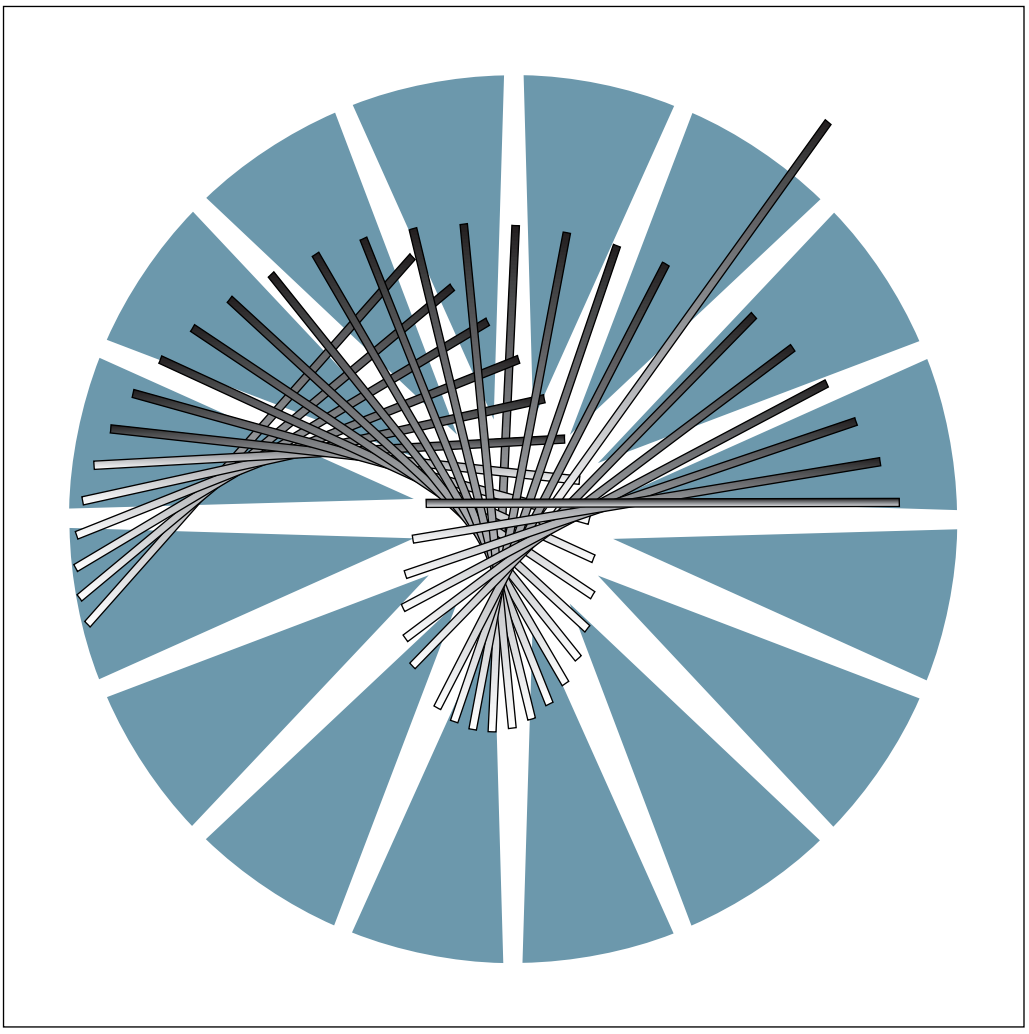
3745 Communication Controller
Models 210 to 61A

Installation Guide



SY33-2057-10

3745 Communication Controller
Models 210 to 61A

Installation Guide

SY33-2057-10

Note!

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

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

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APPN	PS/2	3090
ES/9000	Retain	
NetView	System/370	

Product Safety Information

General Safety

This product meets IBM safety standards.

Safety Notices

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

Service Inspection Procedures

The Service Inspection Procedures help service personnel check whether the 3745 conforms to IBM safety criteria. They have to be used each time the 3745 safety is suspected. The *Service Inspection Procedures* section is located at the beginning of the *3745 Maintenance Information Procedures (MIP)*, SY33-2054.

About This Book

Who Should Use This Book

The IBM personnel using this manual should be:

- Trained to service the IBM 3745 Communication Controller
- Familiar with the 3745 service documentation
- Familiar with the configuration of the host system.

How To Use This Book

This manual provides step-by-step procedures for installing the IBM 3745 communication controller models 210 to 61A and the IBM 3746 Expansion Units. **Many steps depend on previously completed instructions** before continuing the procedure. To ensure the most efficient installation:

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

How this Book is Organized

Chapter 1	Introduces the 3745 configuration, and presents the hardware installation procedures to be performed prior to connection to the customer's power source.
Chapter 2	Presents procedures to install the base frame physically and to assemble the other frames.
Chapter 3	Presents power procedures to be performed before connecting the 3745 to the customer's main power.
Chapter 4	Is the first part of the checkout and test procedure, with only the base frame powered.
Chapter 5	Presents procedures to connect the expansion unit cables to the base frame.
Chapter 6	Presents procedures to install the ground plates.
Chapter 7	Presents procedures to set the modem transmit level and route the MUX cables.
Chapter 8	Presents the second part of the test procedure that the CE must perform before the customer's system integration.
Chapter 9	Presents relocating and removing procedures.
Appendix A	Provides channel adapter information forms.

Appendix B Gives information about CA option settings.

Appendix C Gives CDF display fields explanation.

Appendix D Shows the component locations.

Appendix E Shows the controller expansion component locations.

Appendix F Is a 3745 installation Hands-On Scenario (HOS).

A **Customer and Service Documentation Bibliography**, a **List of Abbreviations**, and an **Index** are provided at the end of this manual.

Where to Find More Information

For a complete list of the 3745 customer and service information manuals, see the bibliography provided at the end of this manual. In this *Installation Guide*, references are made to the following publications:

IBM 3745 Wiring Diagrams, (YZ Pages)

IBM 3745 Maintenance Information Procedures, SY33-2054

IBM 3745 Service Functions, SY33-2055

IBM 3745 External Cable References, SY33-2075 (*from dash 2 and following*)

IBM 3745 Preparing for Connection, GA33-0127

IBM 3745 Connection and Integration Guide, SA33-0129

IBM 3745 Advanced Operations Guide, SA33-0097

IBM 3745 Console Setup Guide, SA33-0158

IBM 3720/3745 Remote Loading/Activation Guide, SA33-0161

IBM 3745 Problem Determination Guide, SA33-0096

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

3746-900 Installation Guide, SY33-2114.

Service Processor Installation and Maintenance (Based on 7585, 3172, and 9585), SY33-2120 or SY33-2115.

World Wide Web

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

Online Documentation from CD-ROM

With the new service processor is now shipped a CD, it contains the LIC and a copy of the 3746 web site. You will find from this web page, marketing, PE, and all information about CCP products.

To access this page:

1. Insert the CD into the CD disk drive of the SP.
2. From the MOSS-E primary menu, click on **Information**

3. Double click on **CD-ROM documentation**
4. Then if you want to display the CCP documentation, click on **Documentation**
5. Click on **La Gaude Information Development: Communication Controllers Information**

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

Service Personnel Definitions

See the *3745 Maintenance Information Procedures (MIP),* SY33-2054.

Summary of Changes

1. No more automatic MCF download from RETAIN when installing a 3745 model X1A, use the MCF process used to apply MCF on any 3745 models 210 to 610.
2. New procedures to save and restore the configuration data on diskette and to update the backup service processor (if any). These new procedures apply to the service processor with a CD disk drive.
3. Starting at EC F12380 and above, the LIC is shipped on a CD. On this CD you can get online documentation, for details refer to “Online Documentation from CD-ROM” on page xviii

Chapter 1. Preparing for Installation

Doors on the front and rear of a 3745 give access to the inside of the units. A path must be provided around the configuration to access covers. As much as possible allow enough space for future expansion, and never install the machine with its right or left side against a wall or fixed material. Keep a servicing area one meter wide at front and back, and at least 0.75 m at the right and left sides to install/remove the end covers.

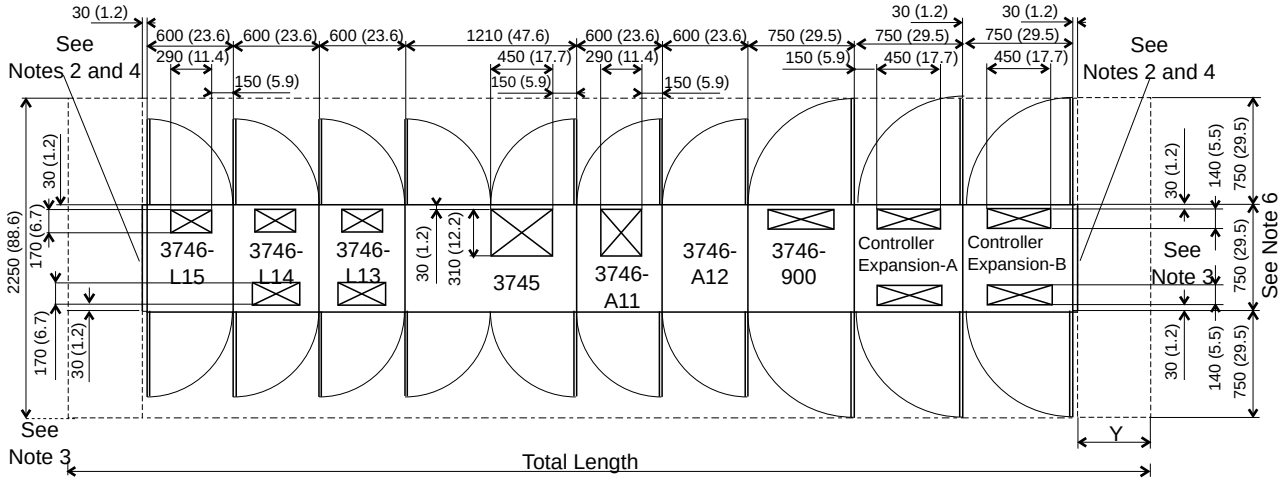


Figure 1-1. 3745/3746/3746-900/Controller Expansion Plan View

Note: The 3746-900 can be installed in frame 2, frame 3, or connected to a 3746 A12 .

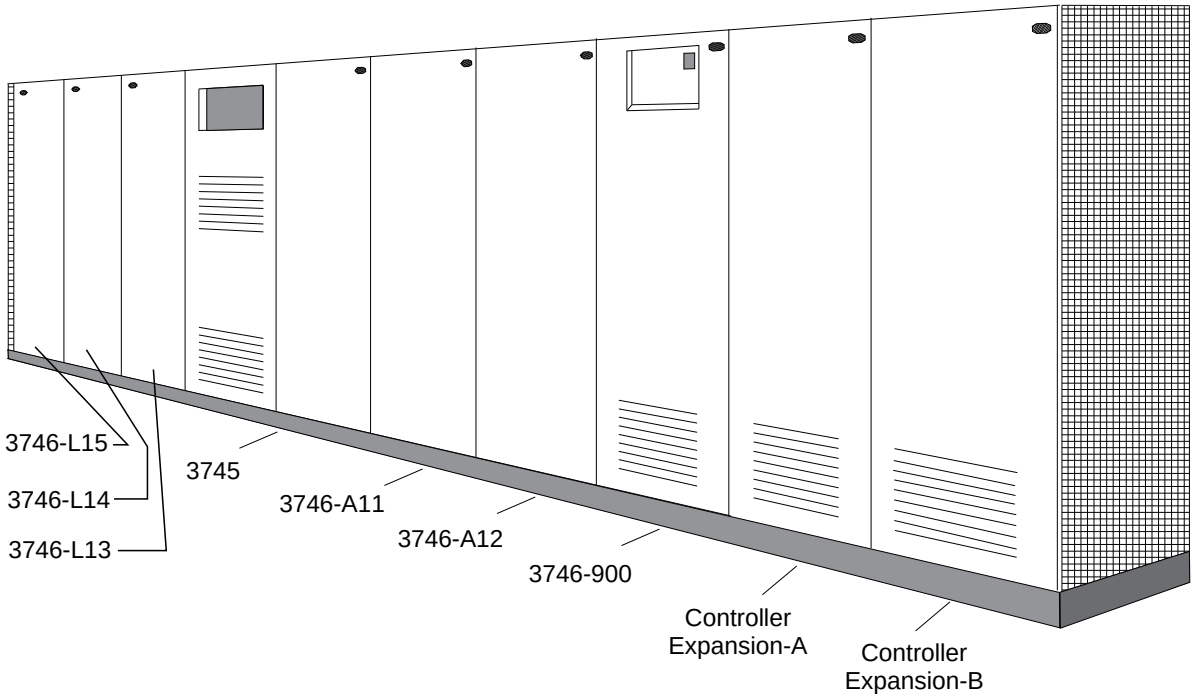


Figure 1-2. 3745/3746/3746-900/Controller Expansion Configuration

The controller expansion can be installed detached from the 3745/46 frame. In that case it can be installed up to 6m (19.6 ft) from the controller.

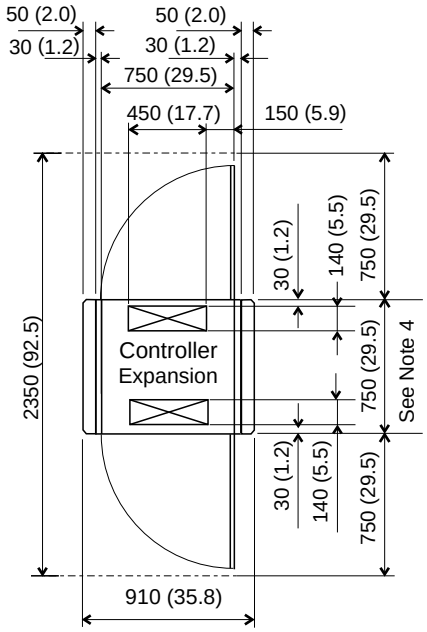


Figure 1-3. Plan View of a Controller Expansion

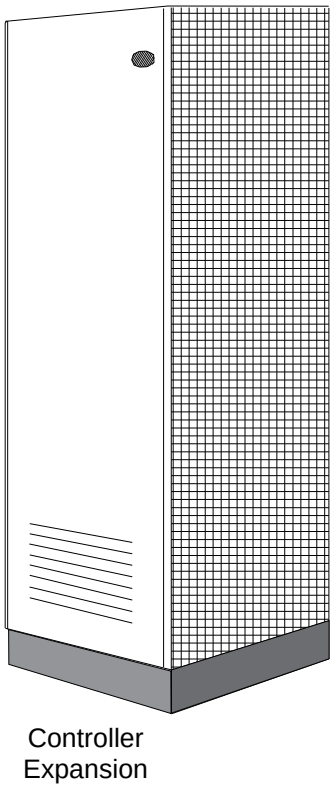


Figure 1-4. Controller Expansion

Special Tools and Test Equipment

- A CE tool kit
- A digital CE meter (P/N 8469278, P/N 8309874, or equivalent)
- An **ESD** kit (P/N 6428316)
- A cover lock key (P/N 1643894 or 6834390), shipped with the 3745.

Two-CE Installation

A suggested method is:

- The first CE installs either the 3745, 3746-L13, 3746-L14 or the 3746-L15, and the MUX cables.
- The second CE installs either the 3746-A11, the 3746-A12 or the 3746-900.

Installation Time

The following table gives the estimated hardware installation time for frames (in hours):

CE	What to Install	Estimated Time	Refer to
1st.	Service Processor	2.45	Step 1 on page 1-12 for the Service Processor installation.
	3745	1.3	"Installing the 3745 Base Frame" on page 2-1.
	3746-L13	1.2	"Assembling the 3746 and Controller Expansion Frames" on page 2-6, and
	3746-L14	1.2	"3746-L13 Installation" on page 5-13, or
	3746-L15	1.2	"3746-L14 Installation" on page 5-16, or "3746-L15 Installation" on page 5-20.
	MUX Cables		Chapter 7, "Modem and MUX Cable Setup" on page 7-1.
	External Cables	6.0 3.0	Step 20 on page 8-13 for a 3745 model 210, 310, 410, or 610. Step 20 on page 8-13 for a 3746 model L13/L14.
2nd.	3746-A11	2.6	"Assembling the 3746 and Controller Expansion Frames" on page 2-6, and
	3746-A12	2.6	"3746-A11 Installation" on page 5-3, or "3746-A12 Installation" on page 5-11.
	3746-900	6.0	Refer to *3746-900 Installation Guide*, SY33-2114.

- *The External cable installation times are configuration-dependent and are given for an average of 60 cables for the 3745 all Models, and 30 cables for the 3746 Models L13 and L14.*
- *The CA and MUX cable installation times are configuration-dependent and not indicated here.*
- *The time needed for setup and tests depends on the hardware installation. It goes from 4.0 hours for a small configuration (3745 Model 210 , 310, 21A, or 31A) up to 10.0 hours for a full configuration (3745 Model 410, 610, 41A, or 61A).*
- *The installation hands-on scenario (Appendix E) will require approximately 3 hours of SE, CE, and Customer time.*

Note

Under the installation service code, only report the time spent on the procedures described in this manual. Other activities must be reported on another service code according to your general reporting instruction guide.

Installation Scenarios And Documentation

Documentation

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

Documents used during the installation:

1. 3746-900 IG: *3746-900 Installation Guide*, SY33-2114
2. 3746-950 IG: *3746-950 Installation Guide*, SY33-2107
3. 3745 IG: *3745/210-61A Installation Guide*, SY33-2057
4. SPIM: *Service Processor Installation and Maintenance (Based on 7585, 3172, and 9585)*, SY33-2120 or SY33-2115
5. MES: 3745 MES and Field BMs for model conversion
6. *3745 Bypass Card Plugging Guide*, SY33-2097 (on line document)
7. *7855 Modem Model 10 Guide to Operation*, GA33-0160
8. *IBM 7857 Guide to Operation*, GA13-1839
9. Parameter sheets from the *3745 Communication Controller Models A and 3746 Models 900 and 950: Planning Guide*, GA33-0457

Installation Scenarios

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

Note: Refer to Figure 1-6 on page 1-5 for more details about each scenario. If you are installing a 3745 Model 17A, the statements concerning the installation of an expansion frame and the procedures "CDF verify" and "locate bypass cards positions" are not applicable.

NOTE

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

Figure 1-5. Installation Scenarios

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

Note: The installation sequence given in Figure 1-6 can be modified as you are able to install the 3746-900 first and then connect to the 3745 model A. It is no more mandatory to start with the 3745 MES (to migrate to model A) or with the 3745 Installation Guide.

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

Scenario	CE	Tasks	Documentation	Installation Sequence
Scenario 6	1st	Install the 3745-XXA base frame	3745 Installation Guide	Start with the 3745 IG and using the SPIM install and connect the SP.
	2nd	Install the Service Processor	Service Processor Installation and maintenance	
Scenario 7	1st	Install the 3746-900 (off line)	3746-900 Installation Guide	Start with the 3746 IG and install and connect the 3746-900 to the 3745-XXA.
	2nd	Prepare the 3745-XXA: CDF verify, Bypass Cards	3746-900 Installation Guide	
	2CEs	Connect the 3746-900 to the 3745	3746-900 Installation Guide	
Scenario 8	1st	Install the MES model conversion and prepare the 3745-XXA • CDF verify - Bypass Cards	MES model conversion XX0 to XXA 3746-900 Installation Guide	Start with the MES to convert the 3745 to model XXA, then using the 3746 IG install and connect the 3746-900
	2nd	Install the 3746-900 (off line)	3746-900 Installation Guide	
	2CEs	Connect the 3746-900 to the 3745	3746-900 Installation Guide	
Scenario 9	1st	Install the MES model conversion and prepare the 3745-XXA • CDF verify - Bypass Cards	MES model conversion XX0 to XXA 3746-900 Installation Guide	Start with the 3745 MES convert the 3745 to XXA using the SPIM install the SP, then using the 3746 IG install and connect the 3746-900
	2nd	Install the Service Processor Install the 3746-900 (off line)	Service Processor Installation and maintenance 3746-900 Installation Guide	
	2CEs	Connect the 3746-900 to the 3745	3746-900 Installation Guide	
Scenario 10	1st	Install the 3745-XXA base frame	3745 Installation Guide	Start with the 3745 IG install the 3745 XXA, then using the 3746 IG install the 3746-900. The machines are connected to an existing SP.
	2nd	Install expansion frame (if any) and the 3746-900	3745 Installation Guide 3746-900 Installation Guide	
	2CEs	Connect the 3746-900 to the 3745	3746-900 Installation Guide	
Scenario 11	1st	Install the 3745-XXA base frame and the Service Processor	3745 Installation Guide Service Processor Installation	Start with the 3745 IG install the 3745 XXA, using the SPIM install the SP, then using the 3746 IG install the 3746-900.
	2nd	Install expansion frame (if any) and the 3746-900	3745 Installation Guide 3746-900 Installation Guide	
	2CEs	Connect the 3746-900 to the 3745	3746-900 Installation Guide	
Scenario 12	1st	Install the 3746-950	3746-950 Installation Guide	Start with the 3746 IG and connect the 3746 950 to the existing SP. Then using the network node processor installation and maintenance, install the NNP.
	2nd	Install the Network Node Processor	Network Node Processor Installation and Maintenance	
Scenario 13	1st	Install the 3746-950	3746-950 Installation Guide	Start with the 3746 IG install the 3746-950, the SPIM to install the SP, and the network node processor installation and maintenance to install the NNP.
	2nd	Install Service Processor	Service processor Installation and Maintenance	

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

Figure 1-6. Installation Scenarios

Installation Overview

When installing a 3746 frame (addition to an already installed 3745), see page 1-10.
When installing a multiframe controller, see page 1-11.
When installing a 3746-900 frame (addition to an already installed 3745), refer to *3746-900 Installation Guide*, SY33-2114.

When installing a **3745** model **X1A** first install its **Service Processor** using the SPIM shipped with the machine.

Installation Steps Overview: Depending on the 3745 model, perform the installations steps as defined in the following table (X10 is for models 210, 310, 410, or 610 and X1A is for models 21A, 31A, 41A, or 61A).

Chapter	3745 Model X10	3745 All Models	3745 Model X1A
Chapter 1, Preparing for Installation "Making Ready to Install" on page 1-12	Step 12	Steps 2 to 11 Steps 13 to 15	Step 1
Chapter 2, Frame Installation		All steps	
Chapter 3, Connection to Main Power		All steps	
Chapter 4, Test Procedure (Part One) "Checkout Procedure 1" on page 4-3	Steps 2, 3, 4 Steps 8 to 12	Step 1 Steps 13 to 17	Steps 5, 6, 7
Chapter 5, Cabling the Expansion Units to the Base Frame		All steps	
Chapter 6, Installing Ground Brackets		All steps	
Chapter 7, Modem and MUX Cable Setup		All steps	
Chapter 8, Test Procedure (Part Two) "Checkout Procedure 2" on page 8-2	Step 13 to 18 Step 23	Step 1 Steps 2 to 12 Step 19 to 21 Steps 24 to 28	Skip 'enter password' Step 22

Base Frame Alone Installation

When you are installing a 3745 base frame alone, you must go through the installation procedures listed in the following table:

Note: When you are installing a 3746-900 frame at the same time do not perform Chapter 6, Installing Ground Brackets, the ground brackets will be installed when the 3746-900 frame will be attached to the 3745 base frame.

Chapter 1, Preparing for Installation “Making Ready to Install” on page 1-12
Chapter 2, Frame Installation “Installing the 3745 Base Frame” on page 2-1
Chapter 3, Connection to Main Power “Checking the 3745 Power Plug or Cable” on page 3-1 “Checking the Customer's Power Receptacle” on page 3-2 “Measuring the Customer's Primary Power” on page 3-3 “Adjusting the 3745 to the Customer's Primary Power” on page 3-4 “Connecting the 3745 to the Customer's Primary Power” on page 3-6 “Powering On the 3745 Frame Only” on page 3-8
Chapter 4, Test Procedure (Part One) “Checkout Procedure 1” on page 4-3
Chapter 6, Installing Ground Brackets "1. Any Configuration" on page 6-1 "2. When installing a 3745 base frame only" on page 6-1
Chapter 7, Modem and MUX Cable Setup “Adjusting the Transmit Level” on page 7-1 “Routing the MUX Cables” on page 7-4 "Powering On the 3745" on page 7-12
Chapter 8, Test Procedure (Part Two) “Checkout Procedure 2” on page 8-2

Go to “Making Ready to Install” on page 1-12.

Expansion Frame Installation

When you are installing a 3746 frame (addition to an already installed 3745), you must go sequentially through the installation procedures listed in the following table:

Chapter 1, Preparing for Installation “Making Ready to Install” on page 1-12
Chapter 2, Frame Installation “Assembling the 3746 and Controller Expansion Frames” on page 2-6 “Checking the Expansion Frames” on page 2-6 “Attaching the Frames Together” on page 2-6
Chapter 5, Cabling the Expansion Units to the Base Frame (Go to the applicable expansion installation page) “3746-A11 Installation” on page 5-3, or “3746-A12 Installation” on page 5-11, or “3746-L13 Installation” on page 5-13, or “3746-L14 Installation” on page 5-16, or “3746-L15 Installation” on page 5-20
Chapter 6, Installing Ground Brackets "3. When installing a 3746-A11 or 3746-A12" on page 6-1, or "4. When installing a 3746-L13/L14/L15" on page 6-2
Chapter 7, Modem and MUX Cable Setup “Adjusting the Transmit Level” on page 7-1 “Routing the MUX Cables” on page 7-4 "Powering On the 3745 and 3746 Units" on page 7-12
Chapter 8, Test Procedure (Part Two) “Checkout Procedure 2” on page 8-2

Go to “Making Ready to Install” on page 1-12.

Multiframe Controller Installation

When you are installing a 3745 base frame with any 3746 expansion frame(s), you must go sequentially through all the installation procedures in this manual, as summarized in the following table:
When installing a 3746-900 frame refer to *3746-900 Installation Guide*, SY33-2114.

Note: When you are installing a 3746-900 frame at the same time do not perform Chapter 6, Installing Ground Brackets, the ground brackets will be installed when the 3746-900 frame will be attached to the 3746 A11 or A12.

Chapter 1, Preparing for Installation “Making Ready to Install” on page 1-12
Chapter 2, Frame Installation “Installing the 3745 Base Frame” on page 2-1 “Assembling the 3746 and Controller Expansion Frames” on page 2-6 “Checking the Expansion Frames” on page 2-6 “Attaching the Frames Together” on page 2-6
Chapter 3, Connection to Main Power “Checking the 3745 Power Plug or Cable” on page 3-1 “Checking the Customer's Power Receptacle” on page 3-2 “Measuring the Customer's Primary Power” on page 3-3 “Adjusting the 3745 to the Customer's Primary Power” on page 3-4 “Connecting the 3745 to the Customer's Primary Power” on page 3-6 “Powering On the 3745 Frame Only” on page 3-8
Chapter 4, Test Procedure (Part One) “Checkout Procedure 1” on page 4-3
Chapter 5, Cabling the Expansion Units to the Base Frame (Go to the applicable expansion installation page) “3746-A11 Installation” on page 5-3 “3746-A12 Installation” on page 5-11 “3746-L13 Installation” on page 5-13 “3746-L14 Installation” on page 5-16 “3746-L15 Installation” on page 5-20
Chapter 6, Installing Ground Brackets "1. Any Configuration" on page 6-1 "3. When installing a 3746-A11 or 3746-A12" on page 6-1 "4. When installing a 3746-L13/L14/L15" on page 6-2
Chapter 7, Modem and MUX Cable Setup “Adjusting the Transmit Level” on page 7-1 “Routing the MUX Cables” on page 7-4 "Powering On the 3745 and 3746 Units" on page 7-12
Chapter 8, Test Procedure (Part Two) “Checkout Procedure 2” on page 8-2

Go to “Making Ready to Install” on page 1-12.

Making Ready to Install

IF INSTALLING	GO TO
A 3745 model 21A, 31A, 41A, or 61A and its Service Processor	Step 1 and install the Service Processor
A 3745 model 210, 310, 410, or 610 or a 3745 model X1A to be connected to a Service Processor already installed and connected to an other 3745 X1A	Step 2

(Place a check mark next to each completed step.)

Step 1. ____ Install the Service Processor using the procedures described in the *Service Processor Installation and Maintenance (Based on 7585, 3172, and 9585)*, SY33-2120, chapter "Installing and Setting Up your Service Processor".
When the Service Processor is installed, return to this installation guide and go to step 2.

Note: If ordered by the customer, install the **"backup"** Service Processor at the same time. This Service Processor will replaced the **"active"** Service Processor if it failed.

Step 2. ____ Check all items listed on the shipping group bill of material (B/M) for 3745. Determine that all parts have been received.

Step 3. ____ Make sure that all the cables specified on the cable order form have been received. Report any difference to the IBM sales representative and to the CE branch office.

Step 4. ____ Refer to the 3745 and 3746-900 bibliography in the Preface of the *3745 Communication Controller Models 210 to 61A Maintenance Information Procedures*, SY33-2054. Ensure that all the customer and service manuals supplied with the 3745 have been received and updated with TNLs (if any) before beginning installation.

Step 5. ____ Familiarize yourself with the installation procedures in this manual. You must also be familiar with the *MIP*, used for troubleshooting, and the *IBM 3745 Service Functions*, SY33-2055.

Step 6. ____ Make sure that the installation area is in accordance with Figure 1-1 on page 1-1. If not, inform the customer.

Step 7. **If the 3745 is channel-attached**:

a. ____ Obtain the channel interface cable "from/to" information from the IBM installation planning representative or from the customer.

b. ____ Prepare and pull the TAG and BUS interface cables and EPO cable(s) from the host(s) to the 3745 location, and if applicable to the 3746-A11 location. *Either of the channel interface cable groups P/N 5353920 (grey) or P/N 5460185 (blue) can be used.*

c. ____ Obtain information from the customer, or from the IBM system engineer, about each channel adapter interface to install. That information will be necessary later to update the CA CDF (step 7 on page 8-6).

d. ____ In Appendix A at the end of this manual, fill in the **Channel Adapter Information Forms** with information provided by the customer or IBM system engineer. See also Appendix B for details about CA options.

Step 8. ____ From the IBM system engineer or from the customer, obtain the **HONE configuration sheet** which gives MUX cable from/to information.

On *Page YZ 839*, fill the 'cable numbered' column according to either the **HONE configuration sheet** if available, or the **configuration actually wanted by the customer** (see step 4 on page 7-5).

Step 9. ____ **If LIC5s are installed**, obtain from the customer the completed **LIC5 configuration sheets**. The configuration sheets are part of the *IBM 3745 Preparing for Connection*, GA33-0127. That information will be necessary later when checking the LIC5 "Service-Rep-Only" options (step 12b on page 8-9).

Step 10. ____ **If the 3745 to install is in remote loading/activation (RLA) mode**, refer to the *3720/3745 Remote Loading/Activation Guide*, SA33-0161.

- **If the RLA link is exclusive and through X.25, switched X.21, or Token-Ring**: Be aware that the installation cannot complete until the load module diskette generated at the local 3745 is loaded to the remote 3745 (see the warning box at step 25 on page 8-19). No link IPL port is required, *continue with step 12.*
- **If the RLA link is through SDLC or nonswitched X.21**, a link IPL port is required and must be defined. *Continue with step 11.*

Step 11. ____ **If the 3745 is not channel-attached**:

- Check that the customer can support at least one operational link IPL port, and get the **IPL port line address.** (You will need it in step 4a on page 8-3).
- **Ask the customer to make ready** the link IPL port characteristics, using the "Link IPL Ports (LKP)" Chapter in the *IBM 3745 Advanced Operations Guide*, SA33-0097. (Those parameters will be needed in step 25a on page 8-19.)

IF INSTALLING	GO TO
A 3745 model 210, 310, 410, or 610	Step 12
A 3745 model 21A, 31A, 41A, or 61A	Step 13

Step 12. ____ **Ask the customer to prepare the consoles**.

- The customer will find console instructions in the console documentation. The console setup for the 3745 is explained in the *IBM 3745 Console Setup Guide*, SA33-0158.
- The customer should provide a small table or desk, big enough to hold the local console and the modem for the remote support facility (RSF).

Step 13. ____ **RSF requirements:**

- The customer should be aware that the RSF modem will **not** function on a digital PBX line and requires an **analog** phone line.

  Note: If the customer does not plan to provide an RSF link, review or have marketing review the maintenance exposure with the customer.
- In countries where there is no IBM RSF modem provided in the shipping package, **ask the customer to prepare his own RSF modem** if any is available. (See step 15 on page 8-10 for details.)

Step 14. ____ **Update the UCW/IOCDS at the host(s).** UCW/IOCDS updating is for every host connected via channel to the 3745.

For the controller, the host system UCW/IOCDS requirements vary according to the type of control program and features. They are described in the appropriate host *I/O Configuration Program (IOCP) User's Guide and Reference*. UCW/IOCDS requirements are determined as follows:

- One UCW/IOCDS is required for each unique NSC address.
- An additional UCW/IOCDS is required for each emulated subchannel address. (For example, a controller running PEP with two emulation subchannels (ESC) needs three UCW/IOCDS.)
- All UCW/IOCDS must be unshared and unfolded.

Step 15. ____ **Ensure that the appropriate OLTS sections are present** for diagnostic testing, and that the latest release (14.2) of OLTEP or OLTSEP is provided. *For details, refer to the* IBM 3745 Channel Adapter Online Tests, *D99-3745A.*

Update the OLTEP/OLTSEP configuration data set (CDS) for the 3745 according to the following table (one CDS is required for each NSC address):

Column	CDS Information
1	Must be blank
2-4	CDS
5-9	Must be blank
10-17	Native subchannel unit address (in hex, right-justified), for example: 0000003A
18-21	Must be blank
22-25	Class and type code, for 3745: *40A2*
26-29	Must be blank
30-31	Flag code (otherwise leave blank): Column 30 = 4: Devices shared with another CPU Column 31 = 4: TPS feature is present
32-35	Must be blank
36-39	Emulator subchannel unit address (in hex) of lowest IBM 2701, 2702, or 2703 emulator line address (for example 00F1), or leave blank if no ESC.
40-41	Enter the number of contiguous emulator line addresses (in hex) or leave blank if no ESC.
42	/ (End of CDS)

IF INSTALLING	GO TO
A 3745 or 3745/3746 Controller	Chapter 2, “Frame Installation” on page 2-1.
A 3746 Frame (Addition to an installed 3745)	“Assembling the 3746 and Controller Expansion Frames” on page 2-6.
A 3746-900 Frame (Addition to an installed 3745)	*3746-900 Installation Guide*, SY33-2114

Chapter 2. Frame Installation

Installing the 3745 Base Frame

Step 1. ____ Compare the machine serial number on the packing material with that listed on the shipping documents. Report any difference to the IBM branch office, and confirm whether the installation can continue.

Step 2. ____ Unpack the 3745 and ensure that all shipping material is removed. Refer to the unpacking instructions attached to the external packaging.

Step 3. ____ Open the front doors. Locate the power rating plate (see Figure 2-1 on page 2-2, detail A). **Check that the 3745 AC power rating plate data is consistent with the customer's available voltage, current and frequency.** If there is a mismatch, stop the installation, check with the customer, and notify the IBM sales representative. Any voltage change must be made by MES only.

Step 4. ____ Inspect the 3745 carefully for shipping damage. Report any damage in accordance with local procedures.

Step 5. ____ Check the serial number on the front door tag (see Figure 6-1 on page 6-3). Check the serial number stamped on the frame, and the serial number plate (see Figure 2-1 on page 2-2 for location).

Note: When installing a **3745 model X1A**, if the last five digits of the 3745 machine serial number do not agree with the serial number printed on the 3745 Installation Parameters Diskette (PN 43G3225), stop the installation immediately and call the IBM support center.

Step 6. ____ Remove the CA tailgate cover in 01T-A1 to see the casters and the floor holes. Move the frame to its final position (see Figure 1-1 on page 1-1), and tighten the caster lock screws (see Figure 2-2 on page 2-3). At least two diagonally-opposed casters must be locked.

Step 7. ____ Remove the 3745 end covers from the right and left sides. (Refer to Figure 6-1 on page 6-3 and Figure 6-2 on page 6-4 for locations).

- *The end cover removals are requisite for Chapter 6, "Installing Ground Brackets" on page 6-1.*
- *To remove the end cover, loosen the four retaining screws from inside the machine, using a 5/16 socket, then lift the cover from slotted holes on the frame and pull it towards you.*
- *To gain access to the top front screw for the right end cover, you may need to pry off the EMC gasket at the right side of the LAB1 board at 01G-A1, using a screwdriver (see Figure D-1 on page D-2 for location, and Figure 5-2 on page 5-3 for detail).*

Step 8. ____ Remove LAB1 and CAB1 board covers in 01G-A1 and 01L-A1 (see Figure D-1 on page D-2) Verify that terminator cards are installed on the 3745 in the following positions:
01G-A1W2 (DMA terminator), if HPTSS present,
01G-A1X02 (LA IOC terminator),
01L-A1X02 (CA IOC terminator).

IF INSTALLING	GO TO
A 3745 frame alone	Chapter 3, "Connection to Main Power" on page 3-1.
A multiframe controller	"Assembling the 3746 and Controller Expansion Frames" on page 2-6.

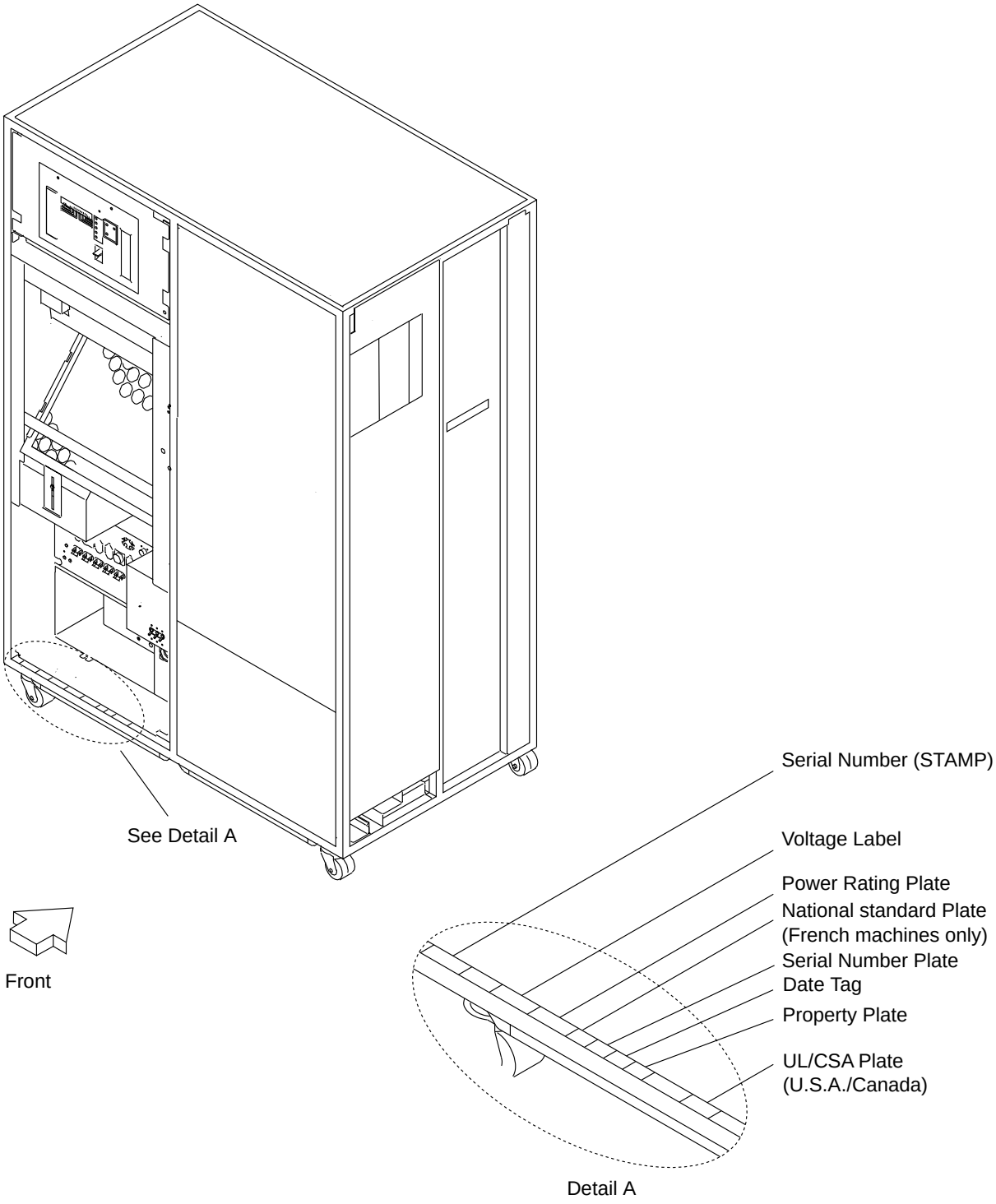


Figure 2-1. 3745 Front View

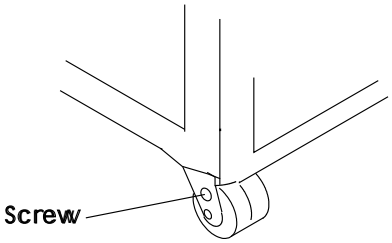


Figure 2-2. Caster Lock Screw

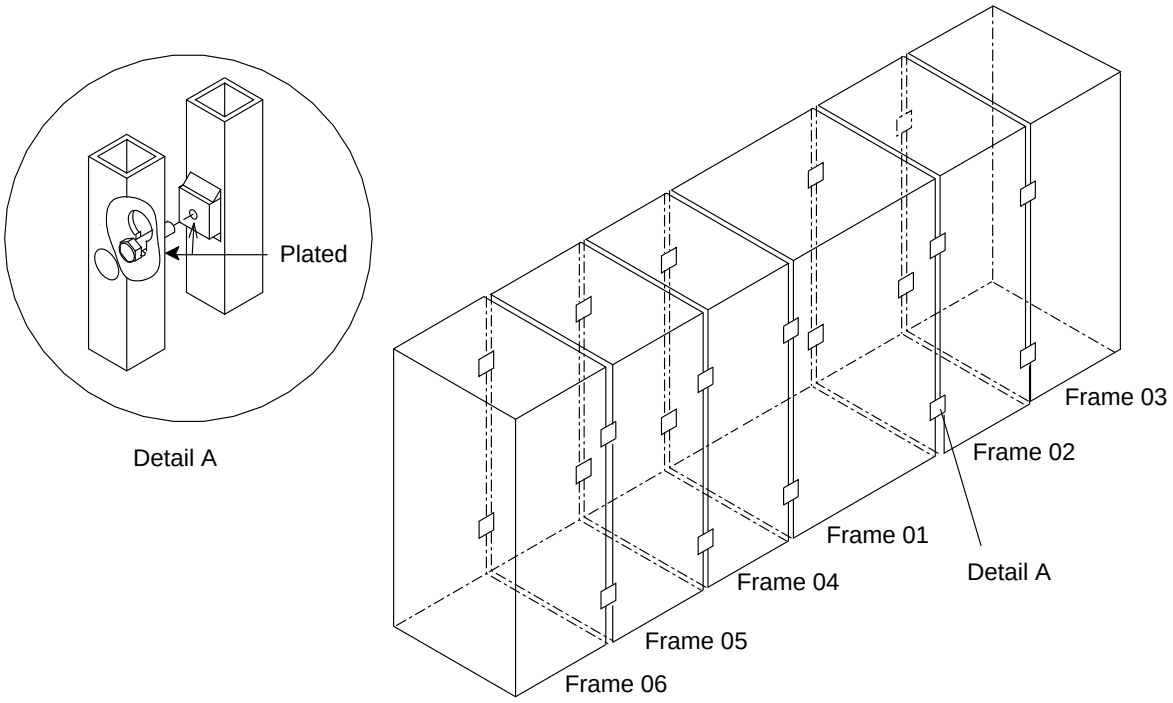


Figure 2-3. Frame Attachment

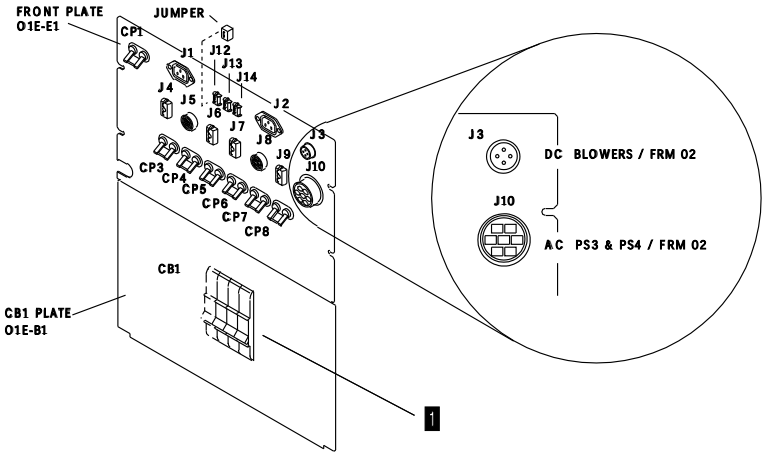


Figure 2-4. Primary Power Box Front Plate (3745)

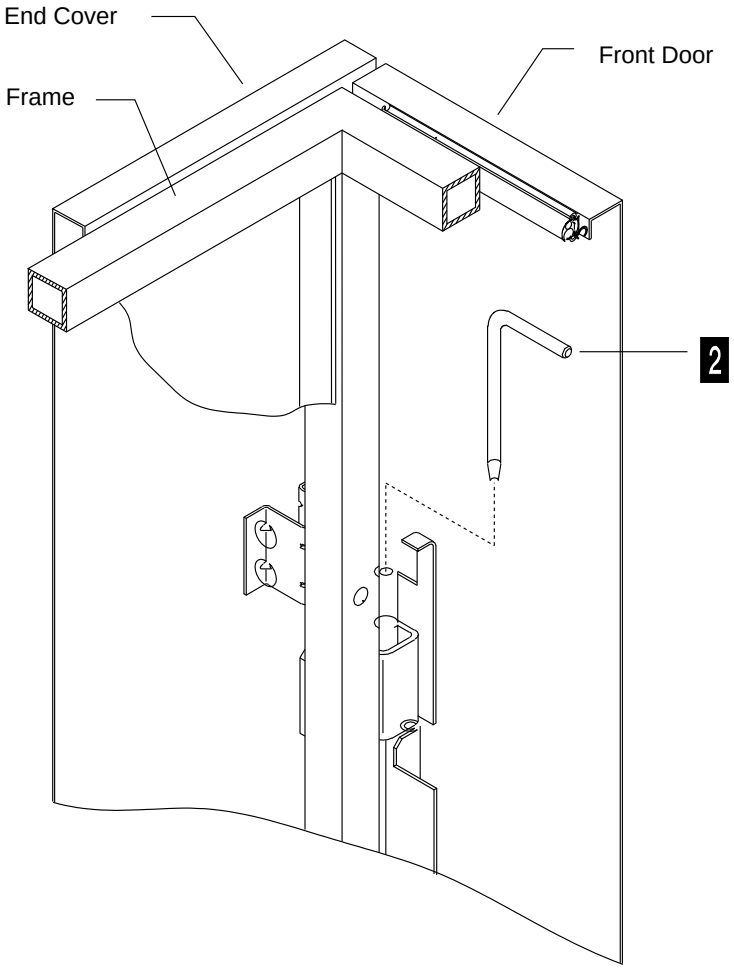


Figure 2-5. Frame Cover Mounting

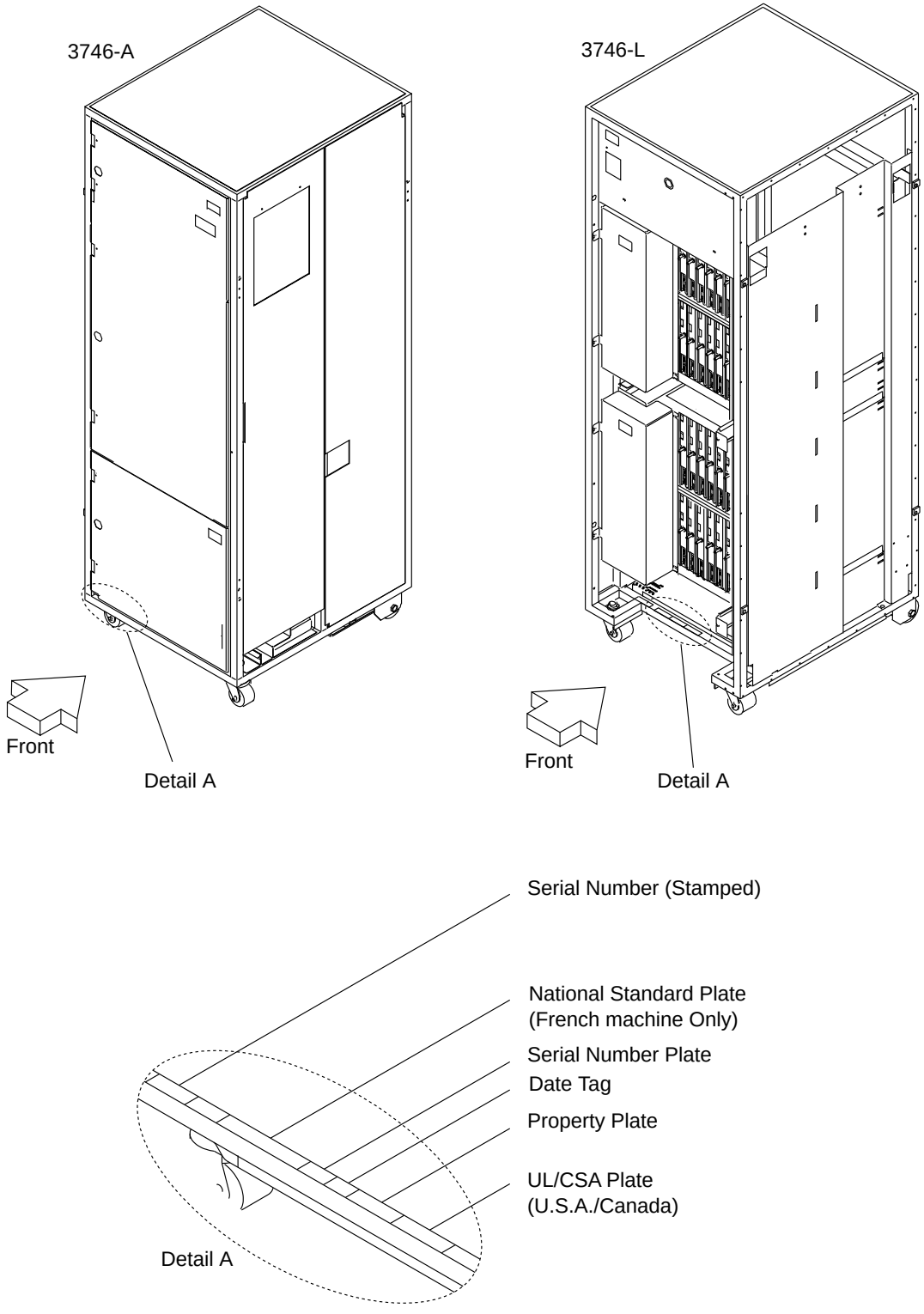


Figure 2-6. 3746 Expansion Units (Front Views)

Assembling the 3746 and Controller Expansion Frames

Checking the Expansion Frames

This procedure applies to all models of the 3746 Use it each time you install an expansion unit.

Step 1. ____ On the packing material of each frame to install, compare the machine serial number with that listed on the shipping documents. Report any difference to the IBM branch office, and confirm whether the installation can continue.

Step 2. ____ Unpack the frames and ensure that all shipping material is removed. Refer to the unpacking instructions attached to the external packaging.

Step 3. ____ Inspect the frames carefully for shipping damage. Report any damage in accordance with local procedures.

Step 4. ____ Check the serial number on the front door tag (see Figure 6-3 on page 6-5 and Figure 6-6 on page 6-8). Open the front door, and the lower internal cover if any. Check the stamped serial number and the serial number plate (see Figure 2-6 on page 2-5 for locations).

Attaching the Frames Together

- **When grasping the frame members, be careful not to tear out the external frame gasket.**
- **Leave interconnecting cables stacked in frames for the time being.**
- **Make sure that there is no cable between the frame members when frames are bolted together.**

Perform the following appropriate actions:

- **If the 3745 is already power-connected:**

  1. ____ Press the **Power OFF** key at the control panel (control panel functions are shown in Figure 4-1 on page 4-2).
  2. ____ **Switch CB1 to OFF** on the 3745 primary power box (for location, see **1** in Figure 2-4 on page 2-4).
  3. ____ Unplug the 3745 AC power plug from the customer's receptacle. If no plug is installed, ensure that the customer branch circuit breaker is switched to OFF, and labeled "NOT TO BE SWITCHED ON". Check with a meter that no voltages are still present in the machine, and that the metal frame is at 0 Vac.

- **If installing a 3746-A11:**

  1. ____ Remove the end cover on the right side, and the bottom bracket **from the 3745**, if installed (see Figure 6-1 on page 6-3). Place the cover and bracket in a safe out-of-the-way area.
     - *To remove the end cover, loosen the four retaining screws from inside the machine, using a 5/16 socket, then lift the cover from the slotted holes on the frame and pull it towards you.*
     - *To gain access to the top front screw for the 3745 right end cover, you may need to pry off the EMC gasket at the right side of the LAB1 board at 01G-A1, using a screwdriver (see Figure D-1 on page D-2 for location, and Figure 5-2 on page 5-3 for detail).*

2. ____ Remove the right front door **from the 3745**. To do this, (see Figure 2-5 on page 2-4) remove the two cover hinges **2** . Place the door in a safe out-of-the-way area.
3. ____ Move the 3746-A11 to its final position and open the front and rear doors. Tighten the caster lock screws on the front wheels (see Figure 2-2 on page 2-3).
4. ____ Using a 7/8 wrench, make a leveling pad adjustment on the 3746-A11. Align the frame bolt holes, remove black shield covers if needed, and bolt the 3746-A11 to the 3745 using screws P/N 1621598 (see Figure 2-3 on page 2-3).

Note: *To remove a black shield cover it may be necessary to lubricate the hinge pins.*

- **If installing a 3746-A12:**

1. ____ Refer to Figure 6-3 on page 6-5, loosen the two retaining screws and remove the right side plate P/N 6496094 (shown on the figure) **from the 3746-A11.**
2. .____ Move the 3746-A12 to its final position and open the front and rear doors. Tighten the caster lock screws on the front wheels (see Figure 2-2 on page 2-3).
3. ____ Using a 7/8 wrench, make a leveling pad adjustment on the 3746-A12. Align the frame bolt holes, remove black shield covers if needed, and bolt the 3746-A12 to the 3746-A11 using screws P/N 1621598 (see Figure 2-3 on page 2-3).

- **If installing a 3746-L13:**

1. ____ **On the 3745**, remove end cover on the left side and the bottom bracket if installed (refer to Figure 6-2 on page 6-4, and see the note in step 1 above). Place the cover and bracket in a safe out-of-the-way area.
2. ____ Move the 3746-L13 to its final position and open the front and rear doors. Tighten the caster lock screws on the front wheels (see Figure 2-2 on page 2-3).
3. ____ Using a 7/8 wrench, make a leveling pad adjustment on the 3746-L13. Align the frame bolt holes, remove black shield covers if needed, and bolt the 3746-L13 to the 3745 using screws P/N 1621598 (see Figure 2-3 on page 2-3).

- **If installing a 3746-L14:**

1. ____ **On the 3746-L13**, fix the ground plate **J** (P/N 03F4475). Refer to Figure 6-7 on page 6-9 and read the text at the top of the page. Use three screws (P/N 2665527).

   Before securing the ground plate screws, push down on the plate to give it maximum contact with the floor.

   Note: *This ground plate serves to reduce the possibility of radio frequency interferences that might be caused by the operating machine. A proper installation of the ground plate is necessary to meet FCC requirements, and to conduct electrostatic discharges to ground.*
2. ____ Move the 3746-L14 to its final position and open the front and rear doors. Tighten the caster lock screws on the front wheels (see Figure 2-2 on page 2-3).
3. ____ Using a 7/8 wrench, make a leveling pad adjustment on the 3746-L14. Align the frame bolt holes, remove black shield covers if

needed, and bolt the 3746-L14 to the 3746-L13 using screws P/N 1621598 (see Figure 2-3 on page 2-3).

- **If installing a 3746-L15:**

  1. ____ **On the 3746-L14**, fix the ground plate **J** (P/N 03F4475). Refer to Figure 6-7 on page 6-9 and read the text at the top of the page. Use three screws (P/N 2665527).

     Before securing the ground plate screws, push down on the plate to give it maximum contact with the floor.

     Note: *This ground plate serves to reduce the possibility of radio frequency interferences that might be caused by the operating machine. A proper installation of the ground plate is necessary to meet FCC requirements, and to conduct electrostatic discharges to ground.*

  2. ____ Move the 3746-L15 to its final position and open the front and rear doors. Tighten the caster lock screws on the front wheels (see Figure 2-2 on page 2-3).

  3. ____ Using a 7/8 wrench, make a leveling pad adjustment on the 3746-L15. Align the frame bolt holes, remove black shield covers if needed, and bolt the 3746-L15 to the 3746-L14 using screws P/N 1621598 (see Figure 2-3 on page 2-3).

- **If installing a 3746-900:**

  Refer to **Attaching the 3746-900 Frame to the 3745 or 3746** in the *3746-900 Installation Guide*, SY33-2114, and then return here.

- **If installing a controller expansion:**

  Step 1. ____ Refer to Figure 6-11 on page 6-13 or Figure 6-12 on page 6-14 if the controller expansion is attached to the 3745/46 frame

  Step 2. ____ If installed, remove the two covers **4** by loosing their mounting screws.

  Step 3. ____ Install the right and left brackets **1** (PN 58G5676) using screws (PN 2665527). Before securing the ground plate screws, push down on the plate to give it maximum contact with the floor.

  Step 4. ____ Install the front ground plate **2** (PN 58G5675) and rear ground plate **3** (PN 58G5675) using screws (PN 2665527) then re-installed covers **4** .

IF INSTALLING	GO TO
A 3745 or 3745/3746 Controller	Chapter 3, “Connection to Main Power” on page 3-1.
A 3746 Frame (Addition to an already installed 3745)	Chapter 5, “Cabling the Expansion Units to the Base Frame” on page 5-1.

Chapter 3. Connection to Main Power

The 3745 is delivered to be powered by 220V-Delta (3 wires), or 380V-Wye (4 wires; World Trade only). **In case of 380V Y, the neutral connection is mandatory.**

Note for World Trade: This product allows connection to an impedance grounded (impedance "terre" or IT) power system. (An IT power system is a power distribution having no direct connection to earth, the exposed conductive parts of the electrical installation being grounded.)

Warning: Check that the 3745 AC power rating plate data (see Figure 2-1 on page 2-2) is consistent with the voltage, current and frequency values available at the customer's receptacle. If not, stop the installation and notify the sales representative. Any voltage change must be made by MES only.

Perform the following procedures sequentially to ensure that the installation environment is safe. (Place a check mark next to each completed step.)

Checking the 3745 Power Plug or Cable

Repair all failures if any are found during this procedure.

Step 1. ____ Open the 3745 front and rear doors. Locate the main power cable (see Figure 5-6 on page 5-9).

Step 2. ____ Verify that the main circuit breaker CB1 is **in the OFF position** at the 3745 primary power box. (See Figure 2-4 on page 2-4.)

Step 3. Make the following resistance measurements (a reading of less than 1.0 Ohm shows a safe and continuous grounding conductor):

a. ____ Measure the resistance between the ground pin of the 3745 power plug and the 3745 frame.

Note: *If there is no plug, measure between the green/yellow wire of the power cable and the 3745 frame.*

b. ____ Measure the resistance between the 3745 power plug shell, if any, and the 3745 frame.

- *If the resistance is greater than 1.0 Ohm, a ground fault exists. Correct this condition before proceeding. (Refer to the* MIP*, power maps, or YZ pages.)*
- *If the resistance values are less than 1.0 Ohm, the power plug has a safe ground. Continue this procedure.*

Step 4. Make the following resistance measurements (a value greater than 2000 Ohms shows a safe 3745 power plug):

a. ____ Measure the resistance from each phase pin to the 3745 power plug shell (*or from each phase wire to the green/yellow wire if there is no plug*).

b. ____ Measure the phase-to-phase resistance of the 3745 power plug (*or between phase wires if there is no plug*).

Continue with "Checking the Customer's Power Receptacle" on page 3-2, or go to "Measuring the Customer's Primary Power" on page 3-3 if a power plug is used.

Checking the Customer's Power Receptacle

CEs are not allowed access into the customer's **main power receptacle***. The customer or a customer-appointed electrician may have to do some of the work involved in the following procedures, and the CE must ensure that all the steps have been completed.*

Power must not be applied to the 3745 if the building ground cannot be located and verified. If any problems are found:

- Notify the customer, and do not proceed until the problem is corrected.
- Call your Installation Planning Representative (IPR) for assistance.
- Alert the responsible Field Manager.

It is recommended to use high voltage probes to make the following measurements.

Step 1. ____ Ensure that the customer's branch circuit breaker that feeds the 3745 receptacle is **in the OFF position,** with a warning label attached.

Step 2. Use high voltage probes and perform the following voltage measurements (all voltage values should be less than 1.0 Vac):

a. ____ Measure the voltage between the exterior shell of the customer's receptacle and the building ground.
b. ____ Measure the voltage between the ground pin of the customer's receptacle and the building ground.

- *If the voltage is greater than 1.0 Vac, notify the customer and do not proceed until the problem is corrected.*
- *If the voltage values are less than 1.0 Vac, the customer's receptacle is safe to touch. Continue this procedure.*

Step 3. Make the following resistance measurements (a reading of less than 1.0 Ohm shows a safe and continuous grounding conductor):

a. ____ Measure the resistance between the ground pin of the customer's receptacle and the exterior shell.
b. ____ Measure the resistance between the ground pin of the customer's receptacle and the building ground.

- *If the resistance is greater than 1.0 Ohm, a ground fault exists. Notify the customer and do not proceed until the problem is corrected.*
- *If the resistance values are less than 1.0 Ohm, the customer's receptacle has a safe ground. Continue this procedure.*

Step 4. Perform the following voltage measurements at the customer's receptacle (all voltage values should be less than 1.0 Vac):

a. ____ Measure the phase-to-phase voltage.
b. ____ Measure the phase-to-ground voltage.
c. (World Trade only)
____ Measure the phase-to-neutral voltage (if present).
d. (World Trade only)
____ Measure the neutral-to-ground voltage (if present).

- *If the voltage is greater than 1.0 Vac, notify the customer and do not proceed until the problem is corrected.*
- *If the voltage values are less than 1.0 Vac, the customer's receptacle is safe to touch.*

Continue with "Measuring the Customer's Primary Power" on page 3-3.

Measuring the Customer's Primary Power

CEs are not allowed access into the customer's **main power receptacle***. The customer or a customer-appointed electrician may have to do some of the work involved in the following procedures, and the CE must ensure that all the steps have been completed.*

It is recommended to use high voltage probes to make the following measurements.

Step 1. ____ Place or ask the customer to place the branch circuit breaker that feeds the 3745 receptacle to **the ON position.**

Perform the following voltage measurements *(all voltage values should be less than 1.0 Vac):*

a. ____ Measure the voltage between the exterior shell of the customer's receptacle and the building ground.

b. ____ Measure the voltage between the ground pin of the customer's receptacle and the exterior shell.

c. (World Trade only)
____ Measure the voltage between the neutral of the customer's receptacle (if present) and the building ground.

- *If the voltage is greater than 1.0 Vac, notify the customer and do not proceed until the problem is corrected.*
- *If the voltage values are less than 1.0 Vac, the customer's receptacle is safe to touch. Continue this procedure.*

Step 2. (Impedance-grounded neutral power only, World Trade only)
____ Measure the voltage between the neutral of the customer's receptacle and the building ground.

- *If the voltage is greater than 10.0 Vac, check the phase fault indicator if any, and notify the customer. Do not continue until the phase fault is corrected.*
- *If the voltage is less than 10.0 Vac, continue this procedure.*

Step 3. ____ (World Trade only): If neutral present (380V wye), measure the phase-to-neutral voltage. Continue only if the value is within the 180 to 259 volts range.

Step 4. ____ Measure the phase-to-phase values of the customer's voltage. Write the average value here:_____.

Note: *Continue only if the measured values meet the requirements of the following tables:*

220V Supply (Delta Wiring, 3 Wires)	
Minimum	180
Maximum	259

or

380V Supply (Wye Wiring, 4 Wires)	
Minimum	333
Maximum	448

Step 5. ____ Place or ask the customer to place the branch circuit breaker that feeds the 3745 receptacle to **the OFF position,** with a warning label attached.
If you are installing a controller expansion, go to step 6, otherwise go to “Adjusting the 3745 to the Customer's Primary Power” on page 3-4.

Step 6. ____ Repeat the same procedures describe in step 1 to check the power receptacle used to connect the controller expansion.

Adjusting the 3745 to the Customer's Primary Power

Step 1. ____ On the front side of the primary power box in 01E-E1 (see Figure 2-4 on page 2-4), plug the jumper into J12/J13/J14 depending on the voltage value recorded in step 4 on page 3-3. See the following tables.

Note: *This adjustment regulates the blower rotation speed (noise reduction).*

Measured Voltage	Jumper Position
180 through 210	J12
211 through 230	J13
231 through 259	J14

or

Measured Voltage	Jumper Position
333 through 363	J12
364 through 397	J13
398 through 448	J14

Step 2. ____ On the front side of the PS type 6 in 01F, locate TB1 (see Figure 3-1 below for location), and remove the TB1 cover and shield.

LOCATION: 01F-A0

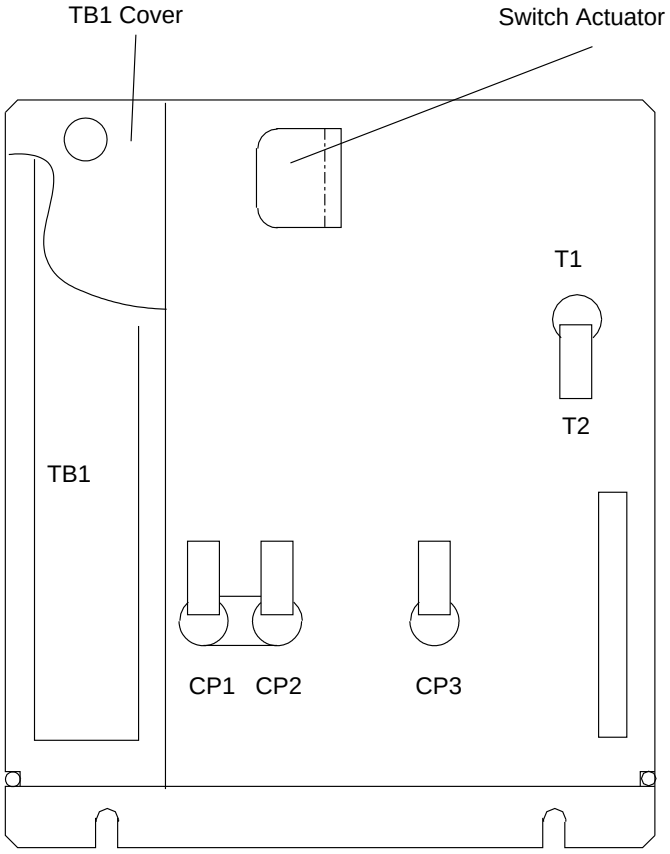


Figure 3-1. Power Supply Type 6 (Front)

In the following tables, select the row in accordance with the voltage value recorded in step 4 on page 3-3, and set the three TB1 black jumpers accordingly.

Note: *This adjustment reduces to a minimum alarms due to external voltage variations.*

Measured Voltage	220V Wiring
180 through 210	TB1-5 to TB1-10 TB1-6 to TB1-13 TB1-9 to TB1-14
211 through 230	TB1-4 to TB1-10 TB1-6 to TB1-12 TB1-8 to TB1-14
231 through 259	TB1-3 to TB1-10 TB1-6 to TB1-11 TB1-7 to TB1-14

or

Measured Voltage	380V Wiring
333 through 363	TB1-1 to TB1-5 TB1-5 to TB1-9 TB1-9 to TB1-13
364 through 397	TB1-1 to TB1-4 TB1-4 to TB1-8 TB1-8 to TB1-12
398 through 448	TB1-1 to TB1-3 TB1-3 to TB1-7 TB1-7 to TB1-11

Step 3. ____ Re-install the TB1 cover and shield on PS type 6. If a tap change is made, correct the voltage label value on the 3745 frame (see Figure 2-1 on page 2-2 for location). Update it according to the voltage measured in step 4 on page 3-3.

If you received a controller expansion go to "Controller Expansion Power Requirements" otherwise continue with "Connecting the 3745 to the Customer's Primary Power" on page 3-6.

Controller Expansion Power Requirements

The customer must provide a **separate 220 V ac power receptacle** to connect the units installed in the controller expansion.
The power input must be between 200V to 240V with a total of 15 Amp. Maximum output per outlet is 6 Amp. A fuse of 7 Amp protect this equipment.

Connecting the ac Outlet Distribution Box of the Controller Expansion

Note: The power input for the ac outlet distribution box must be within the range 200V to 240V.
Obtain the power cable shipped with the controller expansion (which is country dependant), then plug cable **A** in location 'IN' of the ac outlet distribution box, and connect the other end of the cable to the customer's power receptacle (see Figure 3-2).

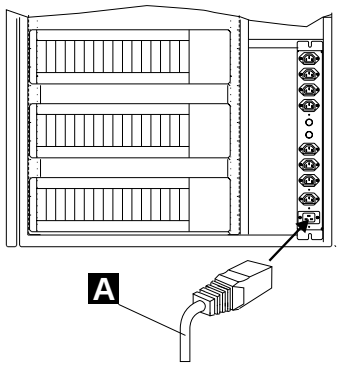


Figure 3-2. Connecting the ac Outlet Distribution Box

Continue with "Connecting the 3745 to the Customer's Primary Power" on page 3-6.

Connecting the 3745 to the Customer's Primary Power

Step 1. ____ Ensure that the customer's branch circuit breaker that feeds the 3745 receptacle is **in the OFF position,** with a warning label attached.

Step 2. ____ Uncoil the 3745 power cable and route it to the customer's receptacle. Insert the 3745 power plug into the customer's main socket, or (World Trade) ask the customer to connect the 3745 power cable to the AC power receptacle if any.

Note: *When delivered for a 380 V supply, neutral is the blue wire, L1 is the brown wire, L2 and L3 are black wires, and ground is the green/yellow wire.*

Step 3. ____ Connect the EPO cables (up to eight) to location 01S-A0 (see Figure 5-6 on page 5-9 for location, and Figure 3-3).

Warning: If there are no EPO cables provided, at least one EPO plug (P/N 8482303), supplied in the shipping group, must be installed in anyone of the 01S-A0 positions. If not, the 3745 cannot be powered ON when Power Control = 1 or 2 (In power mode mode 3 the EPO plug is not needed).

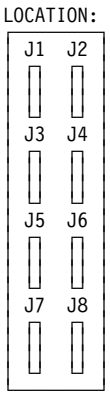


Figure 3-3. EPO Tailgate

Step 4. ____ Open the control panel. Locate the unit emergency power OFF (UEPO) switch at the rear of the control panel (see Figure 3-4).

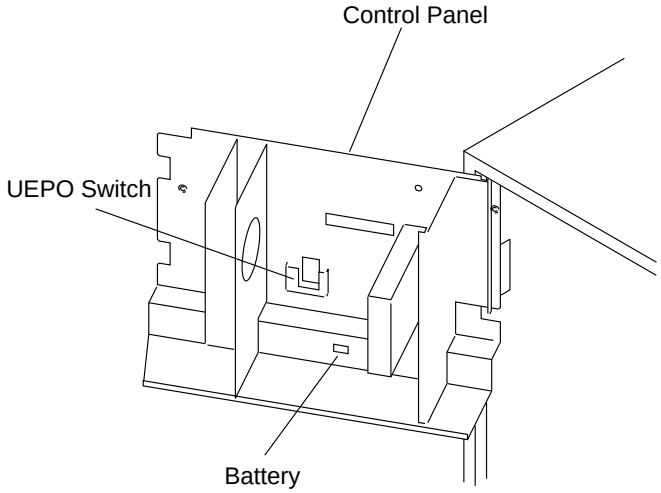


Figure 3-4. Control Panel (Rear)

If necessary, unlock the switch in the following way:

a. Loosen the two screws shown on Figure Figure 3-5 on page 3-7 or Figure 3-6 on page 3-7.

b. Move the metal slider all the way left.

c. Set the switch up to **I**.

d. Move the metal slider back to the right.

e. Secure the screws.

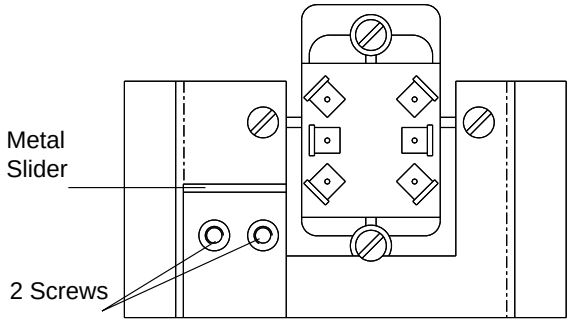


Figure 3-5. UEPO Switch for 3745 Models 210 to 610 (Rear View)

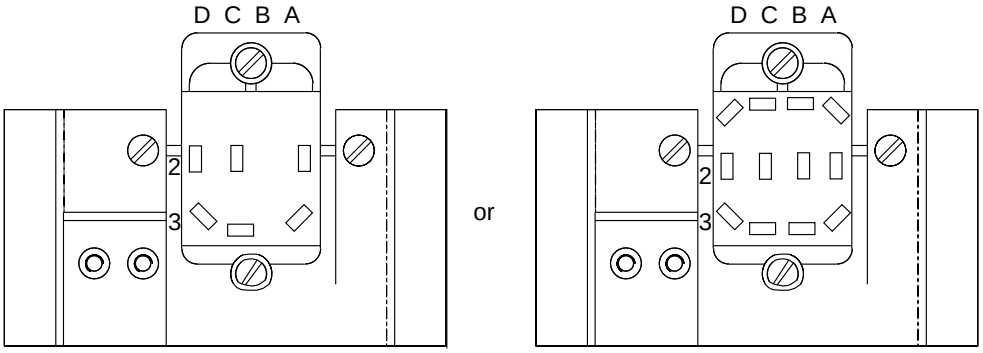


Figure 3-6. UEPO Switch for 3745 Models X1A (Rear View)

Step 5. ____ At the bottom rear of the control panel, unwrap the battery connector and plug it in appropriately (see Figure 3-4 on page 3-6 for location).

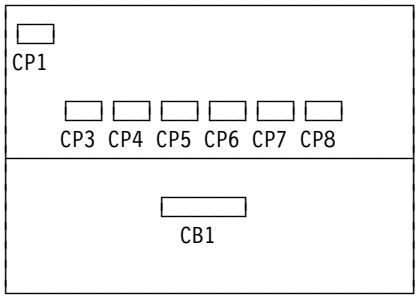
Continue with "Powering On the 3745 Frame Only" on page 3-8.

Powering On the 3745 Frame Only

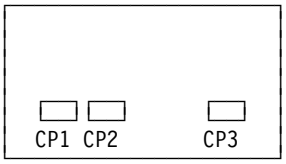
Refer to Figure D-1 on page D-2 and Figure D-2 on page D-3 to locate the PS units in the 3745 base frame.

Step 1. ____ Ensure that the 3745 main circuit breaker CB1 is in the OFF position, and that all circuit protectors (CPs) are set to the ON position in front of the following boxes:

3745 Primary Power Box:



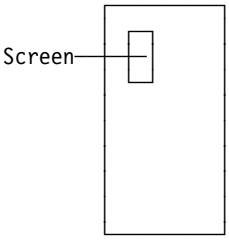
3745 PS Type 6:



Step 2. ____ Also, the following power supplies have their own CP, called CP1, in front of the PS unit:
PS3 (for CAs), PS4 (for LAs), PS5 (for LIU1 unit) or PS7 (for LIU2 unit).

Check that CP1 is set to **ON** on each PS3, PS4, PS5 or PS7 unit in the base frame only. PS5 and PS7 units have an individual front cover; the CP1 actuator's position is visible through a screen in the cover.

PS5 or PS7 Front Cover:



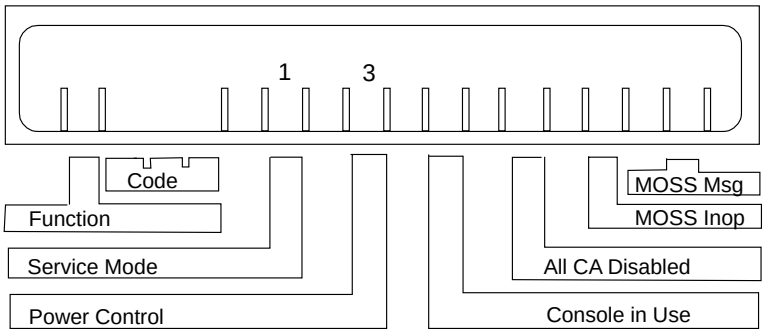
Step 3. ____ On top of the PS1 unit(s), check that switch SW1 is properly positioned. See table below for proper SW1 settings:

MODEL	PS TYPE	LOCATION	SW1	CCU
210	PSTY1	01Q	0	CCU-A
410	PSTY1	01Q	0	CCU-A
410	PSTY1	01R	1	CCU-B
310	PSTY1B	01Q	A	CCU-A
610	PSTY1B	01Q	A	CCU-A
610	PSTY1B	01R	B	CCU-B

Step 4. ____ Check that all the card top crossovers are properly seated in the base frame. For crossover locations, refer to the *MIP* or to Pages YZ035, YZ036, or YZ037.

Step 5. ____ Ask the customer to turn the branch circuit breaker that feeds the 3745 to the **ON** position. **Power is now present in the primary power box.**

Step 6. ____ Switch CB1 to ON at the 3745 primary power box. At the 3745 control panel, check for the following display:



Note: A panel code **008** may also appear at this step of installation. It indicates that the power configuration table has been cleared. **Disregard this code**, the POS create function in step 13 on page 4-10 will correct this condition.

If the display is wrong, and for problem isolation, use the *IBM 3745 Maintenance Information Procedures (MIP)*, SY33-2054, at the START page.

Go to Chapter 4, "Test Procedure (Part One)" on page 4-1 .

Chapter 4. Test Procedure (Part One)

Note: You must start on page 4-3 and go sequentially through the checkout procedure 1.

Control Panel

- The **Function** key, the **Service Mode** key, and the **Power Control** key allow to scroll options at their corresponding display window.
- The **Validate** key enables options selected with the preceding keys (digits stop blinking).
- The **Exit** key cancels a scrolled option.

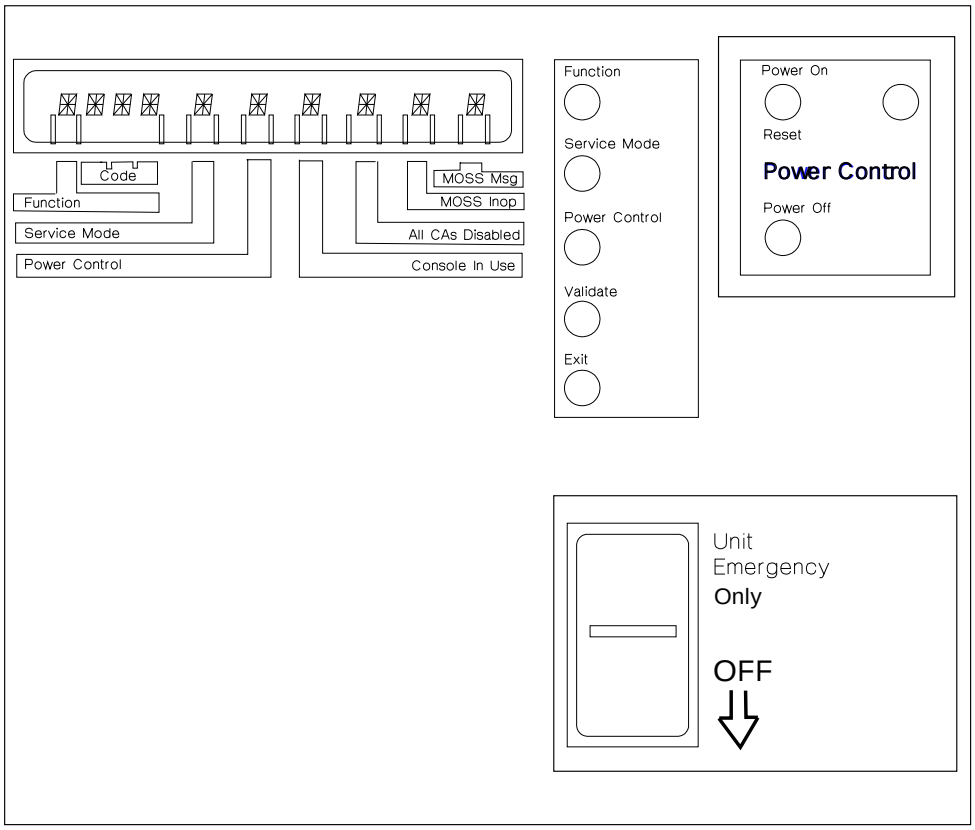


Figure 4-1. Control Panel Layout

For a description of the panel display values, refer to Chapter 1 of the *IBM 3745 Maintenance Information Procedures (MIP)*, SY33-2054.

Checkout Procedure 1

- This is a step-by-step procedure. **Many steps depend on previously completed ones**.
- MOSS code has been loaded on the hard disk at the factory. **Do not press the control panel Power ON/Reset key** before being asked to do so.
- If expected panel codes or screen results are not displayed when running through the following procedure, for troubleshooting **you must go to the START page of the MIP**.

Step 1. ___ **Control Panel Test**

For details, refer to "How to Run the Panel Test" *in the* MIP.

a. Make sure that **Service Mode = 1** and **Power Control = 3**.

b. Press the **Function** key repeatedly until **5** is displayed in the *Function* window, and press the **Validate** key. You are entering the panel test. All segments in the ten display positions will be illuminated.

   Warning: If you do not press any key for 60 seconds, the panel test will cancel automatically, and the panel will return to the operational mode with Service Mode = 1 and Power Control = 3. If this occurs, you must restart the test at step b above.

c. Press the **Function key** repeatedly. You will scroll sequentially through the *Function* and *Code* windows, and wrap around.

d. Press the **Service Mode key** repeatedly. You will scroll sequentially through the *Service Mode* and *Power Control* windows, and wrap around.

e. Press the **Power Control key** repeatedly. You will scroll sequentially through the *Console in Use*, *All CAs Disabled*, *MOSS Inoperative*, and *MOSS Message* windows, and wrap around.

f. Press the **Power ON-Reset key.** The digit *8* will be displayed in the *Function* window.

g. Press the **Power OFF key.** The *Function* window will become blank.

h. Press the **Exit key.** The display will present *Power Control = 3* and *Service Mode = 1*, indicating that the test is completed.

IF INSTALLING	GO TO
A 3745 model 210, 310, 410, or 610	Step 2 on page 4-4
A 3745 model 21A, 31A, 41A, or 61A	Step 5 on page 4-6

Step 2. ___ **Diskette Installation**

a. Find one set of diskettes in the special holder located on the left of the control panel (see footnote [1]).

Note: If you are installing a **3745** model **X1A**, you can have up to **six diskettes**.

b. Using a felt-tipped pen, circle **normal** or **backup** on each diskette label to define a **normal set** and a **backup set** of diskettes.

c. Remove the head protector from the diskette drive and store it in the diskette holder.

d. Insert a **primary** normal/backup **(1/5)** diskette into the drive slot, and lock the diskette drive.

Step 3. ___ **MOSS IML from Diskette**

a. **Plug the console wrap tool** (P/N 6398697) at the rear of the 3745 in the **local** console connector at 01U-B0. For locations, refer to Figure D-2 on page D-3, and see the following drawing (Figure 4-2).

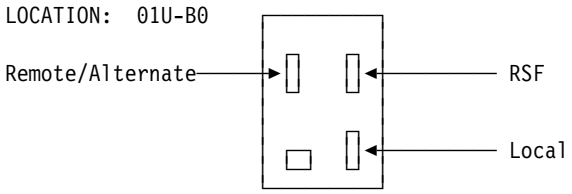


Figure 4-2. Console Tailgate

b. At the control panel, select **Service Mode = 3**, and **validate**.

c. Select **Function = 9**, and **validate**.

d. Press the **Power ON-Reset key**. A MOSS IML from diskette is started, during which the local console link test is executed.

IML takes approximately three to four minutes. Some codes (for example **0A0***) are displayed for a while. The normal ending code is* **F0B***. For any other ending code, refer to the* MIP.

e. Remove the diskette from the drive, and press the **Power OFF** key at the control panel.

Step 4. ___ **Local Console Connection to a 3745 model 210, 310, 410, or 610**

For console cable information, refer to the External Cable References*, SY33-2075.*

a. Make sure that the console keyboard cable is plugged into the console. Check for the local console compatibility and configuration (refer to the *IBM 3745 Console Setup Guide*, SA33-0158.)

b. Ensure that the local console power is **OFF.**

---

[1] All original diskettes come in two identical sets. One set is in the diskette holder, and the other set is in the shipping group. Both sets are labeled as follows:

```
PRIMARY    NORMAL/BACKUP  DISKETTE  (1/5)
SECONDARY  NORMAL/BACKUP  DISKETTE  (2/5)
THIRD      NORMAL/BACKUP  DISKETTE  (3/5)
FOURTH     NORMAL/BACKUP  DISKETTE  (4/5)
FIFTH      NORMAL/BACKUP  DISKETTE  (5/5)
```

c. **Remove** the console wrap tool from the local console tailgate connector in 01U-B0, and **plug** the 3745 end of the local console cable in its place.

- Assembly P/N 26F1792 is shipped as a **local console cable.** This assembly is a kit that includes a 3745-to-7427 cable (P/N 03F4487) and three adapter blocks to allow this one cable to be used for connection to a 31XX, 3727, PS/2* or PC as well as to a 7427.
- Any equivalent console must provide its own cable.

d. **Secure** the local console cable to the 3745 with clamp (P/N 65X9923) and thumb screw (P/N 03F7798). The clamp goes over the exposed braid of the cable. The hole to screw into is located in the 3745 middle sheet metal separator at the bottom rear of the machine (cable area).

Note: *This cable clamp serves to reduce the possibility of radio frequency interferences that might be caused by the operating machine. A proper installation of the clamp is necessary to meet FCC requirements, and to conduct electrostatic discharges to ground.*

e. **Route** the local console cable to the local console, or to the 7427 console switching unit if any.

This cable is delivered with a one-meter long RFI tubing floating over the cable. The tubing must protrude above the floor by 20 cm (7.8 inches) at the console end, or at the 7427 end.

Note: *This tubing serves to reduce the possibility of radio frequency interferences that might be caused by the operating machine. A proper installation of the tubing is necessary to meet FCC requirements.*

f. **When there is no console switching unit:**

Depending on the type of console that is used, **plug the proper adapter** (P/N 54F0488 for 3727, P/N 54F0489 for 31XX, or P/N 54F0490 for PS/2 and PC) to the cable at the console end, and **connect** the adapter to the local console. If necessary, refer to the console documentation for information on connecting the cable.

Warning: Use care installing the 31XX adapter (P/N 54F0489) as it can be reversed and prevent console operation. Observe the label on the adapter and install **only** as indicated.

g. **When an IBM 7427 console switching unit is present**:

Connect the cable to the 7427 without using any adapter. The following cables are used from the 7427 to the consoles:

- Cable P/N 65X8985 from the 7427 to an IBM 31XX (this cable must be ordered)
- Cable P/N 26F0317 from the 7427 to an IBM PS/2 or PC (this cable must be ordered)
- Cable P/N 6081308 from the 7427 to an IBM 3727 (this cable is shipped with the 7427).

If necessary, refer to the local console documentation for information on connecting the cable.

h. **When the local console is an IBM 3727:**

Apply the adhesive keyboard keytop labels (P/N 03F7773).

i. **Power** the local console **ON**.

Go To

You are installing a 3745 model X10, go to step 8 on page 4-8

Step 5. ___ **Connection of the Service Processor to a 3745 model 21A, 31A, 41A, or 61A**

Notes

The Service Processor is connected to the 3745 through a service processor access unit (8228) by means of two cables:

1. One cable PN 6339098 from the Service Processor to the 8228 already connected when installing the Service processor in step 1 of the chapter “Making Ready to Install” on page 1-12.
2. One cable (PN 76F9440) from the 8228 to the 3745 (for the US) or (PN 76F9441 for world trade only).

If you received a controller expansion, go to step 5a, otherwise go to step 5b.

a. ____ Install the 8228 on the rear side of the controller expansion using two screws (PN 1621232) and two captive nuts (PN 58G5766) see Figure 4-3.

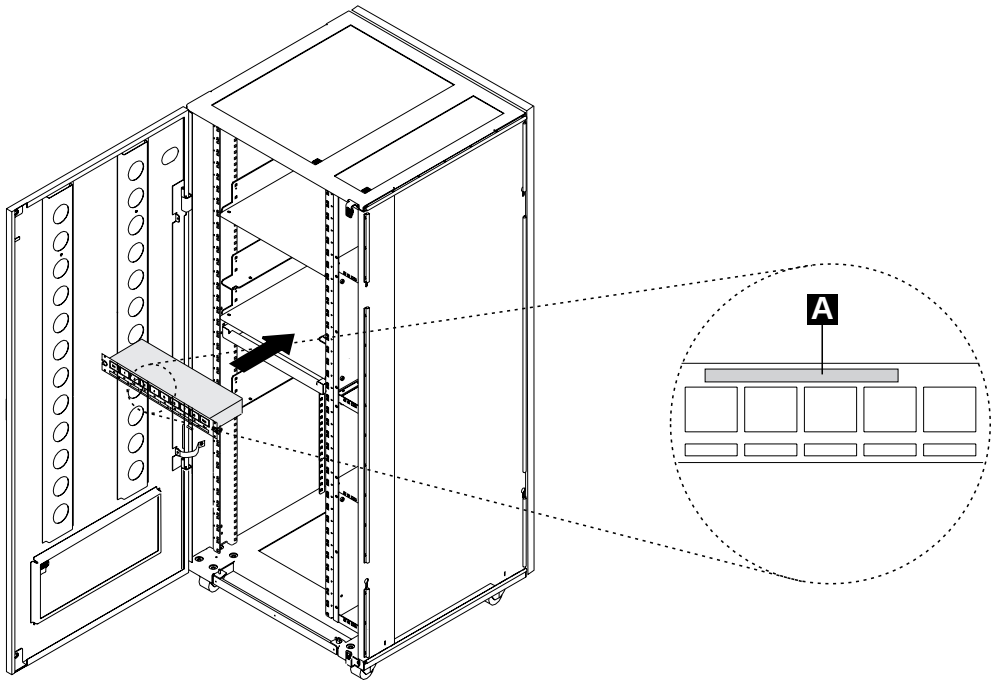


Figure 4-3. Installing the 8228 (Controller Expansion Rear Side)

b. ____ Refer to Figure 4-4 on page 4-7 and using a sticker, identify cable PN 76F9440 or 76F9441 as the "3745 X cable" (X from 1 to 4 as you can have up to 4 x 3745 connected to the same Service Processor)

c. ____ Plug the connector **1** to **J1** in the console tailgate (see Figure 4-4 on page 4-7)

d. ____ Plug connector **2** to one of the free plug (1 to 8) of the 8228.

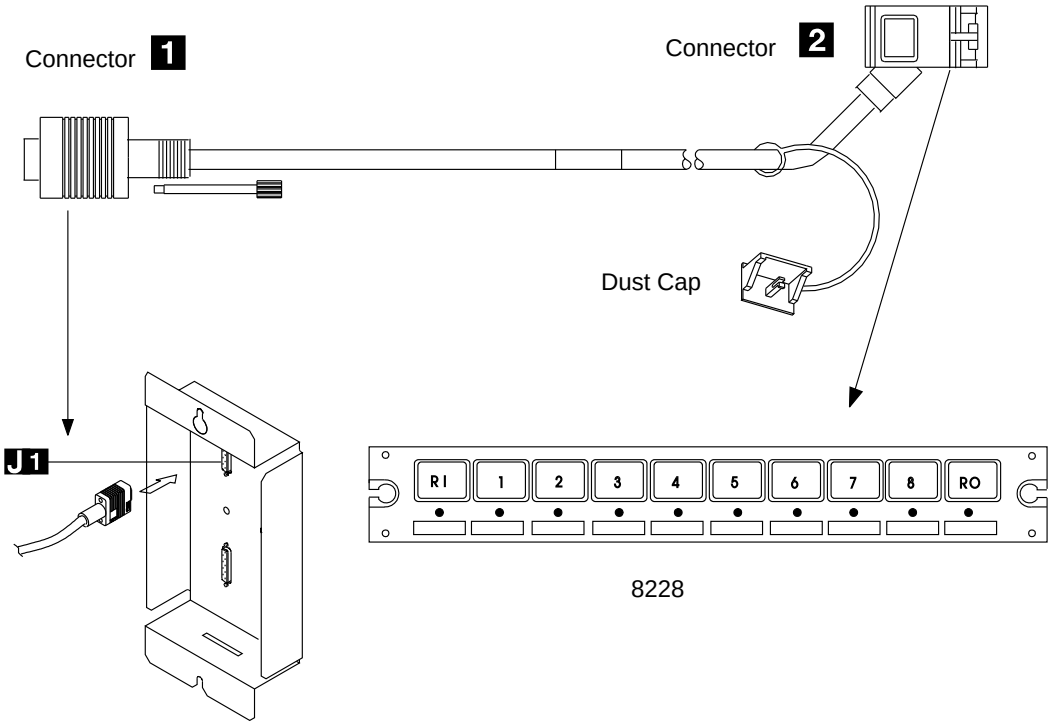


Figure 4-4. Connecting the 3745 X1A to a LAN

Step 6. ___ **Configuring the Service Processor (only for 3745 model 21A, 31A, 41A, 61A)**

a. ____ Double click on the **"Service Processor object icon"** (or single click and press ENTER).

b. ____ Click on **"Configuration Management"**.

c. ____ Double click on **"Manage 3745/3746-9x0 Installation/Removal"** (the line becomes green when selected).

d. ____ Click on the first **<3745 not installed>** field

e. ____ Click on **"ADD"**.

f. ____ As indicated on the "Controller Installation Message", at the 3745 control panel:

1) ____ Select **"Service Mode = 0"**, and press **"validate"**.

2) ____ Select **"Function = 1"**, and press **"validate"**.

3) ____ Press the **"Power ON-Reset"** key. A MOSS IML is started from the hard disk.

g. ____ When code **1F0E** (or **1FE9**) is displayed on the 3745 panel, click on **"OK"**.

Note: Code **1B9F** can be displayed indicating a time out but doesn't affect the proper operation, continue with the next step.

h. ____ Enter the **3745 serial number** (format XX-XXXXX)

i. ____ Click on **"OK"**.

j. ____ When requested, insert the 3745 installation parameters diskette **PN 43G3225**, then click on **"OK"**.

k. ___ When the controller parameters have been successfully loaded, click on **"OK"**.

l. ___ When the information message saying that the installation is successfull is displayed, remove the diskette and click on **"OK"**

m. ___ Then enter the controller name according to the name recorded by the customer on the parameter worksheet:
"Controller Integration - Controller Names" (this worksheet is in the appendix of the *3745 Communication Controller Models A and 3746 Models 900 and 950: Planning Guide*, GA33-0457), then click on **"OK"**.

n. ___ Click on **"OK"**.

o. ___ Click on **"Cancel"** to exit from the 3745 installation function.

Step 7. ___ **Access MOSS Console on a 3745 Model 21A, 31A, 41A, or 61A**

To access the MOSS functions:

a. ____ Double click on the **3745 object icon** and you will get the following screen, double click on **MOSS Console** .

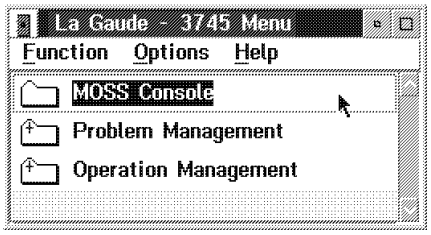


Figure 4-5. 3745 Menu

b. ____ The **"Function Selection Rules"** panel is displayed. You are now able to select the MOSS functions as usual (see figure below).

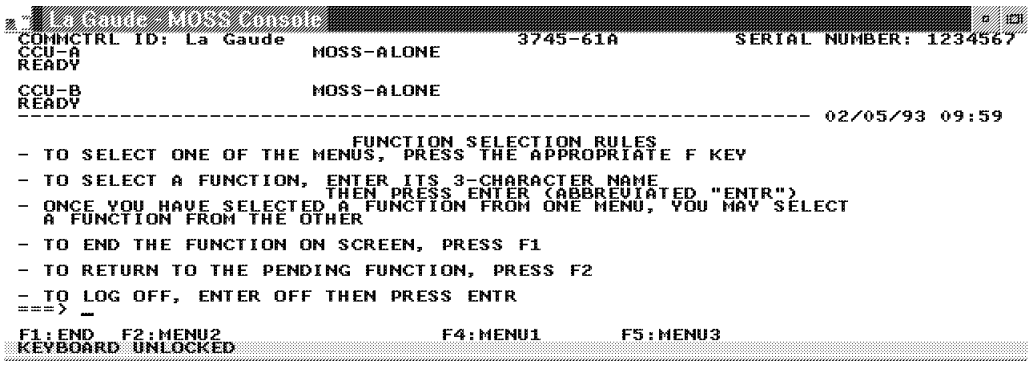


Figure 4-6. MOSS Primary Menu

Note: In the following procedures common to all 3745 consoles, when working on a Service Processor console, when you read **press SEND** you should read **press ENTER** as the Service Processor keyboard has no "send key".

Go To

You are installing a 3745 model X1A, go to step 13 on page 4-10

Step 8. ___ **MOSS IML from Disk**

a. At the 3745 control panel, select **Service Mode = 0**, and **validate**.
b. Select **Function = 1**, and **validate**.

c. Press the **Power ON-Reset** key. A MOSS IML from the hard disk is started.

IML takes approximately three to four minutes. Some codes (for example **0A0***) are displayed for a while. The normal ending code is* **1F0E***. For any other ending code, refer to the* MIP.

Step 9. ___ **Entering Customer Password**

For details, refer to "Passwords (PSW)" in the IBM 3745 Advanced Operations Guide*, SA33-0097.*

Note: An A6 alarm may be normal at this step of the procedure, so long as the time and date are not entered (see step 12 on page 4-10).

a. The first screen that appears at the local console after IML displays the CA status. **Press F4**. The message *ENTER PASSWORD* is displayed.

b. **Type** *IBM3745* (customer default local password), and **press SEND**. The function selection rules screen will display. At this step of the procedure, ignore possible power alarm messages.

c. **Press F4** to get Menu 1.

d. **Type** *PSW* and **press SEND**.

e. **Type** *IBM3745* (customer default management password), and **press SEND**.

Step 10. ___ **Update and Activation of Maintenance Password**

a. From the password selection screen, **select option 4** and **press SEND.**

b. **Type** a new maintenance password of your choice (five to eight alphanumeric characters, must be different from the customer password), and **press SEND.**

c. **Press F4** to get the RSF modem transmission mode screen.

- In the U.S.A./Canada/Japan: **Enter** *F* (duplex transmission), and **press SEND.**
- In the other countries: **Enter** *H* (half-duplex/1200 bps/V.23) or *F* (duplex/2400 bps/V.22-bis) depending on the RSF ports used in the country, and **press SEND.**

Note: *Ask your country's RETAIN* coordinator for current information.*

d. **Press F6** to return to the password selection screen.

e. Select **option 7** and **press SEND** for a permanent activation of the maintenance password.

f. **Press F1** to return to Menu 1.

Step 11. ___ **Entering Maintenance Mode**

a. **Type** *OFF* and **press SEND** to log off (the CA status screen is displayed).

b. At the control panel, select **Service Mode = 2,** and press the **Validate** key.

c. At the local console, **press F4** to get the password screen.

d. **Type** the new maintenance password that you updated in step 10 above, and **press SEND** (the function selection rules screen is displayed).

e. **Press F4** to get Menu 1.

Step 12. ___ **Entering Time and Date**

a. Type **TIM** (Time Services), and **press SEND.**

b. From the TIM screen, **select option 1** and **press SEND.**

c. Type date (MM/DD/YY), time (HH:MM), and day (1 to 7).

d. Press **SEND.** Message DATA SUCCESSFULLY TRANSMITTED should be displayed.

e. Press **F1.**

Step 13. ___ **Power Configuration Table Create**

For details, refer to "Recreating the PS ID Configuration Table" in Chapter 12 of the IBM 3745 Service Functions*, SY33-2055.*

a. **Type POS** to select 'Power Services', then **press SEND.**

b. From the POS function selection screen, **call option C**: RECREATE THE POWER CONFIGURATION TABLE, and **press SEND.**

c. **Identify** the PS blocks that are *physically present on the 3745 base frame.* The two-digit identification number (**xx**) of each PS block is indicated by **IDxx** in Figure D-1 on page D-2 and Figure D-2 on page D-3 at the end of this manual. **Write** on a sheet of paper the identifiers of all the PS blocks that are present in the 3745 base frame (PS6 and PS8 have no identifier).

d. **Compare** with the configuration table identifiers appearing on the screen. The PS identification number in the table indicates that the power supply is present; a dash (-) indicates that the supply was not found by the configurator.

e. If the table on the screen reflects the physical status of the machine, **enter Y** to confirm. Press **SEND**, and continue with step 14.

Note: *The power control subsystem keeps the old power status when* **N** *is entered.*

f. If any discrepancy appears, make a visual check of the failing power unit(s). Correct any trouble (refer to the *MIP* if necessary), and start again at step 13a above.

Step 14. ___ **Power Supply Status Check**

For details, refer to "Power Services (POS)" in Chapter 12 of the Service Functions.

a. From the POS function selection screen, **select option 1** to display the power information for the 3745 frame, and **press SEND.**

Note: *The following message may be normal at this step of the procedure: "CDF ERROR: SOME POWER SUPPLY INFORMATION CANNOT BE DISPLAYED".*

b. **Verify** that all the installed power supplies in the base frame are **UP**.

Note: Press **F8** to display all the frames installed
If all installed power supplies are **UP**, **press F1 and continue with step 15 on page 4-11.**

c. **If there is a power problem:**
(For BER analyzing, refer to Chapter 2 of the *Service Functions*.)

1) Press **F1** to return to Menu 1.
2) Enter *ELD* (for Event Log Display), and press **SEND**.
3) Press **F8** to get the BER summary screen 2.
4) Enter **9** or **POWER** to get the power BER list screen.
5) Enter the number corresponding to the problem that you want to select, and press **SEND** to display the corresponding BER detail.
6) Note the BER reference code number, then use the *MIP* for troubleshooting.

Step 15. ___ **Configuration Data File (CDF) Verify**

For details, refer to "CDF Verify" in Chapter 9 of the Service Functions*, or to the* MIP *in case of CDF problem.*

a. **Type** *CDF* and **press SEND.**

b. From the CDF function selection screen, **call option 4** and press **SEND**.

The verification phase is automatically initialized and will last approximately three minutes. Any discrepancy between the CDF information and the machine status produces a message, for acknowledgement or updating.

- For an FRU level problem, contact your local support structure.
- For a presence or type discrepancy, make a visual check.

Notes:

1) Due to the fact that the low-speed scanner MUX cables are not connected at this time, it is possible that you may get an **LA Difference** screen, indicating the presence of nonexistent MUX or LIC cards. If this occurs it does **not** indicate that you have a hardware problem:
2) If you get the following message *Warning: a change in 3746 presence status has been made. 3746-900 has been installed* enter **2** to continue the process and record the 3746-900 presence.

Select **1** (CDF Data) to continue.

Wait for the message *CDF VERIFY COMPLETED*.

c. Go to the 3745 control panel.

Step 16. ___ **IPL to Phase 4**

At this step of the procedure, IPL to phase 4 is possible only on **a 3745 with at least one channel adapter present.**

If the 3745 has no channel adapter, *F2F* will be normal as completion code. (Sequence to phase 4 will be performed in "Test Procedure Part 2", step 25 on page 8-19).

a. At the control panel, select **Service Mode = 1** and validate.

b. Select **Function = 0**, and validate.

An IPL to phase 4 is started and will last approximately five minutes. A successful completion will display code **FF4** at the control panel (*F2F* if no channel adapter). Refer to the *MIP* for any other code.

Step 17. ___ **Power OFF**

a. At the control panel, press the **Power OFF key.**

b. Switch **CB1 to OFF** at the primary power box, and unplug the 3745 power cable from the customer socket (or place the customer's branch circuit breaker that feeds the 3745 receptacle to **the OFF position,** with a warning label attached).

IF INSTALLING	**GO TO**
A 3745 base frame only	Chapter 6, “Installing Ground Brackets” on page 6-1.
A multiframe controller	Chapter 5, “Cabling the Expansion Units to the Base Frame” on page 5-1.

Chapter 5. Cabling the Expansion Units to the Base Frame

IF INSTALLING	GO TO
A 3746-A11	"3746-A11 Installation" on page 5-3.
A 3746-A12	"3746-A12 Installation" on page 5-11.
A 3746-L13	"3746-L13 Installation" on page 5-13.
A 3746-L14	"3746-L14 Installation" on page 5-16.
A 3746-L15	"3746-L15 Installation" on page 5-20.

WARNING: Ensure that the 3745 is powered OFF and CB1 is in the OFF position before proceeding.

Note: For the 3746-900 installation instructions refer to the *3746-900 Installation Guide*, SY33-2114.

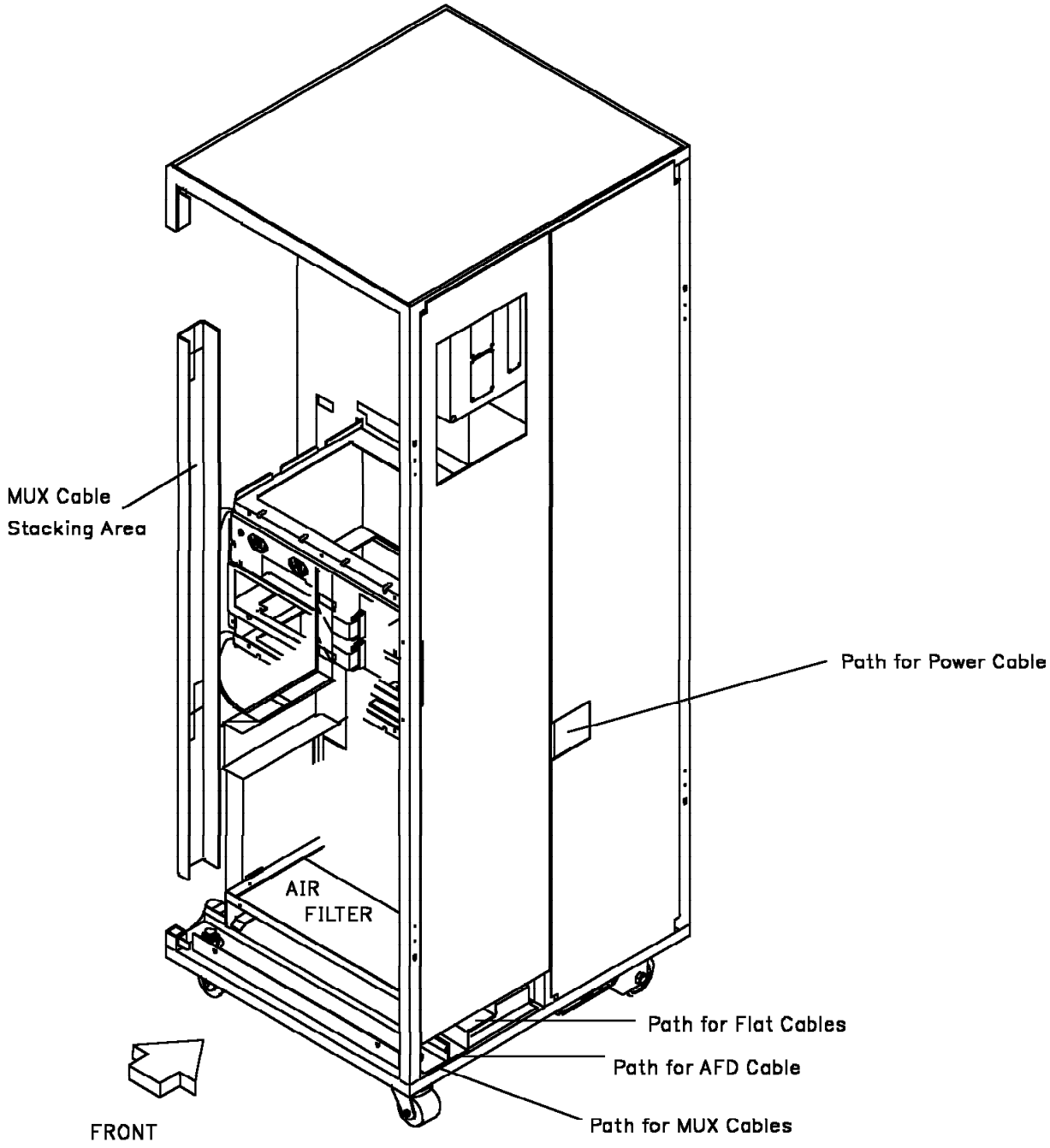


Figure 5-1. 3746-A11 Front View

3746-A11 Installation

The frame has been prepared and attached as indicated under “Assembling the 3746 and Controller Expansion Frames” on page 2-6.

- ____ See Figure 5-3 on page 5-5 and familiarize yourself with the table at the top of that page.
- ____ Flat cables are hanging on the left side of the unit.

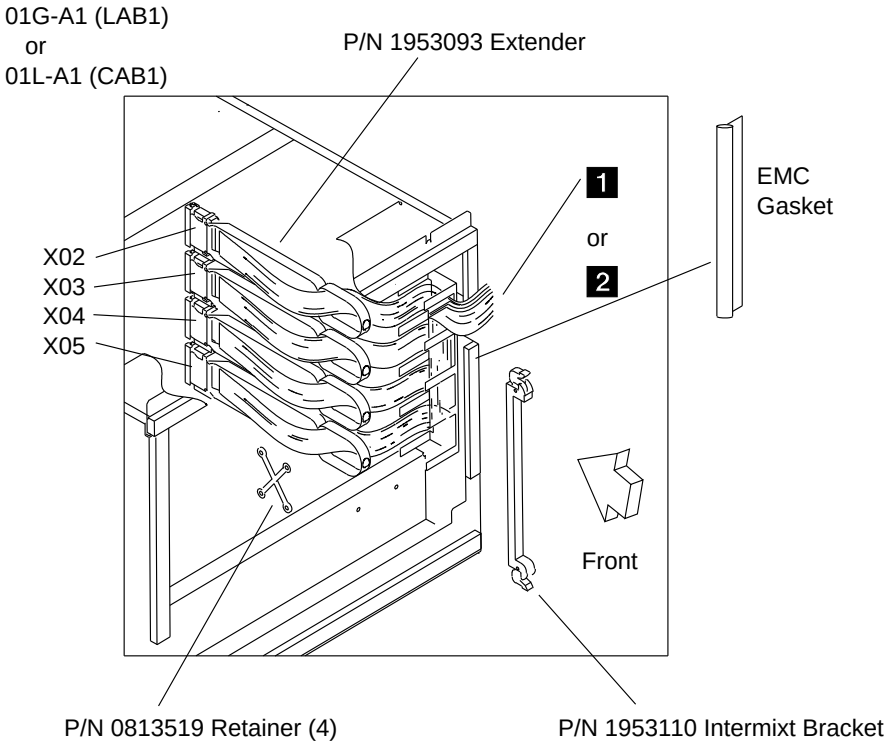


Figure 5-2. Line Adapter or Channel Adapter IOC Bus Routing in the 3745

Line Adapter IOC Bus Cabling

At the top rear of the 3746-A11, check if board 02F-A1 (LAB3) is present (see Figure D-4 on page D-4for location).

Step 1. ____ At the top front right of the 3745, locate the LAB1 board in 01G-A1 (see Figure D-1 on page D-2for location) and remove the upper cover. Using a screwdriver, pry off the EMC gasket from the right side of the board enclosure (see Figure 5-2).

Step 2. ____ Use the ESD kit, or the ESD mat fitted inside the door and remove cards and crossovers, if any, from the U and V positions on the board (these cards may be dummy cards). Put the removed cards in their protective bags, or place them on the ESD mat. Remove the terminator cards in 01G-A1W02, if any, and 01G-A1X02.

Step 3. ____ On the 3746-A11, open the upper cover on the front or the rear side. Refer to Figure D-3 or Figure D-4 on page D-4 for locations.

Step 4. ____ Remove the intermixt bracket (P/N 1953110) provided in 02F-A1X02 (or 02A-A1X02 if no 02F-A1 board). Install the terminator card removed from 01G-A1X02, into 02F-A1X02 (or 02A-A1X02 if no 02F-A1 board).

Step 5. ____ At the top front left of the 3746-A11, locate the four flat IOC cables **1** (see Figure 5-3 on page 5-5). Cables **1** are labeled: 01G-A1X02, 01G-A1X03, 01G-A1X04, and 01G-A1X05.

Step 6. ____ Unroll and route these cables into the 3745 to board 01G. Ignore the fold mark, if any, on the cable going to X02. Fold the cables going to X03, X04 and X05 according to fold marks on these cables. Clamp cables in raceways using retainers P/N 0813519 from the 3746-A11 shipping group. Plug cables **1** into their respective positions.

Step 7. ____ Secure the cable extenders using the intermixt bracket removed in step 4 on page 5-3. Re-install the EMC gasket previously removed.

Step 8. ____ Re-install in positions U and V the cards and any crossover removed in step 2 on page 5-3 (if needed, for crossover setting refer to the *MIP,* SY33-2054). Re-install in 01G-A1W02 the terminator card removed in step 2 on page 5-3.

Channel Adapter IOC Bus Cabling

If there is no CAB2 board at location 02E in the 3746-A11 (see Figure D-3 on page D-4), go to "Power Control Cabling" on page 5-6.

Step 1. ____ At the front right bottom of the 3745, locate the CAB1 board in 01L-A1 and remove the board cover. Using a screwdriver, pry off the EMC gasket from the right side of the board enclosure (see Figure 5-2 on page 5-3).

Step 2. ____ Using the ESD kit, or ESD mat, remove crossovers and cards from positions U, V, W in that board (these cards may be dummy cards). Put the removed cards in their protective bags, or place them on the ESD mat. Remove the terminator card from 01L A1X02.

Step 3. ____ At the front bottom of the 3746-A11 locate board 02E-A1 and open the board cover. (Refer to Figure D-3 on page D-4 for locations.)

Step 4. ____ Remove the intermixt bracket provided in 02E A1X02. Install the terminator card removed from 01L A1X02, into 02E A1X02. Close the board cover.

Step 5. ____ Referring to Figure 5-3 on page 5-5, in the 3746-A11 locate the four flat IOC cables **2** labeled: 01L A1X02, 01L A1X03, 01L A1X04, 01L A1X05.

Step 6. ____Route those cables **2** to the 3745 bottom, fold them appropriately, and plug them in their respective positions. Secure the cable extenders using the intermixt bracket removed in step 4 above, and clamp cables in raceways. Re-install the EMC gasket previously removed.

Step 7. ____ Re-install the cards removed in step 2, and any crossovers, in positions U and V (if needed, refer to the *IBM 3745 Maintenance Information Procedures,* SY33-2054, for crossover setting).

Channel Adapter Control Cabling

Step 1. ____ At the 3745 front, remove the housing covering the area below the control panel, and the internal covers on the right part of the unit. Remove the air filter at bottom right (see Figure 5-5 on page 5-8).

Step 2. ____ Locate the 3745 MOSS board in 01A. (See Figure 5-5 on page 5-8.)

Step 3. ____ Referring to Figure 5-3 on page 5-5, in the 3746-A11 locate the two flat cables, **A** labeled 01A-Y0E1, and **B** labeled 01A-Y0E2.

Step 4. ____ Referring to Figure 5-5 on page 5-8, route cables **A** and **B** to the 3745, and plug them in their respective position 01A-Y0E1 and 01A-Y0E2 on the MOSS board (remove if present the two dummy connectors). (See Figure 5-4 on page 5-7.)

Note: *When routing these cables, keep the guide lug towards the left end cover of the 3745. If needed, remove (and then re-plug) already connected cables in 01A Y0C1 and 01A Y0C2. Be very careful to plug all connectors correctly (the guide lug must fit in the socket notch).*

Symbol	Designation	From (in 3746-A11)	To (in 3745)
1	IOC Bus (LA)	02A-A1 (4 Flat Cables)	01G-A1X02/X03/X04/X05
2	IOC Bus (CA)	02E-A1 (4 Flat Cables)	01L-A1X02/X03/X04/X05
3	AC Distribution	02J-A0P1	01E-A1J10
4	DC Distribution	02J-A0P2	01E-A1J3
A B	CA Control Bus	02E-A1ZC 02E-A1ZD	01A-Y0E1 (Flat Cable) 01A-Y0E2 (Flat Cable)
C	Power Control Bus	02B-A0J8 or 02D-A0J7	01A-W0B5 (Flat Cable)
D E	Air Flow Detector	02C-A0J6 or 02C-A0J7 02H-A0J6 or 02H-A0J7	01A-W0C3 01A-W0A4

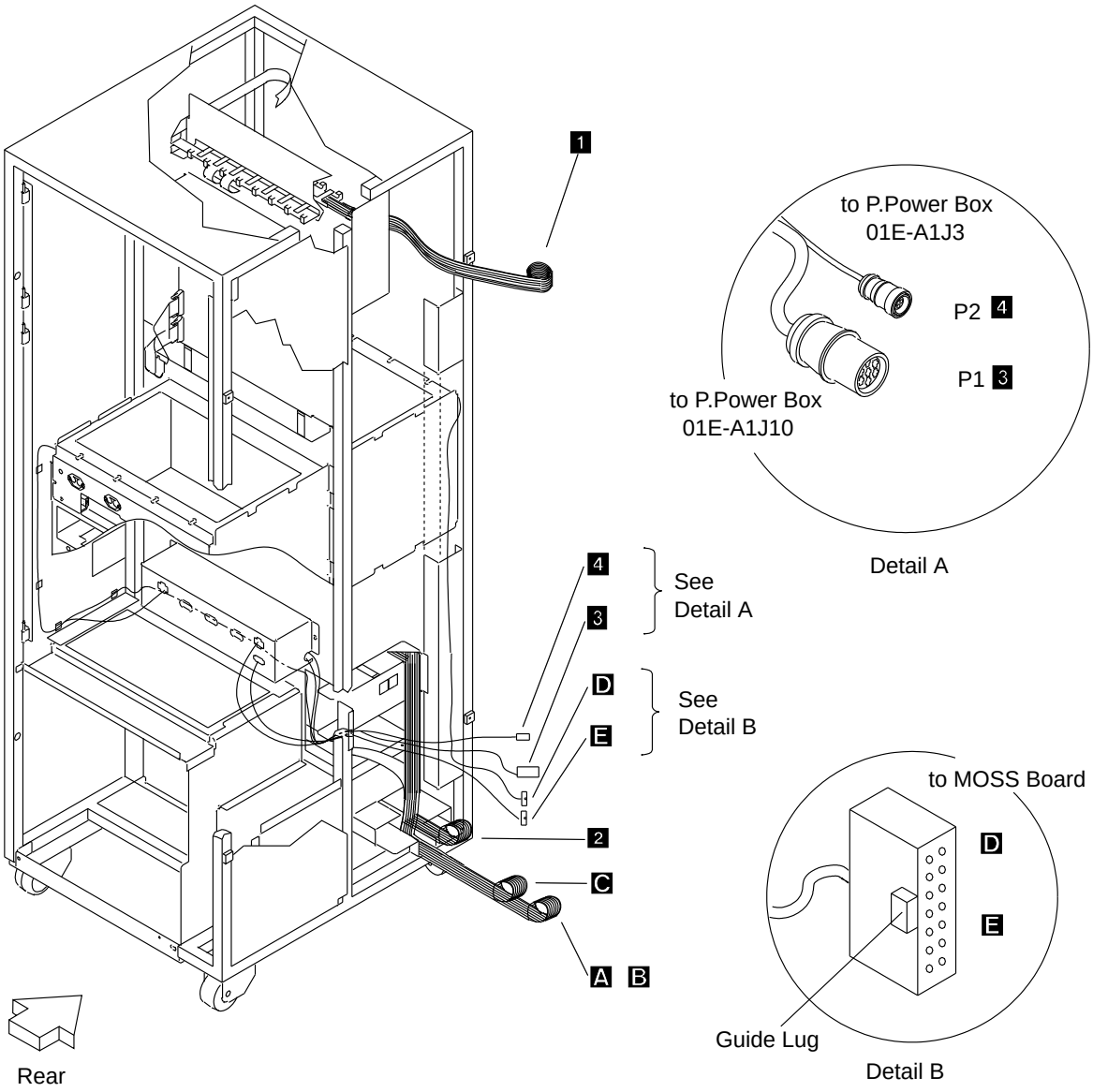


Figure 5-3. Cables from the 3746-A11 (Rear View)

Power Control Cabling

Step 1. ____ Referring to Figure 5-3 on page 5-5, locate the flat power control cable **C** labeled 01A-W0B5.

Step 2. ____ Route cable **C** to the middle bottom of the 3745, and up to the MOSS board in 01A. For cable path, see Figure 5-5 on page 5-8 and Figure 5-6 on page 5-9.

Step 3. ____ Plug cable **C** into connector at 01A W0B5 on the MOSS board. (See Figure 5-4 on page 5-7.)

Step 4. ____ Secure the cable in the raceways.

Power Cabling

Step 1. ____ Referring to Figure 5-3 on page 5-5, locate the AC **3** and DC **4** power cables at the auxiliary power box, and route them to the 3745 primary power box (see Figure 5-5 on page 5-8 for AC/DC cable path). Remove the plate P/N 03F7766 between the two halves of the base frame at the front center bottom.

Step 2. ____ Plug cable **3** into socket J10, and cable **4** into socket J3 at the primary power box (see Figure 5-5 on page 5-8, and detail of Figure 2-4 on page 2-4).

Air Flow Detection (AFD) Cabling

Step 1. ____ Referring to Figure 5-3 on page 5-5, locate cables **D** and **E** labeled 01A-W0C3 and 01A-W0A4.

Note: *Cable* **E** *is present only when board 02F-A1 (LAB3) is present.*

Step 2. ____ Route cables **D** and **E** through the 3745 to the MOSS board in 01A. For cable path, see Figure 5-5 on page 5-8, and Figure 5-6 on page 5-9.

Step 3. ____ Plug cable **D** to connector at 01A-W0C3, and cable **E** to connector at 01A-W0A4. (See Figure 5-4 on page 5-7.)

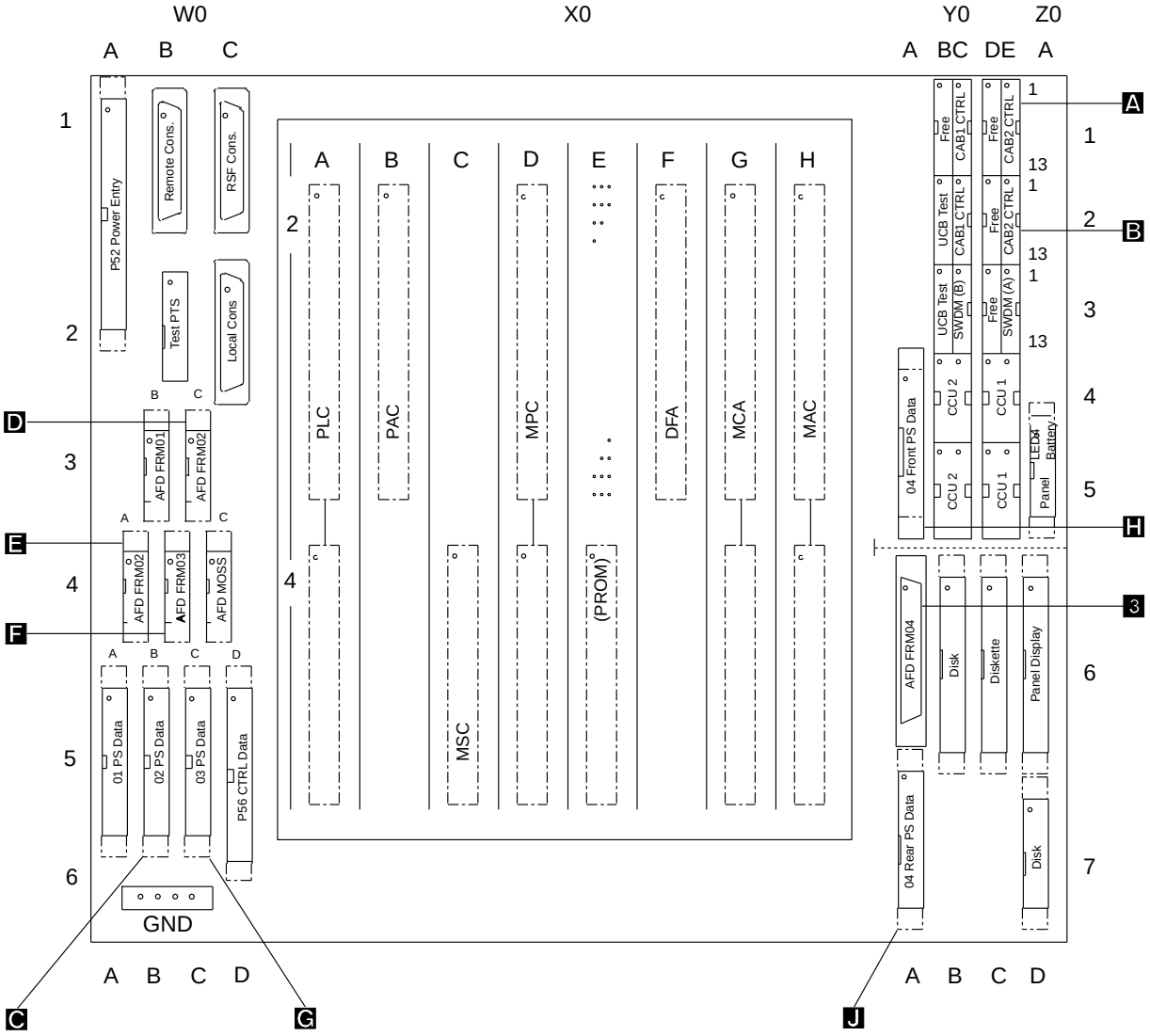
IF INSTALLING	GO TO
A 3746-A12	“3746-A12 Installation” on page 5-11.
A 3746-L13	“3746-L13 Installation” on page 5-13.
A 3746-L14	“3746-L14 Installation” on page 5-16.
A 3746-L15	“3746-L15 Installation” on page 5-20

If you have no other expansion unit to install, go to Chapter 6, “Installing Ground Brackets” on page 6-1.

MOSS Board Component Locations

To Be Defined

The MOSS board will be modified for the LAN connection. To be updated when available.



Note: The PROM card in location 01A-X0E4 and its crossover cable may not be present.

Figure 5-4. MOSS Board Component Locations

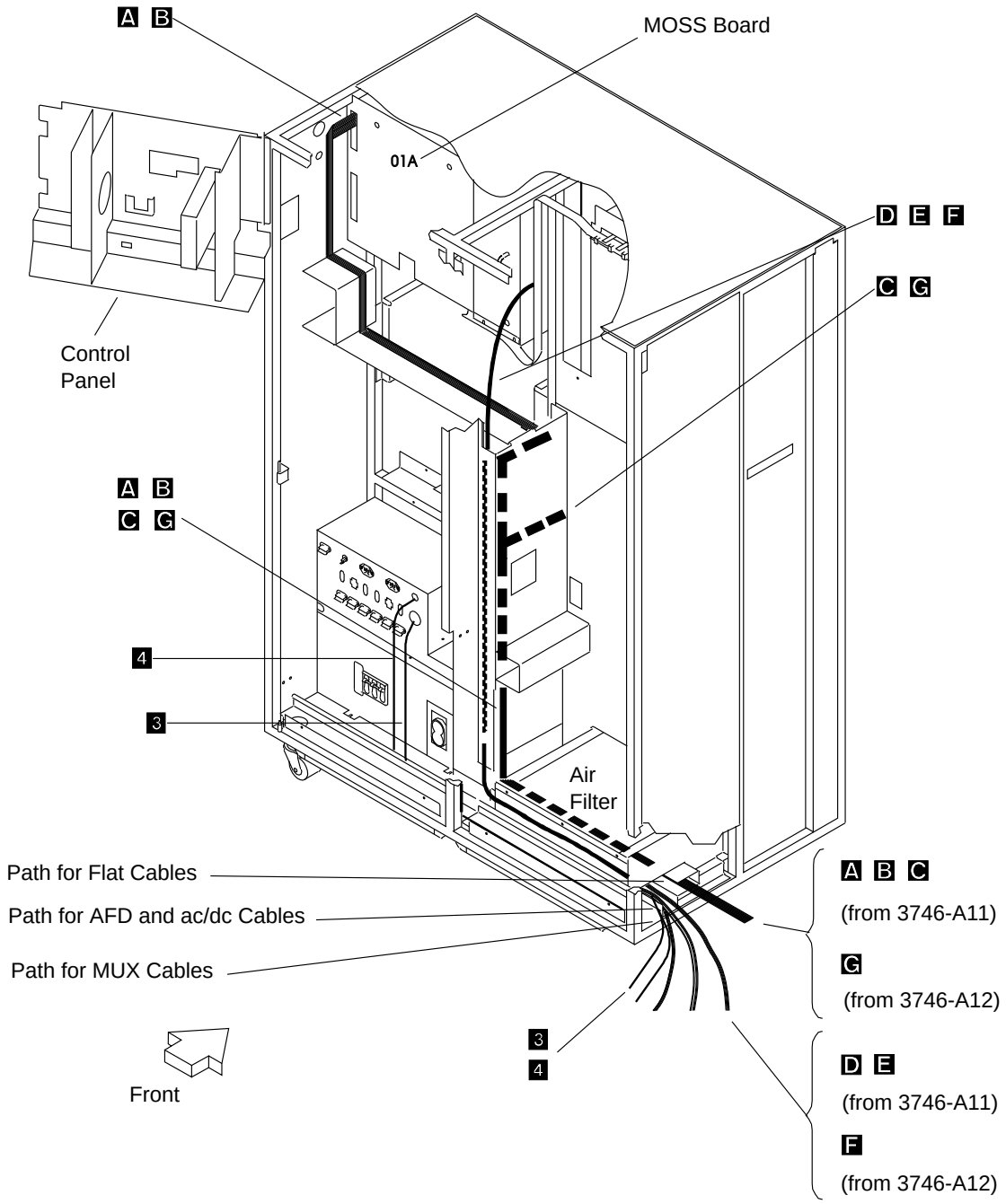


Figure 5-5. Cable Path from 3746-A Units to MOSS Board (3745 Front View)

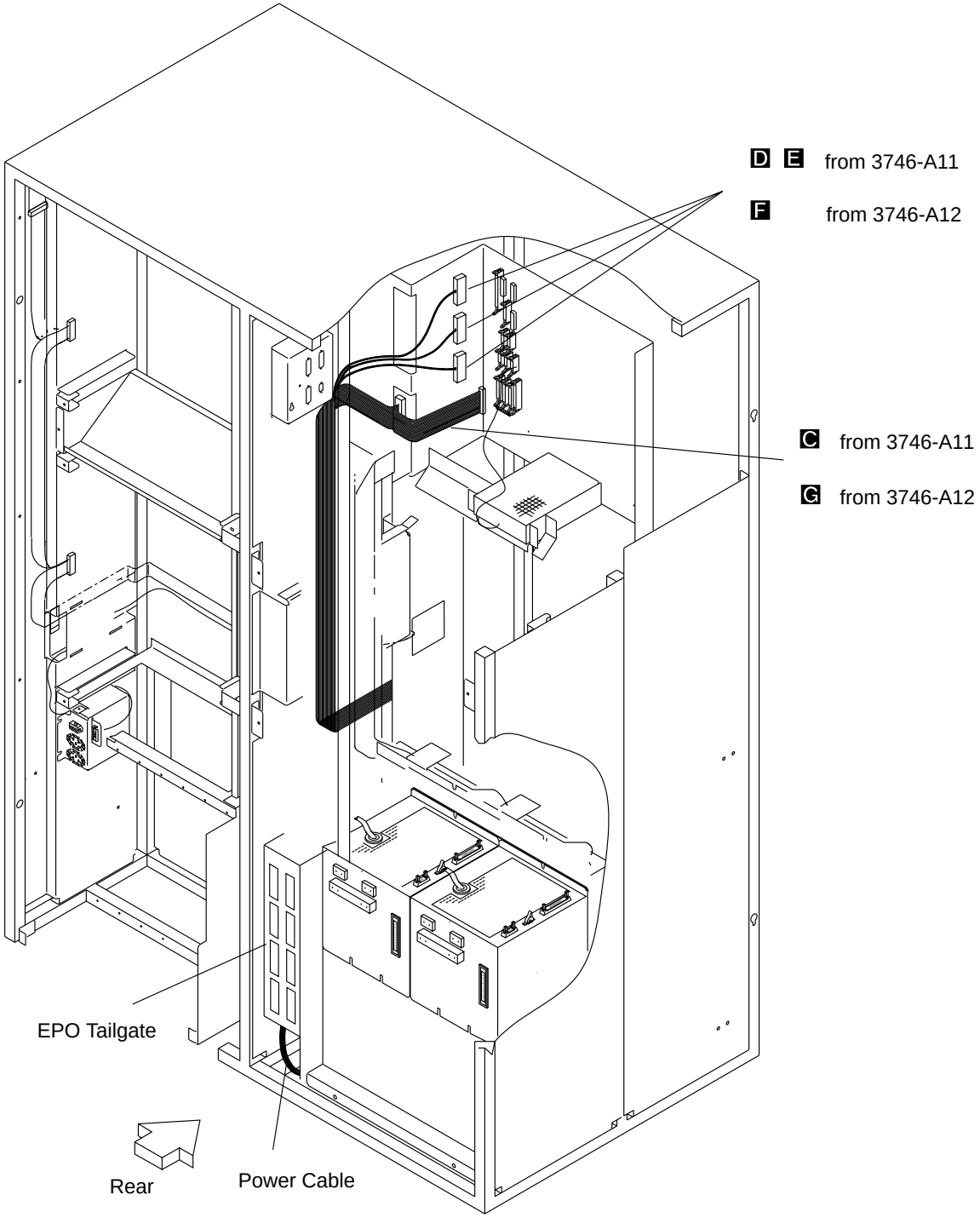


Figure 5-6. Cable Path from 3746-A Units to MOSS Board (3745 Rear View)

Symbol	Designation	From (in 3746-A12)	To (in 3746-A11 or 3745)
1	IOC Bus (LA)	03F-A1 (4 Flat Cables)	02F-A1X02/X03/X04/X05
2	Power Distribution	03J-A0P1	02J-A0 J1
F	Air Flow Detector	03H-A0J6 or 03H-A0J7	01A-W0B4
G	Power Control Bus	03G-A0J8	01A-W0C5 (Flat Cable)

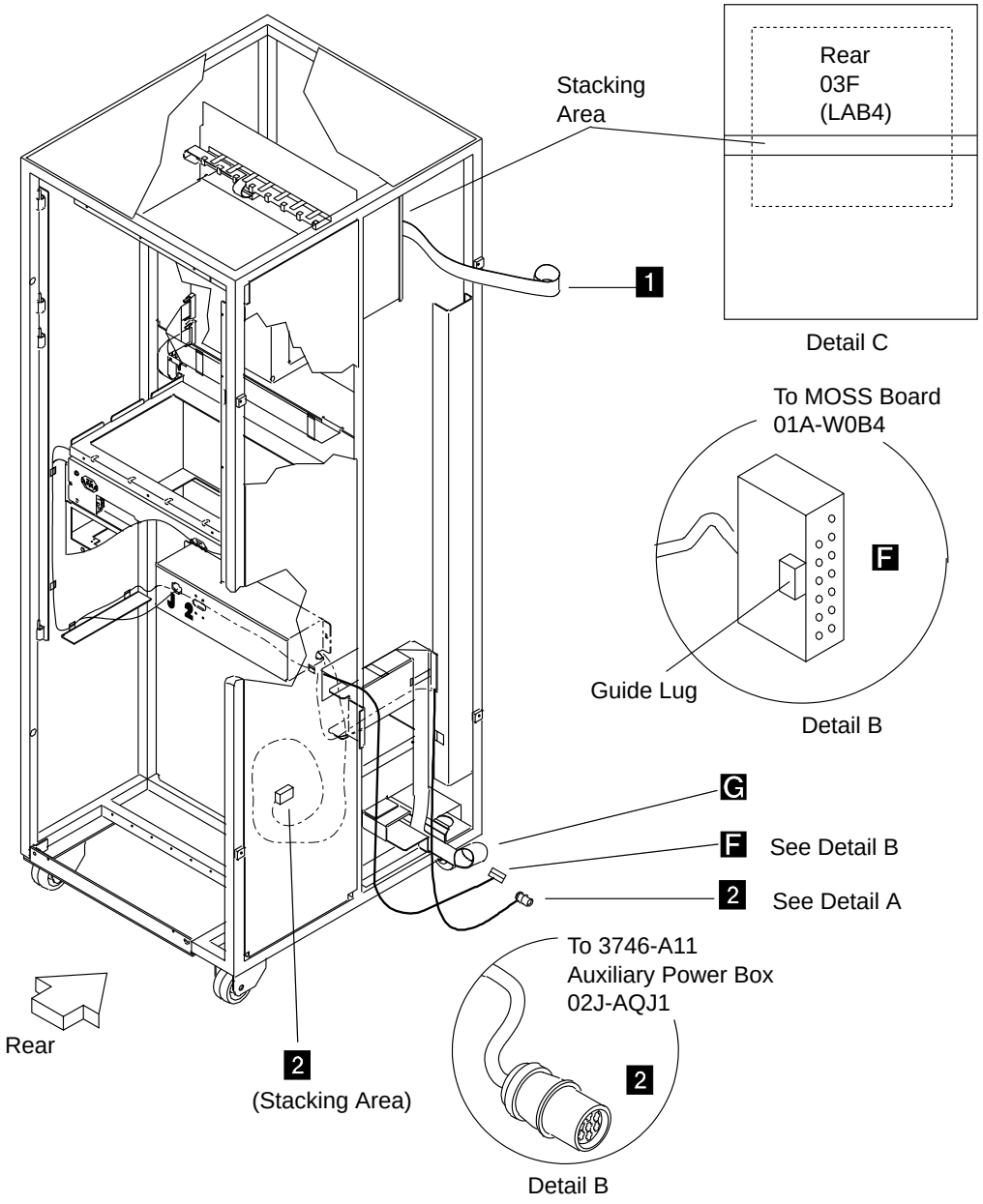


Figure 5-7. Cables from the 3746-A12 (Rear View)

3746-A12 Installation

The frame has been prepared and attached as indicated under “Assembling the 3746 and Controller Expansion Frames” on page 2-6.

- ____ If not already done, remove the right side plate **from the 3746-A11.** (Refer to Figure 6-3 on page 6-5.)
- ____ See Figure 5-7 on page 5-10 and familiarize yourself with the table at the top of the page.

Line Adapter IOC Bus Cabling

Step 1. ____ At the top rear of the 3746-A11, locate the LAB3 board in 02F-A1 and open the board cover. (See Figure D-4 on page D-4for location.)

Step 2. ____ Use the ESD kit (refer to the *MIP*, SY33-2054) and remove cards and crossovers, if any, from the U, V, W positions on board 02F-A1 (these cards may be dummy cards). Put the removed cards in their protective bags or on the ESD mat. Remove the terminator card from 02F-A1X02.

Step 3. ____ At the top rear of the 3746-A12, locate the LAB4 board in 03F-A1 and open the board cover. Remove the intermixt bracket provided in 03F-A1X02. Install the terminator card removed from 02F-A1X02 into 03F-A1X02.

Step 4. ____ At the top of the 3746-A12, locate the four flat IOC cables **1** . They are stacked at the location shown by detail C of Figure 5-7 on page 5-10. The cables are labeled: 02F-A1X02, 02F-A1X03, 02F-A1X04, and 02F-A1X05.

Step 5. ____ Unroll cables **1** and route them through the upper side window into the rear of the 3746-A11 unit. (Cables come across the bottom and in the right front of the 02F-A1 board.) Fold the cables according to the fold marks.

Step 6. ____ Plug cables **1** into their addresses. Secure the cable extenders using a intermixt bracket (P/N 1953110), and secure them in the raceway with cross retainers (P/N 0813519). (See Figure 5-8 below.)

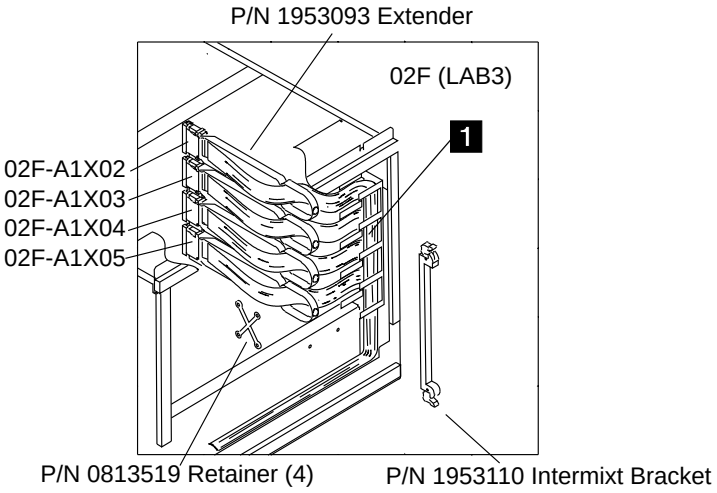


Figure 5-8. Line Adapter IOC Bus Cable Routing in the 3746-A11

Step 7. ____ Re-install the cards removed in step 2, and any crossovers, in positions U, V, W (if needed, refer to the *IBM 3745 Maintenance Information Procedures,* SY33-2054, for crossover setting). Re-install the board covers.

Power Control Cabling

Step 1. ____ Referring to Figure 5-7 on page 5-10, in the 3746-A12 locate the flat power control cable **G** labeled "from 03G-A0J8 to 01A-W0C5". Cable **G** is rolled and stacked under the air filter. Remove the covers of the cable path and the plate in the base frame to route the cables.

Step 2. ____ Unroll and route cable **G** through the 3746-A11 bottom to the middle of the 3745, and up to the MOSS board in 01A For cable path, see Figure 5-5 on page 5-8 and Figure 5-6 on page 5-9.

Step 3. ____ Plug cable **G** into connector at 01A-W0C5 on the MOSS board (see Figure 5-12 on page 5-15). Secure the cable in the raceways.

Air Flow Detection (AFD) Cabling

Step 1. ____ Referring to Figure 5-7 on page 5-10, in 3746-A12 locate the cable **F** labeled 01A W0B4.

Step 2. ____ Route cable **F** through the 3746-A11 and 3745 to the MOSS board. For cable path, see Figure 5-5 on page 5-8, and Figure 5-6 on page 5-9.

Step 3. ____ Plug **F** into connector at 01A W0B4. (See Figure 5-4 on page 5-7.)

Power Cabling

Step 1. ____ Referring to Figure 5-7 on page 5-10, in the 3746-A12 locate the power cable **2** stacking area. Cable **2** is labeled P1.

Step 2. ____ At the rear of the 3746-A12, unroll and route cable **2** through the lower side window into the 3746-A11 (see Figure 5-1 on page 5-2).

Step 3. ____ From the rear of the 3746-A11, plug cable **2** into socket J1 on the left side of the 3746-A11 auxiliary power box in 02J-A0 (see Figure 5-9 below).

LOCATION: 02J-A0

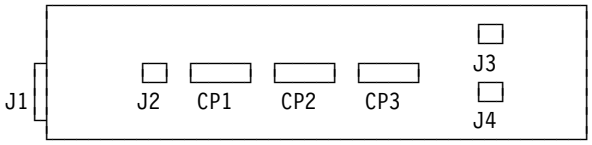


Figure 5-9. 3746-A11 Auxiliary Power Box (Rear View)

IF INSTALLING	GO TO
A 3746-L13	"3746-L13 Installation" on page 5-13.
A 3746-L14	"3746-L14 Installation" on page 5-16.
A 3746-L15	"3746-L15 Installation" on page 5-20.

If you have no other expansion unit to install, go to Chapter 6, "Installing Ground Brackets" on page 6-1.

3746-L13 Installation

The frame has been prepared and attached as indicated under “Assembling the 3746 and Controller Expansion Frames” on page 2-6.

- ____ On the front and rear of the 3746-L13, remove internal black covers on the left side of the LIC units and at the top of the machine (see Figure 6-5 on page 6-7 for locations).
- ____ See Figure 5-11 on page 5-14, and familiarize yourself with the table at the top of the page.

Power Cabling

Step 1. ____ Referring to Figure 5-11 on page 5-14, locate the AC power cable **1**, and the DC cable **2**.

Step 2. ____ Plug cable **1** to the large socket (J1) of the base frame at location 01Y-A0J1. Plug cable **2** into the small socket (J2) at location 01Y-A0J2 (see Figure 5-10 below).

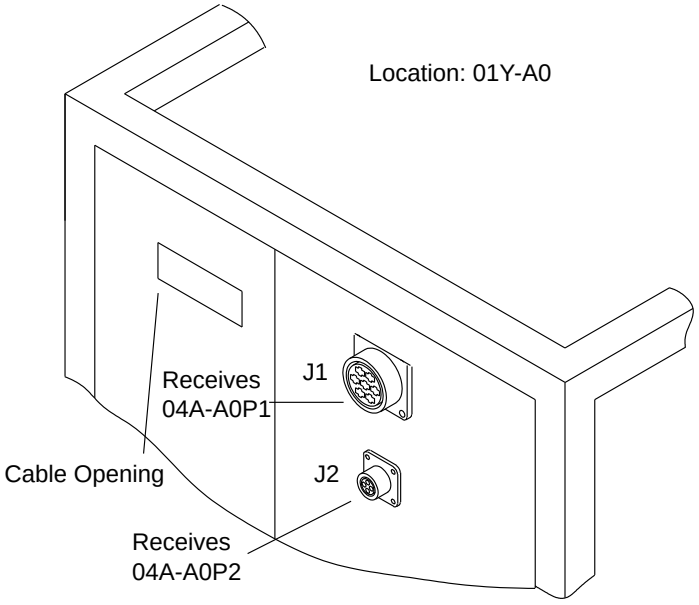


Figure 5-10. Power Sockets on the 3745

Power Control Cabling

Step 1. ____ Refer to Figure 5-11 on page 5-14. Locate the two flat cables **H**, labeled "01A-Y0A4", and **J**, labeled "01A-Y0A7". They are rolled and secured in the 3746-L13.

Step 2. ____ Route cables **H** and **J** to the MOSS board in the 3745.

Step 3. ____ Plug cable **H** to the connector at 01A-Y0A4 on the MOSS board, and cable **J** to the connector at 01A-Y0A7 (see Figure 5-12 on page 5-15).

Step 4. ____ Secure the cables and clamp the remaining lengths in the 3746-L13.

Symbol	Designation	From (in 3746-L13)	To (in 3745)
1	AC Distribution	04A-A0P1	01Y-A0J1
2	DC Distribution	04A-A0P2	01Y-A0J2
3	Air Flow Detector	04A-A0P3	01A-Y0A6
H	Power Control Bus (Front)	04H-A0/04D-A1J2/04B-A1J2	01A-Y0A4 (Flat Cable)
J	Power Control Bus (Rear)	04J-A0/04G-A1J2/04E-A1J2	01A-Y0A7 (Flat Cable)

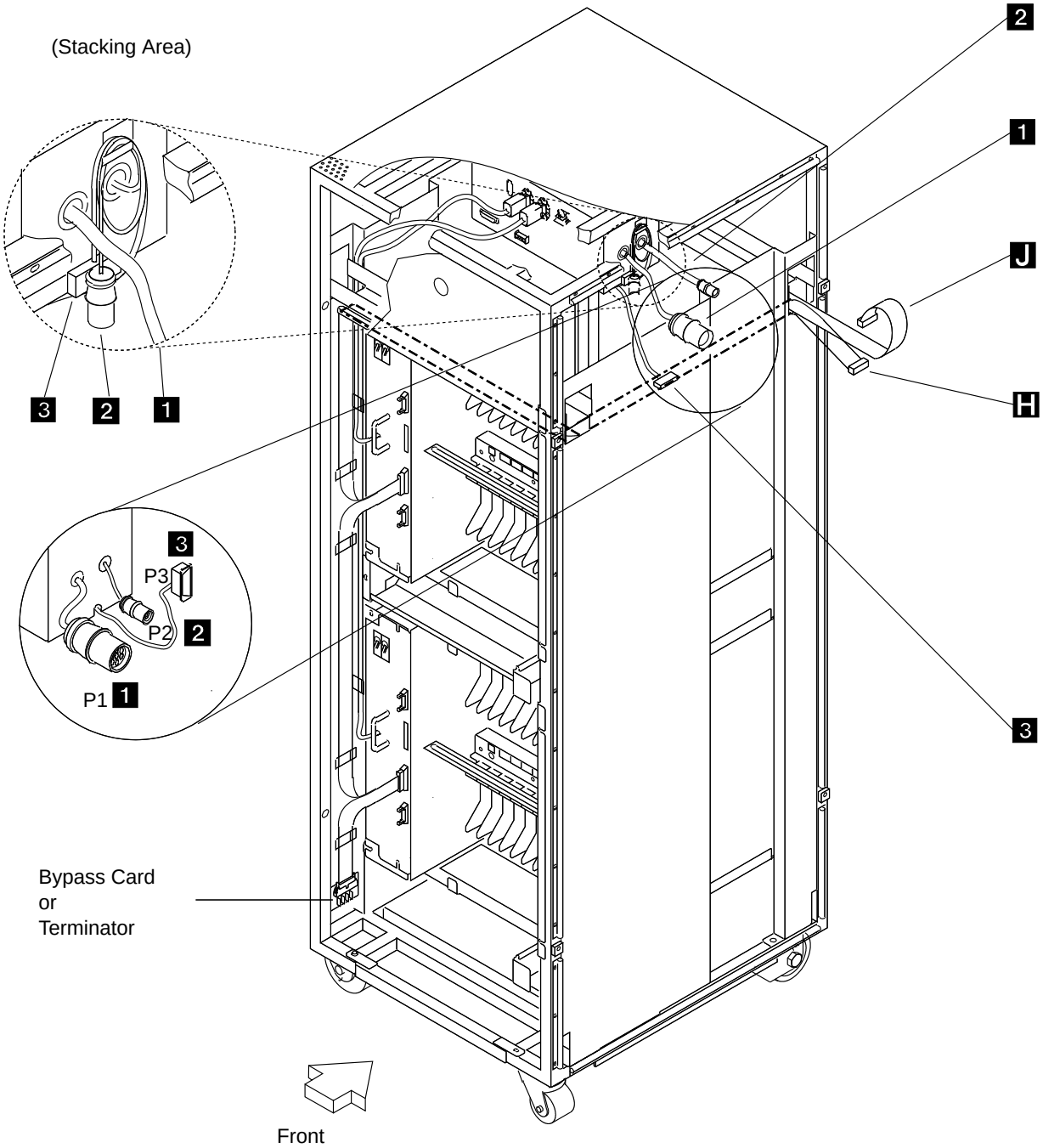
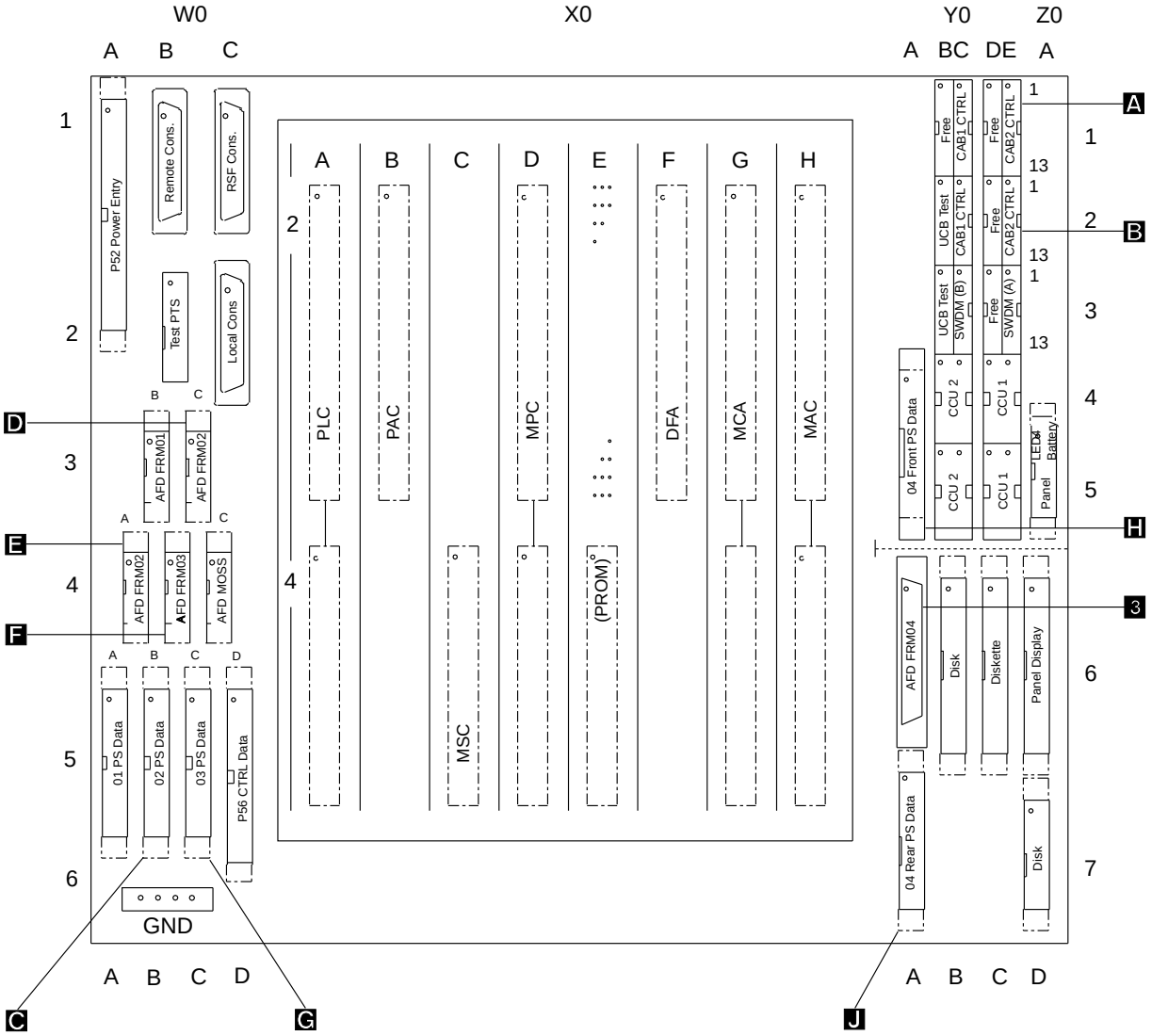


Figure 5-11. Cables from the 3746-L13 (Front View)

Air Flow Detection (AFD) Cabling

Step 1. ____ Referring to Figure 5-11 on page 5-14, in 3746-L13 locate the cable **3** labeled P3.

Step 2. ____ Route cable **3** through the cable opening (see Figure 5-10 on page 5-13) and to the MOSS board at the 3745 rear. Plug it to connector at 01A-Y0A6 (see Figure 5-12).



Note: The PROM card in location 01A-X0E4 and its crossover cable may not be present.

Figure 5-12. MOSS Board Component Locations

IF INSTALLING	GO TO
A 3746-L14	"3746-L14 Installation" on page 5-16.
A 3746-L15	"3746-L15 Installation" on page 5-20.

If you have no other expansion unit to install, go to Chapter 6, "Installing Ground Brackets" on page 6-1.

3746-L14 Installation

The frame has been prepared and attached as indicated under “Assembling the 3746 and Controller Expansion Frames” on page 2-6.

- ____ At the front and rear of the 3746-L14, remove the internal black covers on the left side of the LIC units and at the top of the machine (see Figure 6-5 on page 6-7 for locations).
- ____ See Figure 5-15 on page 5-17, and familiarize yourself with the table at the top of the page.

Power Cabling

Step 1. ____ Referring to Figure 5-15 on page 5-17, locate the AC power cable **1**, and the DC cable **2**.

Step 2. ____ Plug cable **1** to the large socket (J1) of the adjacent frame at location 04A-A0J1. Plug cable **2** to the small socket (J2) at location 04A-A0J2 (see Figure 5-13 hereafter).

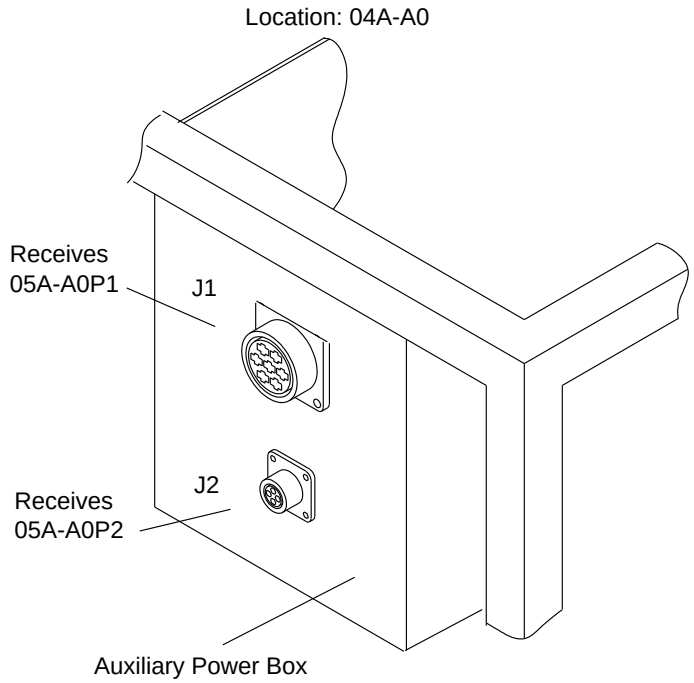


Figure 5-13. Power Sockets on the 3746-L13

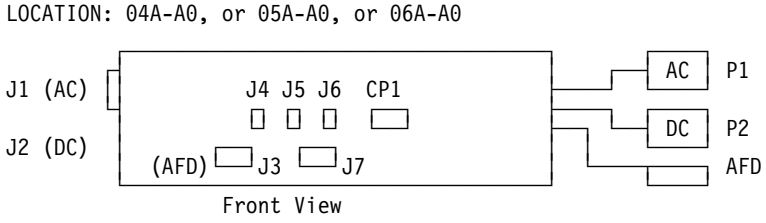


Figure 5-14. 3746-L Auxiliary Power Box (Front View)

Symbol	Designation	From (in 3746-L14)	To (in 3746-L13)
1	AC Distribution	05A-A0P1	04A-A0J1
2	DC Distribution	05A-A0P2	04A-A0J2
3	Air Flow Detector	05A-A0P3	04A-A0J3
K	Power Control Bus (Front)	05H-A0/05D-A1J2/05B-A1J2	04H-A0 (Flat Cable)
L	Power Control Bus (Rear)	05J-A0/05G-A1J2/05E-A1J2	04J-A0 (Flat Cable)

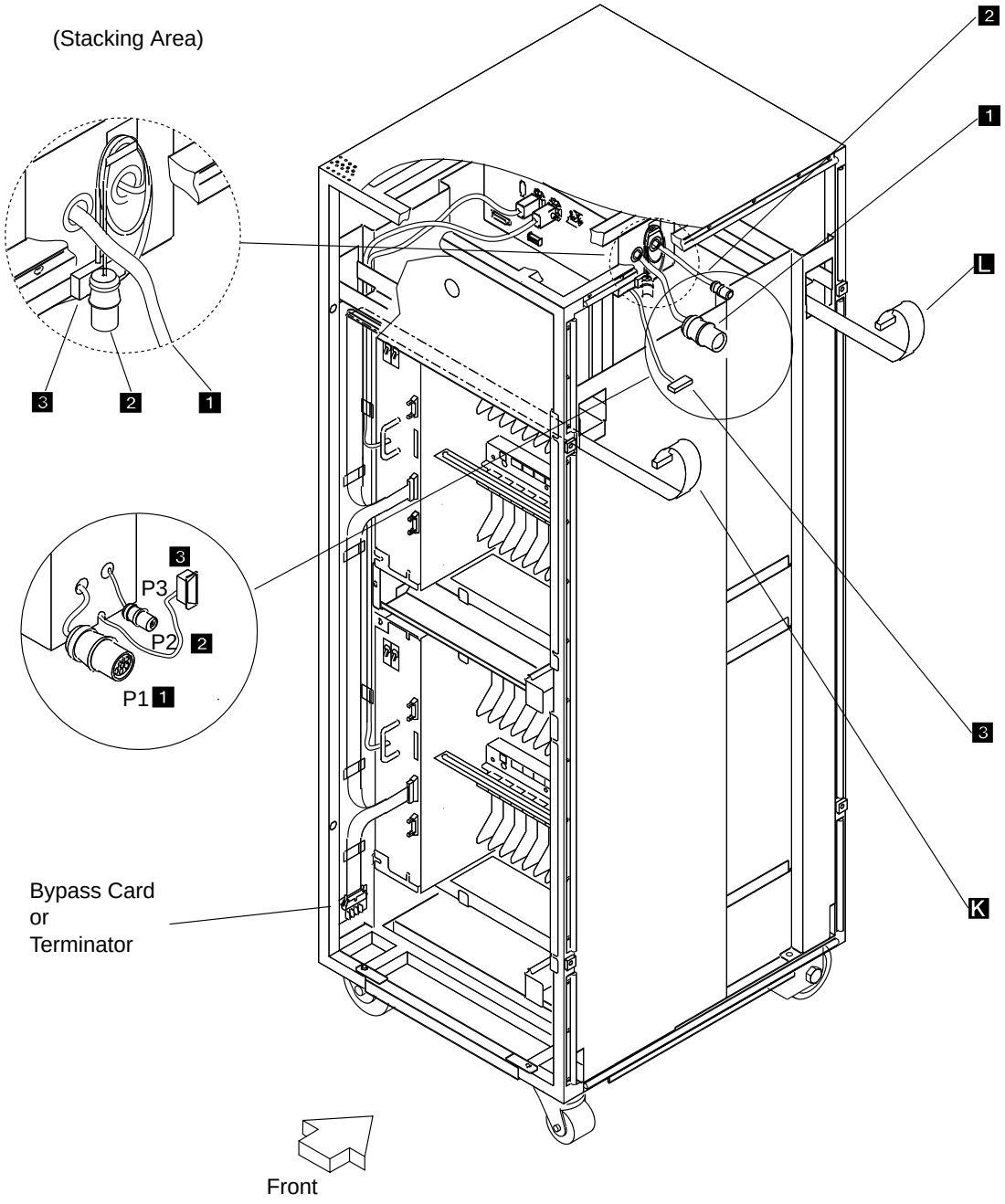


Figure 5-15. Cables from the 3746-L14 (Front View)

Power Control Cabling

Note: *Terminator cards must be installed on the power control buses in the left-most 3746-L unit front and rear.*

Step 1. **Swap the front terminator and bypass cards:**

a. ____ At the 3746-L13 front, unplug the flat cable from the terminator card at 04H-A0 (see Figure D-6 on page D-6 for location), and remove the card (2 screws).

b. Perform the following appropriate actions:

- ____ **If there is no 3746-L15 to install**, at the 3746-L14 front unplug the flat cable from the bypass card at 05H-A0 (see Figure D-8 on page D-7), and remove the card (2 screws).
- ____ **If there is a 3746-L15 to install**, at the 3746-L15 front unplug the flat cable from the bypass card in 06H-A0 (see Figure D-10 on page D-8), and remove the card (2 screws).

c. ____ Swap the terminator and bypass cards, and re-plug the cables. Fasten the terminator with two screws. Do not fasten the bypass card now.

d. ____ Referring to Figure 5-15 on page 5-17, in the 3746-L14 locate the front flat cable **K**, labeled 04H-A0. Route cable **K** to the front of the adjacent 3746-L13, and plug it to the lower side of the bypass card now at 04H-A0.

Note: *Cable* **K** *must be plugged to the bypass card first, and then routed, in order to avoid cable twisting near the card.*

e. ____ Open the clamps fastening the flat cables to the left side of the 3746-L13 front. Route cable **K** under those cables and the bypass card. Fasten the bypass card with two screws, and secure the clamps.

Step 2. **Swap the rear terminator and bypass cards:**

a. ____ At the 3746-L13 rear, unplug the flat cable from the terminator card at 04J-A0 (see Figure D-7 on page D-6 for location), and remove the card (2 screws).

b. Perform the following appropriate action:

- ____ **If there is no 3746-L15 to install**, at the 3746-L14 rear unplug the flat cable from the bypass card at 05J-A0 (see Figure D-9 on page D-7), and remove the card (2 screws).
- ____ **If there is a 3746-L15 to install**, at the 3746-L15 rear unplug the flat cable from the bypass card in 06J-A0 (see Figure D-11 on page D-8), and remove the card (2 screws).

c. ____ Swap the terminator and bypass cards, and re-plug the cables. Fasten the terminator with two screws. Do not fasten the bypass card now.

d. ____ Referring to Figure 5-15 on page 5-17, in the 3746-L14 locate the rear flat cable **L**, labeled 04J-A0. Route cable **L** to the rear of the adjacent 3746-L13, and plug it to the lower side of the bypass card now at 04J-A0.

Note: *Cable* **L** *must be plugged to the bypass card first, and then routed, in order to avoid cable twisting near the card.*

e. ____ Open the clamps fastening the flat cables to the left side of the 3746-L13 rear. Route cable **L** under those cables and the bypass card. Fasten the bypass card with two screws, and secure the clamps.

Air Flow Detection (AFD) Cabling

Step 1. ____ Referring to Figure 5-15 on page 5-17, in 3746-L14 locate the cable **3** labeled P3.

Step 2. ____ Route cable **3** to the front of the 3746-L13 auxiliary power box, and plug it to connector at 04A-A0J3 (see Figure 5-16).

LOCATION: 04A-A0, or 05A-A0, or 06A-A0

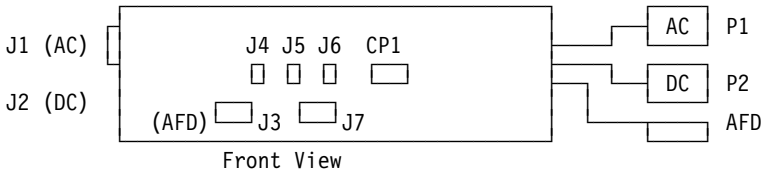


Figure 5-16. 3746-L Auxiliary Power Box (Front View)

IF INSTALLING	GO TO
A 3746-L15	"3746-L15 Installation" on page 5-20.

If you have no other expansion unit to install, go to Chapter 6, "Installing Ground Brackets" on page 6-1.

3746-L15 Installation

The frame has been prepared and attached as indicated under “Assembling the 3746 and Controller Expansion Frames” on page 2-6.

- ____ At the front and rear of the 3746-L15, remove internal black covers on the left side of the LIC units and at the top of the machine (see Figure 6-5 on page 6-7 for locations).
- ____ See Figure 5-18 on page 5-21, and familiarize yourself with the table at the top of the page.

Power Cabling

Step 1. ____ Referring to Figure 5-18 on page 5-21, locate the AC power cable **1** , and the DC cable **2** .

Step 2. ____ Plug cable **1** to the large socket (J1) of the adjacent frame at location 05A-A0J1. Plug cable **2** to the small socket (J2) at location 05A-A0J2. See Figure 5-17.

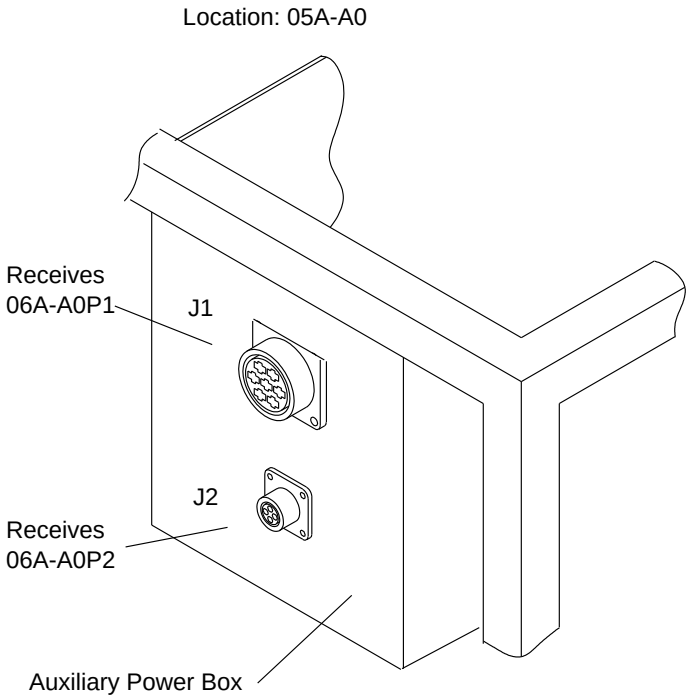


Figure 5-17. Power Sockets on the 3746-L14

Symbol	Designation	From (in 3746-L15)	To (in 3746-L14)
1	AC Distribution	06A-A0P1	05A-A0J1
2	DC Distribution	06A-A0P2	05A-A0J2
3	Air Flow Detector	06A-A0P3	05A-A0J3
M	Power Control Bus (Front)	06H-A0/06D-A1J2/06B-A1J2	05H-A0 (flat cable)
N	Power Control Bus (Rear)	06J-A0/06G-A1J2/06E-A1J2	05J-A0 (flat cable)

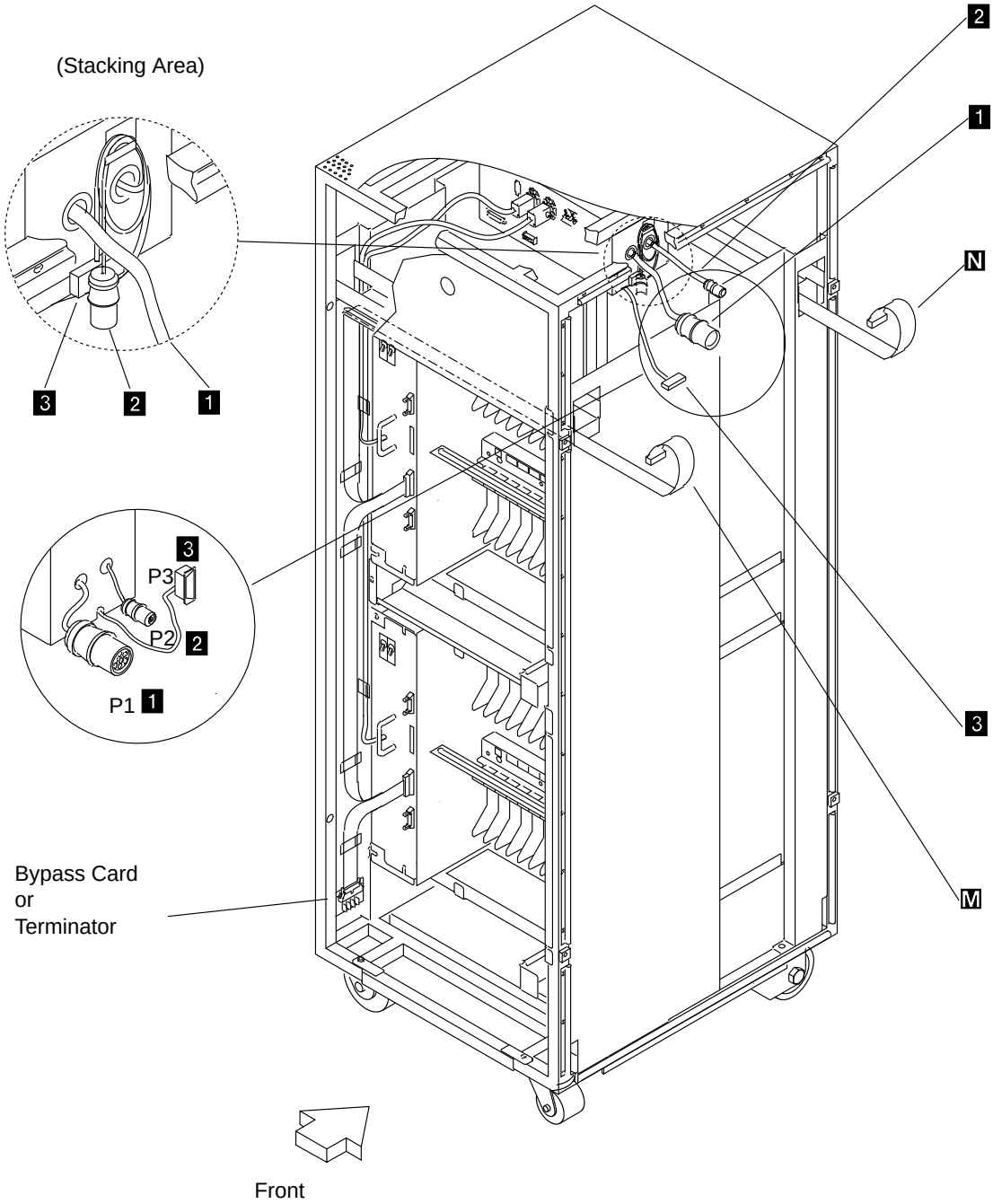


Figure 5-18. Cables from the 3746-L15 (Front View)

Power Control Cabling

Note: *Terminator cards must be installed on the power control buses in the 3746-L15 front and rear.*

Step 1. If not already done, **move the front terminator card to the 3746-L15**:

a. ____ At the 3746-L14 front, unplug the flat cable from the terminator card at 05H-A0 (see Figure D-8 on page D-7 for location), and remove the card (2 screws).

b. ____ At the 3746-L15 front, unplug the flat cable from the bypass card at 06H-A0 (see Figure D-10 on page D-8), and remove the card (2 screws).

c. ____ Swap the terminator and bypass cards, and re-plug the cables. Fasten the terminator on the 3746-L15 with two screws. Do not fasten the bypass card on the 3746-L14 now.

d. ____ Referring to Figure 5-18 on page 5-21, in 3746-L15 locate the front cable **M**,labeled 05H-A0. Route cable **M** to the front of the adjacent 3746-L14, and plug it to the lower side of the bypass card at 05H-A0.

Note: *Cable* **M** *must be plugged to the bypass card first, and then routed, in order to avoid cable twisting near the card.*

e. ____ Open the clamps fastening the flat cables to the left side of the 3746-L14 front. Route cable **M** under those cables and the bypass card. Fasten the bypass card with two screws, and secure the clamps.

Step 2. If not already done, **move the rear terminator card to the 3746-L15**:

a. ____ At the 3746-L14 rear, unplug the flat cable from the terminator card at 05J-A0 (see Figure D-9 on page D-7 for location), and remove the card (2 screws).

b. ____ At the 3746-L15 rear, unplug the flat cable from the bypass card in 06J-A0 (see Figure D-11 on page D-8), and remove the card (2 screws).

c. ____ Swap the terminator and bypass cards, and re-plug the cables. Fasten the terminator on the 3746-L15 with two screws. Do not fasten the bypass card on the 3746-L14 now.

d. ____ Referring to Figure 5-18 on page 5-21, in the 3746-L15 locate the rear flat cable **N**,labeled 05J-A0. Route cable **N** to the rear of the adjacent 3746-L14, and plug it to the lower side of the bypass card at 05J-A0.

Note: *Cable* **N** *must be plugged to the bypass card first, and then routed, in order to avoid cable twisting near the card.*

e. ____ Open the clamps fastening the flat cables to the left side of the 3746-L14 rear. Route cable **N** under those cables and the bypass card (unfasten the card if not already done). Re-install the bypass card with two screws, and secure the clamps.

Air Flow Detection (AFD) Cabling

Step 1. ____ Referring to Figure 5-18 on page 5-21, in 3746-L15 locate cable **3**.

Step 2. ____ Route cable **3** to the front of the 3746-L14 auxiliary power box, and plug it to connector at 05A-A0J3 (see Figure 5-16 on page 5-19).

Go to Chapter 6, "Installing Ground Brackets" on page 6-1.

Chapter 6. Installing Ground Brackets

This procedure may be performed later on, while the offline diagnostics are running. If you do not have sufficient time/resources to do it now, go to Chapter 7, "Modem and MUX Cable Setup" on page 7-1.

Note: When installing a 3746-900 refer to the appropriate chapter in the *3746-900 Installation Guide*, SY33-2114.

Note: These ground brackets serve to reduce the possibility of radio frequency interferences that might be caused by the operating machine. A proper installation of the ground brackets is necessary to meet FCC requirements, and to conduct electrostatic discharges to ground.

Perform the appropriate following steps:

Step 1. **Any configuration:**

a. ____ Refer to Figure 6-1 on page 6-3 and Figure 6-2 on page 6-4, and read the text at the top of the pages.

b. ____ Install the front and rear ground plates **A**, **B**, and **D** on the 3745 base frame.

Note: *Install now the rear ground bracket* **C** *or* **L** *on the 3745 only if no CA is installed in the CAB1 board.*

Before securing the ground plate screws, push down on the plates to give them maximum contact with the floor.

If any 3746 expansion unit(s) is being installed, go to step 3 and/or step 4 on page 6-2.

Step 2. **If installing only a 3745 base frame:**

a. ____ Refer to Figure 6-1 on page 6-3 and Figure 6-2 on page 6-4, and fasten the right and left end brackets **H** on the 3745.

b. ____ Re-install the previously removed end covers on the right and left sides.

Continue with Chapter 7, "Modem and MUX Cable Setup" on page 7-1; or return to step 6 on page 8-4 if you installed the ground brackets during the diagnostic run.

Step 3. **If installing a 3746-A11 or 3746-A12:**

a. ____ Refer to Figure 6-3 on page 6-5 and Figure 6-4 on page 6-6, and read the text at the top of the pages.

b. ____ Install the front ground plate(s) **E** and rear bracket(s) **C** on any 3746-A.

Note: *Install now the rear ground bracket* **C** *on the 3746-A11 only if no CA is installed in the CAB2 board.*

Before securing the ground plate screws, push down on the plate to give it maximum contact with the floor.

c. ____ Install bracket **H** on the rightmost 3746-A.

d. ____ Install the right end cover previously removed from the 3745 on the rightmost 3746-A.

If no 3746-L is installed, go to Chapter 7, "Modem and MUX Cable Setup" on page 7-1, or return to step 6 on page 8-4 if you installed the ground brackets during the diagnostic run.

Step 4. **If installing a 3746-L13/L14/L15:**

a. ____ Refer to Figure 6-5 on page 6-7 and Figure 6-6 on page 6-8, and read the text at the top of the pages.

b. ____ Install the front bracket(s) **G** and rear bracket(s) **F** on any 3746-L.

c. ____ Refer to Figure 6-8 on page 6-10, and read the text at the top of the page.

d. ____ Fix ground plate **K** to bracket **H**.

e. ____ Install the **H** and **K** assembly on the end (leftmost) 3746-L. Before securing the screws, push down on the plate to give it maximum contact with the floor.

f. ____ Install the left end cover previously removed from the 3745, on the leftmost 3746-L.

If no controller expansion is installed, go to Chapter 7, "Modem and MUX Cable Setup" on page 7-1, or return to step 6 on page 8-4 if you installed the ground brackets during the diagnostic run.

Step 5. **If installing a Controller Expansion:**

The controller expansion can be installed:

- **Attached** to the 3745/46, go to 5a
- **Detached** from the 3745/46, go to 5b

a. Installing the Controller Expansion **attached** to the 3745/46 frame

1) ____ Refer to Figure 6-9 on page 6-11 and remove the right cover from the 3745 or 3746 frame, and install this cover on the right side of the controller expansion

2) ____ Using four screws (PN 1621534) and four spacers (PN 72F0659) attach the controller expansion to the 3746-900.

3) ____ Connect the ground wire (PN 58G5691) **A** between the controller expansion frame using one screw (PN 61F4513) **B** and one washer (PN 1622347) and the building ground.

b. Installing the Controller Expansion **detached** from the 3745/46 frame

1) ____ Refer to Figure 6-10 on page 6-12 and install the controller expansion in its final position

2) ____ Connect the ground wire (PN 58G5691) **A** between the controller expansion frame and the building ground using one screw (PN 61F4513) **B** and one washer (PN 1622347).

Continue with Chapter 7, "Modem and MUX Cable Setup" on page 7-1, or return to step 6 on page 8-4 if you installed the ground brackets during the diagnostic run.

To install:

1. Fasten front bracket **A** (P/N 65X8882) to the frame, using screws (P/N 2665527).
2. Fasten front bracket **B** (P/N 65X8884) to the frame, using screws (P/N 2665527).
3. If applicable, fasten end bracket **H** (P/N 65X8885) to the frame, using screws (P/N 2665527), and install the right end cover.

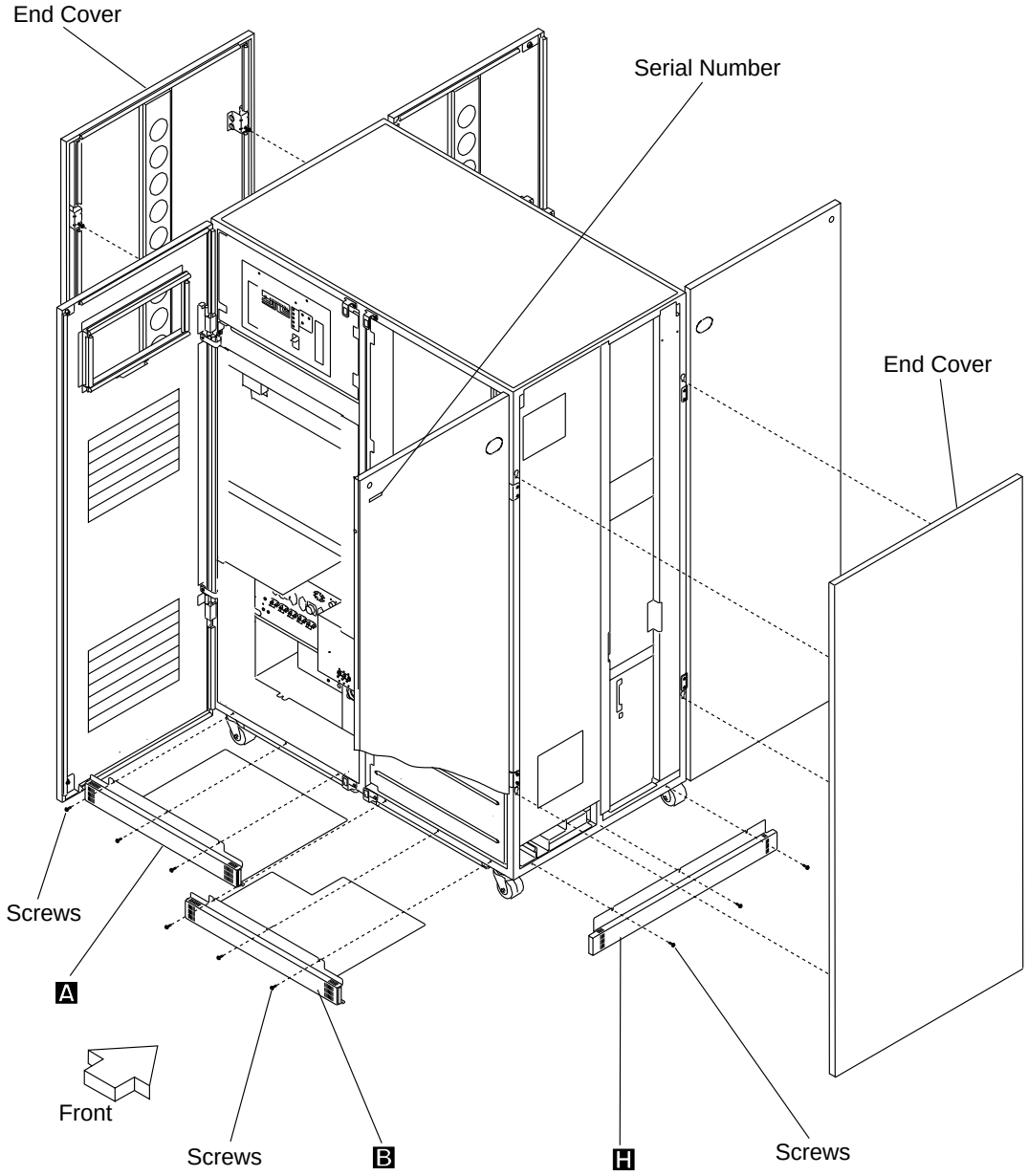


Figure 6-1. Ground Brackets on the 3745 (Front View)

To install:

1. Fasten rear bracket **C** (P/N 03F4390) to the frame, using wing screws (P/N 6398833). *(For a link-attached-only 3745 being installed on a non-raised floor, use bracket* **L** *, P/N 03F7786.)*
2. Fasten rear bracket **D** (P/N 65X8883) to the frame, using screws (P/N 2665527).
3. If applicable, fasten end bracket **H** (P/N 65X8885) to the frame, using screws (P/N 2665527), and install the left end cover.

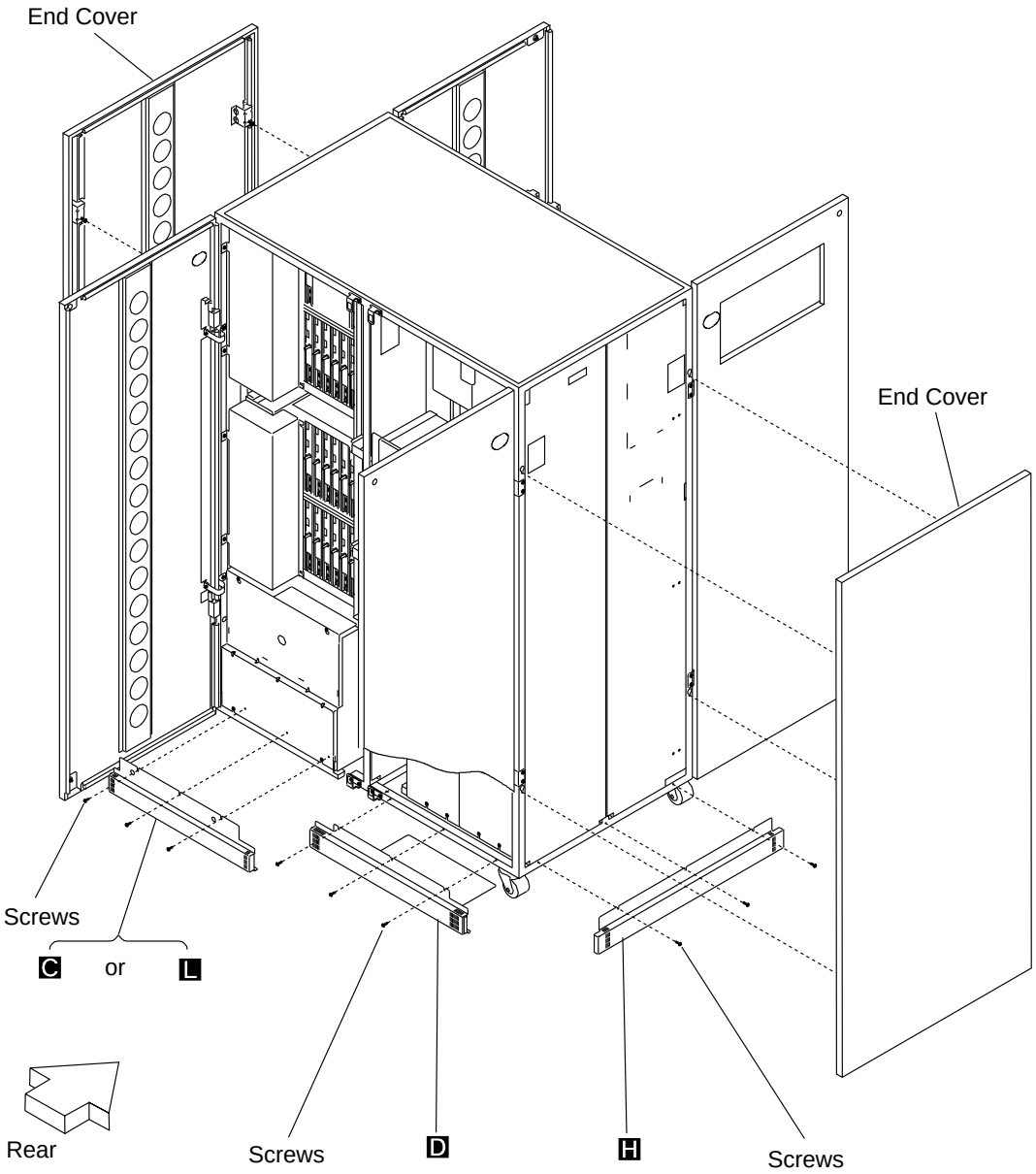


Figure 6-2. Ground Brackets on the 3745 (Rear View)

To install:

1. Fasten front bracket **E** (P/N 65X8886) to the frame, using screws (P/N 2665527).
2. If applicable, fasten end bracket **H** (P/N 65X8885) to the frame, using screws (P/N 2665527), and install the right end cover.

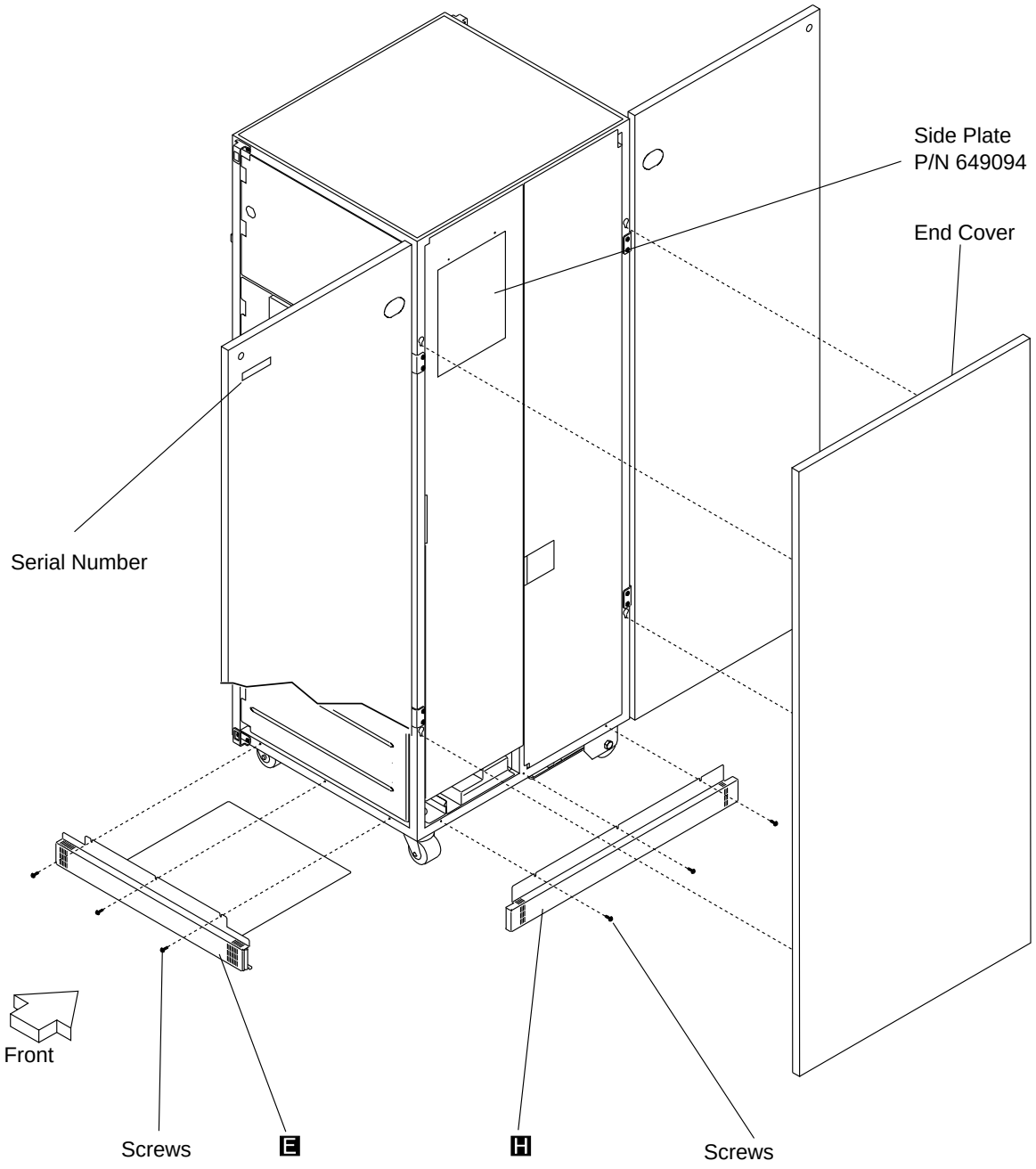


Figure 6-3. Ground Brackets on a 3746-A Expansion Unit (Front View)

To install, fasten rear bracket **C** (P/N 03F4390) to the frame, using screws (P/N 2665528).

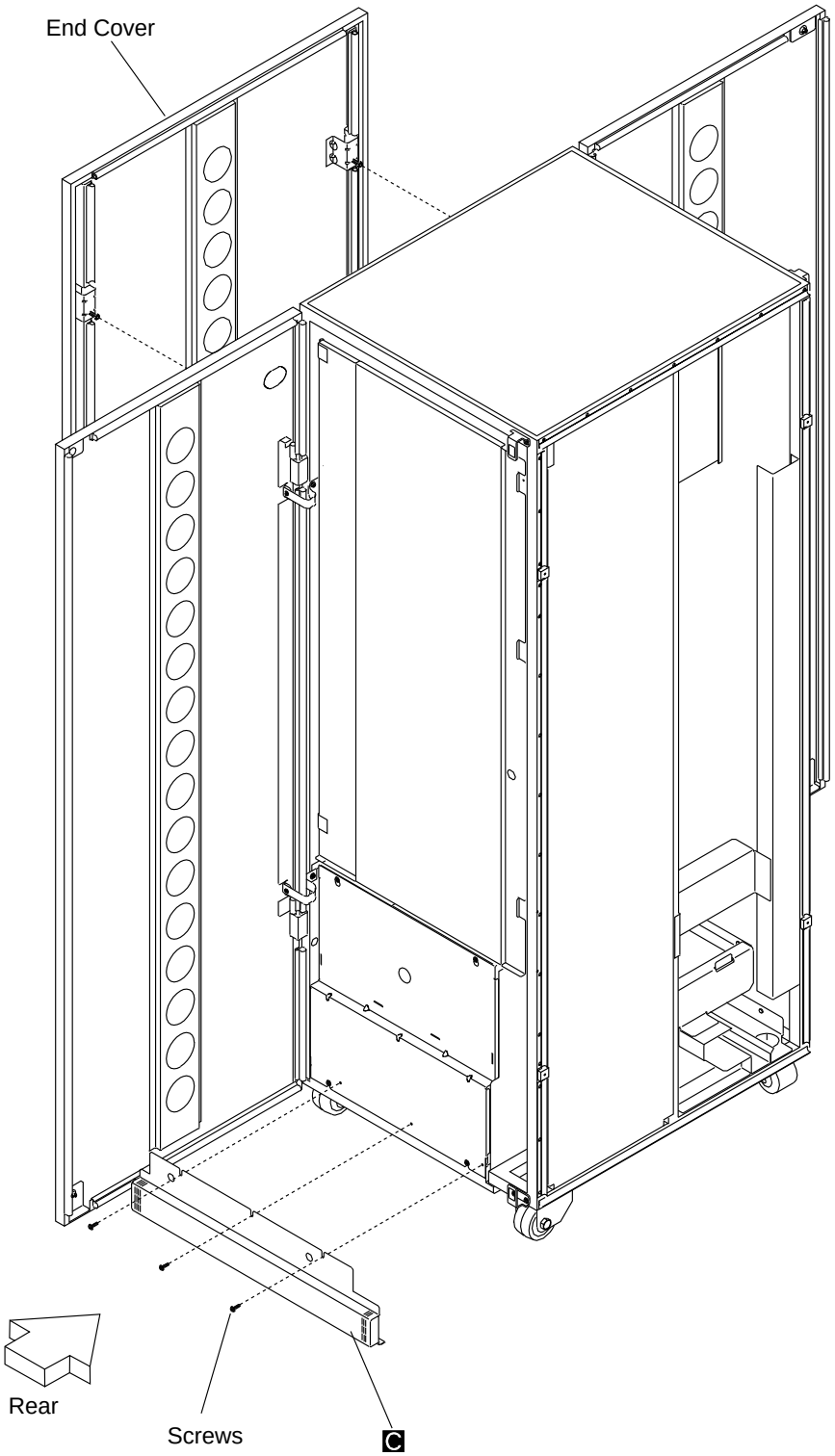


Figure 6-4. Ground Bracket on a 3746-A Expansion Unit (Rear View)

To install, fasten front bracket **G** (P/N 65X8887) to the frame, using screws (P/N 2665528).

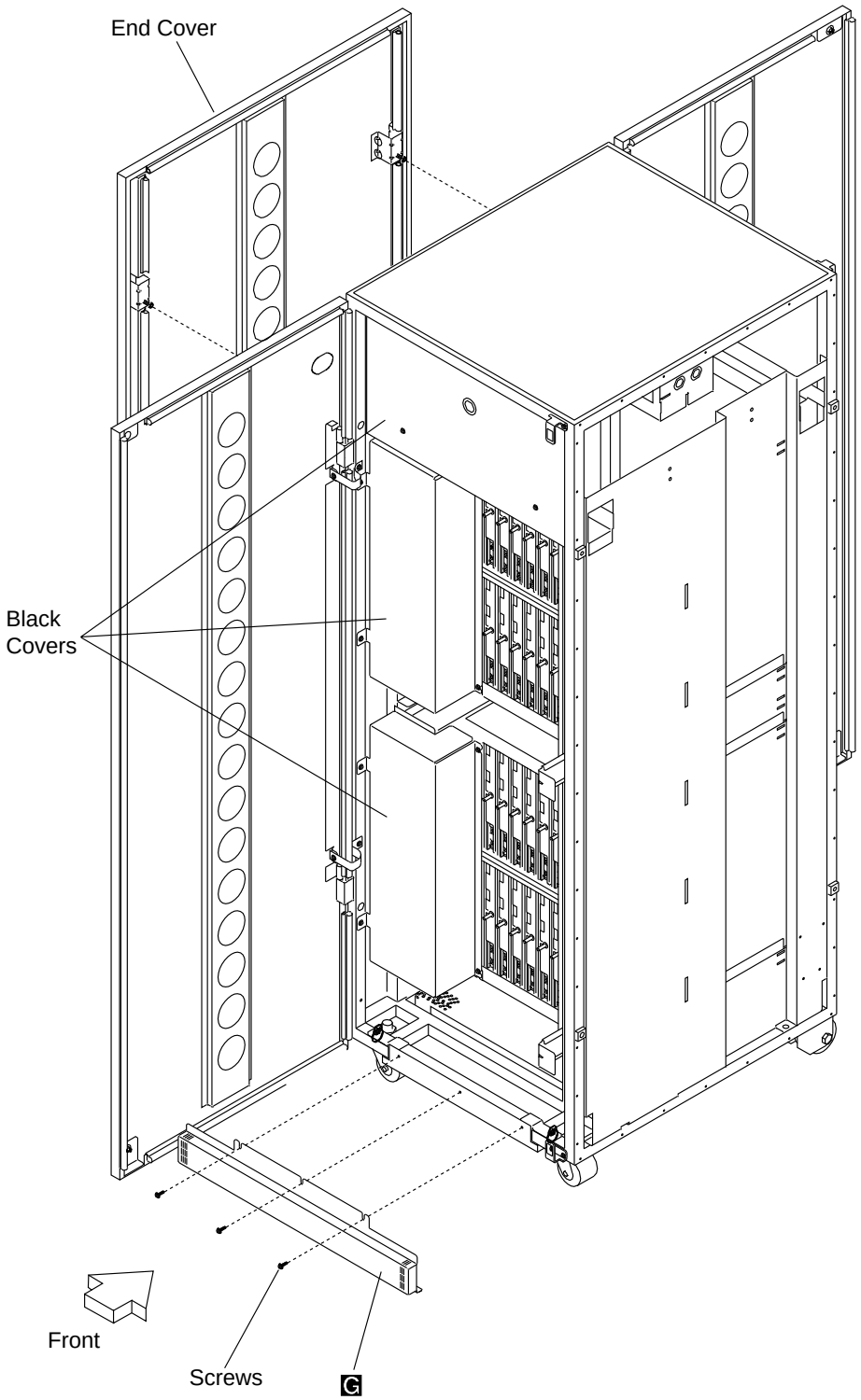


Figure 6-5. Ground Bracket on a 3746-L Expansion Unit (Front View)

To install:

1. Fasten rear bracket **F** (P/N 6495724) to the frame, using screws (P/N 2665528).
2. Depending on the frame configuration, install ground plate **J** or ground plate **K**:
   - Panel **J** is used on an intermediate 3746-L unit. See Figure 6-7 on page 6-9.
   - Panel **K** is used only for the end frame. See Figure 6-8 on page 6-10.

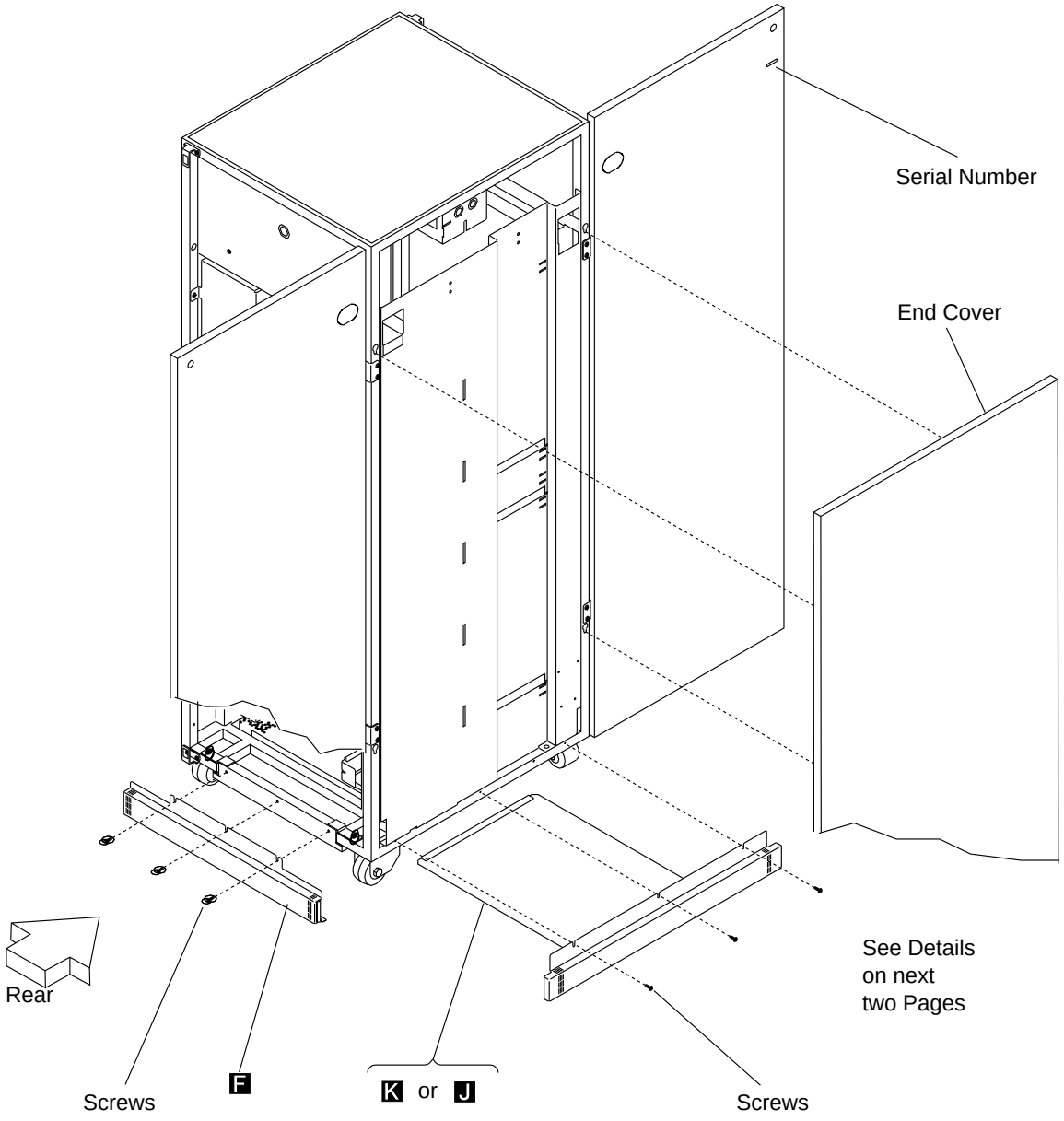


Figure 6-6. Ground Brackets on a 3746-L Expansion Unit (Rear View)

The following figure (Figure 6-7) shows the ground plate that must be fastened to the 3746-L13 when a 3746-L14 is installed, and to the 3746-L14 when a 3746-L15 is installed.

To install, fasten plate **J** (P/N 03F4475) to the frame, using screws (P/N 2665527).

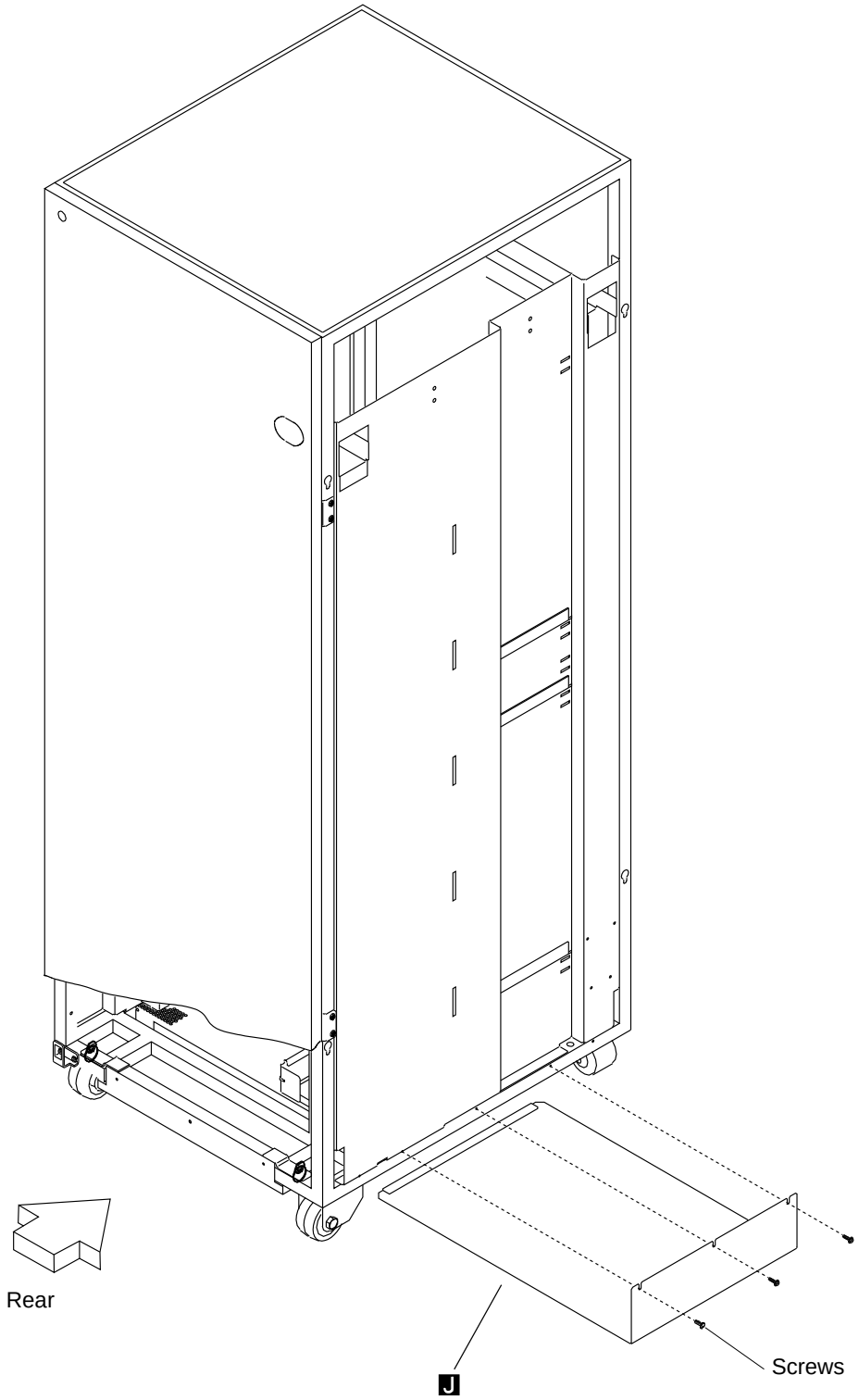


Figure 6-7. Ground Plate on an Intermediate 3746-L Unit (Rear View)

The following figure (Figure 6-8) shows details of the ground plate that must be fastened to the 3746-L13 when there is no 3746-L14, or to the 3746-L14 when there is no 3746-L15, or to the 3746-L15.

To install:

1. Fasten ground plate **K** (P/N 65X8970) to end bracket **H** (P/N 65X8885), using screws (P/N 2665527).
2. Fasten the **H** and **K** assembly to the frame, using screws (P/N 2665527).
3. Install the left end cover.

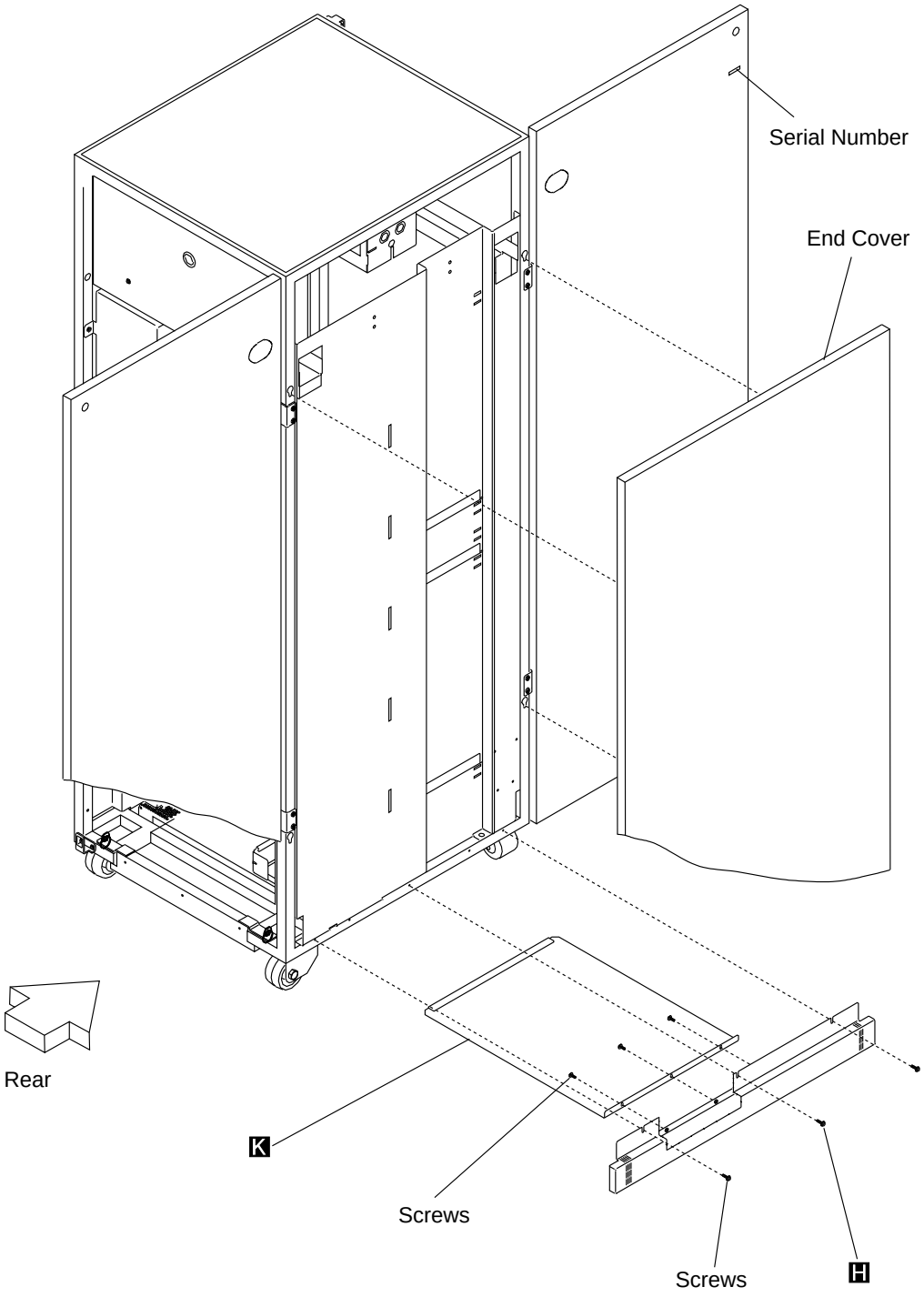


Figure 6-8. Ground Plate and Bracket on the Leftmost 3746-L (Rear View)

Installing the **controller expansion attached** to the 3745 or 3746 frame

Note: This figure shows a controller expansion attached to a 3746-900 frame, use the same procedure for a 3745 base frame or 3746-A11 or A12.

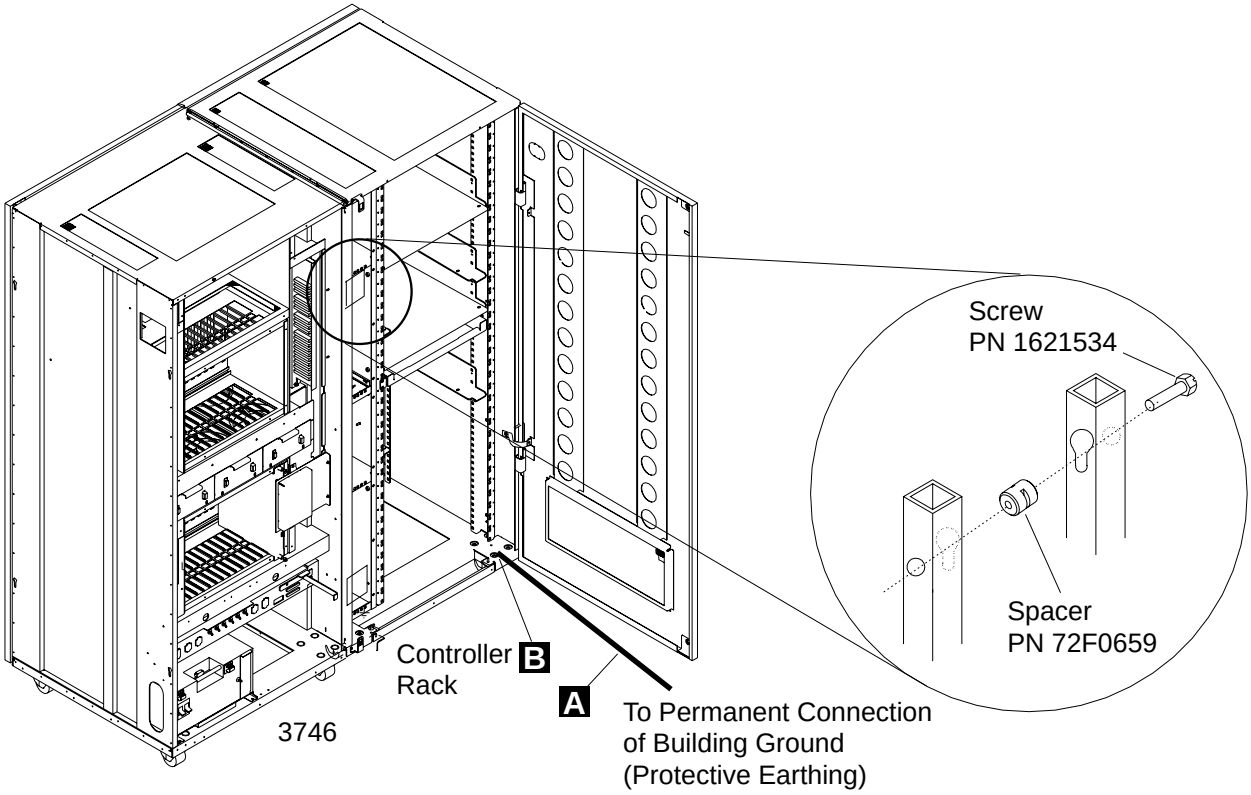


Figure 6-9. Installing the Controller Expansion Attached to the 3746-900

Installing the **controller expansion detached** from the 3745 or 3746 frame

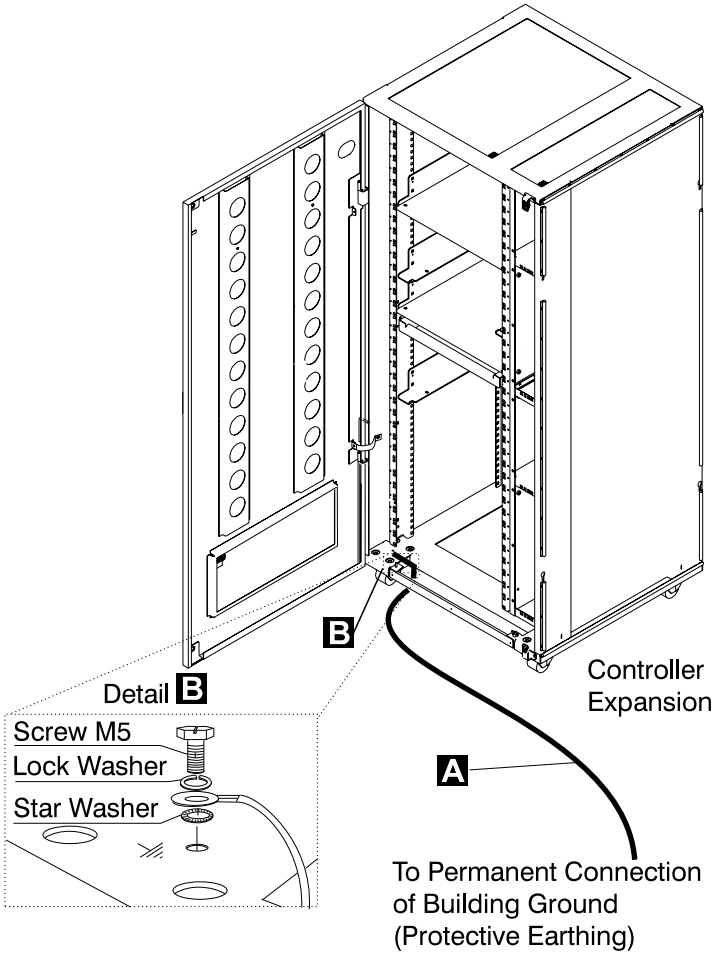


Figure 6-10. Installing the Controller Expansion Alone

Installing the **controller expansion** ground brackets.

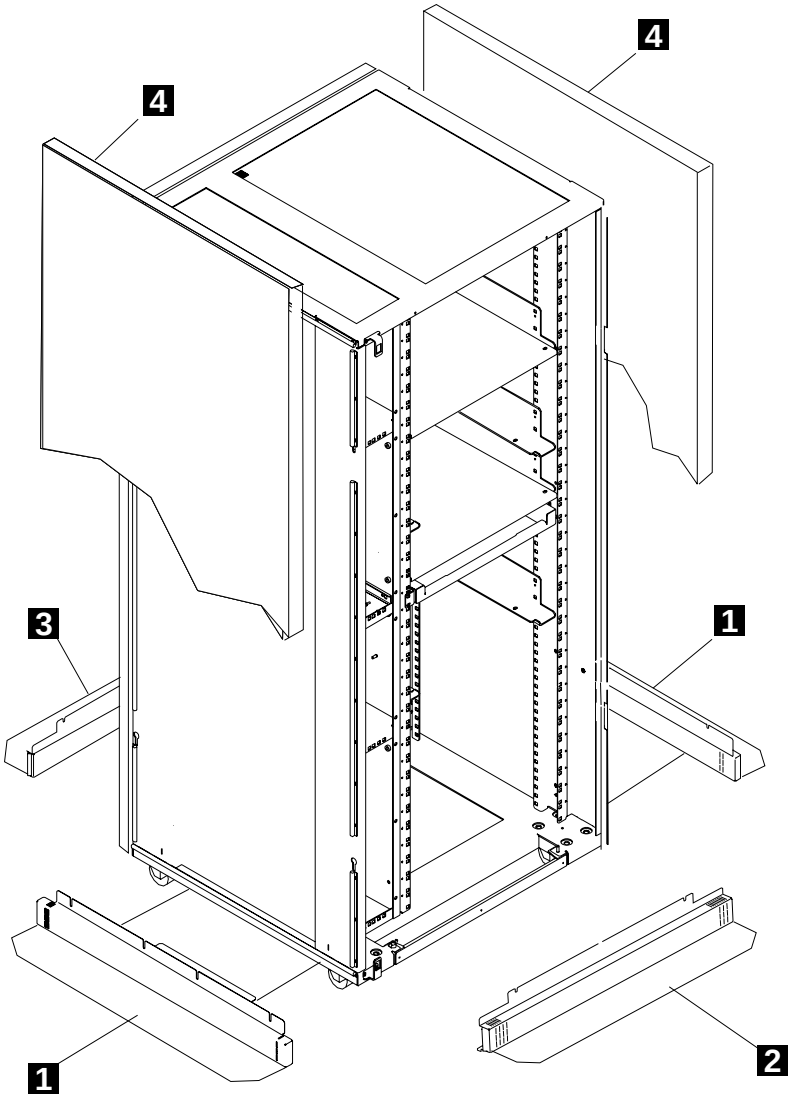


Figure 6-11. Controller Expansion Ground Brackets (Front View)

Installing the **controller expansion** ground brackets when attached to a 3745 or 3746 frame.

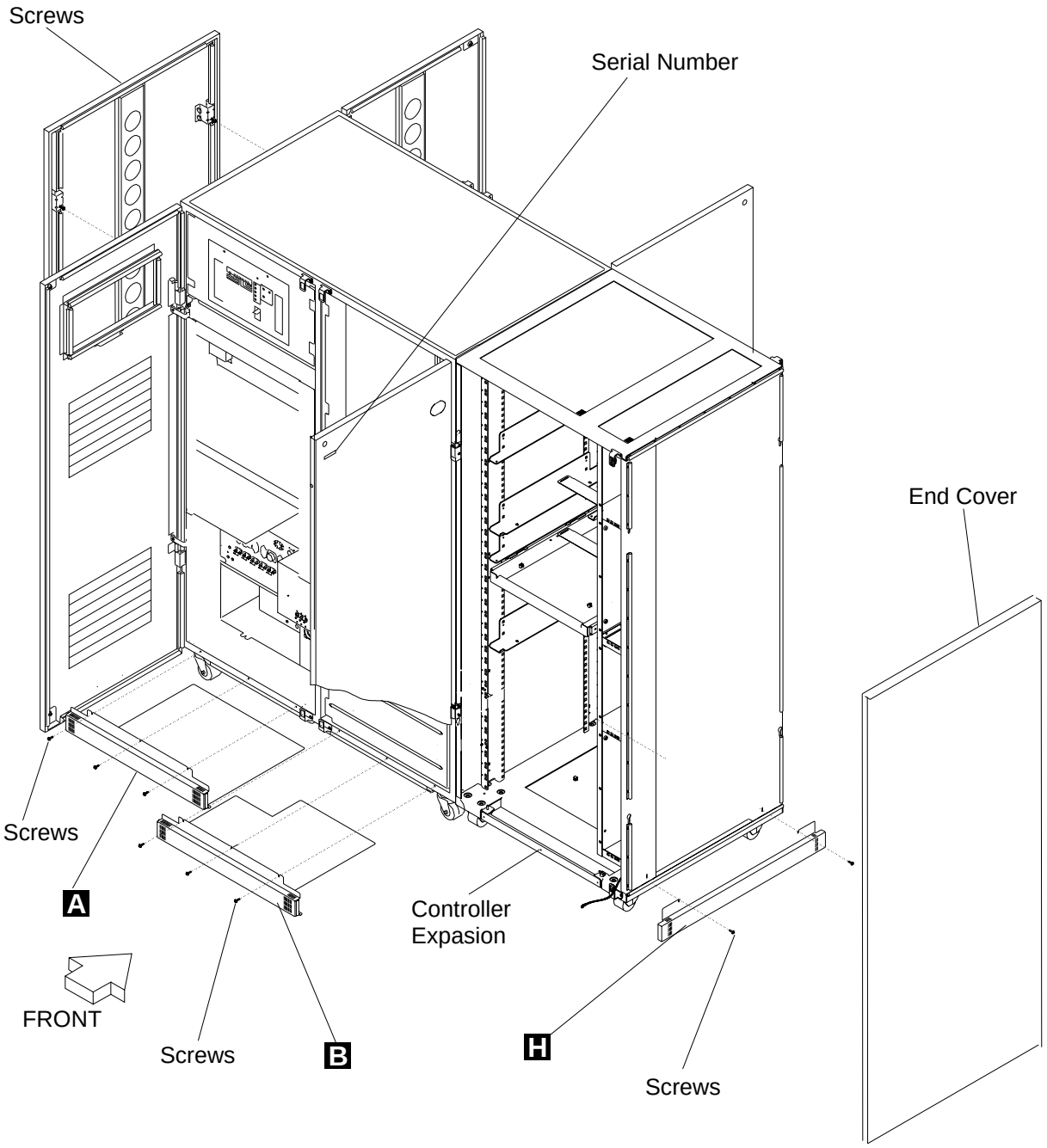


Figure 6-12. Controller Expansion Attached to the 3745/3746 Frame

Chapter 7. Modem and MUX Cable Setup

Adjusting the Transmit Level

If there is no LIC5 or LIC6 modem installed (no LIU2 unit), skip to "Routing the MUX Cables" on page 7-4.

Step 1. ____ Locate the LIU2 units. (Figure 7-1 shows an LIU2 unit).

An LIU2 enclosure has two LIB2 boards populated with LIC5 or LIC6 modems. In front of each LIB2 board, a shipping retainer bar holds the LIC5/LIC6 cassettes in position.

Note: *The LIU2 partial left cover (PS7 and SMUX cover) is not installed at shipping time. It is packaged separately inside the frame.*

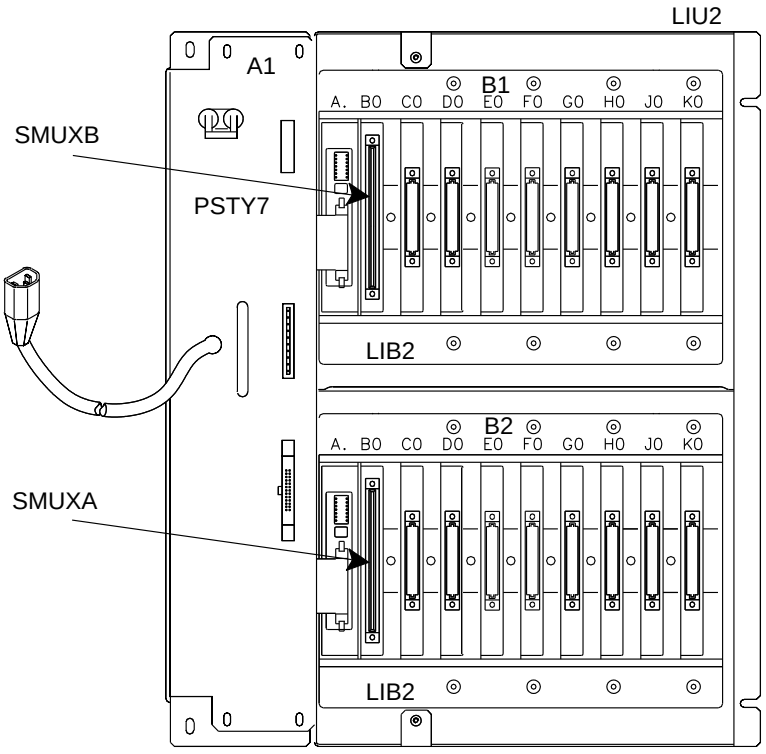


Figure 7-1. LIU2 Unit

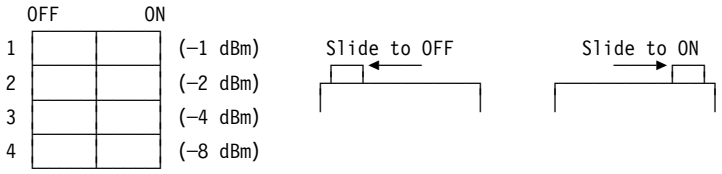
Step 2. ____ Remove the shipping retainer bars from the LIB2 boards. Using the same screws, store them vertically in the machine on the right side of the LIU2 unit.

Step 3. ____ Locate the SMUX card in column B of each LIB2 board (see Figure 7-3 on page 7-3). On each SMUXA/SMUXB card installed, locate the transmit level switches.

Step 4. ____ Set the transmit level switches to the correct value for your country according to the table in Figure 7-2.

Transmit Level Switches

Use a sharp instrument to set the switches.
To set a switch OFF, slide it in toward the left side.
To set a switch ON, slide it in toward the right side.



Transmit Level (in dBm)	Country	Sliding Switch Setting *(blank = OFF)* 1	2	3	4
0	U.S.A. and Canada, Greece, Ireland, and other south American, Asian and Pacific countries not listed in this table.				
- 1		ON			
- 2			ON		
- 3		ON	ON		
- 4				ON	
- 5		ON		ON	
- 6	Chile, and other European, Middle Eastern and African countries not listed in this table.		ON	ON	
- 7		ON	ON	ON	
- 8					ON
- 9	Hong Kong	ON			ON
-10	Denmark, Finland, Iceland, Italy, Sweden		ON		ON
-11		ON	ON		ON
-12				ON	ON
-13	Australia, UK	ON		ON	ON
-14			ON	ON	ON
-15	France, Japan	ON	ON	ON	ON

Figure 7-2. Transmit Level Switch Setting

Continue with “Routing the MUX Cables” on page 7-4.

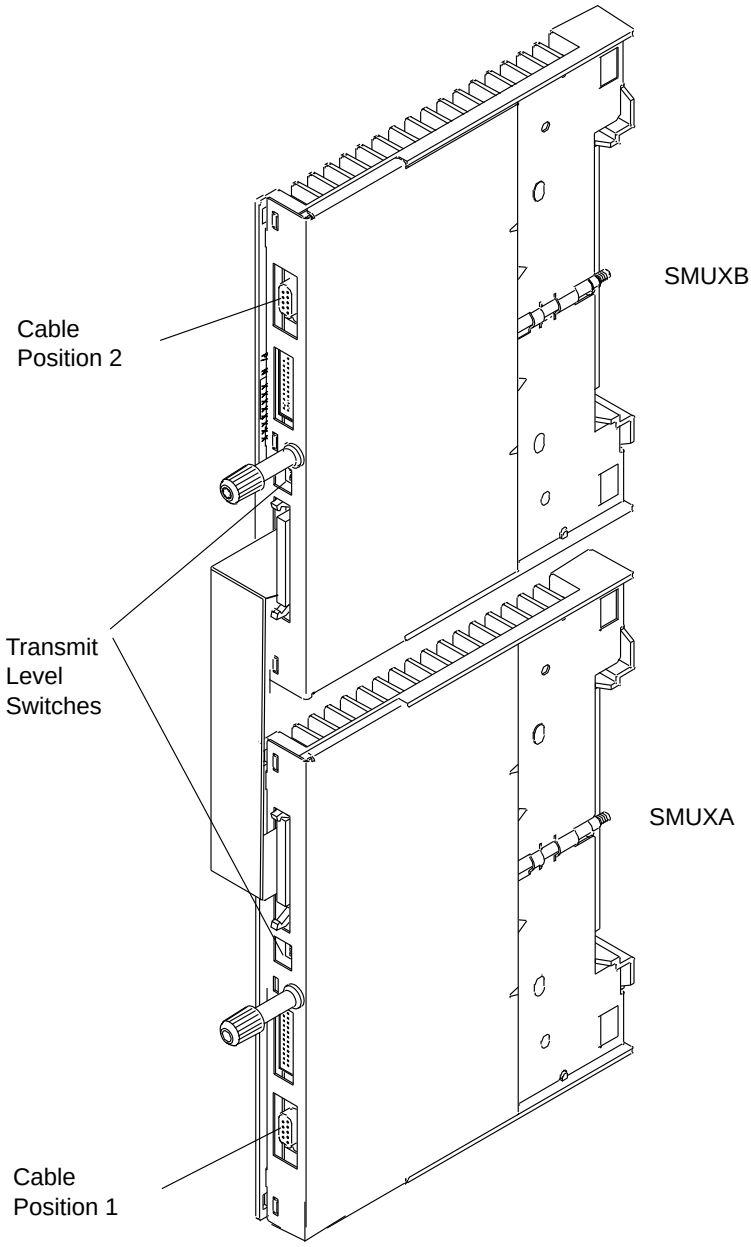


Figure 7-3. SMUX Cards

Routing the MUX Cables

The serial link MUX cables are connected to the installed line adapters (up to 32 when multiple frames). The line adapters are arranged as follows:

LA Number	Board	Frame
01 through 08	LAB1	3745
09 through 16	LAB2	3746-A11
17 through 24	LAB3	3746-A11
25 through 32	LAB4	3746-A12

- *LAB1 is at the front of the 3745 (see Figure D-1 on page D-2).*
- *LAB2 is at the front of the 3746-A11 (seeFigure D-3 on page D-4).*
- *LAB3 is at the rear of the 3746-A11 (see Figure D-4 on page D-4).*
- *LAB4 is at the rear of the 3746-A12 (see Figure D-5 on page D-5).*

The MUX cables are stacked in the 3745/3746-A frames. For stacking area locations, see Figure 7-7 on page 7-8 and Figure 7-8 on page 7-9.

Step 1. ____ Locate the LIU1 units. An LIU1 enclosure has two LIB1 boards populated with LIC1, LIC3 or LIC4 cassettes. (Figure 7-4 shows a LIB1 board.)

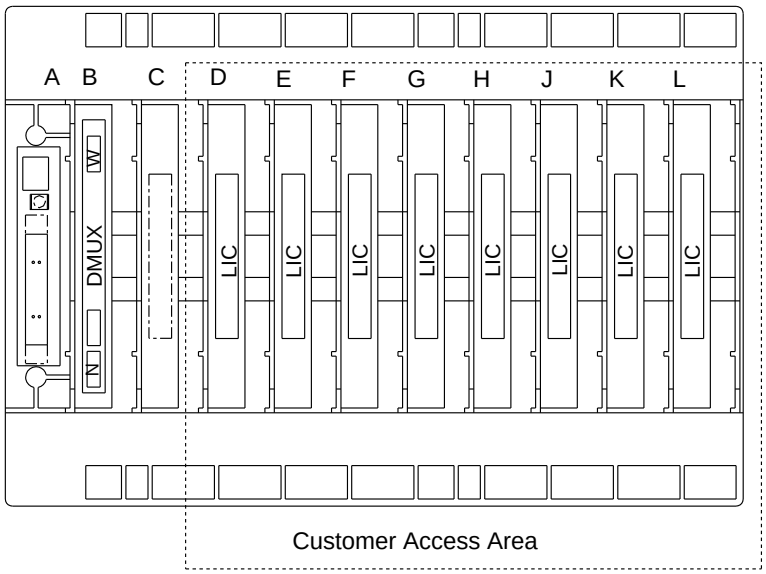


Figure 7-4. LIB1 Board

Step 2. ____ Remove the LIU1 partial left cover (4 screws) on the left side of each LIU1 unit (PS5 and DMUX cover).

Note: *At the bottom rear of the 3745, the CA tailgate cover must be removed before the lower LIC unit left cover (see Figure D-2 on page D-3 for locations).*

Step 3. ____ Locate the DMUX card in column B of each LIB1 board. (Figure 7-5 on page 7-5 shows a DMUX card.)

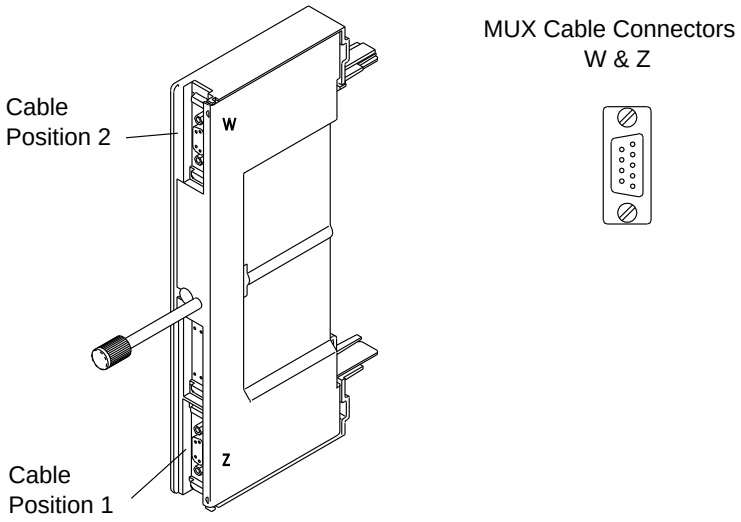


Figure 7-5. DMUX Card

Step 4. ____ In step 8 on page 1-12, you have filled the table on page *YZ 839* according to either the **HONE configuration sheet** information if available, or **the configuration actually wanted by the customer.** Check the numbers you have recorded in the 'cable numbered' column.

Note: The cable number is the number of the LA. Each LA controls a specific group of LICs and line numbers, which depends on the DMUX/SMUX card socket to which the cable is connected.

Step 5. ____ Familiarize yourself with the following figures:

- Figure 7-7 on page 7-8 (front) and Figure 7-8 on page 7-9 (rear), which show the MUX cable routing between the 3745 and the 3746-A units.
- Figure 7-9 on page 7-10 (front) and Figure 7-10 on page 7-11 (rear), which show the MUX cable routing between the 3745 and the 3746-L units.

Step 6. ____ *If needed and not already done*:

- At the 3745 front remove the housing covering the area below the control panel, and the internal cover on the right side of the unit.
- Open the internal covers at the front and rear of the 3746-A units.
- Remove the MUX raceway covers at the front bottom of the 3745 and 3746-A frames (2 screws).

Step 7. ____ Unwrap and uncoil the MUX cables. The plastic ties attaching the cables may be cut to allow easy routing.

Regroup the MUX cables according to their physical destination in the frames, as recorded in the 'DMUX or SMUX position' column of Page **YZ 839**. Route each cable group to the specified frame. Do not route more cable length than necessary.

- *The MUX cables are coiled and stacked at the LAB board side in front of the base frame. In a 3746-A expansion unit, they can be stacked at the front and rear of the machine.*
- *When needed only, extra MUX cables will be shipped separately along with the 3746-L15. They are longer than the ordinary ones, and must be used when connecting a line adapter in the 3746-A12 to a DMUX/SMUX card in the 3746-L15 bottom, front and rear.*

Step 8. ____ Route each MUX cable according to Page **YZ 839**, and plug the MUX cable connector to the specified DMUX/SMUX card socket.

Notes:

a. If only one cable is to be installed in a DMUX/SMUX card, it must be installed in position Z (lower).

b. The two screws must be tightened concurrently and evenly to properly seat the plug.

Be careful when connecting LA-to-MUX cables:

- **A DMUX card receives one or two MUX cables.**
- **A SMUX-A/SMUX-B card receives only one MUX cable.**
- **A SMUX-B driven by a SMUX-A does not receive any MUX cable.**
- **The flat cable from the SMUX-A card to the SMUX-B card must be properly connected in all cases.**

Step 9. ____ Secure the MUX cables with ties (use spare ties P/N 6846576 supplied in the shipping group to attach cables properly). If necessary, stack the remaining cable length in the base/adapter frame stacking areas (see Figure 7-7 on page 7-8 and Figure 7-8 on page 7-9 for stacking area locations).

The cable clamps are not intended to hold all of the extra cable length. Put only one side of the loop of extra cable through the cable clamps. Secure the outside part with ties, as shown in Figure 7-6 on page 7-7.

Step 10. ____ On the left side of each LAB board enclosure, loosen the screw securing the side plate, slide that plate down against the MUX cables, and tighten the screw again.

Step 11. ____ Re-install the black covers on the left of LIU1 and LIU2 units. If applicable, re-install the housing covering the SACU area below the control panel at the 3745 front.

Step 12. ____ Re-install the 3745 bottom air filter, raceway covers, internal sheet covers and all parts previously removed from frames. *Be careful to position the internal cover retainers vertically.* Close and secure.

Continue with "Powering the 3745 and 3746 Units (if Any) On" on page 7-12.

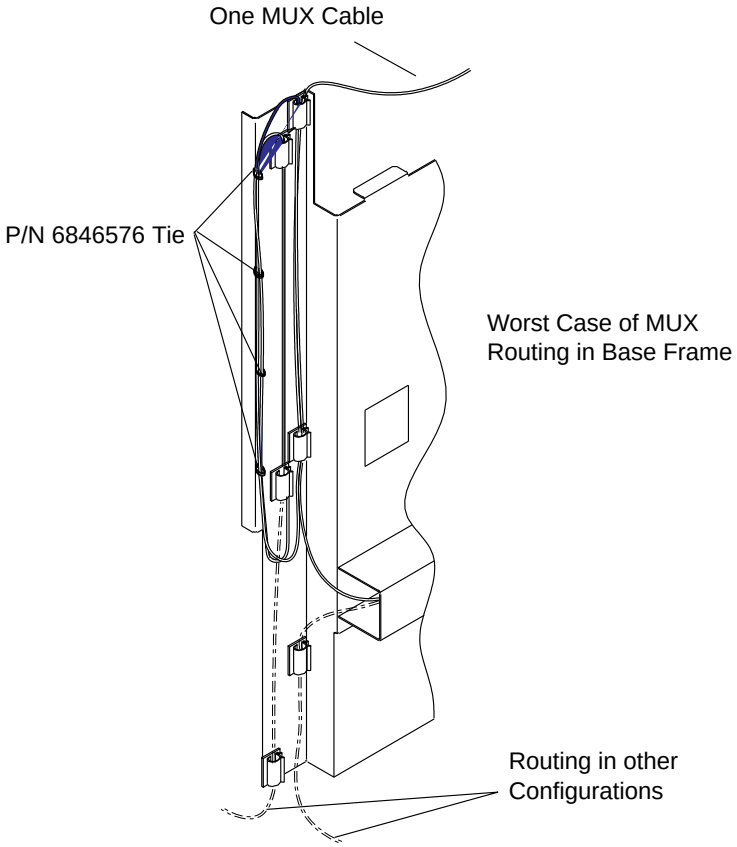


Figure 7-6. MUX Cable Stacking

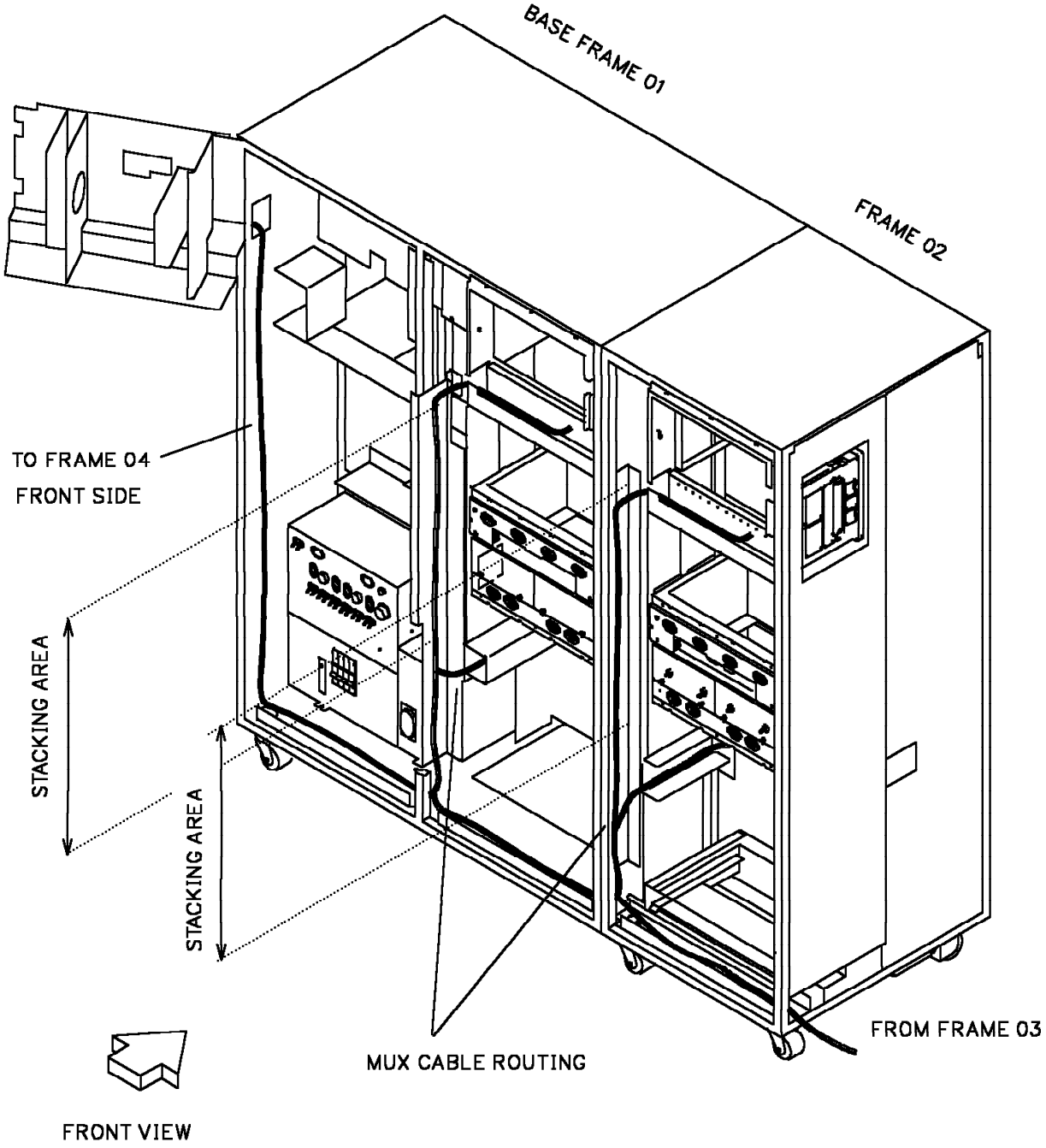


Figure 7-7. MUX Cable Path from the 3746-A Units to the 3745 (Front View)

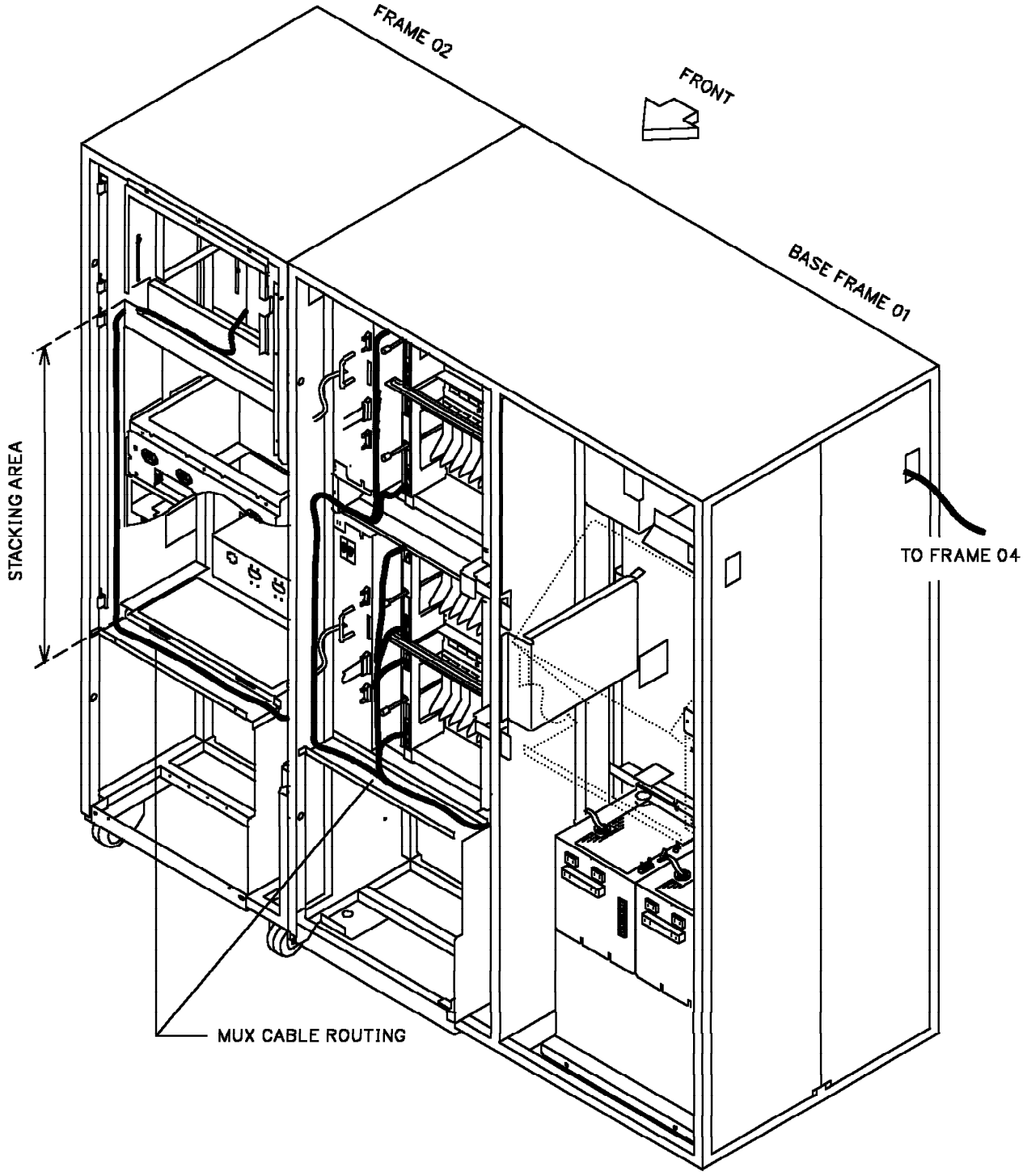


Figure 7-8. MUX Cable Path from the 3746-A Units to the 3745 (Rear View)

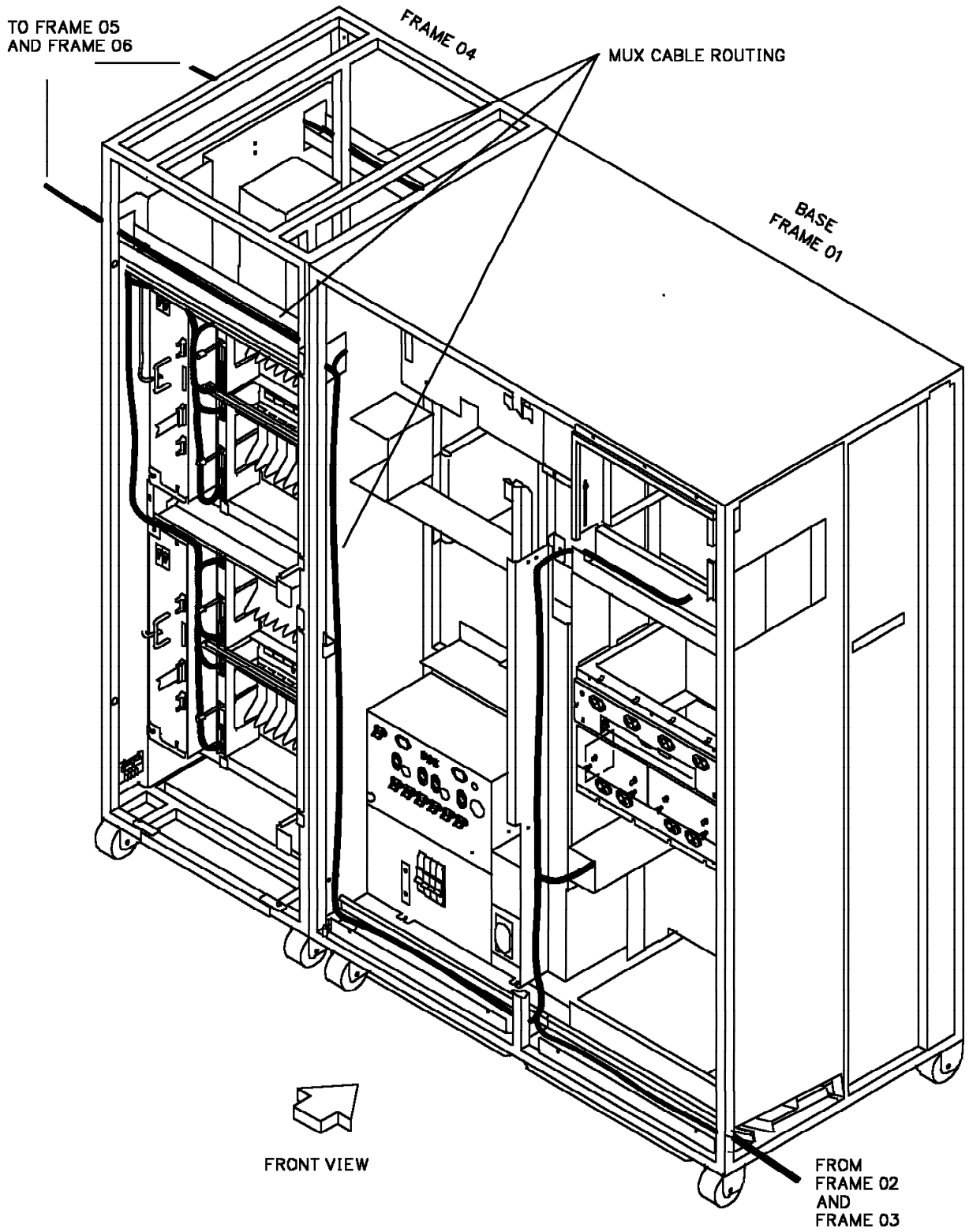


Figure 7-9. MUX Cable Path from the 3745 to the 3746-L Units (Front View)

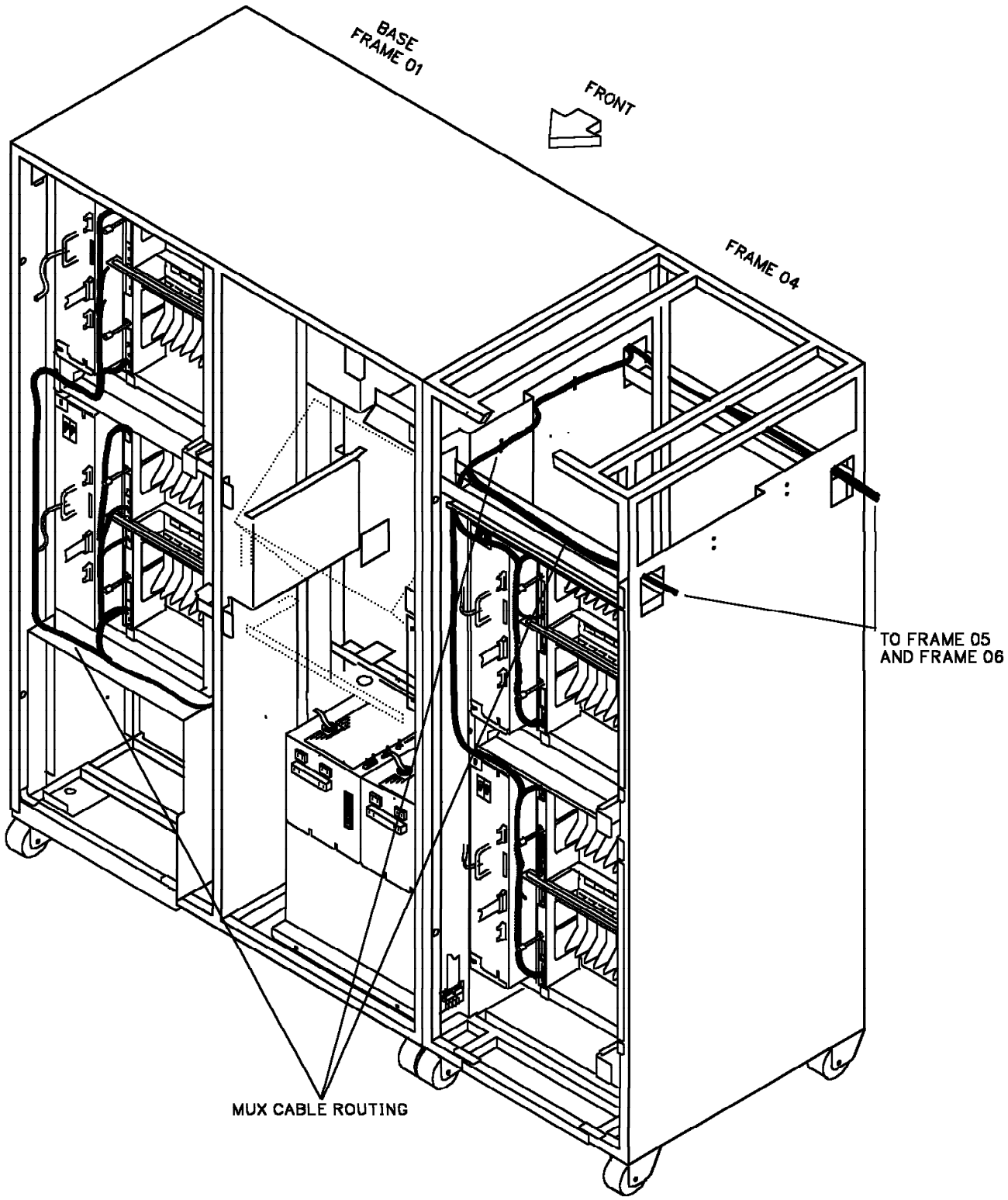
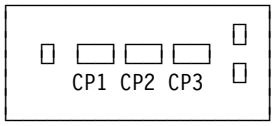


Figure 7-10. MUX Cable Path from the 3745 to the 3746-L Units (Rear View)

Powering the 3745 and 3746 Units (if Any) On

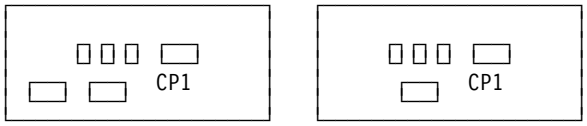
Step 1. ____ Ensure that the 3745 main circuit breaker CB1 is in the OFF position, and that all circuit protectors (CPs) are set to the ON position in all frames. You will find CPs in the following boxes:

3746-A Auxiliary Powers:



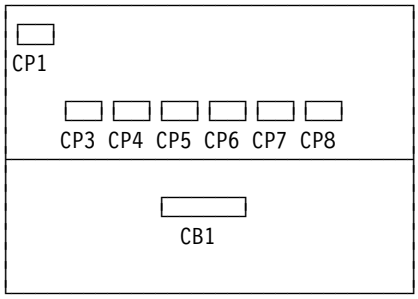
(Rear View)

3746-L Auxiliary Powers:

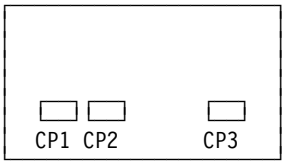


(Front View) (Rear View)

3745 Primary Power Box:



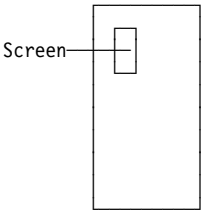
3745 PS Type 6:



Also, the following power supplies have their own CP, called CP1, in front of the PS unit: PS3 (for CAs), PS4 (for LAs), PS5 (for LIU1 unit) or PS7 (for LIU2 unit). (See Appendix C to locate the PS units.)

PS5 and PS7 units have an individual front cover. The CP1 actuator's position is visible through a screen in the cover.

PS5 or PS7 Front Cover:



Step 2. ____ Check that all the card top crossovers are properly seated in the base frame and in the 3746-A expansion frames (frames 02 and 03). For crossover locations, refer to the *MIP* or to Pages YZ035, YZ036 or YZ037.

Step 3. ____ Ask the customer to turn the branch circuit breaker that feeds the 3745 to the **ON** position. **AC is now present in the primary power box.**

Step 4. ____ Switch CB1 to **ON** at the 3745 primary power box.

Go to Chapter 8, "Test Procedure (Part Two)" on page 8-1 .

Chapter 8. Test Procedure (Part Two)

Note: You must start on page 8-2 and go sequentially through the checkout procedure 2.

Checkout Procedure 2

- Many steps depend on previously completed ones.
- If the expected panel code is not displayed when running through the following steps, for trouble-shooting go to the START page of the *IBM 3745 Maintenance Information Procedures (MIP)*, SY33-2054.
- Start testing here when installing an expansion unit to an already operating 3745.

Step 1. ___ **Entering Maintenance Mode**

At the control panel:

a. Select **Service Mode = 2**, and press the **Validate** key.

b. Select **Function = 1**, and press the **Validate** key.

c. Press the **Power ON** key. A MOSS IML is started from the hard disk.

Note: *IML takes approximately three to four minutes. Some codes (for example* **0A0***) are displayed for a while. The normal ending code is* **F0E***. For any other ending code, refer to the* MIP.

If you are installing a **3745 model X1A**, return to the Service Processor and **Go to step 2** or if installing a 3745 base frame alone, **go to step 4 on page 8-3.**

Note: When working on a Service Processor (local console for a 3745 model X1A), every time you read **press SEND** you should read **press ENTER**.

d. **Press F4**. The message *ENTER PASSWORD* is displayed.

e. Enter the **maintenance password** and press **SEND**.

f. Press **F4** to get Menu 1.

If installing a 3745 base frame alone, go to step 4 on page 8-3.

Step 2. ___ **Create Power Configuration Table**

For details, refer to "Recreating the PS ID Configuration Table" in Chapter 12 of the IBM 3745 Service Functions*, SY33-2055.*

a. **Type POS** to select 'Power Services', then **press SEND.**

b. From the POS function selection screen, **call option C**: RECREATE THE POWER CONFIGURATION TABLE, and **press SEND.**

c. **Identify** the PS blocks that are *physically present in all frames.* The two-digit identification number (**xx**) of each PS block is indicated by **IDxx** in Figures D-1 through D-11 in Appendix C at the end of this manual. **Write** on a sheet of paper the identifiers of all the PS blocks that are present. (PS6 and PS8, in the base frame, have no identifier.)

d. **Compare** with the configuration table identifiers appearing on the screen. The PS identification number in the table indicates that the power supply is present; a dash (-) indicates that the supply was not found by the configurator.

e. If the table on the screen reflects the physical status of the machine, **enter Y** to confirm. Press **SEND**, and continue with step 3 on page 8-3.

Note: *The power control subsystem keeps the old power status when* **N** *is entered.*

f. If any discrepancy appears, make a visual check of the failing power unit(s). Correct any trouble (refer to the *MIP* if necessary), and start again at step 2a on page 8-2 above.

Step 3. ___ **Power Supply Status Check**

For details, refer to "Power Services (POS)" in Chapter 12 of the Service Functions.

a. From the POS function selection screen, **select option 1** to display the power information for the 3745 frame, and **press SEND.**

Note: *The following message may be normal at this step of the procedure: "CDF ERROR: SOME POWER SUPPLY INFORMATION CANNOT BE DISPLAYED".*

b. **Check** that all installed power supplies of the 3745 frame are **UP**.

c. Press **F8** to display the next frames.

d. Enter Uxx (xx = PS identification number) for any power supplies which are displayed as DOWN. Verify that the message COMMAND SUCCESSFULLY PERFORMED is received, and that the status is changed for each Uxx entered.

e. When all the frames are checked and/or changed with no errors, **press F1 and continue with step 4.**

f. **If there is a power problem:**
(For BER analyzing, refer to Chapter 2 of the *Service Functions*.)

1) Press **F1** to return to Menu 1.
2) Enter *ELD* (for Event Log Display), and press **SEND**.
3) Press **F8** to get the BER summary screen 2.
4) Enter **9** or **POWER** to get the power BER list screen.
5) Enter the number corresponding to the problem that you want to select, and press **SEND** to display the corresponding BER detail.
6) Note the BER reference code number, then use the *MIP* for troubleshooting.

Step 4. ___ **Configuration Data File (CDF) Upgrade**

For details, refer to "CDF Upgrade" in Chapter 9 of the Service Functions.

a. **If the 3745 has no channel adapter:** Plug (or ask the customer to plug) a link IPL cable to the LIC or HPTSS port that will be used as a link IPL port (*not required if the 3745 is only in RLA link through a Token-Ring, a switched X.21 line or an X.25 line*). LIC, HSS, and ELA cable plugging is explained in the *Connection and Integration Guide*, SA33-0129.

Note: If the RLA link is through SDLC or nonswitched X.21, a link IPL port is required and must be defined.

Warning: If the link IPL cable is not installed at CDF upgrade time, the link IPL address will not be configured in the CDF, and an error message will result later when defining the link IPL port (step 25a on page 8-19).

b. **Type** *CDF* and **press SEND.**

c. From the CDF function selection screen, **call option 3** and press **SEND**. The upgrade phase is automatically started and will last from five to ten minutes, depending on the configuration.

- Fields reflecting the current hardware configuration of the 3745 are automatically initialized; the upgrading progression appears on the CDF upgrade screen.
- If an error occurred in the upgrade screen, go to the corresponding display screen in Chapter 9 of the *Service Functions* to get additional information.

d. Wait for message *CDF UPGRADE COMPLETED*, and **press F1**.

Step 5. ___ **Line Adapter CDF Display**

For details, refer to "CDF Display/Update (Line Adapters)" in Chapter 9 of the Service Functions*, or to "Line Adapters Display/Update" in the "Configuration Data File (CDF)" chapter of the* Advanced Operations Guide*, SA33-0097.*

a. **Type** *CDF* and **press SEND.**

b. Call option **1** (display/update), and press **SEND**.

c. From the CDF display/update screen, **select option 7** (LINE ADAPTERS), and **press SEND.**

d. Checking for the presence of LAs and their type:

1) **Check** that each LA *present* has a type defined (1 through 5).
2) **Compare** with the YZ 839 Page information. If any discrepancy appears, make a visual check of the board in error.

e. You will now display and check all LAs one by one:

1) **Type** the first LA number and **press SEND.**
2) **Check** the LIC positions and types, and the line numbers attached to that LA. **Compare** with the YZ 839 Page information.

   If any discrepancy appears, make a visual check of the LA in error. Make sure that the MUX cable is properly connected. If necessary, use the *MIP* for troubleshooting.
3) **Press F8** to display "Extend" if any for that LA, or the next LA.
4) **Press F1** to end the CDF display.

Step 6. ___ **Offline Diagnostics / External Cable Preparation**

- **Offline Diagnostics**

  For details, refer to "Explanation for Diagnostic Request Screen Menu" in Chapter 3 of the Service Functions*, or to "How to Run Internal Function Tests" in Chapter 4 of the* MIP*.*

  Note: *Depending on the configuration tested, the diagnostics may run from two to eight hours.*

  a. From any menu, **type** *ODG*. **Press SEND**

  b. **Type 1** in the DIAG area to select all diagnostics. Press **SEND**.

     Note: *If you want to stop a running diagnostic, press the BREAK (ATTN) key, and wait for the message BREAK RECEIVED.*

     The screen shows the progress of the diagnostics by updating the DIAG area every time a new routine is entered.

     Wait for the messages *NO ERROR FOUND* and *REQUEST COMPLETE*. If necessary, refer to the *MIP* for any error detected.

Next procedure is optional

If requested by the customer, perform the following procedure to install the external cables. This service must only be performed under normal conditions (easily accessible raised floor or opened raceway) on a one-time basis. When unusual conditions apply (cables to be run through walls and ceilings or both), cable installation may be performed under an IBM Contract (Customized Operational Services) or IBM Hourly Service.

- **External Cable Preparation**

  To save time while the diagnostics are running:

  a. **Identify the external cables**.
  For that purpose obtain from the customer the plugging diagrams prepared using the *3745 Preparing for Connection* manual.

  b. **Stick the labels** on the cables.

  c. **Route the cables** from the 3745 to the modems or to the terminals through the raised floor or raceway.

  d. **Connect the cables** to data communication equipment (DCE) , to the data terminal equipment (DTE), or to the media access unit (MAU) for the access unit interface (AUI) Ethernet cables.

  Warning:

  1) Do not connect the cables leads going to the 3745. This could generate unexpected errors while the TSS diagnostics are running. This connection will be made later. See step 20 on page 8-13.

  2) All the Access Unit Interface (AUI) Ethernet cables **must** conform to ISO 8802-3.

  3) Before connecting the AUI Ethernet cables to the media access unit (MAU), be aware of the following notes:

  a) The Ethernet feature's performances have been checked with a wide range of OEMS media access units. Although meeting the 802.3 standards, some MAUs are more sensitive than others to the electromagnetic environment and may degrade the box performance related to the noise margin.

  b) The SQE-TEST (also called HEARTBEAT) function must be enabled on the MAU.

- **If not already done, go to Chapter 6, “Installing Ground Brackets” on page 6-1.**

Go to

- Step 7 on page 8-6 when the 3745 is channel-attached.
- Step 9c on page 8-8 when the 3745 is not channel-attached (perform steps 9c through 9e, and skip to step 12 on page 8-9).

Step 7. ___ **Channel Adapter CDF Update**

For details, refer to "CDF Display/Update (Channel Adapters)" in Chapter 9 of the Service Functions*, or to "Channel Adapters Display/Update" in the "Configuration Data File (CDF)" chapter of the* Advanced Operations Guide*, SA33-0097.*

a. From the CDF display/update screen, **select option 6** (CHANNEL ADAPTERS), and **press SEND.**
b. Type the **number of the CA** to be updated, and press **SEND**.
c. Press **F5**. Answer the *I/O error alert* option, and if applicable the *TPS/TCS* option (refer to Appendix A, “Channel Adapter Information Form” on page A-1). Press **SEND**.
d. **Press F8**. **Update** the channel adapter parameters for the displayed CA, using Appendix A at the end of this manual.

   Note: *If the TPS feature is present on a channel, the next even-numbered CA is not used and is replaced by interface B of the TPS channel.*
e. Press **SEND.**
f. **Press F6** and repeat steps 7b through 7e for each installed CA.
g. When all CAs are updated, **press F1.**

Warning: The CA parameters do not take effect until the 3745 has gone through a power OFF/ON procedure, or a general IPL from the control panel (*Function=0*) has been done.

Step 8. ___ **Channel Adapter Wrap Tests**

For details, refer to "How to Run the Channel Wrap Test" in Chapter 4 of the MIP*.*

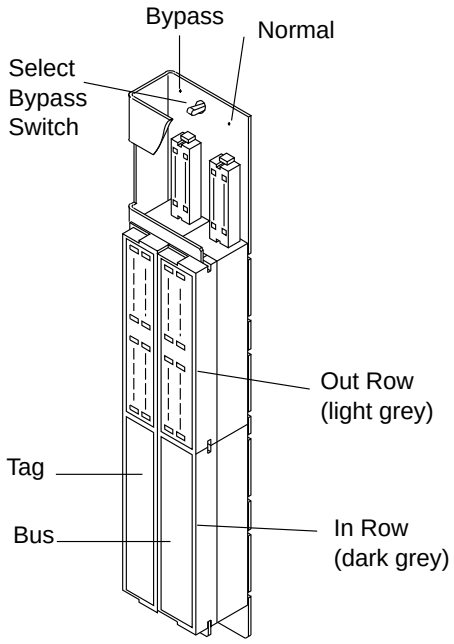


Figure 8-1. Channel Interface Position

To perform this test, you will **use the TAG wrap tool P/N 03F4300 or 26F1754** , and the **BUS wrap tool P/N 03F4301 or 26F1755**.

a. On the 3745, and on the 3746-A11 if any, remove the CA tailgate cover(s) where any CA is installed, if not already done. (See location 01T in Figure D-2 on page D-3, and location 02K in Figure D-4 on page D-4.)

b. Put the **select bypass switch to the normal (right) position** for each CA interface installed. (Refer to Figure 8-1.)

c. Make sure that a BUS terminator (P/N 2282675), and a TAG terminator (P/N 2282676), are installed in the BUS OUT and TAG OUT row (light gray) of the first channel interface to be tested (see 8-2).

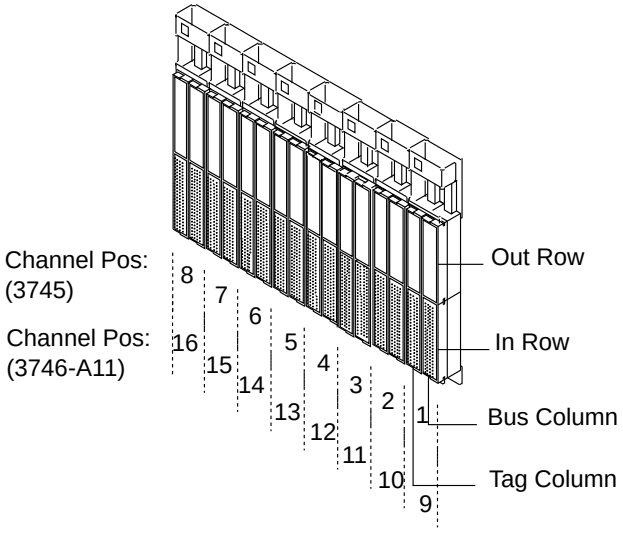


Figure 8-2. Channel Interface

3745 Tailgate	CA Interface (CA1 to CA8)
1	CA1 or CA1-A
2	CA2 or CA1-B
3	CA3 or CA3-A
4	CA4 or CA3-B
5	CA5 or CA5-A
6	CA6 or CA5-B
7	CA7 or CA7-A
8	CA8 or CA7-B

3746-A11 Tailgate	CA Interface (CA9 to CA16)
9	CA9 or CA9-A
10	CA10 or CA9-B
11	CA11 or CA11-A
12	CA12 or CA11-B
13	CA13 or CA13-A
14	CA14 or CA13-B
15	CA15 or CA15-A
16	CA16 or CA15-B

Figure 8-3. Channel Distribution on Tailgates

d. From the diagnostic request screen **type** *LO01* in the DIAG area, and **press SEND**. The CA diagnostics are started and will test the CAs sequentially. **Messages on the screen will prompt you for the required actions.** The following will be displayed first: WRAP TOOLS P/N ?.

- If P/N 26F1754 and 26F1755 are used, type **RF2** and press **SEND**.
- If P/N 03F4300 and 03F4301 are used, type **RF1** and press **SEND**.

e. When asked by the diagnostic, **install** the BUS and TAG wrap tools in the IN row (dark gray) of the CA interface being tested (see Figure 8-2). Then type **R** and press **SEND**.

- **If wrap tools P/N 26F1754 and 26F1755 are used**, you will be asked to install the TAG and BUS wrap tools on the channel interface OUT row (light gray), in place of the TAG and BUS terminators, and to re-start the test. (Never install the TAG and BUS terminators on the IN sockets.)
- **If the TPS feature is present** on the channel, you will be asked to install the wrap tools on interface B after interface A. (Interfaces A and B are used when the TPS feature is present, see Figure 8-3 on page 8-7).

Note: *You may install wrap tools and terminators on the next CA interface immediately after removing them from the previous one.*

f. When all the channels have been tested, **press F1** to return to Menu 1. **Continue only if all diagnostics run error free.**

Step 9. ___ **Channel TAG and BUS Cable Connection**

Warning: *Be certain that the channel to be opened for attachment of the 3745 is available (offline) from any operating system.*

a. **Install the cable connectors** for channels 1 through 8 to the 3745 tailgate at 01T-A0 (for tailgate positions, refer to Figure 8-2 on page 8-7). If TPS is installed (interface B present), refer to Figure 8-3 on page 8-7 for interface distribution.

b. **Plug the cable connectors** if any for channels 9 through 16 to the 3746-A11 tailgate at 02K-A0.

c. Re-install the CA tailgate cover(s) on the 3745, and on the 3746-A11 if any.

d. Refer to Figure 6-2 on page 6-4 and install the rear ground bracket **C** on the 3745.

e. If a 3746-A11 is present, refer to Figure 6-4 on page 6-6 and install the rear ground bracket **C** if not already done.

Step 10. ___ **Host Attachment Information**

For more details see "Define Host Attachment Information" in Chapter 10 of the Service Functions*.*

a. From Menu 1/Menu 3, **type CAS** (CA Services) and **press SEND.**

b. From CAS screen 1, **call option 2**.

c. On CAS screen 2, **type the CA number** (01 to 16). **Press SEND.**

d. **Fill in** the identification fields (up to 8 characters) for host and channel. **Press SEND.**

e. **Press F6** and **repeat** steps 10c and 10d for each channel installed.

f. **Press F1**.

Step 11. ___ **OLT Running on CA Interface**

For details, see step 15 on page 1-14, and refer to the IBM 3745 Channel Adapter Online Tests *, D99-3745A.*

For each CA interface to be tested:

a. **Load** the OLT responder in the 3745 storage. (Refer to "3745 OLT Setup Procedure" in the *3745 Channel Adapter Online Tests*.)

b. Put the 'Select Bypass' switch in the **'Bypass'** position (left) on the 3745 channel interface being tested, and **start the OLT procedure** from the host. With the switch in that position, check that the host result is **condition code 3** (no response).

c. Then switch the 'Select Bypass' to **'Normal'** (right), and **restart the OLT procedure** from the host.

When all the channels have been tested, **ensure** that the *Select Bypass Switch* is in the Normal (right) position for every channel in use.

Step 12. ___ **Checking LIC5/LIC6 Modems**

- **If there is no LIC5/LIC6 modem installed, skip to step 13 on page 8-10.**

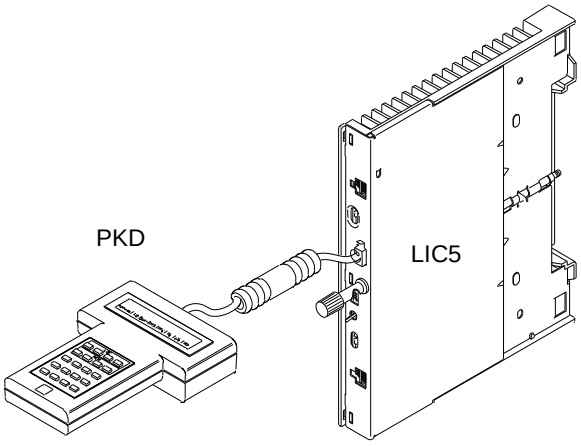
For details, refer to "How to Use the IBM 5869 Portable Keypad Display (PKD)" in the *Connection and Integration Guide*, SA33-0129.

a. In the LIU2 units, check that all the LEDs in front of the LIC5/LIC6 modems are **OFF**. If a LED is lit, check if the modem is in the right position and correctly seated.

b. If any **LIC5 configuration sheet(s)** was obtained from the customer, check the following options which are '*Service Representative Only*': 'MODE', 'CD SENSIT', and 'L XMIT LEVEL'.

The default values for these options are **NATIVE** MODE, **NORMAL** CD SENSIT, and the country L XMIT LEVEL **as set on the SMUX card.** If the default value must be changed for a specific LIC5, you have to perform the following:

1) Plug the PKD to the LIC5.



2) Enter the command **B300** at the PKD.
3) Press **GO** several times to get the desired option message.
4) Press **ERASE** and enter the new value if applicable.
5) Press **GO** to validate the new value, and **EXIT**.

- *The customer will configure the LIC5 and LIC6 modems later when running the system integration procedures described in the* Connection and Integration Guide*, SA33-0129. (Some LIC5/LIC6 parameters may also be set through the NetView* program if available.)*
- *LIC5 and LIC6 are shipped with a default configuration of 9600 bps point-to-point. The only way to set a LIC5 or LIC6 to a speed dif-*

ferent from 9600 bps (for instance 4800/14 400/19 200 bps) is to use the PKD.
- *Switching a LIC6 to 56 kbps necessitates a manual intervention on the V24/V35 switch located on the side of the LIC6 cassette.*

IF INSTALLING	GO TO
A 3745 model 210, 310, 410, or 610	Step 13
A 3745 model 21A, 31A, 41A, or 61A	Step 19 on page 8-12

Step 13. ___ **Remote/Alternate Console Link Test**

a. **Install the console wrap tool** (P/N 6398697) in the remote/alternate console connector at 01U-B0 (see Figure 8-4).

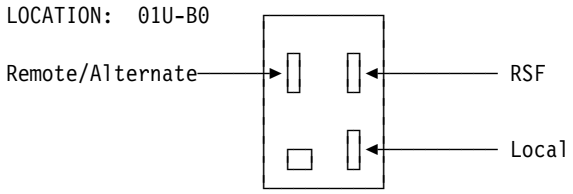


Figure 8-4. Console Tailgate

b. On the control panel, select **Service Mode = 1** and press the **Validate**key, then select **Function = 6**, and press the **Validate** key to start the test.

Successful diagnostic completion will give panel code **1B4**. For any other code refer to the *MIP*.

c. **Remove** the wrap tool.

Step 14. ___ **RSF Link Test**

a. **Install the console wrap tool** (P/N 6398697) in the RSF connector at 01U-B0 (see Figure 8-4).

b. On the control panel, select **Service Mode = 1** and press the **Validate** key, then select **Function = 7**, and press the **Validate** key to start the test.

Successful diagnostic completion will give panel code **1B6**. For any other code refer to the *MIP*.

c. **Remove** the wrap tool.

d. At the control panel, select **Service Mode = 1** and validate, then select **Function = 1**, and press the **Validate** key. A MOSS IML is started.

Wait for code **F0E/F0F.** The CA interface status will be displayed at the console. At this step of the procedure, the local console is logged OFF and the MOSS should be able to respond to any incoming RSF call.

- **If there is no RSF modem, continue with step 20 on page 8-13.**

Step 15. ___ **RSF Modem Setup**

In most countries, the 3745 is delivered with an RSF IBM Modem compatible with CCITT V.22/V.22-bis. The modem operating characteristics should be as follows:

- Connection over a switched line
- Duplex transmission
- Synchronous transmission
- Auto-answer feature
- Transmission speed: 1200/2400 bps
- Clocking by the modem clock
- DSR control by the modem.

Note: *Ask your country's RETAIN coordinator for current information.*

- **IBM Modem P/N 11F4814 (U.S.A. and Canada), or 11F4810 (Japan):**
  - On the front of the modem, the AS switch must be latched IN. All other front panel switches remain latched OUT.
  - On the back of the modem, switch number 2 must be OFF. All the other switches must be ON.

    Note: *If problems were encountered with a 2400-bps transmission, both the AS and FS switches should be latched IN on the front of the modem. (This drops the RSF speed to 1200 bps.)*
- **IBM Modem P/N 65X8663 (U.S.A. and Canada):**
  - On the front of the modem, all the switches must be OUT.
  - On the back of the modem, switches 2, 4, 7 and 8 must be in the OFF (down) position.
- **RSF IBM Modem delivered in European, Middle Eastern, and African countries:**

  Some switch settings are area-dependent. Ask your country's RETAIN coordinator for current information. In most countries the setting is as follows:
  - On the front of the modem, all the switches are latched OUT.
  - On the back of the modem, switches A-2, A-3, and A-7 are DOWN. All the other switches are UP.
- **In countries where no IBM modem is provided:**

  The RSF modem installation is the customer's responsibility.

  The modem operating characteristics are country-dependent and should be compatible with CCITT V.23 or V.22 bis.

Step 16. ___ **RSF Modem Cable Installation**

a. **Plug** the cable (P/N 65X8920) to the connector labeled RSF in the 3745 location 01U-B0J2.

b. **Secure** the cable with the clamp (P/N 65X9923) and thumb screw (P/N 03F7798).

   The clamp goes over the exposed braid of the cable. The hole to screw into is located in the 3745 middle sheet metal at the bottom rear of the machine (cable area).

   Note: *This cable clamp serves to reduce the possibility of radio frequency interferences that might be caused by the operating machine. A proper installation of the clamp is necessary to meet FCC requirements, and to conduct electrostatic discharges to ground.*

c. **Plug** the other end of the cable to the modem.

(World Trade only) If necessary, use the screws attached to the cable for securing the cable connector to the modem, depending on the modem type.

d. **Power** the RSF modem **ON**.

Step 17. ___ **Customer RSF Information**

Record hereafter the following RSF customer information:

a. Customer name:
_____

b. Customer identification number: _____

c. Phone number:
_____

d. Name of the person to contact:_____

e. Extension number of the person to contact:_____

f. 3745 serial number: _____

g. RSF modem phone number: _____

h. Temporary/permanent maintenance password (*write it in a safe place*).

Step 18. ___ **HSC/HCS Link**

Warning: To establish the connection with RSF, the 3745 must be powered ON and the MOSS IMLed. Any other MOSS console must be logged OFF (only one console may be used at a time).

a. **Call** the Hardware Support Center (HSC) in the US, or Hardware Central Service (HCS) in World Trade.

b. Provide the information recorded in step 17 to the HSC/HCS representative for use in registering your machine in the RETAIN Common Customer Profile Facility (CCPF)."

c. Make sure that the machine serial number is registered in the RETAIN common customer profile facility (CCPF).

d. Request the HCS/HSC to enable and test the RSF link, and to transmit the latest MCFs, if any, to the disk MCF file.

You are installing a 3745 model X10, Go to step 20 on page 8-13

Step 19. ___ **Call to RETAIN from a 3745 Model X1A**

Note: This procedure is used to test the link to RETAIN, and to verify if the machine is correctly recorded in the RETAIN database.

a. ___ Double click on the **3745 object icon**.

b. ___ Click on **"Problem Management"**, then scroll forward.

c. ___ Double click on **"Report Problem using Remote Support Facility"**.

d. ___ Enter a **short description** "Installing Model A and testing RSF link", then click on **"OK"**.
Wait for the message "Call to RETAIN successful" indicating the normal end of the transmission.
If you get the message "Call to RETAIN unsuccessful", record the Customer Problem Number (CPN) and go to the START page of the

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

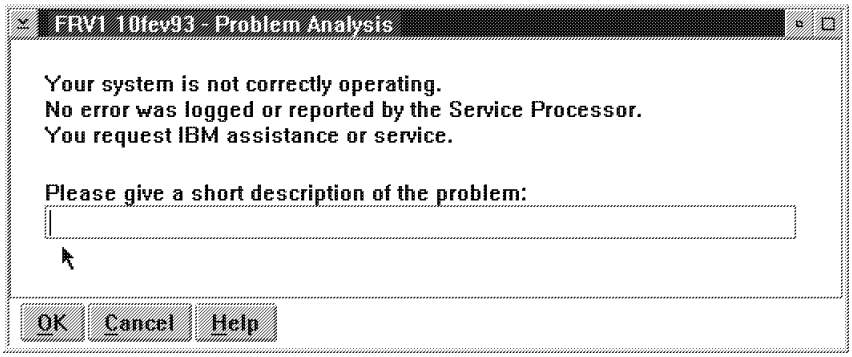


Figure 8-5. Link to RETAIN

Step 20. ___ **External Cable Installation**

a. If you did not get it previously, obtain **from the customer** the **plugging diagrams** that were prepared using the *3745 Preparing for Connection* manual.

b. **Open** the **door** of the 3745 or 3746 using the key:
Refer to Figure 8-6 on page 8-14.

Push and turn the screws (X in this figure) using the key.

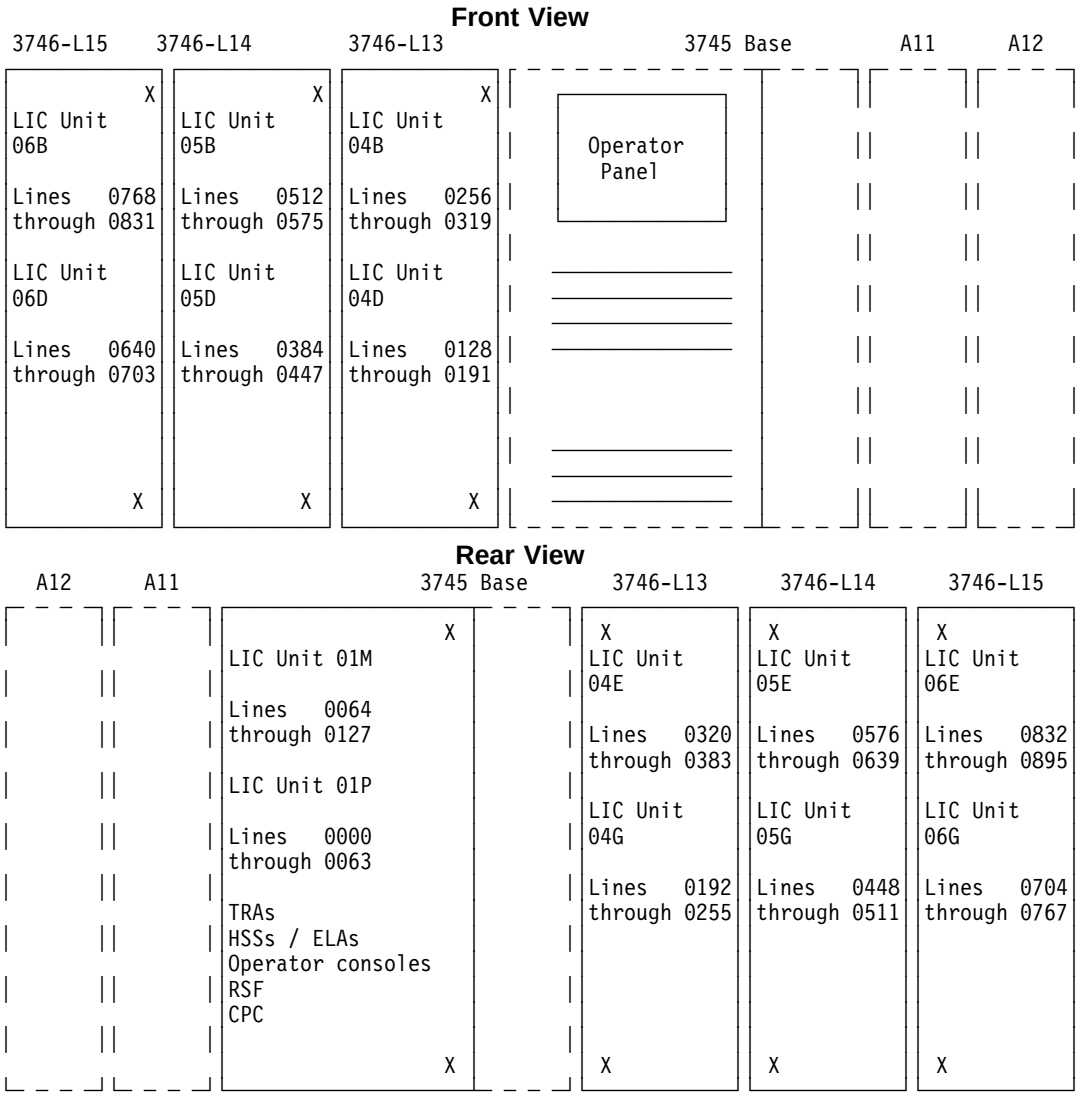


Figure 8-6. 3745 and 3746 Line Numbers and Locations

c. **Locate** the connectors:

1) Locate a **LIC** slot.

a) Locate the table on the rear of the open unit door. Study the line numbers shown in each of the four rectangular boxes.

Note: The boxes for LIC Unit Type 1 (LICs 1-4 only) are on the left-hand side, and the boxes for LIC Unit Type 2 (LICs 5 and 6 only) are on the right-hand side of this table.

b) Each box contains eight columns (D to L for LIC Unit Type 1, and C to K, for LIC Unit type 2), and each column contains several rows.

c) Lines are numbered from top left to bottom right, and from the bottom LIC unit to the top one.

2) Locate the connector for a **TRA**, **HSS** or **ELA**.

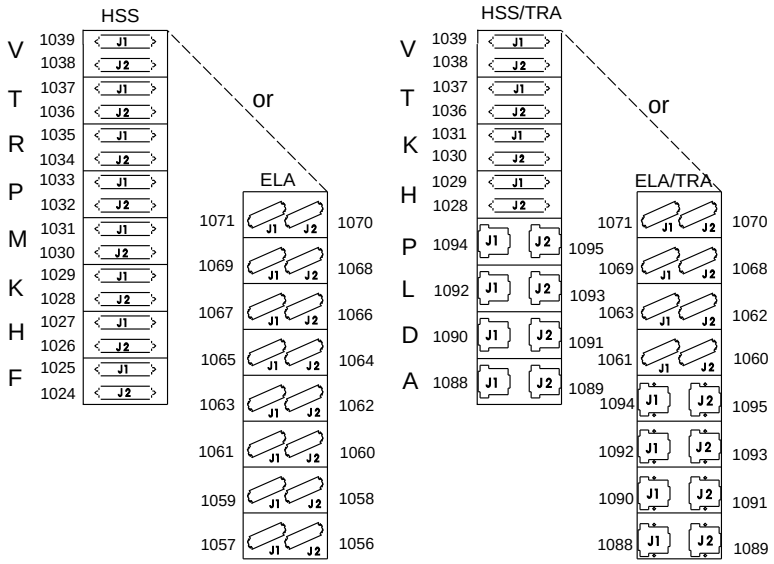


Figure 8-7. TRA, HSS, and ELA Connector Locations

3) Locate the console connectors for 3745 model 210, 310, 410, or 610

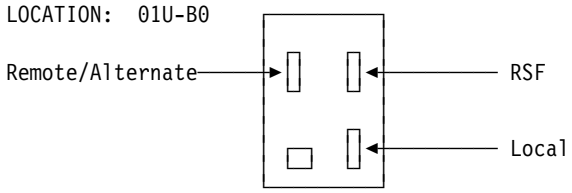


Figure 8-8. Console Tailgate Connector Locations for a 3745 Model 210 to 610

d. **Touch** the electrostatic discharge plate. (see Figure 8-9 detail **1**)

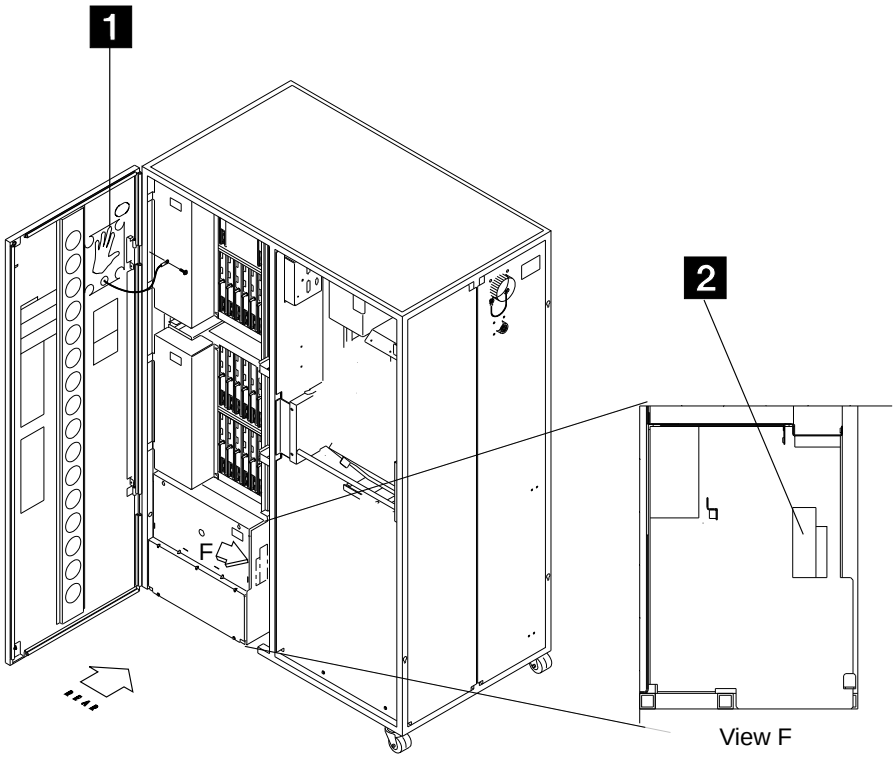


Figure 8-9. Electronic Discharge Plates

e. **Check** that the **configuration of the LICs** in the machine, as delivered, matches that on the plugging diagrams.
If there is a mismatch, relocate the LICs as required.

f. **Plug in the cables** in the **following order:**

Note: If you need help identifying connectors or plugging in any of the cables, refer to the appropriate task descriptions in Chapter 1 of the *Connection and Integration Guide*, SA33-0129.
Before plugging the cables touch the electronic discharge plate with the cable connectors (see Figure 8-9 detail **2**).

If you are installing a **3745 model X1A** go to **step 2**.

1) Connect the **remote or alternate console cable** from the console tailgate to the console plug.
For the console tailgate location refer to Figure 8-8 on page 8-15

For the cable reference refer to Appendix C of the *Console Setup Guide*, SA33-0158.

Note: Install the grounding clamps for the consoles now. They will be covered up later by plugging in the token-ring cables.

2) Connect the **token-ring cables,** if any.

3) Connect the **high-speed cables,** if any.

4) Connect the **AUI Ethernet LAN cables,** if any. Then if necessary, using the magnetic clamp (PN 26F1775) provided with the shipping group, gather the cables all together.

Warning:
When you have locked the cables on the connector, use the slide latch carefully.

ISO 8802-3

The connector is not specified to prevent operator contact with the shield, and precautions shall be taken at installation time to ensure that the installer is warned that the shield is not to be brought into contact with any hazardous voltage while being handled by operating personnel.

5) Connect the **low-speed cables,** starting with the lower boards and the lower ports.

Step 21. ___ **CDF Upgrade**

For details see "CDF Upgrade" in Chapter 9 of the Service Functions*.*
To record all the cable information in the CDF, execute the CDF upgrade procedures as follow:

a. **Type** *CDF* and **press SEND.**

b. From the CDF function selection panel, **call option 3** and press **SEND**. The upgrade phase is automatically started.

- Fields reflecting the current hardware configuration of the 3745 are automatically initialized; the progression of the upgrading appears on the CDF upgrade panel.
- If an error appears in the upgrade panel, go to the corresponding display in Chapter 9 of the *Service Functions* to get additional information.

c. Wait for the message *CDF UPGRADE COMPLETED*, and **press F1**.

Step 22. ___ **Visual Checking of the Line Adapter Parameters**

For details see "Display/Update the CDF" in Chapter 9 of the Service Functions*.*

To verify the external cables information recorded in the previous step, do the following:

a. **Type** *CDF* and **press SEND.**

b. From the CDF function selection panel, **call option 1** and press **SEND**.

c. From the CDF Display/Update function selection panel, **call option 7** and press **SEND**.

d. From the CDF Display/Update Line Adapters panel, select the line adapter that you want to display the details of by entering its **LA Number** and pressing **SEND**.

Refer to Appendix C, “CDF Fields Explanation (for Scanners and TRA)” on page C-1 for the meaning of the parameters.

Step 23. ___ **MCF Upgrade**

Note: If you are installing a **3745 model X1A**, refer to step 7 on page 4-8 to access the MOSS console, then go to step 23c

This step includes new MCFs, if any were received on the disk MCF file. *For details, refer to "MCF Microcode Upgrade" in Chapter 7 of the* Service Functions.

Note: *If a separate MCF diskette was received, you must copy the diskette to the disk. Refer to "MCF Transfer" in Chapter 7 of the* Service Functions.

a. **Press F4**.

b. Type the maintenance password and press **SEND**.

c. **Press F4** to get Menu 1.

d. **Type** *MCF*, then press **SEND** .

e. From the MCF selection screen, select **option 1** and **press SEND**.

f. From the MCF management screen, select **option 2** and **press SEND**. The progress of the MCF upgrade is displayed.

   If the MCF file is empty, the message *"NO NEW MCF IN FILE"* or *"CODE ALREADY UPGRADED"* is displayed (**in that case, press F1 and go to step 24d**).

g. At upgrade completion, **press SEND.**

h. At the control panel, select **Service Mode = 1** and validate, then **Function = 1**, and press the **Validate** key. A MOSS IML is started. Wait for code **F0E/F0F.** The local console will log OFF, and the CA interface status will display.

Step 24. ___ **3745 Disk to Diskette Saving**

For details see "How to Save the 3745 Disk Contents onto Diskettes" in Chapter 11 of the Service Functions.

This step will be run **twice**, once for the **normal set** of diskettes, and once for the **backup set.** This gives you two sets:

- One **normal** set of diskettes for CE/customer use. These diskettes will be upgraded by hardware or microcode changes.
- One **backup** set of diskettes to save. These diskettes keep the machine configuration at the time of installation.

a. **Press F4**.

b. Type the maintenance password and press **SEND**.

c. **Press F4** to get Menu 1.

d. **Enter** *DIF*, and press **SEND.**

e. From the disk function selection screen, **call option 2** and press **SEND.**

f. On the disk save function screen, **enter a save-id** of your choice (up to 8 characters identifying the level of the saving diskette set). **Press SEND.**

g. For each diskette, **messages on the screen will prompt you for the required actions** (insert/remove diskette). Information or error messages will keep you informed of the progress.

h. When the disk has been correctly saved, use a felt-tipped pen to **write the date and identifiers** on the diskette labels.

i. **Press F1**.

j. Run steps 24d to 24i again, using the second diskette set.

Step 25. ___ **Step-by-Step IPL to Phase 4**

(The **step-by-step** *IPL allows verifying that all scanners are IMLed.)*

WARNING

- **If the 3745 has no channel adapter**, the IPL sequence completes to phase 4 only if a link IPL port has been defined (see *step 4a on page 8-3 and step 25a*) with the data set cable installed and the modem connected and active (DSR), **or** if an NCP load module has been loaded to the disk.
- **If the 3745 is only in RLA link through X.25, switched X.21, or Token-Ring**, the step-by-step IPL must be executed after the NCP load module diskette generated at the local 3745 is loaded to the remote 3745. (Refer to the *3720/3745 Remote Loading/Activation Guide*, SA33-0161.) No link IPL port is required, *go to step 25b* after the diskette has been loaded.

a. **If the 3745 has no channel adapter, define or ask the customer to define a link IPL port.** Defining a link IPL port and link IPL port characteristics are explained in the Chapter "Link IPL Ports (LKP)" of the *Advanced Operations Guide*, SA33-0097.

b. Call Menu 1 and enter *IPL* to get the IPL function selection screen.

c. From the IPL selection screen, **select** the CCU you want to IPL (CCU-A = 2, CCU-B = 3), and the IPL option **2** (step-by-step). **Press SEND.**

Note: *If only CCU-A is installed, the CCU selection does not appear.*

d. The IPL will stop **at the beginning of** each phase (1,2,3,4). **STOP** is displayed next to the IPL phase field in the machine status area **before** the phase execution. **Press F5** to resume.

For example, when the screen displays "IPL PHASE 3 STOP", phase 2 has just completed, and phase 3 is going to start as soon as you hit F5.

e. When the IPL stops at the beginning of phase 4, verify that you **DO NOT HAVE** the message *"SCANNER(S) NOT IMLED xxxxxxxx"*

Press F5 to resume.

A successful completion will display code **FF4** at the control panel. Refer to the *MIP* for any other code.

Notes:

1) If you do get *"SCANNER(S) NOT IMLED xxxxxxxx"*message (the xxxxxxxx consists of eight hexadecimal digits, or 32 bits. Each bit corresponds to a scanner number).

Display the LA CDF and **verify that each scanner has a MUX connected**. Check the MUX cables (at the CSC card and at the MUX card) to verify that they are plugged and secured correctly. If you find a cable problem correct it, then **run CDF VERIFY** to correct the CDF. **Repeat the Step-by-Step IPL** to verify that the scanners now IML correctly.

2) If your customer has ordered a spare scanner (there is no available MUX to connect) the *"SCANNER(S) NOT IMLED xxxxxxxx"* message (for this spare scanner) is normal and expected operation. This unique condition will not prevent proper operation of the other adapters in the machine.

f. If two CCUs are present (3745 Model 410 or 4XX), repeat the step-by-step IPL for the second CCU.

g. Press **F1** to return to Menu 1.

Step 26. ___ **System Test**

If the whole system is available, **run a system test** from the host processor (ST370, ST4390, NST, and so on). If it is not possible, continue with step 27.

Step 27. ___ **BER File Reset**

For details see "BER File Erasure" in Chapter 2 of the Service Functions.

a. **Type** *DDD* (for dump display/delete) and press **SEND**.

b. **Press F6**.

c. **Enter** *CHGCIL* and press **SEND**.

d. **Press F1**.

e. **Type** *OFF* and press **SEND** to log off.

Step 28. ___ **Machine Ready for Customer**

a. At the 3745 control panel:

1) Set **Service Mode = 0** and validate.

2) Set **Power Control** according to the customer's option, and validate.

3) Set **Function = 0**, and validate. A general IPL is started. A successful completion will display code **FF4** at the control panel.

IF INSTALLING	GO TO
A 3745 model 210, 310, 410, or 610	Step 28k on page 8-22
A 3745 model 21A, 31A, 41A, or 61A	The service processor has a: 1. compact disk drive, go to step 28b 2. optical disk drive, go to step 28f on page 8-21

b. ____ Save the configuration data as follows:

1) ____Double click on the **"service processor object icon"**.

2) ____Click on **"Operation Management"**.

3) ____Double click on **"Manage Disks and Databases"**.

4) ____Click on **"Save databases on diskette"**, and click on **"OK"**.

5) ____Insert the **Configuration parameters diskette** (1.44 diskette PN 02L3427) and follow the prompts.

6) ____When the save is completed, click on **"Cancel"** to exit from the function.

c. ____ Do you have a **"Backup"** Service Processor?

- **Yes** go to step 28d on page 8-21.

- **No** go to step 28e on page 8-21.

d. ____ **Update the "Backup" Service Processor**

To have the same image of the information recorded on the "active" and "backup" service processors:

1) Install the same level of code (LIC) on the backup and active SP:
   a) Insert the compact disk in the CD drive
   b) Double click on the **service processor object icon.**
   c) Click on **change management**
   d) Double click on **update SP (& NNP) LIC on non-active version**, the code is being copied from the CD to the SP hard drive.
2) Restore the configuration data:
   a) ____From the SP menu, click on **"Operation Management"**.
   b) ____Double click on **"Manage Disks and Databases"**.
   c) ____Click on **"Restore databases from diskette"**, and click on **"OK"**.
   d) ____Insert the **configuration parameters diskette** and follow the prompts.
   e) ____When the restore is completed, click on **"Cancel"** to exit from the function.

e. ____If you have installed a controller expansion, store the compact disk and diskettes in the service drawer then go to **step 28l on page 8-22** , otherwise go to **step 28j** .

f. ____ Save the service processor hard disk to the optical disk disk

Use the procedure **Saving the service processor hard disk on the optical disk** described in chapter 3 of the *Service Processor Installation and Maintenance (Based on 7585, 3172, 9585, and 9577)*, SY33-2115.

g. ____ Do you have a **"Backup"** Service Processor?

- **Yes** go to step 28h.
- **No** go to step 28i.

h. ____ **Update the "Backup" Service Processor**

To have the same image of the information recorded on the "active" and "backup" service processors, copy the backup optical disk on the backup service processor hard disk.
Use the procedure **Restoring the service processor hard disk from the optical disk** described in chapter 3 of the *Service Processor Installation and Maintenance (Based on 7585, 3172, 9585, and 9577)*, SY33-2115.

i. If you have installed a controller expansion, store the optical disk and diskettes in the service drawer then go to **step28l on page 8-22** , otherwise go to **step 28j** .

j. ____ **Install** the disks/diskettes storage box

1) ____ Obtain from the shipping group the **diskette storage box PN 57G7502**
2) ____ Stick this box on:

a) ____ If you are installing a **3745 model 31A or 61A** stick the box **1** on PS1 (see Figure 8-10 on page 8-22).

b) ____ If you are installing a **3745 model 21A or 41A** stick the box on the cover located in front of the SACU board (see Figure 8-11).

3) ____ Store the diskettes and the optical disks shipped with the 3745 and the Service Processor in this box.

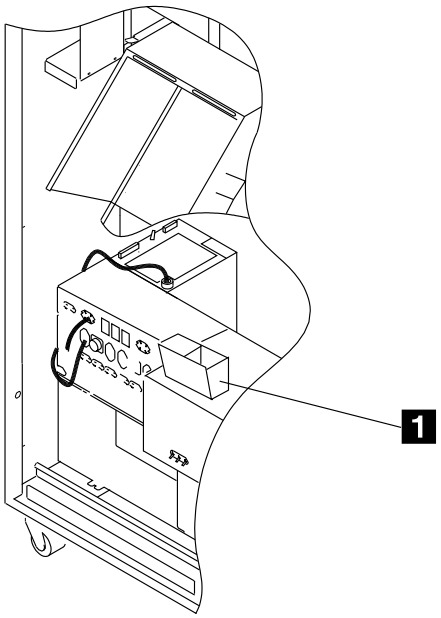


Figure 8-10. Disks and Disquettes Storage Box Installed in a 3745 31A or 61A

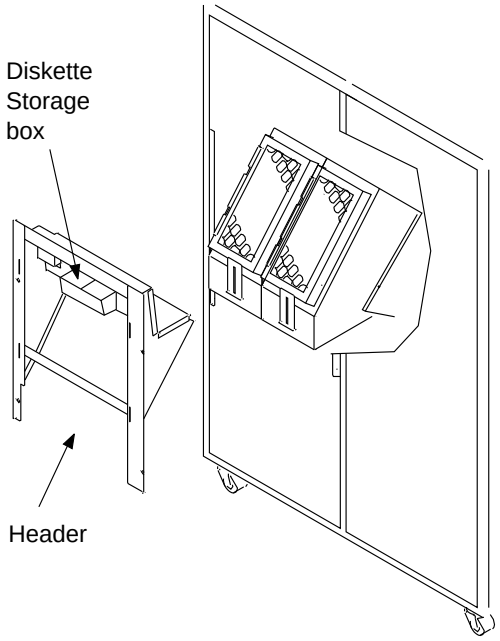


Figure 8-11. Disks and Disquettes Storage Box Installed in a 3745 21A or 41A

Go To

You are installing a 3745 X1A, go to step 28l

k. ____ **Place** the diskettes and the diskette drive protective cardboard into the diskette holder, at the left of the control panel.

l. ____ **Ensure** that the control panel gate is closed and secured. (*The cover retainers must be positioned vertically.*) **Ensure** that all internal covers, shields and parts previously removed are re-installed.

m. ____ **Ensure** that the RSF link is installed and tested prior to IPAR code 20 complete.

Note: If the RSF link is not installed during the installation, document the reason in your IPAR.

n. ___ Check the serial number on any external door before re-installing it. **Close** the external doors. Using the cover lock key, **push and turn** the camlocks to fasten the doors.

o. ___ **Give** the following parts to the customer:

- Spare LICs (if any) supplied in the shipping group
- TSS wrap tools (P/N 65X8927, P/N 65X8928, P/N 11F4815)
- HPTSS wrap tools (P/N 58X9349, P/N 58X9354)
- Console wrap tools (P/N 6398697, P/N 2667737)

- Clamps (P/N 6846576) to fasten the LIC cables in a proper way, as explained in the *Connection and Integration Guide*, SA33-0129.
- Cover lock keys (P/N 1643894 or 6834390)
- Clamp(s) (P/N 65X9923) and thumb screw(s) (P/N 03F7798) to fasten, if applicable, the remote/alternate console cable and the RSF modem cable.
- Unused adapter blocks for console cable (P/N 54F0488/54F0489/54F0490).

p. ___ **Clean up** the installation area.

q. ___ Refer to Appendix E of this manual for a **3745 Installation Hands-On Scenario** (HOS). For a full benefit the SE, CE, and customer must do the HOS together. Depending on people/account, the estimated time to complete the HOS is from 2 to 4 hours.

r. The installation is now completed, **ask the customer** to:

1) **Configure** the **alternate**, **LAN-attached** (for the models X1A only), or **remote console** if necessary, using the *3745 Communication Controller and 3746 Model 900 Console Setup Guide*, SA33-0158.

2) **Perform** the **integration procedures** using the Connection and Integration Guide, SA33-0129.

3) **Update** the **line parameters** in the CDF, most of these parameters have been set to their default values when the upgrade procedure was executed.

Note: The section "Upgrade CDF", must be **skipped** if the CE has already performed this during the external cable installation phases.

Chapter 9. Removal or Relocation of the 3745

The sales branch office must determine if packaging materials and instructions are required and must obtain applicable bill(s) of material. This should normally be ordered 90 days before the anticipated removal date.

It may be necessary for the customer, or a customer-appointed electrician to do all or some of the work involved in the following steps. The CE must ensure that all of the following steps have been completed.

Note: If a 3746-900 is to be removed refer to the *3746-900 Installation Guide*, SY33-2114 chapter "Removal relocation".

Go through the following procedures sequentially.

Mainline Power Disconnection

Step 1. ____ If the 3745 is to be relocated, copy the hard disk to the **backup** diskettes (see step 24 on page 8-18).

Step 2. ____ At the control panel, ensure that the Power Control window displays '3' (Local), and push the Power-OFF key.

Step 3. ____ **Switch OFF** the main circuit breaker CB1 at the 3745 primary power box. (See Figure 2-4 on page 2-4.)

Step 4. ____ Have the customer's branch-circuit breakers that feed the 3745 receptacle **turned OFF.**

If removing only 3746 expansion units, go to "Disconnecting Inter-Machine Cabling" on page 9-2.

Step 5. ____ Unplug the 3745 main power cable, or ask the customer to disconnect the 3745 power cable from its AC power receptacle if any.

Note: If you are removing a controller expansion, disconnect its power plug from the customer receptacle.

Step 6. ____ Coil the disconnected power cable inside the 3745.

Interface Cable Disconnection

Step 1. ____ *If the machines are being relocated*, label and remove the console cables, and all data set cables from the LIC cassettes and HSS/TRA/ELA tailgate.

Note: *It is advisable to disconnect the cables starting at the top of the I/O connector area(s), and work downwards.*

Step 2. ____ Disconnect the channel interface cables from the 3745. **The channel interface cables cannot be disconnected while a running CPU is attached.**

Step 3. ____ Disconnect the host power control (UEPO) cables from the 3745 (up to eight), and coil them up.

If removing a 3745 only, go to "Preparing Machines for Shipment" on page 9-3.

Disconnecting Inter-Machine Cabling

Step 1. ____ *If the Service Processor is to be removed,* disconnect the external cables and pack the 8228 and the external RSF modem (if any).

Step 2. ____ *If the 3746-900 is to be removed,* use the procedures described in the *3746-900 Installation Guide*, SY33-2114 chapter "Removal or relocation of the 3746-900".

Step 3. ____ *If the 3746-A11 is to be removed,* to make disconnection easier, remove the right front door from the 3745 (see Figure 2-5 on page 2-4).

Step 4. ____ If any, disconnect the channel interface cables from the 3746-A11.

Step 5. Proceed in reverse order as for frame installation (see Chapter 2), and disconnect the following inter-machine cables:

a. ____ MUX cables. Stack them in the 3745/3746-A frame stacking areas (see Figure 7-7 on page 7-8).

b. ____ AFD cables

c. ____ Power cables

d. ____ IOC bus flat cables. Roll and secure them in the 3746-A frames.

e. ____ Power control flat cables. Roll and secure them in the 3746-A/3746-L frames.

Step 6. *If the whole 3745 is not disconnected*, perform the following appropriate actions:

- ____ **If a 3746-A is removed**, plug the LA bus terminator card on the last LAB board in use (see Figure D-1 on page D-2 through Figure D-5 on page D-5 for LAB locations).

- ____ **If the 3746-A11 is removed**, unplug the CA interface cables if any, and move the CA bus terminator card on CAB1 in the 3745.

- ____ **If a 3746-L is removed**, swap the front and rear power control bus terminator cards with the bypass cards on the remaining leftmost 3746-L.

Step 7. ____ Remove the frame-to-frame screws (P/N 1621598). Put these parts into an envelope. Write the part number on the envelope, and place it in the shipping group.

Updating the Service Processor Network Configuration

Step 1. ____ If several 3745 are connected to the Service Processor and the path to Netview go through the 3745 that you are going to remove, modify the mainstream error reporting. Use the procedure described in the *Service Processor Installation and Maintenance (Based on 7585, 3172, and 9585)*, SY33-2120 or SY33-2115., chapter "Customizing your service processor" and modify the NetView link parameters.

Step 2. ____ If not logged enter the Service Processor maintenance password. (default password IBM3745).

Step 3. ____ Double click on the **"Service Processor Object Icon"**

Step 4. ____ Click on **"Configuration Management"**

Step 5. ____ Double click on **"Manage 3745/3746-9x0 installation/Removal"**.

Step 6. ____ Select **the 3745** to be removed

Step 7. ____ Click on **"Save"** and insert the 3745 installation parameters diskette to save the data.

Step 8. ____ Re-select **the 3745** to be removed and click on **"remove"**.

Step 9. ____ Check and confirm the delete option, at the end the Service Processor is reinitialized.

Preparing Machines for Shipment

Step 1. ____ Remove the end covers on the right and left sides.

To remove the end cover, loosen the four retaining screws using a 5/16 socket from inside the machine, then lift the cover from slotted holes on the frame and pull it towards you.

Step 2. For any LIU2 enclosure:

a. ____ Remove and pack the PS 7 black cover, and place it inside the machine for shipment.

b. ____ Find the shipping braces stored inside the machine on the LIU2 right side. Install them to hold LIC5/LIC6 modems in position.

Step 3. Perform the following appropriate actions:

- **If removing a 3745 alone:**
  a. ____ Remove the bottom brackets and ground plates.
  b. ____ Remove the leveling pads.
  c. ____ Unlock the caster lock screws.
  d. ____ Re-install the end covers.

- **If removing a multiple frame controller:**
  a. ____ Remove the bottom brackets from all the frames.
  b. ____ Unbolt the frames.
  c. ____ Remove the leveling pads.
  d. ____ Unlock the caster lock screws.
  e. ____ Move other frames away from the 3745.
  f. ____ Remove the remaining ground plates.
  g. ____ Re-install the end covers on the 3745.

- ____ **If only a 3746-A is disconnected,** move the right end cover and bottom bracket to the remaining rightmost frame.

- ____ **If only a 3746-L is disconnected,** move the left end cover, ground plate if applicable (see Figure 6-7 on page 6-9 and Figure 6-8 on page 6-10), and bottom bracket to the remaining left-most frame.

- ____ **If all the 3746 expansion units are disconnected but not the 3745,** move the rightmost/leftmost 3746-A/3746-L side covers and bottom brackets to the right/left side of the 3745.

Step 4. ____ Re-install all parts removed from frames, covers and doors.

Step 5. ____ Pack the machines using the pack/unpack instructions.

Step 6. ____ Pack the customer's parts and documentation in one package and label: "Customer Package".

Step 7. ____ Pack other parts and all maintenance documentation in another package and label: "Maintenance Package. Hold for use by IBM Service Representative."

Step 8. ____ Coil all removed cables.

Step 9. ____ Complete the removal records according to existing procedures. Inform the IBM Branch Office that the machines are ready for shipment.

When at least one 3746 unit is removed but not the 3745

1. After powering the 3745 ON again, you must recreate the power configuration table (refer to step 13 on page 4-10).
2. You may also have to perform one or more of the following:
   - Upgrade the configuration data file (refer to step 4 on page 8-3).
   - Update the line adapter CDF (refer to step 5 on page 8-4).
   - Update the channel adapter CDF (refer to step 7 on page 8-6).
3. Then you must perform an IML with **Service Mode = 1, Function = 1**, and save the disk contents to the diskettes (refer to step 24 on page 8-18).

Appendix A. Channel Adapter Information Form

Notes:

1. *Before setting, the following options/parameters must be discussed with the customer. See Appendix B, "CA Option Settings" on page B-1 for details.*
2. *When the TPS feature is present, there is no even-numbered CA. (See Figure 8-3 on page 8-7 for the tailgate positions of interfaces A and B in that case.)*
3. *The 'ESC Address Range' parameter is not present when the CA is type 7 (BCCA).*
4. *For each installed CA, circle the selected option, or record the appropriate parameter.*

	CA1 or **CA1-A** (TPS)	**CA2** or **CA1-B** (TPS)	**CA3** or **CA3-A** (TPS)	**CA4** or **CA3-B** (TPS)
I/O Error Alert	Y N	Y N	Y N	Y N
TPS/TCS Mode	TPS TCS		TPS TCS	
Burst Length	_____	_____	_____	_____
Channel Priority	L H	L H	L H	L H
NSC Address	_____	_____	_____	_____
ESC Address Range:				
• Low ESC Address	_____	_____	_____	_____
• High ESC Address	_____	_____	_____	_____
Data Streaming	Y N	Y N	Y N	Y N
High-Speed Data Transfer (HSDT)	Y N	Y N	Y N	Y N
Byte Multiplexer Channel	Y N	Y N	Y N	Y N
Data Streaming Speed	_____	_____	_____	_____

	CA5 or **CA5-A** (TPS)	**CA6** or **CA5-B** (TPS)	**CA7** or **CA7-A** (TPS)	**CA8** or **CA7-B** (TPS)
I/O Error Alert	Y N	Y N	Y N	Y N
TPS/TCS Mode	TPS TCS		TPS TCS	
Channel Burst Length	_____	_____	_____	_____
Channel Priority	L H	L H	L H	L H
NSC Address	_____	_____	_____	_____
ESC Address Range:				
• Low ESC Address	_____	_____	_____	_____
• High ESC Address	_____	_____	_____	_____
Data Streaming	Y N	Y N	Y N	Y N
High-Speed Data Transfer (HSDT)	Y N	Y N	Y N	Y N
Byte Multiplexer Channel	Y N	Y N	Y N	Y N
Data Streaming Speed	_____	_____	_____	_____

	CA9 or **CA9-A** (TPS)	**CA10** or **CA9-B** (TPS)	**CA11** or **CA11-A** (TPS)	**CA12** or **CA11-B** (TPS)
I/O Error Alert	Y N	Y N	Y N	Y N
TPS/TCS Mode	TPS TCS		TPS TCS	
Channel Burst Length	_____	_____	_____	_____
Channel Priority	L H	L H	L H	L H
NSC Address	_____	_____	_____	_____
ESC Address Range:				
• Low ESC Address	_____	_____	_____	_____
• High ESC Address	_____	_____	_____	_____
Data Streaming	Y N	Y N	Y N	Y N
High-Speed Data Transfer (HSDT)	Y N	Y N	Y N	Y N
Byte Multiplexer Channel	Y N	Y N	Y N	Y N
Data Streaming Speed	_____	_____	_____	_____

	CA13 or **CA13-A** (TPS)	**CA14** or **CA13-B** (TPS)	**CA15** or **CA15-A** (TPS)	**CA16** or **CA15-B** (TPS)
I/O Error Alert	Y N	Y N	Y N	Y N
TPS/TCS Mode	TPS TCS		TPS TCS	
Channel Burst Length	_____	_____	_____	_____
Channel Priority	L H	L H	L H	L H
NSC Address	_____	_____	_____	_____
ESC Address Range:				
• Low ESC Address	_____	_____	_____	_____
• High ESC Address	_____	_____	_____	_____
Data Streaming	Y N	Y N	Y N	Y N
High-Speed Data Transfer (HSDT)	Y N	Y N	Y N	Y N
Byte Multiplexer Channel	Y N	Y N	Y N	Y N
Data Streaming Speed	_____	_____	_____	_____

Appendix B. CA Option Settings

Warning: The CA parameters do not take effect until the 3745 has gone through a power OFF/ON procedure, or a general IPL from the control panel (*Function=0*) has been done.

I/O Error Alert

I/O error alert is a channel interface feature that detects a CA malfunction (disconnect-in tag line raised). This information (*Y or N*) can be selected when the I/O error alert feature is present in the attached host.

- *I/O error alert is supported by all the IBM hosts to which a 3745 can be attached (3033, 308X, 3090*, 4341, 4361, 4381, ES/9000* and 937X). In case of a non-IBM attached host, ensure that the I/O error alert feature is present in that host.*
- *When the TPS feature is present and if both interfaces are connected to two different hosts, I/O error alert can be set to YES only if the two hosts support the I/O alert feature.*

TPS/TCS Mode

When the TPS feature is present, you can select either *TPS* or *TCS* mode.

- In **TPS mode**, the A and B interfaces are connected to the **same host** and can be enabled at the same time.
- In **TCS mode**, the interfaces A and B are connected to channels of **two different hosts/processors** or to two channels of a **unique host/processor** and cannot work at the same time.

Channel Burst Length

This information (*4 to 254*) is mandatory. An even value must be entered. When using the TPS feature, the burst length must be specified for both the A and B interfaces of the channel adapter.

Recommended values to allow a better CA throughput are given hereafter.

When working through a block multiplexer channel, selector channel, or byte multiplexer channel with buffered devices on the channel, **the burst length recommended value is 64** (NCP* and PEP) for **CADS** and **254** for a **BCCA**.

When working through a byte multiplexer channel which has unbuffered devices on the channel, **the burst length recommended value is: 32** for 3033, 308X, 3090, or ES/9000, **16** for 4341 or 4381, **8** for 4361.

Notes:

- *The CA throughput depends also on the IOC bus load, and the burst length must be discussed with the customer in any case.*
- *Value 254 may be used for a byte multiplexer channel if the user wants to optimize the efficiency (connect time) instead of the throughput.*

Channel Priority

This information is mandatory. Circle the priority (*L or H*) given to the channel interface. When TPS is installed, this information must be specified for both the A and B interfaces of the channel adapter.

Native Subchannel (NSC) Address

This information (*00 to FF*) is mandatory and required for **the NCP and the PEP.** When TPS is installed, the NSC address must be specified for both the A and B interfaces of the channel adapter.

Emulation Subchannel (ESC) Address Range

Note: This parameter is not displayed when the CA is type 7 (BCCA).

This information (*00 to FF*) is required for the PEP **when the emulation subchannel is used.** Give the high and low ESC addresses.

- *If the emulation subchannel is not used, the high and low ESC addresses can be left blank.*
- *In TPS mode, the high and low ESC addresses must be left blank on the two interfaces.*

Data Streaming

This information (*Y or N*) is mandatory. The data streaming feature allows selecting transfer speeds (*1 to 3*) through a **block multiplexer/selector channel**, according to the host channel speed: The following table shows, for every host type, whether the data streaming feature can be used with the 3745.

Host Type	Data Streaming
3033	NO
308X	NO
3090	YES
ES/9000	YES
4341	NO
4361	NO
4381	NO
937X	YES

- *When a 3044 is used as a channel extender, data streaming is not allowed.*
- *When TPS is installed, data streaming and speed must be specified for both the A and B interfaces of the channel adapter.*
- *Data streaming=YES and HSDT=YES is refused.*
- *Data streaming=YES and Byte Multiplexer=YES is refused.*

Warning: The 3745 operates in several modes: data streaming/high speed/DCI mode, as defined in the host IOCP generation. The data streaming Y/N value must match the IOCP PROTOCOL specification. PROTOCOL=S means data streaming=YES, PROTOCOL=D means data streaming=NO (DCI mode is set). **If there is a mismatch between the CA data streaming option and the IOCP setting, an IPL abend (CLDP 300A) will occur at loading time.**

Data Streaming Speed

- CDF option is **1** when a 1 MB channel is used.
- CDF option is **2** when a 2 MB channel is used.
- CDF option is **3** when a 3 MB or 4.5 MB channel is used. (**Recommended option**)

  Note: These values are the host channel speeds, not the actual transfer rates which are much lower. The 3745 may also be connected to a 4.5 MB channel attachment though it operates at its own speed.

High-Speed Data Transfer (HSDT)

High-speed data transfer is a basic channel feature also called data-in/data-out (DIDO) feature. This information (*Y or N*) is mandatory. When TPS is installed, HSDT must be specified for both the A and B interfaces of the channel adapter.

The following table shows for every host type, and according to the channel type, whether the HSDT feature can be used:

Host Type	HSDT through Byte Channel	HSDT through Block Channel	HSDT through Selector Channel
3033	NO	YES	YES
308X	YES	YES	NO
3090	YES	YES	NO
ES/9000	YES	YES	NO
4341	YES	YES	YES
4361	YES	YES	NO
4381	YES	YES	NO
937X	NO	YES	NO

Byte Multiplexer Channel

This information (*Y or N*) is mandatory. If TPS is present, it must be specified for both the A and B interfaces.

Appendix C. CDF Fields Explanation (for Scanners and TRA)

Line Adapter Type

1 = TSS 2 = HPTSS
3 = TRSS 4 = RSRVD
5 = ESS

Common Fields for Line Adapter

The explanation is valid for all the LA displays.

SWITCH A (CCU-A) or B (CCU-B)
IOC IOC number (1 or 2)
LAB LA board number (1, 2, 3, or 4)
GROUP Address of a pair of LAs (1 to 8). Refer to the MIR ("Buses and Bus Switching") for details.
PS ID Associated power supply ID number
CCU A (CCU-A) or B (CCU-B)
ADDR LA address on the IOC bus
TYPE TSS, HPTSS, TRSS or ESS

LA TSS

MUX MUX number (1 to 56) (refer to 'Locations' in the *Maintenance Information Procedures* to obtain its location).
EXTEND Yes or no.
- If EXTEND = NO F8 key is :FWD
- If EXTEND = YES F8 key is :EXTEND.

PRESENCE
Y (yes) or N (no)
NUMBER Logical LIC number (1 to 159).
TYPE LIC type: 1, 3, 4, 5 ,or 6
C (clock)

- Not present
1 Internal
2 External
3 Local (also called direct attachment or 3745 mode).

You may find additional information about clocking in the "Transmission Subsystem (TSS)" Chapter of the *Hardware Maintenance Information*.

I (cable information)

- Not present
1 Wrap block for LIC 1 and 4
2 Wrap cable for LIC 3
3 Integrated modem (LIC 5)
4 Modem-attached
5 Direct-attached
6 Autocall

7 Integrated modem (LIC 6)

LA TRSS

Presence Y (yes), or N (no)
Port number Address (from 1088 to 1095)
Type TIC type **(always 2)**

LA HPTSS

ERROR SEQUENCE Pattern sent in case of error **(default value: 7FFF).**
DSR Adjustable confirmation delay when the data set ready (DSR) level changes **(default value: 16).**
PORTx Port number.

LA ESS

PORTx These fields are always left blank.

TSS Port

LA LA number (1 to 32)
MUX MUX number (1 to 32) (refer to the "Locations" chapter in the MIP to obtain its location)
LIC Logical LIC number (1 to 128)
IPL Y (yes) or N (no). Indicates if it is an IPL port or not
PRESENCE
Y (yes) or N (no) for MUX, LIC, and CABLE
PORT CLOCKING

- **-** Not present (*)
- **1** Internal
- **2** External (*)
- **3** Local (also called direct attachment or 3745 mode):

(*) If LIC type 5/6, values can be only **-** or **2 (default value = 2).**

TRANSIENT THRESHOLD
Maximum number of consecutive transient errors received before generating a solid error **(default value: 3)**
DSR Adjustable confirmation delay, when the data set ready (DSR) level changes **(default value: 16)**
RLSD Adjustable confirmation delay, when the receive line signal detector (RLSD) level changes **(default value: 16)**
RI Adjustable confirmation delay, when the ring indicator (RI) level changes **(default value: 16).** Used only with LICs type 1 to 4.

TRSS Port

A TRSS port cannot be updated, only the common parameters are displayed.

HPTSS Port

CABLE ID

- **-** Not present
- **1** Wrap block
- **4** Modem-attached
- **5** Direct-attached

INTERFACE TYPE X21 or V35

ESS Port

An ESS port cannot be updated, only the common parameters are displayed.

Appendix D. Locations

Location prefix numbers depend on the units as follows:

Location prefix number **01** is used in **frame 01** (3745)

Location prefix number **02** is used in **frame 02** (3746-A11)

Location prefix number **03** is used in **frame 03** (3746-A12)

Location prefix number **04** is used in **frame 04** (3746-L13)

Location prefix number **05** is used in **frame 05** (3746-L14)

Location prefix number **06** is used in **frame 06** (3746-L15).

Note: For the 3746-900 component locations refer to *3746-900 Installation Guide*, SY33-2114.

3745 Component Locations (Front)

Note: *Location prefix number* **01** *is for frame 01 (3745).*

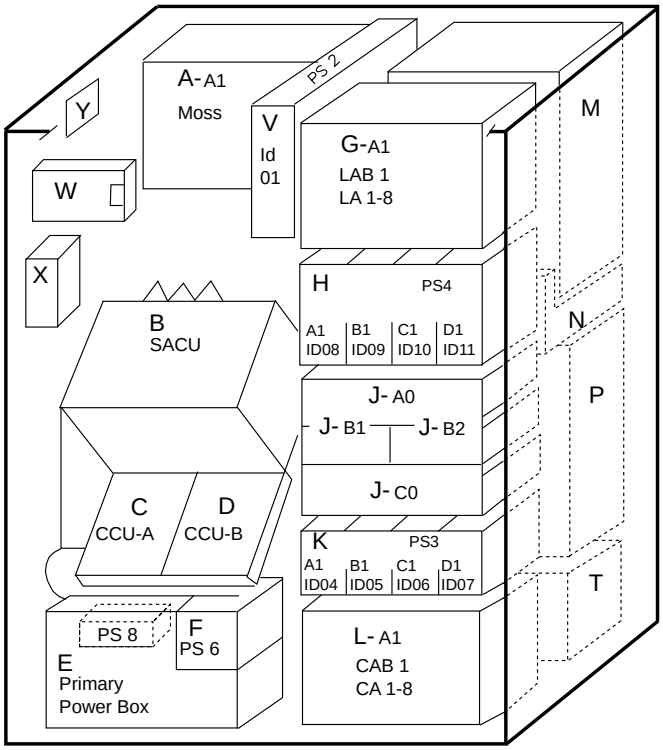


Figure D-1. 3745 Component Locations (Front)

01A MOSS board and fan

01B CCU control board

01C CCU-A (present in models 210 and 410)

01D CCU-B (present in model 410 only)

01E Primary power box

01F PS type 6 (PS for power supply controls)

01G Line adapter board 1 (LAB1) for LAs 01 to 08

01H PS type 4 for LAs (up to four PS)

01J AC and DC distribution

01K PS type 3 for CAs (up to four PS)

01L Channel adapter board 1 (CAB1) for CAs 01 to 08

01V PS type 2 (PS for MOSS)

01W Control panel and diskette

01X Hard disk drive (HDD)

01Y AC and DC auxiliary outlets

3745 Component Locations (Rear)

Note: *Location prefix number* **01** *is for frame 01 (3745).*

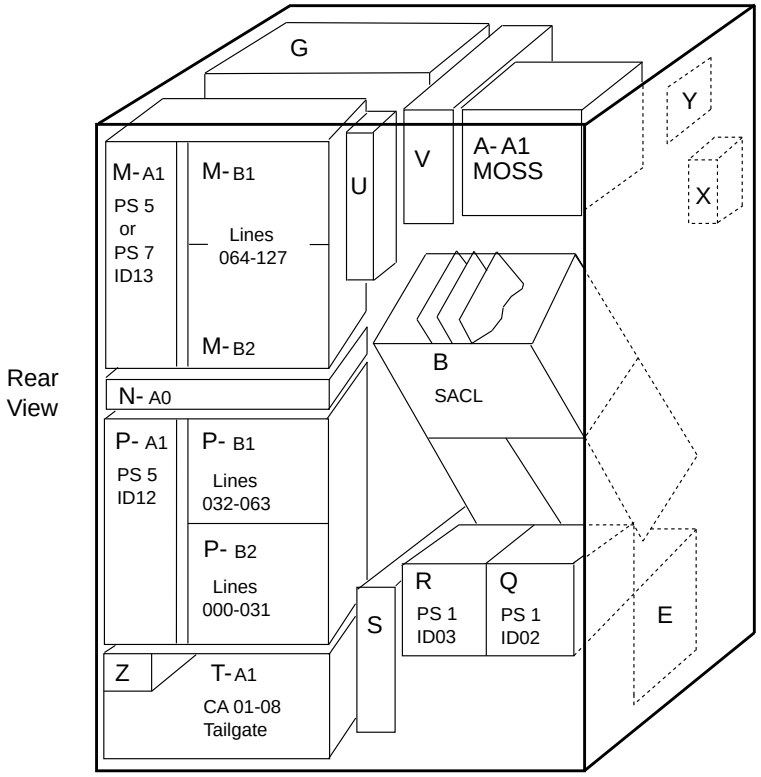


Figure D-2. 3745 Component Locations (Rear)

01M 01M-A1: PS type 5 for LIU1 or PS type 7 for LIU2
01M-B: If LIU1 unit: lines 064 through 127
If LIU2 unit: lines 064 through 095

01N Fan for LIC unit

01P 01P-A1: PS type 5 for LIU1 unit
01P-B: LIU1 unit (lines 000 through 063)

01Q PS type 1 or 1B (PS for CCU-A)

01R PS type 1 or 1B (PS for CCU-B)

01S EPO connector tailgate

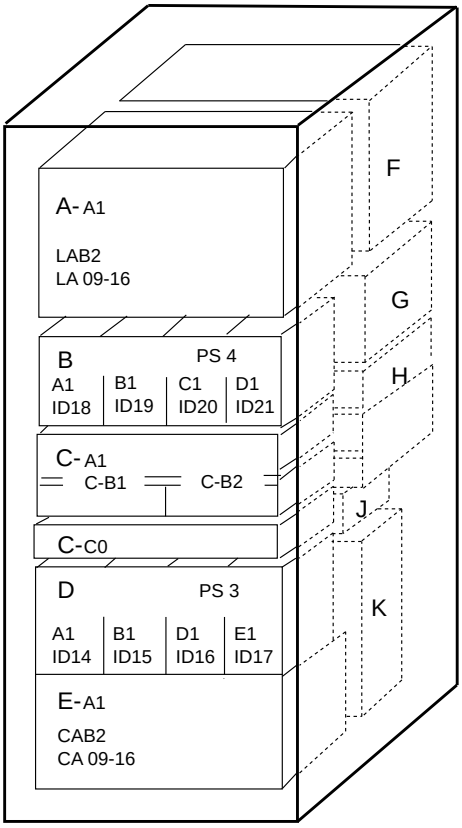
01T Tailgate for CAs 01 to 08

01U 01U-A: HSS/TRA/ELA tailgate
01U-B: Console and customer power control connectors

01Z Auxiliary power box

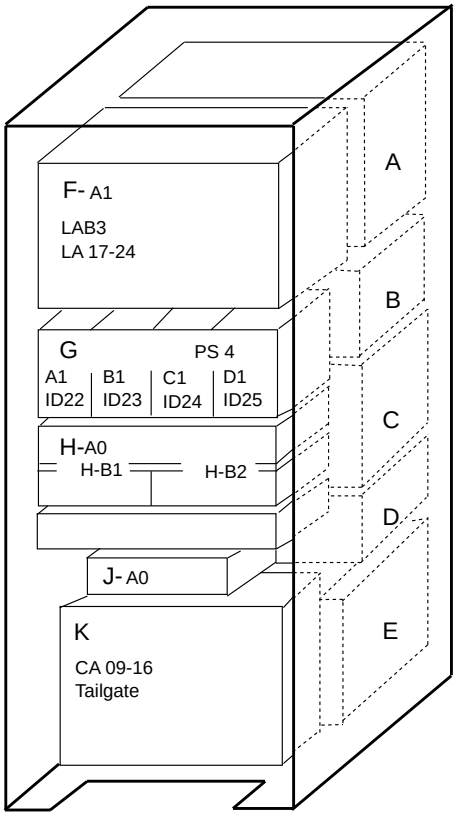
3746-A11 Component Locations

Note: *Location prefix number* **02** *is for frame 02 (3746-A11).*



Front View

Figure D-3. 3746-A11 Locations (Front)



Rear View

Figure D-4. 3746-A11 Locations (Rear)

02A LA board 2 (LAB2) for LAs 09 to 16

02B PS type 4 for LAs (up to four PS)

02C AC and DC distribution

02D PS type 3 for CAs (up to four PS)

02E CA board 2 (CAB2) for CAs 09 to 16

02F LA board 3 (LAB3) for LAs 17 to 24

02G PS type 4 for LAs (up to four PS)

02H AC and DC distribution

02J Auxiliary power box

02K Tailgate for CAs 09 to 16

3746-A12 Component Locations

Note: *Location prefix number* **03** *is for frame 03 (3746-A12).*

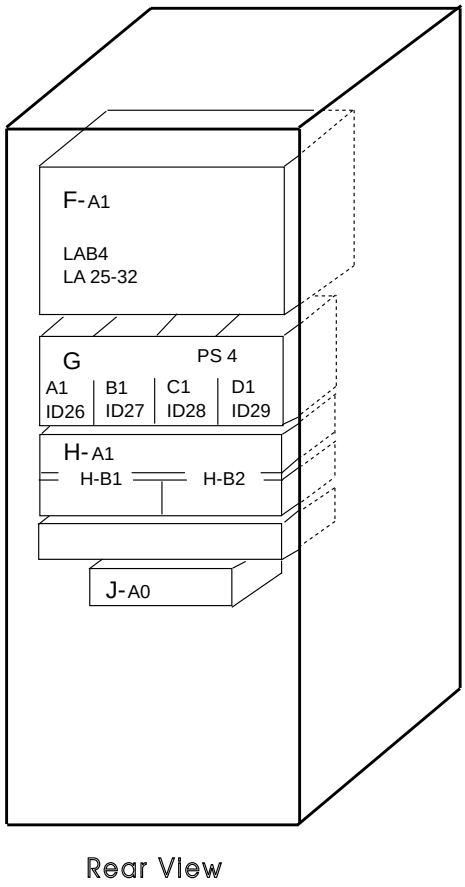


Figure D-5. 3746-A12 Component Locations (Rear)

03F Line adapter board 4 (LAB4) for LAs 25 to 32

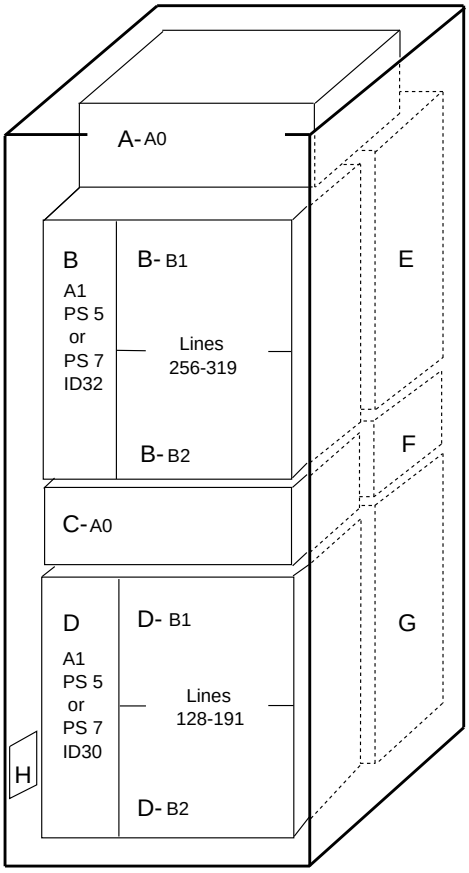
03G PS type 4 for LAs (up to four PS)

03H AC and DC distribution

03J Auxiliary power box

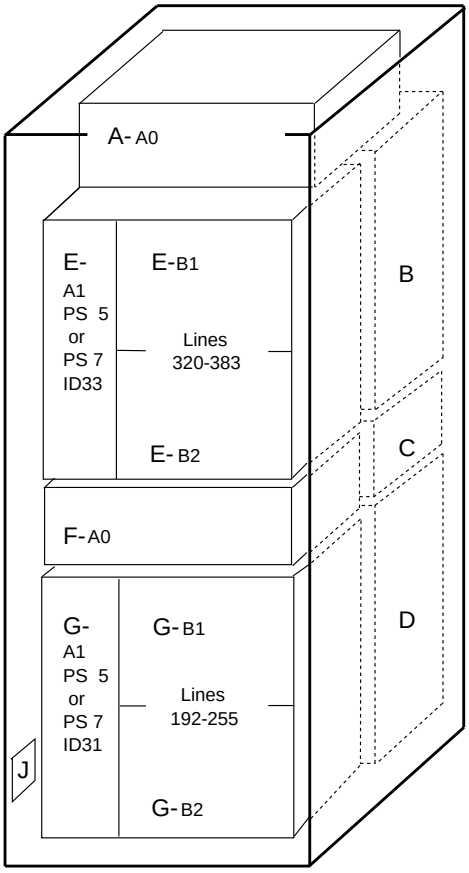
3746-L13 Component Locations

Note: *Location prefix number* **04** *is for frame 04 (3746-L13).*



Front View

Figure D-6. 3746-L13 Locations (Front)



Rear View

Figure D-7. 3746-L13 Locations (Rear)

04A Auxiliary power box

04B 04B-A1: PS type 5 for LIU1
PS type 7 for LIU2
04B-B: If LIU1: lines 256 through 319
If LIU2: lines 256 through 287

04C Fan for LIC unit

04D 04D-A1: PS type 5 for LIU1
PS type 7 for LIU2
04D-B: If LIU1: lines 128 through 191
If LIU2: lines 128 through 159

04H Power control bus terminator

04A Auxiliary power box

04E 04E-A1: PS type 5 for LIU1
PS type 7 for LIU2
04E-B: If LIU1: lines 320 through 383
If LIU2: lines 320 through 351

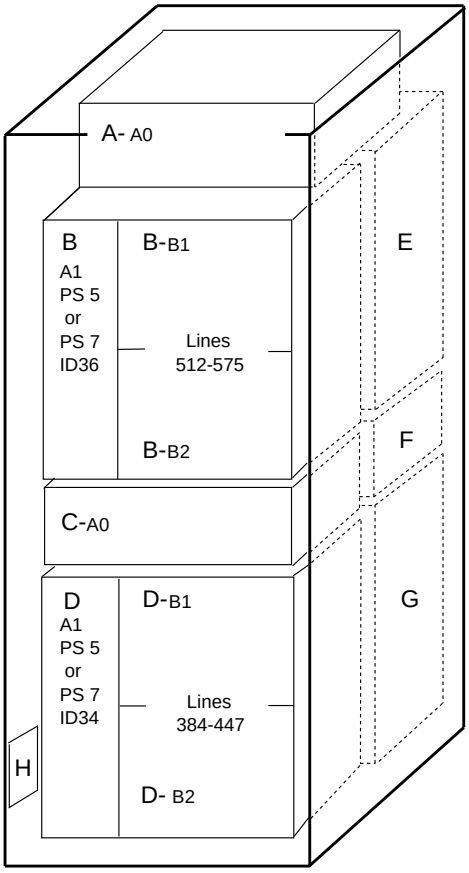
04F Fan for LIC unit

04G 04G-A1: PS type 5 for LIU1
PS type 7 for LIU2
04E-B: If LIU1: lines 192 through 255
If LIU2: lines 192 through 223

04J Power control bus terminator

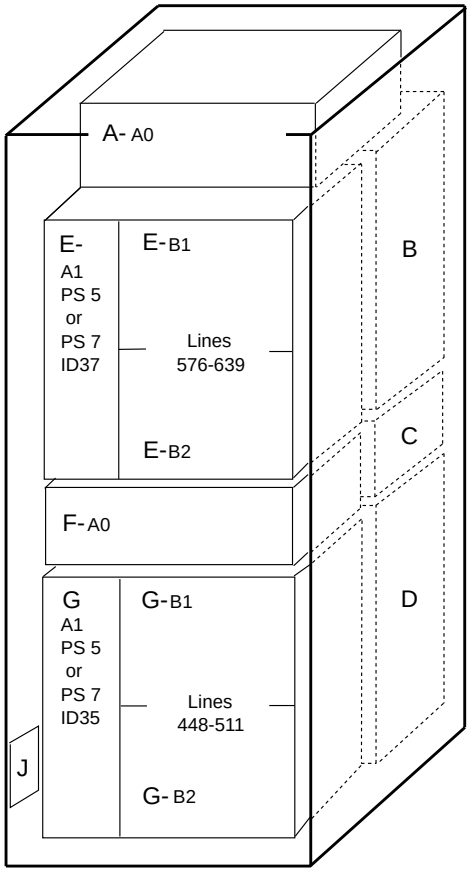
3746-L14 Component Locations

Note: *Location prefix number* **05** *is for frame 05 (3746-L14).*



Front View

Figure D-8. 3746-L14 Locations (Front)



Rear View

Figure D-9. 3746-L14 Locations (Rear)

05A Auxiliary power box

05B 05B-A1: PS type 5 for LIU1
PS type 7 for LIU2
05B-B: If LIU1: lines 512 through 575
If LIU2: lines 512 through 543

05C Fan for LIC unit

05D 05D-A1: PS type 5 for LIU1
PS type 7 for LIU2
05D-B: If LIU1: lines 384 through 447
If LIU2: lines 384 through 415

05H Power control bus terminator

05A Auxiliary power box

05E 05E-A1: PS type 5 for LIU1
PS type 7 for LIU2
05E-B: If LIU1: lines 576 through 639
If LIU2: lines 576 through 607

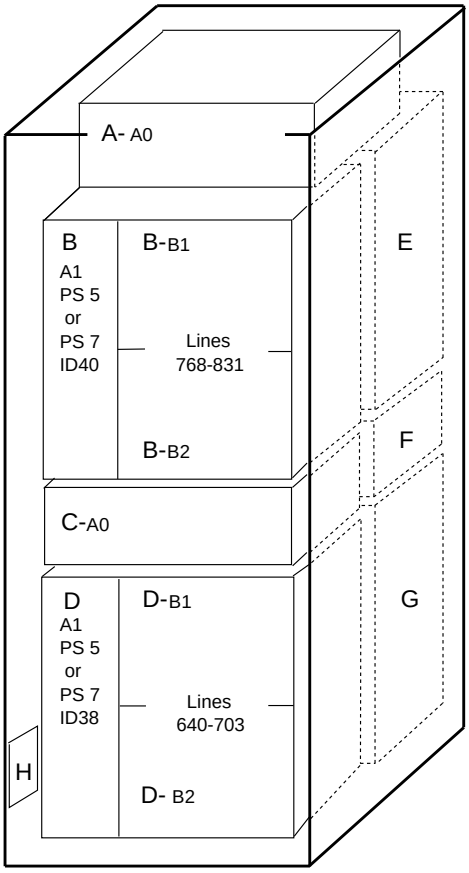
05F Fan for LIC unit

05G 05G-A1: PS type 5 for LIU1
PS type 7 for LIU2
05G-B: If LIU1: lines 448 through 511
If LIU2: lines 448 through 479

05J Power control bus terminator

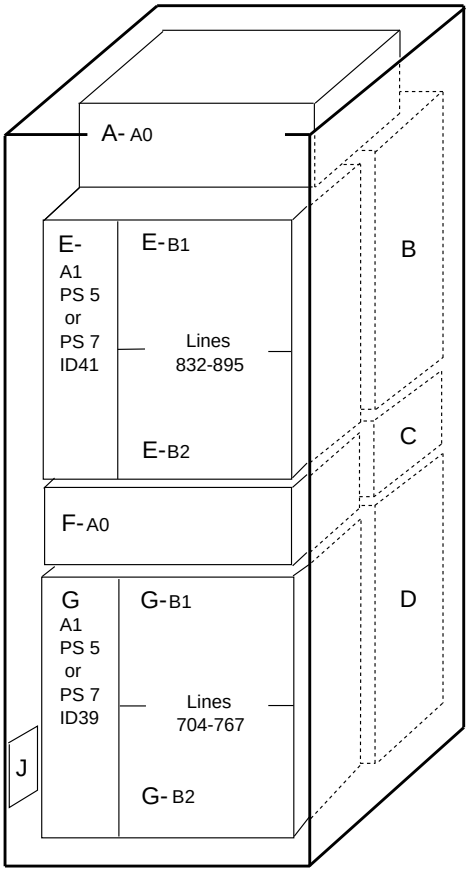
3746-L15 Component Locations

Note: *Location prefix number* **06** *is for frame 06 (3746-L15).*



Front View

Figure D-10. 3746-L15 Locations (Front)



Rear View

Figure D-11. 3746-L15 Locations (Rear)

06A Auxiliary power box

06B 06B-A1: PS type 5 for LIU1
PS type 7 for LIU2
06B-B: If LIU1: lines 768 through 831
If LIU2: lines 768 through 799

06C Fan for LIC unit

06D 06D-A1: PS type 5 for LIU1
PS type 7 for LIU2
06D-B: If LIU1: lines 640 through 703
If LIU2: lines 640 through 671

06H Power control bus terminator

06A Auxiliary power box

06E 06E-A1: PS type 5 for LIU1
PS type 7 for LIU2
06E-B: If LIU1: lines 832 through 895
If LIU2: lines 832 through 863

06F Fan for LIC unit

06G 06G-A1: PS type 5 for LIU1
PS type 7 for LIU2
06G-B: If LIU1: lines 704 through 767
If LIU2: lines 704 through 735

06J Power control bus terminator

Appendix E. Controller Expansion Component Locations

If you want more information about:	Refer to
• Positioning the units in the front side of the controller expansion	• Figure E-1 on page E-2
• Positioning the units in the rear side of the controller expansion	• Figure E-2 on page E-3
• Installing captive nuts and brackets (for 7585)	• Figure E-3 on page E-4
• Installing captive nuts and brackets (for 3172, 9585, or 9577)	• Figure E-4 on page E-5
• Installing captive nuts for LCBs	• Figure E-5 on page E-6
• Installing captive nuts for 8229s	• Figure E-6 on page E-7
• Installing captive nuts and brackets for MAE	• Figure E-7 on page E-8
• Installing brackets for processor type 7585	• Figure E-8 on page E-9
• Installing brackets for processor type 3172	• Figure E-9 on page E-10
• Example of units installation (processor type 7585)	• Figure E-10 on page E-11
• Example of units installation (processor type 7585 + MAE)	• Figure E-11 on page E-11
• Example of units installation (processor type 3172)	• Figure E-12 on page E-12
• Example of units installation (processor type 9585)	• Figure E-13 on page E-12
• Example of units installation (processor type 9577)	• Figure E-14 on page E-13
• Connecting the units to the ac Outlet Distribution Box.	• Figure E-15 on page E-13

Use this drawing to setup the **units** on the **front side** of the controller expansion, for the units that can be installed on the rear, refer to Figure E-2 on page E-3.

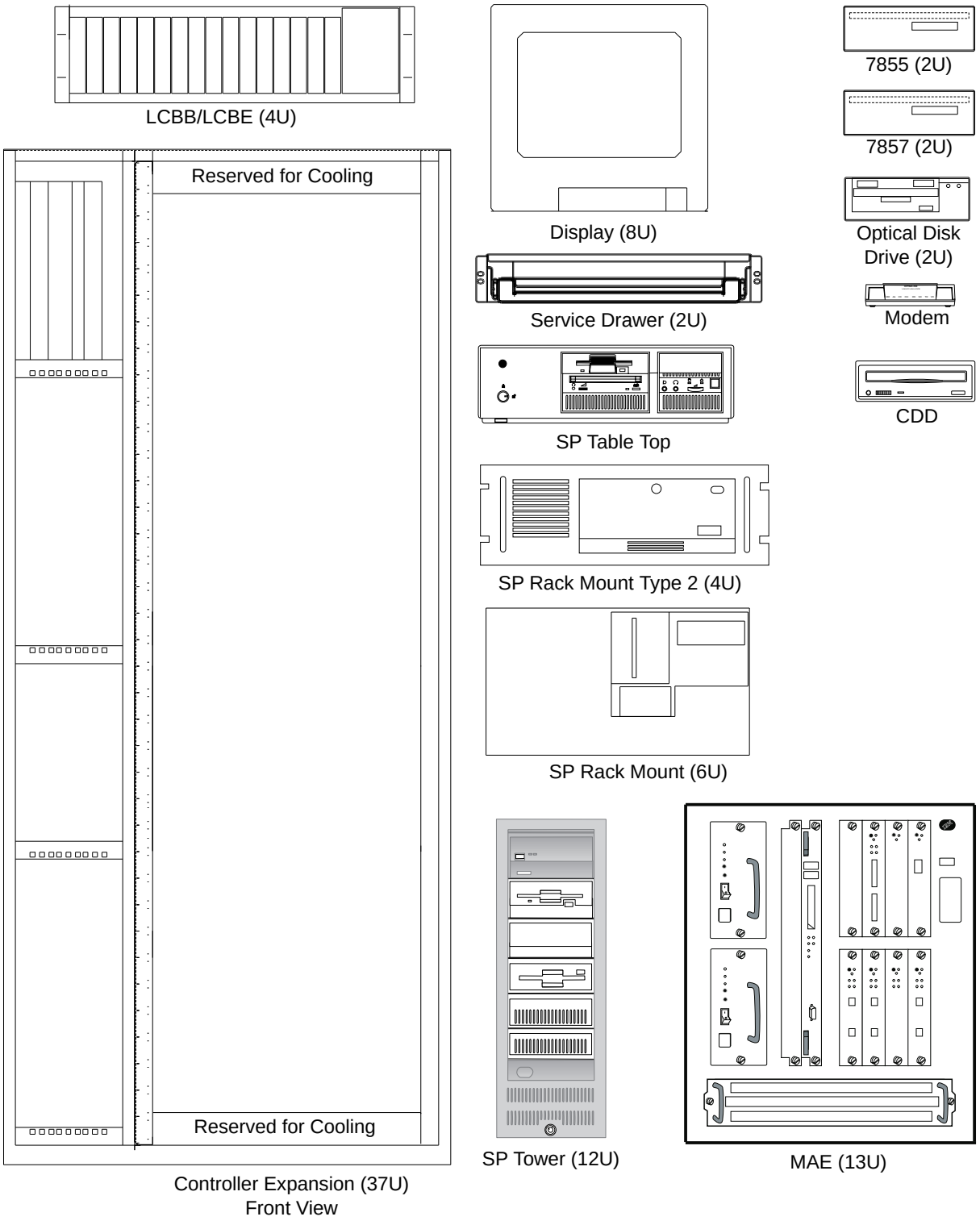


Figure E-1. Controller Expansion Inventory Chart (Front View).

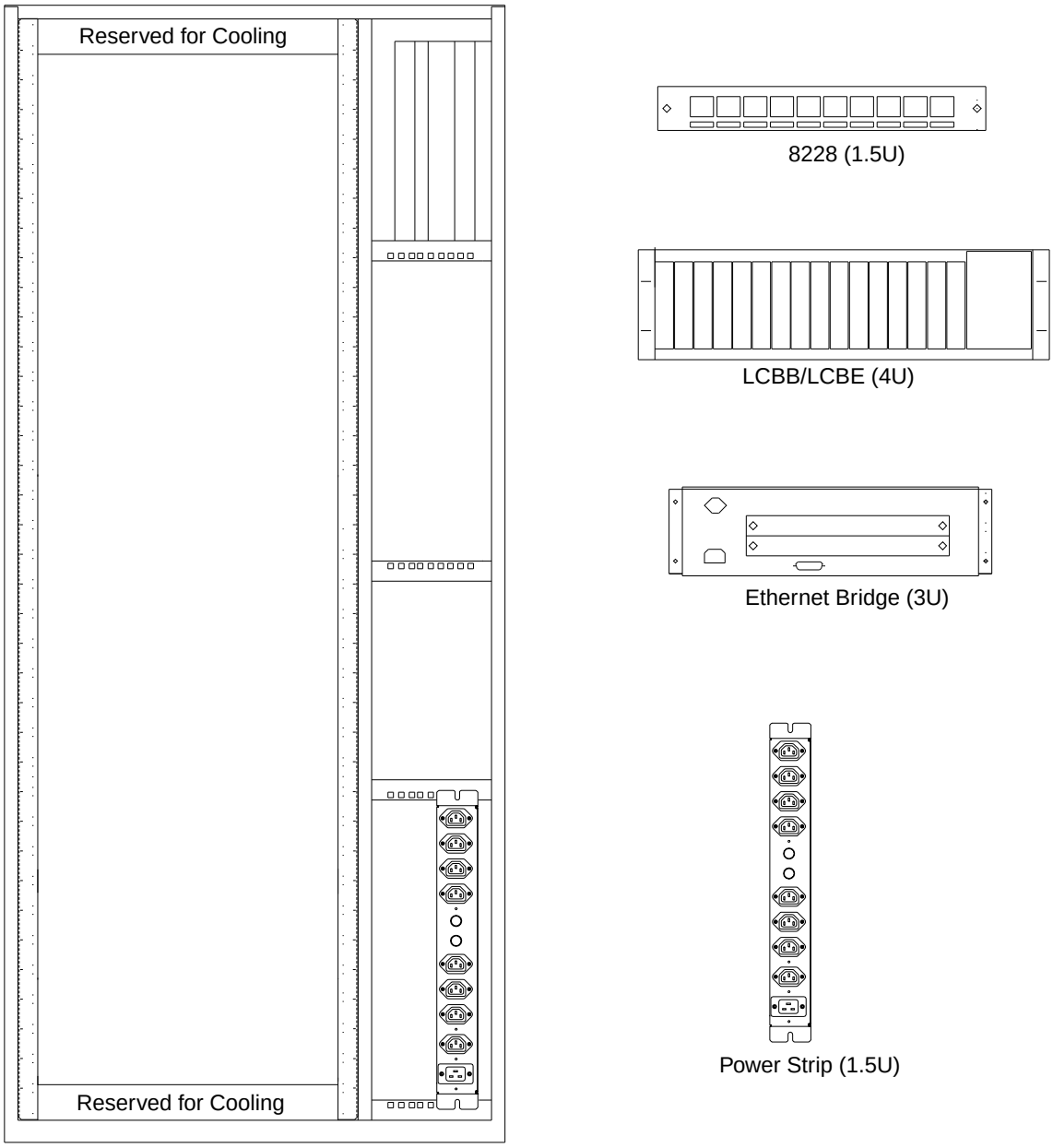


Figure E-2. Controller Expansion Inventory Chart (Rear View).

Notes:

1. The units dimensions are scaled to the size of the controller expansion diagram. The values represent the size used to setup the units in the controller expansion, it is not the size of the units themself.
2. The attachment holes along each side of the controller expansion are divided into units of measure called EIA units. Each EIA unit (U) equals 44.5 millimeters (1.75 inches).
3. The controller expansion is 37 U high but only 35 are usable, one U must be reserved at the top and at the bottom for proper cooling.

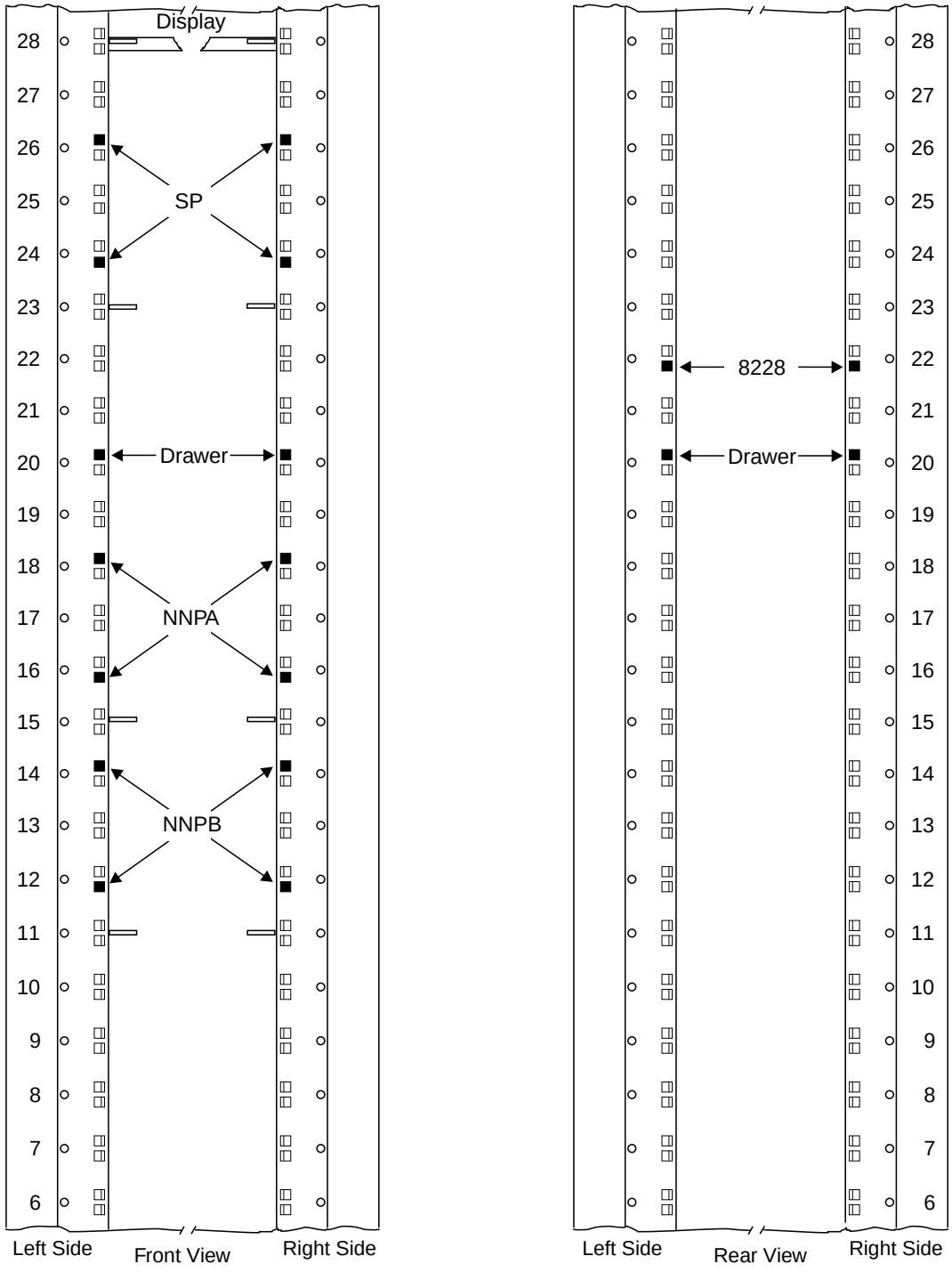


Figure E-3. Installing Captive Nuts and Brackets for the Display, Drawer, SP and NNP Type 7585

Note: This symbol '■' identify the locations to install the captive nuts.

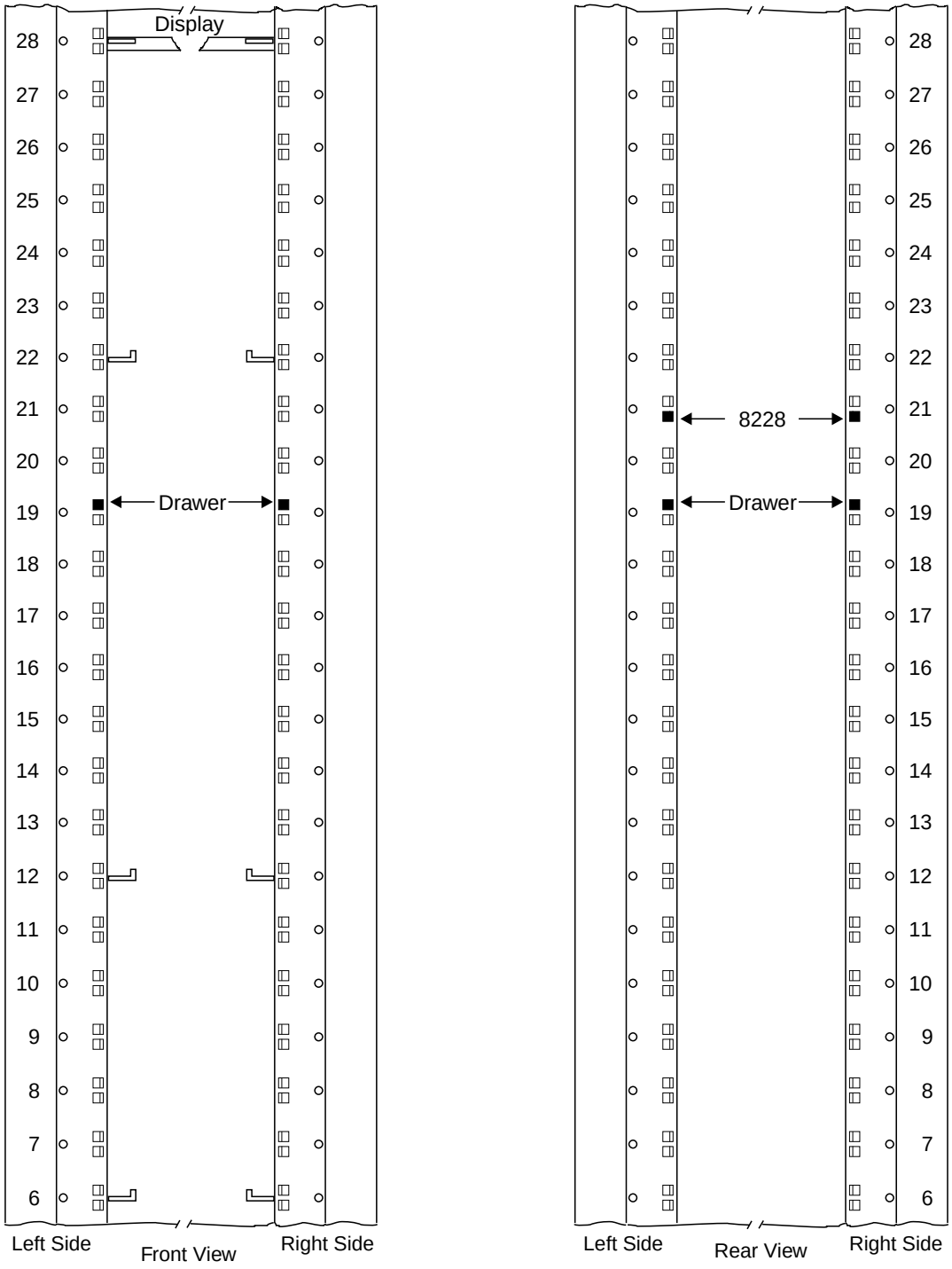


Figure E-4. Installing Captive Nuts and Brackets for the Display, Drawer, SP and NNP Type 3172

Notes:

1. This drawing can be used to setup the SP type **9585** or **9577**
2. This symbol '■' identify the locations to install the captive nuts.

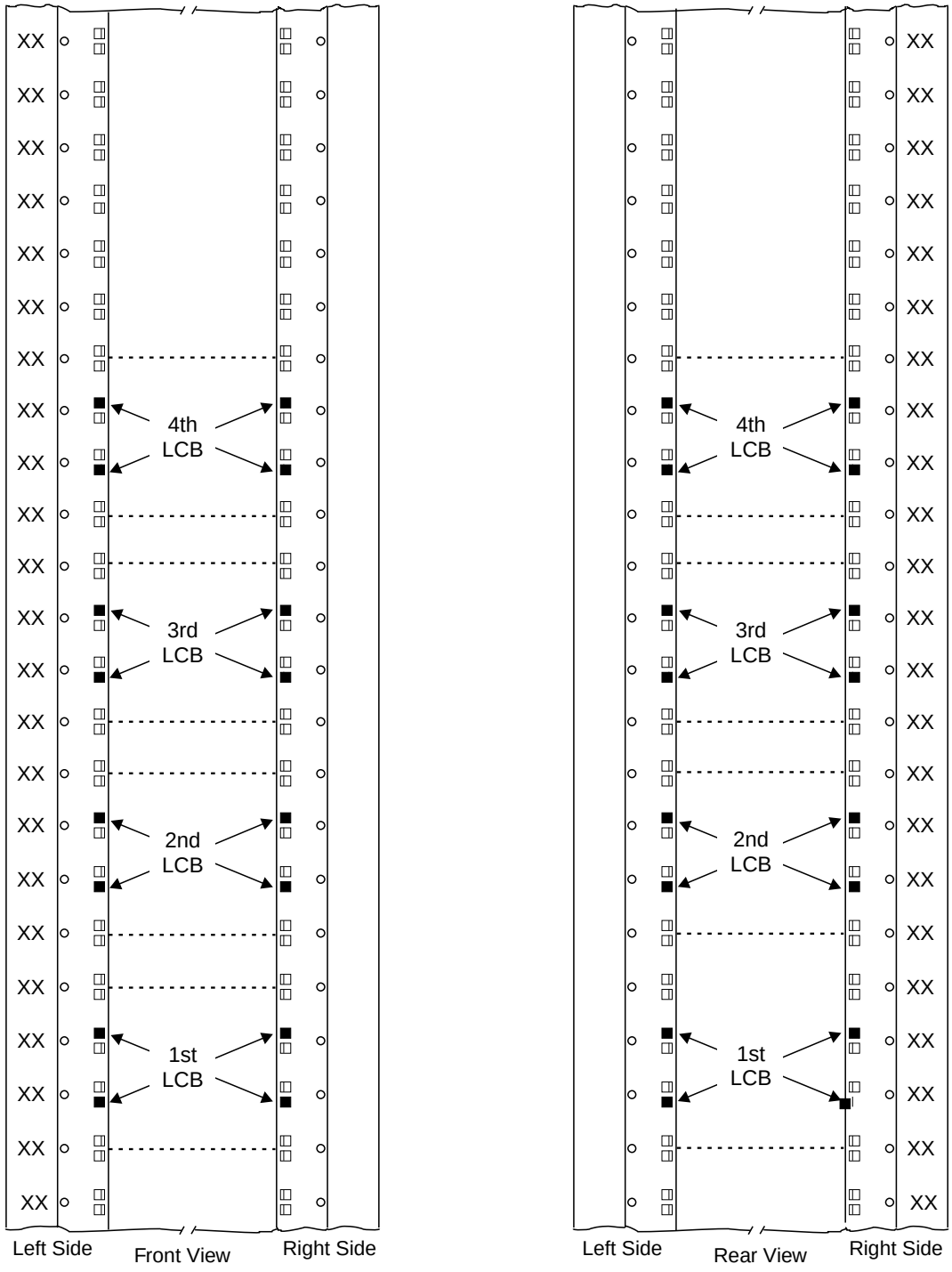


Figure E-5. Installing Captive Nuts for LCBs

Note: This symbol '■' identify the locations to install the captive nuts.

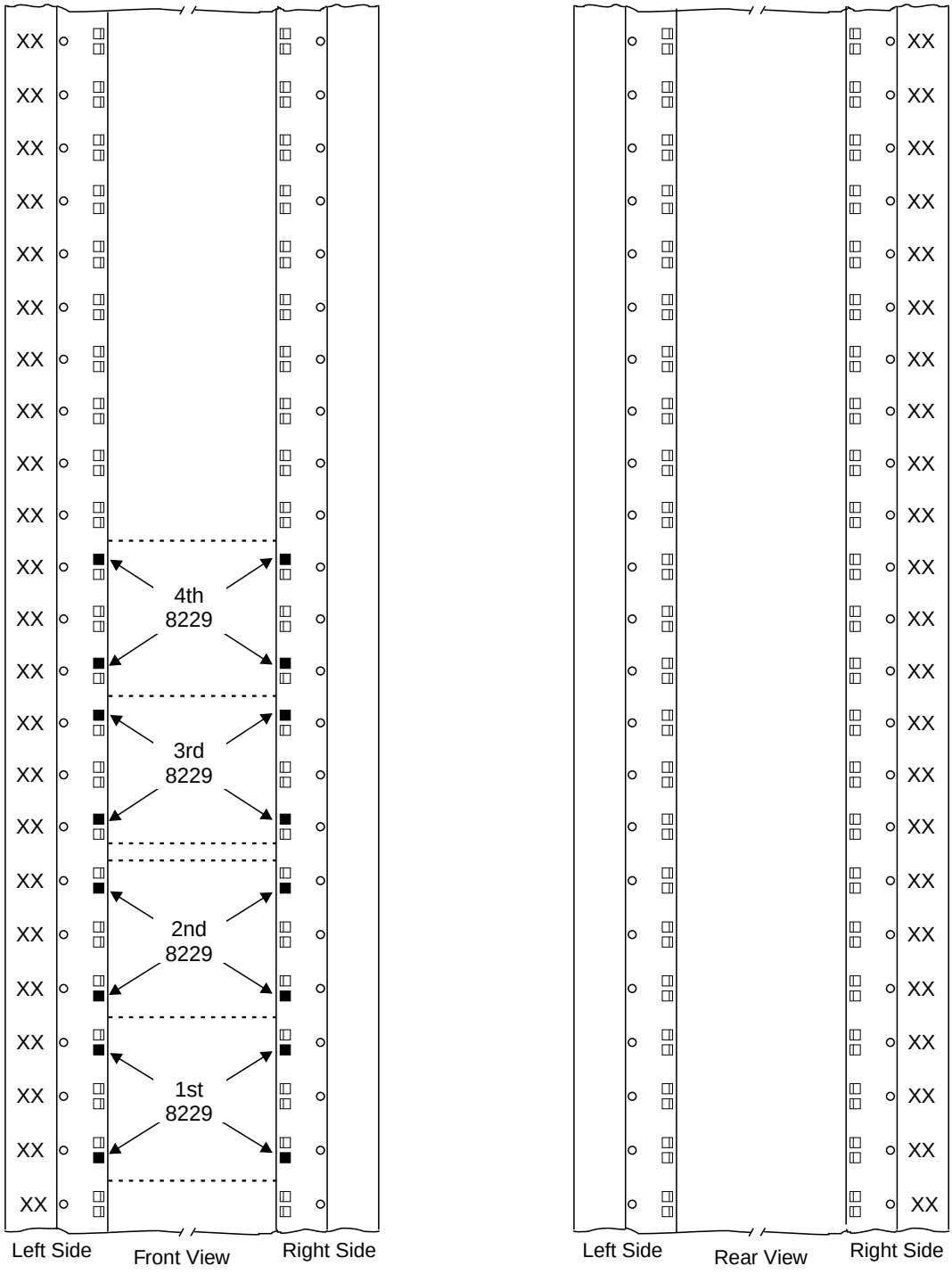


Figure E-6. Installing Captive Nuts for 8229s

Note: This symbol '■' identify the locations to install the captive nuts.

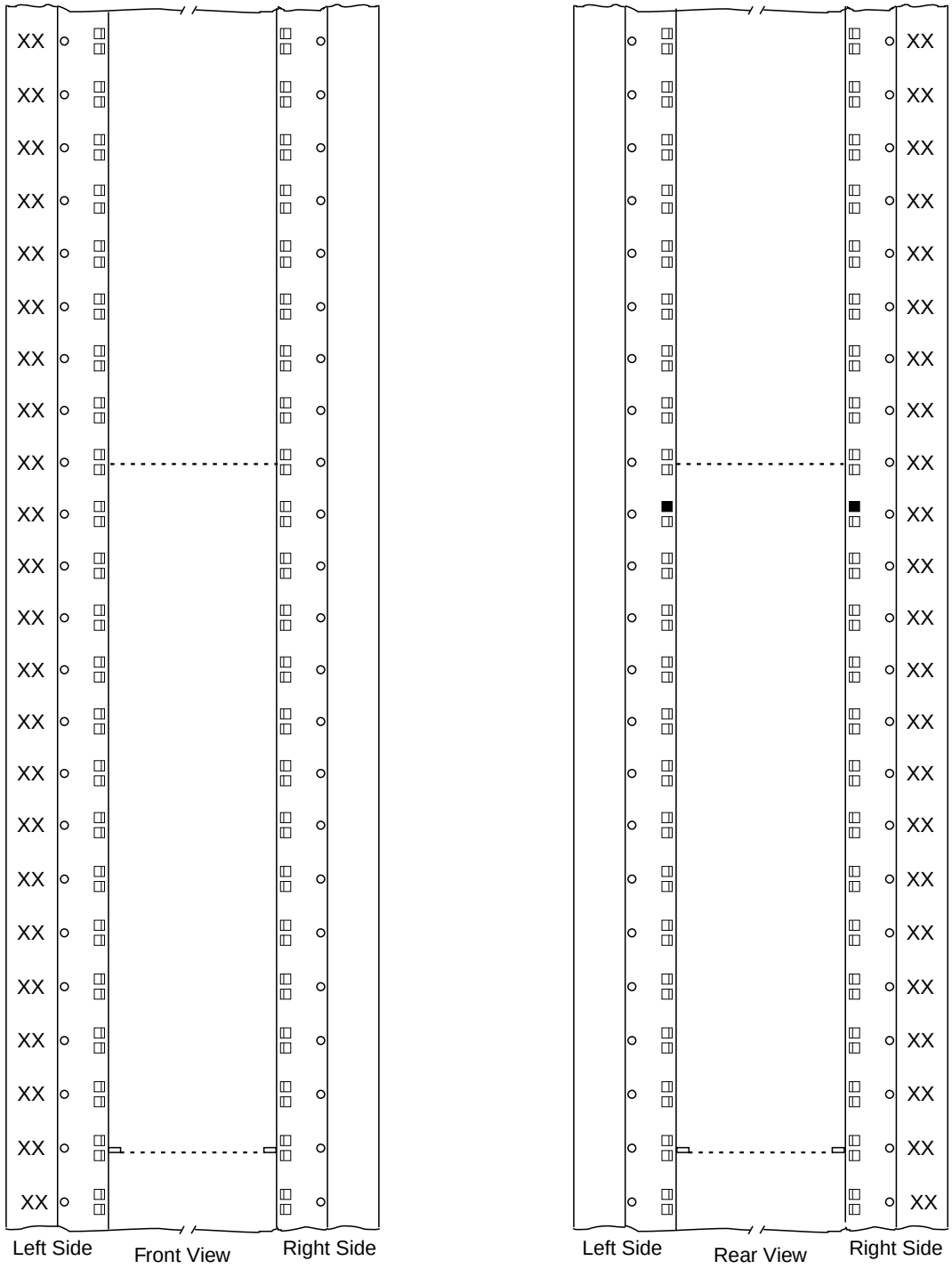


Figure E-7. Installing Captive Nuts and Brackets for MAE

Note: This symbol '■' identify the locations to install the captive nuts.

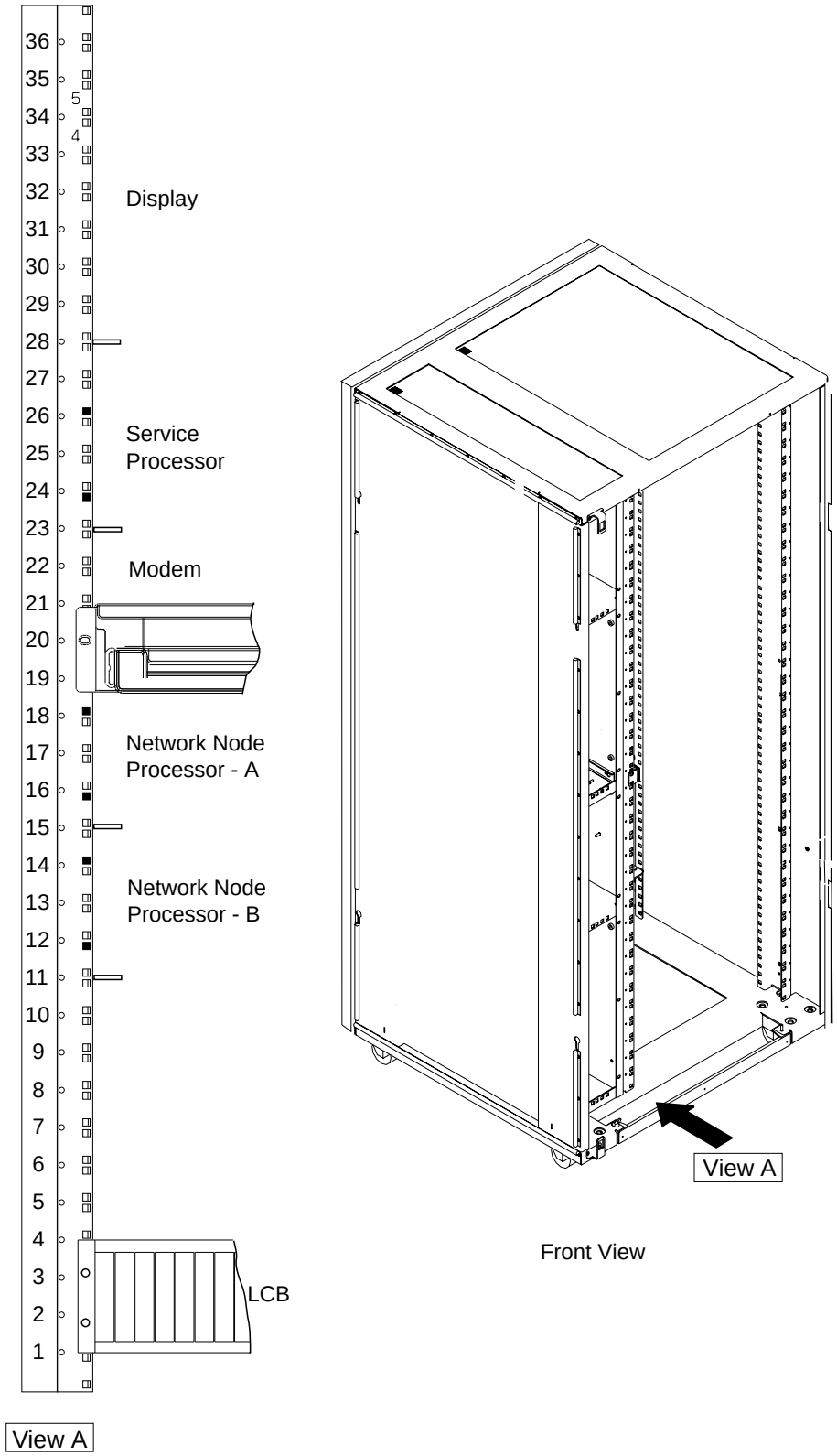


Figure E-8. Installing Brackets (PN 58G5752) for Processor Type 7585

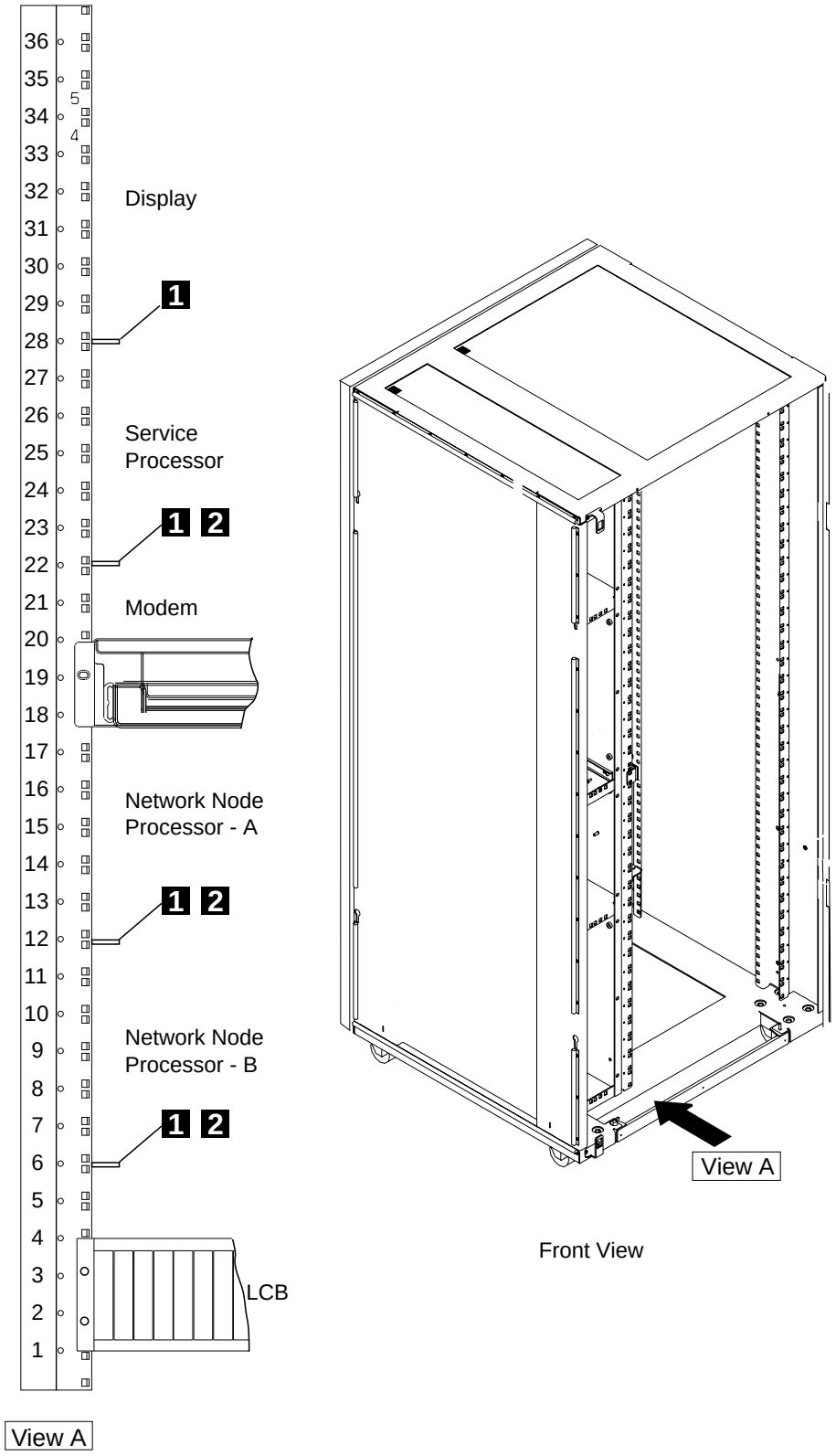


Figure E-9. Installing Brackets for Processor Type 3172

- **1** bracket used to install the display (PN 58G5752)
- **2** screws used to install the SP and NNP (PN 0782986)

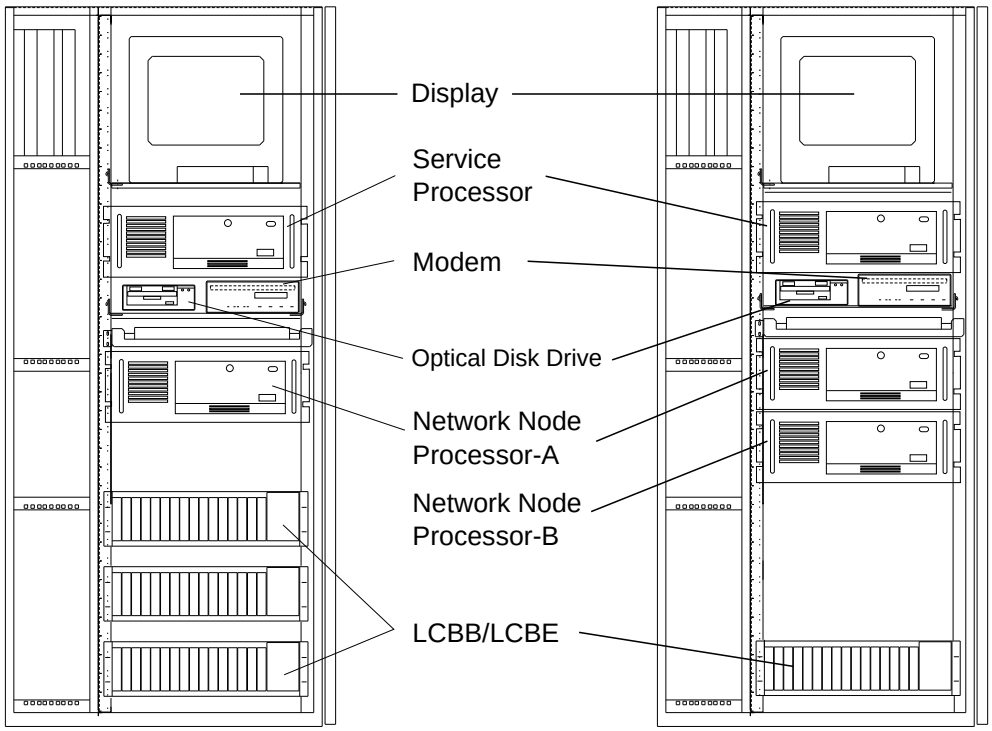


Figure E-10. Units Installation in the Controller Expansion (SP Type 7585)

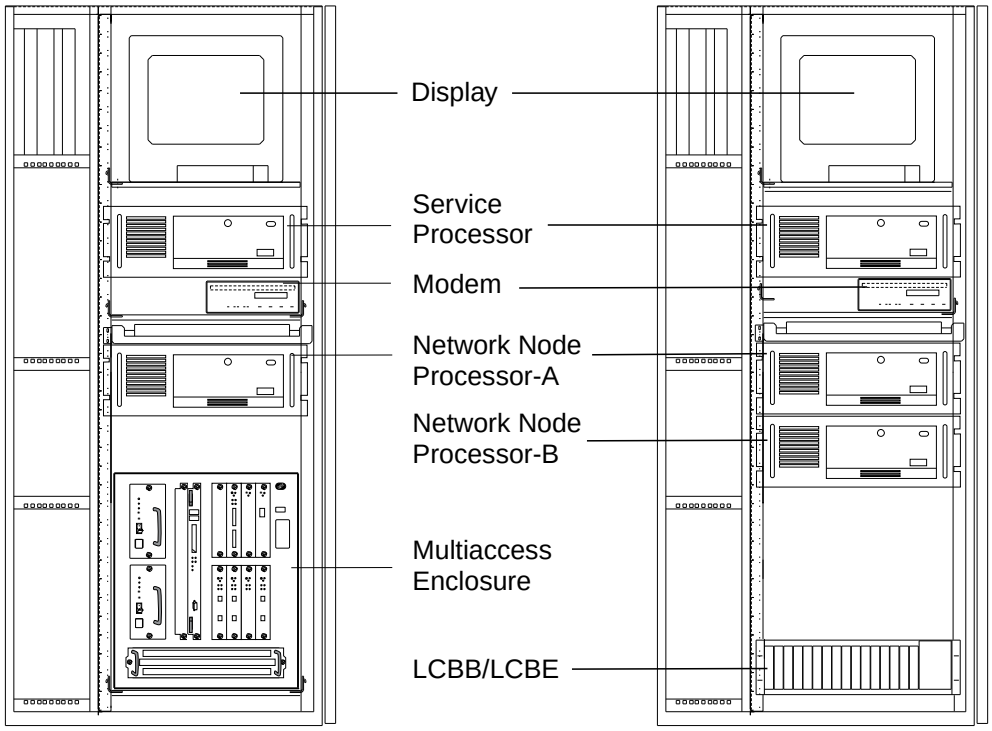


Figure E-11. Units Installation in the Controller Expansion (SP Type 7585 + MAE)

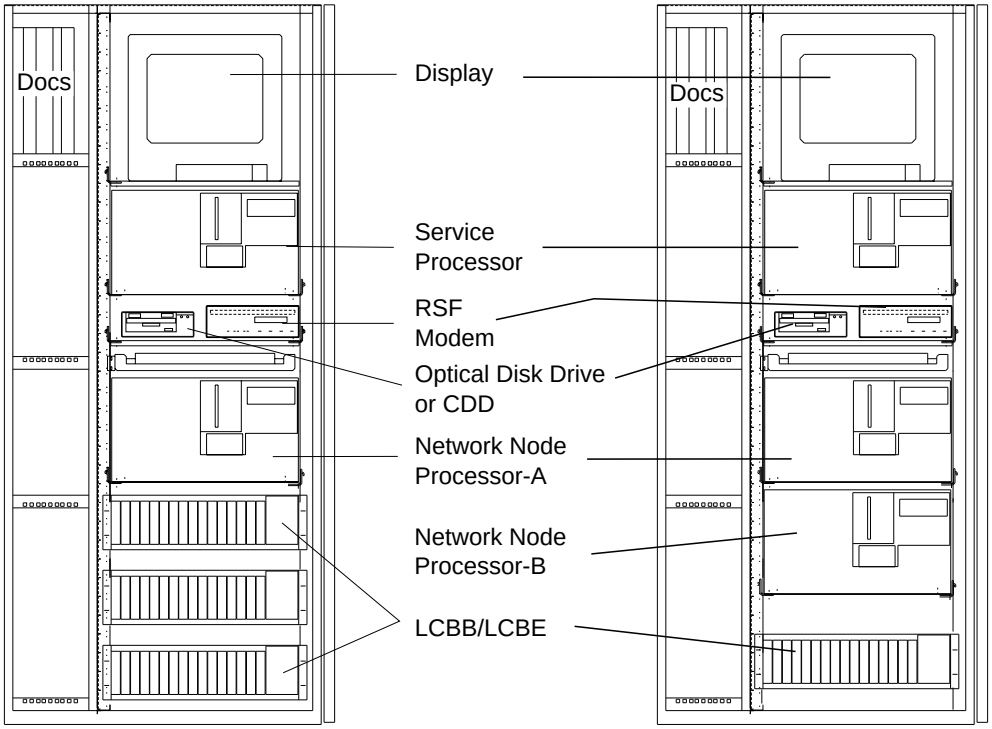


Figure E-12. Units Installation in the Controller Expansion (SP Type 3172)

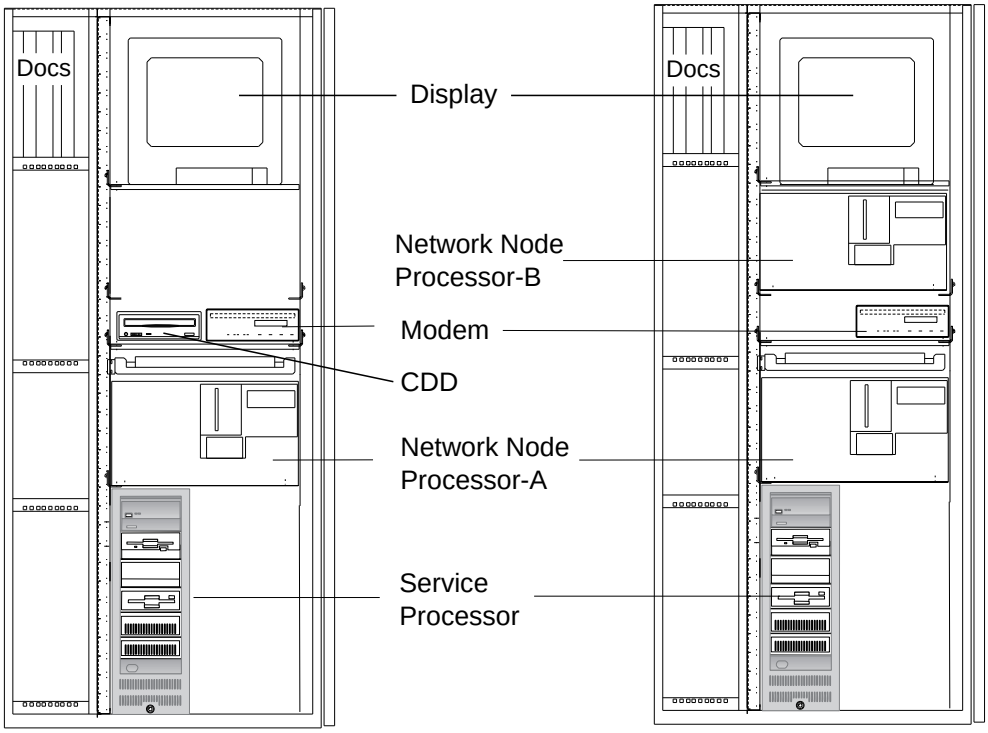


Figure E-13. Units Installation in the Controller Expansion (SP Type 9585)

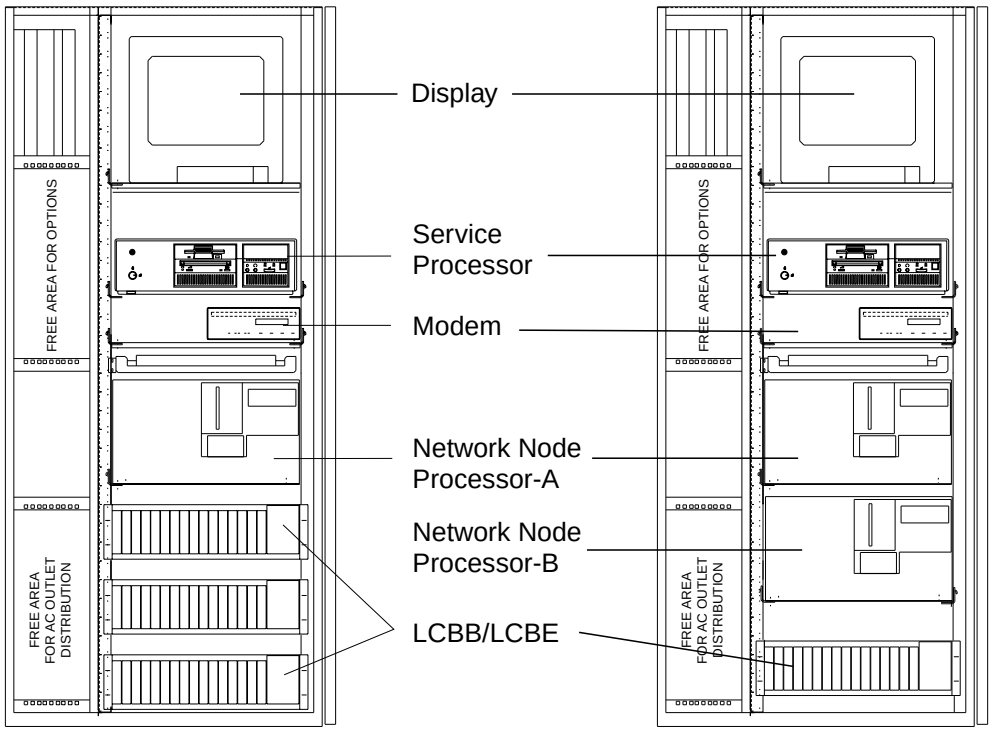


Figure E-14. Units Installation in the Controller Expansion (SP Type 9577)

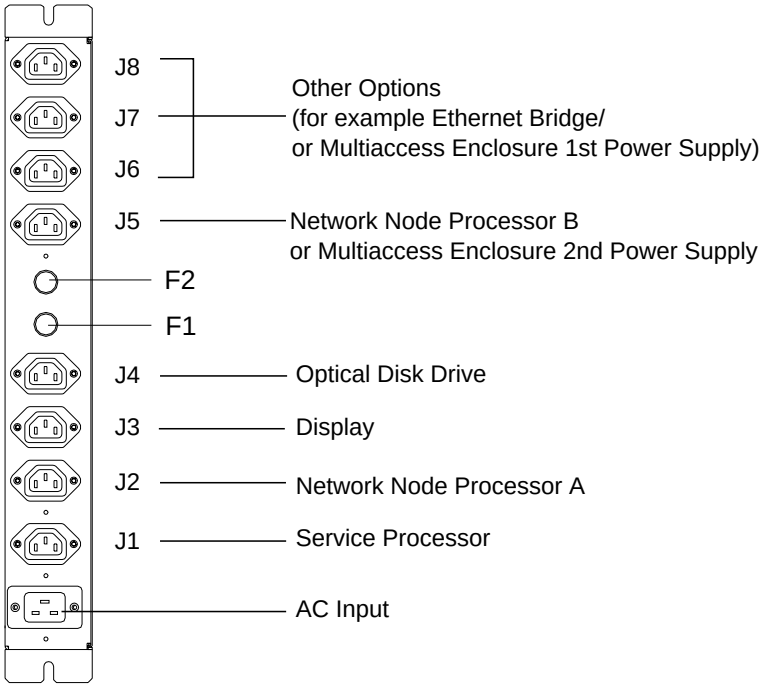


Figure E-15. Connecting the Units to the ac Outlet Distribution Box.

Appendix F. 3745 Installation Hands-On Scenario

This 3745 Hands-On Scenario (HOS) is a formal turnover procedure of an installed 3745 from the IBM account team (SE/CE) to the customer. This review ensures that all complementary actions have been completed throughout the installation/integration process, thus reducing the number of outages and follow-up service calls for non-3745 related errors.

__ 1. **Have you reviewed the Power ON/OFF procedures at the 3745 control panel?**

The control panel uses a ten-digit alphanumeric display, which is lighted regardless of the power state of the machine. There are five buttons used to select the MOSS functions to be executed. Some examples of functions that can be executed from the control panel are: Set Power Control Modes, General IPL, MOSS IML, MOSS Dump and Power ON/OFF. There is an Emergency Power OFF (big red) switch located on the control panel. This switch should be used only in emergency situations, and will require that an IBM CE reset the switch should it be activated inadvertently. Be aware that this EPO switch looks very similar to the 3720 normal power OFF/ON switch. Make sure that the customer operations staff is aware of the EPO's purpose and function. Normal Power-ON/OFF operations on the 3745 should be performed by using the Power-ON-Reset and Power-OFF (both black) buttons. The power procedures should be documented for use by the operation staff. The *3745 Basic Operations Guide* describes the use of the control panel.

Note: The LOCAL mode ('3') is intended for maintenance operations and not recommended for normal operation as it disables the Automatic Restart after an external power failure. This means that if you operate in LOCAL mode, you must manually power on after any external power failure.

__ 2. **Is the MOSS console connected to the 3745 and powered ON?**

The first screen on MOSS for channel-attached devices is the CA interface display. Type E or D next to the appropriate channel adapter to enable/disable that interface. The NSC address on that screen represents the address that must be defined in the IOCP, and must match the VTAM PCCU macro address to load and activate the controller. If the NSC address does not match what the CE has entered, then it should be changed to meet the customer's requirements. **Be aware that a change to the CA addresses and other CA parameters requires a 3745 general IPL or a power OFF/ON procedure to take effect.**

__ 3. **Have you modified the passwords?**

Enter your password to access the main MOSS function screens. "IBM3745" is the default password supplied with the controller. We recommend that you change the passwords for security reasons as soon as possible after the installation. See the *3745 Advanced Operations Guide (AOG)* for details on the password functions.

__ 4. **Have you reviewed the CDF functions?**

The Configuration Data File (CDF) is a 3745 disk-resident file maintained via the MOSS. It provides information to the microcode/software about the various hardware components in the controller. It is important that this file stay current, and always reflect the current configuration of the controller. The CE will update this file when the 3745 is initially installed. The customer is responsible for CDF updating whenever changes are made to the hardware configuration. Examples of configuration changes that require CDF updates are: LIC moves, adding new LICs, cable moves and adding new cables. Be aware that some functions can operate without the CDF updated. Some critical functions (problem detremination functions) do not operate at all, and are most often functions required to resolve problems when working with support centers. It is therefore STRONGLY recommended that CDF update functions ALWAYS be performed whenever hardware configuration changes are made. This removes any doubts about the accuracy and integrity of the CDF file, and minimizes the time and effort required to quickly identify and resolve future problems that may occur.

__ 5. **Have you reviewed the Link IPL Port (LKP) definitions?**

The LKP is required for remote 3745s without channel connections and which must be loaded over an SDLC link. The link IPL ports table is a file maintained on the MOSS disk. It is used by the microcode program CLDP to determine which line port addresses to scan when no NCP is active in the 3745. The LKP ports that are scanned should be connected to the INN links that will be used to load the 3745. You must have a cable attached to the ports that you place in the link IPL ports table. The CDF must be updated to recognize that a cable is attached to that port before updating the LKP file. Use the CDF functions described earlier to update cable attachment information. Failure to do so will prevent you from entering addresses in the link IPL ports table. See the *3745 Advanced Operations Guide* for information about various fields/descriptions that can be entered into the LKP.

__ 6. **Have you reviewed Time Services (TIM)?**

Unlike the 3720/3725, the 3745 has an independent clock that is set via the MOSS to match the correct date/time. This means that the 3745 will not use the time from the host processor as the earlier controllers do. Set this clock to the correct date/time values now.

__ 7. **Have you reviewed the Event Log Display (ELD)?**

The event log is a time and date sequenced file that maintains a record of all events (Box Event Records or BERs) that have occurred on the 3745 since the file was initialized by the CE at installation time. This log can be useful in many problem isolation situations. We recommend that you familiarize yourself with it now. The *3745 Advanced Operations Guide* provides details on the information presented within the ELD displays.

__ 8. **Have you reviewed the Machine Level Table (MLT) display?**

The machine level table function provides a display that quickly allows the operator to determine the NCP version and level, NCP name, EC level, and MCF level that is currently on the 3745. This information is often required when working with the support center, and when investigating problem incidents.

__ 9. **Has the customer established physical connectivity to the 3745?**

Depending on the environments, this could require that 3814 channel switches be set correctly, and the issuing of correct VM ATTACH and/or MVS VARY ONLINE commands.

__ 10. **Load your test NCP into the newly installed controller, and check for any BER records created in the ELD file.**

If there are load problems, check the *VTAM Messages and Codes* manual to determine the cause of the error. Common problems that are detected during the initial load are USGTIER problems, incorrect 3745 Model/Number in NCP, incorrect CA logical address mapping, the ALIGN parameter in the NDF linkage editor step is not set to 4K or it defaults to 2K, the IOCP generation for the channel adapter does not match the CDF definitions for the channel adapter (data streaming vs DCI modes), or for remote boxes the link IPL ports (LKP) table is incorrect. You should check all the above items if load problems occur.

__ 11. **If the customer plans on using the disk functions available with the 3745, this would be a good time to test those procedures.**

Ask the customer to load the controller using the keywords DUMPLOAD=YES and SAVEMOD=YES to store the module onto the 3745 fixed disk. You then can use a procedure documented in HONE info Q392790, (MOSS procedure to set storage location 42 to zeros causing an NCP ABEND 000D to occur). This causes a dump to be produced and saved onto the 3745 hard disk. The NCP load module on disk will automatically be reloaded into memory and would need to be reactivated from the host.

__ 12. **Test procedures for displaying the NCP dump files on the 3745 MOSS disk.**

This can be done from the MOSS console using the DII command, and can be viewed from the VTAM console by issuing the D NET,DISK command. The *VTAM Operations Guide* describes the commands.

__ 13. **Test the ability to non-disruptively transfer the contents of the dump dataset from the 3745 disk to the host VTAM dump dataset.**

This is accomplished by issuing the F NET,DUMP,ACTION=TRANSFER command from the VTAM console. Be aware that transfer of the NCP dump file to the host does not purge the file from the 3745 MOSS disk. A separate command (F NET,DUMP,ACTION=PURGE) must be issued to purge and clear the dump space on the 3745 MOSS disk. The same commands (F NET,DUMP,ACTION=TRANSFER) will be used to retrieve any MOSS or scanner (CSP) dumps that would also be placed on the 3745 disk. The addition on the keyword (TYPE= MOSS or CSP) will be used to retrieve those dump types. MOSS and CSP dumps will be automatically purged from the MOSS disk once retrieved to the host VTAM.

__ 14. **Test the ability to format and print the dump datasets that were transferred to the host in the previous step.**

The *SSP Diagnosis Guide* describes the JCL and command statements that control the dump printing process.

__ 15. **Power services (POS).**

The POS function allows displaying the status of each individual power supply in the 3745 Model 210/410/310/610 controller. The POS function allows to selectively power up/down individual supplies. The POS function is mainly used by the IBM CE when performing concurrent maintenance functions. POS will allow the CE to power-down only the component that is currently being maintained. This allows the customer to continue to operate the remaining portions of the 3745 for productive work. The POS function can be used by the customer to simulate power failures when testing 3745 Model 410/4XX backup scenarios.

__ 16. **3745 CCU modes (Model 410 or 4XX only): fallback and switchback functions.**

The 3745 Model 410 or 4XX with twin CCUs provides several operational modes to handle the backup of a failed CCU. The process of switching from a failed CCU to the backup CCU is called fallback (FBK). Once the failed CCU has been repaired the switchback function (SBK) can be performed to return to the original (pre-failure) configuration.

The following steps are optional tasks:

__ 17. **Familiarize yourself with the 3745** *Problem Determination Guide***.**

This guide should be used by the customer's staff to determine whether a problem is in the 3745 Communications Controller or in another component of the network. It gives procedures for solving the problem and tells the operator when to contact the IBM service organization. The *3745 Problem Determination Guide* contains alarms and hexadecimal panel codes, NetView* program alerts and SNA code points, problem determination procedures, and descriptions of 3745 functions that may be needed to identify the problems.

__ 18. **Test the port swap (PSF) capabilities.**

The port swap function allows bypassing a failing scanner or Token-Ring adapter, and to assign an alternate LIC or TIC address for backup purposes. The port swap function requires an operating NCP running in the 3745. The NCP gen definitions for the 'swapped-from' address will automatically be associated and used by the port at the 'swapped-to' address, upon successful conclusion of the port swap function on MOSS. The PSF functions are described in the *3745 Advanced Operations Guide.*

__ 19. **Individual scanner IML (IMS).**

The 3745 allows each scanner to be IMLed individually to recover from scanner hang conditions. The lines on the scanner that is IMLed will be disrupted, but lines on other scanners on the 3745 will be unaffected and will continue to run.

__ 20. **Line interface display (LID).**

The LID function allows displaying the status of an individual port (line address). The LID function allows viewing port information about line parameters, modem leads, transmit/receive data, and the control program in control of the line. This information is useful when investigating problem incidents associated with a particular line. See the *3745 Advanced Operations Guide* for more information.

__ 21. **ESS interface display (EID).**

The EID function allows viewing information about ESS line characteristics (parameters) and the flow characteristics (counters), if the line is active. See the *3745 Advanced Operations Guide* for more information.

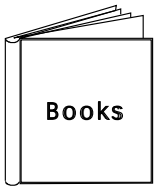
End of the 3745 Installation Hands-On Scenario.

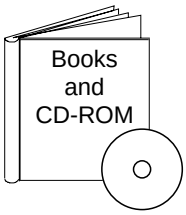
Bibliography

Service Documentation for the IBM 3745 (Models 210, 21A, 310, 31A, 410, 41A, 610, and 61A) and 3746 (Model 900)

Figure X-1 (Page 1 of 4). Service Documentation for the 3745 Models X10 and X1A, and 3746 Model 900

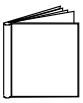
This service documentation has the following formats:





SY33-2080	***IBM 3745 Communication Controller Models 210 to 61A*** ***Service Master Index***[1] Provides references for finding information in the IBM 3745 Models X10 and X1A shipping group documentation.
SY33-2057	***IBM 3745 Communication Controller Models 210 to 61A*** ***Installation Guide***[1] Provides instructions for installing or relocating the IBM 3745 Models X10 and X1A.
SY33-2114	***IBM 3746 Nways Multiprotocol Controller Model 900*** ***Installation Guide***[2] Provides instructions for installing or relocating a 3746-900.
SY33-2116	***IBM 3746 Nways Multiprotocol Controller Model 900*** ***Service Guide***[2] Provides procedures for isolating and fixing the IBM 3746-900 problems.
SY33-2055	***IBM 3745 Communication Controller Models 210, 310, 410, and 610*** ***IBM 3746 Expansion Units Models A11, A12, L13, L14, and L15*** ***Service Functions***[1] Describes MOSS functions using the IBM 3745 Models X10 and X1A consoles.

Figure X-1 (Page 2 of 4). Service Documentation for the 3745 Models X10 and X1A, and 3746 Model 900

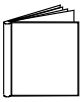


SY33-2054

IBM 3745 Communication Controller
Models 210 to 61A

Maintenance Information Procedures[1]

Provides procedures for isolating and fixing the IBM 3745 Models X10 and X1A problems.

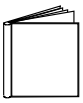


SY33-2115

IBM 3745 Communication Controller Models A[3]
IBM 3746 Expansion Unit Model 900
IBM 3746 Nways Multiprotocol Controller Model 950

Service Processor Installation and Maintenance[4]
(Based on the 7585, 3172, 9585, or 9577)

Provides information on installing and maintaining the service processor based on PS/2 Types 7585, 3172, 9585, or 9577.
Can be for systems with microcode that has up to and including EC D46130 (any level) installed.

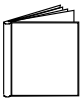


SY33-2120

IBM 3745 Communication Controller Models A[3]
IBM 3746 Expansion Unit Model 900
IBM 3746 Nways Multiprotocol Controller Model 950

Service Processor Installation and Maintenance[4]
(Based on the 7585, 3172, or 9585)

Provides information on installing and maintaining the service processor based on PS/2 Types 7585, 3172, or 9585.
Can be for systems with microcode EC F12380 or higher installed.

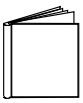


SY33-2118

IBM 3746 Nways Multiprotocol Controller Models 900 and 950

Multiaccess Enclosure Installation and Maintenance[4]

Provides information on installing and maintaining the Multiaccess Enclosure (MAE).

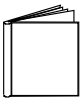


SY33-2112

IBM 3746 Nways Multiprotocol Controller
Models 900 and 950

Network Node Processor Installation and Maintenance[4]
(Based on the 7585 or 3172)

Provides information on installing and maintaining the network node processor based on the PS/2 Type 7585 or 3172.

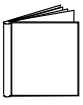


SY33-2056

IBM 3745 Communication Controller
Models 210 to 61A

Maintenance Information Reference[1]

Provides in-depth hardware reference information on the IBM 3745 Models X10 and X1A.



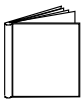
SY33-2075

IBM 3745 Communication Controller
All Models[6]

External Cable References[1]

Provides references to console and line cables used for connecting the IBM 3745 Models 130 to 61A.

Figure X-1 (Page 3 of 4). Service Documentation for the 3745 Models X10 and X1A, and 3746 Model 900

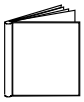


SY33-2117

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.

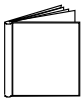


S135-2015

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.

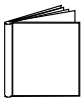


S135-2010

IBM 3745 Communication Controller
Models 210 to 61A

Parts Catalog[1]

Provides reference information for ordering IBM 3745 Models X10 and X1A parts.



S135-2014

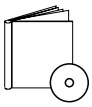
IBM Controller Expansion

Parts Catalog

Provides reference information for ordering parts for the controller expansion attached to the IBM 3745 Models A[3], and 3746 Models 900 and 950.

Figure X-1 (Page 4 of 4). Service Documentation for the 3745 Models X10 and X1A, and 3746 Model 900

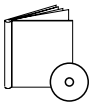
CD-ROM Bibliography



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.

Customer Documentation for the 3745 (Models 210, 21A, 310, 31A, 410, 41A, 610, and 61A) and 3746 (Model 900)

Figure X-2 (Page 1 of 4). Customer Documentation for the 3745 Models X10 and X1A, and 3746 Model 900

This customer documentation has the following formats:

Finding Information

3745 Models A and 3746 Books

Starting with engineering change (EC) F12380, all of the books in the 3745 Models A and 3746 library are available on the CD-ROM that contains the Licensed Internal Code (LIC) for this EC.

SA33-0172 — ***IBM 3745 Communication Controller Models 210 to 61A***
IBM 3746 Expansion Unit Model 900

Customer Master Index[1]

Provides references for finding information in the customer documentation library.

Evaluating and Configuring

GA33-0092 — ***IBM 3745 Communication Controller Models 210, 310, 410, and 610***

Introduction

Gives an introduction about the IBM Models 210 to 610 capabilities.

For Models A refer to the *Overview*, GA33-0180.

GA33-0180 — ***IBM 3745 Communication Controller Models A***[2]
IBM 3746 Nways Multiprotocol Controller Models 900 and 950

Overview

Gives an overview of connectivity capabilities within SNA, APPN, and IP networking.

GA33-0457 — ***IBM 3745 Communication Controller Models A***[2]
IBM 3746 Expansion Unit Model 900 Models 900 and 950

Planning Guide

Planning for:

- Field upgrades
- Service processor and alert management configuration
- Network integration (NCP, APPN, and IP control)
- Physical installation.

Preparing Your Site

Figure X-2 (Page 2 of 4). Customer Documentation for the 3745 Models X10 and X1A, and 3746 Model 900

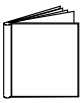
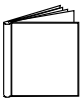
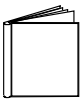
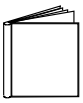
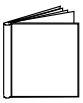
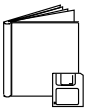
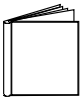
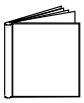
	GC22-7064	***IBM System/360, System/370, 4300 Processor*** ***Input/Output Equipment Installation Manual-Physical Planning*** (Including Technical News Letter GN22-5490) Provides information for physical installation for the 3745 Models 130 to 610. For 3745 Models A and 3746 Model 900, refer to the *Planning Guide*, GA33-0457.
	GA33-0127	***IBM 3745 Communication Controller Models 210, 310, 410, and 610*** ***Preparing for Connection*** Helps for preparing the 3745 Models 210 to 610 cable installation. For 3745 Models A refer to the *Connection and Integration Guide*, SA33-0129.
Preparing for Operation		
	GA33-0400	***IBM 3745 Communication Controller All Models***[3] ***IBM 3746 Nways Multiprotocol Controller Models 900 and 950*** ***Safety Information***[1] Provides general safety guidelines.
	SA33-0129	***IBM 3745 Communication Controller All Models***[3] ***IBM 3746 Nways Multiprotocol Controller Model 900*** ***Connection and Integration Guide***[1] Contains information for connecting hardware and integrating network of the 3745 and 3746-900 after installation.
	SA33-0416	***Line Interface Coupler Type 5 and Type 6 Portable Keypad Display*** ***Migration and Integration Guide*** Contains information for moving and testing LIC types 5 and 6.
	SA33-0158	***IBM 3745 Communication Controller All Models***[3] ***IBM 3746 Nways Multiprotocol Model 900*** ***Console Setup Guide***[1] Provides information for: • Installing local, alternate, or remote consoles for 3745 Models 130 to 610 • Configuring user workstations to remotely control the service processor for 3745 Models A and 3746 Model 900 using: – DCAF program – Telnet Client program.
Customizing Your Control Program		
	SA33-0178	***Guide to Timed IPL and Rename Load Module*** Provides VTAM procedures for: • Scheduling an automatic reload of the 3745 • Getting 3745 load module changes transparent to the operations staff.
Operating and Testing		

Figure X-2 (Page 3 of 4). Customer Documentation for the 3745 Models X10 and X1A, and 3746 Model 900

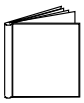


SA33-0098

IBM 3745 Communication Controller
All Models[4]

Basic Operations Guide[1]

Provides instructions for daily routine operations on the 3745 Models 130 to 610.



SA33-0177

IBM 3745 Communication Controller Models A[2]
IBM 3746 Nways Multiprotocol Controller Model 900

Basic Operations Guide[1]

Provides instructions for daily routine operations on the 3745 Models 17A to 61A, and 3746 Model 900 operating as an SNA node (using NCP), APPN/HPR Network Node and IP Router.

SA33-0097

IBM 3745 Communication Controller
All Models[3]

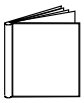
Advanced Operations Guide[1]

Provides instructions for advanced operations and testing, using the 3745 MOSS console.

On-line Information

Controller Configuration and Management Application

Provides a graphical user interface for configuring and managing a 3746 APPN/HPR Network Node and IP Router, and its resources.
Is also available as a stand-alone application, using an OS/2 workstation.
Defines and explains all the 3746 Network Node and IP Router configuration parameters through its on-line help.



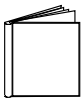
SH11-3081

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.

Managing Problems



SA33-0096

IBM 3745 Communication Controller
All Models[3]

Problem Determination Guide[1]

A guide to perform problem determination on the 3745 Models 130 to 61A.

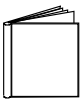
On-line Information

Problem Analysis Guide

An 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.

Figure X-2 (Page 4 of 4). Customer Documentation for the 3745 Models X10 and X1A, and 3746 Model 900



SA33-0175

IBM 3745 Communication Controller Models A[2]
IBM 3746 Expansion Unit Model 900
IBM 3746 Nways Multiprotocol Controller Model 950

Alert Reference Guide

Provides information about events or errors reported by alerts for:

- IBM 3745 Communication Controller Models A[2]
- IBM 3746 Nways Multiprotocol Controller Models 900 and 950.

[1] Documentation shipped with the 3745.
[2] 3745 Models 17A to 61A.
[3] 3745 Models 130 to 61A.
[4] Except 3745 Models A.
[5] Documentation shipped with the 3746-900.

List of Abbreviations

ac	alternating current
AFD	air flow detection
AUI	access unit interface
BCCA	buffer chaining channel adapter
BER	box event record
B/M	bill of material
CA	channel adapter
CAB	channel adapter board
CB	circuit breaker
CCPF	common customer profile facility
CCU	central control unit
CDF	configuration data file
CDS	configuration data set
CLDP	controller load/dump program
CP	circuit protector
CSA	Canadian Safety Association
dBm	decibel based on one milliwatt
dc	direct current
DMA	direct memory access
DMUX	double multiplex card
DSR	data set ready
ELA	Ethernet LAN adapter
EMC	electromagnetic compatibility
EPO	emergency power OFF
ESC	emulation subchannel
ESD	electrostatic discharges
ESS	Ethernet subsystem
FCC	Federal Communication Commission (U.S.)
FDD	flexible disk drive
FESH	front end scanner (high-speed)
HCS	hardware central service (in WT)
HDD	hard disk drive
HPTSS	high-performance transmission subsystem
HSC	hardware support center (in U.S.)
HSDT	high-speed data transfer
HSS	high-speed scanner
IML	initial microcode load
IPL	initial program load
IPR	installation planning representative
I/O	input/output
IOC	input/output control
IOCDS	input/output configuration data set
LA	line adapter
LAB	line adapter board
LED	light-emitting diode
LIB	line interface coupler board
LIB1	line interface coupler board for LIC1, LIC3 or LIC4
LIB2	line interface coupler board for LIC5 or LIC6
LIC	line interface coupler
LIU	line interface coupler unit
LIU1	line interface coupler unit for LIC1, LIC3 or LIC4
LIU2	line interface coupler unit for LIC5 or LIC6
MAU	media access unit
MCF	microcode fix
MES	miscellaneous equipment specification
MIP	maintenance information procedures manual
MOSS	maintenance and operator subsystem
MUX	multiplex
NCP	Network Control Program
NSC	native subchannel
OLTEP	online test executive program
OLTS	online test system
OLTSEP	online stand-alone executive program
PC	Personal Computer
PEP	partitioned emulation program
PKD	portable keypad display
P/N	part number
PS	power supply
RETAIN	Remote Technical Assistance Information Network
RFI	radio frequency interference
RLA	remote loading activation

RSC	remote support center (in US)
RSF	remote support facility
SACL	storage and control lower assembly
SACU	storage and control upper assembly
SDLC	synchronous data link control
SMUX	single multiplex card
TCS	two-channel switch
TPS	two-processor switch
TRA	token-ring adapter
TRSS	token-ring subsystem
TSS	transmission subsystem
UCW	unit control word
U.K.	United Kingdom
UL	Underwriters Laboratory

Index

Readers' Comments — We'd Like to Hear from You

3745 Communication Controller
Models 210 to 61A
Installation Guide

Publication No. SY33-2057-10

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In advance, thank you.

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Readers' Comments — We'd Like to Hear from You
SY33-2057-10

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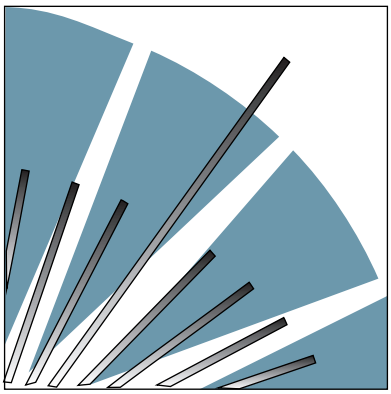

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SY33-2057-10