 2-21.

012

– Press **Power Off**.

– Put the power control in host mode:

(Step **012** continues)

012 (continued)

- Using **Power Control** scroll, till the value is **1**.
- Press **Validate**.
- Re-initiate the command.

Is the 3745 powered ON?
Yes No

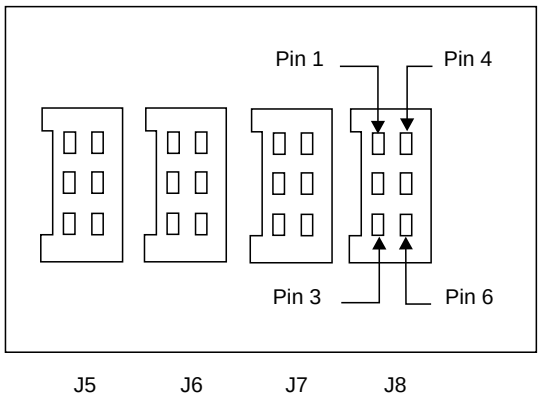
013

– Check for the 28 V between frame ground and **Power Hold**/**Power Pick** on EPO 01S on:

- Any J Connector pin 5 if one is free (J5/6/7/8)

or

- The back of any host connector if the four are used.



Are the two lines ON?
Yes No

014

There is a host problem, or an external host cable problem.

If no problem was found, contact your support structure, refer to “Contacting Support” on page A-1.

015

– Exchange the PCC card. Go to “Exchange Precautions” on page 4-1.

016

– Intermittent problem. The host, host cable, or PCC card can be suspected.

MAP 3910: Overcurrent on Power Supply 2

Symptom Explanation	Conditions That Could Cause This Symptom
Overcurrent on power supply 2.	• Short circuit in: • Fan1 • Fan2 • PCC • Panel • PS2

001

– Unplug the FAN1 power cable 01H-B1-J7 from PS2.

– Power the 3745 ON as follows:
  • put the power control in local mode:
    – Using **Power Control**, scroll till the value is **3**.
    – Press **Validate**.
  • Press **Power On Reset**.

Is the panel code 00E still displayed?
Yes **No**

002

– Press **Power Off**.

– Exchange the Fan1. Go to "Fan 1 Exchange Procedure" on page 4-50.

003

– Replug the Fan1 power cable.

– Unplug the Fan2 power cable (01H-B1-J6) from PS2.

– Power the 3745 ON as follow:
  • Put the power control in local mode:
    – Using **Power Control**, scroll till the value is **3**.
    – Press **Validate**.
  • Press **Power On reset**.

Is the panel code 00E still displayed?
Yes **No**

004

– Press **Power Off**.

– Exchange the Fan2. Go to "Fan 2 Exchange Procedure" on page 4-51.

005

– Replug the Fan2 power cable.

– Exchange the PCC card (01A-X0B). Go to "Card Exchange Procedure" on page 4-34.

– Press **Power On Reset**.
(Step **005** continues)

005 (continued)

Is the panel code 00E still displayed?
Yes **No**

006

Go to "CE Leaving Procedure" on page 4-102.

007

– Exchange the control panel. Go to "Control Panel Exchange Procedure" on page 4-46.

– Press **Power On Reset**.

Is the panel code 00E still displayed?
Yes **No**

008

Go to "CE Leaving Procedure" on page 4-102.

009

– Exchange the PS2. Go to "PS2 and Primary Power Box Exchange Procedure" on page 4-69.

Power MAP 3920: Air Flow Detector Fault

Symptom Explanation	Conditions That Could Cause This Symptom
Air flow detector fault for Fan1 or Fan2	• Fan1 or Fan2 • PCC • PS2 • Tripped CP3

001

If the problem is intermittent, consider that any of the conditions given in the above table can cause the problem.

Panel code 030 indicates Fan1.

Panel codes 031 or 032 indicate Fan2.

Is the code 030 displayed?
Yes No

002

– Disconnect the Fan2 power cable from the front side of the power supply 2, (location 01H-J6). Refer to Figure 4-37 on page 4-32.

– Check for the presence of -38 V dc between pins 1 and 2 of the power supply 2 (PS2) connector J6 while attempting to power ON the machine.
(Pin 1 ground and pin 2 -38 V.)

Is voltage present and within tolerence ± 10%?
Yes No

003

– Reconnect the Fan2 power cable to 01H-J6.

– Exchange the PS2. Go to “PS2 and Primary Power Box Exchange Procedure” on page 4-69.

004

– Reconnect the Fan2 power cable to 01H-J6.

– Check cable from 01A-Y0A1 to 01E-J1 for correct setting. If this cable is correctly fitted, exchange the FRU group 41 “3745 FRU Group Table” on page 1-49.

005

– Disconnect the Fan1 power cable from the front side of the power supply 2, (location 01H-J7). Refer to Figure 4-37 on page 4-32.

(Step **005** continues)

005 (continued)

– Check for the presence of -38V dc between pins 1 and 2 of the power supply 2 (connector J7) while attempting to power ON the machine, (Pin 1 ground and pin 2 -38 V).

Is voltage present and within tolerence ± 10%?
Yes No

006

– Reconnect the Fan1 power cable to 01H-J7.

– Exchange PS2. Go to “PS2 and Primary Power Box Exchange Procedure” on page 4-69.

007

– Reconnect the Fan1 power cable to 01H-J7.

– Check the cable from 01A-Y0A1 to 01K-J1 for correct setting.
If this cable is correctly fitted, exchange the FRU group 40 “3745 FRU Group Table” on page 1-49.

Power MAP 3925: Scheduled Power on Problems

Symptom Explanation	Conditions That Could Cause This Symptom
The machine will not power On as scheduled	• Wrong setting of scheduled time • Wrong setting of power control (should be **2**) • Battery • PCC card

Attention

Power may be present when nothing is displayed on the control panel.

Note: Before starting maintenance, check the control panel to ensure that the **Power Control** display is set to **3** (Local).

If yes, proceed with Step 001.

If not, perform the following:

1. Press **Power Control** until **3** is displayed in the power control window.
2. Press **Validate**.

001

– Press **Power On**.

– Check at the **ac present** lamp to the right of the **Power On** pushbutton.

Is the ac present lamp ON?
Yes No

002

You have a power ON problem. Go to "Power MAP 3930: Power Control Subsystem Problems" on page 2-21.

003

Is the code 007 displayed at the control panel?
Yes No

004

– Check with the operator that the data entered matches the actual day and time:

– Select the time services screen, and display **Scheduled Power On** data.

Is the data correct?
Yes No

005

With the right scheduled information, re-initiate the command.

006

Exchange the FRU group 38. Go to "3745 FRU Group Table" on page 1-49.

007

(Step **007** continues)

007 (continued)

You have a dead battery.

– Exchange it and record this action. Go to "Battery Exchange Procedure" on page 4-48.

Power MAP 3930: Power Control Subsystem Problems

Symptom Explanation	Conditions That Could Cause This Symptom
Panel display or power indicator not lit. Machine will not Power ON.	• UEPO • CB1 or any CP tripped • PS2 • PCC card or Control Panel

Attention

Power may be present when nothing is displayed on the control panel.

Power supplies are sealed replaceable units.

001

– Check at the control panel.

Are all indicators OFF or ** displayed?**
Yes No

002

Go to Step 024 on page 2-23.

003

– Check for the presence of 28 V at the UEPO switch (see Figure 2-3). Use a CE meter and check for 28 V between:

- Position 5 and the ground of the switch on the 3745 Models 130-170

Or

- Positions A2 and the ground of the switch on the 3745 Model 17A.

Are 28 volts present?
Yes No

004

– Check the position of CP2 on the primary power box.

Is CP2 ON?
Yes No

005

– **Switch CB1 OFF**.
– **Switch CP2 ON**.
– **Switch CB1 ON**.

Does CP2 drop again?
Yes No

006

Power ON the 3745.

007

(Step **007** continues)

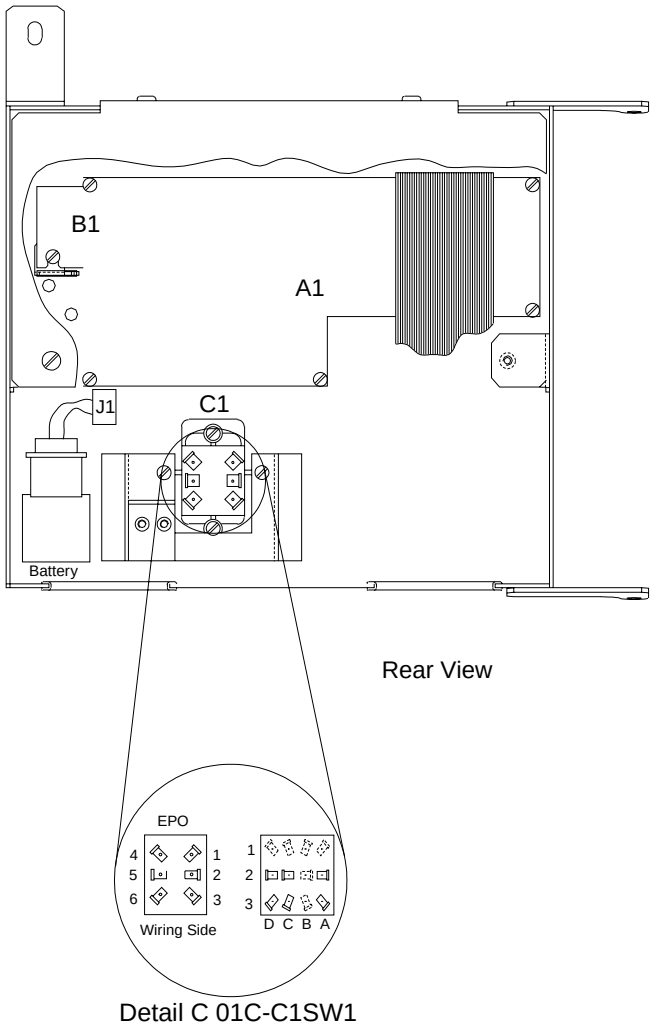


Figure 2-3. UEPO Switch

007 (continued)

– Check that the voltage select switch (01H-B1/SW1) is correct for the input voltage. Refer to Figure 4-37 on page 4-32.

Is it correct?
Yes No

008

Set the voltage select switch (SW1) to the correct position. Go to Step 005.

009

Exchange the PS2. Go to “PS2 and Primary Power Box Exchange Procedure” on page 4-69.

010

– Check the position of the CB1 on the primary power box. Refer to Figure 4-1 on page 4-3 for location.

Is the CB1 in the ON position?
Yes No

011

– **Switch the CB1 ON**.
– Power ON the 3745.

Is the 3745 powering ON now?
Yes No

012

Go to Step 001 on page 2-21

013

Go to “CE Leaving Procedure” on page 4-102.

014

– Check the ac main voltage:
  • Power the 3745 OFF as follows:
    – Put the power control in local mode:
      - Using **Power Control**, scroll till the value is **3**.
      - Press **Validate**.
    – Press **Power Off**.

Refer to Figure 4-35 on page 4-30 and do the following:

  • Remove the PS1 input power cord at the Primary power box connector J1.
  • Connect a voltmeter to J1.
  • Press **Power On Reset**.
  • You have approximately two seconds to read the ac voltage.

Is the voltage correct?
Yes No

015

– Check for one of the following:
  • If the machine is correctly wired for the customer's input voltage.
  • If you have a short circuit in the primary control box.
  • If the customer's supply is defective.

016

Exchange the PS2. Go to “PS2 and Primary Power Box Exchange Procedure” on page 4-69.

017

– Check Fuse 1. Refer to Figure 4-37 on page 4-32 for location.

Is the fuse OK?
Yes No

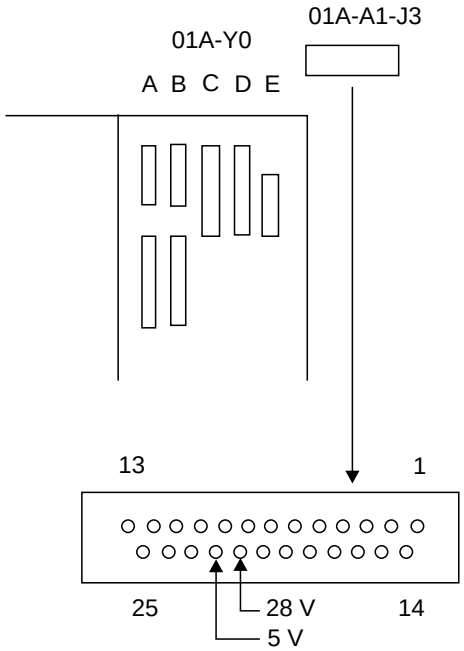
018

– **Switch CB1 OFF**.
– Exchange the fuse.
– **Switch CB1 ON**.
– If the fuse blows again, exchange the FRU group 37.
  Go to “3745 FRU Group Table” on page 1-49.
  If not, re-initiate the operation.

019

– Measure the dc voltages at 01A-A1-J3 (Location : 01b, refer to Figure 4-1 on page 4-3.)

VDC	Vmin	Vmax	Test Point
+ 5.00	+ 4.75	+ 5.25	pin 22
+28.00	+24.90	+29.50	pin 21



Are both voltages present and within tolerance?
Yes No

020

(Step **020** continues)

020 (continued)

Is only +5 V present and within tolerance?
Yes **No**

021

– Exchange the Primary Power Box. Go to "PS2 and Primary Power Box Exchange Procedure" on page 4-69.

022

– Exchange the PS2. Go to "PS2 and Primary Power Box Exchange Procedure" on page 4-69.

023

Exchange the FRU group 37. Go to "3745 FRU Group Table" on page 1-49.

024

.

– At the power control window, check the mode validity.
  - **1** = Host
  - **2** = Network
  - **3** = Local

Is the power mode in accordance with customer requirements?
Yes **No**

025

Correct the power mode and try again.

026

Is the power mode in local 3 displayed in the power window?
Yes **No**

027

– Press **Power Control** until the correct mode is displayed in the power control window.

– Press **Validate**.

Continue with Step 028.

028

.

– Press **Power On**.

Is the 3745 failing to power ON?
Yes **No**

029

– You may have an intermittent problem. Before you continue, perform another Power OFF/ON to check that the problem still exists in that mode.

If it does not, go to "MAP 3905: Power ON Problem in Host Mode or Host Power Sequence Problem" on page 2-16.

030

Is the UEPO switch (on the control panel), in the Power Enable position?
Yes **No**

031

.

– Put the UEPO switch in **Power Enable** position as follows (see Figure 2-3 on page 2-21):
  - Loosen the two screws.
  - Move the metal slider completely to the left.
  - Set the switch to **I**.
  - Move the metal slider to the right.
  - Secure the screws.

Retry the operation that brought you here.

032

Is Power On indicator ON?
Yes **No**

033

Does the control panel display a hexadecimal code?
Yes **No**

034

– Exchange the FRU group 37. Go to "3745 FRU Group Table" on page 1-49.

035

– Record the value of the hexadecimal code at the control panel.

Go to "3745 Control Panel Codes" on page 1-15 and follow the action to be taken.

036

Normally (when the Power ON Indicator is lit), relay K1 in the primary control box is closed and the ac voltage is distributed to the rest of the machine.

Nevertheless, in case of a severe under voltage of the ac mains, the Power ON command may be memorized but not fully executed.

The Power On lamp is turned ON but the K1 remains OFF.

Consequently, all power supplies and blowers remain OFF.

– Using a CE meter, check for 28 volts between position 2 and ground on the UEPO switch (see Figure 2-3 on page 2-21).

(Step **036** continues)

036 (continued)

Is 28 V within tolerance between 24.9 V and 29.5 V?

Yes **No**

037

Exchange the PS2. Go to "PS2 and Primary Power Box Exchange Procedure" on page 4-69.

038

Exchange the FRU group 37, go to "3745 FRU Group Table" on page 1-49.

Power MAP 3935: Power OFF not Possible in Host Mode

Symptom Explanation	Conditions That Could Cause This Symptom
Power OFF is not possible in host mode	• Another connected host is still power ON. • The power control is not in host mode. • Host or host cable problem. • PCC card.

Attention

Power may be present when nothing is displayed on the control panel.

001

Is the host (that which initiated the command) the last host connected to be power ON?
Yes No

002

– The 3745 will be powered OFF only by the last connected host.

003

When the power control is in host mode, a **1** is displayed on the control panel.

Is the power control in host mode?
Yes No

004

– Set the power control to host mode.
– Using **Power Control**, scroll till the value is **1**.
– Press **Validate**.
– Power OFF in host mode.

Is power OFF now possible in host mode?
Yes No

005

Go to Step 007.

006

Go to "CE Leaving Procedure" on page 4-102.

007

– Set the power control to local mode.
– Using **power control**, scroll till the value is **3**.
– Press **Validate**.
– Power OFF.

(Step **007** continues)

007 (continued)

Does the Power On Indicator now go OFF?
Yes No

008

Go to "Power MAP 3945: Power OFF not Possible in Local Mode" on page 2-26.

009

– Check for 24 V between the frame ground and **Power Hold** line on EPO 01S on:
  • Any J Connector pin 5 if one is free (J5/6/7/8)

  or

  • The back of any host connector if the four are used.

  Refer to Figure 2-4 and Figure 4-2 on page 4-4.

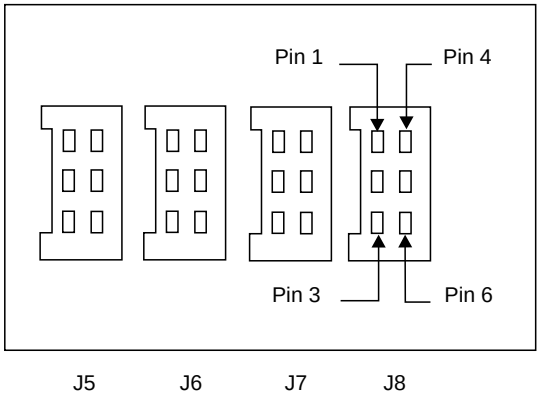


Figure 2-4. EPO Location 01S

Is the power hold dropped?
Yes No

010

There is a host problem or an external host cable problem.

If no problem is found, contact your support structure, refer to "Contacting Support" on page A-1.

011

– Exchange the PCC card. Go to "Exchange Precautions" on page 4-1

Power MAP 3945: Power OFF not Possible in Local Mode

Symptom Explanation	Conditions That Could Cause This Symptom
Power OFF is not possible in local mode	• The power control is not in local mode • Relay K1 • Control Panel • PCC

Attention

Power may be present when nothing is displayed on the control panel.

001

When the power control is in local mode, a **3** is displayed at the control panel.

Is the power control in local mode?
Yes No

002

– Power the 3745 OFF as follows:
  • Set the power control to local mode:
    – Using **Power Control**, scroll till the value is **3**.
    – Press **Validate**.
  • Press **Power Off**.
– Continue whit Step 003.

003

Is the 3745 still powered ON?
Yes No

004

Go to “CE Leaving Procedure” on page 4-102.

005

Are the blowers stopped?
Yes No

006

– Suspect relay K1 located in primary power box 01H-A2.
  Refer to the YZ pages for wiring.
– Repair and re-initiate the command.
– If correct, go to “CE Leaving Procedure” on page 4-102.

007

– Exchange the FRU group 37 on page 1-51. Go to “3745 FRU Group Table” on page 1-49.

Power MAP 3950: PCC-Detected Error on MOSS Reset

Symptom Explanation	Conditions That Could Cause This Symptom
Incorrect states/sequencing in MOSS reset signals.	• MPC • MCC • DFA • PCC • PS1

001

– Power the 3745 OFF as follows:
  • Set the power control to local mode:
    – Using **Power Control**, scroll till the value is **3**.
    – Press **Validate**.
  • Press **Power Off**.
– Unplug the:
  • MCC card (01A-X0H)
  • MPC card (01A-X0E)
  • DFA card (01A-X0G)
– Press **Power On Reset**.

Does the same error appear?
Yes No

002

– Replug the:
  • MCC card (01A-X0H)
  • MPC card (01A-X0E)
– Exchange the DFA card (01A-X0G).
– Press **Power On Reset**.

Does the same error appear?
Yes No

003

Go to "CE Leaving Procedure" on page 4-102.

004

– Press **Power Off**.
– Exchange the DFA card (01A-X0G).
– Exchange the MPC card (01A-X0E).
– Press **Power On Reset**.

Does the same error appear?
Yes No

005

Go to "CE Leaving Procedure" on page 4-102.

006

(Step **006** continues)

006 (continued)

– Press **Power Off**.
– Exchange the MPC card (01A-X0E)
– Exchange the MCC card (01A-X0H)
– Press **Power On Reset**.

Does the same error appear?
Yes No

007

Go to "CE Leaving Procedure" on page 4-102.

008

Suspect the MOSS board 01A.

009

– Press **Power Off**.
– Exchange the PCC card (01A-X0B).

Power MAP 3960: Power OFF not Possible in Network Mode

Symptom Explanation	Conditions That Could Cause This Symptom
Power OFF is not possible in network mode	• The power control is not in network mode • The **Power Off** command is not received from the host • PUC • PCC • Host Cable problem • 3745 not able to power OFF in local mode

Attention

Power may be present when nothing is displayed on the control panel.

001

To enter this MAP: The NCP must be running and a network Power Off command must have been issued.

When the power control is in network mode, a **2** is displayed at the control panel.

Is the power control in network mode?
Yes No

002

– Set the power control to network mode.
  • Using **Power Control** scroll till the value is **2**.
  • Press **Validate**.
– Re-initiate the Power OFF command from the host.

Continue with Step 003.

003

Is the Power On indicator lit?
Yes No

004

– The Power OFF command was successful.

Go to "CE Leaving Procedure" on page 4-102.

005

Set the power control in local mode.

- Using **Power Control** scroll till the value is **3**.
- Press **validate**.

Press **Power Off**.

Does the Power On indicator go OFF?
Yes No

006

(Step **006** continues)

006 (continued)

Continue at "Power MAP 3945: Power OFF not Possible in Local Mode" on page 2-26.

007

– Set the power control to network mode.
  • Using **Power Control** scroll till the value is **2**.
  • Press **Validate**.
– Power the 3745 On by pressing **Power On/Reset**.
– Select the IFT diagnostics routine **AT05**.

Is the Power On indicator still lit?
Yes No

008

You have an NCP or network problem. Contact your support structure if additional assistance is required.

009

– Power the 3745 OFF as follows:
  • Set the power control to local mode:
    – Using **Power Control**, scroll till the value is **3**.
    – Press **Validate**.
  • Press **Power Off**.
– **Turn the CB1 OFF**.
– Exchange the PCC card (01A-X0B). Refer to Figure 4-9 on page 4-11.
– **Turn the CB1 ON**.
– Press **Power On Reset**.
– Set the power control to network mode.
  • Using **Power Control** scroll till the value is **2**.
  • Press **Validate**.
– Select the IFT diagnostics and run routine **AT05**.

(Step **009** continues)

009 (continued)

Is the 3745 still powered ON?
Yes **No**

010

Go to "CE Leaving Procedure" on page 4-102.

011

– Power the 3745 OFF as follows:
  - Set the power control to local mode:
    – Using **Power Control**, scroll till the value is **3**.
    – Press **Validate**.
  - Press **Power Off**.
– **Turn the CB1 OFF**.
– Re-install the PCC card.
– Exchange the MCC card (01A-X0H). Refer to Figure 4-9 on page 4-11.
– **Turn the CB1 ON**.
– Press **Power On Reset**.
– Set the power control to network mode.
  - Using **Power Control**, scroll till the value is **2**.
  - Press **Validate**.
– Select the IFT diagnostics and run routine **AT05**.

Is the 3745 still powered ON?
Yes **No**

012

Go to "CE Leaving Procedure" on page 4-102.

013

– Power the 3745 OFF as follows:
  - Set the power control to local mode:
    – Using **Power Control**, scroll till the value is **3**.
    – Press **Validate**.
  - Press **Power Off**.
– Re-install the MCC card (01A-X0H).
– Exchange the PUC card (01G-V).
– Set the power control to network mode.
  - Using **Power Control**, scroll till the value is **2**.
  - Press **Validate**.
– Select the IFT diagnostics and run routine **AT05**.

(Step **013** continues)

013 (continued)

Is the 3745 still powered ON?
Yes **No**

014

Go to "CE Leaving Procedure" on page 4-102.

015

– Re-install the PUC card (01G-V).

You have gone through the entire procedure and the problem is still present. Contact your support structure for further assistance.

Power MAP 3970: PCC-Detected Error on CCU Reset or on Remote Power OFF

Symptom Explanation	Conditions That Could Cause This Symptom
Incorrect states/sequencing in CCU reset signals.	• SCTL • PUC • PCC • PS1 • Cable from 01A-Y0A3 to 01G-A1YP on page 1-52 • Cable from 01A-Y0A2 to 01G-A1YR on page 1-52

001

– Power the 3745 OFF as follows:
  • Set the power control to local mode:
    – Using **Power Control**, scroll till the value is **3**.
    – Press **Validate**.
  • Press **Power Off**.
– Disconnect cable connector 01A-Y0A3 from the MOSS board. Refer to Figure 4-9 on page 4-11.
– Press **Power On Reset**.

does the same error appear?
Yes **No**

002

(From step 008)

– Reconnect the cable connector.
– Exchange the PUC card (01G-V)
– Press **Power On Reset**.

Does the same error appear?
Yes **No**

003

Go to "CE Leaving Procedure" on page 4-102.

004

– Press **Power Off**.
– Exchange the PUC card (01G-V)
– Exchange the SCTL card (01G-W)
– Press **Power On Reset**.

does the same error appear?
Yes **No**

005

Go to "CE Leaving Procedure" on page 4-102.

006

Suspect the cable from 01A-Y0A3 to 01G-A1YP on page 1-52 or the cable 01A-Y0A2 to 01G-A1YR on page 1-52 or Basic board.

007

– Reconnect the cable connector.
– Disconnect cable connector 01A-Y0-A2 from the MOSS board. Refer to Figure 4-9 on page 4-11.
– Press **Power On Reset**.

does the same error appear?
Yes **No**

008

Go to Step 002

009

– Reconnect the cable connector.
– Press **Power Off**.
– Exchange the PCC card (01A-X0B)

3745 LAN MAP

MAP 4500: 3745 Models 17A Permanent Console Link Problem

Symptom Explanation	Conditions That Could Cause This Symptom
Console not accessible indicator Console Message	• Service processor • Ring • Service processor access unit • MLA card

001

Is there a panel code displayed on the 3745 control panel?

Yes **No**

002

Go to "3745 Control Panel Symptoms" on page 1-11.

003

Go to "3745 Control Panel Code" on page 2-32 for control panel code interpretation.

3745 Control Panel Code

Table 2-2. 3745 Control Panel Code

3745 Control Panel Code	Description	Action
B8F	LAN adapter check	Exchange the MLA card.
B90	Hardware init error	Suspect a hardware problem (see Note 1).
B91	Microcode error	Contact your support structure for assistance.
B92	Lobe media test failure	Suspect a hardware problem (see Note 1).
B93	Signal loss while opening	Suspect a ring problem (see Note 1).
B94	Wire fault while opening	Suspect a hardware problem (see Note 1).
B95 B96 B97 B98 B99 B9A B9B B9C B9D	Open frequency error Time out while opening Ring failure while opening Ring beaconing while open Duplicate node address Open request parameters Open remove received Open IMPL force received No monitor for RPL at open	Suspect a ring problem (see Note 1).
B9E	Lobe wire fault at open	Suspect a hardware problem (see Note 1).
B9F BB0 BB1 BB2 BB3 BB4 BB5 BB6	Remote station connected Time out Link lost DM/DISC received /acked FRMR received SABME received Ti Timer expired FMMR sent Unexpected SABME received	Suspect a problem in the service processor or ring problem (see Note 2).
BC0	Permanent ring beaconing	Suspect a ring problem (see Note 1).
BC1 BC2	Lobe wire fault Auto-removal while beaconing	Suspect a hardware problem (see Note 1).
BC3	Remove received	Suspect ring problem (see Note 1)
BC4	Auto-removal	Suspect a hardware problem (see Note 1).
BD0 BE0	FSM time out Watchdog time out	Suspect a problem in the service processor. (see Note 2)

Notes:

1. Use the *Token-Ring Network Problem Determination Guide*, SX27-3710.
2. Check the ring and the service processor. Go to the *Service Processor Installation and Maintenance* manual, chapter "Service Processor Problem Determination".

3745 RSF MAP

MAP 4510: 3745 Model 17A Manual Call

You are here because there was a problem in connecting the service processor to RETAIN or because you want to test this facility.

Perform a manual call using the 3745 or the 3746-900 facilities to check this connection.

The service processor console must be logged ON. If it is not, go to “Console Use for Maintenance” on page 1-1 (for logging ON) and return here.

Before starting this MAP check the **Remote Support facility** options using the following procedure:

- On the **MOSS-E View** window. Double-click on the service processor icon.
- The **Service Processor Menu** window is displayed.
- Click on **Configuration Management**.
- Double-click on **Manage Remote Operations**.
- Select **Remote operations authorization** in the **Remote Operation Management** window.
- Click on **OK**.
- Ensure that the two following options are selected in the **Remote Support Facility** window:
  - **Enable Remote Support Facility**
  - **Generate alerts**
- Select them, if not already done, and click on **OK**.
- Click on **Cancel** to return to the **Service Processor Menu**.

001

Is there a 3746-900 attached to your 3745?

Yes **No**

002

Go to Step 006.

003

- Return to the **MOSS-E View** window. Double-click on the 3746-900 icon.
- Click on **Problem Management**.
- Double-click on **Report Problem Using Remote Support Facilities**.
- Enter a short description in the **Problem Analysis** window. **Testing the RSF link** Click on **OK**.
- Click on **OK**, in the **Report Problem Using RSF** window.
- Wait for either the alarm **Call to RETAIN successful** (indicating the normal end of transmission), or the message **Call to RETAIN failed**.
- Write down the alarm number.

Is the alarm Call to RETAIN successful displayed?

Yes **No**

004

Go to Step 009 on page 2-34.

005

Go top Step 008 on page 2-34.

006

- Return to the **MOSS-E View** window. Double-click on the 3745 icon.
- Click on **Problem Management**.

(Step **006** continues)

006 (continued)
- Double-click on **Report Problem Using Remote Support Facilities**.
- Enter a short description: in the **Problem Analysis** window, 'Testing the RSF link'.
- Click on **OK**.
- Click on **OK** in the **Report Problem Using RSF** window.
- Wait for either the alarm **Call to RETAIN successful** (indicating the normal end of transmission), or the message **Call to RETAIN failed**.
- Write down the alarm number.

Is the alarm Call to RETAIN successful displayed?
Yes **No**

007

Go to Step 009.

008

The connection to RETAIN is successful. The following table contains the alarms generated by this connection.

Select the Alarm Number	Meaning
0641	Your microcode is up-to-date. Therefore no fix has been downloaded.
0642	A fix has been downloaded automatically. Install the fix.
0649	Call to RETAIN was successful but no downloaded., MCL is too large or there is not enough disk space. Active and accepts all MCL(s) already received to free space disk and retry the normal call for the new MCL(s). If the problem persists call your support center. There is a PE problem.

Go to “CE Leaving Procedure” on page 4-102.

009

Locate the alarm number in the following table and perform the required action.

Select the Alarm Number	Action
0643	Go to Step 010 on page 2-35
0644	Call to RETAIN is not authorized. Refer to the *Service Processor Installation and Maintenance*, manual,(step on **Recording the Customer Information**).
064C	The call to RETAIN has been performed but RETAIN required a disconnection due to a bad product setup. The following information is missing in the RETAIN customer CCPF file or the system registration file. • Customer number • Machine Model xxA • Branch office number • Area number • Warranty/Status Provide this information to your support before he contacts the RETAIN coordinator for updating.
068C	Suspect a Communication Manager problem. Check the Communication Manager configuration. Refer to the *Service Processor Installation and Maintenance* manual, (step on **Setting Up Communication Parameters to Allow Remote and Netview Operations**). Re-boot the service processor. If the problem persits contact your support center.
068D	Check the connection between the modem and the line. Check that the telephone number used is correct. Refer to the *Service Processor Installation and Maintenance* manual (step on **Recording the Customer Information**).

010

Click on **OK** in the alarm window. A second alarm should be displayed. Locate this second alarm number in the following table and perform the required action.

Select the Alarm Number	Action
064A	There is a PE problem. Call your support center for assistance.
064B	There is a PE problem. Call your support center for assistance.
064D	The call to RETAIN has not been performed because: • The associated data has not been tersed or • The associated tersed data has not been written to the service processor disk (the partition was full). To free space on the disk perform the following steps: 1. Return to the **MOSS-E View** window. 2. Double-click on the service processor icon. 3. Click on **Operation Management** in the **Service Processor Menu**. 4. Double-click on **Delete Engineering Data**. 5. A **Deleting Engineering Data** window is displayed, asking you to confirm your choice. 6. Click on **YES**. 7. Follow the prompts. 8. When this operation is finished retry a call to RETAIN. If the problem persists, contact your support center for assistance.
0681	Suspect a multiprotocol adapter problem. • Run the multiprotocol diagnostic. Refer to the *Service Processor Installation and Maintenance* manual (chapter **How to Run the Service Processor Diagnostics**). • Check that the Communication Manager has been correctly initialized. • If everything is correct, suspect a modem problem. Refer to the modem documentation to run diagnostics.
0682	Suspect a Communication Manager problem. Re-start the Communication Manager or if this fails re-boot the service processor.
0685	The machine is not registered in the RETAIN data base. The following information is missing in RETAIN CCPF. • Machine type • Serial number Provide this information to your support center before he contacts the RETAIN coordinator for updating.
0686	Check the telephone number and prefix configuration. Refer to the *Service Processor Installation and Maintenance* manual (step on **Recording the Customer Information**).
0687	Suspect an integrated modem problem. • Run the integrated modem diagnostics using the wrap plug. Refer to the *Service Processor Installation and Maintenance* manual (chapter on **How to Run the service processor diagnostics**). • If the modem is error free and if the problem persists, contact your support center for assistance.
0688	Suspect an integrated modem problem. • Run the modem diagnostic using the wrap plug. Refer to the *Service Processor Installation and Maintenance* manual (chapter on **How to Run the Service Processor Diagnostics**). • If the modem is error free and if the problem persists, contact your support center for assistance.
0689	The local modem is already in use. Check that the remote console is not in use.
068A	The integrated modem is already in use. Check that the remote console is not in use.

Select the Alarm Number	Action
068B	Suspect a modem problem. • If you have an integrated modem, run the modem diagnostic using the wrap plug. Refer to the *Service Processor Installation and Maintenance* manual (chapter on **How to Run the Service Processor Diagnostics**). • If you have an external modem, refer to the modem documentation to run diagnostics. • If the modem is error free, suspect a line problem. Call the appropriate service representative.

3745/3746-900/Service Processor MAPs

MAP 5200: 3745/3746-900/Service Processor/Network Node Processor Icon Color Symptoms

Symptom Explanation	Conditions That Could Cause This Symptom
3745, 3746-900, or Network Node Processor (NNP) problem The 3745 icon, the 3746-900 icon, and/or the NNP icon in the **MOSS-E View** window are not green.	• 3745 scanner and/or a CCU has failed. • 3745 NCP not loaded. • 3746-900 one or more processors, CBC, or ESCC have failed. • No link between 3745 and/or 3746-900 with the service processor. • No link between NNP and the service processor. • No link between NNP and the 3746-900. • NNP has failed.

001

- The service processor console must be logged ON. If it is not, go to “Console Use for Maintenance” on page 1-1 (for logging ON) and return here.
- The color of the 3745, 3746-900, NNP, and the service processor icons reflects their status. For example a green icon indicates that the machine is operational. The following table describes the icon color selection.

Table 2-3. Icons Color Selection Table

Machine	Icon Color	Go to
Service Processor	White	Step 002 on page 2-38.
3745	White	Step 003 on page 2-38.
	Grey	Step 004 on page 2-39.
	Pink	Step 005 on page 2-39.
3746	Yellow	Step 006 on page 2-39.
	White	Step 007 on page 2-39.
	Grey	• The 3746-900 is not connected to the service processor. • Go to "MAP 5600: LAN Problem on the LAN Attached to the Service Processor" on page 2-42.
	Pink	Refer to the *IBM 3746 Nways Multiprotocol Controller Model 900 Service Guide*, SY33-2116.
	Red	Step 008 on page 2-39.
NNP-X	White	The control point is starting and the configuration is activating This is a normal state. However if this state stay a too long time suspect a problem. Check if you have alarms at the service processor
	Grey	• There is no connection betweeen the service processor and the network node processor. Or • The link is not ready between the 3746-9xx and the control point of the network node processor. Refer to the *IBM 3746 Nways Multiprotocol Controller Model 900 Service Guide*, SY33-2116.
	Pink	The control point is waiting for operator start, or no NDF (Node Definition File). Refer to the *IBM 3746 Nways Multiprotocol Controller Model 900 Service Guide*, SY33-2116.
	Blue	The connection between the service processor and the network node processor is OK. The network node processor is in standby mode. The control point must be started. Refer to the *IBM 3746 Nways Multiprotocol Controller Model 900 Service Guide*, SY33-2116.

002

The service processor icon is white.

- Check if the yellow LED of the service processor (indicating disk access) is active.
- If the yellow LED is sometimes ON and sometimes OFF, wait a few more minutes. If the symptom persists, contact your support center for assistance.
- If the yellow LED is always OFF, contact your support center for assistance.

003

The 3745 icon is white.

- Check the displayed 3745 control panel code or the 3745 status on the service processor:
  - On the **MOSS-E View** window, double-click on the 3745 icon.
  - Click on **Program** (in the action bar).
  - Click on **Status** option.
  - The **3745 Controller Status** window indicates the CCU status and the associated control code.
- Note the control code displayed. Then go to "3745 Control Panel Codes" on page 1-15 and follow the procedure.

004

The 3745 icon is grey.

- The 3745 is not connected to the service processor.
- Go to “MAP 5600: LAN Problem on the LAN Attached to the Service Processor” on page 2-42.

005

The 3745 icon is pink.

- Click on the 3745 icon pink.
- Click on **Program** in the action bar.
- Click on **Status**.
- The **3745 Controller Status** window indicates the CCU status and if some adapters are unavailable.
- The normal status of CCU is **loaded**. If a CCU is not in this state check:
  1. If the CCU control program has been loaded.
  2. If the control program has started to load but has not terminated successfully. Go to “General Verbal Symptoms” on page 1-8 and follow the procedure.
- If an adapter address is displayed in the unavailable adapters part of the **3745 Controller Status**, run the diagnostic on the suspected adapter. Go to “3745 Maintenance Actions” on page 1-6 and follow the procedure.

006

The 3746-900 yellow icon is a normal state. Its duration depends on the 3746-900 configuration.

- On the 3746-900 control panel, check if there is a character displayed on the **Service processor not accessible** digit.
- If a character is displayed, go to “MAP 5600: LAN Problem on the LAN Attached to the Service Processor” on page 2-42. Otherwise check if the service processor yellow LED (indicating disk access) is active.
- If the yellow LED is sometimes ON or sometimes OFF, wait a few more minutes. If the symptom persists, contact your support center for assistance.
- If the yellow LED is always OFF, contact your support center for assistance.

007

The 3746-900 white icon is a normal state. Its duration depends on the 3746-900 configuration.

- Check either the displayed 3746-900 control panel code or the 3746-900 status on the service processor:
  - On the **MOSS-E View** window double-click on the 3746-900 icon.
  - Click on **Program** (in the action bar)
  - Click on **Status**.
  - The **3746-900 Status** window indicates the IML steps, the address of any processor, CBC or unavailable ESCC, and the control panel code.
- Note the control panel code displayed. Refer to the *IBM 3746 Nways Multiprotocol Controller Model 900 Service Guide*, SY33-2116 for investigation.

008

The 3746-900 icon is red when it is set to Offline mode.

- To set the 3746-900 to Online mode follow these steps:
  - Double-click on the 3746-900 icon.
  - On the **3746-9x0 Menu** window, click on **Problem management**.
  - Click on **Set 3746-9x0 Online/Offline option**.
  - On the **Set 3646-900 Online/Offline** window, click on **Yes**.
  - On the next **Set 3746-9x0 Online/Offline** window, click on **YES** or **NO** (according to the current setting).

(Step **008** continues)

008 (continued)
  – On the next **Set 3746-9x0 Online/Offline** window, click on **OK**.
- Start a general IML in order to set the 3746-900 in Online mode.
- At IML completion, the 3746-900 icon must be green.
- Return to the **MOSS-E View** window.
- Go to “CE Leaving Procedure” on page 4-102 to return the machine to the customer. If the problem persists contact your support center.

MAP 5205: LAN Checking

You are here because you suspect the LAN cable (WLOB) or the service processor access unit (ACUN) to be faulty.

001

Perform the following steps:

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

Did you find the problem?

Yes **No**

002

Exchange the suspected FRU.

003

Problem solved. Go to “CE Leaving Procedure” on page 4-102.

Service Processor MAPs

MAP 5600: LAN Problem on the LAN Attached to the Service Processor

Symptom Explanation	Conditions That Could Cause This Symptom
Unable to activate or deactivate a ring Errors occur while ring is running No connection with the service processor	• Service processor or network node processor LAN adapter • Ring • Service processor access unit • 3746-900 TIC3 or CBSP • 3745 MLA card

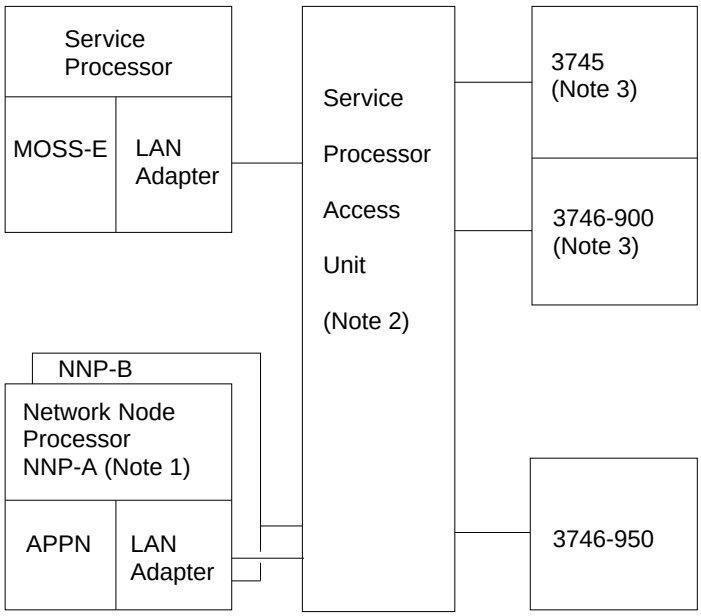


Figure 2-5. LAN Attached to the Service Processor

Notes:

1. The network node processor is an optional feature which is present only when APPN is installed. Up to four network node processors can be installed on the same LAN. A backup network node processor can also be present.
2. The LAN can be made of two service processor access units (8228).
3. Only 37xx units can be connected to the LAN when APPN is installed.

001

You are here because there is a problem on the LAN that is attached to the service processor. The following links can be impacted (one or more):

- 3745 MOSS/MOSS-E link
- 3746-900/MOSS-E link
- 3746-900/APPN link (if present)
- MOSS-E/APPN link (if present)

(Step **001** continues)

001 (continued)
Is the problem permanent?
Yes **No**

002

Go to Step 016 on page 2-44.

003

Does the problem appear on all units connected to the service processor?
Yes **No**

004

Go to Step 011.

005

Is the service processor powered ON?
Yes **No**

006

Power ON the service processor.
Is the service processor powered ON?
Yes **No**

007

Go to Step 010.

008

Problem solved.

009

- Check that the service processor LAN cables are correctly connected to the rear of the service processor
- Check that the LAN cables are correctly connected to the service processor access unit.
- If everything is correct continue with Step 010.

010

Go to **Service Processor Problem Determination** in the corresponding *Service Processor Installation and Maintenance* manual.

011

Is the problem only on a 3745?
Yes **No**

012

In the following list, select the unit that has a problem:

Faulty Unit	Action:
3746-900	Restart the problem determination using the *IBM 3746 Nways Multi-protocol Controller Model 900 Service Guide*, SY33-2116.
3746-950	Restart the problem determination using the *IBM 3746 Nways Multi-protocol Controller Model 950 Service Guide*, SY33-2108.
Network Node Processor	Perform the problem determination on the network node processor using the **Network Node Processor Problem Determination** in the corresponding *Network Node Processor Installation and Maintenance*

manual.

Other unit — If you have a unit other than a 3745, 3746-900, or 3746-950 connected to the LAN, refer to the specific documentation of this unit or do the problem determination on the ring using, the *Token-Ring Network Problem Determination Guide*, SX27-3710.

013

Is there a panel code displayed on the 3745 control panel?

Yes **No**

014

Go to "3745 Control Panel Symptoms" on page 1-11.

015

Go to "3745 Control Panel Code" on page 2-32 for control panel code interpretation.

016

You are here because you have transient errors on the service processor LAN .
Does the problem appear on all units connected to the service processor?

Yes **No**

017

Go to Step 019.

018

- Check that the service processor LAN cable is correctly connected to the rear of the service processor.
- Check that all the LAN cables are correctly connected to the service processor access unit.
- Do the problem determination on the ring using, the *Token-Ring Network Problem Determination Guide*, SX27-3710.
- If you do not identify the problem, contact your support center.

019

Is the problem only on a 3745?

Yes **No**

020

Faulty Unit	**Action:**
3746-900	Restart the problem determination using the *IBM 3746 Nways Multiprotocol Controller Model 900 Service Guide*, SY33-2116.
3746-950	Restart the problem determination using the *IBM 3746 Nways Multiprotocol Controller Model 950 Service Guide*, SY33-2108.
Network Node Processor	Perform the problem determination on the network node processor using the **Network Node Processor Problem Determination** in the corresponding *Network Node Processor Installation and Maintenance* manual.
Other unit	If you have a unit other than a 3745, 3746-900, or 3746-950 connected on the LAN, refer to the specific documentation of this unit or do the problem determination on the ring using, the *Token-Ring Network Problem Determination Guide*, SX27-3710.

021

Go to Step 022.

022

- If your are not already logged ON at service processor console, go to “Console Use for Maintenance” on page 1-1 for log ON. Then return here.
- On the **MOSS-E View** window, double-click on the desired 3745 icon.
- Click on **MOSS**.
- On the MOSS screen, enter **ELD** (Event Log Display) and press **Enter** on the service processor keyboard.
- On the next MOSS screen, enter 7 (alarm) and press **Enter** on the service processor keyboard.
- In the list, check the presence of alarms type 11 (link lost) showing a problem on LAN.

Is there an alarm type 11?
Yes **No**

023

Perform the problem determination on the ring using the, *Token-Ring Network Problem Determination Guide*, SX27-3710.

024

- Record the selection number of each alarm 11. Enter this selection number and press the **Enter** key on the service processor keyboard.
- On the next MOSS screen, record the panel code.
- Repeat the two preceding steps for each alarm type 11. Then go to “3745 Control Panel Code” on page 2-32 to interpret the panel codes and continue the procedure.

Chapter 3. How to Run 3745 Diagnostics

Diagnostic Description . . . 3-2
3745 Diagnostics . . . 3-2
Errors During Diagnostics . . . 3-2
Diagnostic Monitoring . . . 3-2
Checkout Diagnostics . . . 3-2
CBA Diagnostic . . . 3-3
CBA Diagnostics from 3745 MOSS Console . . . 3-3
Prerequisites to Run the CBA Test from the 3745 MOSS . . . 3-3
How to Run MOSS Diagnostics . . . 3-4
From the 3745 Console . . . 3-4
From the Control Panel . . . 3-4
How to Loop MOSS Diagnostics . . . 3-5
How to Run the Console Link Test for 3745 Models 130, 150, 160, and 170 . . . 3-6
Local/Remote or Alternate/RSF Link Tests . . . 3-6
How to Run the Control Panel Test . . . 3-8
How to Run Internal Function Tests . . . 3-9
How to Invoke Diagnostics . . . 3-9
How to Select Diagnostics . . . 3-10
Options Menu . . . 3-11
Error Menu . . . 3-12
How to Run the LIC Wrap Test with IFTs . . . 3-13
Install the Wrap Plug . . . 3-13
Start the Diagnostic . . . 3-13
How to Run the Wrap Test (WTT) for TSS, HPTSS, or 3746-900 . . . 3-15
Wrap Test Initial Selection for TSS . . . 3-16
Wrap Test Initial Selection for HPTSS . . . 3-18
Wrap Test Initial Selection for 3746-900 . . . 3-19
Available Wrap Options . . . 3-20
Available Wrap Plugs . . . 3-22
How to Run the Channel Wrap Test . . . 3-25

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Diagnostic Description

3745 Diagnostics

Two groups of diagnostics run on the 3745:

1. Automatic:

   IML/IPL checkout diagnostics including MOSS diagnostics.

2. Controlled:
   - Internal function tests (IFTs)
   - Wrap tests
   - OLTs.

Diagnostics are run during the installation procedure and when a fault is detected to isolate a field-replaceable unit that caused the failure. They are also executed after a repair is performed, to check that the hardware area is working correctly. They must be run before and after an EC or MES has been installed in the area concerned.

Diagnostics may be run in offline mode when the 3745 is fully available or in concurrent mode. In concurrent mode, the diagnostic must be selected in the specific area and will run only in configured units. These units must be available at that time.

Errors During Diagnostics

When the MOSS diagnostic program detects a failure, a three-digit code is displayed on the control panel.

When the internal function tests detect an error, a reference code is posted on the 3745 console.

Diagnostic Monitoring

The controlled diagnostics are monitored by the diagnostic control monitor (DCM) and the command processor (CP).

The diagnostic control monitor is loaded when the diagnostic utility program is selected from the 3745 function menu.

It automatically restricts the diagnostic testing to the elements that are defined in the configuration data file (CDF) and disconnected from the NCP.

Checkout Diagnostics

The checkout diagnostics are designed to test the hardware of the CCU, IOC, Channel Adapter, CSP part of the line adapter, TIC, and the PCC card.

For the CA, LA, and TIC, diagnostics are part of the microcode and are located in the ROS of the adapter itself. They run automatically at power ON time before IML.

The cyclic PCC checkouts run when the machine is powered ON and are successful when the power control and service mode indicators are displayed.

For the CCU and IOC, the diagnostics are located on the disk and run during IPL.

For the CA, TSS, HPTSS, and ESS, they are also automatically run when the internal function tests are started.

For the TIC, the token-ring wrap test is automatically run at each TIC Open command from the NCP. This TIC Internal Lobe Media tests the ring up to the local wiring concentrator (IBM 8228), or up to the point where it is unplugged before the 8228.

If an error is detected, the MOSS analyzes the problem and presents a control panel code or a reference code.

CBA Diagnostic

The link between the 3745 and the 3746-900 is checked via CBA routines invoked from the 3745 MOSS console.

CBA Diagnostics from 3745 MOSS Console: New diagnostic sections are provided to test the 3745/3746-900 interface. These sections must be run **manually and offline**.

- IOC interface is tested by the new section:

  The IDxx section tests the path between the CCU and IOC Bus.
  - ID01: Use of IOC test register.
  - ID02: Test of bad parity
  - ID03: Interrupt test.

  The run time is about 1 minute and 30 seconds.
- DMA interface is tested by a new section XAxx.
  - XA01: DMA test.
  - XA02: Extended DMA test.

  The run time is about 6 minutes per coupler.

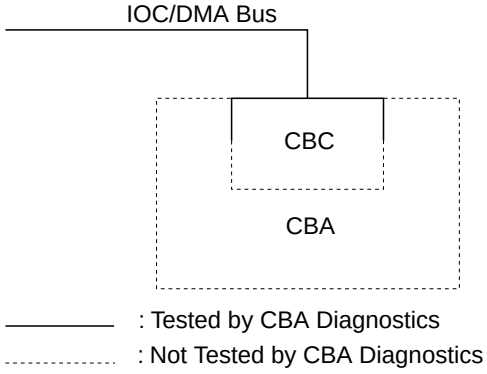


Figure 3-1. CBA Diagnostic Coverage

Prerequisites to Run the CBA Test from the 3745 MOSS

- The 3745 must be powered ON and in offline mode.
- The 3746-900 must be powered ON and in online mode.
- The CBC and the CBSP must **not** be in concurrent mode.
- The CBC and the CBSP must be available in the CDF-E.
- The 3746-900 must be error free.

Refer to Figure 3-1 for the coverage of CBA diagnostics.

How to Run MOSS Diagnostics

These tests can be run without stopping the customer's application.

- Error conditions will result in a control panel code being displayed. Actions for these codes are defined in “3745 Control Panel Codes” on page 1-15.

  or

- Some errors will result in a reference code at IML completion. These types can also be recognized by the panel code displaying **F0D**. Refer to “Using Reference Codes” on page 1-14 for action.

Ensure that the MOSS is offline or alone (look at **MOSS Status Area** on the second line of the console screen) and that service mode (panel) is **0** or **1**.

From the 3745 Console

1. On the 3745 console, select **Menu 1** (see PF key line).
2. In Menu 1, type **IML** in the selection area for **IML MOSS**.
3. After approximately 2 minutes the console will be re-initialized with the **Channel Enable/Disable** screen which indicates that a successful run of MOSS diagnostics and the MOSS IML have been completed.
4. If the console has not been re-initialized, an error was detected.

From the Control Panel

1. Set the function to **MOSS IML**:
   a. Press **Service** until the number **0** or **1** is displayed in the service window. (No bypass of MOSS diagnostics.)
   b. Press **Validate**.
   c. Press **Function** until the number **1** is displayed in the function window.
   d. Press **Validate**.
2. If after approximately 2 minutes the control panel displays code **F0F**, the MOSS diagnostics and a MOSS IML have been successfully completed. Code **F0E** can be displayed if the MOSS was previously **alone** (that is not in **offline mode**).
3. If any other code is displayed, an error was detected.

How to Loop MOSS Diagnostics

If an intermittent MOSS problem is suspected, the **loop MOSS diagnostics** facility can be used as follows:

Ensure that the MOSS is offline or alone (check the **MOSS Status Area**, on the second line of the console screen).

1. Set the service mode to Maintenance 1:
   a. Press **Service** until the number **1** is displayed in the service window.
   b. Press **Validate**.
2. Set the function to loop on MOSS diagnostics:
   a. Press **Function** until the digit **A** is displayed in the function window.
   b. Press **Validate**.
3. The MOSS diagnostics will run continuously unless an error is detected. Usually 5 to 10 minutes of error free operation are sufficient to determine whether the MOSS is working satisfactorily. If an error is detected, a panel code will be permanently displayed. Therefore, go to "3745 Control Panel Codes" on page 1-15. Gentle vibration of the MOSS cables and cards (while the test is running), will locate most loose connection problems.

   If no error is detected:
4. Set the function to MOSS IML:
   a. Press **Function** until **1** is displayed in the function window.
   b. Press **Validate**.
5. When the control panel displays **F0F** (or **F0E** if the MOSS was previously **alone**), perform a MOSS online. Refer to "How to Put the MOSS Online" on page 4-105.

How to Run the Console Link Test for 3745 Models 130, 150, 160, and 170

This function is available for 3745 Models 130, 150, 160, and 170 only.

This function tests the customer's console ports with wrap plugs which may be installed at the end of the cable. They are attached to either the local console, the remote console modem, or the RSF link modem. The wrap plugs can also be installed at the connectors for these cables in the 3745 (not possible with the 3727 console cable).

This test can be run without stopping the customers application.

Local/Remote or Alternate/RSF Link Tests

1. Ensure that the customer is not using any of the 3745 consoles and also confirm the availability of MOSS.
2. Set the power control to local:
   a. Press **Power Control** until **3** is displayed in the power control window.
   b. Press **Validate**.
3. Set Service mode to Maintenance 1:
   a. Press **Service** until the number **1** is displayed in the service window.
   b. Press **Validate**.

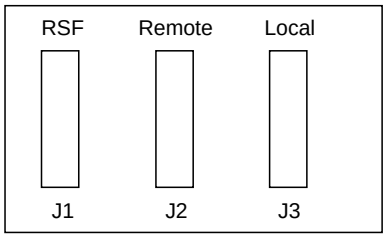


Figure 3-2. Console Output

4. We advise you to start the wrap plugging from the far end of the DCE interface cable. Refer to Figure 3-3 on page 3-7 for the different cable configurations.
5. Remove the DCE interface cable from the console, modem, or console switch (the DCE interface cable may be connected directly to the DCE, or to an intermediate "adapter". **In the second case remove the the DCE interface cable from the "adapter"**).
6. Connect the appropriate wrap plug to the end of the cable.

   Wrap plug to be used according to the DCE interface cable and to the console:

   - DCE interface cable between the 3745 and the console/modem **without** an intermediate "adapter" (**A** in Figure 3-3).

     Use wrap plug PN 6398697.
   - DCE interface cable between the 3745 and the console/modem **with** an intermediate "adapter" (**B** in Figure 3-3).

     Use the wrap plug PN 2667737.
   - DCE interface cable between the 3745 and the console switch (7427) (**C** in Figure 3-3).

     Use the wrap plug PN 2667737.
   - DCE interface cable between the console with the (7427) and the console/modem (**D** in Figure 3-3).

     Use the wrap plug PN 6398697 for a console 31XX or the wrap plug PN 2667737 for a 3727 console.

   Important:

   The cable connecting to the alternate console must be tested on the **Local** output with the test option **8**.

   OR

   Open the rear cover of the 3745 base frame. Remove the appropriate cable (if installed) from the output and connect the wrap plug PN 6398697. See Figure 3-2.
7. Set the function to the link test required: either remote/alternate, RSF, or local:
   a. Press **Function** until **6**, **7** or **8** is displayed in the function window.
      - 6 (remote/alternate)
      - 7 (RSF)
      - 8 (Local).
   b. Press **Validate**.
8. After a partial MOSS IML the following panel codes will be displayed:
   a. LOCAL.
      1B1: Start of test
      1B2: Successful completion of test.
   b. REMOTE/ALTERNATE
      1B3: Start of test
      1B4: Successful completion of test.
   c. RSF
      1B5: Start of test
      1B6: Successful completion of test.

If any other panel code is displayed, disconnect the wrap plug. Go to "3745 Control Panel Codes" on page 1-15 and follow the instructions.

9. Disconnect the wrap plug and reconnect the cable.
10. Set service mode to NORMAL:
    a. Press **Service** until **0** is displayed in the function window.
    b. Press **Validate**.
11. Set the function to MOSS IML:
    a. Press **Function** until **1** is displayed in the function window.
    b. Press **Validate**.
12. When the control panel displays **F0F** or **F0E** if the MOS was previously **alone**), perform a MOSS online. Refer to "How to Put the MOSS Online" on page 4-105.
13. The console link test has completed with no error detected.

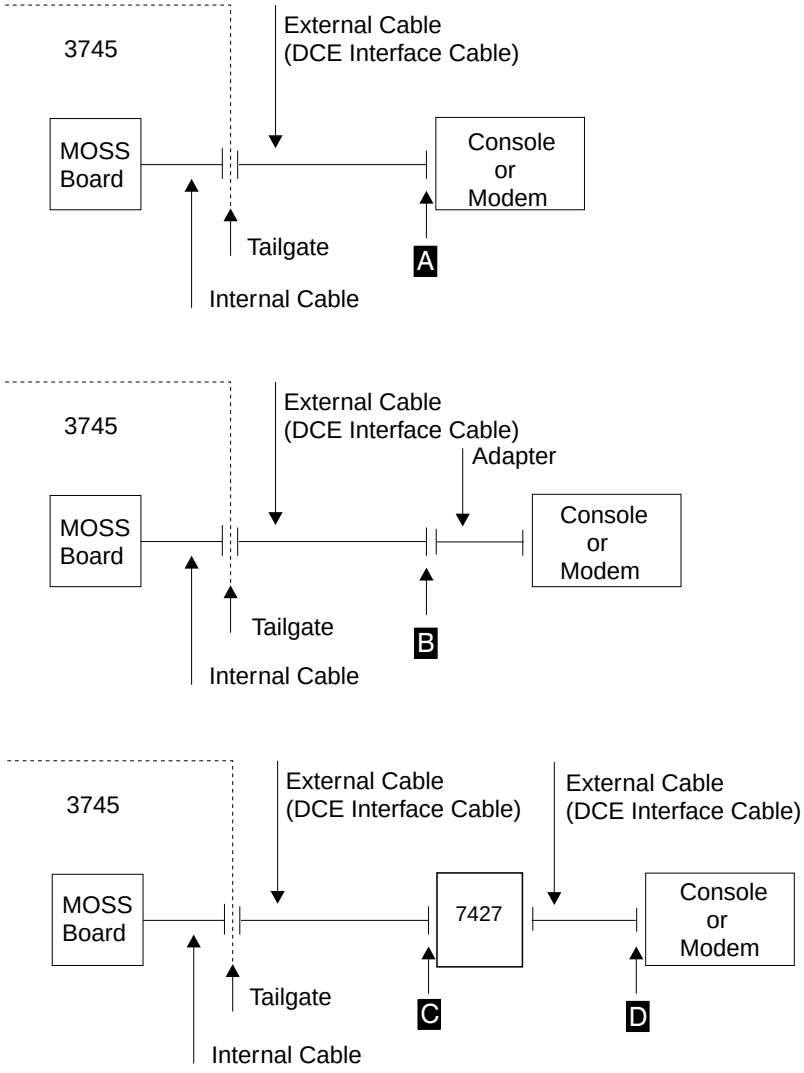


Figure 3-3. Cable Configurations

How to Run the Control Panel Test

This test can be run without stopping the customers application.

This test is not a sequential test and can be cancelled at any time by pressing **Exit**.

Notes:

1. Any inactivity (during the panel test), of approximately 60 seconds will result in the test being automatically cancelled and the panel will return to operational mode.
2. During this test, the control panel audible alarm will sound for each action.

The **special character** can be described as when every possible segment of the window is being lit:

1. Set the power to local:
   a. Press **Power Control** until **3** is displayed in the power control window.
   b. Press **Validate**.

      If the above action cannot be performed, go to Step 11.
2. Set Service mode to Maintenance 1:
   a. Press **Service** until the number **1** is displayed in the service window.
   b. Press **Validate**.

      If the above action can not be performed go to Step 11.
3. Set Function to panel test:
   a. Press **Function** until **5** is displayed in the function window.
   b. Press **Validate**.

      If the above action can not be performed go to Step 11.

   Observe the display: All 10 special characters will be displayed.

   If the pattern is not identical for each figure, go to Step 11.

   Note: If during the following steps the function window displays the digit **5**. The the control panel has detected its own failure. Continue at Step 11.
4. Press **Function**.

   Observe the display: The **Function** window **special character** will be displayed. Repetitive action will scroll through the Code window sequentially and wrap around.

   If this does not occur, go to Step 12.
5. Press **Service**.

   Observe the display: The **Service** window **special character** will be displayed. Repetitive action will scroll through the **Power Control** window and wrap around.

   If this does not occur, go to Step 12.
6. Press **Power Control**.

   Observe the display: The **Console in Use** window **special character** will be displayed. Repetitive action will scroll through the **All CA Disabled MOSS Inop** and the **MOSS Msg** windows sequentially and wrap around.

   If this does not occur, go to Step 12.
7. Press **Power On Reset**.

   Observe the display: The digit **8** will be displayed in the **Function** window.

   If this does not occur, go to Step 12.
8. Press **Power Off**.

   Observe the display: The display will be completely blank.

   If this does not occur, go to Step 12.
9. Press **Exit**.

   Observe the display: The display will present the **Power Control** and **Service Mode** indicating that the test is complete, and the panel has returned to operational mode.

   If this does not occur, go to Step 12.
10. **The control panel test has completed with no error detected. Discard Steps 11 and 12** . Return to the procedure where you come from.
11. Exchange the FRU group **35**. Go to “3745 FRU Group Table” on page 1-49.
12. Exchange the FRU group **10**. Go to “3745 FRU Group Table” on page 1-49.

How to Run Internal Function Tests

How to Invoke Diagnostics: On the 3745 console, press F5 in Menu 1 to display the maintenance function Menu (Menu 3).

```
CUSTOMER ID:                          3745            SERIAL NUMBER:
CCU-A SELECTED PROCESS MOSS-OFFLINE     X71:020415
                                        X72:000085


------------------------------------------------------------- 01/12/87 04:29
                                  MENU 3

      MISUSE OF MAINTENANCE FUNCTIONS MAY LEAD TO UNPREDICTABLE RESULTS

BER CORRELATION..: BRC      MODULE DISPLAY...: MDD     TSS SERVICES.....: TSS
CADS SERVICES....: CAS      MOSS STORE DSPLY.: MSD     TRSS SERVICES....: TRS
CONCURRENT DIAGS.: CDG      OFFLINE DIAGS....: ODG
DUMP DISPLAY/DEL.: DDD      POWER SERVICES...: POS



                             ENTER OFF TO LOG OFF
===>

F1:END  F2:MENU2   F3:ALARM       F4:MENU1                     F6:RULES
```

Figure 3-4. Maintenance Functions Menu

See Figure 3-4.

In this menu, two options are available to run diagnostics:
Notes:

1. **CDG** to run diagnostics in **concurrent diagnostics mode.**

   Selected diagnostics will run if the adapter is available (ask the customer to disconnect the related resources), and only the sections or routines allowed to run in concurrent mode will be called without interfering the 3745 operation.

   For channel diagnostics:

   Diagnostics must be used in CDG mode if more than one CA is present **and** if CCU + NCP are running. If it is not the case, use ODG.

2. **ODG** to run diagnostics in **offline mode** when the 3745 is fully available for maintenance.

   Selected diagnostics will run whatever the status of the adapter.
   For channel diagnostics, all the channel interfaces must be disabled.

   ODG must be used if conditions for concurrent maintenance mode are not met (no NCP or CCU running).

- Based on the previous notes, **Type ODG or CDG after ===> and press SEND.**
- Continue with “How to Select Diagnostics” on page 3-10.

How to Select Diagnostics

```
CUSTOMER ID:                          3745            SERIAL NUMBER:
CCU-A SELECTED PROCESS MOSS-OFFLINE     X71:020415
                                        X72:000085



------------------------------------------------------------- 03/07/87 00:21
FUNCTION ON SCREEN: OFFLINE DIAGS
GROUP :ADP# :LINE :
1 ALL :     :     :
2 CCU : A- B:     :
3 IOCB: 1- 4:     :
4 CA  : 1-16:     :
5 TSS : 1-32: 0-31:
6 TRSS: 1- 6: 1- 2:
7 HTSS: 1- 8:     :
8 OLT : 1-16:     :                              DIAGNOSTICS INITIALIZATION
9 ESS : 1- 8:     :
X0 CBA : 1- 2:
OPT=  Y IF MODIFY :

OPTION REQUIRED   :
                  : ENTER REQUEST ACCORDING TO THE DIAG MENU
                  : DIAG==>       ADP#==>     LINE==>     OPT==>
===>

F1:END  F2:MENU2  F3:ALARM
```

Figure 3-5. How to Select Diagnostics

After entering **ODG** or **CDG** in **Menu 3**, the diagnostic menu is displayed. See Figure 3-5.

Four input fields are available in this menu:

- **DIAG==>** Diagnostic group (1-10), IFT, section, or routine to be run.

  Example:

  – **2** (full set of CCU IFTs)
  – **K** (section K of IOC diagnostics)
  – **AC01** (specific routine of CCU diagnostics)

  Note

  If you select **3** (IOCB) with **no** adapter installed, a warning will be reported (invalid request).

- **ADP#==>** Adapter number
- **LINE==>** Line number for TSS, TRSS, HPTSS, or ESS. The line number is obtained from the **LID** function (in Menu 1) by entering the line address.
- **OPT==> Y** to display the option menu.

If the **ALL** option is entered, diagnostics will be run on all adapters in the CDF and disconnected from the NCP.

Note

Do **not** select **ALL** when a channel adapter and an Ethernet adapter are installed. An error will be reported on the Ethernet adapter.

Type your request in the input fields and press SEND.

If OPT==>**Y** is entered, the option menu is displayed. See Figure 3-6 on page 3-11. If not, the diagnostic is started and the diagnostic result is displayed in this frame.

Options Menu

```
CUSTOMER ID:                            3745            SERIAL NUMBER:
CCU-A SELECTED PROCESS MOSS-OFFLINE       X71:020415
                                          X72:000085



------------------------------------------------------------- 03/06/87 00:15
FUNCTION ON SCREEN: OFFLINE DIAGS
                  :
R RERUN REQUEST   :
A ABORT ROUTINE   :
C CANCEL REQUEST  :
G GO              :
M MODIFY OPTIONS: :
 S/LS/AL/ALS/B/DM :
 NW/W             : START 09:58:15
 C1/CNNN/C        : REQUEST: CCU                 DIAGNOSTICS INITIALIZATION
 R1/RNNN          : OPTIONS: S   NW C1   R1    BR
 BR/NBR           :
                  : ENTER REQUEST ACCORDING TO THE DIAG MENU
                  : ==>M R2
===>

F1:END  F2:MENU2  F3:ALARM
```

Figure 3-6. How to Enter Options

When the OPT field is set to **Y** in the diagnostic menu, the options menu is displayed. See Figure 3-6.

The default options are automatically displayed.

Options:	**Meaning**
S	Stop on first error.
LS	Loop on first error with stop.
AL	Automatic loop on error.
ALS	Automatic loop on error with new error stop.
B	Bypass error stop.
DM	Display multiple errors.
NW	No wait before execution of each routine.
W	Wait before execution of each routine.
C1/CNNN/C	Cycle request option.
R1/RNNN	Repeat routine option.
BR/NBR	BER recording option.

1. Enter or modify the option using the **M** function followed by the option or options needed (for example : **M C5 DM** will cause your request to cycle 5 times and display multiple errors).

   Only one option per line of the menu can be selected. If more than one option is entered, only the last one is accepted.

2. Press **SEND**

   Restart the same procedure to enter the other options if needed.

3. Enter **G**

4. Press **SEND.**

   The diagnostic is started and the diagnostic result is displayed on this frame.

   If an error is detected, an error message is displayed. See Figure 3-7 on page 3-12.

Error Menu

```
CUSTOMER ID:                            3745            SERIAL NUMBER:
CCU-A SELECTED PROCESS MOSS-OFFLINE       X71:020415
                                          X72:000085



------------------------------------------------------------- 03/01/87 10:17
FUNCTION ON SCREEN: OFFLINE DIAGS
                  : ****************                FRU REMOVAL ==> POWER OFF
R RERUN REQUEST   : *RH B3032208 *
A ABORT ROUTINE   : *RAC 8050A0000 * ERR BIT  FFFFFF02
C CANCEL REQUEST  : * ERC AC010701 *                        ERROR COUNT 00001
GO                : ****************
M MODIFY OPTIONS: :
S/LS/AL/ALS/B/DM  :
NW/W              : START 10:13:46  STOP 10:18:02
C1/CNNN/C         : REQUEST: AC                   CCU DIAG  RUNNING
R1/RNNN           : OPTIONS: S   NW C1   R1    NER     ROUTINE AC01 ADP 0A
BR/NBR            :
                  : ENTER REQUEST ACCORDING TO THE DIAG MENU
                  : ==>
===>              ***ERROR FOUND***

F1:END  F2:MENU2  F3:ALARM
```

Figure 3-7. Error Menu

Note: The RH field contains the **reference code**.

How to Run the LIC Wrap Test with IFTs

Install the Wrap Plug:

- **For HPTSS**

  Install the wrap plug PN 58X9349 for V35 or PN 58X9354 for X.21 on the tailgate connector.

- **For ESS**

  Install the wrap plug PN 70X8670 on the tailgate connector.

- **For LIC Types 1 and 4**

  Install the wrap plug PN 65X8927 on the LIC connector. See Figure 3-8 and Figure 3-10 on page 3-23.

- **For LIC Type 3**

  Install the wrap cable PN 65X8928 between the two sockets. See Figure 3-9 and Figure 3-10 on page 3-23.

  Notes:

  1. To fully test the port (all control leads) install the wrap cable and run the test.
  2. Reverse the wrap cable ends (between the DCE and direct attach connector).
  3. Repeat the test.

- **For LIC Types 5 and 6**

  1. Unplug the line cable at the customer wall frame.
  2. Install the appropriate wrap plug (see following list) at the end of the cable or unplug the line cable from both ends.
  3. Install the wrap plug PN 11F4815 at the tail gate connector (the line cable must be unplugged from wall frame for line loading reasons.). See Figure 3-11 and Figure 3-12 on page 3-24.

LIC Types 5 and 6 Wrap Plug Country Part Number

Country	Part Number
Austria	6162946
Belgium	6162950
France	6162955
Germany	6162950
Hong Kong	65X8070
Israel	66X1954
Italy	6162957
Japan	6124644
Luxemburg	6162950
Netherlands	6162948
Switzerland	66X0748
U.K.	65X8069
U.S.A./Canada	66X0807

Start the Diagnostic

- **For HPTSS**

  1. Update the CDF to indicates that the lines to be tested have wrap plugs installed. Refer to *IBM 3745 Service Functions*.
  2. Using “How to Run Internal Function Tests” on page 3-9, enter the following:
     a. Diagnostic group **7** in the DIAG==> area.
     b. Adapter number in the ADP#==> area.
  3. Press **SEND**.

- **For ESS**

  1. Using “How to Run Internal Function Tests” on page 3-9 enter the following:
     a. Diagnostic group **9** in the DIAG==> area.
     b. Adapter number in the ADP#==> area.
  2. Press **SEND**.

- **For LIC Types 1, 3, and 4**

  Using “How to Run Internal Function Tests” on page 3-9, enter the following:

  1. Routine number **RC01** in the DIAG==> area.
  2. Adapter number in the ADP#==> area.
  3. Line number in the LINE==> area. You may obtain the line number from the **LID** function (in Menu 1) by entering the line address.
  4. Press **SEND**.

- **For LIC Types 5, and 6**

Using “How to Run Internal Function Tests” on page 3-9 enter the following :

1. Routine number **RH59** in the DIAG==> area.
2. Adapter number in the ADP#==> area.

3. Line number in the LINE==> area. You may obtain the line number from the **LID** function (in Menu 1) by entering the line address.
4. Press **SEND**.

How to Run the Wrap Test (WTT) for TSS, HPTSS, or 3746-900

Attention: The MOSS must be online to start this procedure.

1. Select **Menu 1**.
2. Type **WTT**
3. Press **SEND/ENTER**.

The Wrap Test Initial Selection screen is displayed:

```
CUSTOMER ID:                            3745-xxx         SERIAL NUMBER:
CCA-A          PROCESS MOSS-ALONE          X71:0A0800
RESET     BYP-IOC-CHK STOP-CCU-CHK         X72:0BC800




------------------------------------------------------------------ mm/dd/yy hh:mm
FUNCTION ON SCREEN: WRAP TEST
              WRAP TEST INITIAL SELECTION

- SELECT THE COMMUNICATION SUBSYSTEM (1, 2, 3) ==>

    1 = TSS

    2 = HPTSS

    3 = 3746-900



THEN PRESS ENTR
===>

F1:END  F2:MENU2
```

If you select:

- **1** = TSS: Go to “Wrap Test Initial Selection for TSS” on page 3-16
- **2** = HPTSS: Go to “Wrap Test Initial Selection for HPTSS” on page 3-18
- **3** = 3746-900: Go to “Wrap Test Initial Selection for 3746-900” on page 3-19

Wrap Test Initial Selection for TSS

Follow the instructions in the following screen.

```
CUSTOMER ID:                          3745-xxx         SERIAL NUMBER:
CCA-A          PROCESS MOSS-ALONE        X71:0A0800
RESET     BYP-IOC-CHK STOP-CCU-CHK       X72:0BC800




------------------------------------------------------------- mm/dd/yy hh:mm
FUNCTION ON SCREEN: WRAP TEST
              WRAP TEST INITIAL SELECTION FOR TSS

- SELECT ONE OPTION (1,2)  ==> (A)

    1 = AUTOMATIC WRAP TEST ON LIC UNIT

    2 = WRAP TEST AT ANY LEVEL



  THEN PRESS SEND
===>

F1:END  F2:MENU2  F3:ALARM
```

(A) Enter 1 or 2 here to select the wrap test option.

Option 1: Follow the instructions in the following screen.

```
CUSTOMER ID:                          3745-xxx         SERIAL NUMBER:
CCA-A          PROCESS MOSS-ALONE        X71:0A0800
RESET     BYP-IOC-CHK STOP-CCU-CHK       X72:0BC800


------------------------------------------------------------- mm/dd/yy hh:mm
FUNCTION ON SCREEN: WRAP TEST
             AUTOMATIC WRAP TEST ON LIC UNIT

- ENTER A LINE ADDRESS OF THE LIC (0000-0895) ==> (B)


 WARNING: ALL LINES OF THE LIC MUST BE DISABLED/DEACTIVATED




===>

F1:END  F2:MENU2  F3:ALARM      F4:WRAP TEST INITIAL SELECTION
```

(B) Enter the line address here.

Option 2: Follow the instructions in the following screen and select the wrap level **4** (tailgate).

```
CUSTOMER ID:                            3745-xxx         SERIAL NUMBER:
CCA-A          PROCESS MOSS-ALONE          X71:0A0800
RESET     BYP-IOC-CHK STOP-CCU-CHK         X72:0BC800


------------------------------------------------------------- mm/dd/yy hh:mm
FUNCTION ON SCREEN: WRAP TEST
              WRAP TEST INITIAL SELECTION FOR TSS

- ENTER LINE ADDRESS (0000-0895) ==> (B)

- ENTER WRAP TYPE (1 to 2)  ==>
    1 = DATA
    2 = CONTROL LEADS

- ENTER WRAP LEVEL (1 to 4) ==> (C)
    1 = LOCAL MODEM                 4 = TAILGATE
    2 = NTT CABLE (TSS ONLY)
    3 = LIC (DATA WRAP ONLY)

       LINE(S) TO BE TESTED MUST BE DISABLED/DEACTIVATED
===>

F1:END  F2:MENU2  F3:ALARM    F4:INITIAL SELECTION
```

(B) Enter the line address here.

(C) Enter **4** here to select the tailgate level

- **For LIC Types 1, and 4**

  Install the wrap plug PN 65X8927 on the LIC connector. See Figure 3-8 on page 3-23 and Figure 3-10 on page 3-23.

- **For LIC Type 3**

  Install the wrap cable PN 65X8928 between the two sockets. See Figure 3-9 on page 3-23 and Figure 3-10 on page 3-23.

  Notes:

  1. The test must be run a second time with the wrap cable reversed end to end.
  2. If you are working on a line adapter with one line at 256 kbps connected to and at least one other line, and if these lines are initialized at the NCP activation, you are not allowed to run the WTT on these lines.

- **For LIC Types 5, and 6**

  1. Unplug the line cable at the customer wall frame.
  2. Install the appropriate wrap plug (see following list) at the end of the cable or unplug the line cable from both ends.
  3. Install the wrap plug PN 11F4815 at the LIC connector (the line cable must be unplugged from the wall frame when necessary for telephone line loading reason). See Figure 3-11 on page 3-24 and Figure 3-12 on page 3-24.

LIC Types 5 and 6 Wrap Plug Country Part Number

Country	Part Number
Austria	6162946
Belgium	6162950
France	6162955
Germany	6162950
Hong Kong	65X8070
Israel	66X1954
Italy	6162957
Japan	6124644
Luxemburg	6162950
Netherlands	6162948
Switzerland	66X0748
U.K.	65X8069
U.S.A./Canada	66X0807

Wrap Test Initial Selection for HPTSS

Follow the instructions in the following screen.

```
CUSTOMER ID:                            3745-xxx         SERIAL NUMBER:
CCA-A          PROCESS MOSS-ALONE          X71:0A0800
RESET     BYP-IOC-CHK STOP-CCU-CHK         X72:0BC800


------------------------------------------------------------------ mm/dd/yy hh:mm
FUNCTION ON SCREEN: WRAP TEST
              WRAP TEST INITIAL SELECTION FOR HPTSS

- ENTER LINE ADDRESS (1024-1039) ==> (B)

- ENTER WRAP TYPE (1 to 2)  ==>
    1 = DATA
    2 = CONTROL LEADS

- ENTER WRAP LEVEL (1 to 4) ==> (C)
    1 = LOCAL MODEM (DATA WRAP ONLY)  4 = TAILGATE
    2 = REMOTE MODEM (DATA WRAP ONLY)
    3 = INTERNAL

       LINE(S) TO BE TESTED MUST BE DISABLED/DEACTIVATED
===>

F1:END  F2:MENU2                 F4:INITIAL SELECTION
```

(B) Enter the line address here.

(C) Enter **4** here to select the tailgate level.

For HPTSS

Install the wrap plug PN 58X9349 for V.35 or PN 58X9354 for X.21 on the tailgate connector.

Wrap Test Initial Selection for 3746-900

Follow the instructions in the following screen.

```
CUSTOMER ID:                          3745-xxx         SERIAL NUMBER:
CCA-A          PROCESS MOSS-ALONE        X71:0A0800
RESET     BYP-IOC-CHK STOP-CCU-CHK       X72:0BC800


---------------------------------------------------------------- mm/dd/yy hh:mm
FUNCTION ON SCREEN: WRAP TEST
             WRAP TEST INITIAL SELECTION FOR 3746-900

- ENTER LINE ADDRESS (2112-3135) ==> (A)     CCU (A, B) ==>

- ENTER WRAP TYPE (1 to 2)  ==> (B)
    1 = DATA
    2 = CONTROL LEADS

- ENTER WRAP LEVEL (1 to 5) ==> (C)
    1 = LOCAL MODEM                    4 = NTT CABLE
    2 = REMOTE MODEM (DATA WRAP ONLY)  5 = WRAP PLUG
    3 = INTERNAL

       LINE(S) TO BE TESTED MUST BE DISABLED/DEACTIVATED
===>

F1:END  F2:MENU2                 F4:INITIAL SELECTION
```

(A) Enter the line address here.

(B) Select the required option.

Notes:

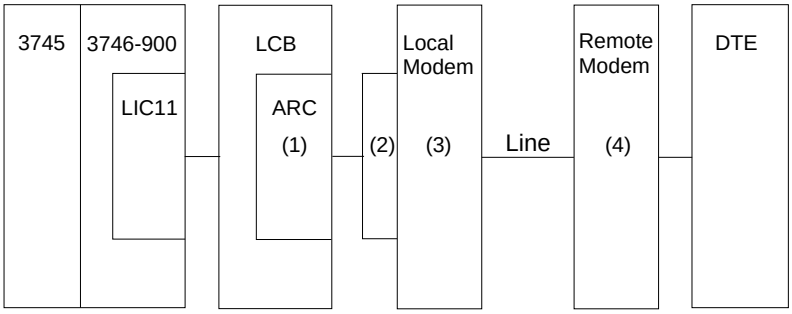
1. The control leads option is not valid when requesting the local and remote modem wrap level on LIC12.
2. On LIC16 the control leads option is not available.

(C) Enter the desired wrap option
(see “Available Wrap Options” on page 3-20).

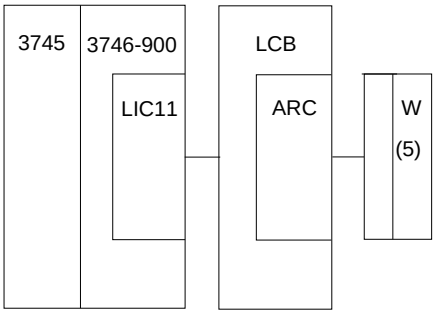
- The following screens prompt you:
  - To enter the numbers of wraps.
  - To install (if necessary) the wrap plug according to the entity tested (see “Available Wrap Plugs” on page 3-22).

Available Wrap Options

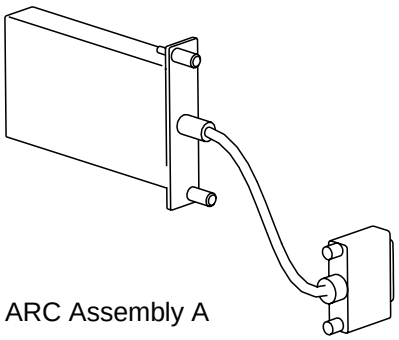
Wrap Option Available on LIC11



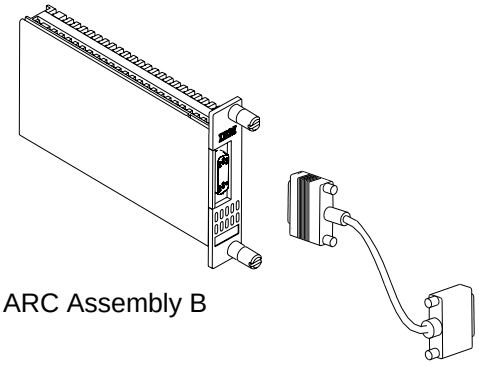
- (1) Internal level wrap
- (2) NTT cable wrap
- (3) Local modem level wrap
- (4) Remote modem level wrap



- (5) ARC Wrap plug for testing the ARC and its cable. Select the appropriate ARC wrap plug according to the type of ARC (see Table 3-1 on page 3-22).



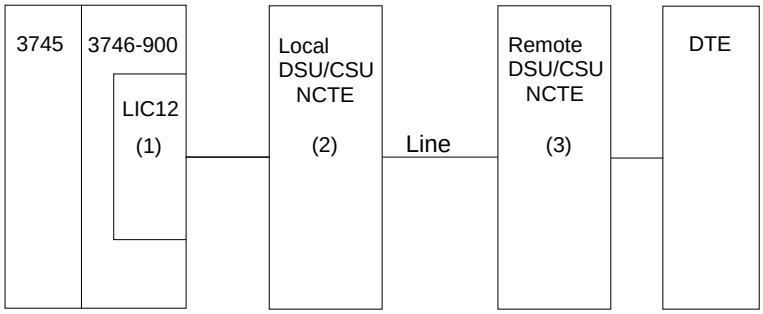
ARC Assembly A



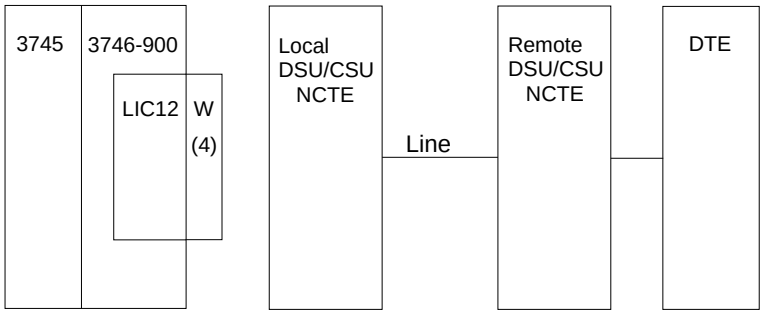
ARC Assembly B

Note: With ARC assembly B (with a detachable cable) an additional wrap plug allows testing of the ARC only (see Table 3-3 on page 3-22).

Wrap Option Available on LIC12

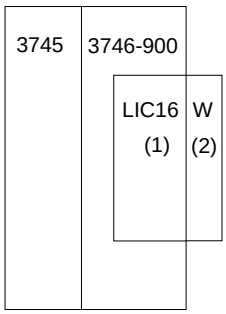


- (1) Internal level Wrap
- (2) Local DSU/CSU or NCTE wrap
- (3) Remote DSU/CSU or NCTE wrap



- (4) LIC12 wrap plug

Wrap Option Available on LIC16



- (1) LIC16 internal level wrap
- (2) LIC16 wrap plug

Available Wrap Plugs

Table 3-1. Wrap Plugs for Testing ARC Assembly A and ARC Assembly B (with Cable)

ARC Type	Wrap Plug PN
ARC V.24 DTE	61F4523
ARC V.24 DCE	61F4522
ARC V.35 DTE	61F4527
ARC V.35 DCE	61F4526
ARC/3745 V.24 DTE	61F4525
ARC/3745 V.24 DCE	61F4525
ARC/3745 V.35 DTE	61F4578
ARC/3745 V.35 DCE	61F4528

Table 3-2. Wrap Plugs for LIC Testing

LIC Type	Wrap Plug PN
LIC11	58G9425
LIC12 for X.21	58X9354
LIC12 for V.35	58X9349
LIC16	57G8097

Table 3-3. Wrap Plugs for Testing ARC Assembly B (without Cable)

ARC	Wrap Plug PN
ARC V.24	58G5660
ARC V.35 non 3745	58G5661
ARC V.35 3745	58G5659
ARC X.21	58G5662

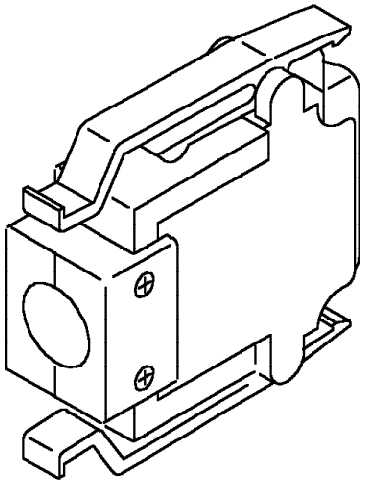


Figure 3-8. LICs Type 1 and 4 (Wrap Plug PN 65X8927)

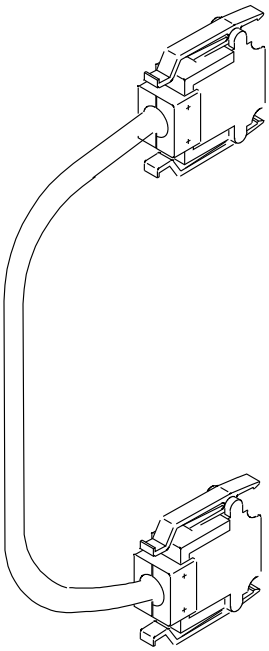
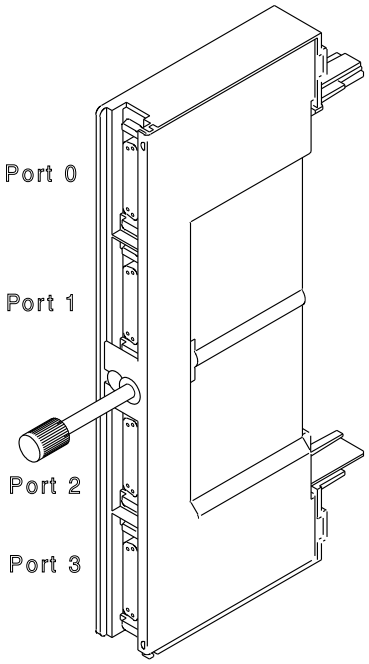
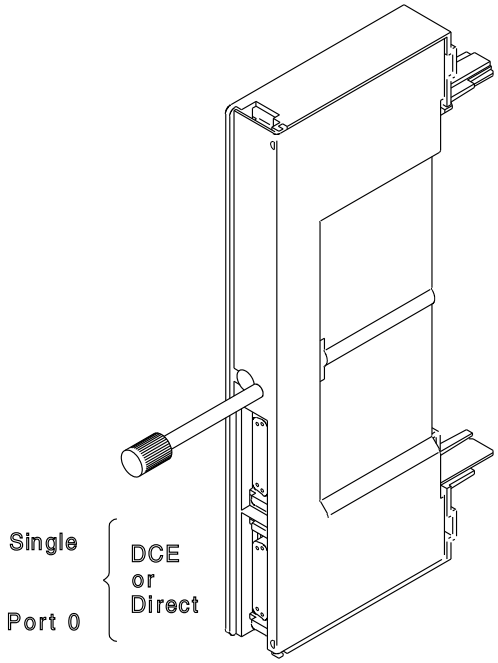


Figure 3-9. LIC Type 3 (Wrap Cable PN 65X8928)



Type	KNOB Color
LIC1	Brown
LIC4A	Green
LIC4B	Green



Type	KNOB Color
LIC3	Blue

Figure 3-10. LIC Types 1, 3, and 4

Note: On LIC4B, only the port 0 is used.

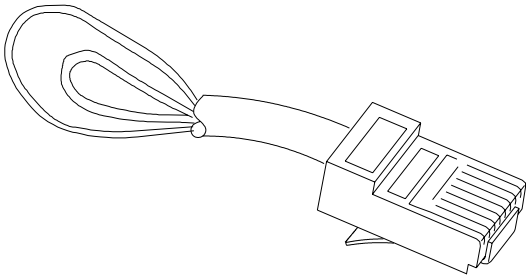
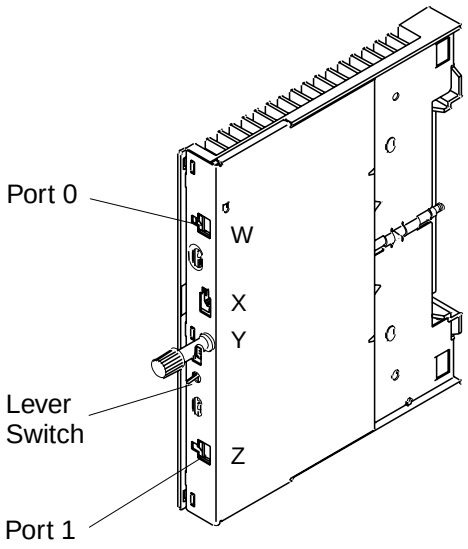
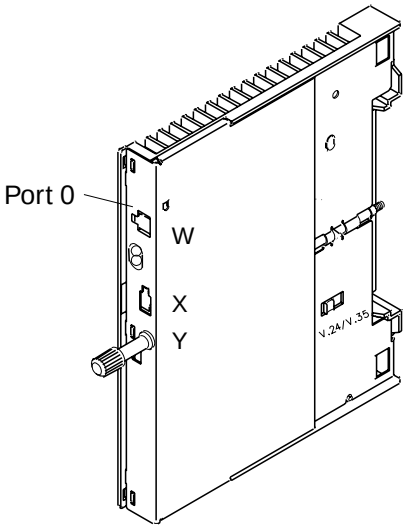


Figure 3-11. LICs Type 5 and 6 (Wrap Plug PN 11F4815)



TYPE	Knob Color
LIC5	Black



TYPE	Knob Color
LIC6	Black

Figure 3-12. LIC Types 5 and 6

How to Run the Channel Wrap Test

Note: Do not start the IFT L001 with the wrap plug already installed. Install or remove the wrap plug when directed by the MOSS console.

1. **Ask the customer to disable the channel related to the channel adapter to be tested with the Channel Wrap Test.**
2. Select option **ODG** or **CDG** from the maintenance function menu.
3. Enter the following:
   - Routine number **LO01** in the DIAG==> area.
   - Channel adapter number in the ADP#==> area.
4. Press **SEND**.
5. Two models of wrap plugs can be used for this test:
   - Bus PN 03F4301 and Tag PN 03F4300

     or
   - Bus PN 26F1755 and Tag PN 26F1754

   You will be asked for the wrap tools P/N you are using.
6. Messages on the screen will prompt you for the required actions.
7. Refer to Figure 4-27, Figure 4-28 and to Table 4-8 on page 4-25 to remove the interface cables.
8. When you requested by the diagnostic, remove the interface cables and install the wrap plugs.

   In order to allow the customer to use the channel during test time, you have to connect the cables together or to the terminators.
9. Ensure that the 'Select Out Bypass' switch is in the 'NORMAL' position.

   Depending the wrap plugs used, follow one of these two actions:

   - If using the channel wrap plugs:

     PN 03F4300 (for Tag)
     and PN 03F4301 (for Bus)

     Install them for interface A in the IN ROW (dark grey) and the CA terminators:

     PN 2282676 (for Tag)
     and PN 2282675 (for Bus)

     In the OUT ROW (light grey).
   - If using the channel wrap plugs :

     PN 26F1754 (for Tag)
     and PN 26F1755 (for Bus)

     Two installations must be done, one after the other (when requested by messages on the screen):

     Step 1 - Install the wrap plugs for interface A in the IN ROW (dark grey), and the CA terminators:

     PN 2282676 (for Tag)
     and PN 2282675 (for Bus)

     In the OUT ROW (light grey).

     Step 2 - Install the wrap plugs in the OUT ROW (light grey) and leave the IN ROW (dark grey) free (CA terminators have not to be used).
10. You will be asked to install the wrap plugs on the interface connectors B if the TPS feature is installed on this channel. In this case repeat the action as for interface A.

Chapter 4. 3745 FRU Exchange

This chapter is to be used to exchange a defined FRU. Use all section from the begining to the end, to determine:

1. Where the FRU is physically located
2. How to properly exchange FRUs
3. How to test the machine
4. What else must be done before returning the machine to the customer.

Exchange Precautions

1. Most of the 3745 FRUs can be exchanged in concurrent maintenance. Thus, it is **very important** that these procedures be followed when replacing any FRU in the machine.
2. The control panel has voltage present even with the machine Powered OFF.
3. Ensure that the 3745 is powered OFF before replacing any FRUs, except for hot-pluggable FRUs (LIC,MUX) and the separated power-controlled FRUs (FDD and HDD).
4. **Before starting the FRU exchange, ensure that the involved area has been disabled by the customer.**
5. The 3745 Communication Controller contains cards that are sensitive to electrostatic discharge (ESD). Use the ESD kit and store all cards in their protective packaging when you are not actually exchanging them.
6. Procedures for exchanging FRUs are listed on the next pages. Use the list in alphabetical order.
7. After the 3745 FRU exchange, go to “Action to Take After a Diagnostic Run or an FRU Exchange” on page 4-99.

Attention

Do not disassemble or attempt to remove FRUs from the 3745 until you have read the **Safety Information** manual, GA33-0400.

Very important

Ensure that the required area has been disabled

before any FRU exchange

if not, go to start page and follow the appropriate procedure.

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List of 3745 FRUs

Basic BOARD	Use the “Basic Board Exchange Procedure” on page 4-77.
LIC BOARD type 1 and 3	Use the “LIC Board Type 1 and 3 Exchange Procedure” on page 4-84.
LIC BOARD type 2	Use the “LIC Board Type 2 Exchange Procedure” on page 4-88.
MOSS BOARD	Use the “MOSS Board Exchange Procedure” on page 4-92.
BPC	Use the “Card Exchange Procedure” on page 4-34.
Battery	Use the “Battery Exchange Procedure” on page 4-48.
CADR	Use the “Card Exchange Procedure” on page 4-34.
CAL6	Use the “Card Exchange Procedure” on page 4-34.
CAL7	Use the “Card Exchange Procedure” on page 4-34.
Channel Tailgate	Use the “Channel Tailgate Exchange Procedure” on page 4-96.
Control Panel	Use the “Control Panel Exchange Procedure” on page 4-46.
CSC	Use the “Card Exchange Procedure” on page 4-34.
CSP	Use the “Card Exchange Procedure” on page 4-34.
DCREG	Use the “DCREG Exchange Procedure” on page 4-38.
DFA	Use the “Card Exchange Procedure” on page 4-34.
DMUX	Use the “DMUX Exchange Procedure” on page 4-39.
EAC	Use the “Card Exchange Procedure” on page 4-34.
EPO Box	Use the “EPO Exchange Procedure” on page 4-73.
ESS Tailgate	Use the “ESS Tailgate Exchange Procedure” on page 4-64.
Fan1	Use the “Fan 1 Exchange Procedure” on page 4-50.
Fan2	Use the “Fan 2 Exchange Procedure” on page 4-51.
FDD	Use the “FDD Exchange Procedure” on page 4-52.
FESH	Use the “Card Exchange Procedure” on page 4-34.
HDD	Use the “HDD Exchange Procedure” on page 4-56.
LIC	Use the “LIC Exchange Procedure” on page 4-44.
MAC	Use the “Card Exchange Procedure” on page 4-34.
MCC	Use the “Card Exchange Procedure” on page 4-34.
MLA	Use the “Card Exchange Procedure” on page 4-34.
MPC/MPC2	Use the “Card Exchange Procedure” on page 4-34.
MSC/MSC2	Use the “Card Exchange Procedure” on page 4-34.
PCC	Use the “Card Exchange Procedure” on page 4-34.
PPB	Use the “PS2 and Primary Power Box Exchange Procedure” on page 4-69.
PS1	Use the “PS1 Exchange Procedure” on page 4-67.
PS2	Use the “PS2 and Primary Power Box Exchange Procedure” on page 4-69.
PUC	Use the “Card Exchange Procedure” on page 4-34.
SCTL	Use the “Card Exchange Procedure” on page 4-34.
SMUXA/B	Use the “SMUXA/B Exchange Procedure” on page 4-41.
STO4	Use the “Card Exchange Procedure” on page 4-34.
STO8	Use the “Card Exchange Procedure” on page 4-34.
TERMC	Use the “TERMC/TERMR Exchange Procedure” on page 4-61.
TERMD	Use the “TERMD/TERMI Exchange Procedure” on page 4-62.
TERMI	Use the “TERMD/TERMI Exchange Procedure” on page 4-62.
TERMR	Use the “TERMC/TERMR Exchange Procedure” on page 4-61.
TIC2	Use the “Card Exchange Procedure” on page 4-34.
TRM	Use the “Card Exchange Procedure” on page 4-34.

FRU Physical Locations

3745 Frame

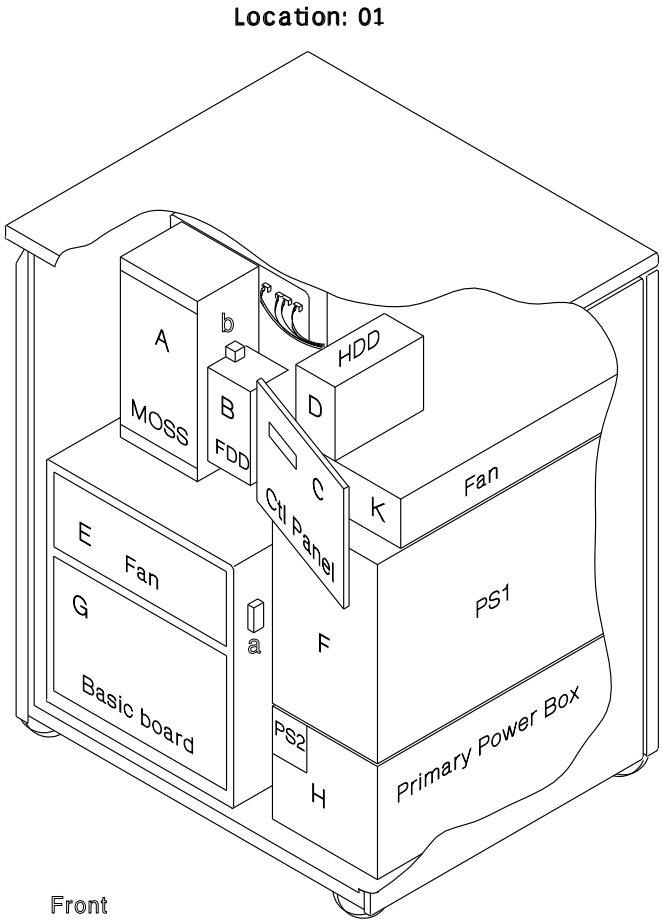


Figure 4-1. 3745 Frame (Front)

A MOSS board (**01A-X0** and **01A-Y0**)
B FDD
C Panel
D HDD
E Fan2 (for logic)
F PS1
G Basic board (**01G-A1**)
H Primary power box + PS2
K Fan1 (for powers)

a Basic board test points
b MOSS board test points

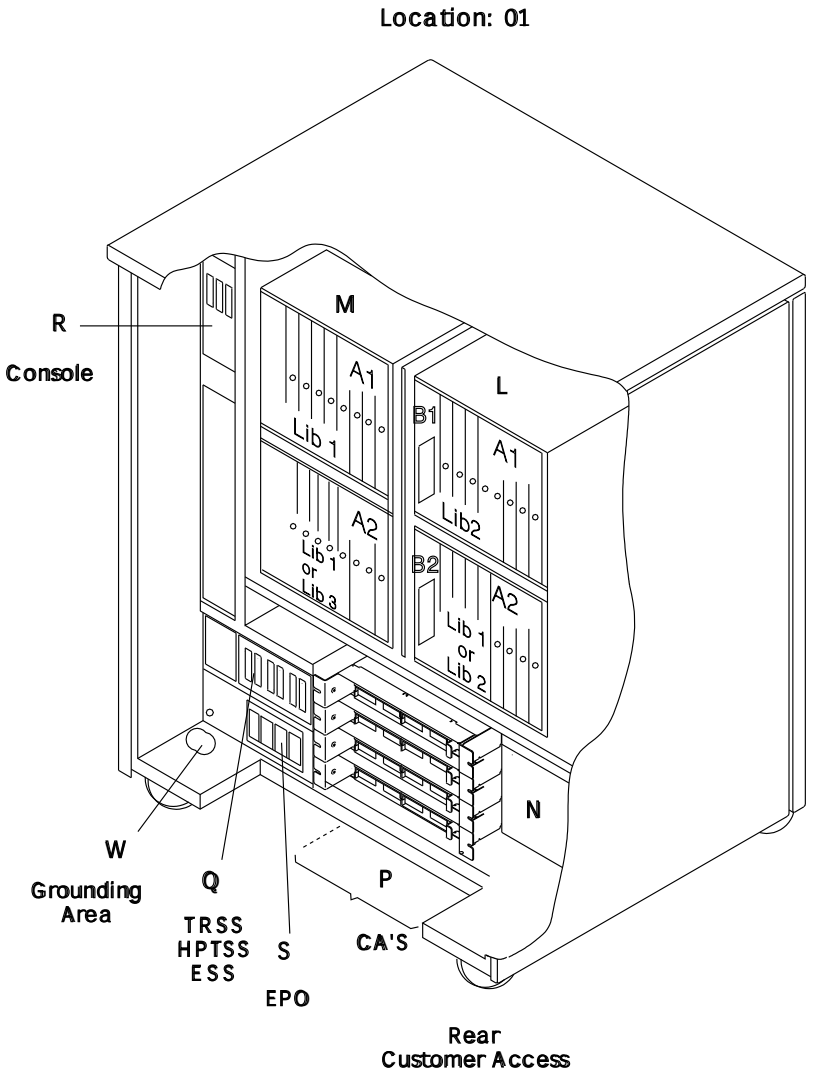


Figure 4-2. 3745 Frame (Back)

A1	LIC board type 2	(Lines 80-95)
A2	LIC board type 2	(Lines 64-79)
	or	
	LIC board type 1	(Lines 128-159)
B1	Connectors	
B2	Connectors	
A1	LIC board type 1	(Lines 32-63)
A2	LIC board type 1	(Lines 00-31)
	or	
	LIC board type 3	(Lines 00-15)

N	Rear board access (**01G-A1**)
P	CA tailgate
Q	TRSS, HPTSS & ESS tailgate
	TRSS (Lines 1088 - 1091)
	HPTSS (Lines 1028 - 1031)
	ESS (Lines 1060 - 1063)
R	Console operator tailgate
	See Figure 4-29 on page 4-26 and Figure 4-30 on page 4-26 for details.
S	EPO
W	Grounding area

Basic Board, Cards, Connectors, and Crossovers

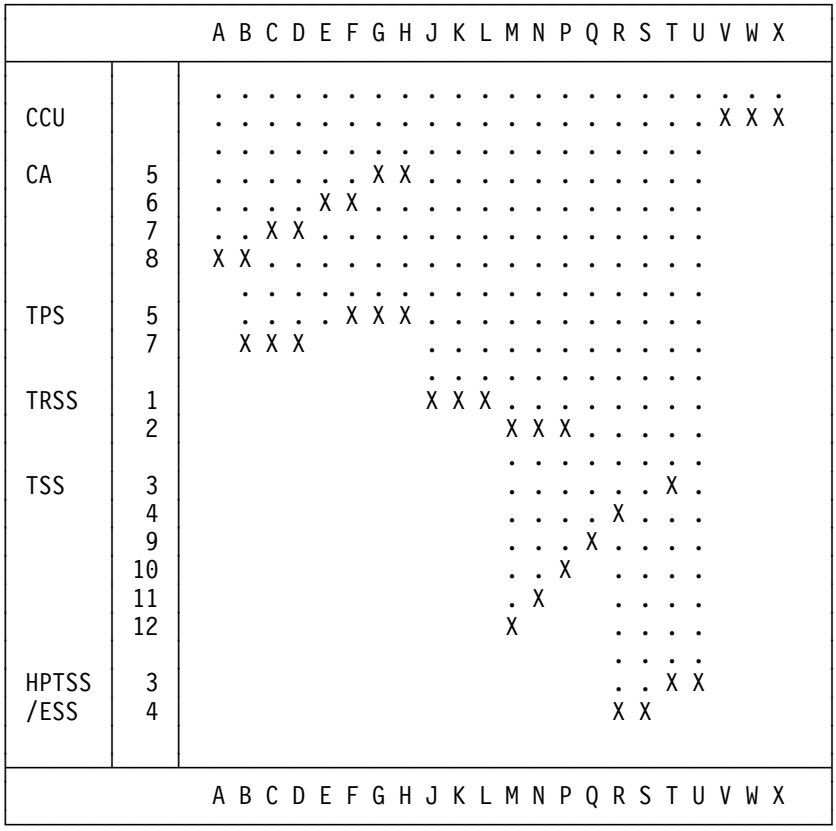


Figure 4-3. Card Locations

Table 4-1. TIC Position and Ring Address

TRM	TIC Position	Ring Address
TRM-1	TIC2-1	1088
	TIC2-2	1089
TRM-2	TIC2-3	1090
	TIC2-4	1091

The following table and figures are configuration examples.

Table 4-2. Basic Board Configurations			
Model	**TPS**	**HPTSS/ESS**	**Figure Available**
130	no	yes	
130	yes	yes	Figure 4-6 on page 4-8
150	no	yes	Figure 4-7 on page 4-9
160	no	yes	Figure 4-8 on page 4-10
17x	no	no	Figure 4-4
17x	no	yes	
17x	yes	no	
17x	yes	yes	Figure 4-5 on page 4-7

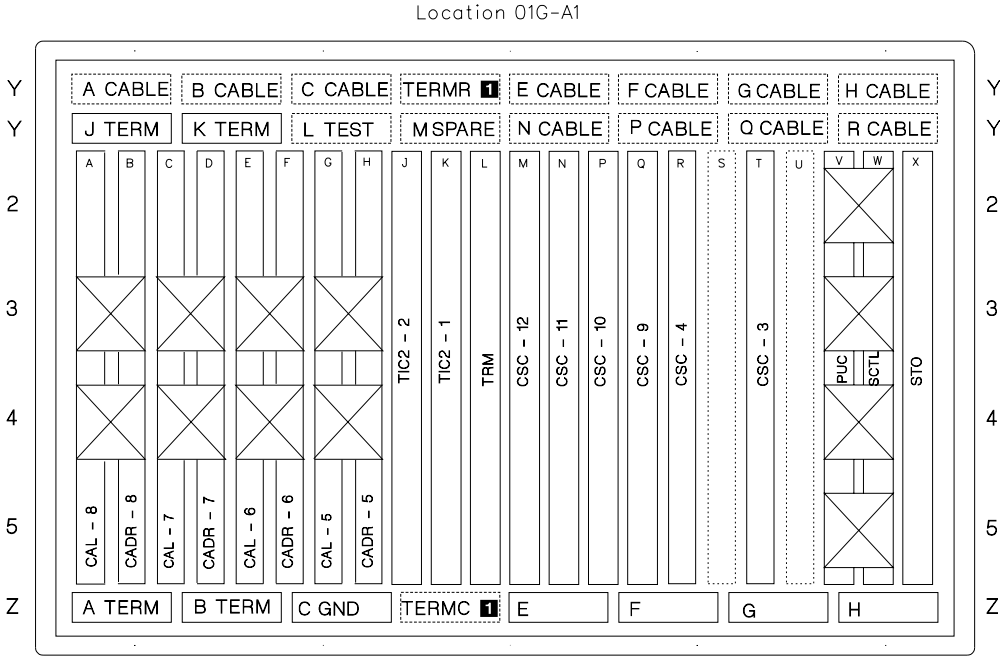


Figure 4-4. 3745 Model 17X Basic Board (without TPS, HPTSS, or ESS)

1 Terminators TERMC and TERMR are present on 3745 model 17A only.

Note 1: STO may be STO4 (4MB) or STO8 (8MB).

Note 2: CAL may be CAL6 (for CADS feature) or CAL7 (for BCCA feature).

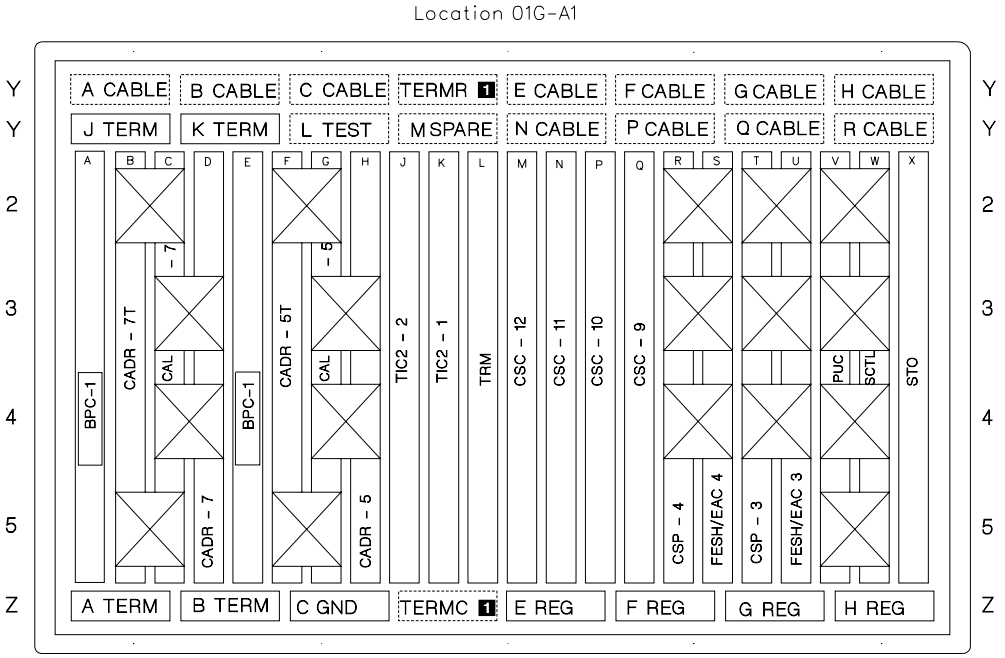


Figure 4-5. 3745 Model 17X (Basic Board with TPS and HPTSS or ESS)

1 Terminators TERMC and TERMR are present on the 3745 Model 17A only.

Note 1: When TPS-5 is installed a Bypass card 1 (BPC1) is needed in location E (if CADR-7 is present).

Note 2: STO may be STO4 (4MB) or STO8 (8MB).

Note 3: CAL may be CAL6 (for the CADS feature) or CAL7 (for the BCCA feature).

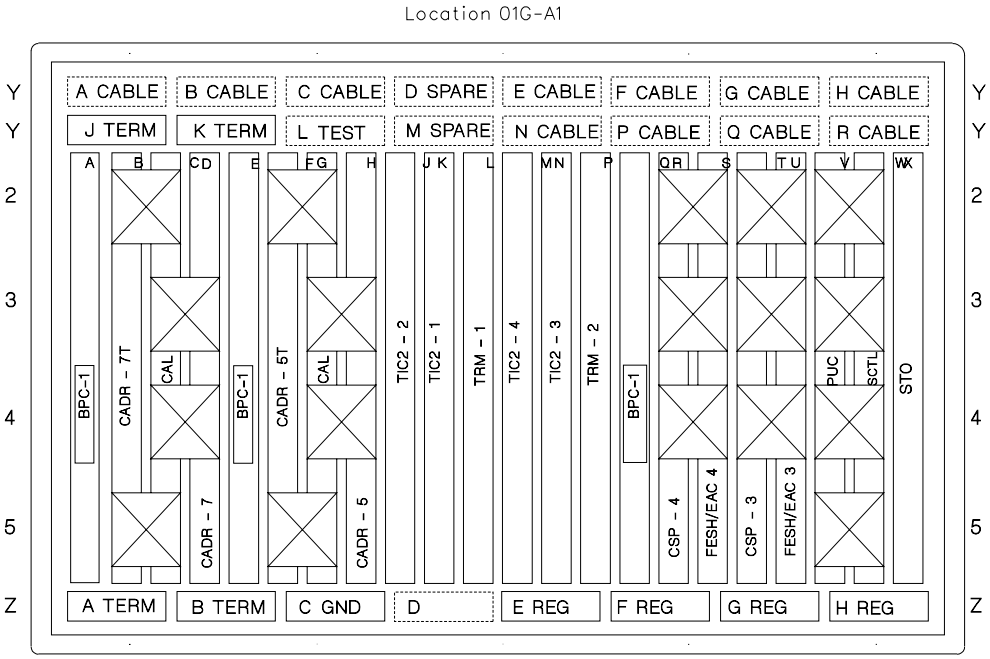


Figure 4-6. 3745 Model 130 (Basic Board with TPS)

Note 1: When TPS-5 is installed, a Bypass card 1 (BPC1) is needed in location E (if CADR-7 is present).

Note 2: STO may be STO4 (4MB) or STO8 (8MB).

Note 3: CAL may be CAL6 (for the CADS feature) or CAL7 (for the BCCA feature).

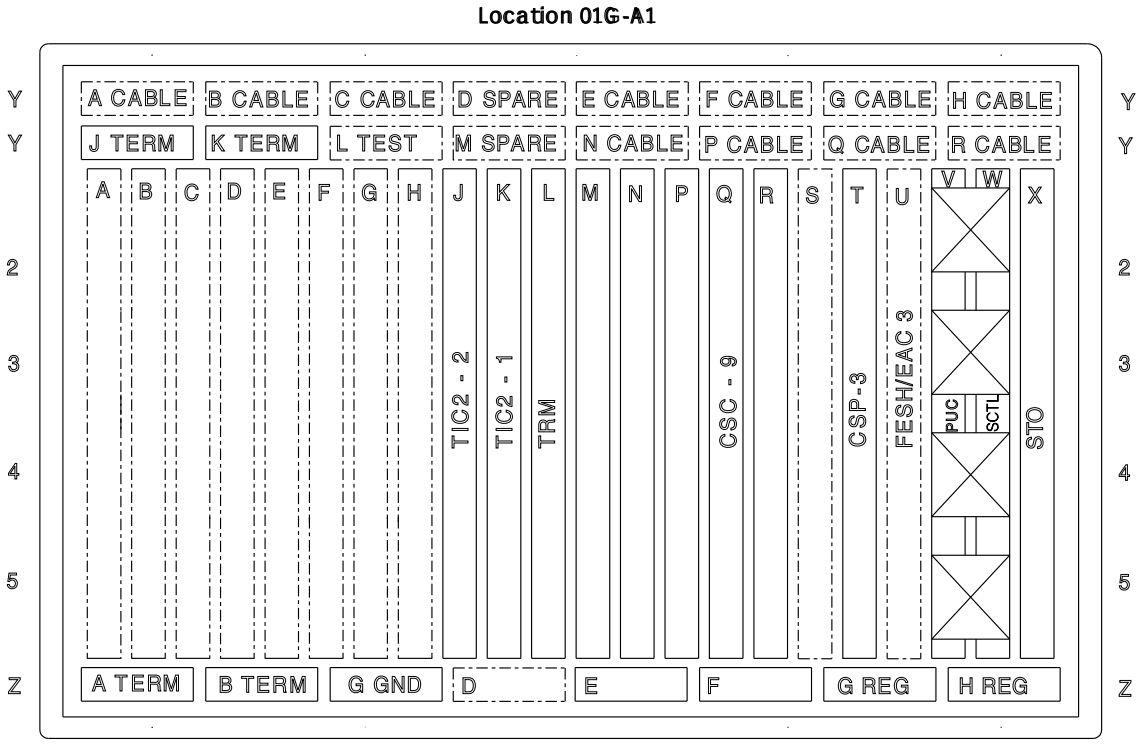


Figure 4-7. 3745 Model 150 (Basic Board)

Note: STO may be STO4 (4MB) or STO8 (8MB).

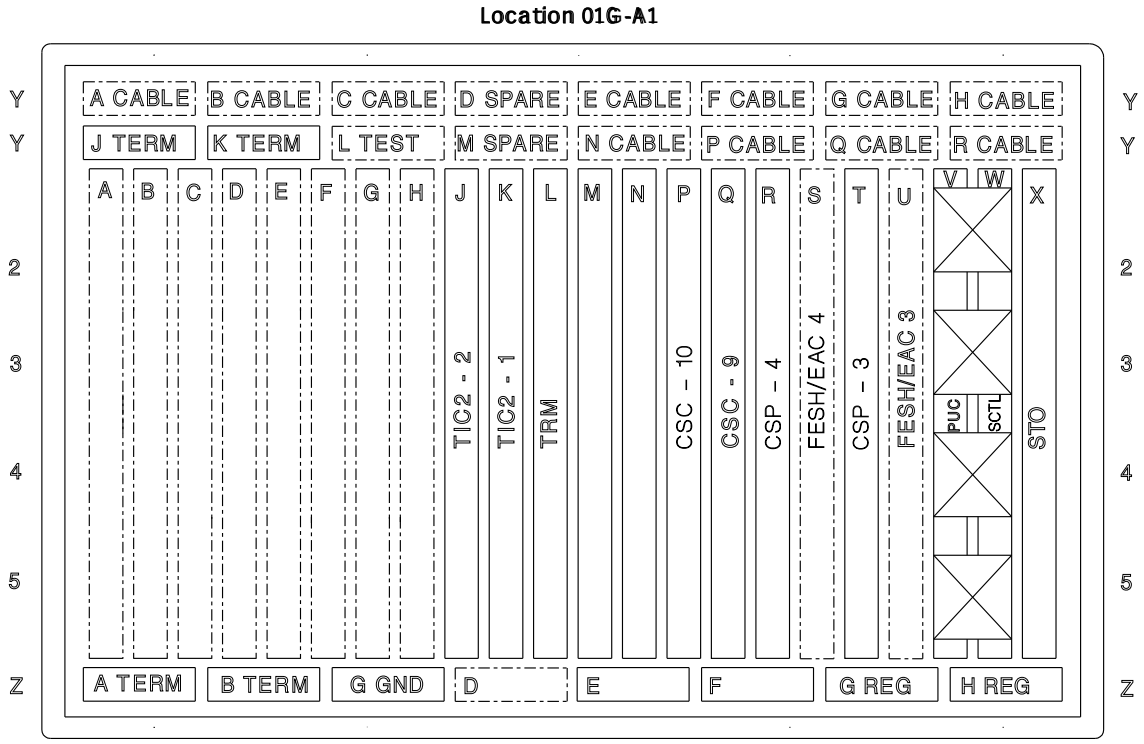


Figure 4-8. 3745 Model 160 (Basic Board)

Note: STO may be STO4 (4MB) or STO8 (8MB).

MOSS Board, Cards, and Connectors

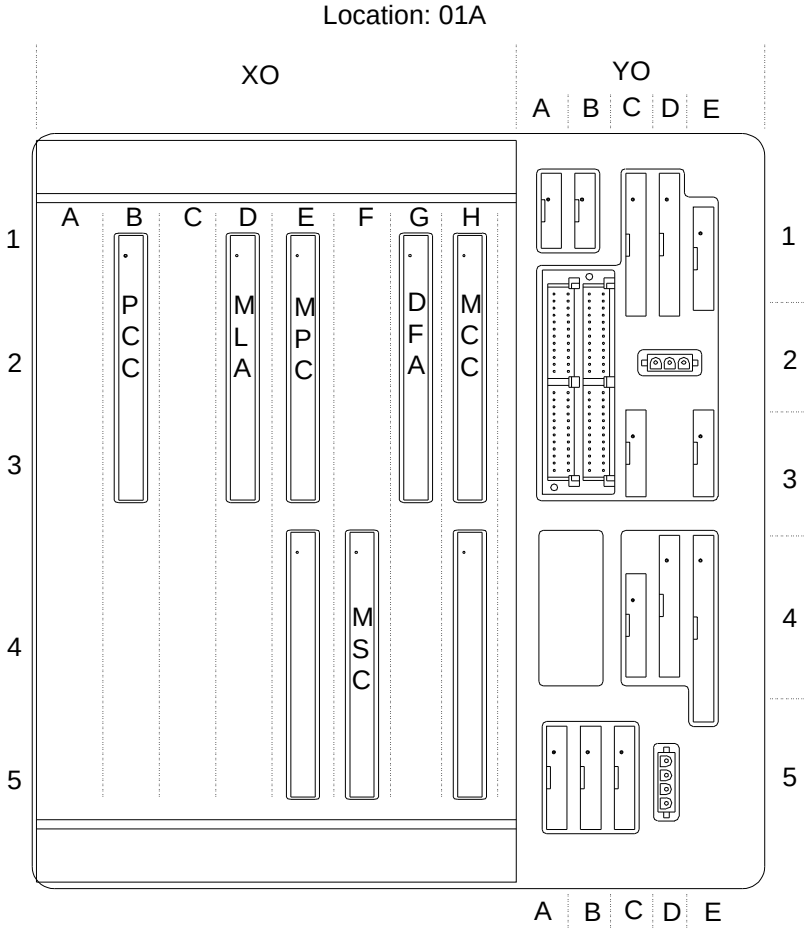


Figure 4-9. 3745 Models 130, 150, 160, and 170 (MOSS Board, Cards, and Connectors)

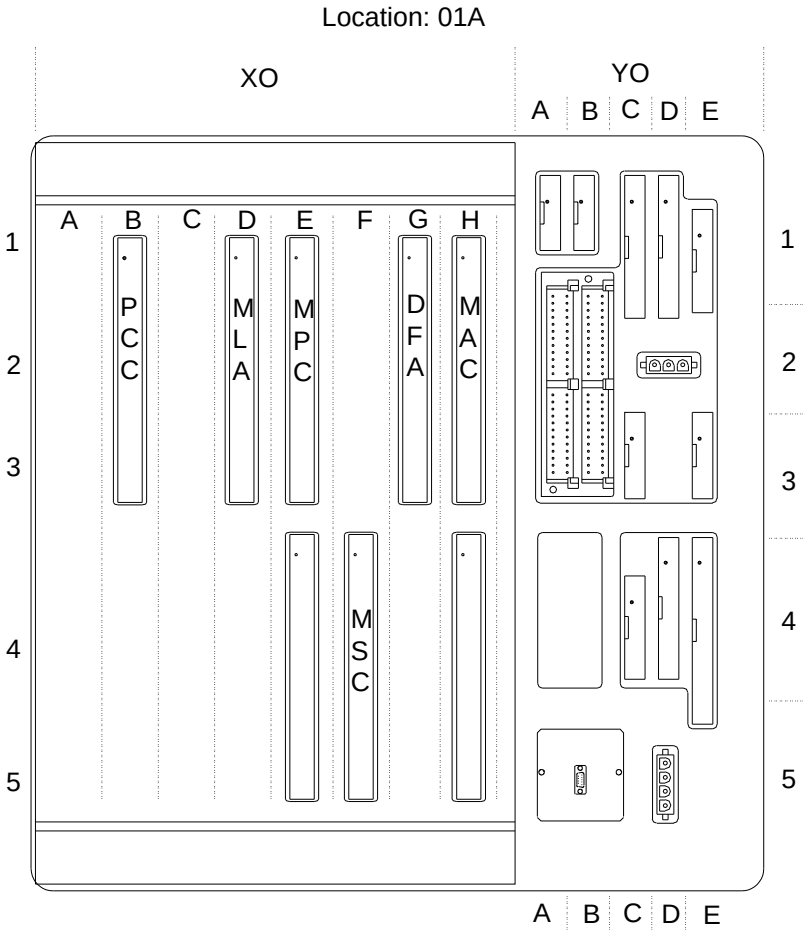


Figure 4-10. 3745 Model 17A (MOSS Board, Cards, and Connectors)

LIC Board Type 1

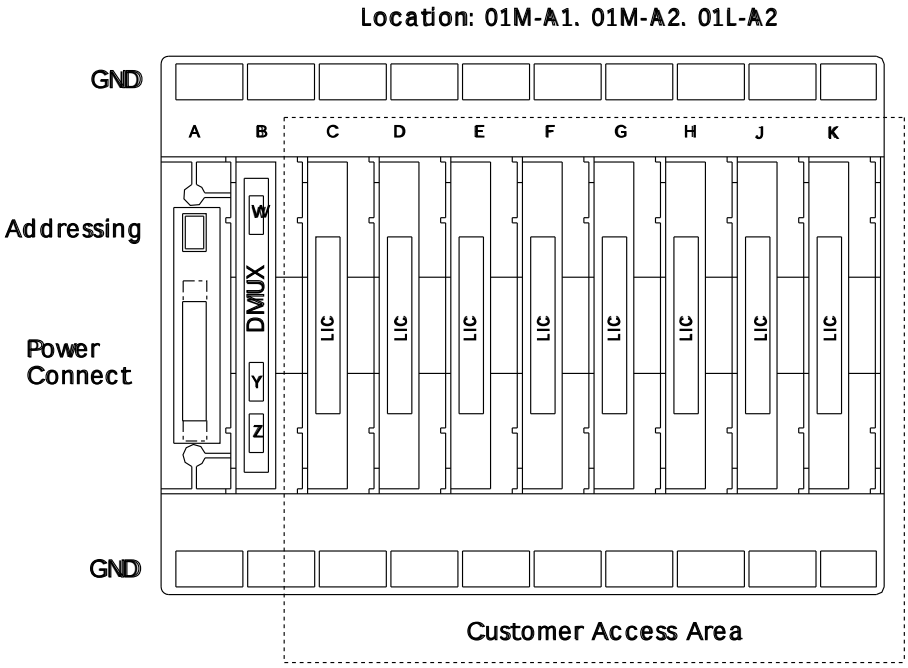


Figure 4-11. 3745 LIC Unit Type 1 Board and Connectors (for LIC Types 1,3, and 4 in Models 150, 160, and 170)

LIC Board Type 2

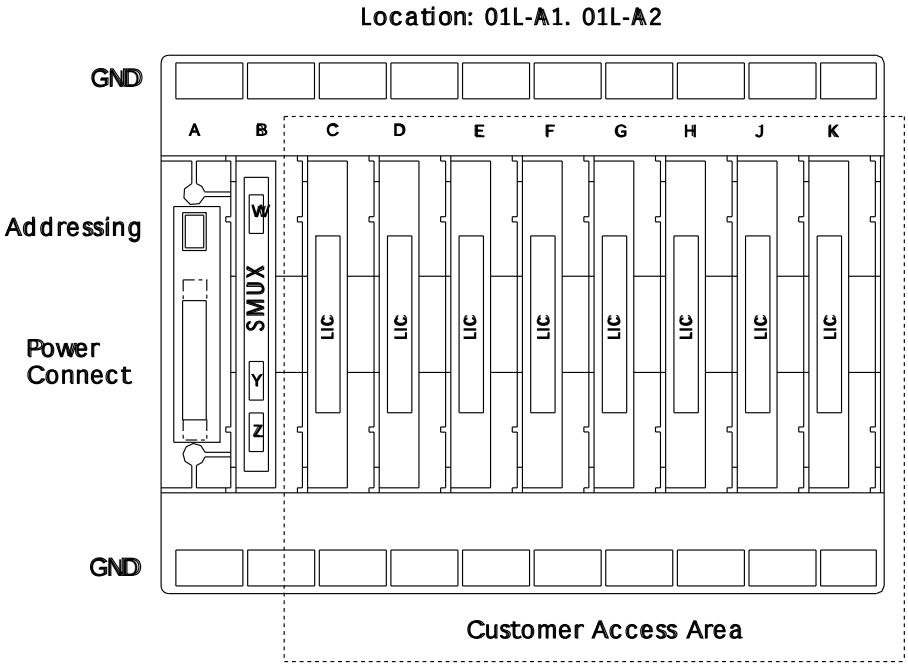


Figure 4-12. 3745 LIC Unit Type 2 Board and Connectors (for LIC Types 5 and 6 in Models 150 and 170)

LIC Board Type 3

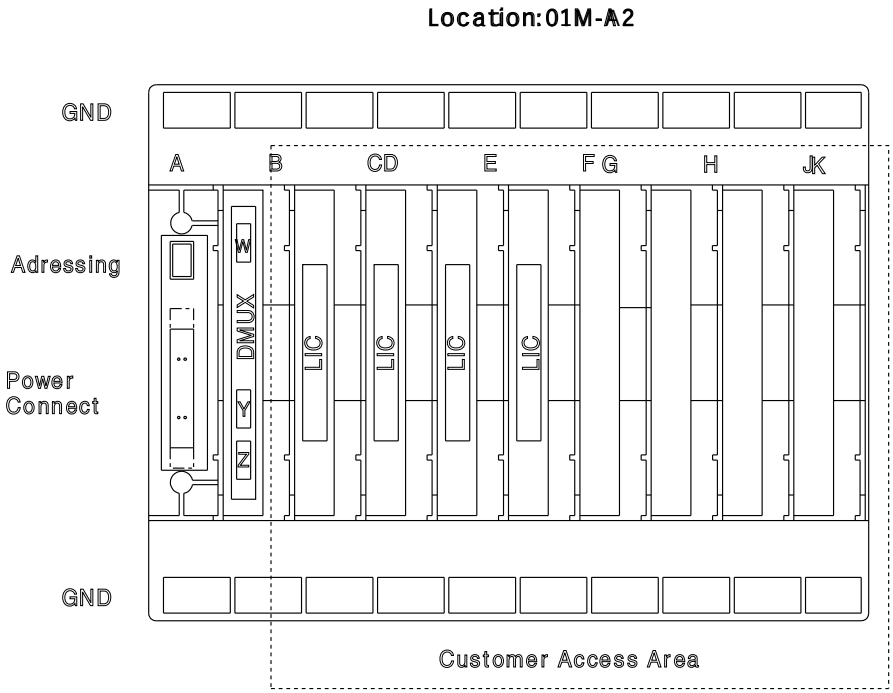


Figure 4-13. 3745 LIC Unit Type 3 Board and Connectors (for LIC Types 1,3, and 4 in Model 150)

DMUX and SMUX Packaging

Table 4-3. DMUX Packaging

DMUX Id	DMUX Location
1 or 2	01M-A2B
3 or 4	01M-A1B
9 or 10	01L-A2B

Table 4-4. SMUX Packaging

SMUX Type	SMUX Id	SMUX Location
SMUX-A	5	01L-A2B
SMUX-B	7	01L-A1B

LIC Board Type 1 Packaging for LICs Type 1 to 4

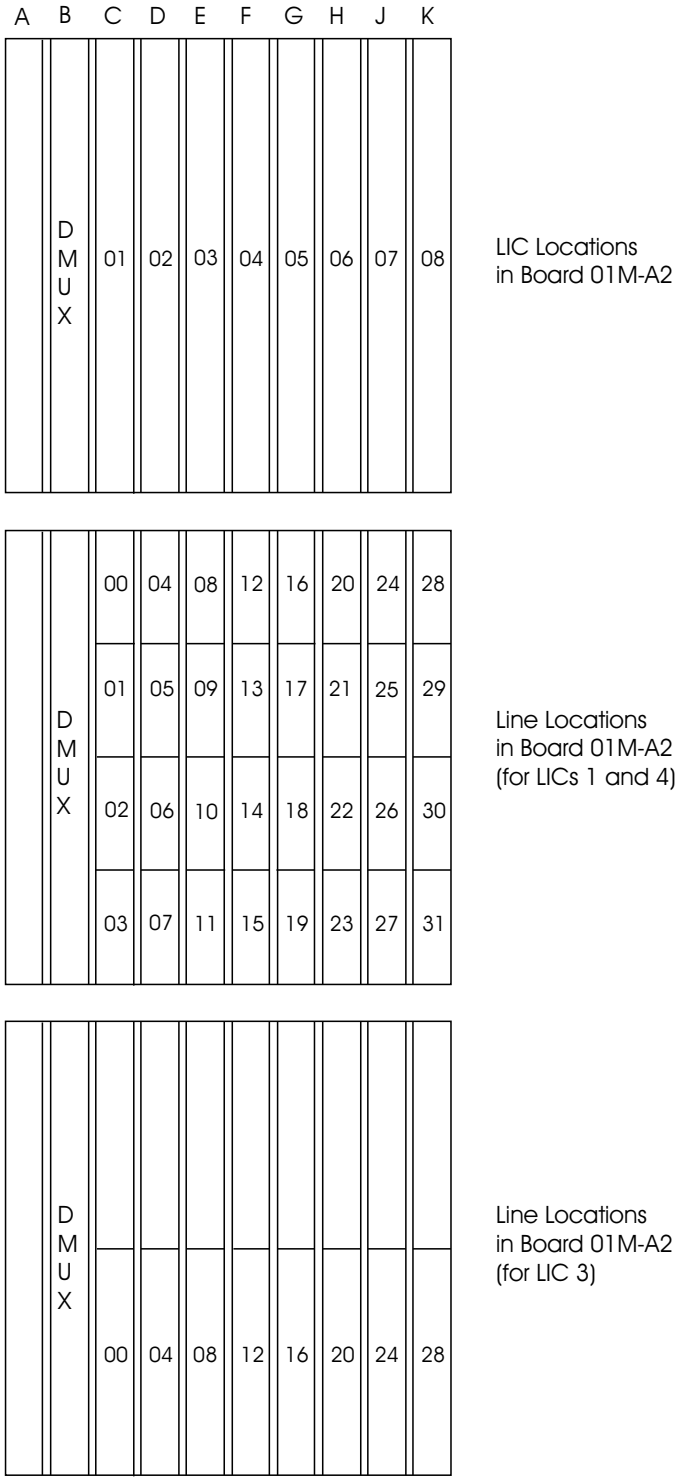


Figure 4-14. 3745 LIC Board 01M-A2 Packaging

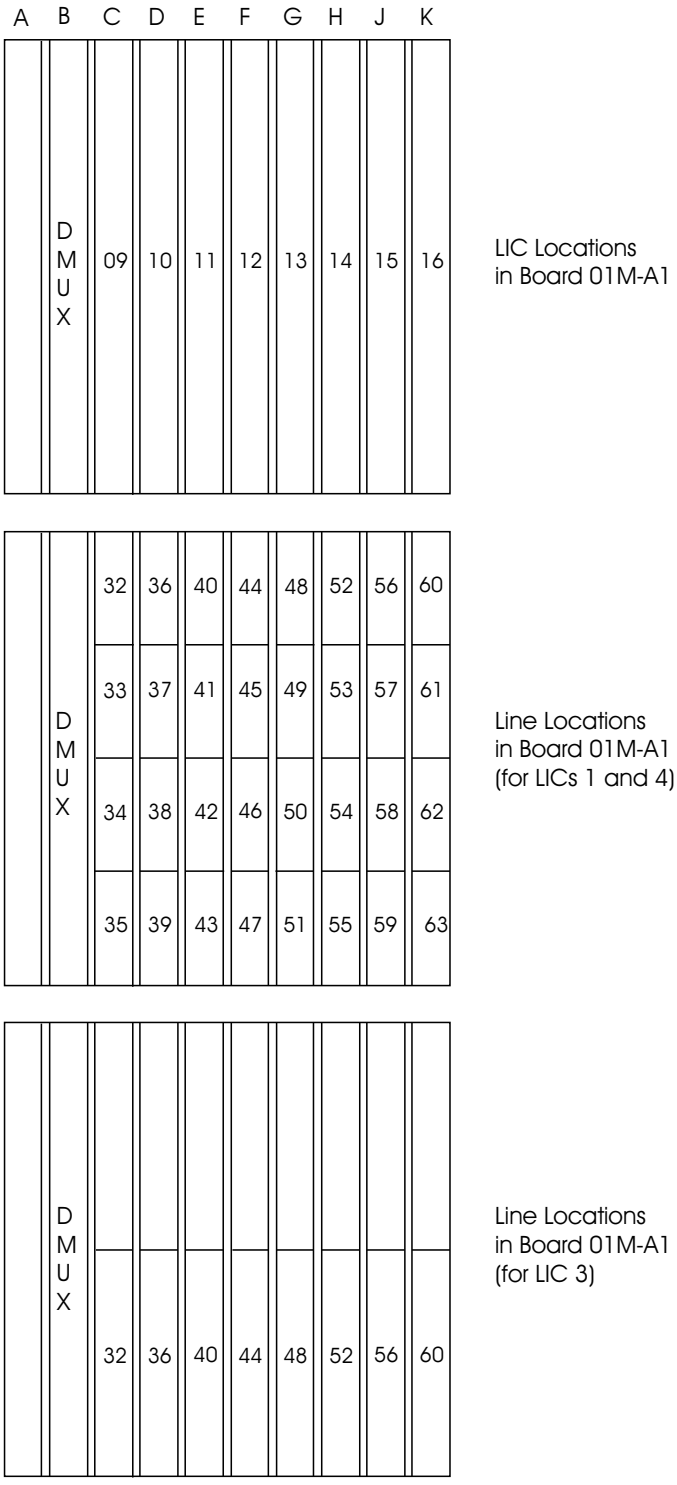


Figure 4-15. 3745 LIC Board 01M-A1 Packaging

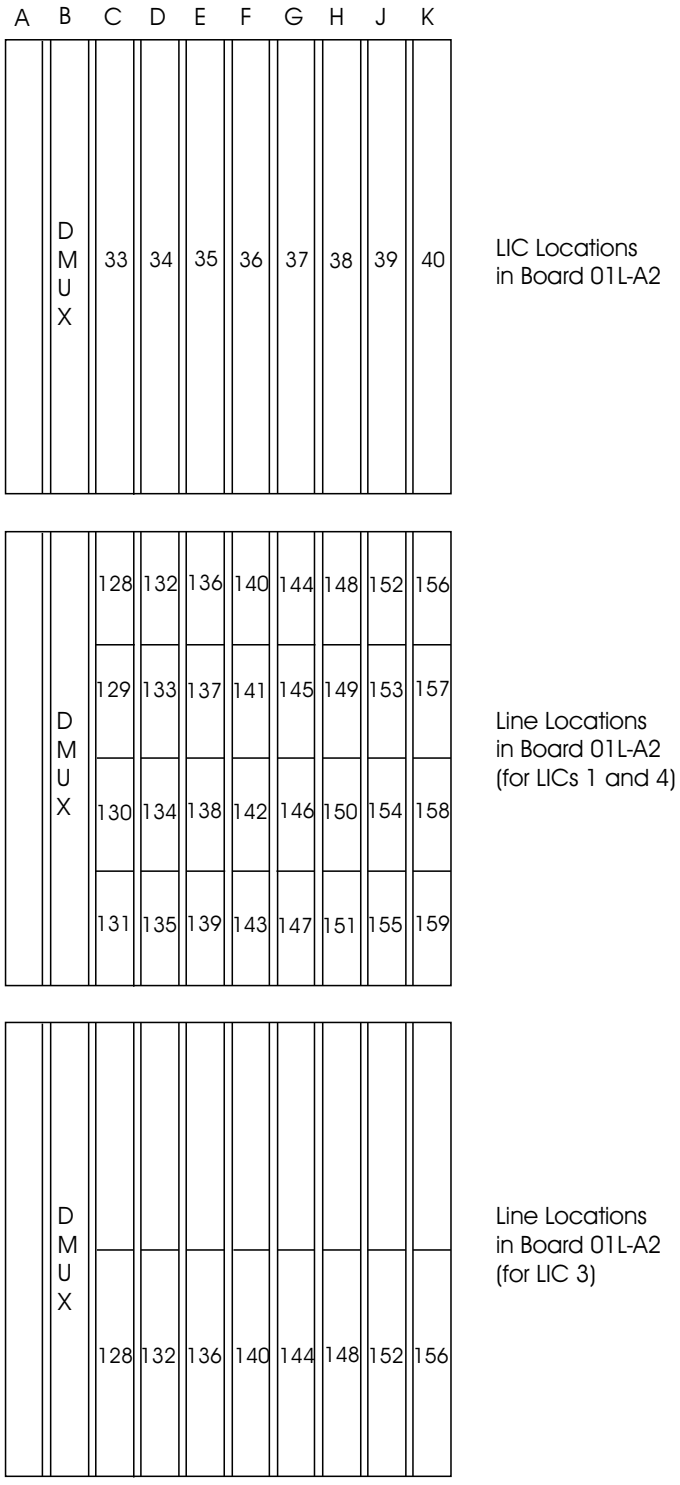


Figure 4-16. 3745 LIC Board 01L-A2 Packaging

LIC Board Type 2 Packaging for LIC Type 5

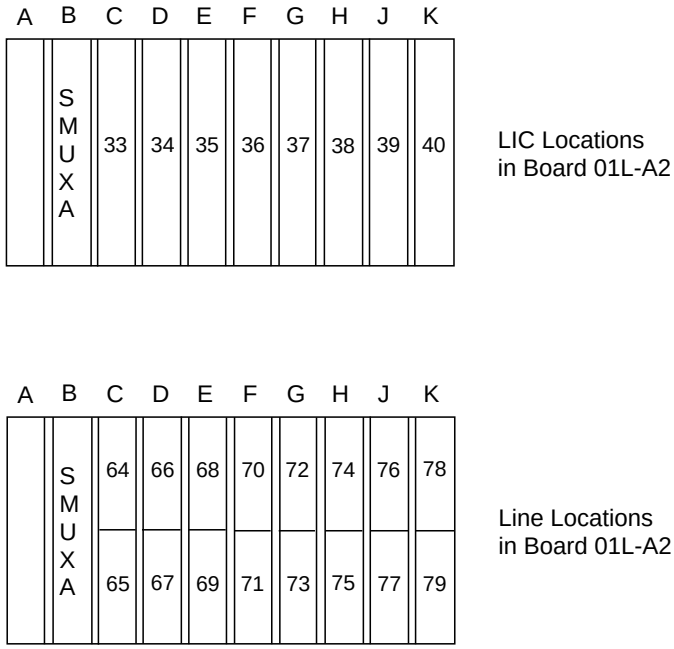


Figure 4-17. 3745 LIC Board 01L-A2 Packaging (LICs Type 5)

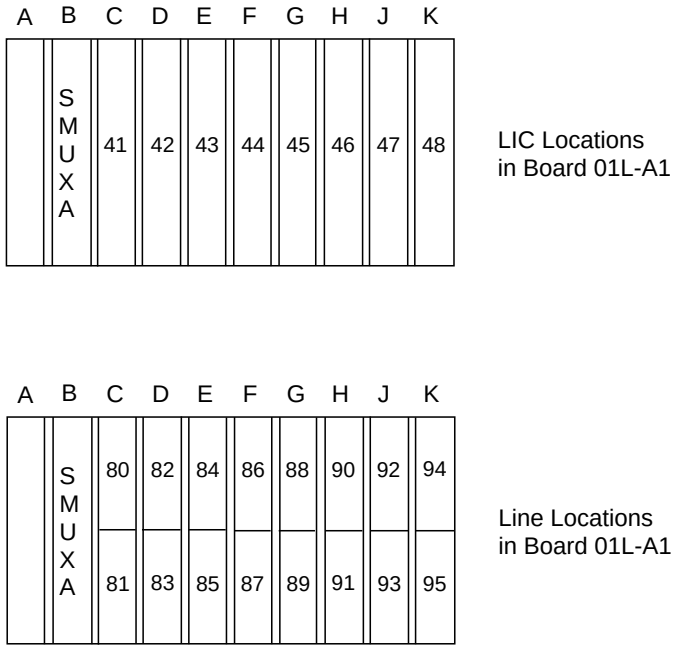
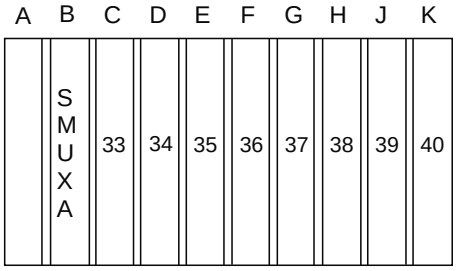


Figure 4-18. 3745 LIC Board 01L-A1 Packaging (LIC type 5)

LIC Board Type 2 Packaging for LIC Type 6 (Low Speed)



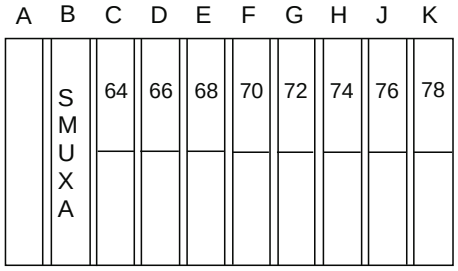
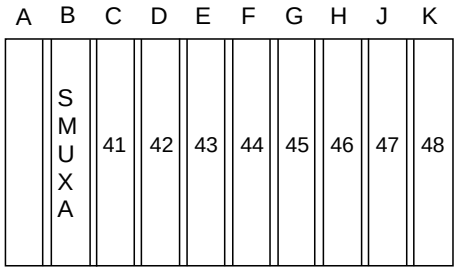


Figure 4-19. 3745 LIC Board 01L-A2 Packaging (LICs Type 6 Low Speed)



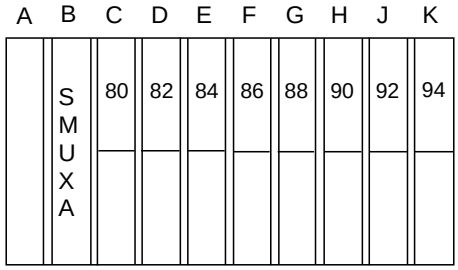
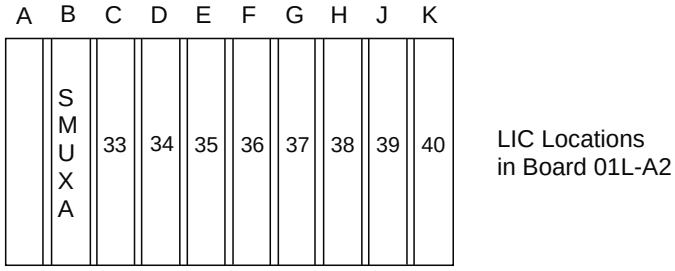


Figure 4-20. 3745 LIC Board 01L-A1 Packaging (LICs Type 6 Low Speed)

LIC Board Type 2 Packaging for LIC Type 6 (High Speed)



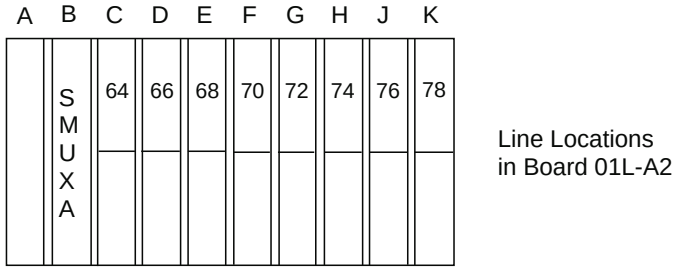
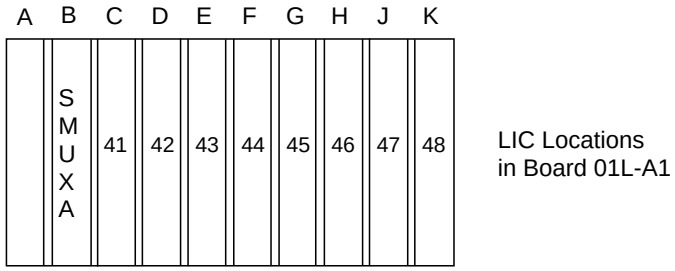


Figure 4-21. 3745 LIC Board 01L-A2 Packaging (LIC Type 6 High Speed)



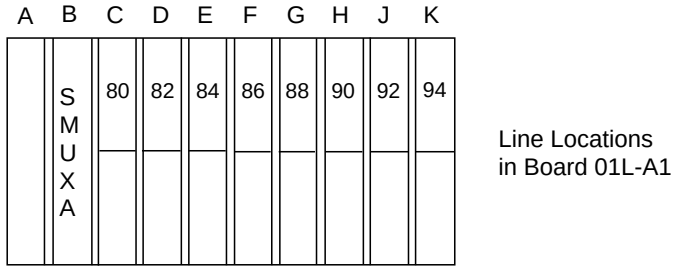


Figure 4-22. 3745 LIC Board 01L-A1 Packaging (LIC Type 6 High Speed)

LIC Board Type 3 Packaging for LIC Types 1 to 4

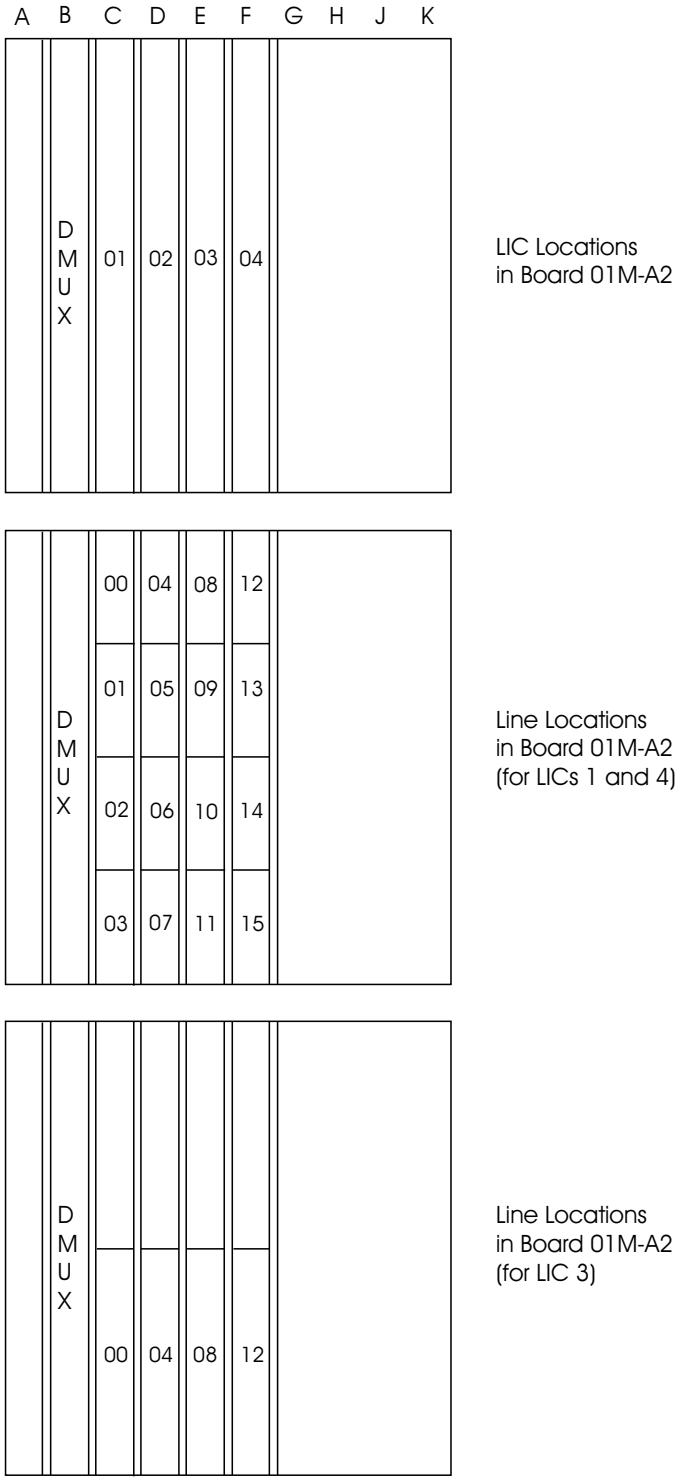


Figure 4-23. 3745 LIC Board 01M-A2 Packaging

Ethernet Lines Tailgate

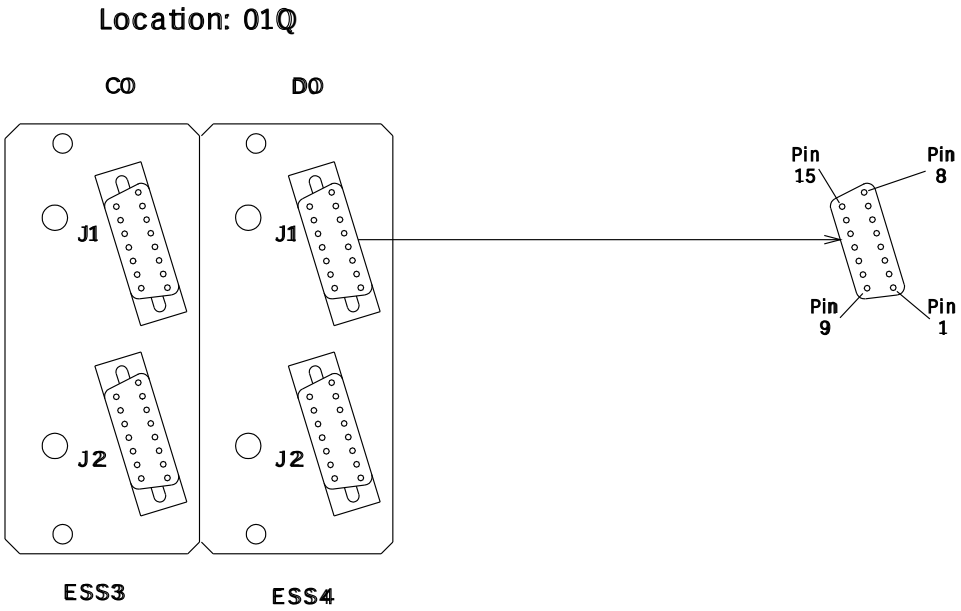


Figure 4-24. 3745 Ethernet Lines Tailgate

Table 4-5. 3745 Ethernet Line Locations

Line	Location	ELA
1060	01Q-C0J1	3
1061	01Q-C0J2	3
1062	01Q-D0J1	4
1063	01Q-D0J2	4

High Speed Lines Tailgate

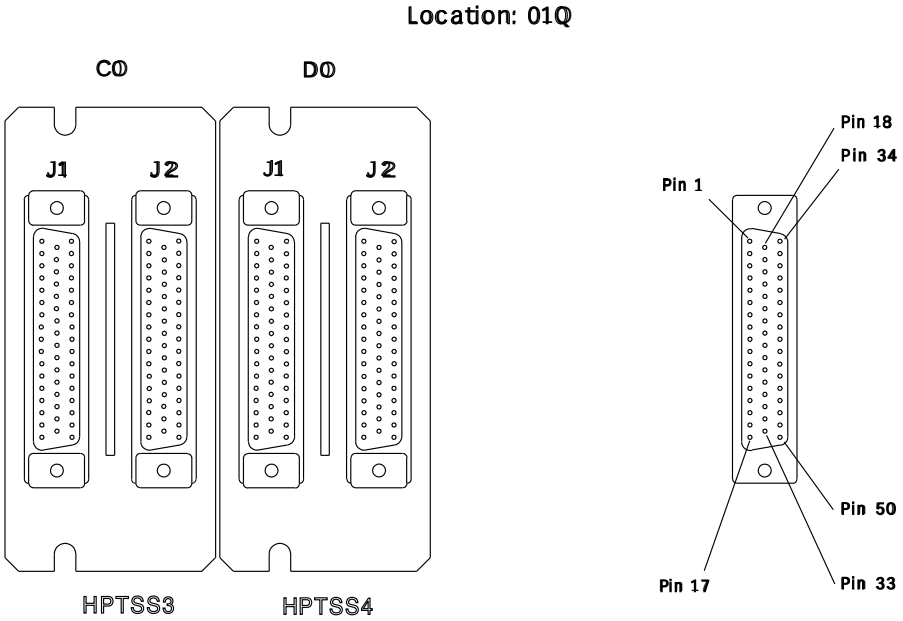


Figure 4-25. 3745 High-Speed Lines Tailgate

Table 4-6. 3745 High-Speed Line Locations

Line	Location	LA
1028	01Q-C0J2	3
1029	01Q-C0J1	3
1030	01Q-D0J2	4
1031	01Q-D0J1	4

Token-Ring Tailgate

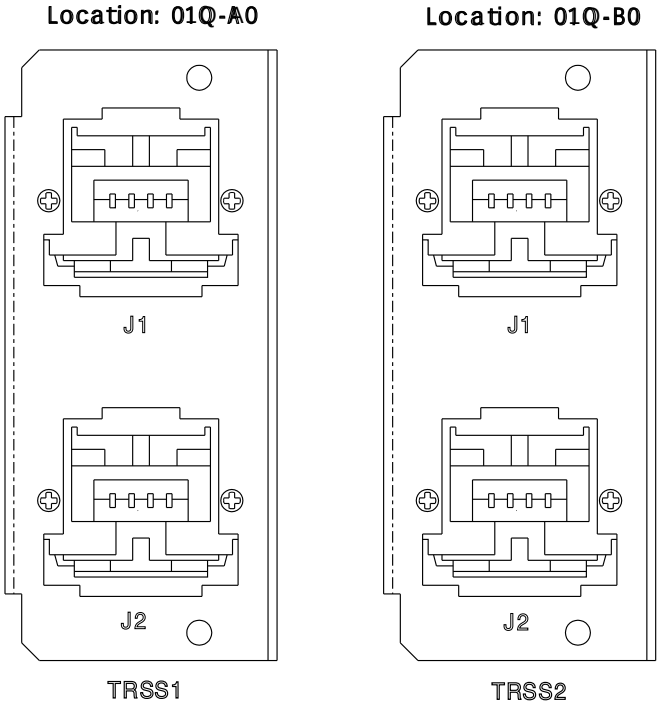


Figure 4-26. 3745 Token-Ring Tailgate

Table 4-7. 3745 Token-ring Line Locations

Line	Location	TRA
1088	01Q-A0J1	1
1089	01Q-A0J2	1
1090	01Q-B0J1	2
1091	01Q-B0J2	2

Channel Tailgate

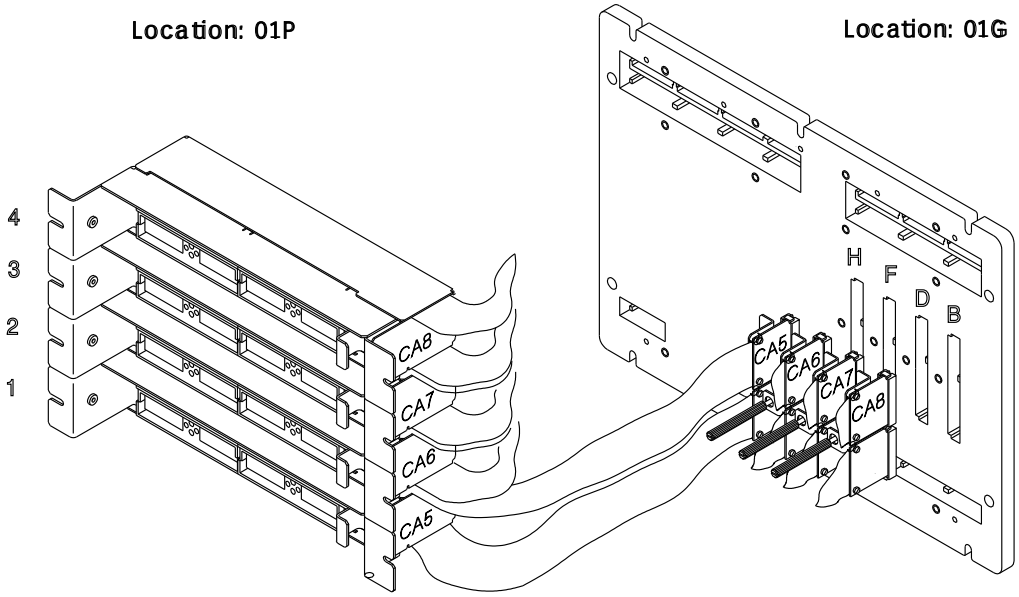


Figure 4-27. 3745 Channel Tailgate

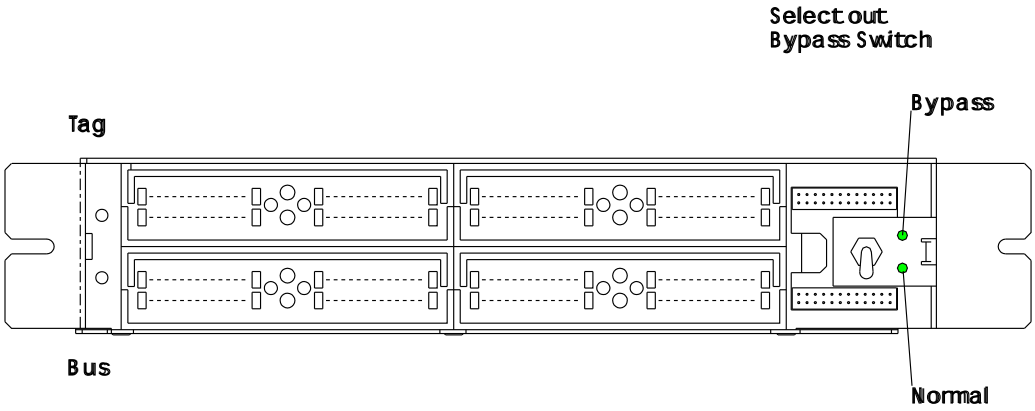


Figure 4-28. 3745 Channel Tailgate Details. For more details see YZ052 Sheet 2.

Table 4-8. Channel Interface. Channel Interface A and Channel Interface B (TPS) Distribution Chart.

Basic Board Rear Position	Tailgate	CA (Interface A or Interface B)
01G-H	01P-1	CA5-A
01G-F	01P-2	CA6-A or CA5-B
01G-D	01P-3	CA7-A
01G-B	01P-4	CA8-A or CA7-B

Console Operator Tailgate For 3745 Models 1X0

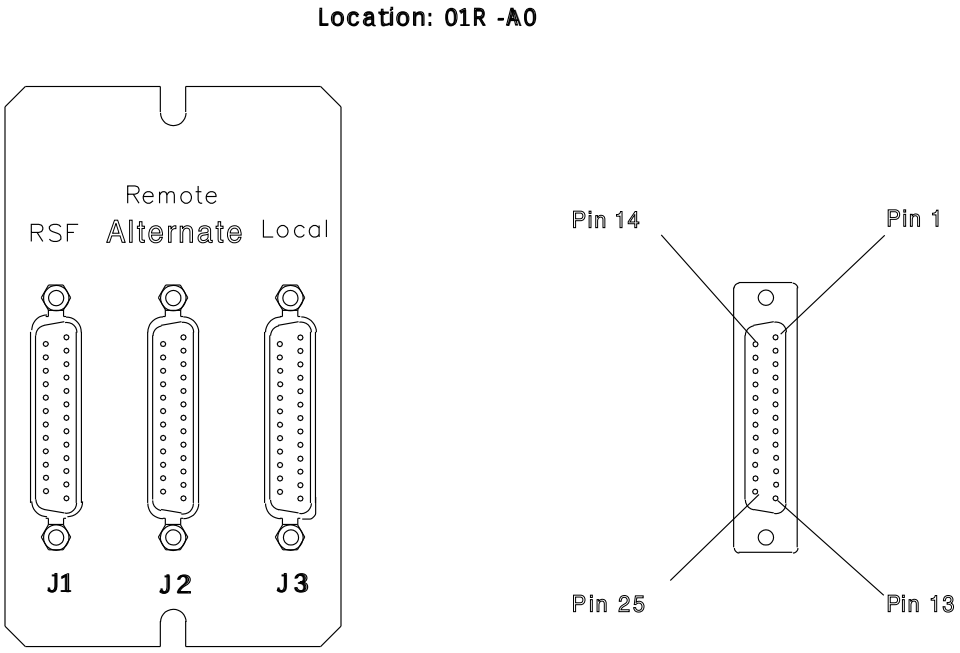


Figure 4-29. 3745 Models 1X0 Console Operator Tailgate

Console Operator Tailgate for 3745 Model 17A

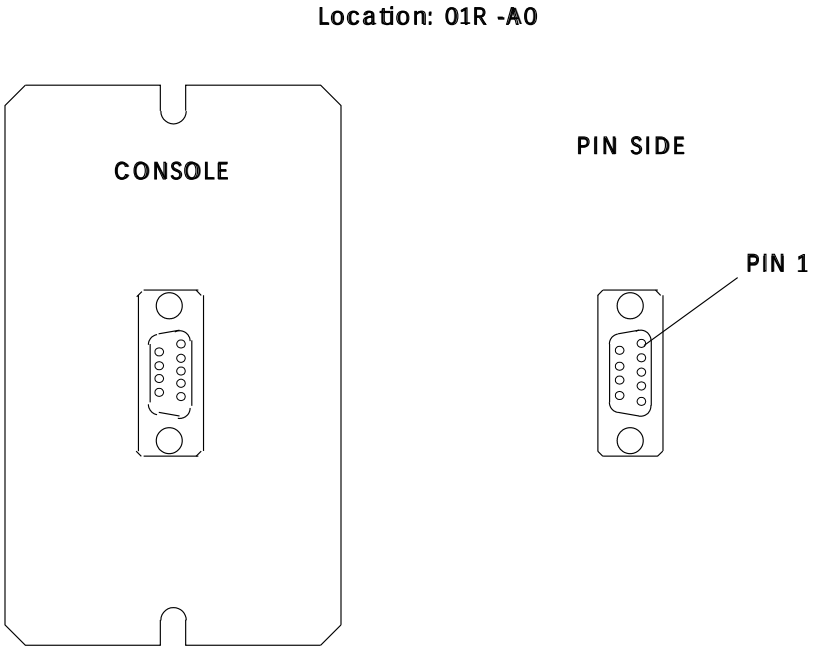


Figure 4-30. 3745 Models 17A Console Operator Tailgate

EPO Tailgate

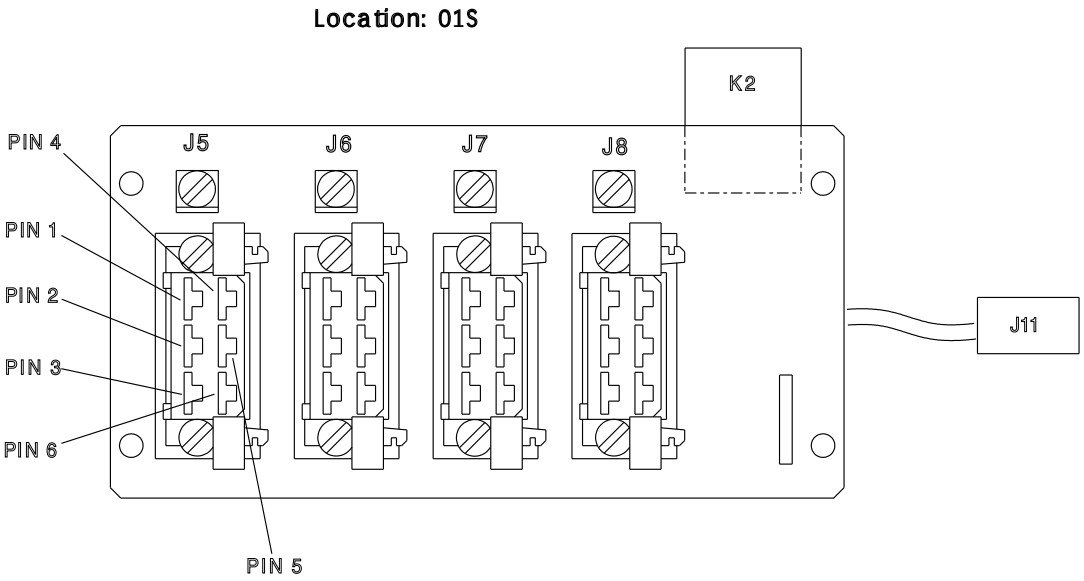


Figure 4-31. 3745 EPO

3745 Control Panel

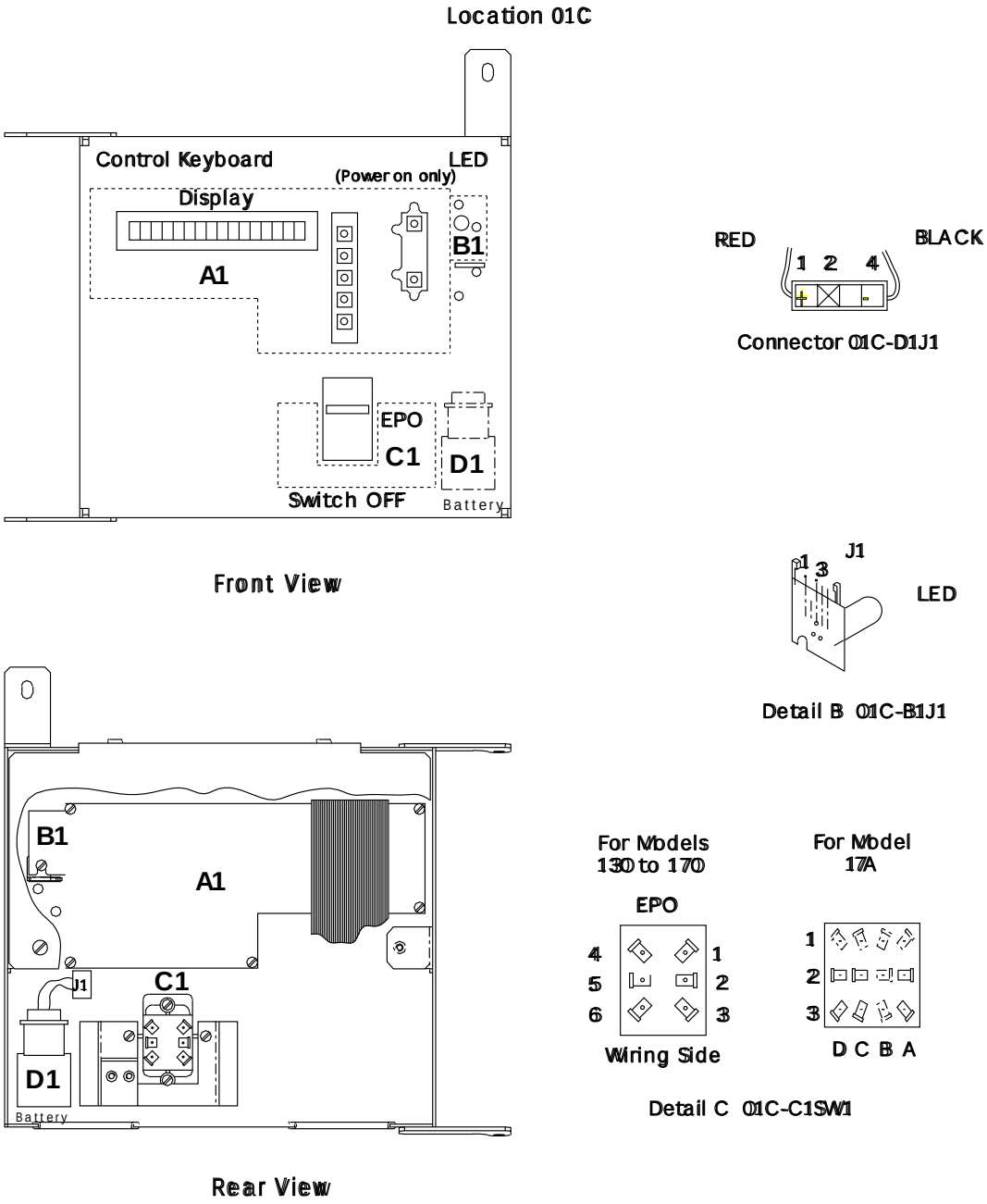


Figure 4-32. 3745 Control Panel

Flexible Diskette Drive

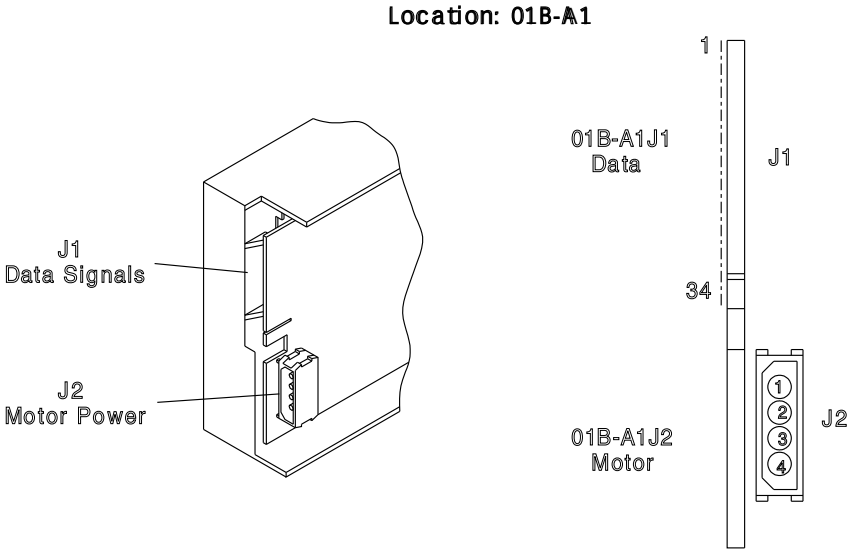


Figure 4-33. 3745 Flexible Diskette Drive

Hard Disk Drive

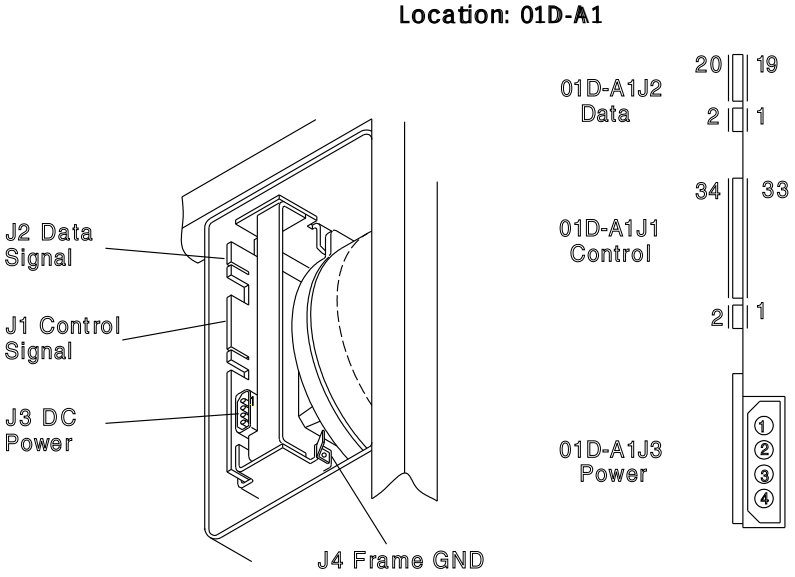


Figure 4-34. 3745 Hard Disk Drive

Primary Power Box

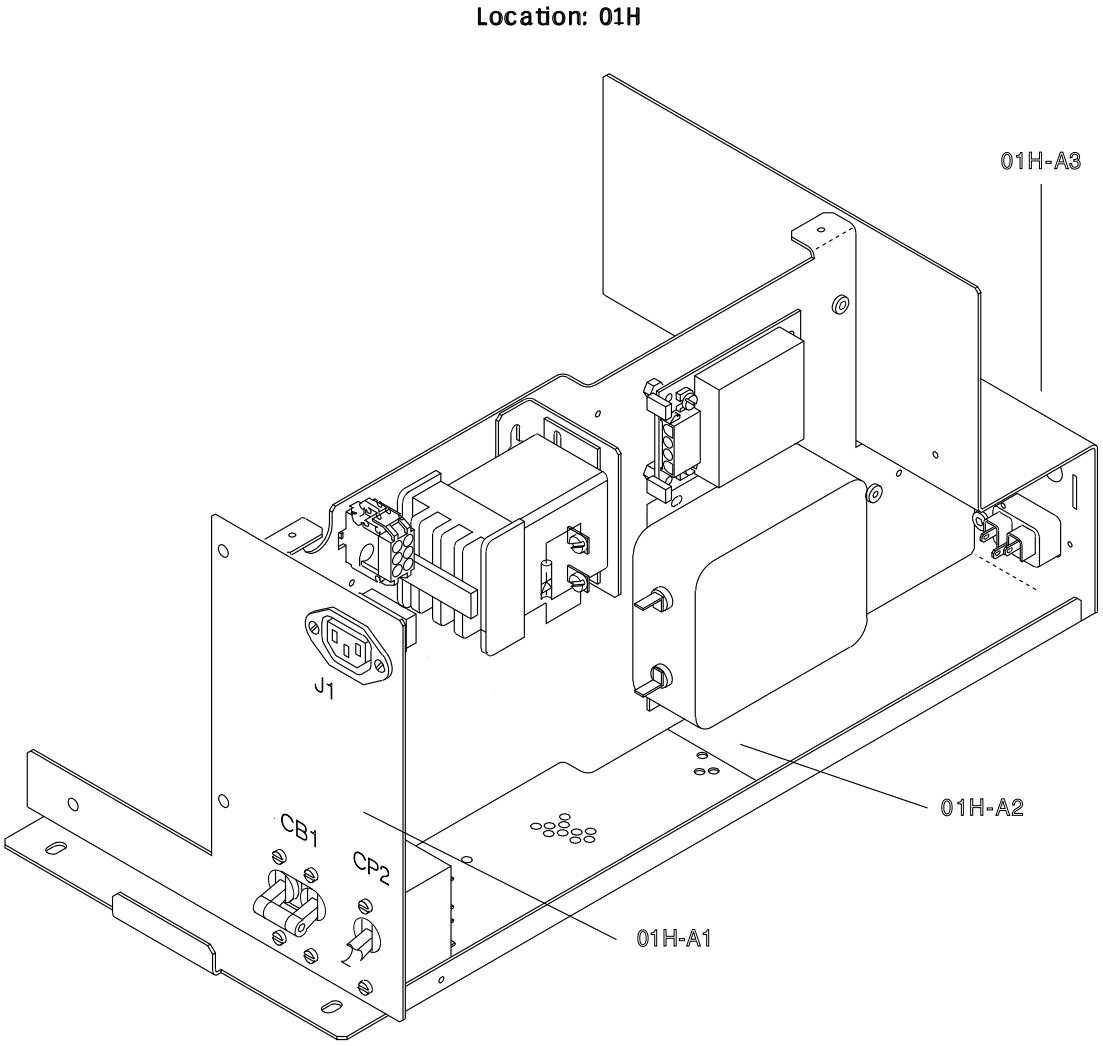


Figure 4-35. 3745 Primary Power Box Components

Power Supply 1

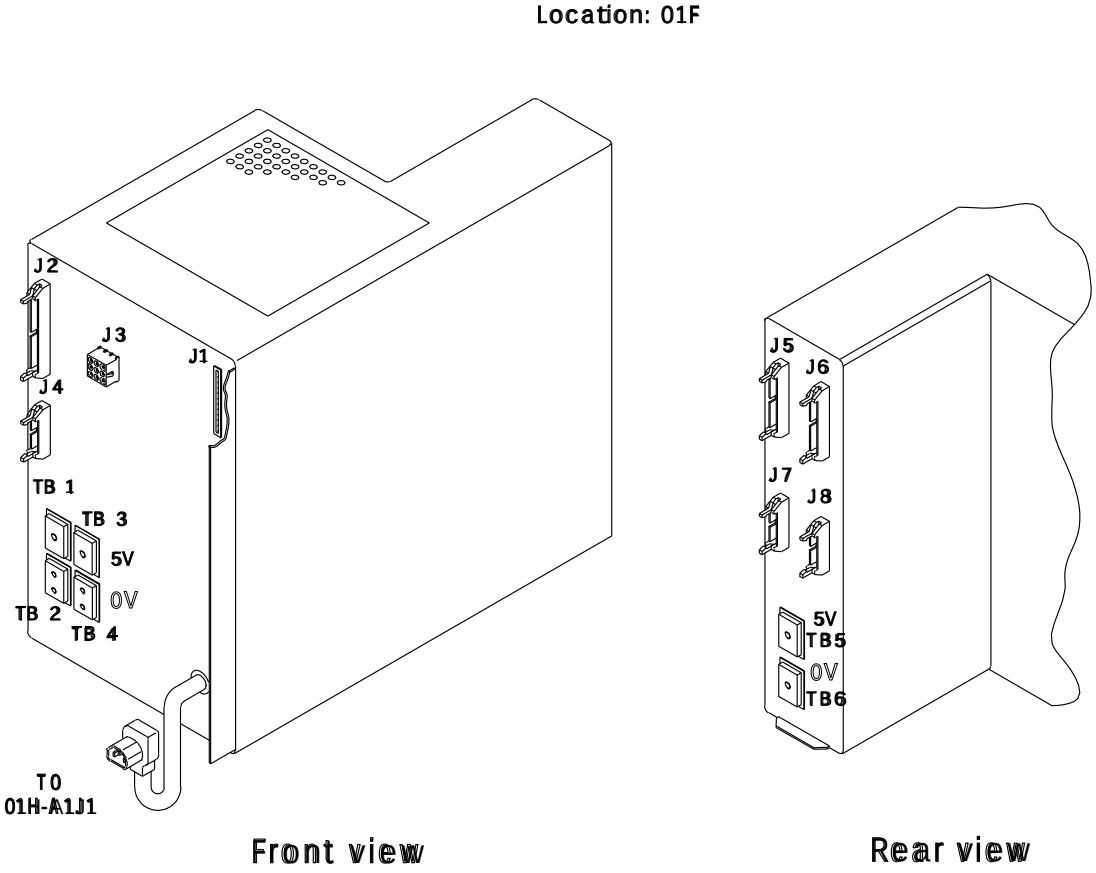


Figure 4-36. 3745 Power Supply 1 Components

3745 Power Supply Cross Reference

Table 4-9. 3745 Power Supply Cross Reference

Power Supply	Location	Area Supplied
PS1	01F	Basic board MOSS board FDD and HDD LIC board 01M-A1 LIC board 01M-A2 LIC board 01L-A1 LIC board 01L-A2
PS2	01H	Fans PCC Panel

Power Supply 2

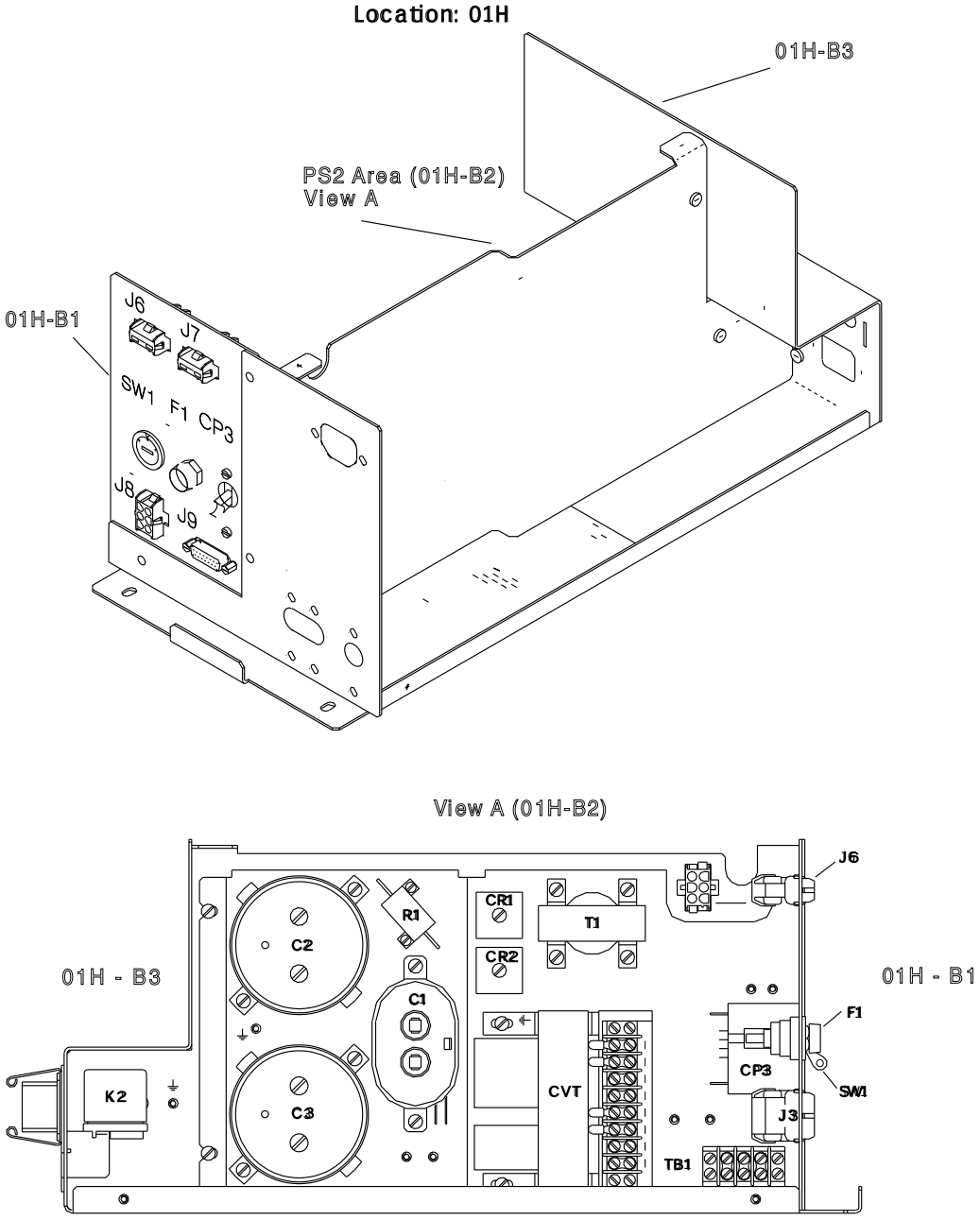


Figure 4-37. 3745 Power Supply 2 Components

Fan 1

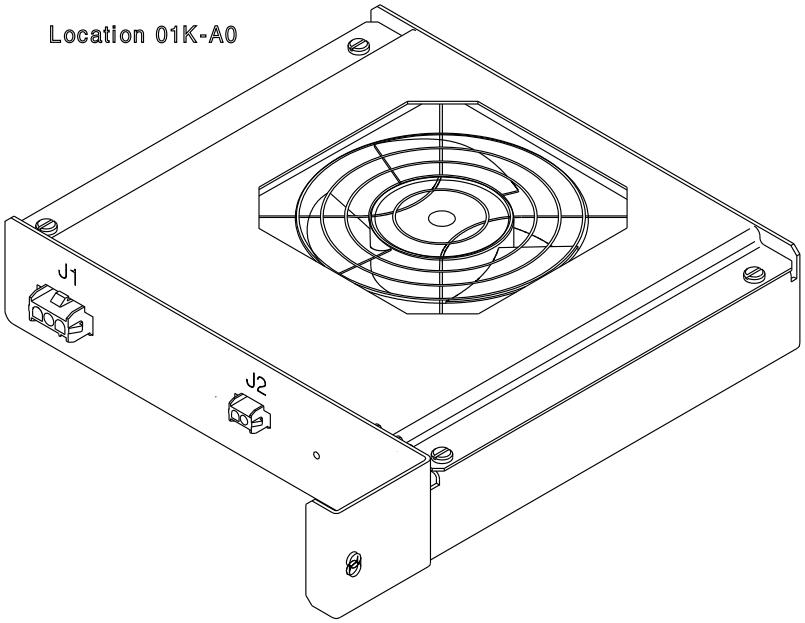


Figure 4-38. 3745 Fan 1 Components

Fan 2

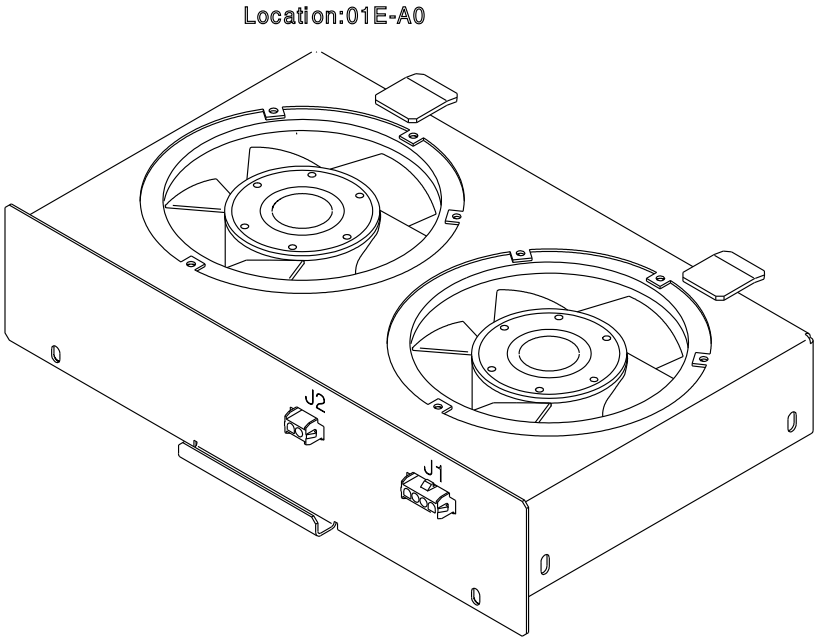


Figure 4-39. 3745 Fan 2 Components

3745 FRU Exchange Procedures

Card Exchange Procedure

1. **Inform the customer that the 3745 is to be powered OFF.**
2. Press **Power Off** on the control panel.
3. Open the front door.
4. **Switch CB1 OFF.** Refer to Figure 4-40.

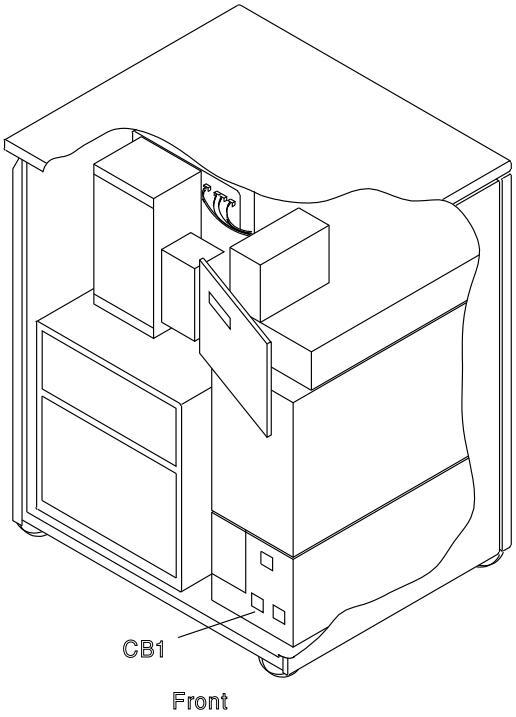


Figure 4-40. CB1 Location.

5. Check for the physical location.
   a. For the physical board location, refer to Figure 4-1 on page 4-3
   b. For the physical card location:
      - On the Basic board refer to Figure 4-4 on page 4-6, Figure 4-5 on page 4-7, or Figure 4-6 on page 4-8 or Figure 4-7 on page 4-9.
      - On the MOSS board, refer to Figure 4-9 on page 4-11.
6. Remove the following covers, (refer to Figure 4-41 on page 4-35): Cover **1** for the basic board (loosen the 2 screws **2** and lift up the cover), and covers **3** for the MOSS board (remove the 7 screws **4**).
7. **Attention: Use the ESD kit and procedures.**
8. If the card to be replaced is a CADR, go to Step 24 on page 4-36.
9. If the card to be replaced is an MLA, go to Step 33 on page 4-37.
10. Remove the crossover connectors (if installed) from the card exchanged.
11. Remove the line cable(s), if any (cards FESH, TIC2, or EAC).
12. If the card to be exchanged is on the MOSS board, remove the **shipping springs** that secure the extractor levers by sqeezing them together. Refer to Figure 4-42 on page 4-35.
13. If the card to be exchanged is a CAL or a STO, ensure that the new card is identical with the previous one (for STO there are two types of cards: STO4 for 4MB and STO8 for 8MB. For CAL there are two types of cards: CAL6 for CADS feature and CAL7 for BCCA feature).
14. Exchange the card, re-install the crossover connectors (if installed) and re-install the **shipping springs** (if you have exchanged a card on the MOSS board).
15. Replace the board covers.
16. **Switch CB1 ON**.
17. Close the front door.
18. If the replaced card is the PCC, go to step 21.
19. Power the 3745 ON.
20. Referring to Chapter 3, “How to Run 3745 Diagnostics” on page 3-1, run the same diagnostic in ODG that you ran before you exchanged the FRU. Go to “Action to Take After a Diagnostic Run or an FRU Exchange” on page 4-99.

PCC Replacement

21. From Step 18: Power the 3745 ON. Ignore the BERs that are logged, (they are due to the **time-of-day** clock not being set).
22. Set the **time-of-day** clock. Refer to the *IBM 3745 Communication Controller Service Function*, SY33-2069.
23. Referring to Chapter 3, “How to Run 3745 Diagnostics” on page 3-1, run the same diagnostic in ODG that you ran before you exchanged the FRU. Go to “Action to Take After a Diagnostic Run or an FRU Exchange” on page 4-99.

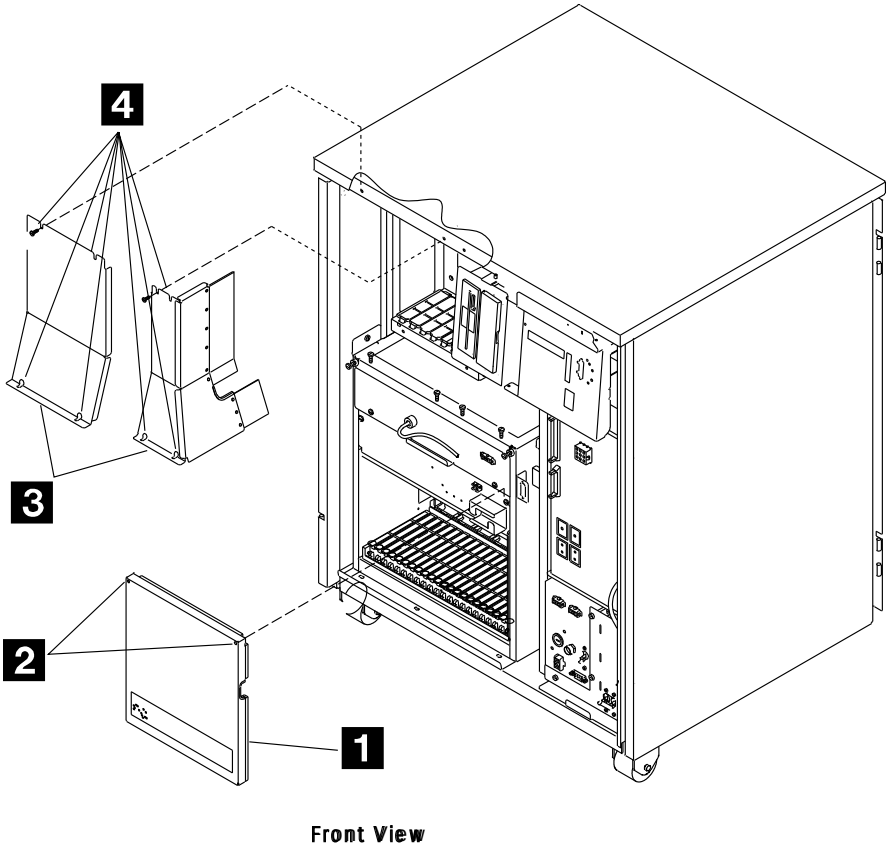


Figure 4-41. Covers

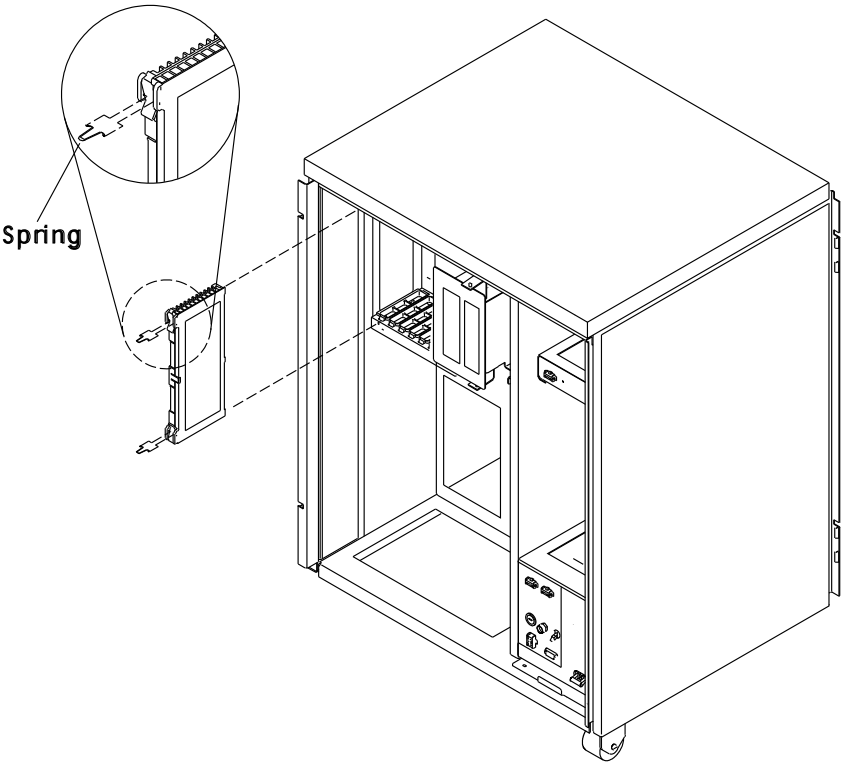


Figure 4-42. Shipping Springs

CADR Exchange

24. From step 8 on page 4-34: At the Channel Tailgate set the Select Out Bypass switch to **bypass** (refer to Figure 4-27 on page 4-25, to Figure 4-43, and to Figure 4-44) according to the CADR to be replaced (refer to Table 4-10).
25. Remove the crossover connectors from the card to be exchanged.
26. Exchange the card and re-install the crossover connectors.
27. Replace the board cover.
28. Set the Select Out Bypass switch to **normal**
29. **Switch CB1 ON**.
30. Close the front door.
31. Power the 3745 ON.
32. Referring to Chapter 3, “How to Run 3745 Diagnostics” on page 3-1, run the same diagnostic in ODG that you ran before you exchanged the FRU. Go to “Action to Take After a Diagnostic Run or an FRU Exchange” on page 4-99.

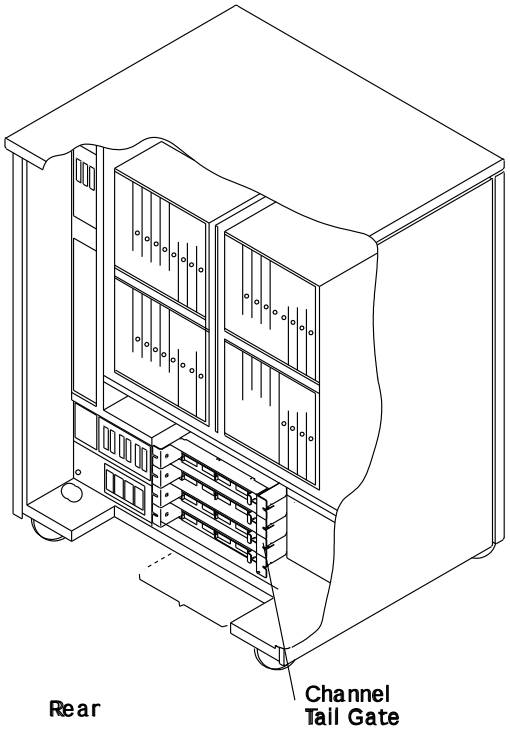


Figure 4-43. Channel Tailgate Location

Table 4-10. Select Out Switches According to CADR Cards

Select Out Switch	CADR Card
01P-4	01G-A1B
01P-3	01G-A1D
01P-2	01G-A1F
01P-1	01G-A1H

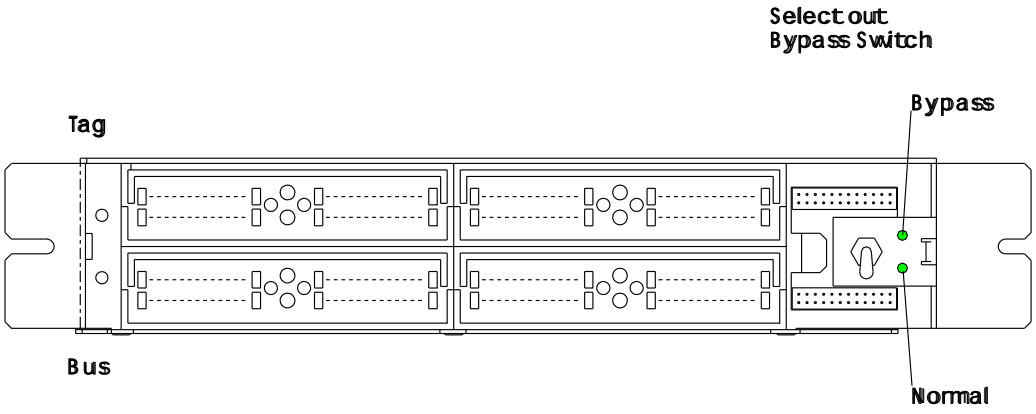


Figure 4-44. Select Out Switch

MLA Exchange.

33. From step 9 on page 4-34: Obtain the service processor maintenance password from the customer in order to logon at the service processor console.
34. If the logon is already done, go to Step 36. If it is not done, proceed with Step 35.
35. To log on:
    a. In the **MOSS-E View** window, click on **Program** (in the action bar).
    b. Click on **Log on MOSS-E**.
    c. Enter the password.
36. In the **MOSS-E View** window, locate the serial number of the machine that contains the MLA card.
37. Click on the associated icon. The serial number is displayed on the bottom line of the **MOSS-E View** window.
38. In the **MOSS-E View** window double-click on Service Processor icon.
39. In the **Service Processor Menu** window, click on the **Configuration Management** option.
40. Double-click on the **Manage 3745/3746-9x0 Installation** option.
41. In the **Controller Installation** window select the machine by clicking on the 3745 serial number for which your are called and click on **Repair**.
42. On the **Repairs Action for 3745** window select the **Change 3745 MOSS LAN Adapter** option and click on **OK**.
43. The **Controller Repair Message** window is displayed. Perform the following steps before clicking on **OK**.
    a. Locate the card (refer to Figure 4-10 on page 4-12).
    b. Disconnect the cable attached to the card.
    c. **Attention:** Use the ESD kit and procedures.
    d. Loosen the two thumbscrews and remove the card.
    e. Install the new card and tighten the two thumbscrews.
    f. Reconnect the cable to the card.
    g. Replace the board cover(s).
    h. **Switch CB1 ON**.
    i. Close the front door.
    j. Power ON the 3745.

    Note: This action will also run MOSS diagnostics and complete a MOSS IML. A successful completion will result in a code **F0E**, **F0F**, or **000**. If any other code is displayed, an error was detected. See “3745 Control Panel Codes” on page 1-15.
44. On the **Controller Repair Message** window of the MOSS-E, click on **OK**.
45. On the **Controller Installation** window, click on **Save**.
46. A new window prompts you to install the installation diskette in the service processor.
47. Click on **OK** when it is done, a **Controller Saving Message** is displayed.
48. Remove the diskette, and click on **OK**.
49. The **Controller Installation** window is again displayed, click on **Cancel**.
50. Go to “Action to Take After a Diagnostic Run or an FRU Exchange” on page 4-99.

DCREG Exchange Procedure

Removal Procedure

1. **Inform the customer that the 3745 is to be powered OFF.**
2. Press Power OFF on the control panel.
3. Open the front door.
4. **Switch CB1 OFF.** Refer to Figure 4-45.
5. Locate the basic board. Refer to Figure 4-45.
6. Remove the basic board cover (loosen the two screws then lift up the cover).
7. **Attention: Use the ESD kit and procedures.**
8. At the channel tailgate set all the Select Out Bypass switches to **bypass** (refer to Figure 4-43 and to Figure 4-44 on page 4-36).
9. Remove all the cards.
10. Release the retainer at the bottom of the board (one screw must be loosened).
11. Remove the DCREG card in position E-F or G-H of row Z. Refer to Figure 4-5 on page 4-7, Figure 4-6 on page 4-8, or Figure 4-7 on page 4-9.

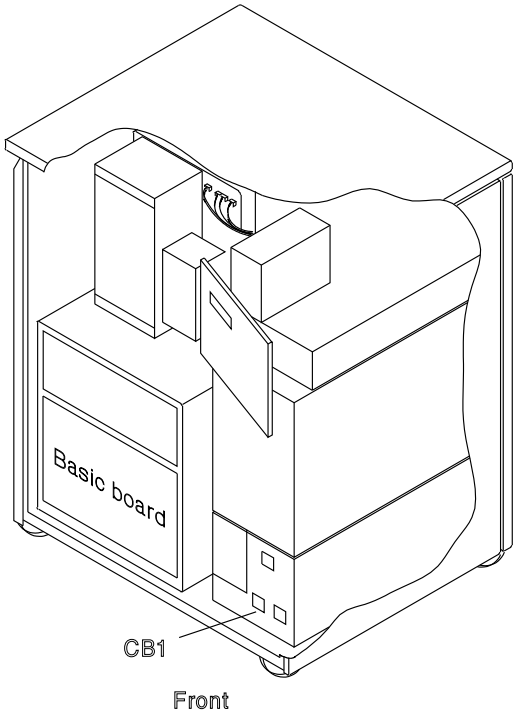


Figure 4-45. Basic Board and CB1 Locations

Installation Procedure

1. Install the new DCREG card.
2. Re-install the retainer.
3. Re-install the cards.
4. Replace the basic board cover.
5. Set all the Select Out Bypass switches to **normal**.
6. **Switch CB1 ON**.
7. Close the front door.
8. Press **Power On** on the control panel.
9. Referring to Chapter 3, “How to Run 3745 Diagnostics” on page 3-1, run the same diagnostic in ODG that you ran before you exchanged the FRU.
10. Go to “Action to Take After a Diagnostic Run or an FRU Exchange” on page 4-99.

DMUX Exchange Procedure

Since the DMUX is hot-pluggable, there is no need to power OFF.

Removal Procedure

1. Open the rear door.
2. For the board location refer to Figure 4-46.
3. Remove the related DMUX cover (refer to Figure 4-47). Two screws must be removed **1** . (Two types of DMUX cover exist according to the board location.)
4. For the DMUX location, refer to Figure 4-48 on page 4-40. The thumb screw color of the DMUX is white.
5. Refer to Figure 4-49 on page 4-40. Note the DMUX cables locations then remove them.
6. Unfasten the thumb screw holding the DMUX cassette to the board.
7. Remove the DMUX cassette.

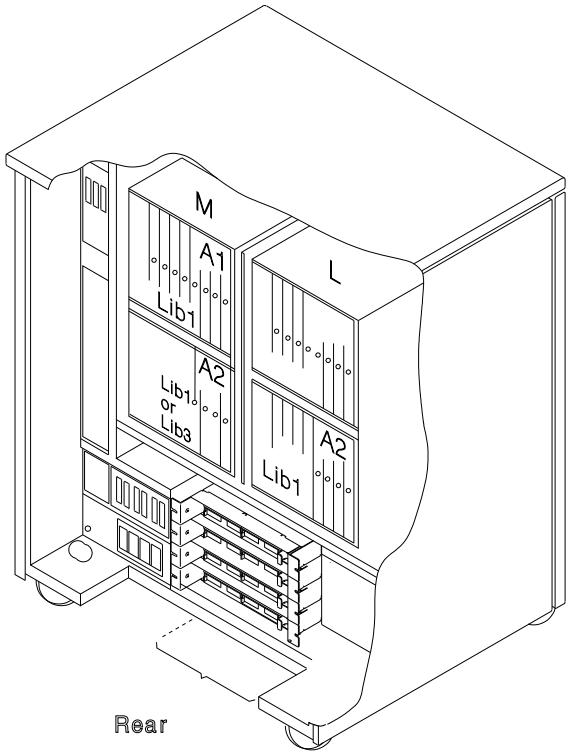


Figure 4-46. Location of the LIC Boards

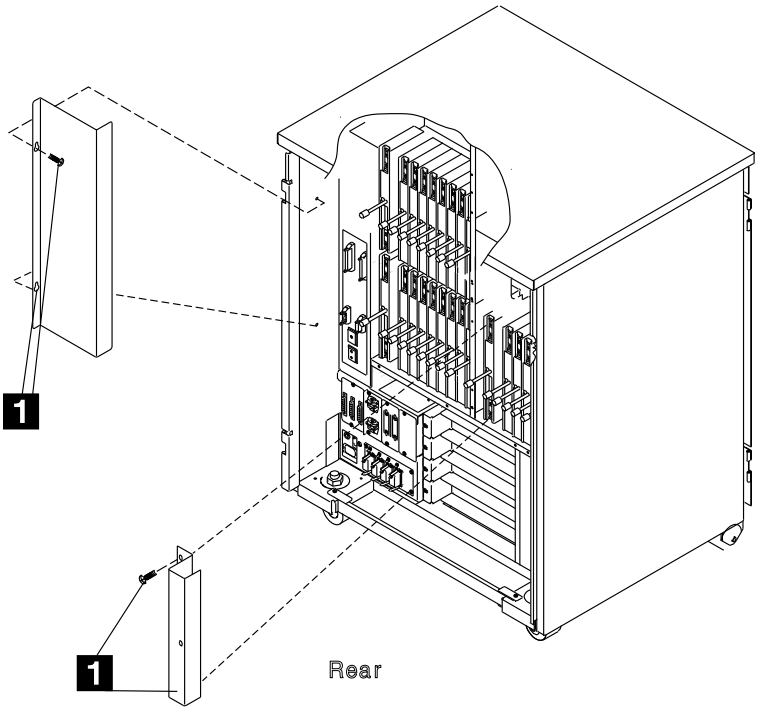


Figure 4-47. DMUX Cover

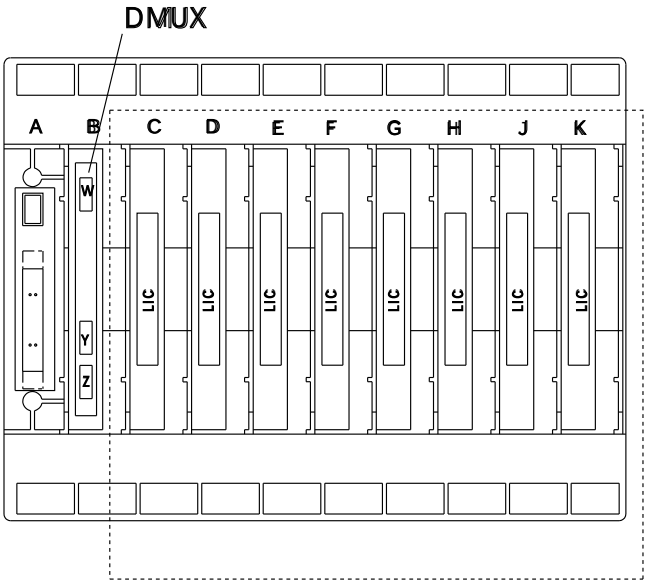


Figure 4-48. DMUX Location

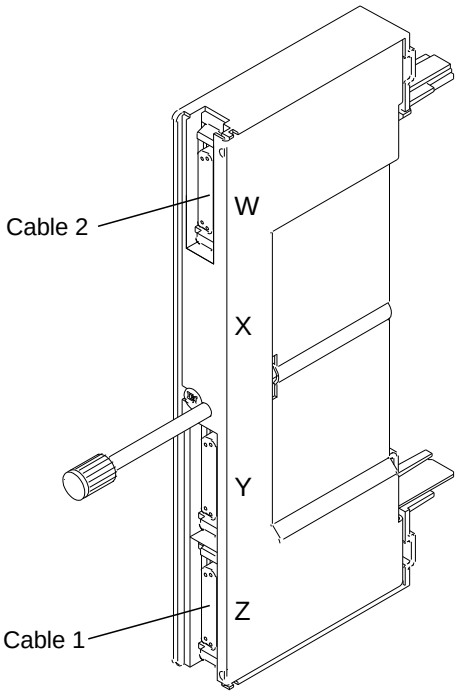


Figure 4-49. DMUX

Installation Procedure

1. Install the new DMUX cassette.
2. Fasten the thumb screw holding the DMUX cassette to the board. Finger strengh is enough. Do not use tools.
3. Replace the DMUX cables in their proper positions.
4. Re-install the DMUX cover with the two screws. Refer to Figure 4-47 on page 4-39.
5. Close the rear door.
6. Referring to Chapter 3, “How to Run 3745 Diagnostics” on page 3-1, run the same diagnostic that you ran before you exchanged the FRU. Go to “Action to Take After a Diagnostic Run or an FRU Exchange” on page 4-99.

Note

If exchanging the DMUX does not solve the problem, you should test the voltage levels **at the DMUX test points**. If voltage levels are not correct, suspect the Power Supply 1.
For test point pin locations, see page YZ738.
For voltage tolerances, see *IBM 3745 Hardware Maintenance Reference*, SY33-2066.

SMUXA/B Exchange Procedure

Removal Procedure

Since the SMUX is hot-pluggable, there is no need to power OFF.

1. Open the rear door.
2. For the board location, refer to Figure 4-50.
3. Remove one of the SMUX covers. Refer to Figure 4-51 (two screws must be removed **1**).

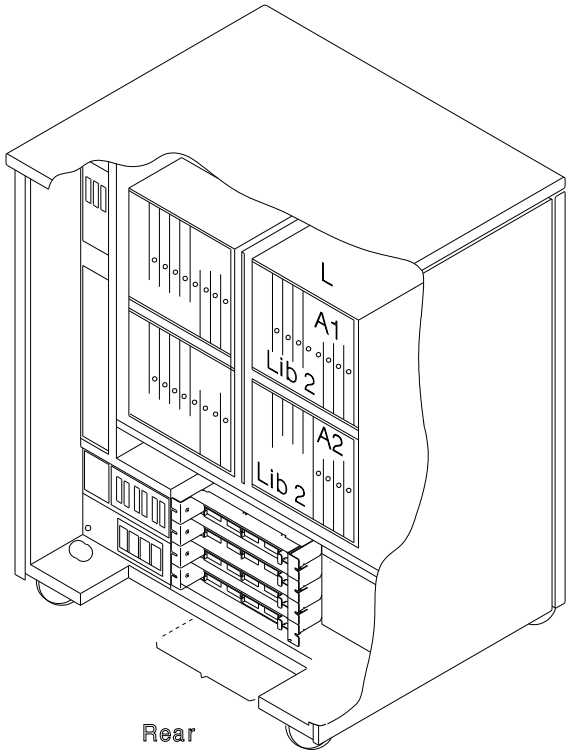


Figure 4-50. Location of the LIC Boards Type 2

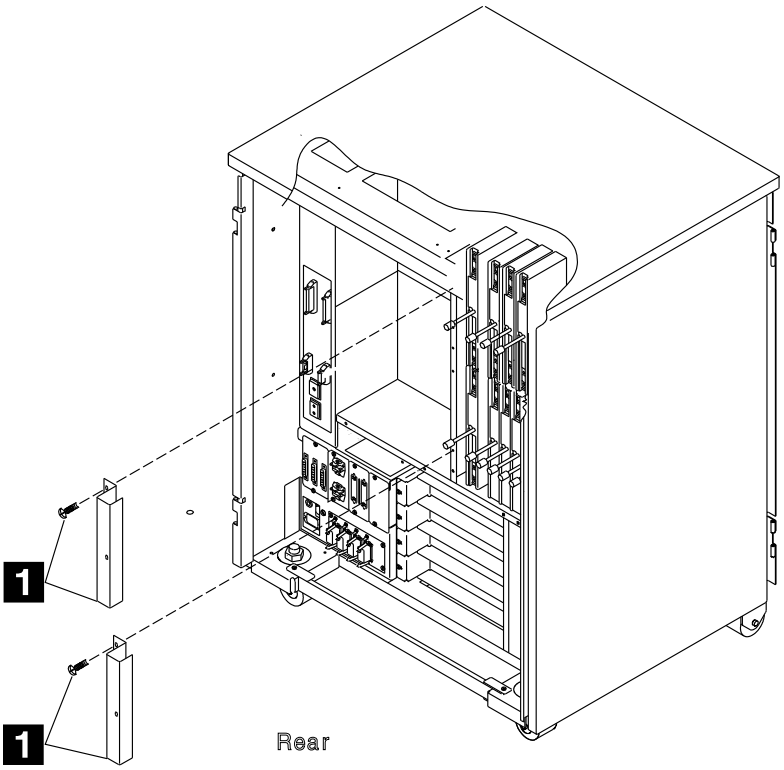


Figure 4-51. SMUX Cover

4. For the SMUX location, refer to Figure 4-52.

Refer to Figure 4-53 and do the following:

5. Remove the serial link cable (if installed) from the SMUX (this cable is absent on SMUXB when SMUXA and the flat cable **2** are present).
6. Remove the flat cable **2** (if installed) which connects the two SMUXs, (if two LIC boards type 2 are present in the machine). This cable may be absent in spite of the presence of the two boards.
7. Unfasten the thumb screw holding the SMUX cassette to the board.
8. Remove the SMUX cassette.

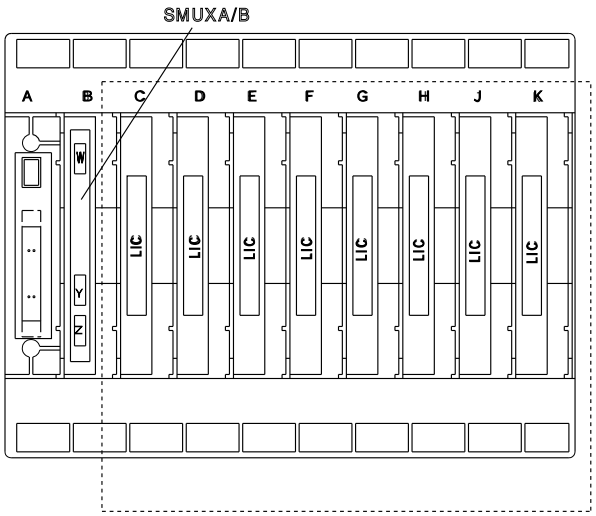


Figure 4-52. SMUX Location

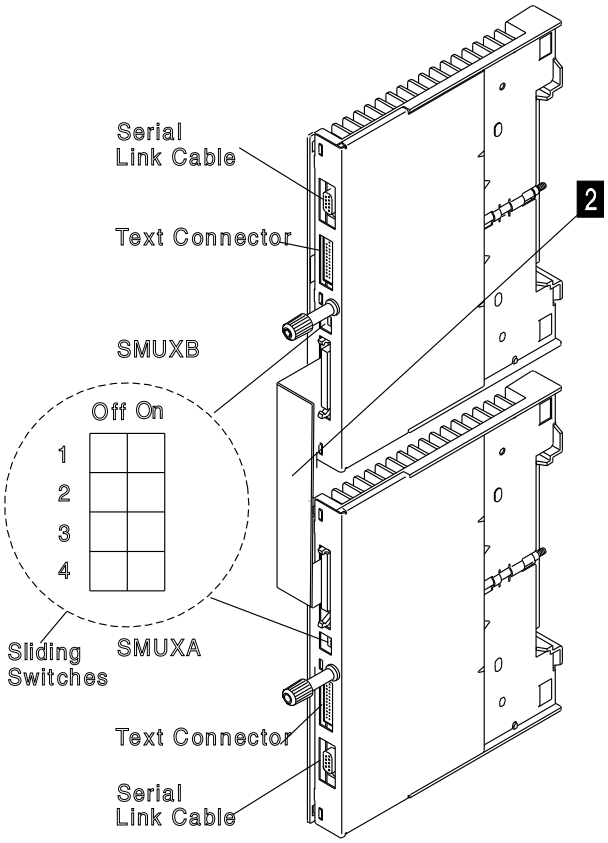


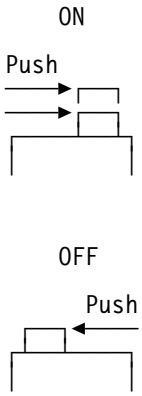
Figure 4-53. SMUX Link and Cable

Installation Procedure

1. Install the new SMUX cassette.
2. Fasten the thumb screw holding the SMUX cassette to the board. Finger strength is enough. Do not use tools.
3. Replace the SMUX cables.
4. Set the XMIT level according to the table below. Refer to Figure 4-53 on page 4-42 for the sliding switches.

3

Country (leased lines)	XMIT Level (in dBm)	Sliding Switches			
		1	2	3	4
Canada, Greece, Ireland, U.S.A., and other AP/APG countries	0				
	- 1	ON			
	- 2		ON		
	- 3	ON	ON		
	- 4			ON	
	- 5	ON		ON	
Chile, and other E.M.E.A. countries	- 6		ON	ON	
	- 7	ON	ON	ON	
	- 8				ON
Hong-Kong	- 9	ON			ON
Denmark, Finland Iceland, Italy, Sweden	-10		ON		ON
	-11	ON	ON		ON
	-12			ON	ON
Australia, U.K.	-13	ON		ON	ON
	-14		ON	ON	ON
France, Japan	-15	ON	ON	ON	ON



5. Re-install the SMUX cover with the 2 screws. Refer to Figure 4-51 on page 4-41.
6. Close the rear door.
7. Referring to Chapter 3, “How to Run 3745 Diagnostics” on page 3-1, run the same diagnostic you ran before you exchanged the FRU, then go to “Action to Take After a Diagnostic Run or an FRU Exchange” on page 4-99.

Note

If exchanging the SMUX does not solve the problem, you should test the voltage levels **at the SMUX test points**. If the voltage levels are not correct, suspect the Power Supply 1.
For test point pin location, see page YZ739.
For voltage tolerances, see *IBM 3745 Hardware Maintenance Reference*, SY33-2066.

LIC Exchange Procedure

Removal Procedure: Since the LIC is hot-pluggable, there is no need to power OFF.

1. For physical locations, refer to Figure 4-54, Figure 4-56, and to Figure 4-57 on page 4-45.
2. Open the rear door.
3. Remove the line cables from the PTT/Common carrier wall socket if you deal with LIC 5 or 6.
4. Remove the line cables from the LIC. Note their positions.
5. If you are working with LIC 5 or 6, check if the **LIC configuration** is available.If it is not, use the PKD (Refer to the *Connection and Integration Guide,* SA33-0141).
6. Unfasten the thumb screw holding the LIC cassette to the board.
7. Remove the LIC cassette.

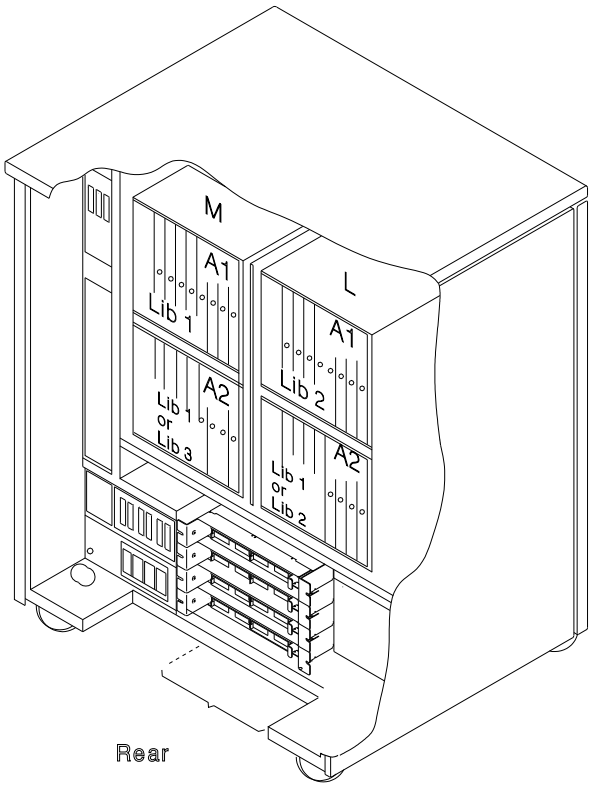


Figure 4-54. Location of the LIC Boards

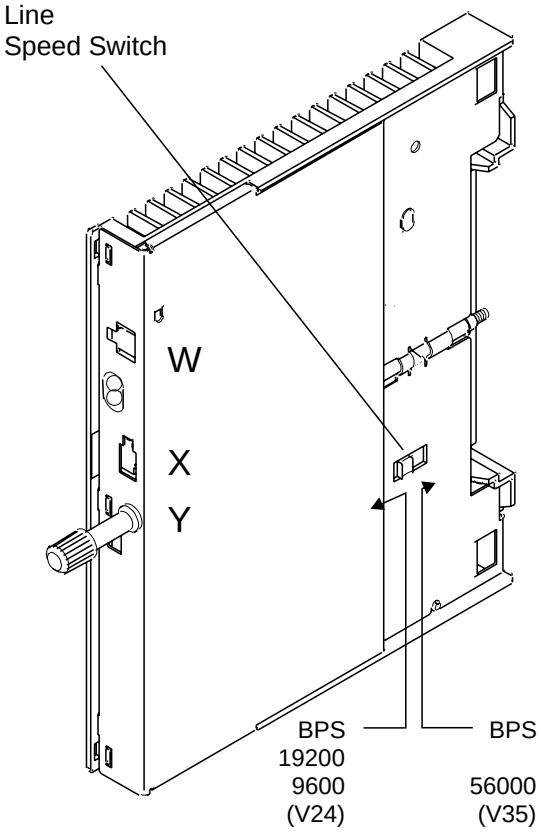


Figure 4-55. LIC 6

Installation Procedure

1. If you are working with a LIC type 6 (refer to Figure 4-55), note the position of the line speed switch, then set the line speed switch of the new LIC accordingly.
2. Install the new LIC cassette.
3. Fasten the thumb screw holding the LIC cassette to the board. Finger strength is enough. Do not use tools.
4. If a LIC 5 or 6 has been installed, configuration must be done with the PKD (refer to the *Connection and Integration Guide*, SA33-0141).
5. Replace the line cables in their proper positions on the LIC.
6. Reconnect the line cable(s) to the PTT/Common carrier wall socket if you are working with LIC 5 or 6.
7. Close the rear door.
8. Referring to Chapter 3, “How to Run 3745 Diagnostics” on page 3-1, run the same diagnostic that you ran before you exchanged the FRU. Go to “Action to Take After a Diag-

nostic Run or an FRU Exchange" on page 4-99.

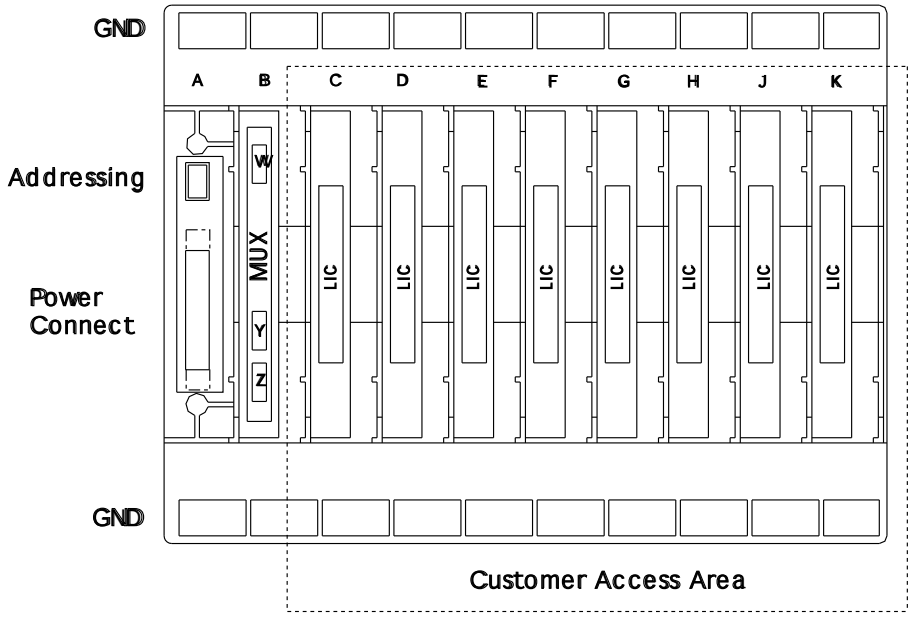


Figure 4-56. LIC Board Type 1 and 2

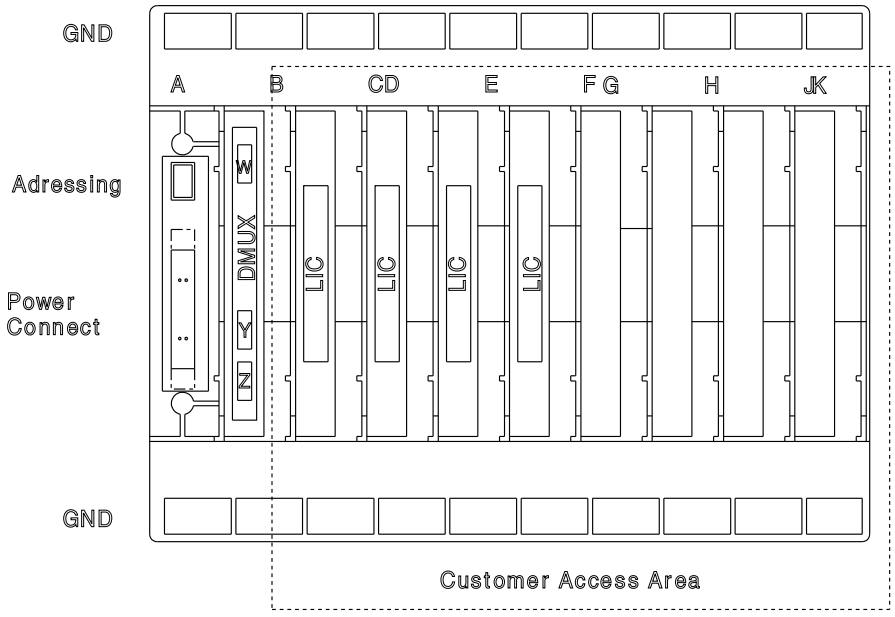


Figure 4-57. LIC Board Type 3

Control Panel Exchange Procedure

Removal Procedure

1. **Inform the customer that the 3745 is to be powered OFF.**
2. Press **Power Off** on the control panel.
3. Open the front door.
4. **Switch CB1 OFF.** Refer to Figure 4-58.
5. Locate the control panel and the MOSS. Refer to Figure 4-58.
6. Open the control panel door (one screw must be removed).
7. Remove the MOSS right cover (three screws must be removed **1**). Refer to Figure 4-59.
8. Refer to Figure 4-58 and to Figure 4-60 on page 4-47, then remove (from the MOSS board) the cable going to the control panel (Y0-D1).
9. Release the cable from its securing points.

Refer to Figure 4-61 on page 4-47 and do the following:

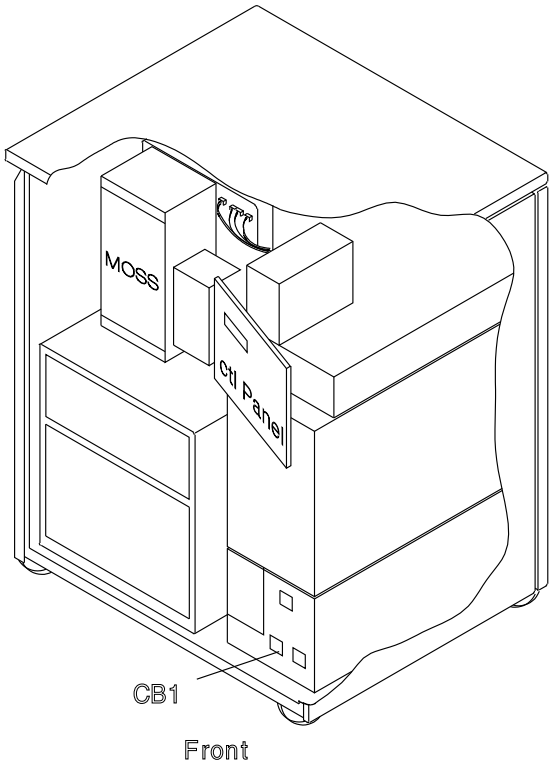


Figure 4-58. Panel, MOSS, and CB1 Locations

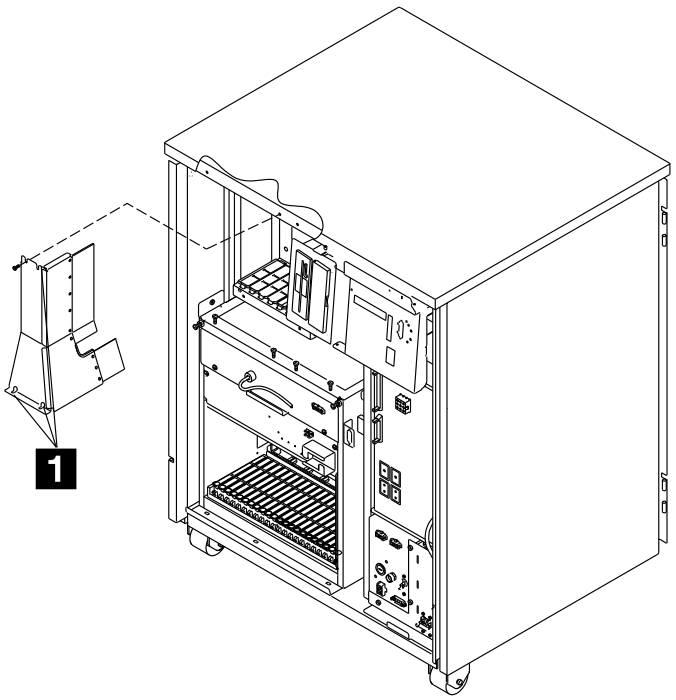


Figure 4-59. MOSS Right Cover

10. Remove the panel cover (three screws must be removed **2**).
11. Remove the five screws holding the panel to the door **3** .
12. Withdraw the panel with the cable.

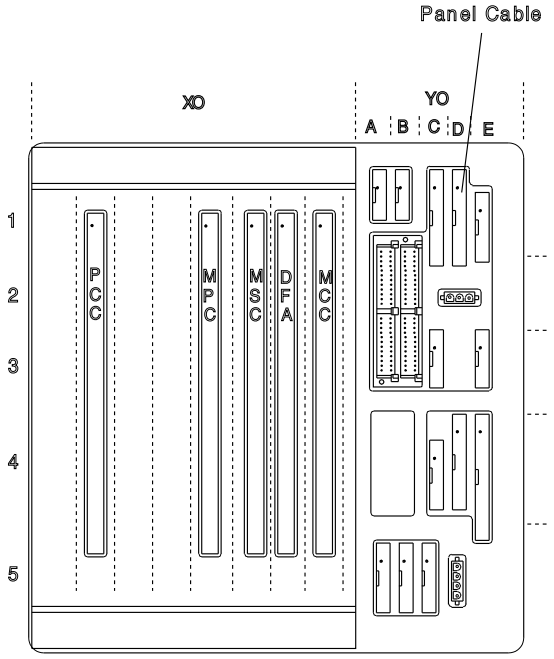


Figure 4-60. Panel Cable Location on MOSS Board

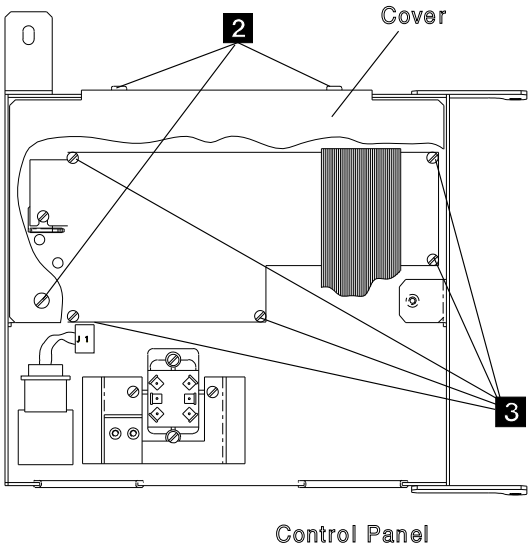


Figure 4-61. Panel

Installation Procedure

1. Install the new panel on the panel door and attach it with the five screws **3** .
2. Re-install the panel cover with the three screws **2** .
3. Re-install the cable in its path and reconnect it to the MOSS board.
4. Re-install the MOSS right cover with the three screws **1** .
5. Close the control panel door with one screw.
6. **Switch CB1 ON**.
7. Close the front door.
8. Press **Power On** on the control panel.
9. Referring to Chapter 3, “How to Run 3745 Diagnostics” on page 3-1, run the same diagnostic in ODG that you ran before you exchanged the FRU. Go to “Action to Take After a Diagnostic Run or an FRU Exchange” on page 4-99.

Battery Exchange Procedure

It is the Service Personnels responsibility to exchange the battery.

The 3745 will automatically send an alert to the operator console when there is a need to exchange the battery.

Removal Procedure

1. Locate the control panel. Refer to Figure 4-62.
2. Open the front door.
3. Open the control panel door (one screw must be removed).
4. Locate the battery **1**. Refer to Figure 4-63.
5. Remove the tie wrap on the battery and disconnect the battery plug **2**.

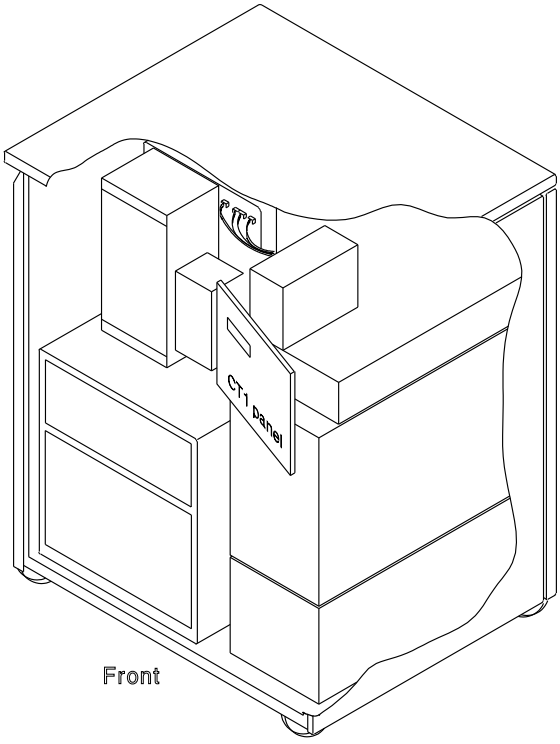


Figure 4-62. Panel Location

Installation Procedure

1. Insert the new battery and reconnect the plug.
2. Fasten the tie wrap to the battery.
3. Close the control panel door with the screw.
4. Close the front door.

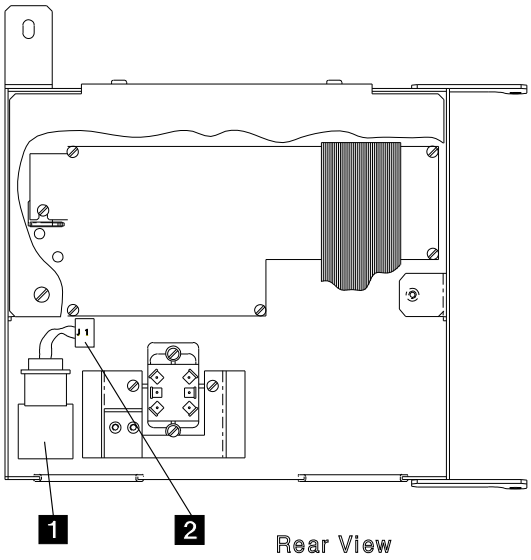


Figure 4-63. Battery Location

5. **Battery disposal must be performed according to the instruction on the battery case.**

Reporting: Update the battery exchange record as follows:

- Using the 3745 console, type **POS** on any displayed screen selection area for **Power Services Screen**.
- Press **SEND**.
- The **Power Services Screen** is displayed. Refer to Figure 4-64 on page 4-49. If a MOSS console function is in process, press the **F1** key to terminate.
- Type **2** in the selection area for **Battery change acknowledge**.
- Press **SEND**.
- The **Battery Change Screen** is displayed. Refer to Figure 4-65 on page 4-49.
- Type **Y** in the CONFIRM THAT THE BATTERY HAS BEEN CHANGED (Y/N) ==> field.
- Press **SEND**.

A successful command message will appear.

Go to “CE Leaving Procedure” on page 4-102 for the time update.

Note: If the code **007** is displayed on the 3745 control panel, a MOSS IML (function 1) should be performed to reset this code.

```
CUSTOMER ID:                          3745            SERIAL NUMBER:
CCA-A          PROCESS MOSS-ALONE        X71:0A0800
RESET     BYP-IOC-CHK STOP-CCU-CHK       X71:0BC800



------------------------------------------------------------- 03/01/87 01:2
FUNCTION ON SCREEN: POWER SERVICES

- SELECT ONE OPTION, THEN PRESS ENTER  ==>




          1 = POWER DUMP
          2 = BATTERY CHANGE ACKNOWLEDGE




===>

F1:END  F2:MENU2  F3:ALARM              F6:QUIT
```

Figure 4-64. Power Services Screen

```
CUSTOMER ID:                          3745            SERIAL NUMBER:
CCU-A          PROCESS MOSS-ALONE        X71:0A0800
RUN       BYP-IOC-CHK STOP-CCU-CHK       X72:0BC800



------------------------------------------------------------- 03/01/87 01:2
FUNCTION ON SCREEN: POWER SERVICES









CONFIRM THAT THE BATTERY HAS BEEN CHANGED (Y/N) ==>



===>

F1:END  F2:MENU2  F3:ALARM              F6:QUIT
```

Figure 4-65. Acknowledge Screen

Fan 1 Exchange Procedure

Removal Procedure

1. **Inform the customer that the 3745 is to be powered OFF.**
2. Press **Power Off** on the control panel.
3. Open the front door.
4. **Switch CB1 OFF.** Refer to Figure 4-66.
5. Locate Fan 1. Refer to Figure 4-66.
6. At Fan 1, disconnect the air flow detector cable and the power cable. Refer to Figure 4-67.
7. Remove the screw **1** which maintains Fan 1 to the frame.
8. Slide the Fan 1 assembly out.

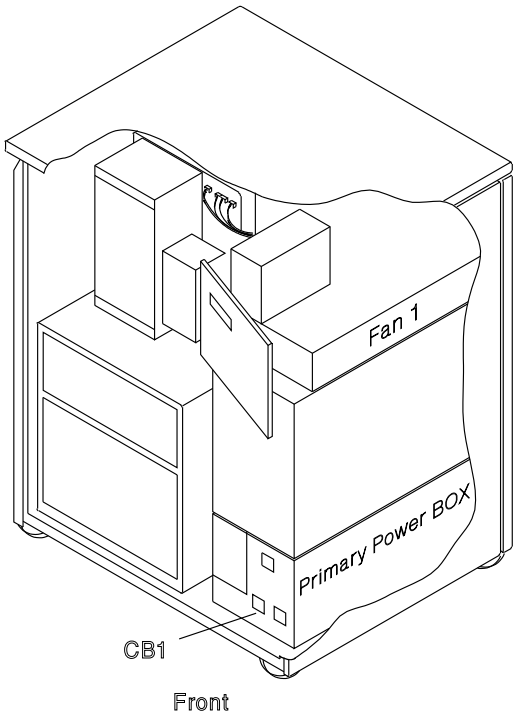


Figure 4-66. Fan 1 and CB1 Locations

Installation Procedure

1. Install the new Fan 1 in the frame and fasten it with the screw **1** .
2. Reconnect the air flow detector cable and the power cable to Fan 1.
3. **Switch CB1 ON**.
4. Close the front door.
5. Press **Power On** on the control panel.
6. Referring to Chapter 3, “How to Run 3745 Diagnostics” on page 3-1, run the same diagnostic in ODG that you ran before you exchanged the FRU. Go to “Action to Take After a Diagnostic Run or an FRU Exchange” on page 4-99.

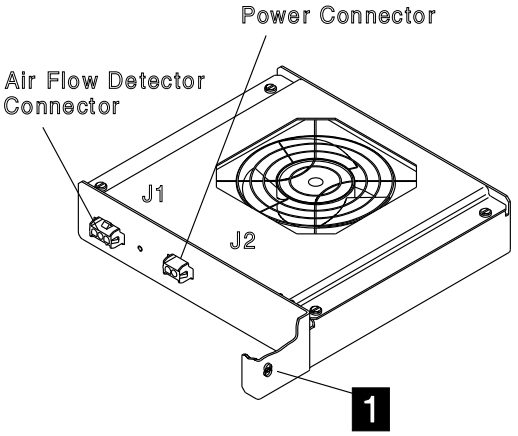


Figure 4-67. Fan 1 Air Flow Detector and Power Cables

Fan 2 Exchange Procedure

Removal Procedure

1. **Inform the customer that the 3745 is to be powered OFF.**
2. Press Power OFF on the control panel.
3. Open the front door.
4. **Switch CB1 OFF.** Refer to Figure 4-68.
5. Locate Fan 2. Refer to Figure 4-68.
6. At Fan 2, disconnect the air flow detector cable and the power cable. Refer to Figure 4-69.
7. Remove the two screws **1** which maintain Fan 2 on the frame.
8. Slide the Fan 2 assembly out.

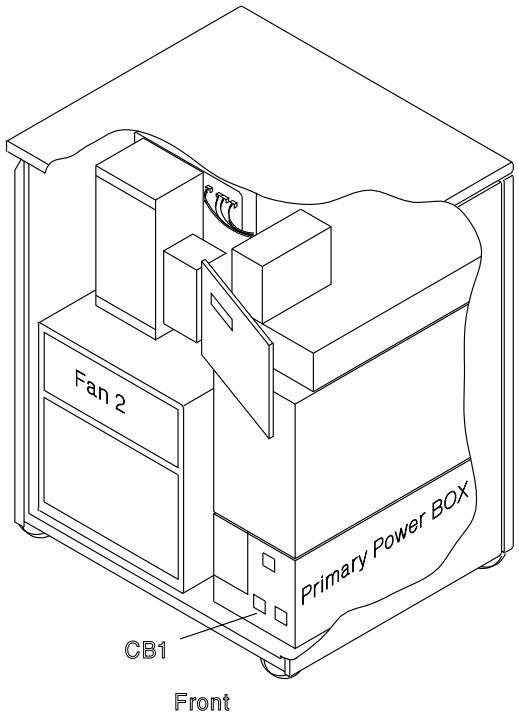


Figure 4-68. Fan 2 and CB1 Locations

Installation Procedure

1. Install the new Fan 2 in the frame and fasten it with the two screws **1** .
2. Reconnect the air flow detector cable and the power cable to Fan 2.
3. **Switch CB1 ON**.
4. Close the front door.
5. Press **Power On** on the control panel.
6. Referring to Chapter 3, “How to Run 3745 Diagnostics” on page 3-1, run the same diagnostic in ODG that you ran before you exchanged the FRU. Go to “Action to Take After a Diagnostic Run or an FRU Exchange” on page 4-99.

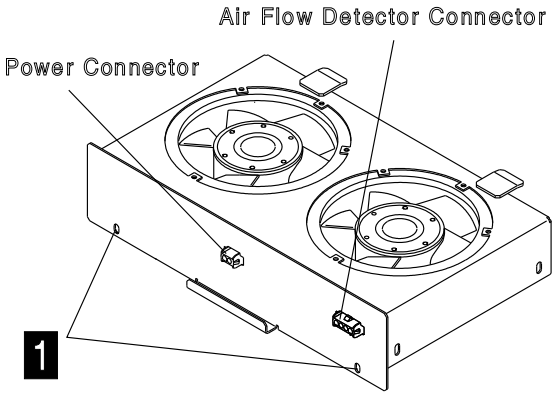


Figure 4-69. Fan 2 Air Flow Detector and Power Cables

FDD Exchange Procedure

Removal Procedure: For physical locations, refer to Figure 4-70.

Important

The MOSS must be loaded from the Disk. If you are not sure, execute a MOSS IML from the Disk. Refer to “How to Perform 3745 Control Panel Operations” on page 1-82.

Check that the **Power Control** display is set to local **3** on the control panel. If yes, go to Step 3.

If not, proceed with Step 1.

1. Press **power Control** until **3** (Local mode) is displayed in the power control window.
2. Press **Validate**.
3. Press **Service** until **1** (Maintenance 1) is displayed in the service window.

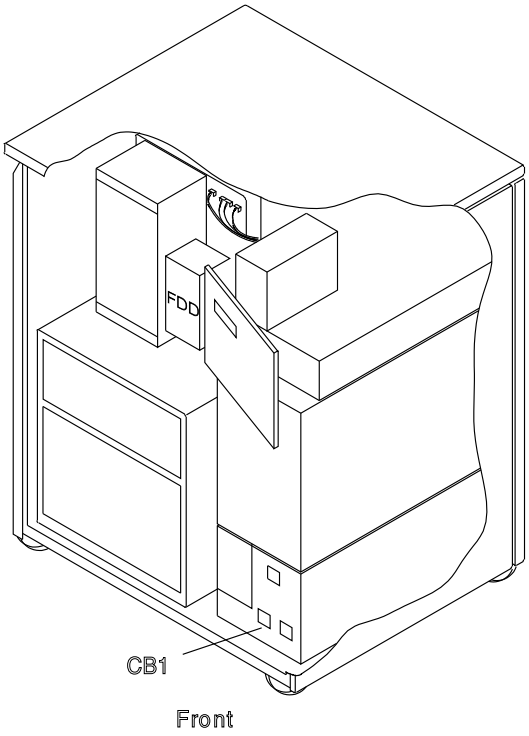


Figure 4-70. FDD and CB1 Location

4. Press **Validate**.
5. Disable the MOSS area as follows (if NCP is running in the 3745):
   a. Invoke Menu 2 (See PF key line).
   b. In Menu 2, type **MOF** in the selection area for **MOSS OFFLINE**.
   c. Press **SEND**.
   d. **MOSS OFFLINE** is displayed.
6. Open the front door.
7. Before exchanging the FDD, check the voltages as follows:

   Note: The voltages are not permanently applied on the FDD and, to have them available for measurement for approximately 15 minutes, a MOSS IML is required.

   a. Press **Function** key on the control panel until the **MOSS IML** function **1** is displayed.

Table 4-11. Voltage Test Points				
Connector	**Pin**	**Voltage**	**Maximum**	**Minimum**
01B-A1J2 (FDD)	1 2 3 4	+12 V GND GND + 5 V	+13.00 V + 5.25 V	+11.00 V + 4.85 V
PS1-J1 Voltage Test Points	2 5 12	+12 V + 5 V GND	+13.00 V + 5.25 V	+11.00 V + 4.85 V

b. Press **Validate**.

c. Using Table 4-11, measure the voltages on the voltage test points of PS1 (refer to Figure 4-71). If the voltages are incorrect, exchange PS1.

8. Remove the power as follows:

a. Invoke the menu 1 (see PF key line).

b. In menu 1 type **DIF** in the selection area for **Disk Function**.

c. Press **SEND**.

d. The **Disk Function Screen** is displayed.

e. Type **8** the in selection area for **Power OFF Disk/Diskette Driver**.

f. Press **SEND**.

g. If **DISK/DISKETTE DRIVES CONCURRENT MAINTENANCE ENTERED** is displayed, go to Step 9 on page 4-54.

h. If **DISK/DISKETTE DRIVES CONCURRENT MAINTENANCE CANCELLED** is displayed, procede as follows:

1) **Inform the customer that the 3745 is to be powered OFF.**

2) Press **Power Off** on the control panel.

3) **Switch CB1 OFF.** Refer to Figure 4-70 on page 4-52.

4) Go to Step 9 on page 4-54.

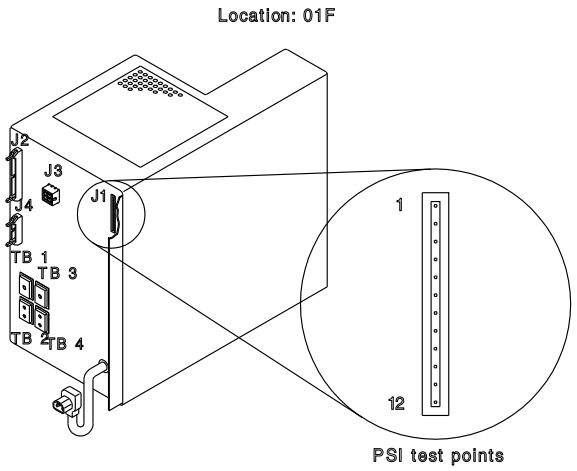


Figure 4-71. PS1

9. **Attention: Use the ESD kit and procedures.**
10. Refer to Figure 4-72. Remove the MOSS board covers 1 (seven screws must be removed 2).
11. **Refer to Figure 4-73** .
12. Locate the FDD 3 .
13. Remove the two cables 4 at the back of the FDD.
14. Remove the four securing screws from the assembly 5 .
15. Slide the FDD assembly out.

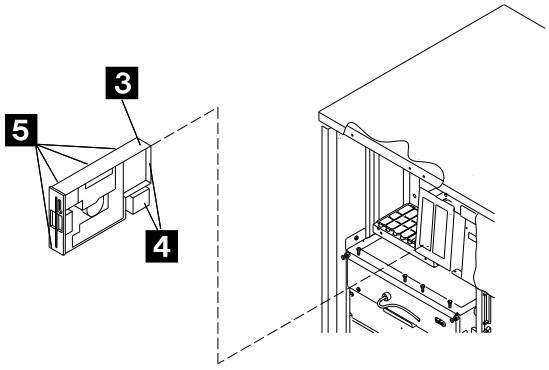


Figure 4-73. FDD Removal

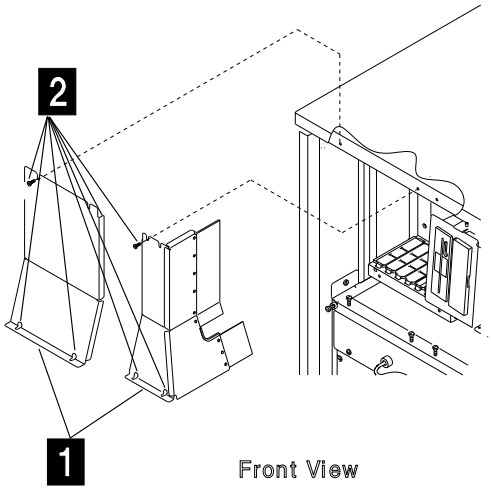


Figure 4-72. MOSS Covers

Installation Procedure

1. Check that the new FDD has a jumper in position 0 (refer to Figure 4-74).

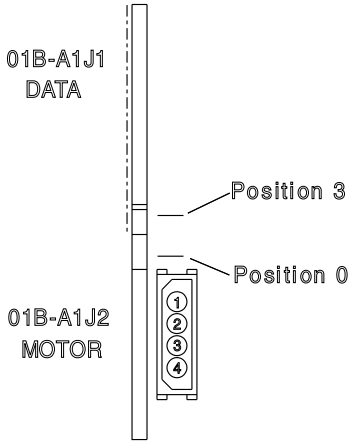


Figure 4-74. FDD Connectors

2. Install the new FDD assembly with the four screws **5**. Refer to Figure 4-73 on page 4-54.
3. Reconnect the two cables at the back of the FDD **4**. Refer to Figure 4-73 on page 4-54.
4. Re-install the covers of the MOSS board **1** with the seven screws **2**. Refer to Figure 4-72 on page 4-54.

   Note: In the remaining steps, it is assumed that the microcode is at the same level on both the diskette and the hard disk.
5. Re-apply power as follows:
   a. If you powered OFF the machine, go to Step 12.
   b. If you did not power OFF the machine, then go to Step 6.
6. Install the primary diskette in the FDD.
7. Press **Function** on the control panel until **9** (Load from Diskette) is displayed in the function window.
8. Press **Validate**.

   Note: This action will also run MOSS diagnostics and complete a MOSS IML. A successful completion will result in a code **F0E**, **F0F**, or **000**. If any other code is displayed, an error was detected. See “3745 Control Panel Codes” on page 1-15
9. Remove the primary diskette from the FDD.
10. Close the front door.
11. Referring to Chapter 3, “How to Run 3745 Diagnostics” on page 3-1, run the same diagnostic that you ran before you exchanged the FRU. Go to “Action to Take After a Diagnostic Run or an FRU Exchange” on page 4-99.
12. Install the primary diskette in the FDD.
13. **Switch CB1 ON**.
14. Power the 3745 ON with function **9** (Load from Diskette).
15. A successful completion will result in a code **F0E**, **F0F**, or **000**. If any other code is displayed, an error was detected. See “3745 Control Panel Codes” on page 1-15
16. Remove the primary diskette from the FDD.
17. Close the front door.
18. Referring to Chapter 3, “How to Run 3745 Diagnostics” on page 3-1, run the same diagnostic that you ran before you exchanged the FRU. Go to “Action to Take After a Diagnostic Run or an FRU Exchange” on page 4-99.

HDD Exchange Procedure

Removal Procedure: For physical locations, refer to Figure 4-75.

Important

Check that the **Power Control** display is set to local **3** on the control panel. If yes, go to Step 3.

If not, proceed with Step 1.

1. Press **power Control** until **3** (Local mode) is displayed in the power control window.
2. Press **Validate**.
3. Press **Service** until **1** (Maintenance 1) is displayed in the service window.
4. Press **Validate**.
5. For the 3745 Model 130 to 170 go to Step 9. For Model 17A continue, with Step 6
6. You should be logged ON on the service processor console. If not, go to "Console Use for Maintenance" on page 1-1 for logging ON and return here.
7. In the **MOSS-E View** window, double-click on your 3745 icon.
8. In the **3745 Menu** window, double-click on the **MOSS Console** option.
9. **Disable the MOSS area as follows:**
   a. Call Menu 2.
   b. Type **MOF** on the selection line.
   c. Press **SEND**.
   d. **MOSS OFFLINE** is displayed.
10. Open the front door.
11. Remove power as follows:
    a. Invoke Menu 1 (see PF key line).
    b. In Menu 1 type **DIF** in the selection area for **Disk Functions**.
    c. Press **SEND**.
    d. The **Disk Functions Screen** is displayed.
    e. Type **7** in the selection area for **Power OFF Disk/Diskette Drive**.
    f. Press **SEND**.
    g. If **POWER OFF SUCCESSFUL. CONCURRENT MAINTENANCE ACCEPTED** is displayed, go to Step 12 on page 4-57.
    h. If **POWER OFF UNSUCCESSFUL. CONCURRENT MAINTENANCE REJECTED** is displayed, do the following:
       1) **Inform the customer that the 3745 is to be powered OFF.**
       2) Press **Power Off** on the control panel.
       3) **Switch CB1 OFF.** Refer to Figure 4-75
       4) Go to Step 12 on page 4-57.

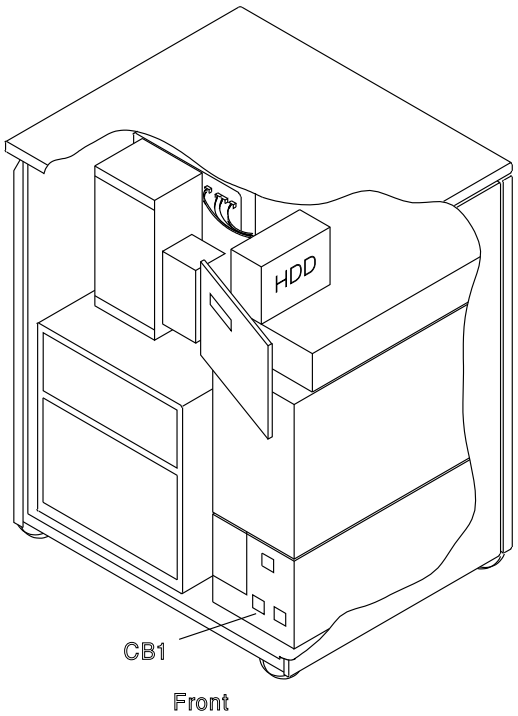


Figure 4-75. HDD and CB1 Locations

12. **Attention: Use the ESD kit and procedures.**
13. Open the control panel door.
14. **Refer to Figure 4-76:**
15. Locate the HDD 1 .
16. Remove the three cables (and the ground wire if any) from the drive 2 .
17. Unfasten the HDD assembly 3 from the frame. Two screws 4 must be removed.
18. Slide the HDD assembly out 3 .
19. Remove the four screws 5 which maintain the HDD to the assembly bracket.

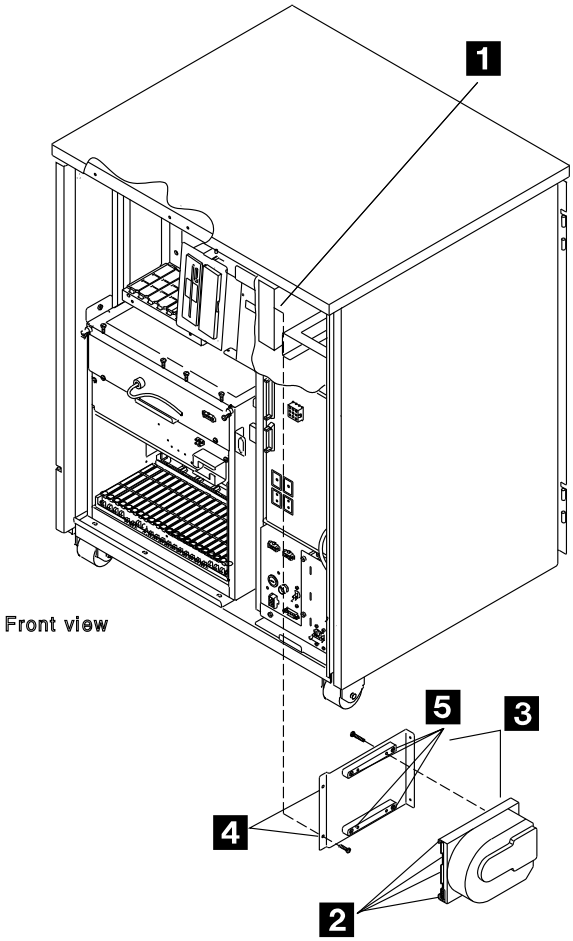


Figure 4-76. HDD Removal

Installation Procedure

1. Identify the HDD that you received using Figure 4-77 (several types of HDD are available).
2. If you receive a new HDD assembly similar to the HDD shown (see Figure 4-77) continue with Step 3. Otherwise, go to Step 8.

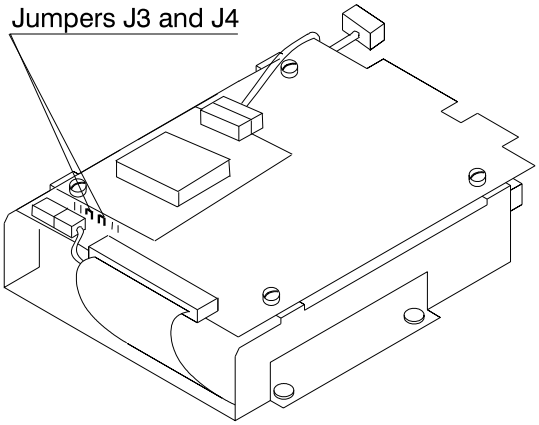


Figure 4-77. New Type of HDD

3. Ensure that the jumpers are present in position J3 and J4. See Figure 4-77.
4. Install the new HDD on the assembly bracket with the four screws **5** .
5. Slide in the HDD assembly and fasten it to the frame with the two screws **4** .
6. Reconnect the three cables **2** .

   Note: After HDD exchange, it will be necessary to IML from the diskette.
7. Go to Step 13.

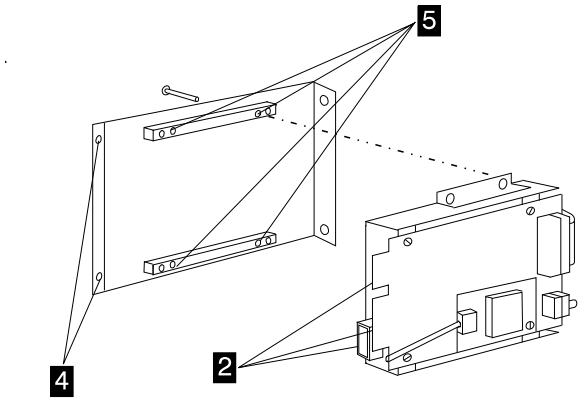


Figure 4-78. HDD Installation

8. Ensure that there is a jumper in position 1 of the new HDD. Refer to Figure 4-80 or to Figure 4-79 on page 4-60 according to the HDD type.
9. Install the new HDD on the assembly bracket with the four screws **5** .
10. Slide in the HDD assembly and fasten it to the frame with the two screws **4** .
11. Reconnect the three cables and the ground wire **2** .

    Note: After HDD exchange, it will be necessary to IML from the diskette.
12. Continue with Step 13.
13. **Re-apply power as follows:**
    a. If you powered OFF the 3745, then go to Step 28 on page 4-59.
    b. If you did not power OFF the 3745, go to Step 14
14. Install the primary backup diskette in the FDD.
15. At the control panel, select **Service Mode** **1** or **2** and press **Validate**.
16. Press **Function** on the control panel until **9** (Load from Diskette) is displayed in the function window.
17. Press **Validate**.

    Note: This action will also run MOSS diagnostics and complete a MOSS IML. A successful completion will result in a code **F0E**, **F0F**, or **000**. If any other code is displayed, an error was detected. See “3745 Control Panel Codes” on page 1-15.
18. For 3745 Model 130 to 170 go to Step 20. For Model 17A, continue with step 19.
19. Check that the 3745 icon in the **MOSS-E View** window has changed from grey to pink and perform the following bullet otherwise check your installation. If problem persists call your support.
    - In the **MOSS-E View** window, double-click on your 3745 icon.
    - In the **3745 Menu** window, double-click on the **MOSS Console** option.
20. Inform the customer that the 3745 will be powered OFF during the following steps.
21. Refer to the *IBM 3745 Communication Controller Service Function*, SY33-2069 to:
    - Initialize the disk.
    - Restore the disk from the backup diskettes, follow the prompt screens until **Disk correctly restored** is displayed.
    - Press **Power Off** on the control panel.

    When these actions are completed, a MOSS IML from the HDD will have been executed.

    Note: This action will also run MOSS diagnostics and complete a MOSS IML. A successful completion will result in a code **F0E**,

F0F, or **000**. If any other code is displayed, an error was detected. See "3745 Control Panel Codes" on page 1-15

22. Press **Service** until **2** is displayed in the service window.
23. Press **Validate**.
24. Press **Function**. until **1** is displayed in the power control window.
25. Press **Validate**.
26. Press **Power On** on the control panel.
27. Go to Step 42.
28. Install the primary backup diskette in the FDD.
29. **Switch CB1 ON**.
30. At the control panel select **Service Mode** **1** or **2** and press **Validate**.
31. Press **Function** on the control panel until **9** (Load from Diskette) is displayed in the function window.
32. Press **Validate**.
33. Press **Power On** on the control panel.
34. For 3745 Model 130 to 170 go to Step 36. For Model 17A, continue with step 35.
35. Check that the 3745 icon in the **MOSS-E View** window has changed from grey to pink and perform the following bullet otherwise check your installation and if problem persists call your support.
    - In the **MOSS-E View** window, double-click on your 3745 icon.
    - In the **3745 Menu** window, double-click on the **MOSS Console** option.
36. Refer to the *IBM 3745 Communication Controller Service Function*, SY33-2069 to:
    - Initialize the disk.
    - Restore the disk from the backup diskettes. Follow the prompt screens until **Disk correctly restored** is displayed. Then power OFF the 3745.

    When these actions are completed, a MOSS IML from the HDD will have been executed.

    Note: This action will also run MOSS diagnostics and complete a MOSS IML. A successful completion will result in a code **F0E** ,**F0F**, or **000**. If any other code is displayed, an error was detected. See "3745 Control Panel Codes" on page 1-15
37. Press **Service** until **2** is displayed in the service window.
38. Press **Validate**.
39. Press **Function** until **1** is displayed in the power control window.
40. Press **Validate**.
41. Press **Power On** on the control panel.
42. Close the control panel door.
43. Close the front door.
44. For 3745 Model 130 to 170 continue with Step 45. For model 17A, go to Step 47.
45. Refer to the *Installation Guide* SY33-2067, and enter the customer default password. Then update and activate the maintenance password.
46. Ask the customer to update the customer password if needed.
47. Referring to Chapter 3, "How to Run 3745 Diagnostics" on page 3-1, run the same diagnostic that you ran before you exchanged the FRU.
48. Go to "Action to Take After a Diagnostic Run or an FRU Exchange" on page 4-99.

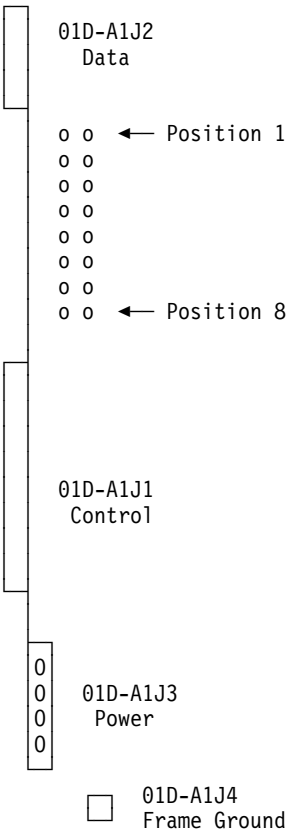


Figure 4-79. HDD Connectors and Jumpers

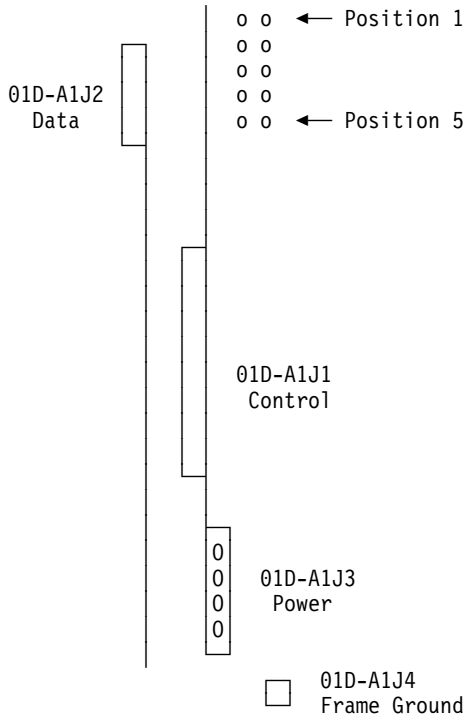


Figure 4-80. HDD Connectors and Jumpers

TERMC/TERMR Exchange Procedure

Removal Procedure

1. **Inform the customer that the 3745 is to be powered OFF.**
2. Press **Power Off** on the control panel.
3. Open the front door.
4. **Switch CB1 OFF.** Refer to Figure 4-81.
5. Locate the basic board. Refer to Figure 4-81.
6. Remove the basic board cover (two screws must be loosened). Then lift up the cover.
7. **Attention: Use the ESD kit and procedures.**
8. At the Channel Tailgate set all the Select Out Bypass switches to **bypass** (refer to Figure 4-43 and to Figure 4-44 on page 4-36).
9. Remove all the cards.
10. According to the card terminator that is to be exchanged continue with Step a or b.
    a. For TERMC:

       Release the retainer at the bottom of the board (one screw must be loosened). Then remove the TERMC card from row Z. Refer to Figure 4-4 on page 4-6 or Figure 4-5 on page 4-7
    b. For TERMR:

       Remove the TERMR card from row Y. Refer to Figure 4-4 on page 4-6 or Figure 4-5 on page 4-7.

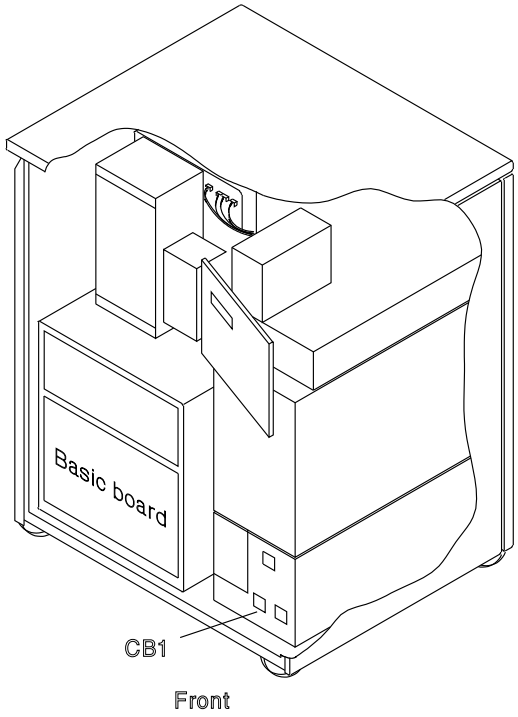


Figure 4-81. Basic Board and CB1 Locations

Installation Procedure

1. Install the new terminator card.
2. Re-install the retainer if removed.
3. Re-install the cards.
4. Replace the basic board cover.
5. Set all the Select Out Bypass switches to **normal**
6. **Switch CB1 ON**.
7. Close the front door.
8. Press **Power On** on the control panel..
9. Referring to Chapter 3, “How to Run 3745 Diagnostics” on page 3-1, run the same diagnostic in ODG that you ran before you exchanged the FRU. Go to “Action to Take After a Diagnostic Run or an FRU Exchange” on page 4-99.

TERMD/TERMI Exchange Procedure

Removal Procedure

1. **Inform the customer that the 3745 is to be powered OFF.**
2. Press **Power Off** on the Control panel.
3. Open the front door and the rear door.
4. **Switch CB1 OFF.** Refer to Figure 4-82.

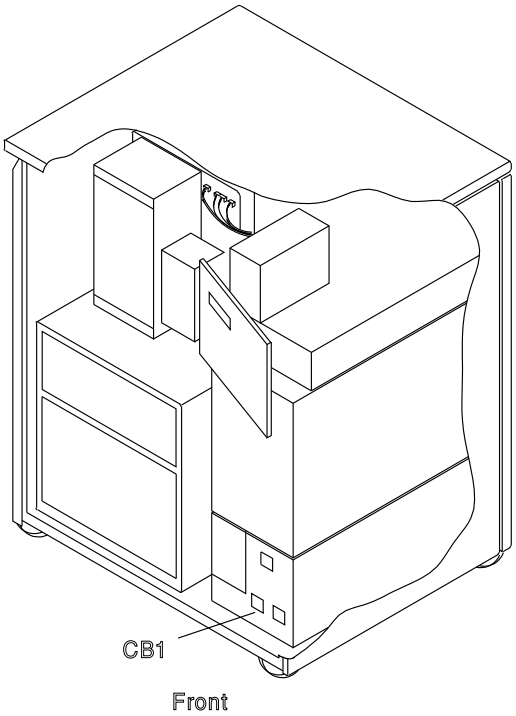


Figure 4-82. CB1 Location

5. Remove the grid of the basic board. (four screws must be removed). Refer to Figure 4-83.
6. Remove the retainer which holds the terminator card to the board (one screw must be removed).
7. Remove the suspected terminator card. Refer to Figure 4-84.

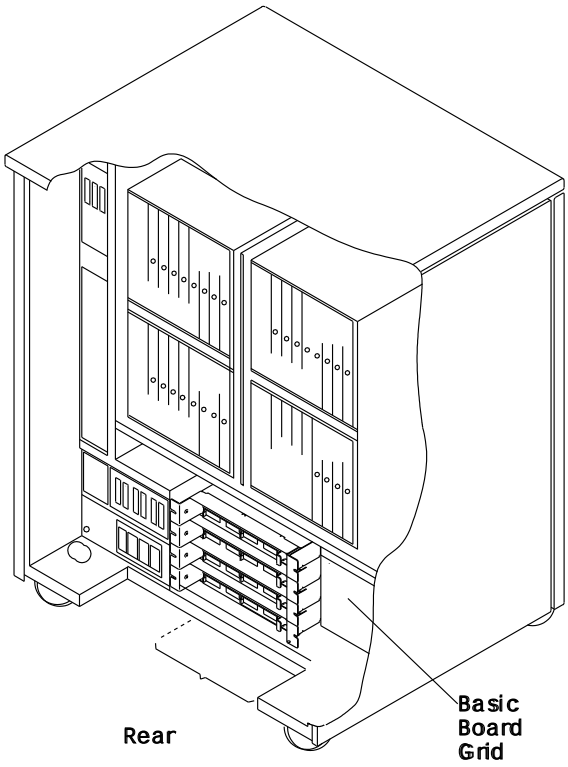


Figure 4-83. Basic Board Grid

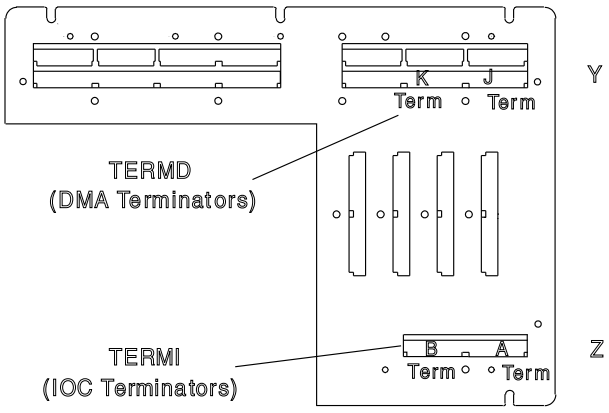


Figure 4-84. Terminator Card Locations

Installation Procedure

1. Install the new terminator card.
2. Re-install the retainer.
3. Install the grid of the Basic board.
4. Close the rear door.
5. **Switch CB1 ON**.
6. Close the front door.
7. Press **Power Off** on the Control panel.
8. Referring to Chapter 3, “How to Run 3745 Diagnostics” on page 3-1, run the same diagnostic in ODG that you ran before you exchanged the FRU.
9. Go to “Action to Take After a Diagnostic Run or an FRU Exchange” on page 4-99.

ESS Tailgate Exchange Procedure

Removal Procedure

1. **Inform the customer that the 3745 is to be powered OFF.**
2. Press **Power Off** on the control panel.
3. Open the front door and the rear door.
4. **Switch CB1 OFF.** Refer to Figure 4-85.

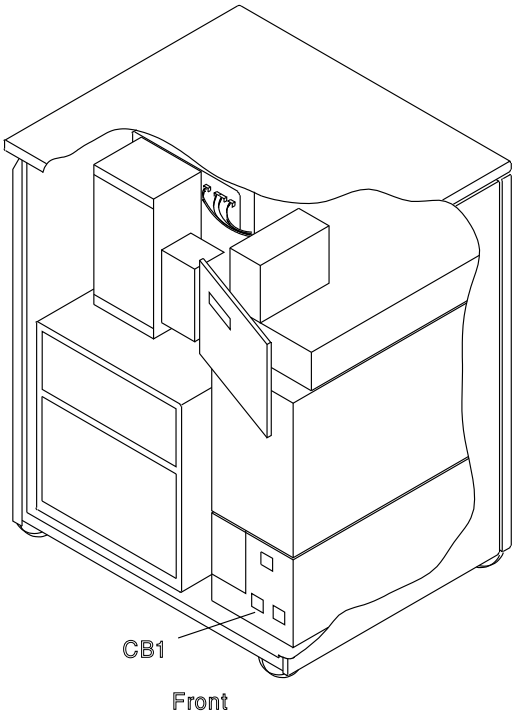


Figure 4-85. CB1 Location

5. For physical locations, refer to Figure 4-86 and to Figure 4-87 on page 4-65.
6. Referring to Figure 4-89 on page 4-65 and to Figure 4-88 on page 4-65 remove the cable from EAC to tailgate as follow:
   a. Remove the cover of the basic board. Loosen the two screws and lift up the cover.
   b. **Attention: Use the ESD kit and procedures.**
   c. Locate the related EAC card. Refer to Figure 4-87 on page 4-65.
   d. Remove the three non-polarized top card connector from positions W, X, and Y. Refer to Figure 4-89 on page 4-65.
   e. Disconnect the two cable ground wires from the board.
   f. Withdraw the EAC card until the line cable (J1) on the component side is accessible. Disconnect the cable.
   g. Unclamp the cable connected to the tailgate.
   h. Remove the external cable from the related connector.
   i. Unscrew the connector (two screws) and remove it with its internal cable.

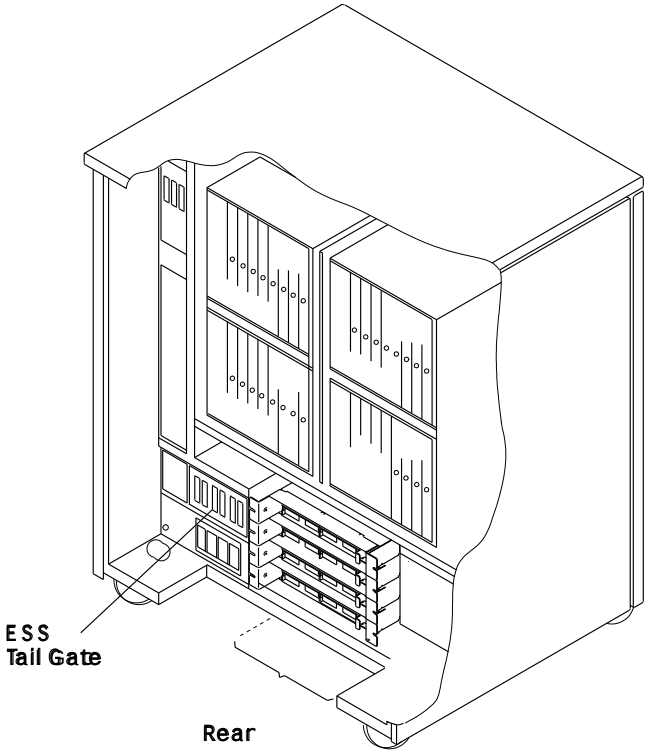


Figure 4-86. ESS Tailgate Location

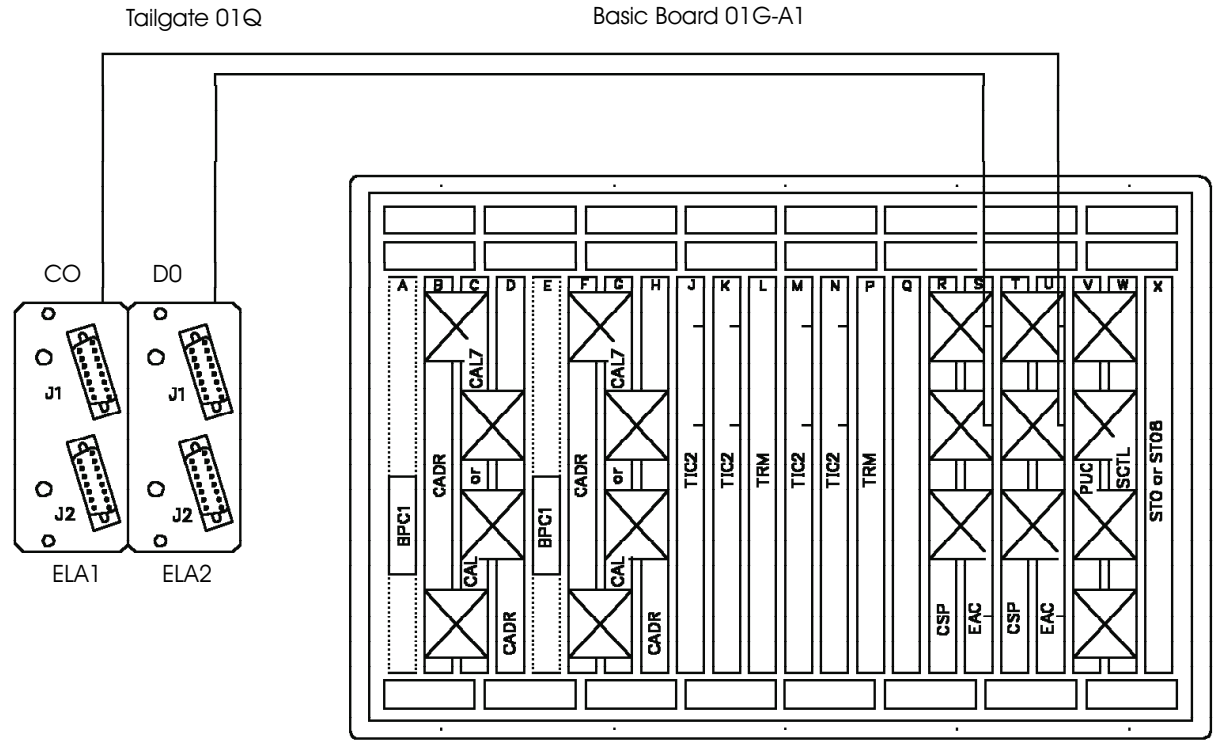


Figure 4-87. ESS Tailgate and Basic board

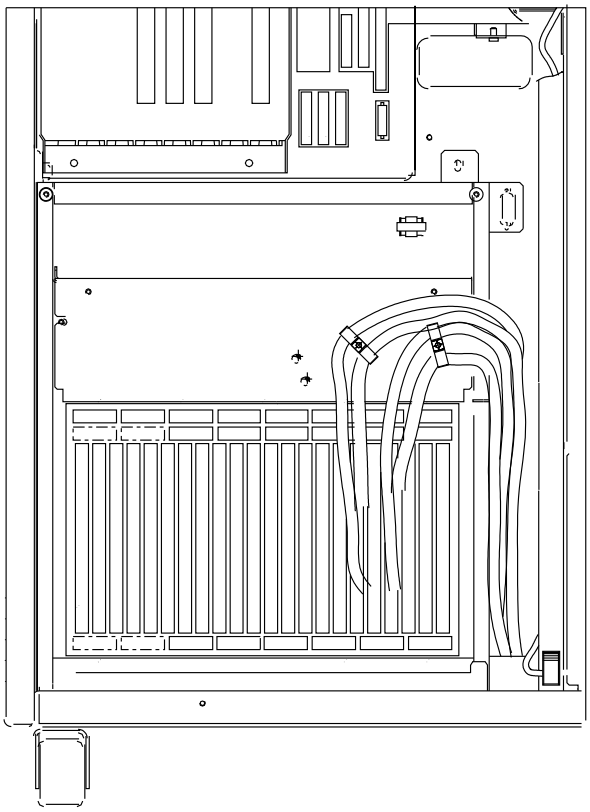


Figure 4-88. ESS Cables

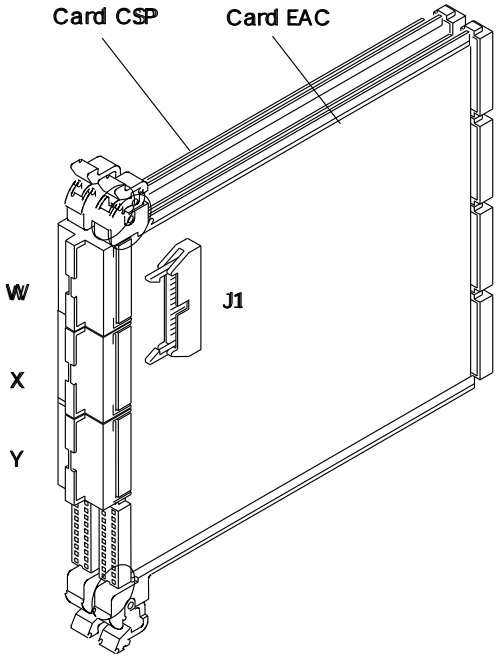


Figure 4-89. EAC Card

Installation Procedure

1. Install the new connector with its internal cable into the tailgate. Two screws must be used.
2. Clamp the internal cable to the EAC card.
3. Replug the cable to the EAC card connector (J1).
4. Replug the two cable ground wires to the board.
5. Replug the EAC card.
6. Replace the three top card connectors.
7. Reconnect the external cable on the tailgate connector.
8. Reinstall the cover of the Basic board.
9. Close the rear door.
10. **Switch CB1 ON**.
11. Close the front door.
12. Press **Power On** on the control panel.
13. Referring to Chapter 3, “How to Run 3745 Diagnostics” on page 3-1, run the same diagnostic in ODG that you ran before you exchanged the FRU.
14. Go to “Action to Take After a Diagnostic Run or an FRU Exchange” on page 4-99.

PS1 Exchange Procedure

Removal Procedure

1. **Inform the customer that the 3745 is to be powered OFF.**
2. Press **Power Off** on the control panel.
3. Open the front door.
4. Open the rear door.
5. **Switch CB1 OFF.** Refer to Figure 4-90.
6. Locate the PS1 and Primary power box. Refer to Figure 4-90.
7. Remove the DMUX/PS1 cover. Refer to Figure 4-91. Two screws must be removed **1** .

Refer to Figure 4-93 and to Figure 4-92 on page 4-68 and do the following:

8. At the Primary power box, remove the power cable going to PS1 **2** .
9. Remove the cover which protects TB1 to TB4 (two screws must be removed).
10. Remove the cover which protects TB5 and TB6 (two screws must be removed).
11. Verify that on each side of the PS1, the power cables are labeled according to their positions. If not done, label them.
12. Remove the cables from the PS1.
13. Remove the two screws **3** which hold PS1 to the frame.
14. Remove the cable between Fan1 and the primary power box (J7).
15. Slide the PS1 out.

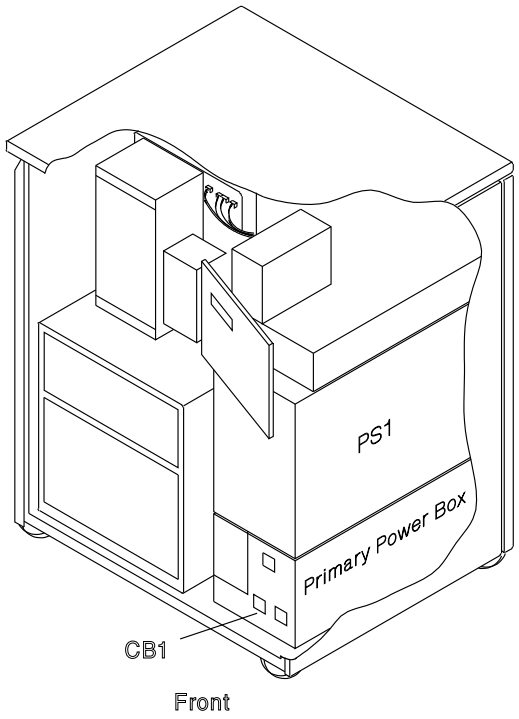


Figure 4-90. Power Supply 1 (PS1) and CB1 Locations

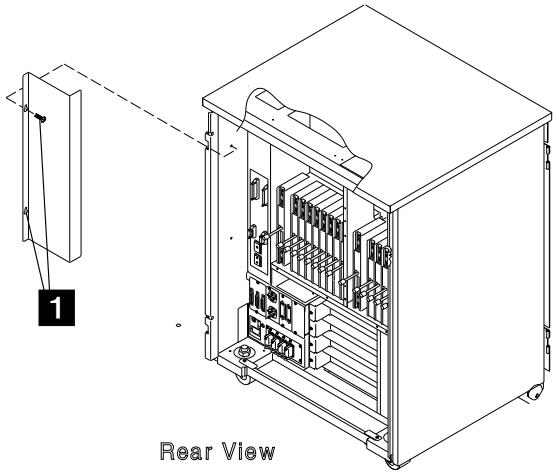


Figure 4-91. Power Supply 1 (PS1) Cover

Installation Procedure

1. Install the new PS1 in the frame and fasten it with the two screws **3** .
2. Reconnect the cable between the Fan1 and the primary power box (J7).
3. Reconnect the power cables in their proper positions on the PS1 front and rear sides.
4. Re-install the cover which protects TB1 to TB4 with two screws. Refer to Figure 4-93.
5. Re-install the cover which protects TB5 and TB6 with two screws. Refer to Figure 4-93.
6. Re-install PS1 cover with the 2 screws **1** .
7. At the primary power box, reconnect the PS1 power cable **2** . .
8. **Switch CB1 ON**.
9. Close the front and the rear door.
10. Press **Power On** on the control panel.
11. Referring to Chapter 3, “How to Run 3745 Diagnostics” on page 3-1, run the same diagnostic in ODG that you ran before you exchanged the FRU.
12. Go to “Action to Take After a Diagnostic Run or an FRU Exchange” on page 4-99.

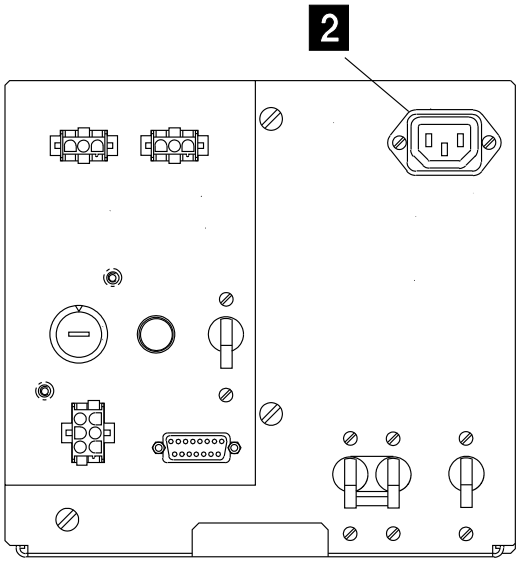


Figure 4-92. Primary Power Box

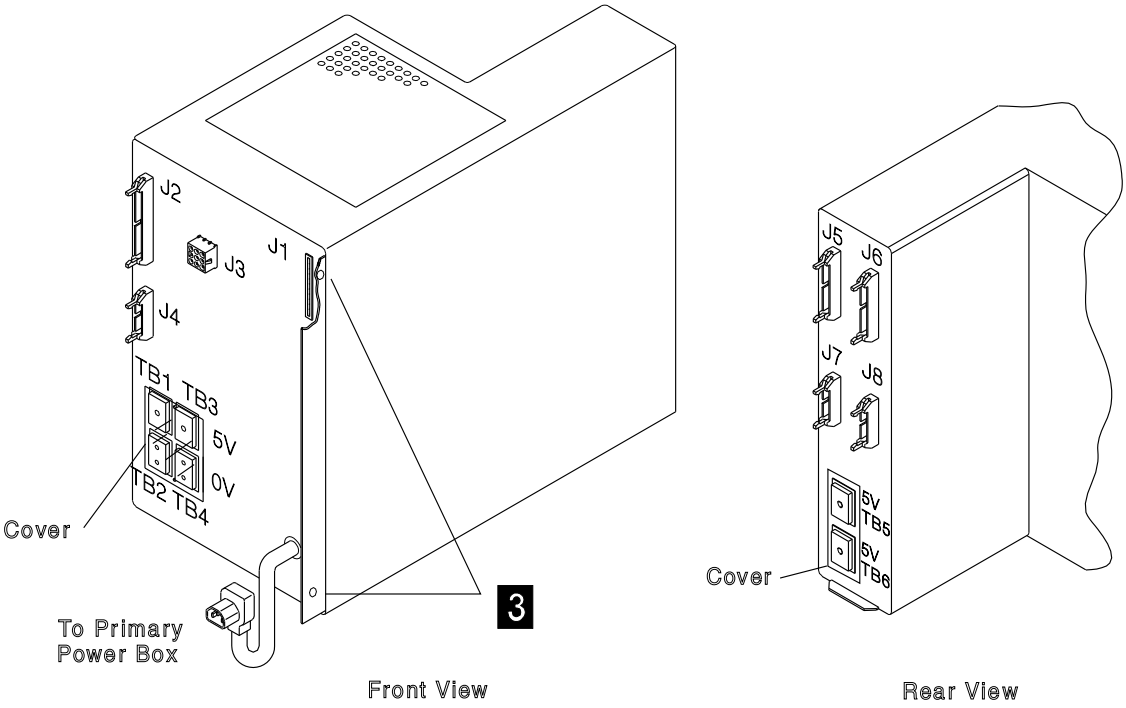


Figure 4-93. Power Supply 1

PS2 and Primary Power Box Exchange Procedure

Removal Procedure

1. **Inform the customer that the 3745 is to be powered OFF.**
2. Press **Power Off** on the control panel.
3. Open the front door and the rear door.
4. **Switch CB1 OFF.** Refer to Figure 4-94.
5. **Set OFF the Customer power supply switch related to the 3745. Install the appropriate safety panel which indicates that the supply should not be turned ON**
6. Locate the PS2 and the primary power box. Refer to Figure 4-94.
7. **Refer to Figure 4-95 and to Figure 4-96 on page 4-70** .
8. Disconnect the main power cable from outlet J3.
9. **Release the ground wire** **1** from the frame.
10. At the front and rear sides of the primary power box, verify that the cables are labeled according to their positions. If they are not, label them. Then remove all the cables.
11. Remove the four screws **2** which secure the primary power box to the frame.
12. Slide the primary power box out **and place it in a safe working area.**
13. Remove the six screws **3** which secure the PSs covers **4** .
14. Remove the PSs covers **4** .
15. Remove the two screws **5** which secure the DC/DC converter cover **6** .
16. Remove the DC/DC converter cover **6** .

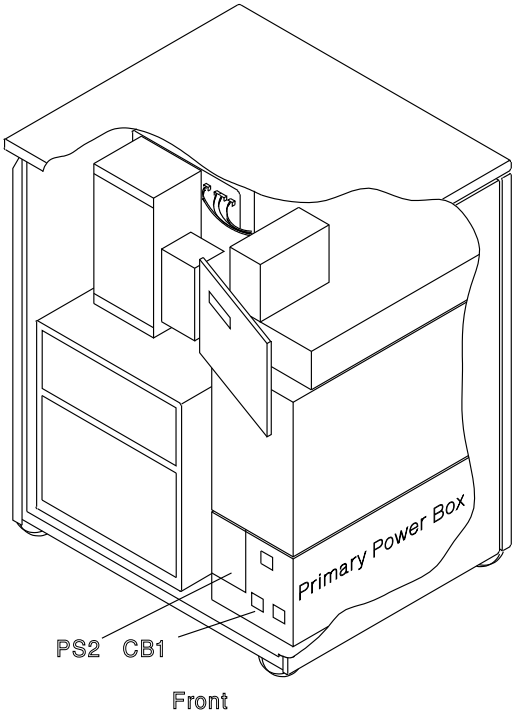


Figure 4-94. Primary Power Box, Power Supply 2, and CB1 Locations

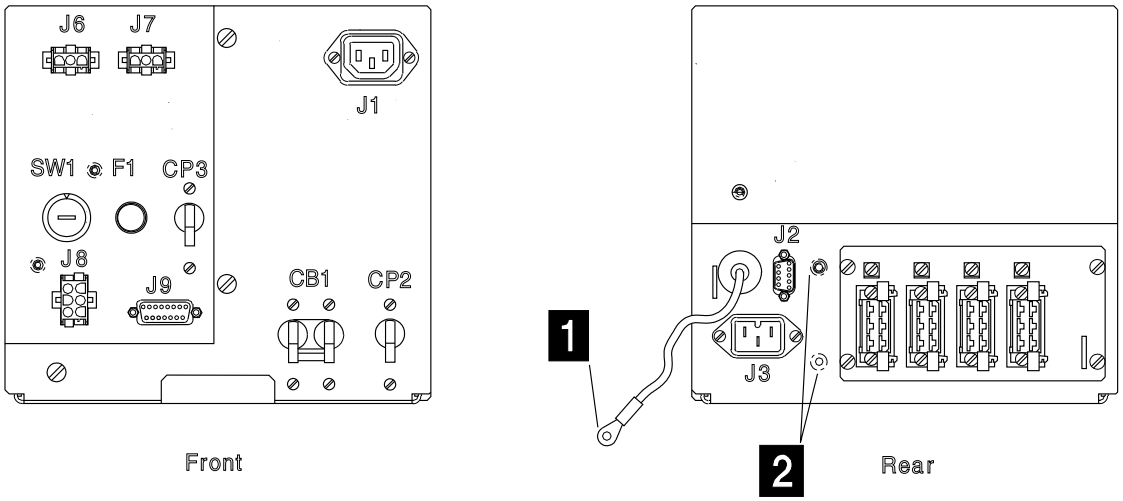


Figure 4-95. Cable Locations on Primary Power Box

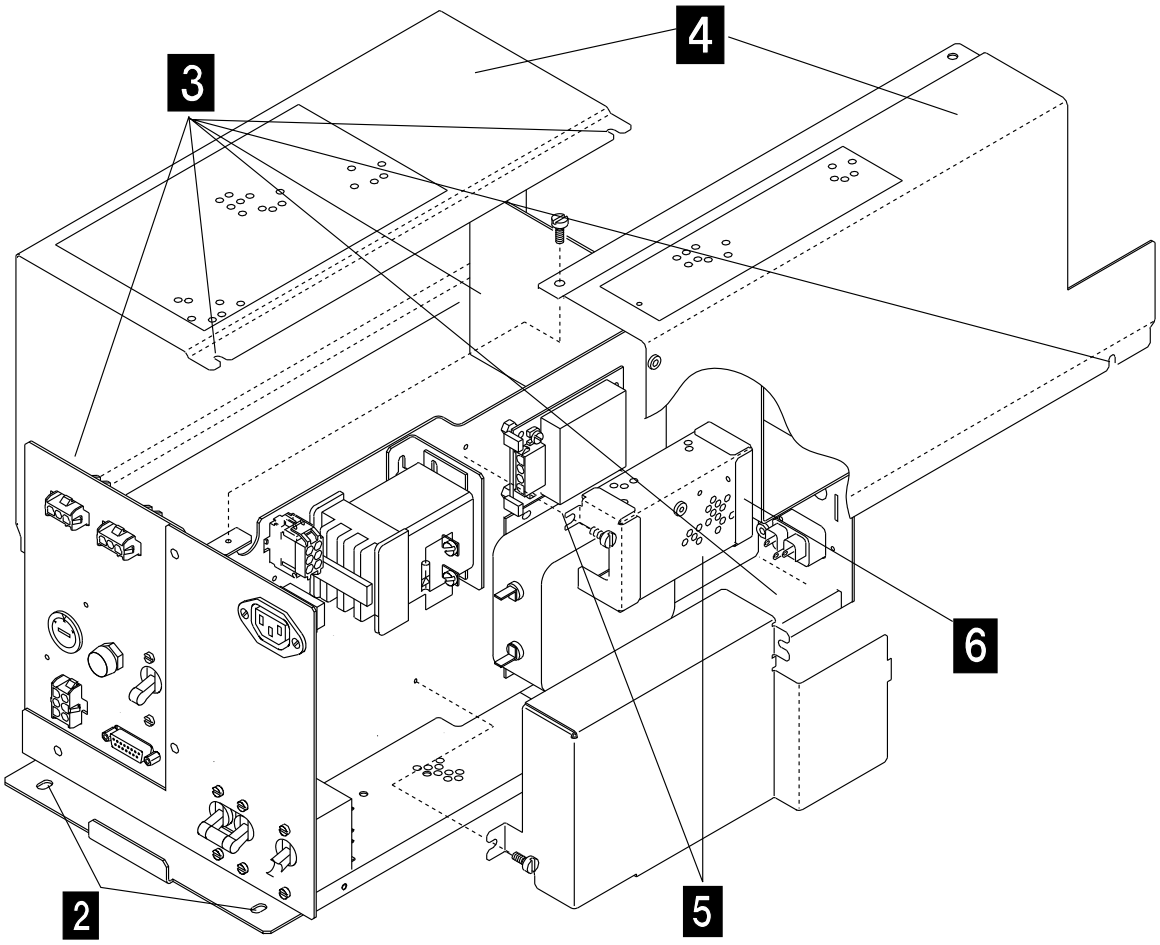


Figure 4-96. PS2 in Primary Power Box

17. **Refer to Figure 4-97**.
18. Disconnect the three cables **7** and remove the ground wire from the DC/DC converter connector **9** .
19. Remove the five screws **8** which maintain the PS2 onto the primary power box.
20. Remove the PS2.

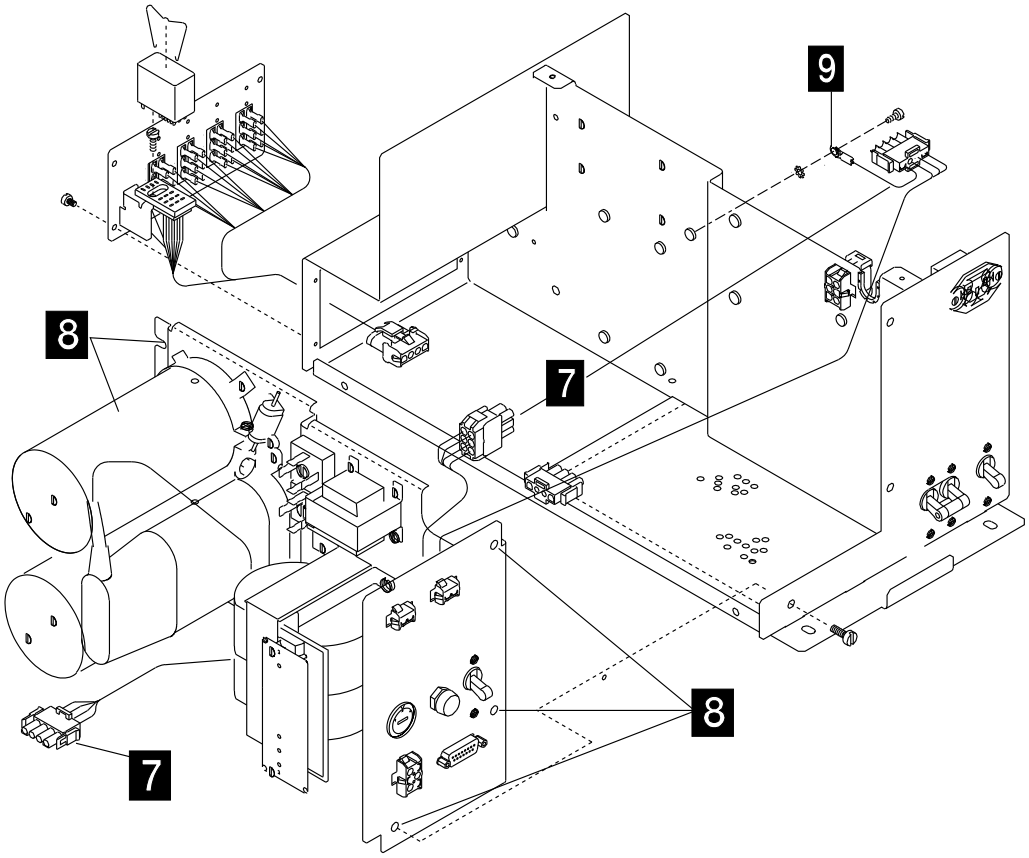


Figure 4-97. PS2 and Primary Power Box Assembly

Installation Procedure

1. If you are exchanging:
   - The PS2 install the new PS2 in the primary power box.
   - The primary power box, install the PS2 in the new primary power box.
     Use the five screws **8** .
2. Reconnect the three cables **7** and re-install the ground wire at the DC/DC converter connector **9** .
3. Re-install the DC/DC converter cover **6** with the two screws **5** .
4. Re-install the PSs covers **4** with the six screws **3** .
5. Slide the primary power box in the frame and fasten it with the four screws **2** .
6. **Reconnect the ground wire** **1** to the frame.
7. Reconnect all the cables in their proper position, at the front and rear sides of the primary power box.
8. Reconnect the main power cable in outlet J3.
9. Set ON the Customer power supply switch related to the 3745 and remove the safety panel installed previously.
10. **Switch CB1 ON**.
11. Close the front door and the rear door.
12. Press **Power On** on the control panel.
13. Referring to Chapter 3, “How to Run 3745 Diagnostics” on page 3-1, run the same diagnostic in ODG that you ran before you exchanged the FRU.
14. Go to “Action to Take After a Diagnostic Run or an FRU Exchange” on page 4-99.

EPO Exchange Procedure

Removal Procedure

1. **Inform the customer that the 3745 is to be powered OFF.**
2. Press **Power Off** on the control panel.
3. Open the front and rear door.
4. **Switch CB1 OFF.** Refer to Figure 4-98.
5. **Set OFF the Customer power supply switch related to the 3745 Install the appropriate safety panel which indicates that the supply should not be turned ON**
6. Locate the primary power box and the EPO. Refer to Figure 4-98 and to Figure 4-99.
7. **Refer to Figure 4-100 and to Figure 4-101 on page 4-74:**
8. Disconnect the main power cable from the outlet J3.
9. At the front side and at the rear side of the primary power box, verify that the cables are labeled according to their positions. If they are not, label them. Remove all the cables.
10. **Release the ground wire** **1** from the frame.
11. Remove the four screws **2** which secure the primary power box to the frame. Refer to Figure 4-100 on page 4-74 and Figure 4-101 on page 4-74.

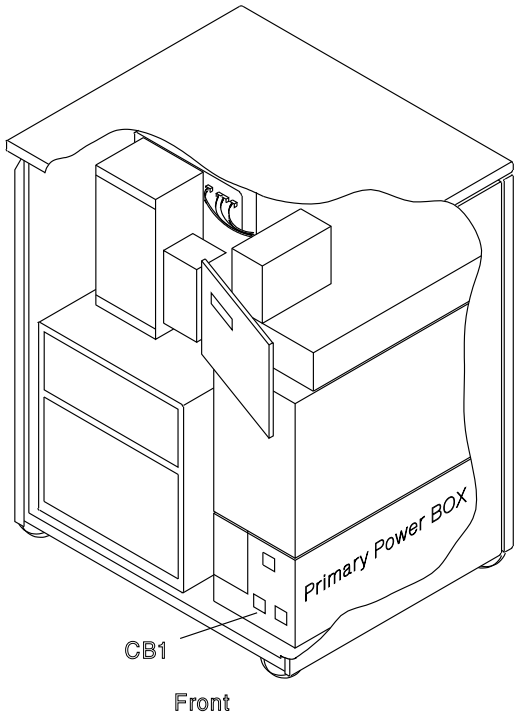


Figure 4-98. Primary Power Box and CB1 Locations

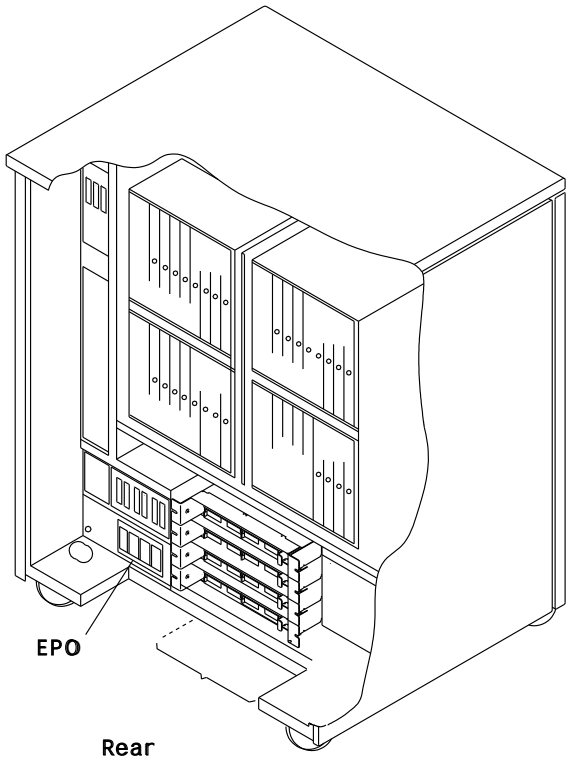


Figure 4-99. EPO Location

12. Slide the primary power box out **and place it in a safe working area.**
13. Remove the four screws **3** which secure the PS2 cover.
14. Remove the PS2 cover **4** .

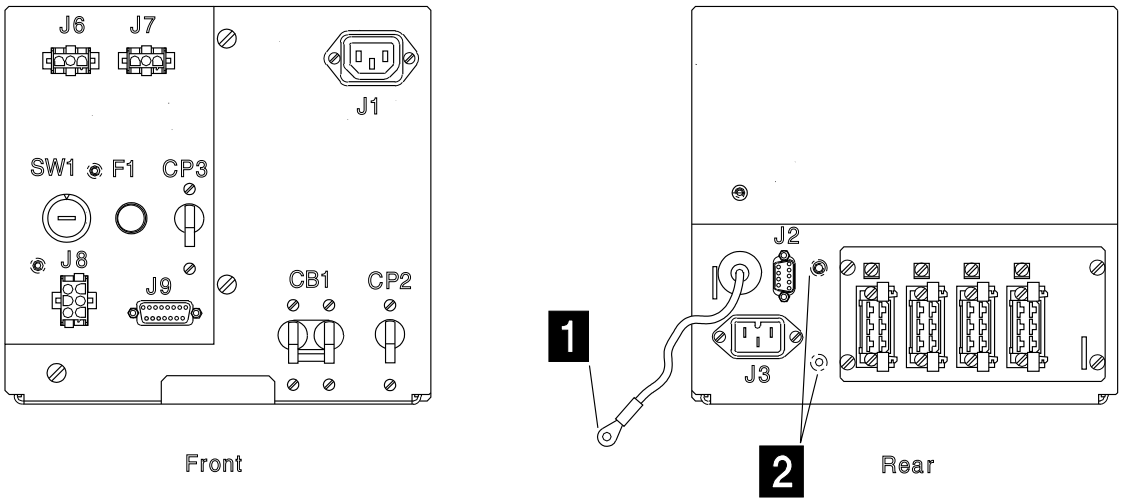


Figure 4-100. Cables on Primary Power Box

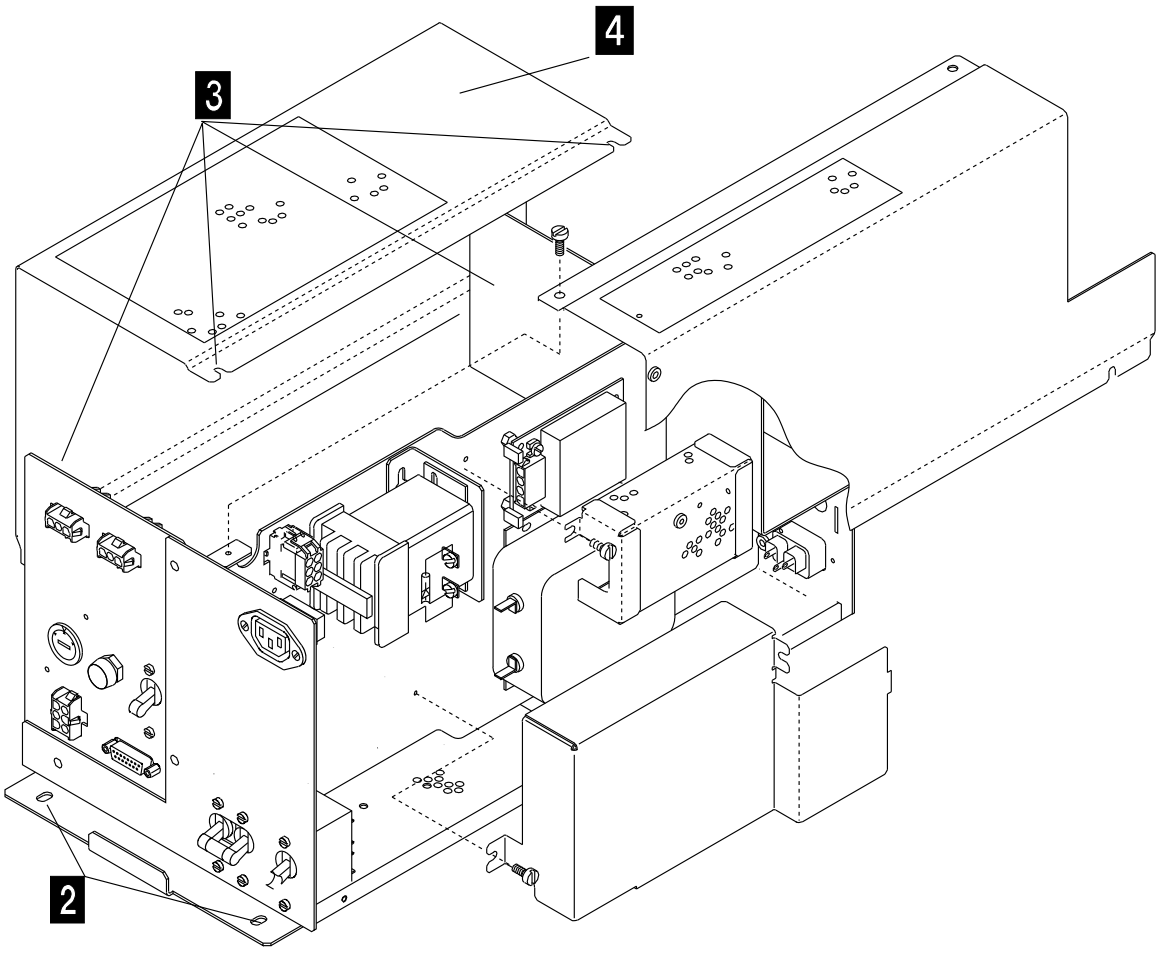


Figure 4-101. Primary Power Box and PS2 Cover Removal

15. **Refer to Figure 4-102:**
16. Disconnect the cable **7** from the PS2.
17. Remove the four screws **8** which secure the EPO plate to the frame. Remove the EPO assembly **9** .

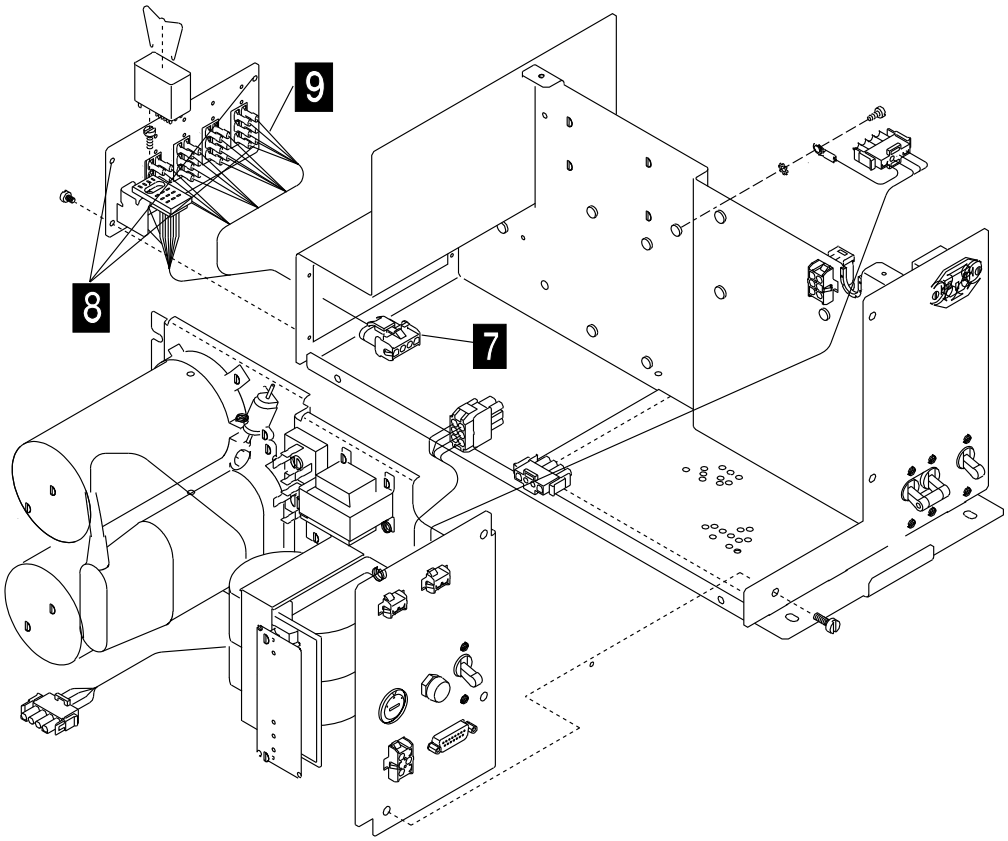


Figure 4-102. EPO Assembly

Installation Procedure

1. Install the new EPO assembly and fasten it with the four screws **8** .
2. Reconnect the cable **7** .
3. Re-install the PS2 cover **4** with the four screws **3** .
4. Slide the primary power box in the frame and fasten it with the four screws **2** .
5. **Reconnect the ground wire** **1** to the frame.
6. Reconnect all the cables to their proper position at the front side and at the rear side of the primary power box.
7. Reconnect the main power cable in outlet J3.
8. Set the Customer power supply switch to ON, and remove the safety panel previously installed. panel.
9. **Switch CB1 ON**.
10. Close the front and rear door.
11. Press **Power On** on the control panel.
12. Referring to Chapter 3, “How to Run 3745 Diagnostics” on page 3-1, run the same diagnostic that you ran before you exchanged the FRU.
13. Go to “Action to Take After a Diagnostic Run or an FRU Exchange” on page 4-99.

Basic Board Exchange Procedure

Removal Procedure

1. **Inform the customer that the 3745 is to be powered OFF.**
2. Press **Power Off** on the control panel.
3. Open the front and rear door.
4. **Switch CB1 OFF.** Refer to Figure 4-103.
5. Locate the board. Refer to Figure 4-103.
6. **Refer to Figure 4-104 on page 4-78** .
7. Remove the basic board cover **1** (loosen the two screws **2** and lift up the cover).
8. remove the 2 MOSS board covers **3** (seven screws must be removed **4**).
9. Remove the basic board grid (four screws must be removed). Refer to Figure 4-105 on page 4-78.
10. At the channel tailgate, set all the select out switches to **bypass** (if any channel adapter is installed).
11. At the PS1 remove the cover of the four FDS cables (two screws must be removed). Disconnect these four cables and the multivoltage cable going to the basic board. Refer to Figure 4-106 on page 4-78.

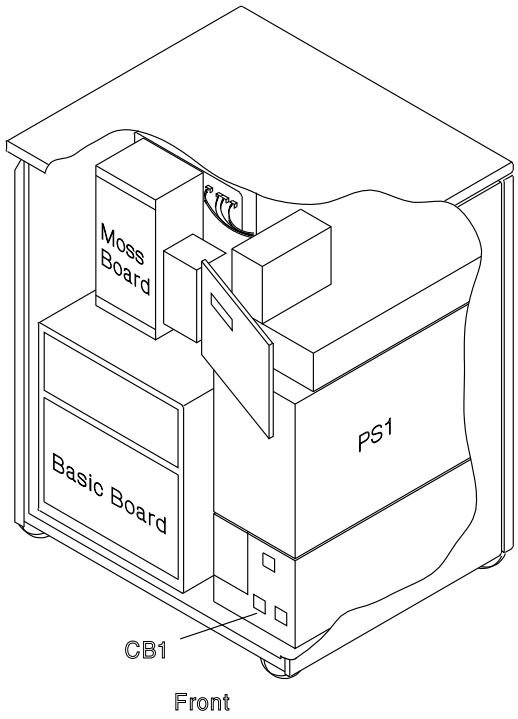


Figure 4-103. Basic Board, MOSS Board, and CB1 Locations

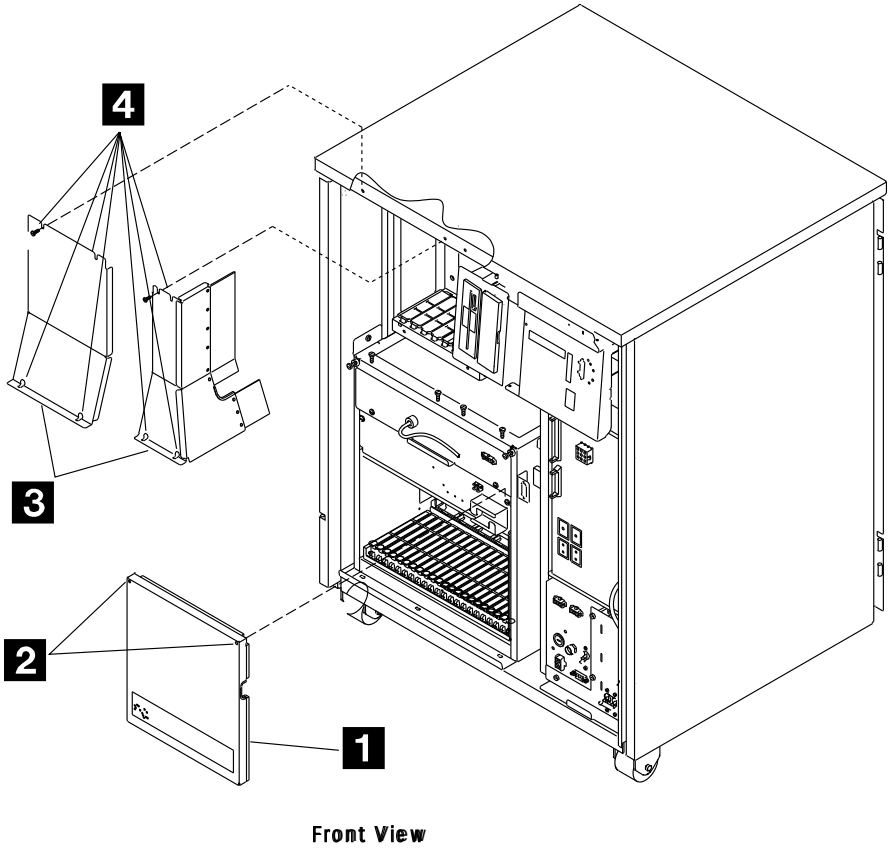


Figure 4-104. Basic Board and MOSS Covers

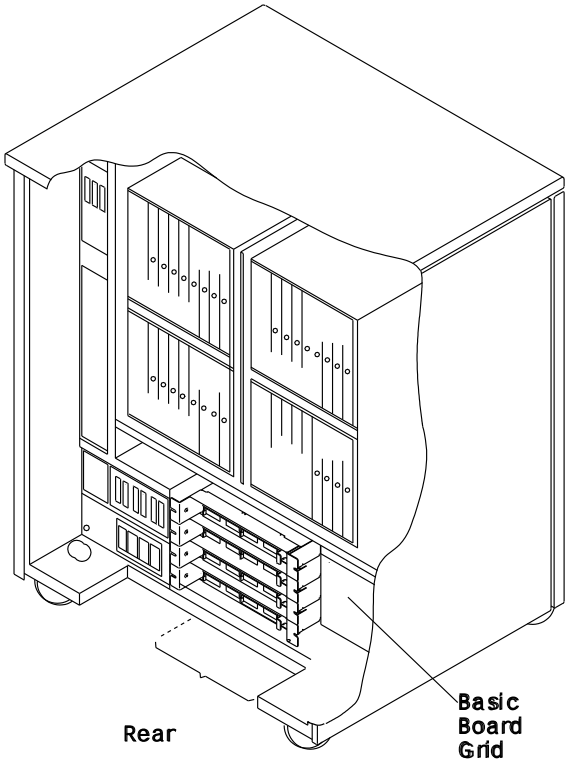


Figure 4-105. Basic Board Grid

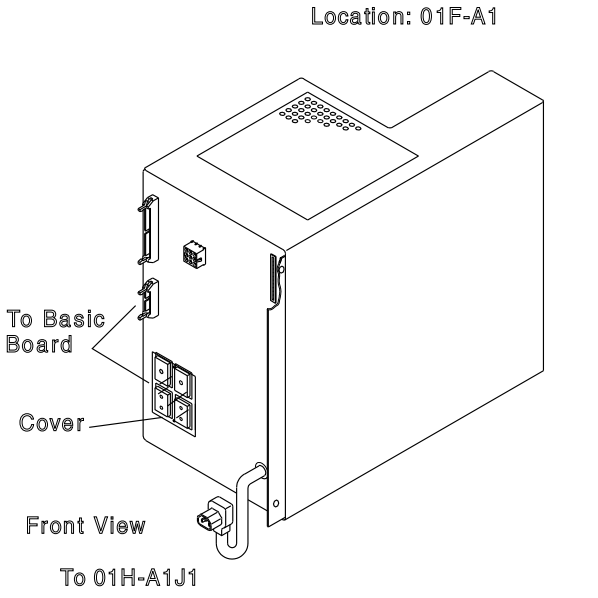


Figure 4-106. FDS and Multivoltage Cable Locations on the PS1

12. At Fan2, disconnect the air flow detector cable and the power cable. Refer to Figure 4-107.
13. Remove the two screws **1** which maintain Fan2 to the frame.
14. Slide the Fan2 assembly out.

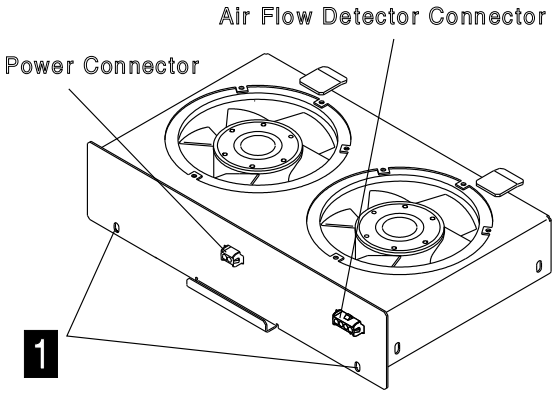


Figure 4-107. Fan2 Air Flow Detector and Power Connectors

15. At the MOSS board disconnect the four cables going to the basic board. Refer to Figure 4-108.
16. Open the clamps which secure these cables to the basic board enclosure.
17. **Attention: Use the ESD kit and procedures.**
18. Remove the cross-over connectors.
19. Verify that the cards and the cables from the cards are labeled according to their positions. if they are not, label them. Unplug the cables from the cards, then remove the cards and store them in a safe place (do not remove the horizontal cards in row Z, they will be removed later).
20. At the rear side of the board, remove the channel tailgate cables if a channel adapter is installed.
21. Remove the five screws **5** which maintain the enclosure to the frame (refer to Figure 4-109). Slide the enclosure out of the machine taking care not to damage the cables.
22. Place the enclosure in a safe working area.

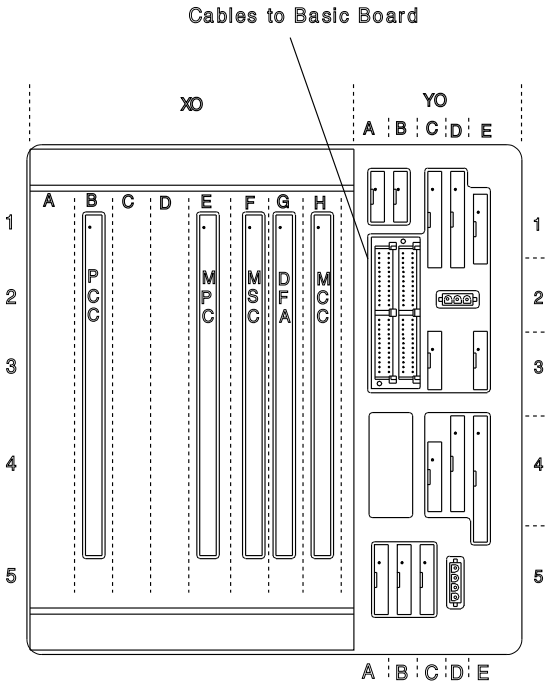


Figure 4-108. MOSS to Basic Cable Locations

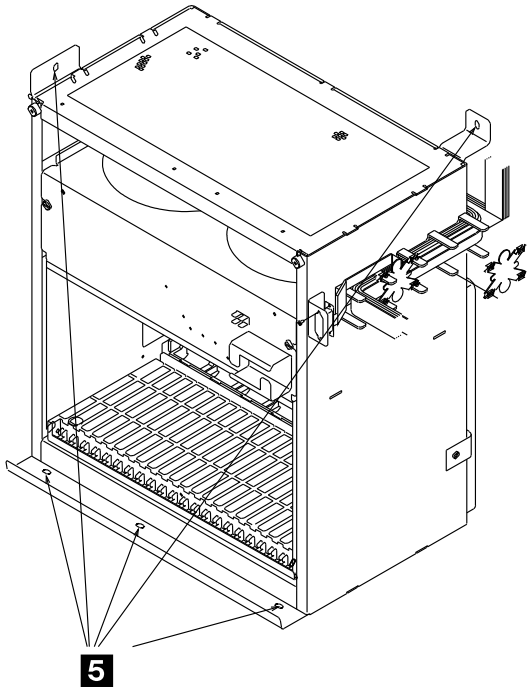


Figure 4-109. Basic Board Enclosure

23. **Refer to Figure 4-110** .
24. Remove the 10 screws **6** which secure the retainers that hold the cables and the terminator cards in rows Y and Z. Remove the retainers.
25. Remove the terminator cards and store them in a safe place.
26. Remove the two screws **7** which hold the two ground FDS cables in the rack assembly.
27. Disconnect the cables and remove them with the retainer.
28. At the front side of the board, remove the retainer at the bottom of the board, (row Z one screw must be removed).
29. Remove the DCREG cards (if they are present).

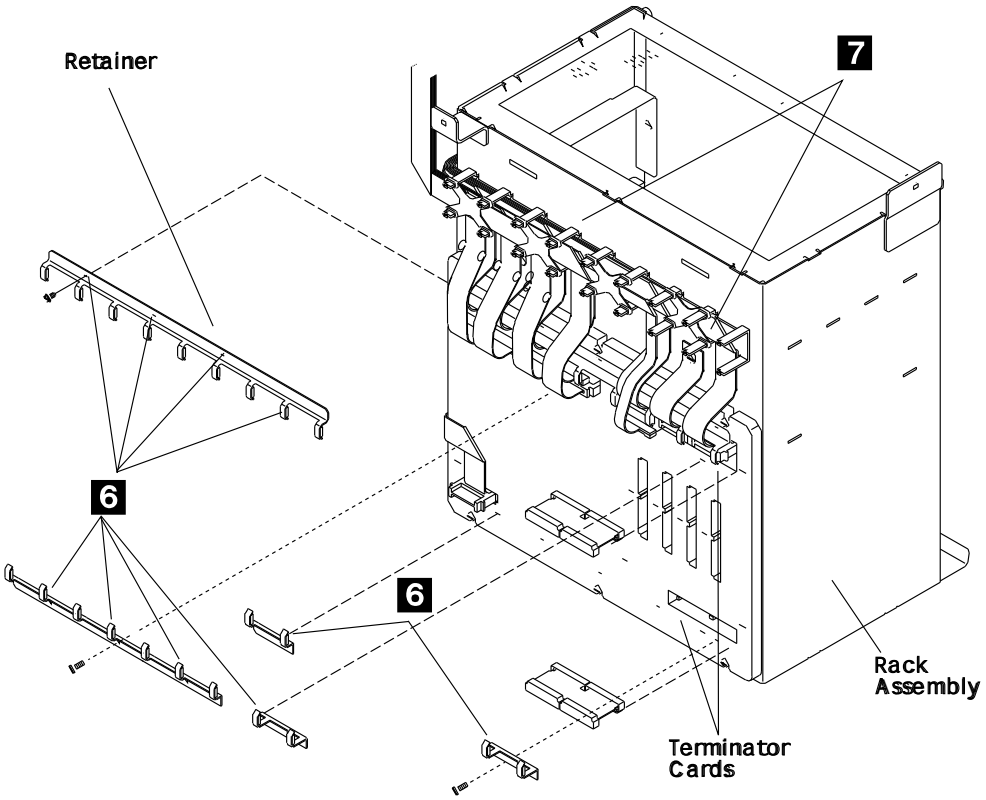


Figure 4-110. Basic Board Cables

30. Remove the six screws **8** which secure the board assembly to the rack assembly. Refer to Figure 4-111.

31. Remove the board assembly.

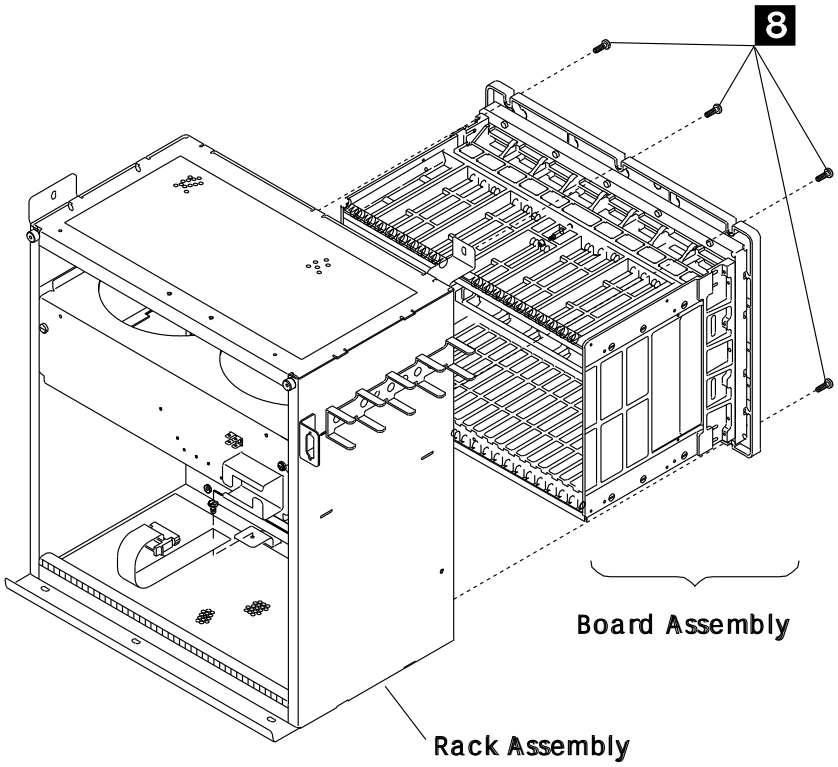


Figure 4-111. Basic Assembly 1

32. Remove the 14 screws **9** which hold the stiffener to the board (refer to Figure 4-112).
33. Remove the stiffener.
34. Remove the four screws **10** which hold the board to the ASM gate (refer to Figure 4-112).
35. Remove the board.

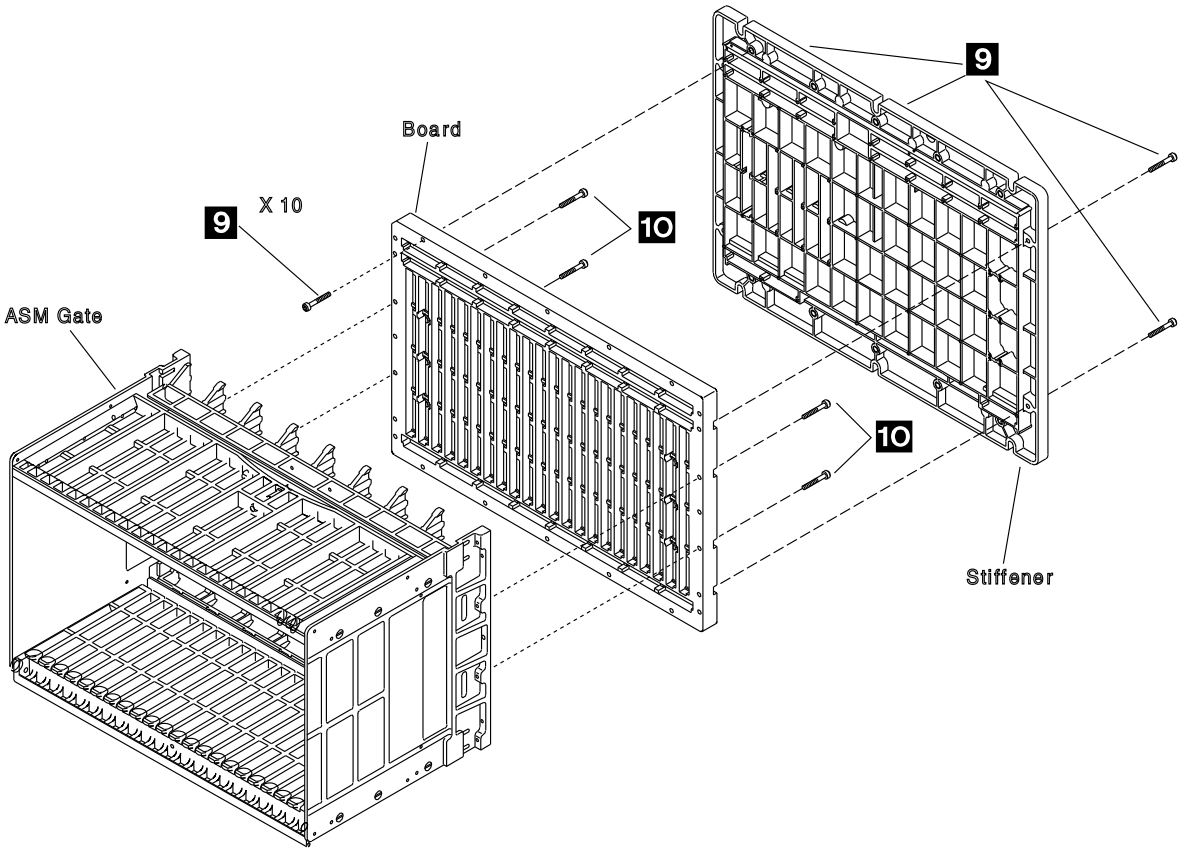


Figure 4-112. Basic Assembly 2

Installation Procedure

1. Place the new board on the ASM gate and fasten it with the four screws. **10** . Refer to Figure 4-112 on page 4-82.
2. Install the stiffener on the board and fasten it with the 14 screws. **9** Refer to Figure 4-112 on page 4-82.
3. Install the DCREG cards (if present) in the board and tighten them with the retainer.
4. Install the board assembly on the rack assembly and fasten it with the six screws **8** . Refer to Figure 4-111 on page 4-81.
5. Reconnect the two ground FDS cables and fasten them to the rack assembly with the two screws **7** . Refer to Figure 4-110 on page 4-80.
6. Reconnect the other cables. Refer to Figure 4-110 on page 4-80 and to Figure 4-113.
   - Reconnect the cables located in the upper Y row.
   - Install on the upper retainer (with four screws) on these cables.
   - Reconnect the cables located in the lower Y row.
   - Install on retainer (with three screws) on these cables.
   - Reconnect the cable in the Z row.
   - Install on the retainer (with one screw) on the cable.
7. Press **Power Off** on the control panel.

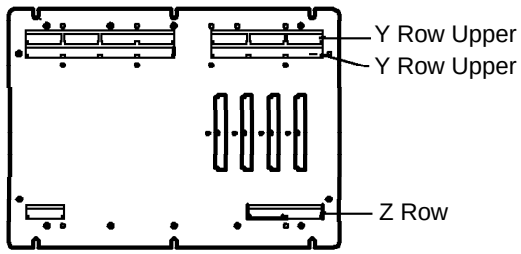


Figure 4-113. Y and Z Rows

8. Install the terminator cards and tighten them with the two retainers (one screw per retainer). Refer to Figure 4-110 on page 4-80.
9. Slide the enclosure intoe the machine frame taking care not to damage the cables.
10. Fasten the enclosure to the frame with the five screws **5** .Refer to Figure 4-109 on page 4-79.
11. If a channel adapter is installed, reconnect the channel tailgate cables tot the rear side of the board.
12. **Attention: Use the ESD kit and procedures.**
13. Install the cards into their correct location according to their labels. If you have suspicions about the locations, refer to Figure 4-4 on page 4-6, to Figure 4-5 on page 4-7, or to Figure 4-6 on page 4-8.
14. Install the cross-over connectors and cables. If you have suspicions about the cross-over location, refer to Figure 4-4 on page 4-6, Figure 4-5 on page 4-7, or Figure 4-6 on page 4-8.
15. At the MOSS board, reconnect the four cables from Basic board and close the clamps which maintain them. Refer to Figure 4-108 on page 4-79.
16. Install the Fan2 assembly in the frame and fasten it with the two screws **1** . Refer to Figure 4-107 on page 4-79.
17. Reconnect the air flow detector cable and the power cable at Fan2.
18. At the PS1 reconnect the four FDS cables and the multivoltage cable (from basic board) and close the clamps which maintain them.
19. Reinstall the cover with the two screws. Refer to Figure 4-106 on page 4-78.
20. Replace the grid of the base board with the four screws. Refer to Figure 4-83 on page 4-62.
21. At the channel tailgate, set all the select out bypass switches to **normal** (if any channel adapter is installed).
22. Close the rear door.
23. Re-install the MOSS board covers with the seven screws **4** .
24. Re-install the Basic board cover with the two screws **2** .
25. **Switch CB1 ON**.
26. Close the front door.
27. Press **Power On** on the control panel.
28. Run all diagnostics,
29. Go to “Action to Take After a Diagnostic Run or an FRU Exchange” on page 4-99.

LIC Board Type 1 and 3 Exchange Procedure

Removal Procedure

1. **Inform the customer that the 3745 is to be powered OFF.**
2. Press **Power Off** on the control panel.
3. Open the front and rear door.
4. **Switch CB1 OFF.** Refer to Figure 4-114.

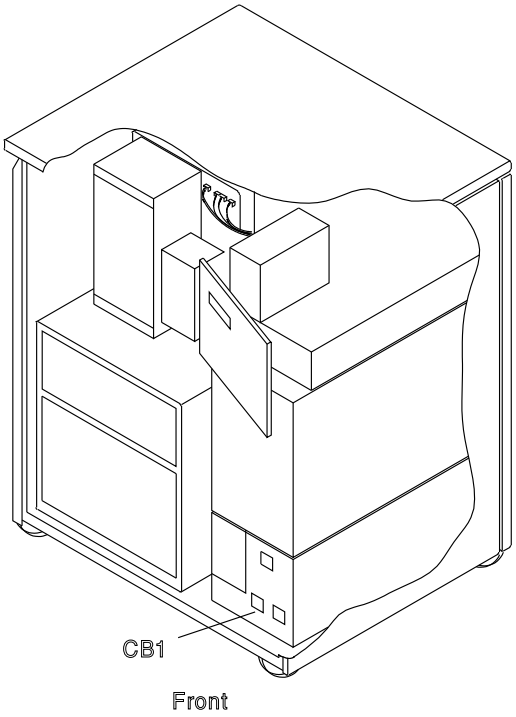


Figure 4-114. CB1 Location

5. Locate the board to be exchanged. Refer to Figure 4-115.

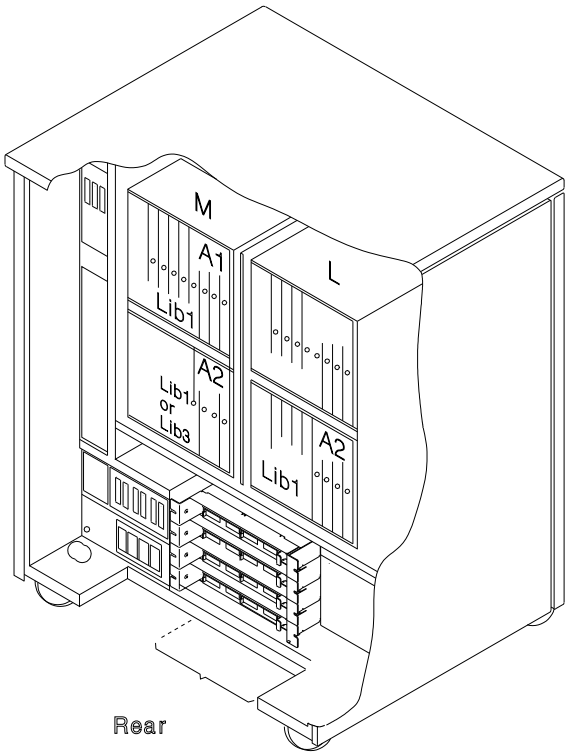


Figure 4-115. LIC Board Type 1 Locations

6. Remove one of the DMUX covers. Refer to Figure 4-116.

7. Two screws must be removed **1**. Two kinds of DMUX cover exist according to the LIC board location.

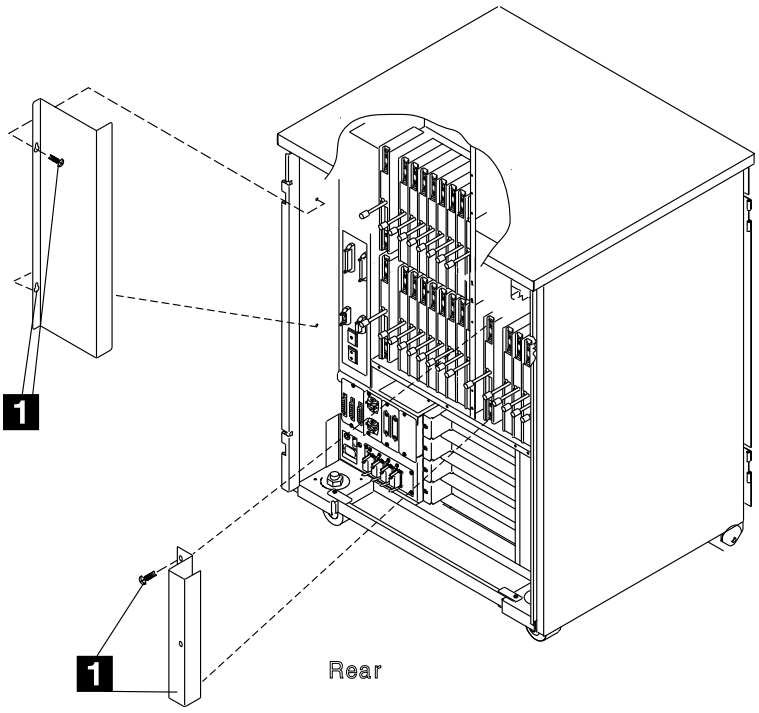


Figure 4-116. DMUX Cover

8. **Refer to Figure 4-117**
9. Verify that the serial link cables on the DMUX are labeled according to their positions. If they are not, label them.
10. Remove the serial link cables.
11. Verify that the LIC cables are labeled according to their positions. If they are not, label them. Then remove the LIC cables.
12. Note the type and locations of the LICs.The LIC type is indicated by the color of the thumb screw.

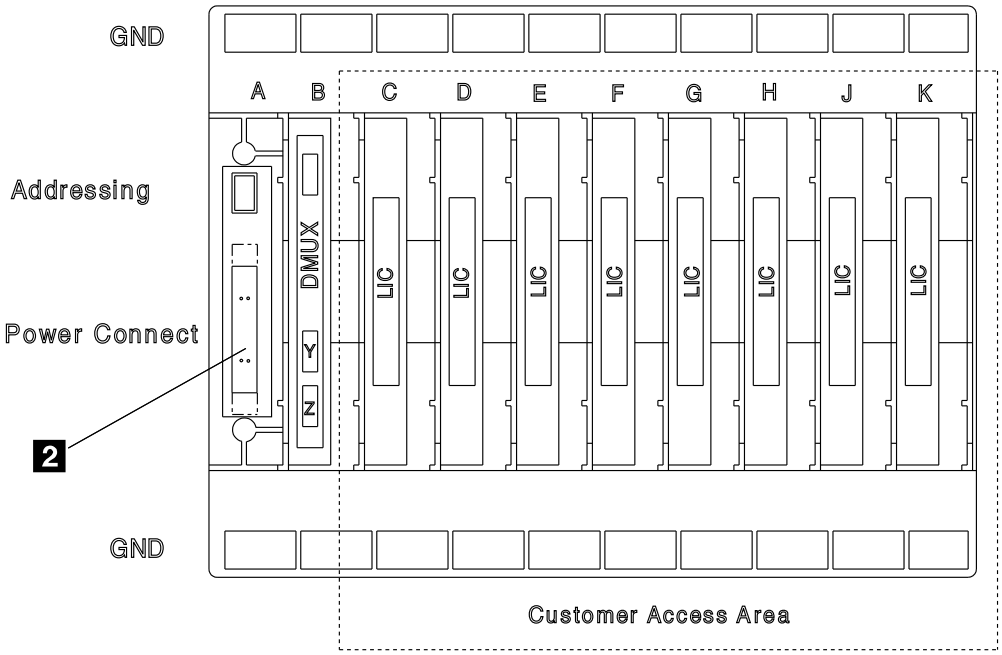


Figure 4-117. LIC Locations

LIC Board Location	Address Switches 5 to 1	LIC Type	Thumb Screw Color
01L-A1	00011	LIC type 1	Brown
01M-A2	00000	LIC type 3	Blue
01L-A2	00010	LIC type 4A	Green
		LIC type 4B	Green
		DMUX	White

13. **Attention: Use the ESD kit and procedures.**

    Remove the LICs and the DMUX by unfastening the thumb screws holding them to the board. (See “LIC Exchange Procedure” on page 4-44 and “DMUX Exchange Procedure” on page 4-39 for more details about removals).

14. **Refer to Figure 4-117 on page 4-86, Figure 4-118** .
15. Disconnect the power cable **2** from the LIC board.
16. Remove the four screws **3** holding the board assembly on the frame.
17. Remove the LIC board assembly.
18. Note the board address for later use.

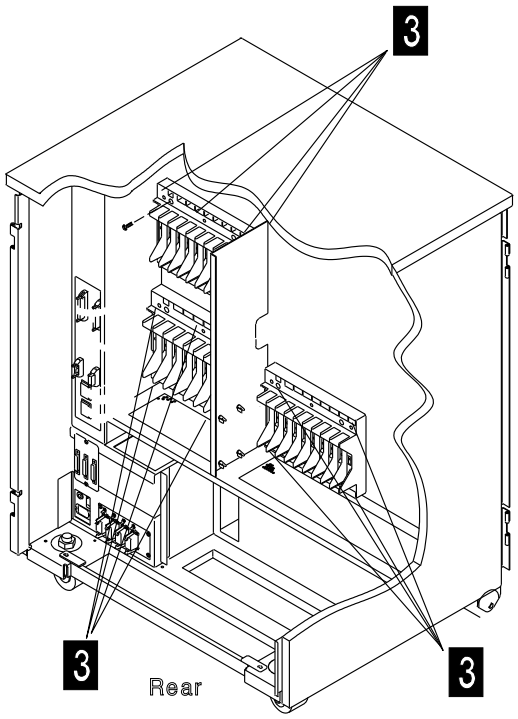


Figure 4-118. LIC Board Assembly

Installation Procedure

1. Refer to Figure 4-117 on page 4-86 and set the same board address as you noted during the board removal.
2. Refer to Figure 4-118. Mount the new LIC board assembly in place and secure it with the four screws **3** .
3. Refer to Figure 4-117 on page 4-86. Reconnect the flat power cable **2** .
4. **Attention: Use the ESD kit and procedures.**

   Install the LICs and DMUX into their proper positions and fasten the thumb screws holding them to the board. Finger strength is enough. Do not use tools.

5. Install the LIC cables in the LICs.
6. Install the serial link cables on the DMUX.
7. Refer to Figure 4-116 on page 4-85. Install the DMUX cover with two screws **1** .
8. Close the rear door.
9. **Switch CB1 ON**.
10. Close the front door.
11. Press **Power On** on the control panel.
12. Run all diagnostics.
13. Go to “Action to Take After a Diagnostic Run or an FRU Exchange” on page 4-99.

LIC Board Type 2 Exchange Procedure

Removal Procedure:

1. **Inform the customer that the 3745 is to be powered OFF.**
2. Press **Power Off** on the control panel.
3. Open the front door and the rear door.
4. **Switch CB1 OFF.** Refer to Figure 4-119
5. Locate the board to exchange. Refer to Figure 4-121 on page 4-89
6. Remove the SMUX covers. Refer to Figure 4-120 (four screws must be removed **1**).

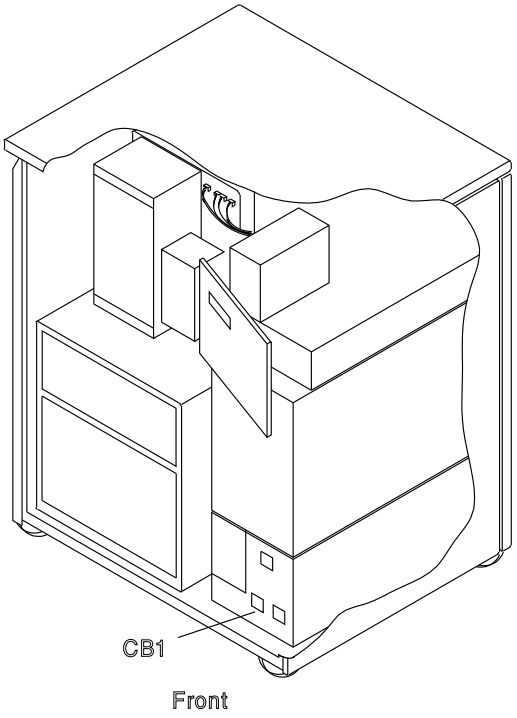


Figure 4-119. CB1 Location

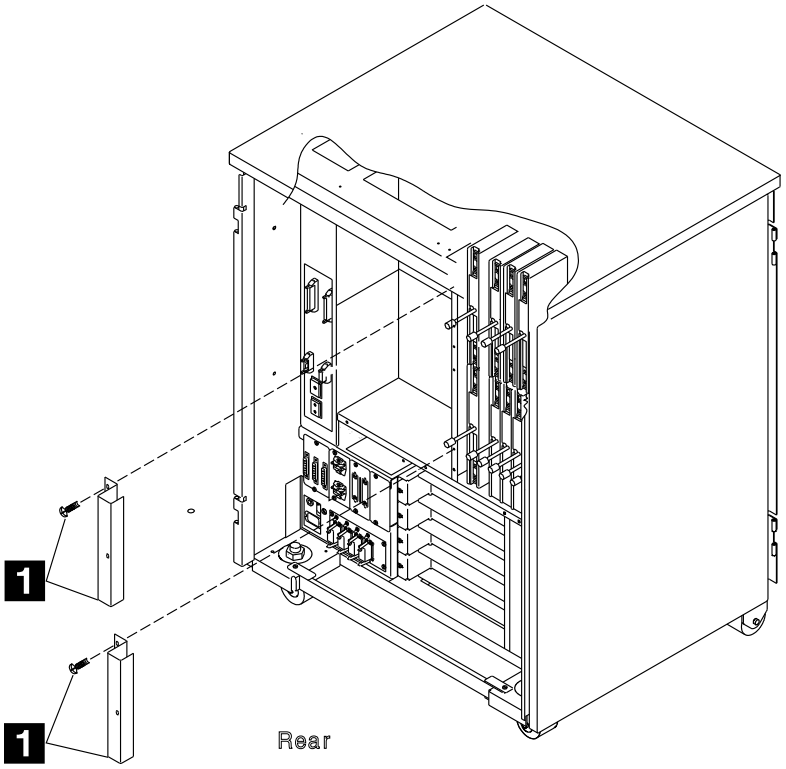


Figure 4-120. SMUX Cover

7. **Refer to Figure 4-122** .
8. Remove the serial link cable (if installed) from the SMUX: (this cable may be absent on SMUXB if SMUXA and the flat cable **2** are present).
9. Remove the flat cable **2** (if installed) which connects the two SMUXs, (if two LIC boards Type 2 are present in the machine): These cable may be absent in spite of the presence of the two boards.

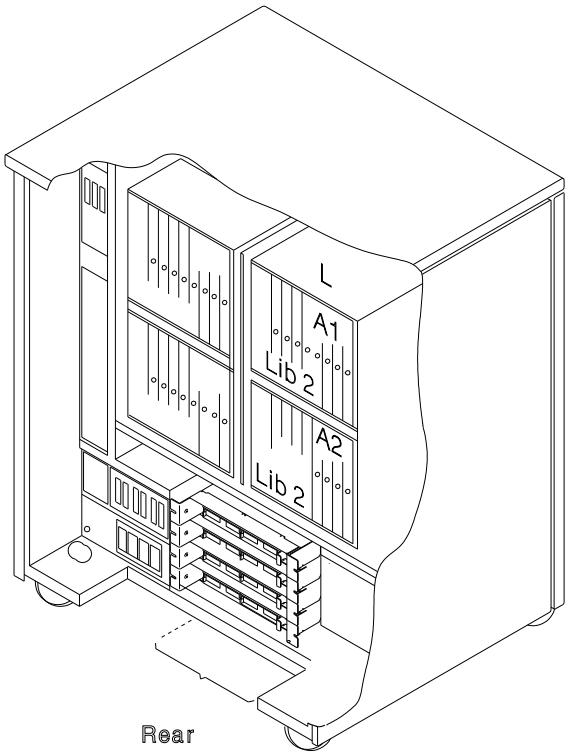


Figure 4-121. LIC Board Type 2 Locations

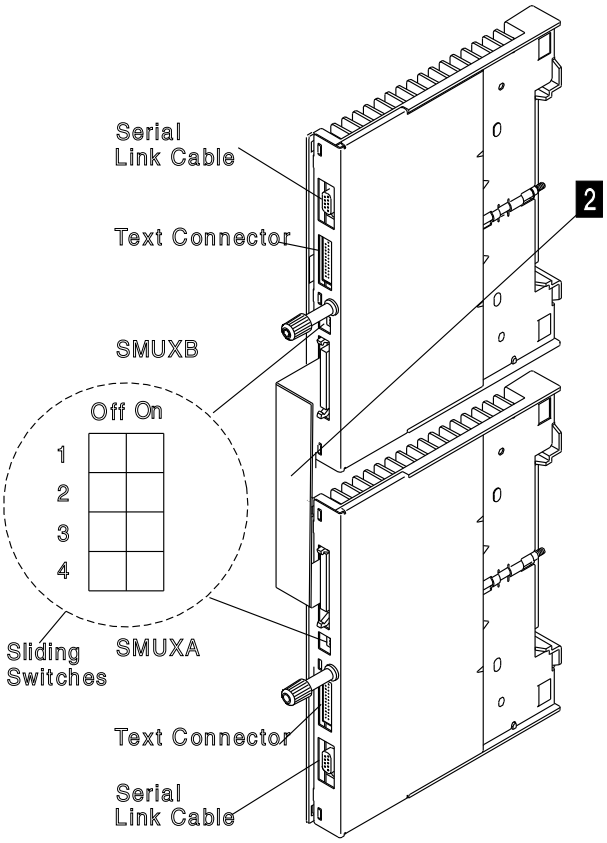


Figure 4-122. SMUX Link and Cable

10. **Refer to Figure 4-123** .
11. Verify that the LIC cables are labeled according to their positions. If they are not, label them. Then remove the LIC cables from the LICs.

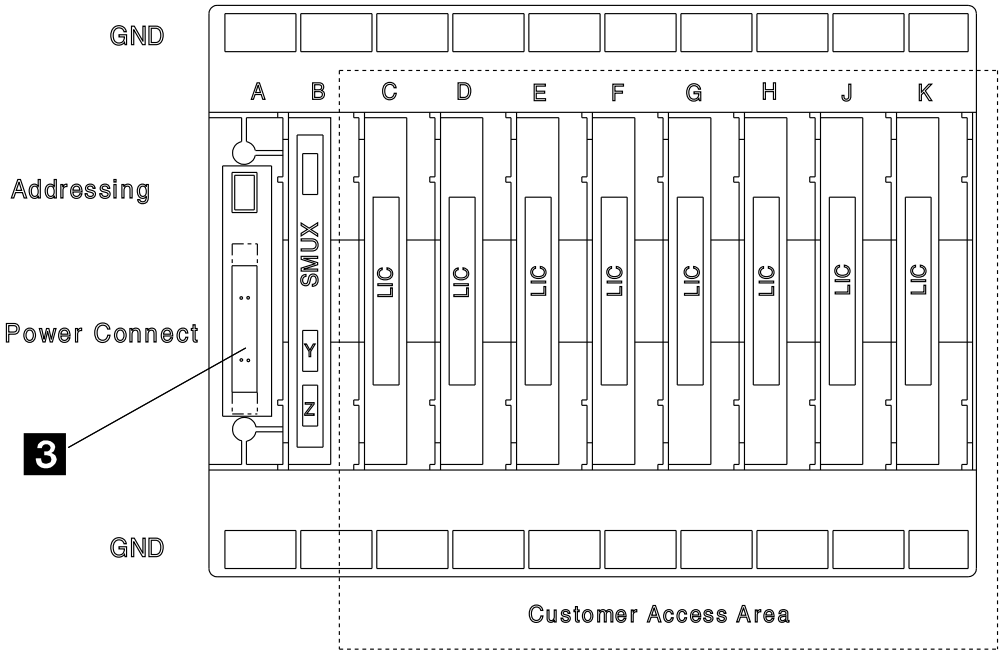


Figure 4-123. LIC Locations

LIC Board Location	Address Switches 7 to 1
01L-A1	0000010
01L-A2	0000011

12. Note the types and locations of the LICs.
13. **Attention: Use the ESD kit and procedures.**

    Remove the LICs and the SMUX by unfastening the thumb screws holding them to the board.
14. **Refer to Figure 4-123 and Figure 4-124** .
15. Disconnect the power cables **3** from the LIC board, and remove the screw and washer keeping ground strap to the frame **7** .
16. Remove the four screws **4** holding the board assembly to the frame.
17. Remove the LIC board **5** and the ground bracket **6** .
18. Note the board address for later use.

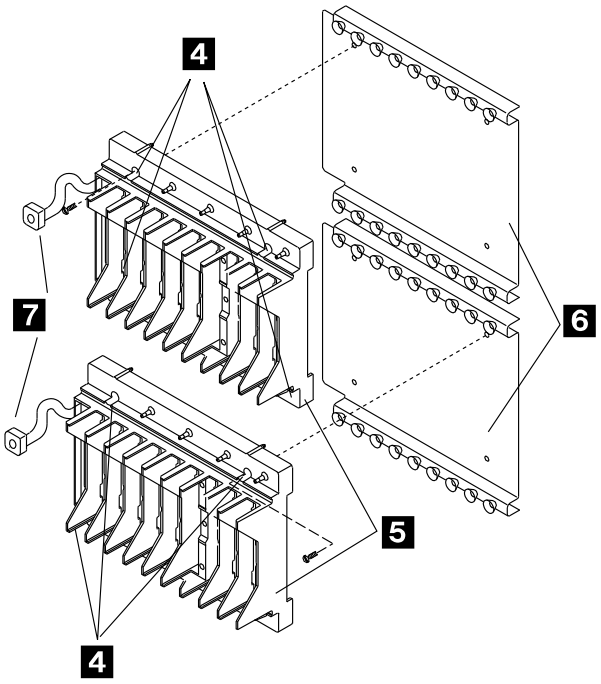


Figure 4-124. LIC Board Assembly

Installation Procedure

1. Refer to Figure 4-123 on page 4-90 and set the same board address as you noted during the board removal.
2. Refer to Figure 4-124 on page 4-90.
3. Mount the new LIC board **5** and the ground bracket **6** in place and secure them with the four screws **4**.
4. Refer to Figure 4-123 on page 4-90.
5. Reconnect the flat power cables **3**.
6. Refer to Figure 4-124 on page 4-90.
7. Mount the ground strap onto the LIC board to the frame with the screw and a washer **7**.
8. **Attention: Use the ESD kit and procedures.**

   Install the LICs and SMUX into their proper positions and fasten the thumb screws holding them to the board. Finger strength is enough. Do not use tools.
9. Install the LIC cables on the LICs.
10. Refer to Figure 4-122 on page 4-89.
11. Install the serial link cable (if any) on the SMUX.
12. Install the flat cable (if any) between the two SMUXs.
13. Refer to Figure 4-120 on page 4-88.
14. Install the SMUX cover with two screws **1**.
15. Close the rear door.
16. **Switch CB1 ON**.
17. Close the front door.
18. Press **Power On** on the control panel.
19. Run all diagnostics.
20. Go to “Action to Take After a Diagnostic Run or an FRU Exchange” on page 4-99.

MOSS Board Exchange Procedure

Removal Procedure

1. **Inform the customer that the 3745 is to be powered OFF.**
2. Press **Power Off** on the control panel.
3. Open the front door.
4. **Switch CB1 OFF.** Refer to Figure 4-125.
5. Locate the board. Refer to Figure 4-125.
6. Remove the covers of the MOSS board 1. (seven screws must be removed 2). Refer to Figure 4-126.

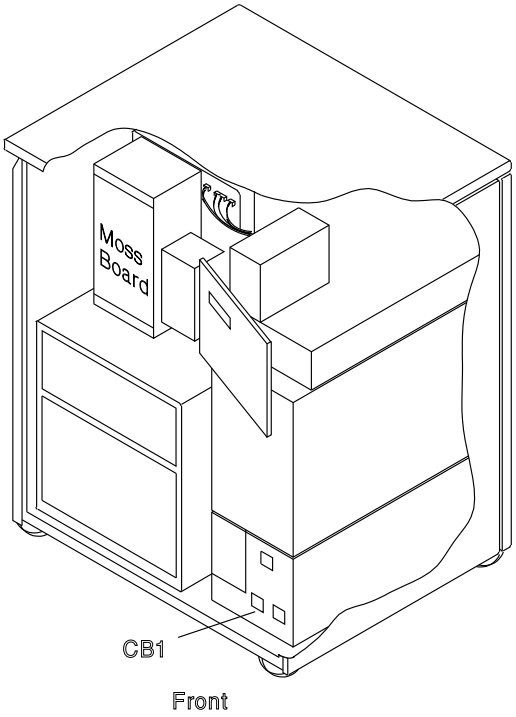


Figure 4-125. MOSS Board and CB1 Locations

8

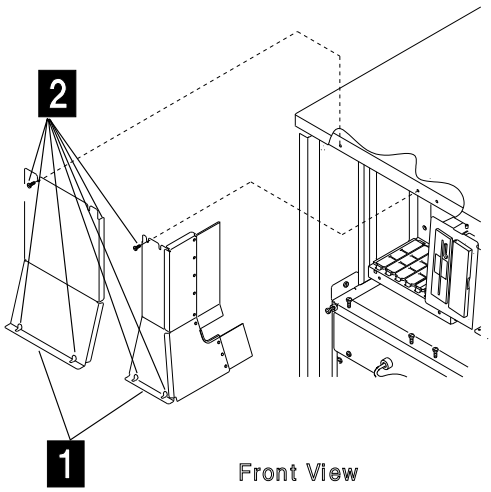


Figure 4-126. MOSS Board Covers

7. **Attention: Use the ESD kit and procedures.**
8. **Refer to Figure 4-127** .
9. Check if the cassettes are labelled according to their positions. If they are not, label them.
10. Remove the cassettes and store them in a safe place.
11. Verify that the cables are labeled according to their position. If they are not, label them.
12. Remove all the cables from the board.

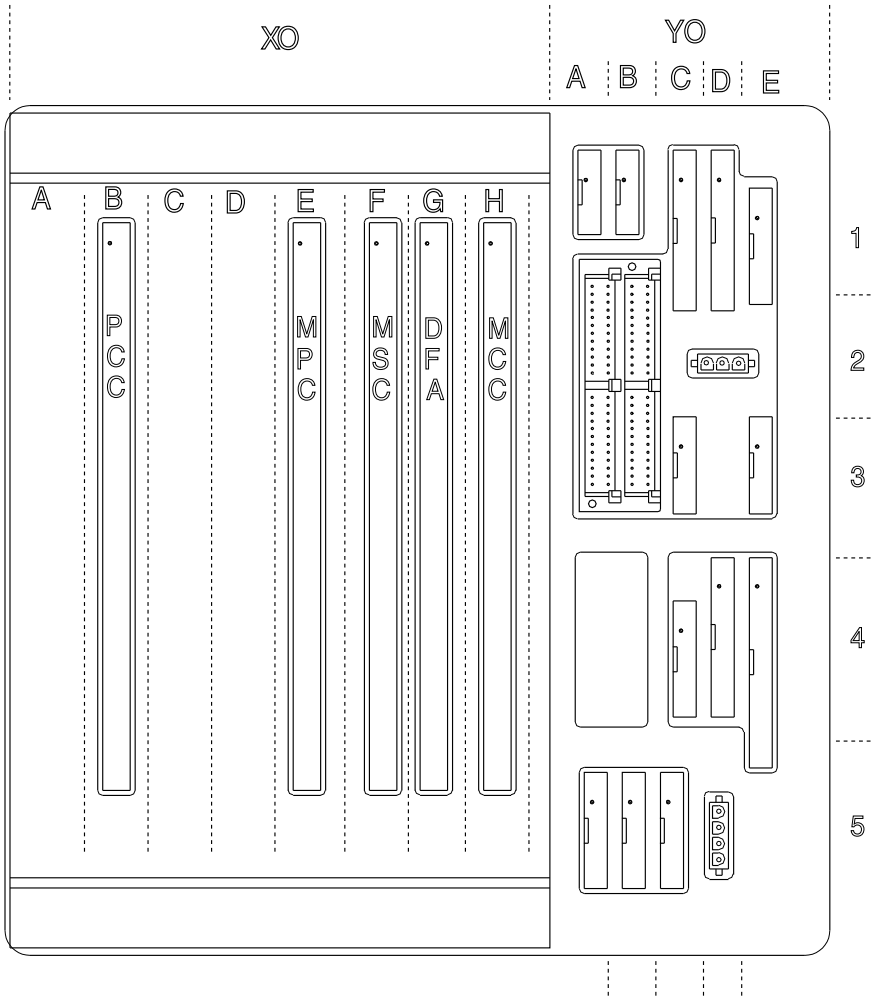


Figure 4-127. MOSS Board Cards and Cables

13. Remove the eight screws 3 which maintain the MOSS board enclosure in the frame. Refer to Figure 4-128. Remove the enclosure and place it in a safe working place.

14. Remove the 12 screws 4 which hold the MOSS board on the stiffener. Refer to Figure 4-128. Remove the MOSS board.

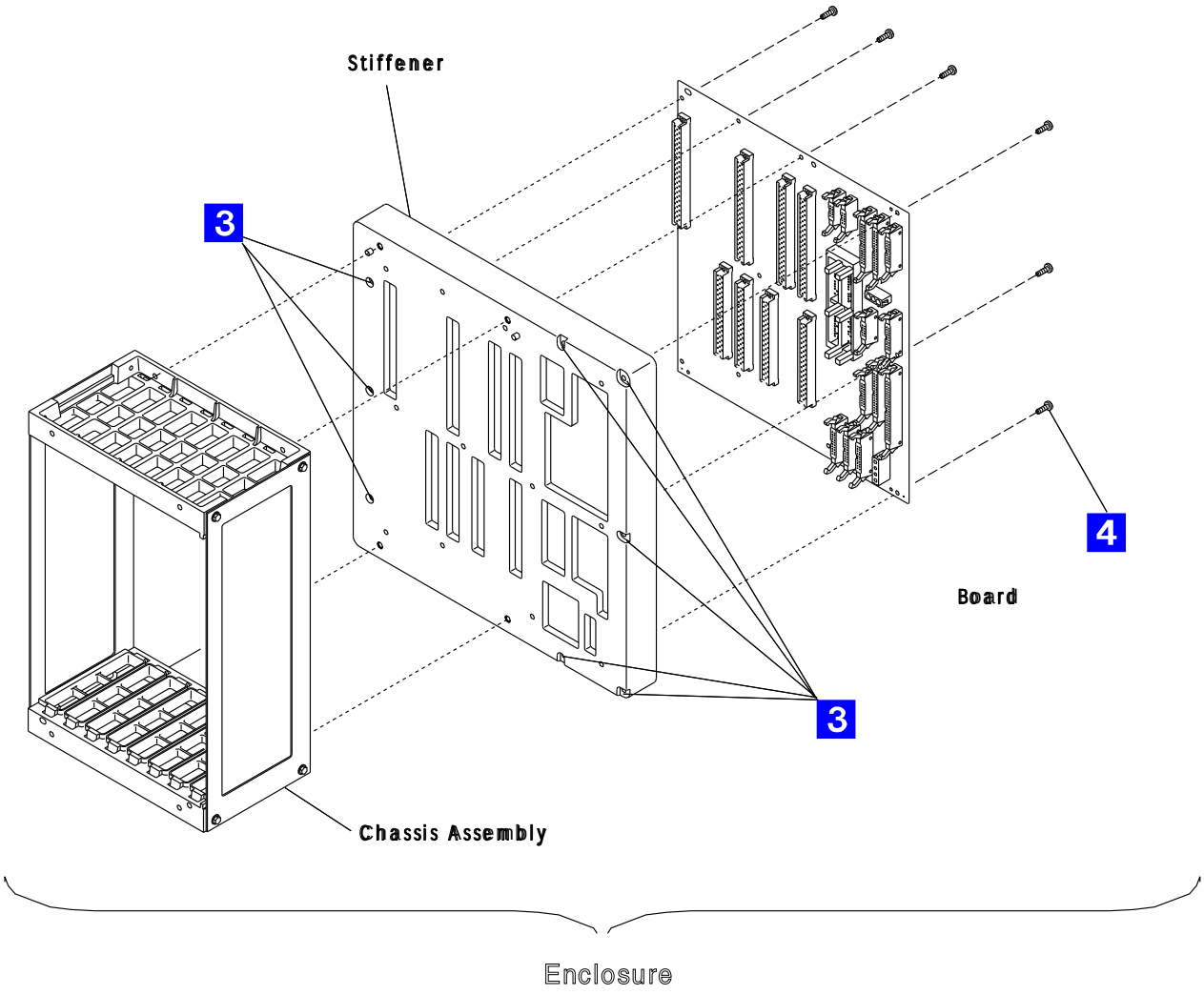


Figure 4-128. MOSS Board Enclosure

Installation Procedure

1. Place the new board on the stiffener and fasten it with the 12 screws **4** . Refer to Figure 4-128 on page 4-94.
2. Replace the MOSS board enclosure in the machine frame and fasten it with the eight screws **3** . Refer to Figure 4-128 on page 4-94.
3. **Attention: Use the ESD kit and procedures.**
4. Reconnect the cables and the cassettes in their correct location according to their labels. Refer to Figure 4-127 on page 4-93.
5. Install the covers of the MOSS board with the 7 screws **2** .
6. **Switch CB1 ON**.
7. Close the front door.
8. Press **Power On** on the control panel.
9. Run all diagnostics.
10. Go to “Action to Take After a Diagnostic Run or an FRU Exchange” on page 4-99.

Channel Tailgate Exchange Procedure

Removal Procedure

1. **Ask the customer to disable the channel related to the suspected channel tailgate connector. Also inform him that the 3745 is to be powered OFF.**
2. Press **Power Off** on the control panel.
3. Open the front and rear door.
4. **Switch CB1 OFF.** Refer to Figure 4-129.
5. Locate the channel tailgate. Refer to Figure 4-131 on page 4-97.
6. Remove the basic board grid. (two screws must be removed). Refer to Figure 4-131 on page 4-97.
7. At the channel tailgate connectors, set all the select out bypass switches to **Bypass**. Refer to Figure 4-130.
8. Disconnect the channel bus and tag cables from the channel tailgate connector to be removed.
9. In order to allow the customer to use the channel during the repair time, you must connect the cables together or to the terminators.
10. Remove the two screws which maintain the channel tailgate connector. See note. [1]
11. At the Basic board rear side disconnect the corresponding flat cables by loosening the retention screw. **These parts are fragile. Handle them with care**.
12. Remove the connector flat cables assembly from the channel tailgate rack.

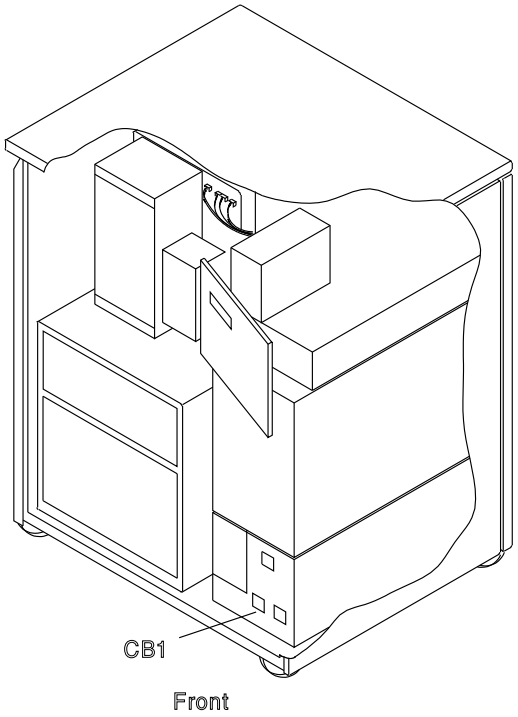


Figure 4-129. CB1 Location

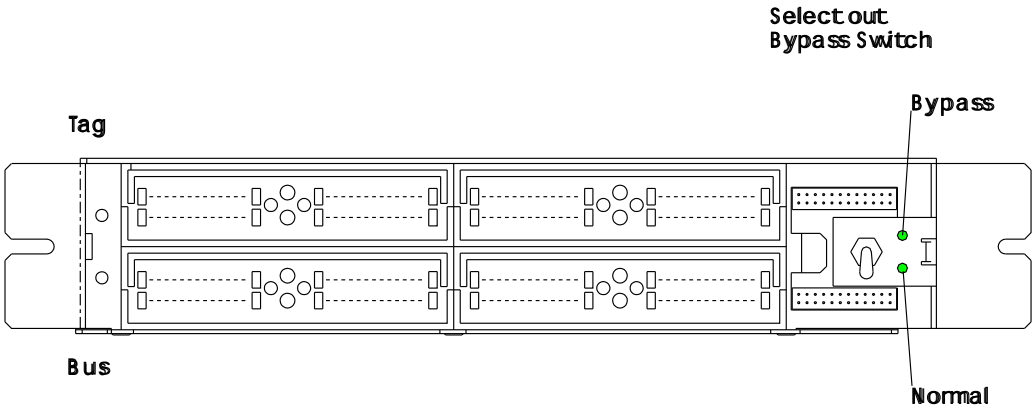


Figure 4-130. Select Out Switch

[1] An easier access to a lower located channel tailgate connector can be obtained by removing the upper one(s). For each channel tailgate connector use the steps 10 to 12. **Do not disconnect the channel bus and tag cables from the connectors**.

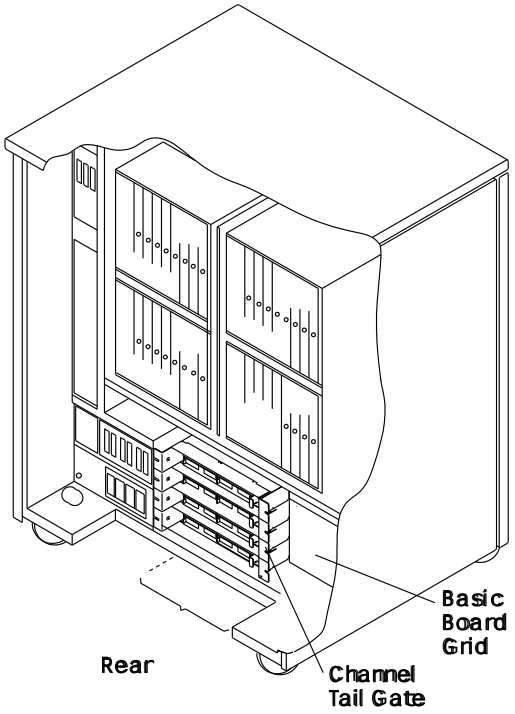


Figure 4-131. Channel Tailgate and Basic Board Grid

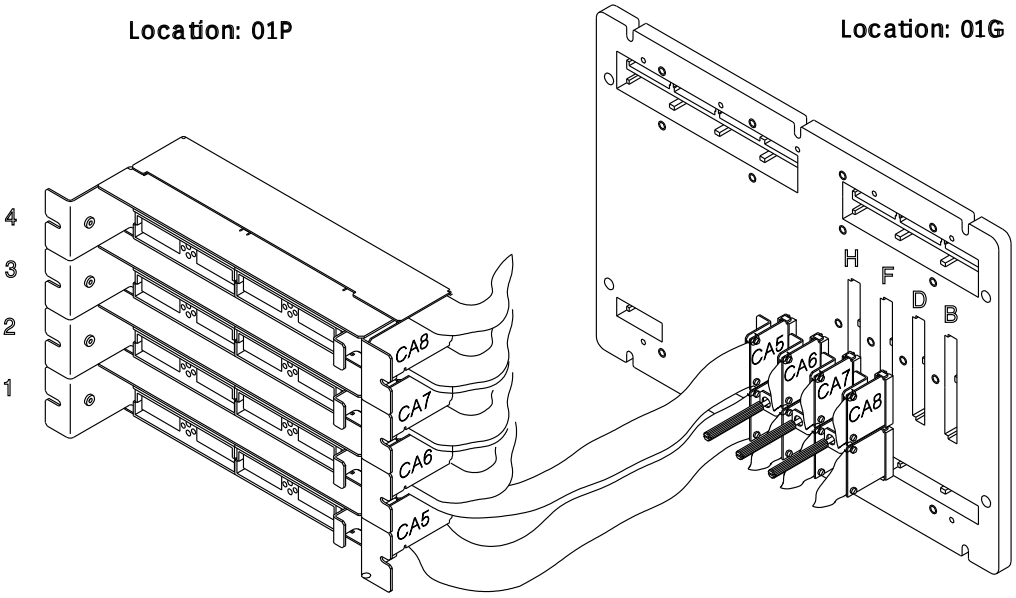


Figure 4-132. Channel Tailgate, Cables, and Basic Board

Installation Procedure

1. Install the new connector flat cables assembly in the channel tailgate rack.
2. Connect the flat cables to the basic board rear side. **Ensure that the connector is fully plugged before securing the screw.** The retention screw is not designed to achieve the connection.
3. Hold the channel tailgate connector with the two screws.
4. If the customer has restarted the channel **ask him to disable this channel again**.
5. Reconnect the channel bus and tag cables onto the channel tailgate connector.

6. Set all the select out bypass switches to **normal**.
7. Replace the basic board grid with the two screws.
8. Close the rear door.
9. **Switch CB1 ON**.
10. Close the front door.
11. Press **Power On** on the control panel.
12. Run the channel wrap test on each channel. Refer to “How to Run the Channel Wrap Test” on page 3-25.
13. Go to “Action to Take After a Diagnostic Run or an FRU Exchange” on page 4-99.

Action to Take After a Diagnostic Run or an FRU Exchange

Diagnostic and Exchange Result Analysis 0000

001

This procedure analyzes the results of the diagnostics or an FRU exchange and explains what must be done afterwards.

When MOSS diagnostics detect an error, a hex code is set on the control panel. The code can be decoded by using "3745 Control Panel Codes" on page 1-15.

When ODG/CDG diagnostics detect an error, a reference code is given on the diagnostic screen. See Figure 3-7 on page 3-12.

From Menu 3, select the BRC function. Enter the reference code. The action to be taken is displayed. See "Using Reference Codes" on page 1-14.

Did diagnostics initialization completed and the diagnostics start to run?

Yes **No**

002

Start the MOSS diagnostics. Refer to "How to Run MOSS Diagnostics" on page 3-4.

003

Did the diagnostics run without a message for manual intervention?

Yes **No**

004

Follow the instructions given by the diagnostics. Go back to this procedure according to the result.

005

Was the diagnostic result obtained before any FRUs were exchanged?

Yes **No**

006

Go to Step 025 on page 4-100.

007

(Step **007** continues)

007 (continued)

Did the diagnostic detect a failure?

Yes **No**

008

– Go to Step 018 on page 4-100.

009

Was the failure other than 'unexpected error'?

Yes **No**

010

Was the diagnostic running in CDG mode?

Yes **No**

011

Run the previous diagnostic for the upper level in the 'run all' diagnostics. For example, TRSS > IOC Bus > CCU. Go to "3745 Diagnostic Requirement" on page 1-60

012

Analyse the reference code. Refer to "Using Reference Codes" on page 1-14. Continue with Step 013.

013

You may have started this service call to exchange FRUs called by a reference code or panel code.

Is the first FRU called by the diagnostics different from the FRU you were going to exchange?

Yes **No**

014

Perform FRU exchange using Chapter 4, "3745 FRU Exchange" on page 4-1.

015

(Step **015** continues)

015 (continued)

Is there a common FRU given by both lists?
Yes **No**

016

– If you do not have the first FRU called by the diagnostics, obtain it.

If you have the FRU or when you obtain the FRU, go to "3745 FRU List" on page 1-53 and follow the instructions to exchange it.

017

Consider that it is the first FRU of the list and perform FRU exchange using Chapter 4, "3745 FRU Exchange" on page 4-1.

018

Were HPTSS diagnostics being run for a suspected FESH card?
Yes **No**

019

Go to Step 022.

020

– In 3745 frame 01 (at tailgate location 01Q), remove the cables from the HPTSS lines to be tested. Refer to Figure 4-2 on page 4-4.
– Install wrap plugs in the sockets of 01Q for the lines to be tested.
– Update the CDF to show that the lines to be tested have wrap plugs installed. Refer to the *IBM 3745 Communication Controller Service Function* (CDF chapter).
– Run one of the following HPTSS diagnostic routines:
  - VI and VK if V.35 wrap plug is installed
  - VJ and VK if X.21 wrap plug is installed
  - VI, VJ, and VK if both types of wrap plugs are installed.

  Refer to "How to Run Internal Function Tests" on page 3-9.

Did the diagnostics run free of error?
Yes **No**

021

Go to Step 013 on page 4-99.

022

(Step **022** continues)

022 (continued)

Is the FRU you were processing the last FRU called for the error?
Yes **No**

023

You have an intermittent error or an error not detected by this diagnostic.

Continue using this manual for the next FRU called. Go to "3745 FRU List" on page 1-53.

024

All parts of the machine required for FRU exchange will now be available for service.

Change all FRUs called (use, Chapter 4, "3745 FRU Exchange" on page 4-1).

025

Have you been told to exchange all FRUs for an intermittent problem?
Yes **No**

026

Go to Step 032.

027

Did the diagnostics run error free or power successfully ON?
Yes **No**

028

You have a problem with the new FRU. Try another one or put the original back in. Refer to Chapter 4, "3745 FRU Exchange" on page 4-1 and continue with next Step.

029

Have all the FRUs called been exchanged?
Yes **No**

030

Go to Chapter 4, "3745 FRU Exchange" on page 4-1 for next FRU called.

031

Go to "CE Leaving Procedure" on page 4-102.

032

(Step **032** continues)

032 (continued)

Was the FRU other than a power supply?
Yes **No**

033

Has the power supply successfully powered up?
Yes **No**

034

Go to Step 046.

035

Go to "CE Leaving Procedure" on page 4-102.

036

Did the last run of the diagnostics or IML detect an error?
Yes **No**

037

Go to "CE Leaving Procedure" on page 4-102.

038

Is the error the same as before?
Yes **No**

039

Go to Step 044.

040

– As the problem is not solved by changing this FRU, you must put the original back in. Refer to "Exchange Precautions" on page 4-1. Continue with the next step.

Have all the FRUs called been changed?
Yes **No**

041

In "3745 FRU List" on page 1-53 check if the next FRU and the FRU you have just exchanged have the same 'Diagnostic' and 'Area'.

Do both have the same 'Diagnostic' and 'Area'.
Yes **No**

042

(Step **042** continues)

042 (continued)

Follow the "3745 FRU List" on page 1-53.

043

Go to "Exchange Precautions" on page 4-1 for the next FRU called.

044

– Check what you have done:
  - Cards correctly installed
  - Cables correctly plugged
  - Crossovers correctly located and oriented
  - Switches in correct position.

– Run the diagnostics again, IML or any other action you were asked after FRU exchange.

Was a failure detected?
Yes **No**

045

Go to "CE Leaving Procedure" on page 4-102.

046

During your path through the MIP, have you recorded an Other Action or MAP to use?
Yes **No**

047

You may have a defective new FRU, or multiple problems. Try to determine if restarting the full procedure, or if another symptom may help you.
Also suspect cables, boards and voltages. It may also be necessary to run diagnostics with the **ALL** option in offline mode. In any case, contact your support structure for further assistance.

048

Go there now.

CE Leaving Procedure

The maintenance package has determined that the 3745 is ready to be returned to normal operation.

001

Did you work on the 3745 Model 17A?

Yes **No**

002

Go to Step 004.

003

- In the **MOSS-E View** window, double click on the service processor icon.
- The **Service Processor Menu** window is displayed.
- Click on the **Configuration Management** option.
- Double click on the **Manage Remote Operations** option.
- In the **Remote Operation Management** window, select the **Remote operations authorization** option and click on **OK**.
- On the **Remote Support Facility** window, select the two following options:
  - **Enable Remote Support Facility**
  - **Generate alerts**
- Click on **OK**.
- Click on **Cancel** to return to **Service Processor Menu**.
- Click on **Function** and **Exit** to return to the **MOSS-E View** window.
- In the **MOSS-E View** window, click on **Program** in the action bar.
- Click on **Log Off MOSS-E**.
- Continue with Step 004.

004

You should use the following list to ensure that the machine is in suitable condition for customer operation and that all call information is recorded.

1. Replace any cables removed.
2. Check the battery voltage and exchange it if necessary.
3. Do all the actions that apply in the following list:

If You Have	What You Should Do
Exchanged all the FRUs that were identified for an intermittent problem or a problem not detected by the diagnostics (tentative repair which can be unsuccessful).	Use the manual BER correlation (BRC, refer to the *IBM 3745 Service Functions*) to point out some additional potentially failing FRUs. 1. Find, in the Error Log Display the alarm with the Reference Code that you used to exchange the FRUs. 2. Select the BER range which occurs in the same time frame as the alarm. 3. Type **BRC** in the Menu 3. 4. Enter the most recent and the oldest BER in the range you have selected. 5. Press **SEND**. 6. Note the extra FRUs, if any, provided by the BER correlation and inform the HSC/HCS or update the PMH in case of problem reoccurence.
Exchanged a Board	If the new board has a different part number with regard to the old one, you have to update the 'Board Level' label located on the front door.
Exchanged a LIC Board	Check the address plugging.

Exchanged a FRU with a Different PN	Upgrade the CDF. Refer to the *IBM 3745 Communication Controller Service Function* (CDF chapter) to upgrade or verify the CDF.
Used the MIP for an Installation	Go back to the installation procedure in the Installation Manual.
Exchanged the PCC Card or Battery with Power OFF	Inform the customer that the **TOD-clock** and **scheduled power ON** services will have to be recreated.
Exchanged the HDD	1. Inform the customer that he will have to refresh the NCP on this disk if he uses HDD to load the control program. 2. Update the password.
Run the Wrap Diagnostic on the CA	Ensure that the wrap plug is removed and replaced by the normal cable.

4. IML the MOSS as follows:
   - Set service to **0** (normal mode).
   - Set function to **1** (MOSS IML).
5. Do all actions that apply in the following list:

If you Have	**What you Should Do**
Been working on the channels area in Concurrent Diagnostic mode	Restore the adapters back to NCP, using the channel service screen. Refer to “CA Restore Procedure” on page 4-105.
Been working on the TSS, HPTSS, or ESS adapter area in concurrent diagnostic mode	• Remove all wrap plugs installed during this service call. • Replace all modem and line cables removed during this service call. • If you have altered CDFs during this service call, check CDFs and update, if necessary. Refer to the *IBM 3745 Communication Controller Service Function* (CDF chapter). • IML the scanners disconnected from NCP during this call. This can be done by selecting **IMS** from Menu 1. When IML is complete, the adapters will automatically be connected to NCP. • Ask the customer to reactivate the lines that were stopped during the maintenance.
Been working with TRSS in concurrent diagnostic mode	• Connect the TRAs you disconnected during this service call back the to NCP. Refer to “TRA Reconnect Procedure” on page 4-105. • Ask the customer to reactivate the lines stopped during the maintenance.

6. Log Off the console by typing **OFF** on any displayed screen.
7. Set the console in use according to customer requirements.
8. Restore the power mode as it was before your intervention.
9. Do all the actions that apply in the following list:

If you Have	**What you Should Do**

Had the whole configuration	Ask the customer to IPL and load the NCP into the CCU. Verify that IPL completes whithout errors. If the system is not available to load the NCP into the CCU, return the console to maintenance mode and IPL the CCU, one step at a time. At the beginning of phase 4 (IPL stop with phase 4 displayed) , verify that the message 'SCANNER(s) not IMLED xxxx' is not displayed. Continue to end of phase 4.
Disabled some channels	Ask the customer to: • Re-enable the channels using the CID screen. • Put the channels online from the host.
Put the 3746-900 Offline	Put the 3746-900 to online mode.
Been working on the 3746-900 in concurrent maintenance mode on processors or couplers.	Use the CDF-E display function to check that the replaced/tested FRUs are available or active.

10. Replace all covers and close the doors.
11. Leave the machine in a **safe** condition.
12. Record the actions taken and the FRUs replaced during the call.
    If the origin of the intervention was an alarm A5, report it as preventive maintenance (Service Code 08).
13. Update the PMH record for this call.
14. Return parts to the stock room.

CA Restore Procedure

1. On the 3745 console, invoke Menu 3 and type **CAS** in the selection area for channel adapter services.
2. Press **SEND**.
3. Type **4** for concurrent maintenance commands.
4. Press **SEND**.
5. Type the channel adapter number corresponding to this FRU in the CA number ===> field.
6. Press **SEND**
7. Type **RES** in the command ===>field.
8. Press **SEND**.
9. Re-initiate the same procedure from Step 5 for the associated CA, if any.

How to Put the MOSS Online

Note: MOSS can only be put online if the NCP is running.

1. Using the console, invoke Menu 2 (See PF key line).
2. In Menu 2, type **MON** in the selection area.
3. Press **SEND**.
4. **MOSS ONLINE** will be displayed on the screen.

TRA Reconnect Procedure: For this procedure you may wish to refer to Figure 1-6 on page 1-67, Figure 1-8 on page 1-68, and Figure 1-7 on page 1-67.

1. On the 3745 console, invoke Menu 3 (See PF key line).
2. In Menu 3 type **TRS** in the selection area for **TRSS services**.
3. Press **SEND**.
4. The **TRSS Function Selection Screen** is displayed.
5. Type **1** in the selection area for **TRA Selection Screen**.
6. Press **SEND**.
7. The **TRA Selection Screen** is displayed.
8. Type the TRA number in the TRA # ==> field.
9. Press **SEND**
10. The **TRSS Function Selection Screen** is displayed.
11. Type **2** in the selection area for Connect/Disconnect.
12. Press **SEND**.
13. The **TRA Connect/Disconnect Selection Screen** is displayed.
14. Type **CT** in the input area to connect the selected adapter to the NCP.
15. Press **SEND**.
16. Re-initiate the same procedure from Step 5 for the associated TRA, if any.

Appendix A. Maintenance Aids

Contacting Support

You may wish to record your support center telephone number here.

You may be directed to call support for various reasons. When support is called you may be asked to perform specific tasks. On the following pages you will find information about why you call support and references to where you will find information about the tasks you may have to perform.

- "Control Program Maintenance Aids."
- "MOSS Microcode Maintenance Aids" on page A-2.
- "Scanner Microcode Maintenance Aids" on page A-2.
- "Special Tools" on page A-3.
- "Shipping Group Tools" on page A-4.
- "PKD (Portable Keypad Display) Maintenance Aids for LIC 5 and 6" on page A-5.

Control Program Maintenance Aids

The following list gives some possible causes of control program errors.

- A hardware configuration change has been performed and there is a difference between the hardware configuration and the control program generation.
- The customer has made some software changes.
- A PTF has been incorrectly applied.
- A PTF exists for the problem but has not been applied.

The following table shows where to find useful information in case of a suspected control program error.

Information	Where to Find It
Customer procedures for diagnosis	*ACF/SSP Diagnosis Reference*
How to perform control program procedures	*IBM 3745 Advanced Operation Guide*, SA33-0097
How to execute NCP functions	*IBM 3745 Advanced Operation Guide*, SA33-0097
Line interface display (LID)	*IBM 3745 Advanced Operation Guide*, SA33-0097
Port swap	*IBM 3745 Advanced Operation Guide*, SA33-0097
LIC swap	*IBM 3745 Advanced Operation Guide*, SA33-0097
Stand-alone link test (SALT)	*IBM 3745 Advanced Operation Guide*, SA33-0097
Cataloged procedures (CP1 to CP6)	*IBM 3745 Advanced Operation Guide*, SA33-0097
LIC internal wrap test	*IBM 3745 Problem Determination Guide*
LIC wrap test with wrap plugs	*IBM 3745 Advanced Operation Guide*, SA33-0097
NetView* program alerts	*NetView Bibliography.*

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MOSS Microcode Maintenance Aids

The following table shows where to find useful information in case of a suspected microcode error.

Information	Where to Find It
How to apply an MCF	*IBM 3745 Communication Controller Service Function*, SY33-2069
How to display and delete a MOSS dump	*IBM 3745 Communication Controller Service Function*, SY33-2069
How to save, restore, and format the MOSS hard disk drive	*IBM 3745 Communication Controller Service Function*, SY33-2069
How to dump a MOSS	*IBM 3745 Communication Controller Service Function*, SY33-2069

Scanner Microcode Maintenance Aids

The following table shows where to find useful information in case of a suspected scanner microcode error.

Information	Where to Find It
MCF	*IBM 3745 Communication Controller Service Function*, SY33-2069
Patches	*IBM 3745 Communication Controller Service Function*, SY33-2069

Special Tools

Maintaining the 3745 requires using tools in addition to those in the IBM service representative's tool kit. The tools needed include:

General Purpose Tools

Tool	Qty	Part Nbr.
PT2-220 V	1	1749268
or		
PT2-110 V	1	1749269
PT3-220 V	1	6406001
or		
PT3-110 V	1	6406000
PT3-TPAM Acc. kit	1	83X9300
TPLM	1	1749290
Display	1	1749270
Digital voltmeter	1	8309874 or 8496278
EIA breakout panel	1	453637
One of the following oscilloscope	1	
Tektronix 454**		459559
Tektronix 475**		453215
Tektronix 2235**		6428880
Tektronix 2465 A**		8309847
High voltage probes	2	453698

ESD Kit

Part Name	Part Nbr.
ESD kit	6428316
This kit contains:	
ESD mat	6428274
Wristband (small size)	6428167
(large size)	6428169
ESD ground cord	6428166

Shipping Group Tools

The following tools are shipped with the machine:

Tool	Qty	Part Nbr.
Segment board	2	5997533
Console wrap plug (31XX)	1	6398697
Console wrap plug (3727)	1	2667737
Console wrap plug (PC*/PS2*)	1	26F0320
LIC 1-4 wrap plug	1	65X8927
CA bus wrap plug (old)	1	03F4301
or		
CA bus wrap plug (new)	1	26F1755
CA tag wrap plug (old)	1	03F4300
or		
CA tag wrap plug (new)	1	26F1754
CA bus terminator	1	2282675
CA tag terminator	1	2282676
EPO plug	1	8482303
Cover keys	2	1643894
Bypass card type 1 (BPC1)	1	03F4372
Bypass card type 2 (BPC2)	1	66X0965

The following tools are shipped when an HPTSS is installed in the machine:

V.35 Wrap Plug	1	58X9349
X.21 Wrap Plug	1	58X9354
ESS Wrap Plug	1	70X8670

The following tool is shipped when a LIC3 is installed in the machine:

LIC3 wrap cable	1	65X8928

The following tools are shipped when a LIC5 or LIC6 is installed in the machine:

PT2 adapter cable	2	11F4816
LIC5/LIC6 wrap plug (tailgate)	1	11F4815

One of the following tools is also shipped:

LIC-5/6 wrap block (cable end) P/N according to the country.

Austria	1	6162946
Belgium	1	6162950
France	1	6162955
Germany	1	6162950
Hong Kong	1	65X8070
Israel	1	66X1954
Italy	1	6162957
Japan	1	6124644
Luxemburg	1	6162950
Netherlands	1	6162948
Switzerland	1	66X0748
U.K.	1	65X8069
U.S.A./Canada	1	66X0807

The following tools are shipped when a 3746-900 is installed in the machine:

ESCON wrap plug	1	5605670
TIC-3 wrap plug	1	6165899
Filler (dummy card)	1	2733278
LIC11 wrap plug	1	58G9425
LIC12 wrap plug for X.21	1	58X9354
LIC12 wrap plug for V.35	1	58X9349
LIC16 wrap plug	1	57G8097

Wrap plugs for testing ARCs and cables (these wrap plugs must be installed on ARC cables):

ARC V.35 DTE wrap plug	1	61F4527
ARC V.35 DCE wrap plug	1	61F4526
ARC V.24 DTE wrap plug	1	61F4523
ARC V.24 DCE wrap plug	1	61F4522
ARC V.24 DCE/DTE 3745 wrap plug	1	61F4525
ARC V.35 DCE 3745 wrap plug	1	61F4528
ARC V.35 DTE 3745 wrap plug	1	61F4578
ARC X.21 DTE wrap plug	1	61F4530
ARC X.21 DCE wrap plug	1	61F4529
ARC X.21 DCE/DTE 3745 wrap plug	1	65X8927

Wrap plugs for testing ARCs assembly B (these wrap plugs must be installed at the rear of the ARCs):

ARC V.24 wrap plug	1	58G5660
ARC V.35 Non 3745 wrap plug	1	58G5661
ARC V.35 DTE 3745 wrap plug	1	58G5658
ARC V.35 DCE 3745 wrap plug	1	58G5659
ARC X.21 wrap plug	1	58G5662

The following tool is shipped with the service processor, which has an integrated modem installed:

Integrated modem wrap plug	1	74F4508

The following tools are shipped with the IBM controller expansion rack containing the service processor and/or the network node processor:

Spare fuse	2	58G5782

PKD (Portable Keypad Display) Maintenance Aids for LIC 5 and 6

Configuration: On a LIC type 5 or 6, the configuration parameters are set from the PKD.

Refer to the "3745 Connection and Integration Guide" for the detailed procedure.

On a LIC type 5, the following configuration parameters are "service representative only":
MODE (native or CCITT), CD SENSIT (normal or low), and L XMIT LEVEL.
They must be set by using the **'B'** command as follows:

1. Enter the **B 300** at the PKD.
2. Press **GO** several times to get the desired option message.
3. Press **ERASE** and enter the new value if applicable.
4. Press **GO** to validate the new value.

B Commands (Only for LIC Type 5): The following other **B** commands can be used by the CE for miscellaneous actions:

- B 100 Reload default configuration.
- B 555 Address a remote modem (using the modem serial number) to change some parameters.
- B 666 Increase the time out from 30 seconds to 10 minutes.
- B 703/704/705 CO/CS functions (allows remote commands).
- B 730 Send a 1004 Hz tone on telephone line.

Manual Tests: The following manual tests can be executed on a LIC type 5:

- Local self-test
- Remote self-test
- Local status report
- Remote status report
- Analog test (line analysis)
- Digital test (transmit/receive test)
- Manual loopback.

The following manual tests can be executed on a LIC type 6:

- Local self-test
- Digital test (transmit/receive test)
- Manual loopback.

Refer to the *"3745 Connection and Integration Guide"* for detailed procedures.

Appendix B. 3745 Bibliography

Service Personnel Definitions

Definition	Uses
Product trained CE (PT CE). Hardware CE also able to fix problems in the micro-code. Also called: CE1 1st Level CE CE Phase 1	RETAIN console 3745 control panel 3745 console 3746-900 control panel Service Processor MIP Service Functions Guide Installation Guide Parts Catalog Basic Operations Guide Problem Determination Guide Connection and Integration Guide Advanced Operations Guide Wiring Diagrams (YZ Pages)
Product support trained CE (PST CE). Hardware CE also able to determine and fix problems in the microcode Also called: CE2 2nd Level CE CE Phase 2 Specialist Support	Same as PT CE, plus: Hardware Maintenance Reference Diagnostic Descriptions Principles of Operation
Hardware Central Service (HCS) may include: Dispatchers PT CEs PST CEs	All 3745 tools and books
Program service representative (PSR): Also called: Program support CE Software CE	Operating systems, access methods, and NCP/EP library

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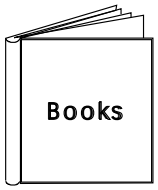
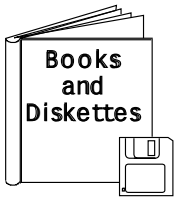
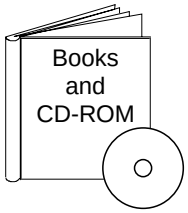
Customer Documentation for the 3745 (Models 130, 150, 160, 170, and 17A) and 3746 (Model 900)

Table B-1 (Page 1 of 4). Customer Documentation for the 3745 Models 130 to 17A and 3746 Model 900

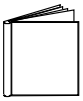
This customer documentation has the following formats:







Finding Information



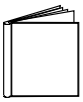
SA33-0142

IBM 3745 Communication Controller
Models 130, 150, 160, 170, and 17A
IBM 3746 Expansion Unit Model 900

Customer Master Index[1]

Provides references for finding information in the customer documentation library.

Evaluating and Configuring

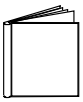


GA33-0138

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.

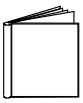


GA33-0180

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.



GA33-0183

IBM 3745 Communication Controller Models A[2]
IBM 3746 Expansion Unit Model 900

Migration and Planning Guide

Prepares 3745 Models A and 3746 Model 900 planning for:

- Field upgrades
- Network integration (NCP control)
- Physical installation.

Table B-1 (Page 2 of 4). Customer Documentation for the 3745 Models 130 to 17A and 3746 Model 900

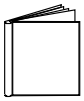
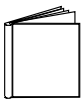
Preparing Your Site		
	GC22-7064 GN22-5490	***Input/Output Equipment*** ***Installation Manual-Physical Planning*** ***Technical News Letter*** Provides information on physical installation for the 3745 Models 130 to 610. For 3745 Models A and 3746 Model 900, refer to the *Migration and Planning Guide*, GA33-0183.
	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.
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.
	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.

Table B-1 (Page 3 of 4). Customer Documentation for the 3745 Models 130 to 17A and 3746 Model 900

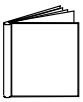
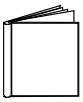
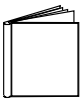
Operating and Testing		
	SA33-0098	***IBM 3745 Communication Controller All Models***[4] ***Basic Operations Guide***[1] Provides instructions for daily routine operations on the 3745 Models 130 to 610.
	SA33-0177	***IBM 3745 Communication Controller Models A***[2] ***IBM 3746 Nways Multiprotocol Controller 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 (NCP), APPN/HPR Network Node, and IP Router.
	SA33-0097	***IBM 3745 Communication Controller All Models***[3] ***Advanced Operations Guide***[1] Provides instruction 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 on-line help.
	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.

Table B-1 (Page 4 of 4). Customer Documentation for the 3745 Models 130 to 17A and 3746 Model 900

Managing Problems

SA33-0096

IBM 3745 Communication Controller
All Models[3]

Problem Determination Guide[1]

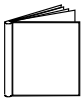
A guide to performing problem determination on the 3745 Models 130 to 61A.

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[2]
- IBM 3746 Nways Multiprotocol Controller Models 900 and 950.



SA33-0175

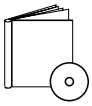
IBM 3745 Communication Controller Models A[2]
IBM 3746 Expansion Unit Model 900
IBM 3746 Nways Multiprotocol Controller Model 950

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.

CD-ROM Bibliography



SK2T-6012

IBM Networking
Softcopy Collection Kit

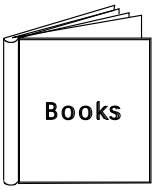
Allows customer manuals consulting via CD-ROM viewer.

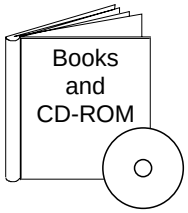
[1] Documentation shipped with the 3745.
[2] 3745 Models 17A to 61A.
[3] 3745 Models 130 to 61A.
[4] Except 3745 Models A.
[5] Documentation shipped with the 3746-900.

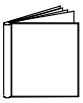
Service Documentation for the 3745 (Models 130, 150, 160, 170, and 17A) and 3746 (Model 900)

Table B-2 (Page 1 of 3). Service Documentation for the 3745 Models 1x0 and 17A, and 3746 Model 900

This service documentation has the following formats:





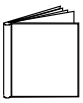


SY33-2079

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.

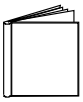


SY33-2067

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.

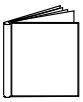


SY33-2114

IBM 3746 Nways Multiprotocol Controller Model 900

Installation Guide[2]

Provides instructions for installing or relocating the IBM 3746 Model 900.

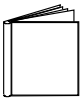


SY33-2116

IBM 3746 Nways Multiprotocol Controller Model 900

Service Guide[2]

Provides procedures for isolating and fixing the IBM 3746 Model 900 problems.



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.

Table B-2 (Page 2 of 3). Service Documentation for the 3745 Models 1x0 and 17A, and 3746 Model 900

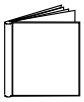
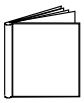
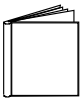
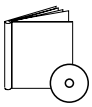
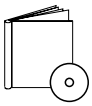
	SY33-2115	***IBM 3745 Communication Controller Models A***[3] ***IBM 3746 Expansion Unit Model 900*** ***IBM 3746 Nways Multiprotocol Controller Model 950*** ***Service Processor Installation and Maintenance***[4] ***(Based on the 3172, 9585, and 9577)*** Provides information on installing and maintaining the service processor based on the PS/2 Types 3172, 9585, and 9577.
	SY33-2112	***IBM 3746 Nways Multiprotocol Controller Models 900 and 950*** ***Network Node Processor Installation and Maintenance***[4] ***(Based on the 3172)*** Provides information on installing and maintaining the network node processor based on the PS/2 Type 3172.
	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. Also valid for the 3745 Model 17A.
	On-line Information	***Hardware Maintenance Reference***[5] Provides in-depth hardware reference information on the 3746 Model 900.
	SY33-2075	***IBM 3745 Communication Controller All Models***[6] ***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***[7] 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***[7] Provides reference information for ordering parts for the IBM 3746 Models 900 and 950.
	S135-2012	***3745 Communication Controller Models 130 to 17A*** ***Parts Catalog***[1] Provides reference information for ordering IBM 3745 Models 1X0 and 17A parts.

Table B-2 (Page 3 of 3). Service Documentation for the 3745 Models 1x0 and 17A, and 3746 Model 900

	S135-2014	***IBM Controller Expansion*** ***Parts Catalog*** Provides reference information for ordering parts for the controller expansion attached to the IBM 3746 Model 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 3745.
[2] Documentation shipped with the 3746-900.
[3] 3745 Models 17A to 61A.
[4] Documentation shipped with the processor.
[5] Product integrated information.
[6] 3745 Models 130 to 61A.
[7] Documentation shipped with the 3746 Models 900 and 950.

Related Signal Converter Product Information

The following publications relate to IBM signal converter products and are currently available:

- *7861 Description and Planning Guide*, GA33-0122.
- *7861 Setup, User's Guide, and Problem Determination*, SA33-0123.
- *7861 Maintenance Information and Parts Catalog*, SY33-2062.
- *7868 Guide to Operation*, GA33-0134.
- *5822-10 Guide to Operation*, GA33-0118.
- *5822-18 Guide to Operation*, GA33-0136.
- *5858 Guide to Operation*, GH11-3027.
- *5858 Maintenance Information and Parts Catalog*, SY12-8246.
- *Link Problem Determination Aid*, SY33-2064.
- *Power Supply and Telecommunication Connections*, GA33-0054.
- *7855 Guide to Operation*, GA33-0160.
- *IBM 7857 Modem, Guide to Operation*, GA13-1839.
- *IBM Asynchronous/SDLC V.32 Modem/A: Installation, Operation, and Problem Determination Guide*, SA27-3955.

Related NCP Service Information

NCP and EP Reference Summary and Data Areas (LY30-3196 for V4R3.1 only)

NCP and EP Reference Summary and Data Areas (LY30-5603 for V5 only)

These manuals are for system programmers and IBM program service representatives. They provide quick access to often-used diagnostic and debugging information about NCP and EP in the PEP environment.

NCP, SSP, and EP Diagnosis Guide (LY30-5591)

This manual is designed to help customers and IBM program service representatives isolate and define problems in NCP Version 3, NCP Version 4, NCP V4 Subset, NCP Version 5, and EP in the PEP environment using SSP Version 3. The primary purpose of the manual is to help the user interact with the IBM Support Center to resolve a problem. Procedures in these manuals describe how to:

- Determine whether the problem is in NCP
- Use relevant information to describe the problem
- Gather appropriate documentation about the problem
- Report the problem to the IBM Support Center

In addition, it includes detailed descriptions of how to use the programming tools available with NCP and SSP.

NCP and EP Reference (LY30-5569 for V4R3.1 only)

NCP and EP Reference (LY30-5605 for V5 only)

These manuals contain reference material describing the internal organization and function of the NCP and the EP in the PEP environment. These manuals provide information for customization and diagnosis.

World Wide Web

You can access the latest news and information about IBM network products, customer services and support via the internet, at the Universal Resource Locator (URL):

http://www.ibm.com

List of Abbreviations

A	ampere
AC	1) alternating current 2) address compare
ACK	affirmative acknowledgment (BSC)
ACPW	ac power box
ACUN	access unit (token ring access unit such as the IBM 8228)
AC1	ac power box (ACPW) installed in position 1 of the 3746-900
AC2	ac power box (ACPW) installed in position 2 of the 3746-900
AFD	airflow detector
AIO	adapter-initiated operation
ARC	active remote connector
ASCII	American National Standard Code for Information Interchange
AUI	access unit interface
BASA	basic board A
BASB	basic board B
BASC	basic board C
BAT	basic assurance test
BATRY	FRU name of the battery
BCCA	Buffer chaining channel adapter
BCLE	buffer control list element
BER	box event record
BPC1	FRU name of the bus propagation card to replace the CAL card
BPC2	bus propagation card to replace the TRM card
bps	bits per second
BRC	BER reference code
BSC	binary synchronous communication
CA	channel adapter
CAB	channel adapter board
CADR	FRU name of the channel adapter driver receiver card
CADS	Channel adapter data streaming
CAL	FRU name of the channel adapter logic card
CBC	controller bus coupler
CBSA	controller bus and service adapter
CBP	controller bus and service processor
CBTRA	controller bus and token-ring adapter
CBx	FRU name of circuit breaker number x
CCITT	Comite Consultatif International Telegraphique et Telephonique
CCU	central control unit
CCW	channel command word
CD	carrier detector (signal)
CDF	configuration data file
CDG	concurrent diagnostic
CDS	configuration data set (NCP/EP)
CE	customer engineer
CEPT	Comite Europeen des Postes et Telecommunications
CID	channel interface display function
CLDP	controller load/dump program
CLP	communication line processor
CNM	communication network management
CO/CS	contact operate / contact sense
CPN	customer problem number
CP	1) communication processor 2) control program
CPx	FRU name of circuit protector number x
CRP	check record pool
CRU	customer replaceable unit
CS	1) cycle steal 2) communication scanner 3) connectivity switch
CSC	1) FRU name of the scanner for medium-/low-speed lines 2) connectivity switch cable
CSCE	connectivity switch cable extension
CSCW	cycle steal control word
CSG	cycle steal grant
CSGH	cycle steal grant high
CSGL	cycle steal grant low
CSP	FRU name of the communication scanner processor associated with the FESH card for high speed lines (**CSC** scanner for the medium-/low-speed lines)
CSR	cycle steal request

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CSRH cycle steal request high

CSRL cycle steal request low

CSS control subsystem

CTS clear to send (signal)

dc direct current

DCAF Distributed Console Access Facility

DCE data circuit-terminating equipment

DCDP dc distribution and protection box

DCPW dc power box

DCREG FRU name of the dc regulator card

DE device end (channel status)

DFA FRU name of the disk file adapter card

DIF disk function

DMA direct memory access

DMUX FRU name of the double multiplex card

DRS data rate select

DSI data store interface

DTE data terminal equipment

DTR data terminal ready (signal)

EAC Ethernet adapter card

EC engineering change

EIA Electronic Industries Association

ELA Ethernet line adapter

ENQ enquiry (BSC)

EPO emergency power-OFF

ERC error reference code

ESCA ESCON channel adapter. An ESCA consists of an ESCON channel processor (ESCP) and an ESCON channel coupler (ESCC)

ESCC ESCON channel coupler. A communication controller hardware unit which is the interface between the ESCON channel processor and the ESCON fiber optic cable

ESCC2 ESCON channel coupler type 2

ESCON channel A channel having an Enterprise System Connection* channel-control-unit interface that uses optical cables as a transmission medium

ESCP ESCON channel processor. A communication controller hardware unit which provides the channel data link control for the ESCON channel adapter

ESS Ethernet sub-system

ETG Ethernet tail gate

FAN1 FRU name of the power supply box fan

FAN2 FRU name of the logic box fan

FCC Federal Communications Commission

FDD FRU name of the flexible disk drive

FE field engineering

FESH FRU name of the front-end scanner (high-speed)

FRU field-replaceable unit

ft foot

GPT generalized PIU trace

GTF generalized trace facility

HCS Hardware Central Service

HDD FRU name of the hard disk drive

HDR header

hex hexadecimal

HLIR high-level interrupt request

HPP bus high-performance parallel bus

HPTSS high-performance transmission subsystem

HSB high-speed buffer (cache)

HSS high-speed scanner

HW hardware

Hz Hertz

IBE internal box error

ID identifier

IEEE Institute of Electrical and Electronics Engineers

IFT internal function test

IML initial microcode load

in. inch

INN intermediate network node

IOC input/output control

IO input/output

IOH input/output halfword (instruction)

IOHI input/output halfword immediate (instruction)

IPL initial program load

IR interrupt request

IRR interrupt request removed

ISO International Organization of Standardization

KB	kilobyte (1024 bytes)
kbps	kilobits per second
kg	kilogram
kHz	kilohertz
LA	1) load address (instruction) 2) line adapter
LCBB	line connection box base
LCBE	line connection box expansion
LCEB	line connection enclosure base
LCEE	line connection enclosure expansion
LCPB	line connection power base
LCPE	line connection power expansion
LED	light-emitting diode
LIB	line interface coupler board
LIB1	LIC board type 1 for LICs 1, 3, and 4 (models A and B)
LIB2	LIC board type 2 for LICs 5 and 6 (models A and B)
LIB3	LIC board type 3 for LICs 1, 2, and 3 (model C)
LIB4	LIC board type 4 for LICs 5 and 6 (model C)
LIC	line interface coupler card
LICx	FRU name of line interface coupler card type x
LID	line interface display
LLIR	low-level interrupt request
LPDA	Link Problem Determination Aid
LS	local storage
LSAR	local storage address register
LSR	local storage register (CSP)
LSS	low-speed scanner
LSSD	level-sensitive scan design
m	meter
mA	milliampere
MAC	MOSS adapter card for 3745 model 17A
MB	megabyte; 1 048 576 bytes
MCC	FRU name of the MOSS control card
MCF	microcode fix
MCT	machine configuration table
MDOR	MOSS data operand register
MES	miscellaneous equipment specification
MHz	megahertz
min	minute
MIO	MOSS input/output
MIOC	MOSS I/O control bus
MIP	Maintenance Information Procedures
MLA	MOSS LAN adapter
mm	millimeter
MMIO	memory mapped input/output
MOSS	maintenance and operator subsystem
MOSS-E	maintenance and operator subsystem extended
MPC	FRU name of the MOSS processor card
MSA	machine status area
MSAU	multistation access unit
MSC	FRU name of the MOSS storage card
MUX	multiplex function
mV	millivolt
NAK	negative acknowledgment character (BSC)
NCCF	Network Communications Control Facility
NCP	Network Control Program
NCTE	network communication terminal equipment
NLDM	Network Logical Data Manager
NMVT	network management vector transport
NPDA	Network Problem Determination Application
NPSI	network packet switching interface
oc	overcurrent
OLT	online test
ov	overvoltage
PANEL	FRU name of the control panel
PC	personal computer
PCC	FRU name of the power control card
PCF	primary control field (storage)
PKD	portable keyboard display
PIO	program-initiated operation
PNLC	FRU name of the panel card
POR	power-ON reset
PRC	processor
PROM	FRU name of the programmable read-only memory module
PS	power supply

PCSS	power control subsystem
PSTCE	product support trained CE
PS1	FRU name of power supply number 1
PS2	FRU name of power supply number 2
PTCE	product-trained CE
PTT	Post, Telephone and Telegraph (agency)
PUC	FRU name of the CCU card
PV	parity valid (signal)
RAC	repair action code
RCV	receive
RD	receive data (signal)
RETAIN	Remote Technical Assistance Information Network
RFS	ready for sending (signal)
RI	1) register to immediate operand (instruction) 2) ring indicator (same as CI)
RIM	request initialization mode (SDLC)
RNIO	OS/VS VTAM IO trace
ROS	read-only storage
RPO	remote power-OFF
RSF	remote support facility
RTS	request to send (signal)
R/W	read/write
SALC	scanner ALC (Airline line control)
SAR	storage address register
SAT	specific assurance test
SCTL	FRU name of the storage control card
SDLC	Synchronous Data Link Control
SIM	set initialization mode (SDLC)
SMUXA	FRU name of the single multiplex card for LIC board type 2
SMUXB	FRU name of the single multiplex card for LIC board type 2
SNA	Systems Network Architecture
SNRM	set normal response mode (SDLC)
SPDn	signal and power distribution card
SPS	service and power support
SRC	system reference code
STO	FRU name of the storage (card)
SVC	supervisor call
SWx	FRU name of switch number x
T	transmit (signal)
TA	tag address
TCM	1) thermally-controlled module 2) trellis coded modulation
TD	1) tag data 2) transmitted data (signal)
TERMC	FRU name of the terminator/channel signals card (IOC)
TERMD	FRU name of the DMA terminator card
TERMI	FRU name of the IOC terminator card
TERMR	FRU name of the terminator/redrive card (IOC)
TI	test indicator (signal)
TIC	token-ring interface coupler
TIC1	FRU name of the TIC card type 1 (4 Mbits only)
TIC2	FRU name of the TIC card type 2 (4 and 16 Mbits)
TIC3	FRU name of the TIC card type 3 (4 and 16 Mbits)
TPS	two-processor switch
TRA	token-ring adapter
TRM	FRU name of the token-ring multiplexer card that controls up to two TICs
TRP	token-ring processor
TRSS	token-ring subsystem
TSS	transmission subsystem
T1	US service for very high speed transmissions at 1.5 million bps
UA	unnumbered acknowledgment (SDLC)
UC	universal controller
UEPO	unit emergency power-Off
URSF	universal remote support facility
V	volt
VB	valid byte (signal)
VAC	volts, alternating current
VDC	volts, direct current
VH	valid halfword (signal)
VTAM	Virtual Telecommunications Access Method
V.24	CCITT V.24 recommendation
V.25	CCITT V.25 recommendation
V.28	CCITT V.28 recommendation
V.35	CCITT V.35 recommendation

WLOB	wire lobe (cable connecting token-ring adapters to token-ring access units)
XI	X.25 SNA interconnection
XID	exchange identification
X.21	CCITT X.21 recommendation
X.25	CCITT X.25 recommendation

Glossary

This glossary defines all new terms used in this manual. It also includes terms and definitions from the *IBM Dictionary of Computing,* GC20-1699.

adapter-initiated operation (AIO). A transfer of up to 256 bytes between an adapter (CA or LA) and the CCU storage. The transfer is initiated by an IOH/IOHI instruction, and is performed in cycle stealing via the IOC bus.

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.

autoBER. A program to automatically analyse a BER file.

automaint. A function that uses autoBER to isolate failing FRUs.

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.

block multiplexer channel. A multiplexer channel that interleaves blocks of data. See also *byte multiplexer channel*. Contrast with *selector channel*.

byte multiplexer channel. A multiplexer channel that interleaves bytes of data. See also *block multiplexer channel*. Contrast with *selector channel*.

cache. A high-speed buffer storage that contains frequently accessed instructions and data; it is used to reduce access time.

central control unit (CCU). In the 3745, the controller hardware unit that contains the circuits and data flow paths needed to execute instructions and to control its storage and the attached adapters.

channel adapter (CA). A communication controller hardware unit used to attach the controller to a host processor.

clear channel. Mode of data transmission where the data passes through the DCE and network, and arrives at the receiving communication controller 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.

communication controller. A communication control unit that is controlled by one or more programs stored and executed in the unit. Examples are the IBM 3705, IBM 3725/3726, IBM 3720, and IBM 3745.

communication scanner processor (CSP). The processor of a scanner.

communication subsystem. The part of the controller that controls the data transfers over the transmission interface.

configuration data file (CDF). A MOSS file that contains a description of all the hardware features (presence, type, address, and characteristics).

control panel. A panel that contains switches and indicators for the use of the customer's operator and service personnel.

control program. A computer program designed to schedule and to supervise the execution of programs of the controller.

control subsystem (CSS). The part of the controller that stores and executes the control program, and monitors the data transfers over the channel and transmission interfaces.

data circuit-terminating equipment (DCE). The equipment installed at the user's premises that provides all the functions required to establish, maintain, and terminate a connection, and the signal conversion and coding between the data terminal equipment (DTE) and the line. For example, a modem is a DCE (see *modem*.)

Note: The DCE may be separate equipment or an integral part of other equipment.

data terminal equipment (DTE). That part of a data station that serves as a data source, data link, or both, and provides for the data communication control function according to protocols.

direct attachment. The attachment of a DTE to another DTE without a DCE.

high-performance transmission subsystem (HPTSS). The part of the controller that controls the data transfers over the high-speed transmission interface (speed up to 2 million bps).

high-speed scanner. Line adapter for lines up to 2 million bps, composed of a communication scanner processor (CSP) and a front-end high-speed scanner (FESH).

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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 3745 control program to commence operation.

input/output control (IOC). The circuit that controls the input/output from/to the channel adapters and scanners via the IOC bus.

internal clock function. A LIC function that provides a transmit clock for sending data, and retrieves a receive clock from received data, when the modem does not provide those timing signals. When the terminal is connected in direct-attach mode (without modem) the ICF also provides the transmit and receive clocks to the terminal, via the LIC card.

line adapter (LA). The part of the TSS, HPTSS, or TRSS that scans and controls the transmission lines. Also called *scanner*.

For the TSS the line adapters are low-speed scanners (LSSs).

For the HPTSS the line adapters are high-speed scanners (HSSs).

For the TRSS the line adapters are token-ring adapters (TRAs).

line interface coupler (LIC). A circuit that attaches up to four transmission cables to the controller.

low-speed scanner. Line adapter for lines up to 256 kbps, composed of a CSC card.

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.

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.

operator console. The IBM Operator Console that is used to operate and service the communication controller (CC) through the MOSS. Optionally an alternate console may be installed up to 120 m from the CC, or a remote console may be connected to the (CC) through the switched network.

scanner. A device that scans and controls the transmission lines. Also called *line adapter*.

selector channel. An I/O channel designed to operate with only one I/O device at a time. Once the I/O device is selected, a complete record is transferred one byte at a time. Contrast with *block multiplexer channel, multiplexer channel*.

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.

token-ring subsystem (TRSS). The part of the controller that controls the data transfers over an IBM Token-Ring Network.

The TRSS consists of one token-ring adapter (TRA).

token-ring adapter (TRA). Line adapter for an IBM Token-Ring Network, composed of one token-ring multiplexer card (TRM), and two token-ring interface couplers (TICs).

transmission subsystem (TSS). The part of the controller that controls the data transfers over low- and medium-speed, switched and non switched transmission interfaces.

The TSS consists of up to six low-speed scanners (LSSs) associated with the LICs units (LIUs), through serial links (SLs).

two-processor switch (TPS). A feature of the channel adapter that connects a second channel to the same channel adapter.

V.24. CCITT V.24 recommendation

V.25. CCITT V.25 recommendation

V.35. CCITT V.35 recommendation

X.20 bis. CCITT X.20 bis recommendation

X.21. CCITT X.21 recommendation

X.25. CCITT X.25 recommendation

YZxxx.. wiring diagram

Readers' Comments — We'd Like to Hear from You

IBM 3745 Communication Controller
Models 130 to 17A
Maintenance Information Procedures

Publication No. SY33-2070-09

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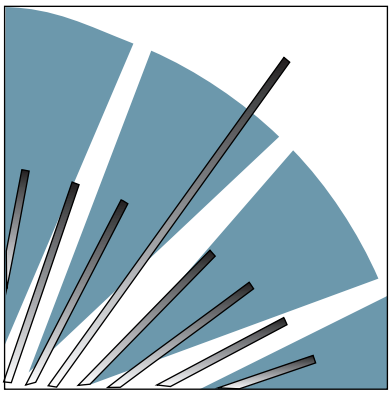

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Spine information:

IBM 3745 Communication Controller
Models 130 to 17A

Maintenance Information Procedures