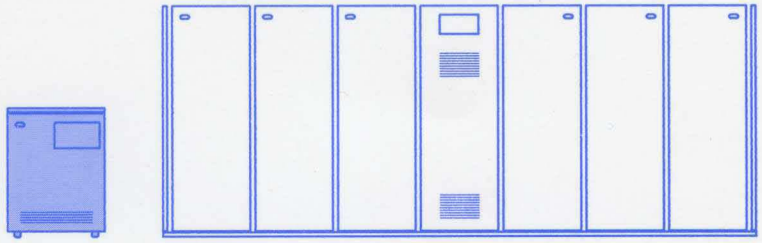
IBM

3745 Communication Controller

SY33-2067-3

Installation Guide



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IBM 3745 Communication Controller Models 130, 150, and 170

Installation Guide

Note!

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

Fourth Edition (August 1991)

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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Product Safety Information

General Safety

This product meets IBM safety standards.

For more information, see the *IBM Telecommunication Products Safety Handbook,* GA33-0126.

Safety Notices

See *Safety Notices* located at the beginning of the *Maintenance Information Procedures* manual, SY33-2054.

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)* manual, SY33-2070.

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

1. External covers
2. Safety labels
3. Safety covers and shields
4. Grounding
5. Circuit breaker and protector rating
6. Input power voltage
7. Power-ON indicator
8. Emergency power OFF.

About This Book

Who Should Use This Book

The IBM personnel using this manual should be:

- Trained to service the 3745 Models 130, 150, or 170.
- 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 Models 130, 150, or 170. **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.
- Go on sequentially through chapters.

How This Book Is Organized

Chapter 1	Introduces the CE to the 3745, shows the component locations, and presents the hardware installation procedures to be performed prior to connection to the customer's power source.
Chapter 2	Presents the procedures to connect the 3745 to the customer's power source and to complete the power-up procedure.
Chapter 3	Presents a checkout and test procedure that the CE must perform before the customer's system integration.
Chapter 4	Presents relocating/removing procedures.
Appendix A	Provides a channel adapter information form.
Appendix B	Gives information about CA option settings.
Appendix C	Is a 3745 installation Hands-On Scenario (HOS).

A **Customer and Service Documentation Bibliographies**, 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 in the *3745 Models 130, 150, and 170 Maintenance Information Procedures (MIP),* SY33-2070.

A 3745 Models 130, 150, and 170 Service Documentation Bibliography is 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, SY33-2070

IBM 3745 Service Functions, SY33-2069

IBM 3745 External Cable References, SY33-2075

IBM 3745 Preparing for Connection, GA33-0140

IBM 3745 Connection and Integration Guide, SA33-0141

IBM 3745 Advanced Operations Guide, SA33-0097

IBM 3745 120-Volt Connection RPQ 7L1184, Installation and Maintenance Information, SY33-2078

IBM 3745 Channel Adapter Online Tests, D99-3745A

IBM 3745 Console Setup Guide, SA33-0158

IBM 3720 and 3745 Remote Loading and Activation Guide , SA33-0161.

IBM 3745 Problem Determination Guide, SA33-0096.

Service Personnel Definitions

See the *3745 Models 130, 150, and 170 Maintenance Information Procedures (MIP),* SY33-2070.

Summary of Changes

This revised edition gives information about:

1. The CE procedure to install the external cables.
2. The Ethernet** feature.

Chapter 1. Installation Procedures

Preparing to Install the 3745

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

Step 1. ____ Check all items listed on the shipping group bill of material (B/M). Determine that all parts have been received.

Step 2. ____ 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 3. ____ Refer to the 3745 bibliography in the *IBM 3745 Maintenance Information Procedures (MIP)*, SY33-2070. 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 4. ____ Familiarize yourself with the installation procedures in this manual. You must also be familiar with the *MIP*, used for trouble-shooting, and the *IBM 3745 Service Functions*, SY33-2069.

Step 5. ____ Make sure that the installation area is in accordance with Figure 1-1 on page 1-4. If not, inform the customer.

Step 6. **If the 3745 is channel-attached**:

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

b. ____ Prepare and pull the TAG and BUS interface cables and EPO cable(s) from the host(s) to the 3745 rear 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 12 on page 3-8).

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 7. ____ 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 "Cabling the Line Adapters to the Multiplexer Cards (Optional)" on page 1-14).

Step 8. ____ **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*, GA33-0140. That information will be necessary later when checking the LIC5 "Service-Rep-Only" options (step 18b on page 3-12).

Step 9. ____ **If the 3745 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 be completed until the load module diskette generated at the local 3745 is

loaded in the remote 3745 (see the warning box at step 31 on page 3-21). No link IPL port is required, *continue with step 11.*

- **If the RLA link is through SDLC or nonswitched X.21**, a link IPL port is required and must be defined. *Continue with step 10.*

Step 10. ____ **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 17a on page 3-11.)
- **Ask the customer to make ready** the link IPL port characteristics, using the "Link IPL Ports (LKP)" Chapter of the *IBM 3745 Advanced Operations Guide*, SA33-0097. (Those parameters will be needed in step 31a on page 3-21.)

Step 11. ____ **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 12. ____ **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.
- 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 22 on page 3-15 for details.)

Step 13. ____ **Update the UCW/IOCDS at the host(s).** UCW/IOCDS updating is for every host connected via a 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 14. ____ **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)

Special Tools/Test Equipment

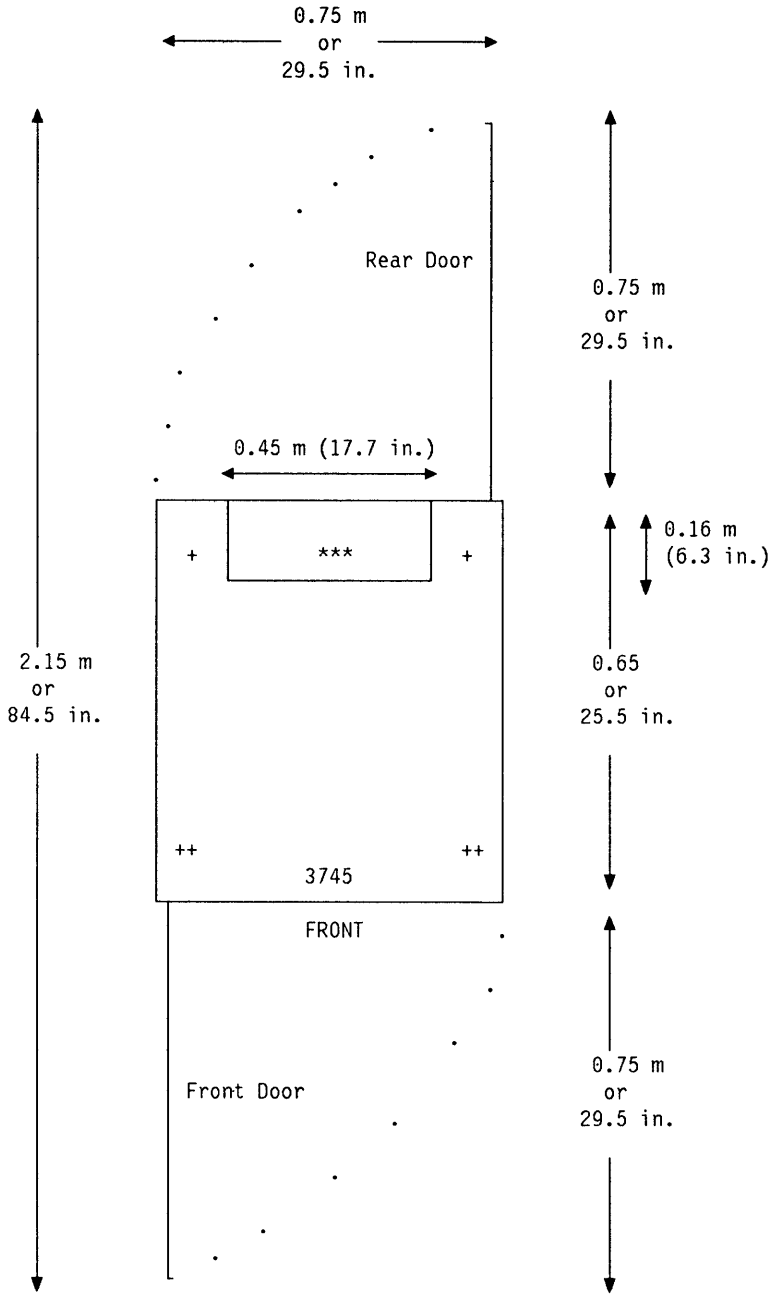
- A CE tool kit
- A digital CE meter (P/N 8469278, P/N 8309874, or equivalent)
- An ESD kit (P/N 6428316)
- A cover lock key (P/N 1643894 or 6834390), shipped with the 3745.

Installation Time

- The estimated hardware installation time is 2.0 hours.
- The average time for running the test procedure ("Checkout Procedure" on page 3-3) is 4.5 hours.
- The installation hands-on scenario (Appendix C) will require approximately 3 hours of SE/CE/Customer time.
- The average external cable installation time for a Model 130, 150 or 170 is 2 hours (20 cables).

Plan View

Doors on the front and rear of a 3745 give access to the inside of the unit. Keep a servicing area at least one meter wide at front and back.



\+ Swiveling caster with lock at the rear
++ Non-swiveling caster at the front
*** Cable entry and exit

Figure 1-1. Plan View of the 3745

3745 Component Locations (Front)

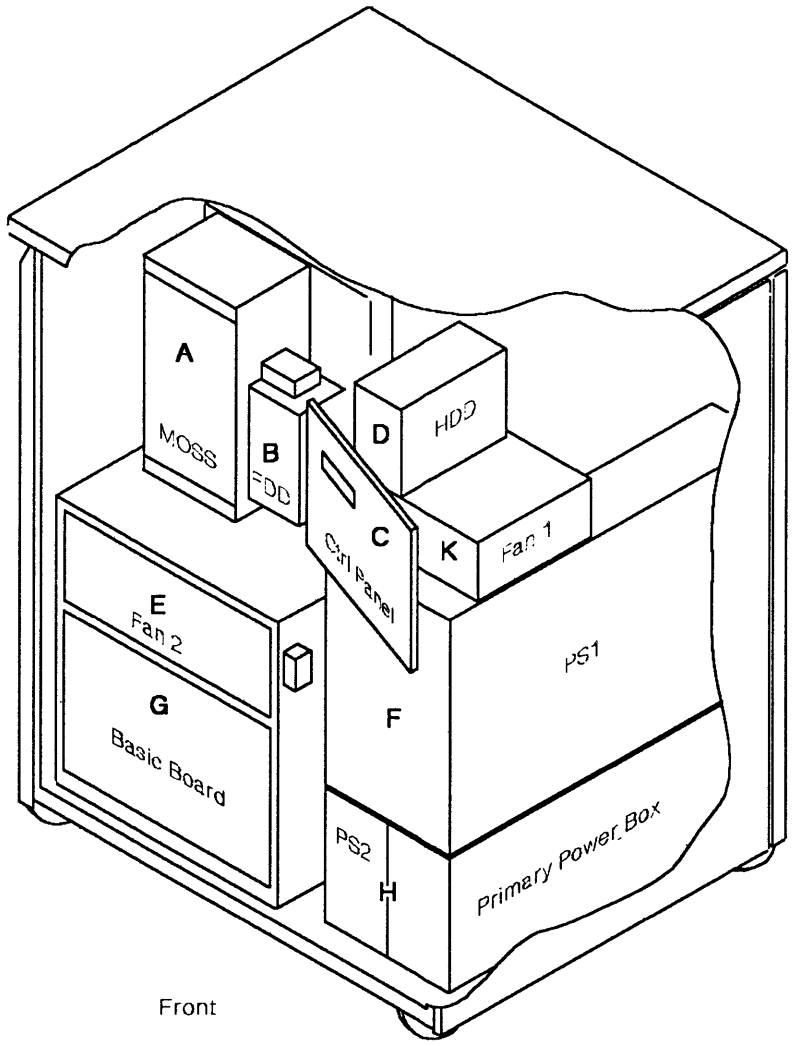


Figure 1-2. 3745 Component Locations (Front - All Models)

01A MOSS unit
01B Flexible diskette drive (FDD)
01C Control panel
01D Hard disk drive (HDD)
01E Fan unit 2
01F Power supply 1 (PS1)
01G Logic card board (CAs/LAs/CCU)
01H Primary power box and power supply 2 (PS2)
01K Fan unit 1

3745 Component Locations (Rear)

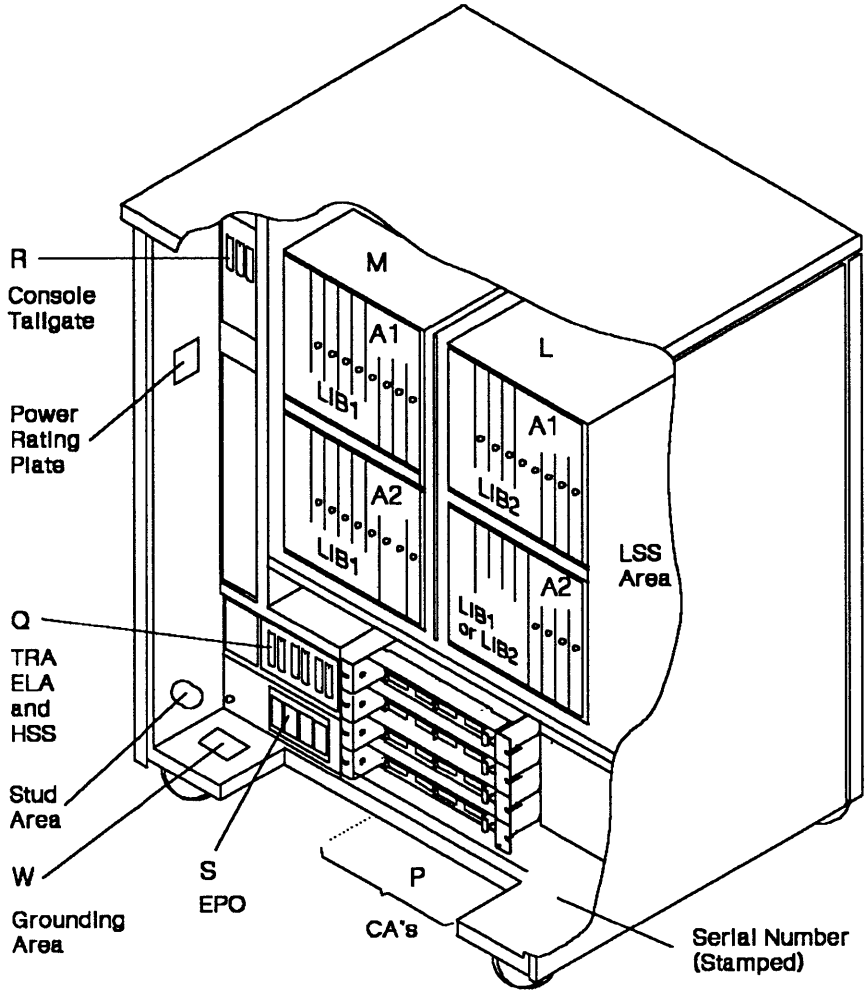


Figure 1-3. 3745 Component Locations (Rear - Model 170)

Notes:

1. *A 3745 Model 130 has no LIB board.*
2. *A 3745 Model 150 has no CA, and no LIB board in 01M-A1 and 01L-A2.*

01L 01L-A1: LIB2 board (lines 080 through 095)
01L-A2: If LIB1 (lines 128 through 159)
If LIB2 (lines 064 through 079)

01M 01M-A1: LIB1 board (lines 032 through 063)
01M-A2: LIB1 board (lines 000 through 031)

01P Tailgate for CAs (numbered 05 to 08)

01Q TRA, ELA, and HSS tailgate

01R Console tailgate

01S EPO connector tailgate

01W Grounding area

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. ____ Refer to the unpacking instructions attached to the external packaging, and unpack the 3745.

Keep the LIB2 board shipping retain brackets in place, if any, they will be removed later (Figure 1-12 on page 1-10).

Step 3. ____ At the rear of the machine, locate the power rating plate on the left side (see Figure 1-3 on page 1-6). **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.

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 control panel front tag.
At the rear of the machine, check the serial number stamped on the frame at the bottom right of the machine (see Figure 1-3 on page 1-6).

Note: On some early machines, the serial number is stamped at the left rear bottom.

Step 6. ____ Move the frame to its final position (see Figure 1-1 on page 1-4), and tighten the rear caster lock screws (see Figure 1-4).

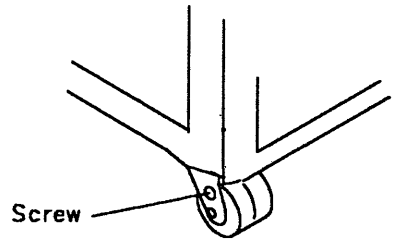


Figure 1-4. Caster Lock Screw

Step 7. ____ Open the control panel (one screw). Locate the unit emergency power OFF (UEPO) switch at the rear of the control panel (see Figure 1-5).

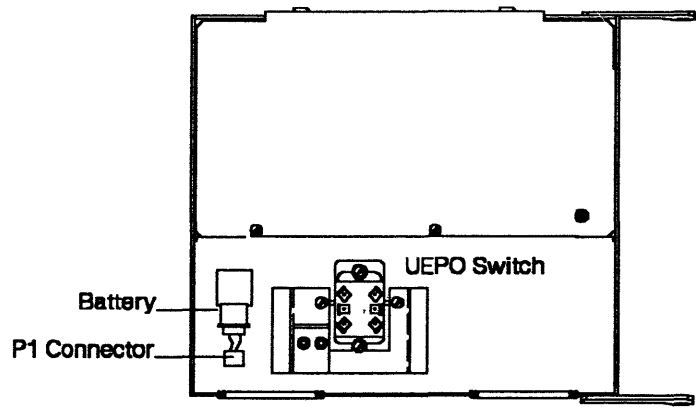


Figure 1-5. Control Panel (Rear)

Step 8. ____ Unlock the UEPO switch in the following way:

a. Loosen the two screws shown on Figure 1-6 below.
b. Move the metal slider all the way to the left.
c. Set the switch up to **I**.
d. Move the metal slider back to the right.
e. Tighten the screws.

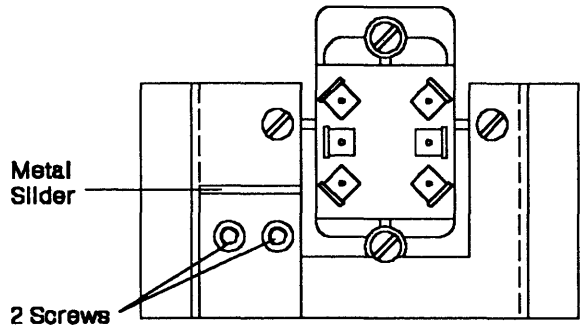


Figure 1-6. UEPO Switch (Rear View)

Step 9. ____ At the rear of the control panel, plug the battery connector P1 to connector J1 (see Figure 1-5 on page 1-7 for location). Close and secure the control panel with the screw previously removed.

Step 10. ____ Locate the basic board in front of the 3745, and check that all the card top crossovers are properly seated. (Refer to the MIP or to Page YZ032/YZ033 for crossover locations.)

Step 11. ____ Install the front ground plate assembly P/N 03F4617 (see Figure 1-7). Slide the assembly under the 3745 from the front of the machine, and fasten it using three screws P/N 1621210.

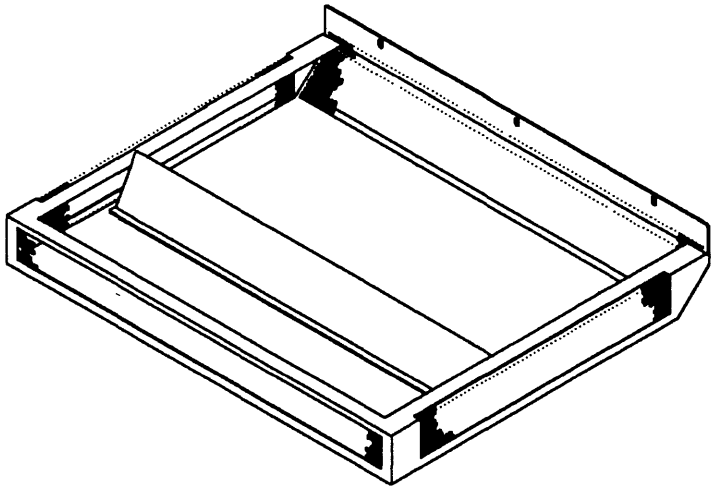


Figure 1-7. Front Ground Plate Assembly P/N 03F4617

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

Step 12. ____ At the rear of the machine, remove the two wing screws securing the cable-retaining bar to the base (see Figure 1-8 on page 1-9), and lift out the cable-retaining bar.

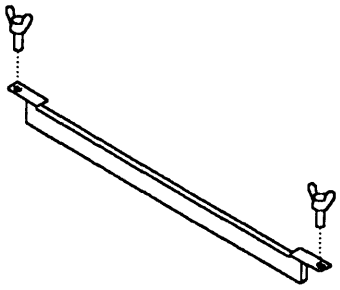


Figure 1-8. Cable-Retaining Bar

Step 13. ____ **If the floor is not raised**, install the rear ground plate assembly P/N 03F4815 (see Figure 1-9). Turn the rear casters appropriately to give clearance, and slide the assembly from the rear of the machine. Secure with two screws P/N 1621210. Before securing the screws, push down on the plate to give it maximum contact with the floor.

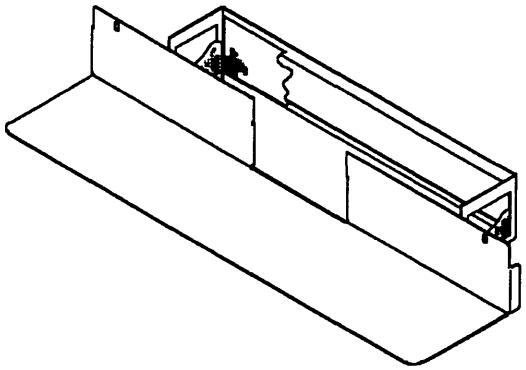


Figure 1-9. Rear Ground Plate Assembly P/N 03F4815. (Used if the floor is not raised.)

If the floor is raised, the rear ground plate assembly P/N 03F4846 (Figure 1-10) will be installed later on (see step 14c on page 3-10). **Do not install it now.**

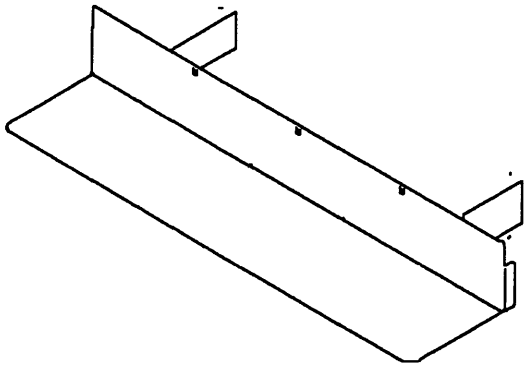
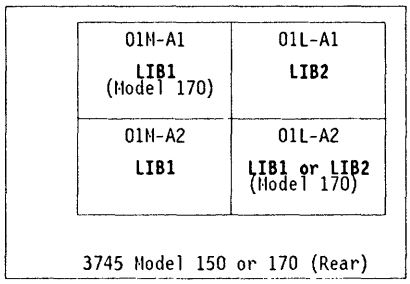


Figure 1-10. Rear Ground Plate Assembly P/N 03F4846. (Used if the floor is raised.)

Setting LIC5/LIC6 Modems Up

If there is no LIC5 or LIC6 modem installed (no LIB2 board), skip to "Cabling the Line Adapters to the Multiplexer Cards (Optional)" on page 1-14.

Step 1. ____ At the rear of the machine, locate the LIB2 board(s):



A LIB2 is populated with LIC5 or LIC6 modems (Figure 1-11 shows a LIB2). Locate the SMUX card in column B of the LIB2 board. (*The SMUX cover is not installed. It is packaged separately for shipment.*)

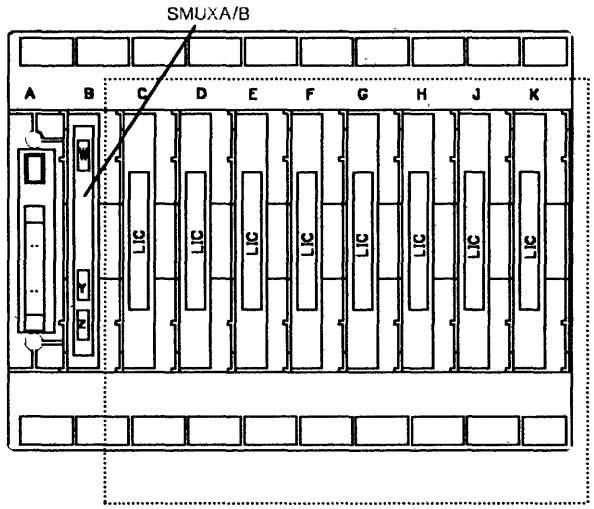


Figure 1-11. LIB2 Board

In front of each LIB2 board, a shipping retain bracket (Figure 1-12) holds the LIC5/LIC6 cassettes in place.

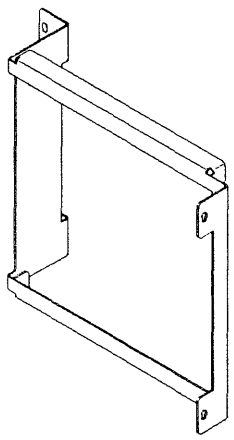


Figure 1-12. LIB2 Shipping Retain Bracket

Step 2. ____ Remove the shipping retain bracket from each LIB2 board, and store it locally for reshipment. *Retain screws (P/N 1621210) for reuse in later steps.*

Step 3. ____ A safety grid P/N 03F4747 (see Figure 1-13) is supplied in the shipping group for 3745 Model 150 or 170 with LIB2 board(s).

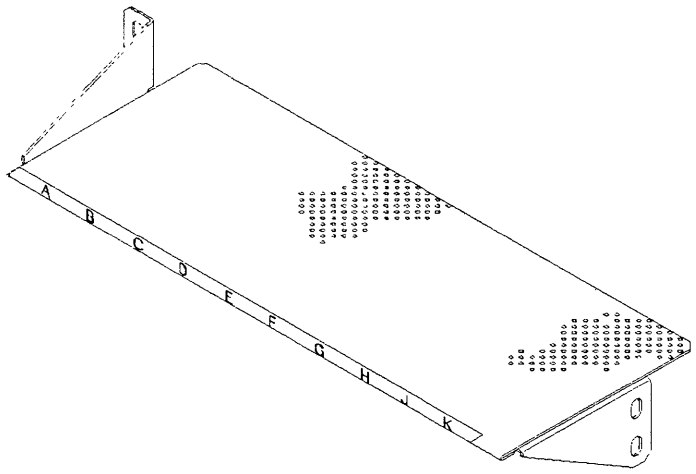


Figure 1-13. Safety Grid (P/N 03F4747)

Use three screws P/N 1621210 and install the grid as follows (see Figure 1-14):

- If a single LIB2 board is present, insert the grid under the LIC5/LIC6 modems in 01L-A1.
- If two LIB2 boards are installed, insert the grid under the LIC5/LIC6 modems in 01L-A2.

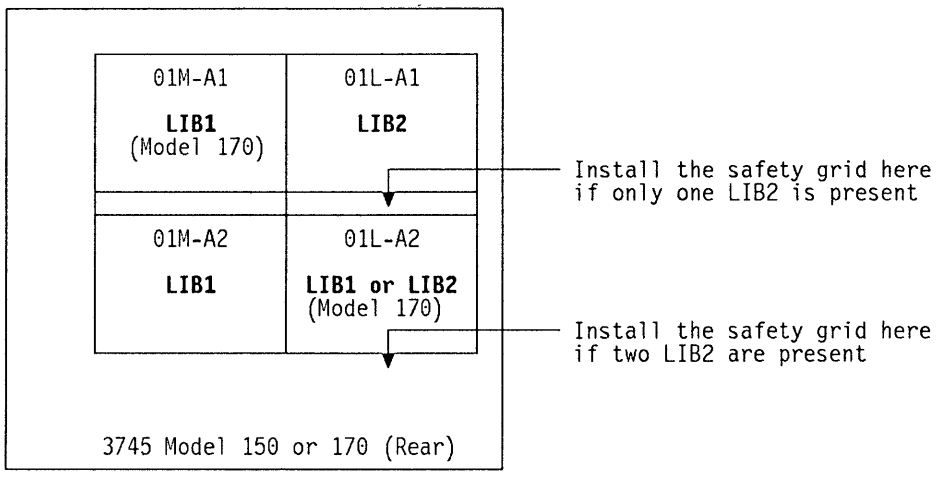


Figure 1-14. Safety Grid Installation

Step 4. ____ Locate the transmit level switches on each SMUXA/SMUXB card installed (see Figure 1-15). Set the transmit level switches to the correct value for your country according to the table in Figure 1-16.

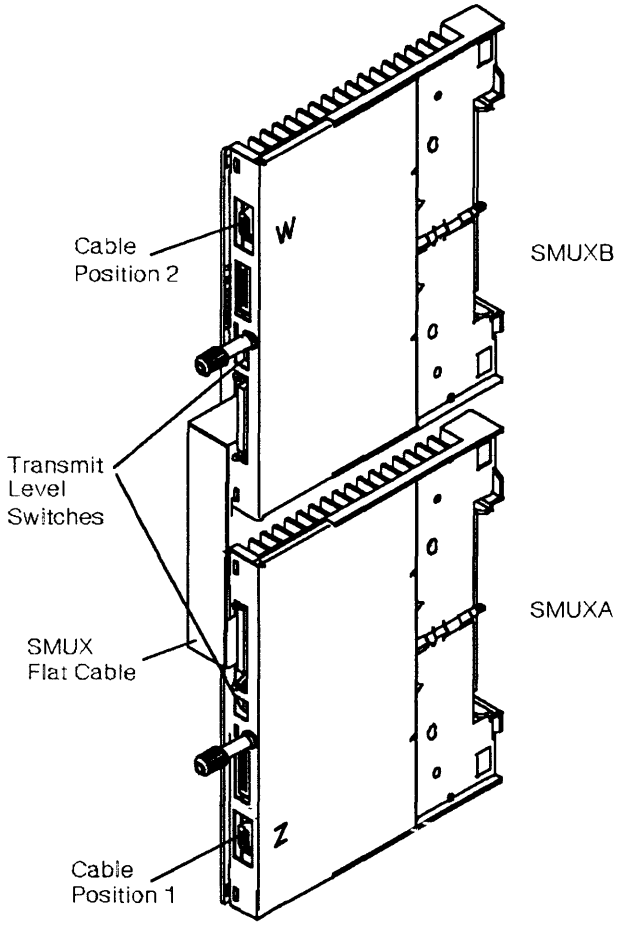
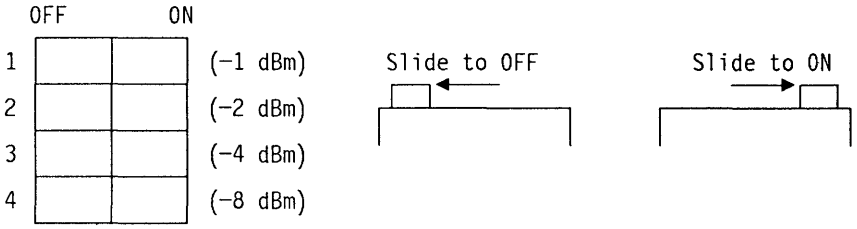


Figure 1-15. SMUX Cards. (This shows the SMUXA and SMUXB cards when two LIB2 boards are installed. Only SMUXB is used if a single LIB2 is present.)

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, U.K.	ON		ON	ON
-14			ON	ON	ON
-15	France, Japan	ON	ON	ON	ON

Figure 1-16. Transmit Level Switch Setting

The procedure on page 1-14 is performed for TSS boards only if the 3745 LA-to-MUX cabling does not match the configuration wanted by the customer.

If no change is required by the customer, perform only step 5 on page 1-15, and go to Chapter 2, "Connection to Main Power" on page 2-1

Cabling the Line Adapters to the Multiplexer Cards (Optional)

This procedure is performed for TSS boards **if the LA-to-MUX cabling does not match the configuration wanted by the customer** (see step 7 on page 1-1 and refer to *Page YZ 839*). *If no change is required by the customer, perform only step 5 on page 1-15.*

Step 1. ____ Remove the DMUX card cover on the left of each LIB1 board. and locate the DMUX card in column B of each LIB1 board (see Figure 1-17).

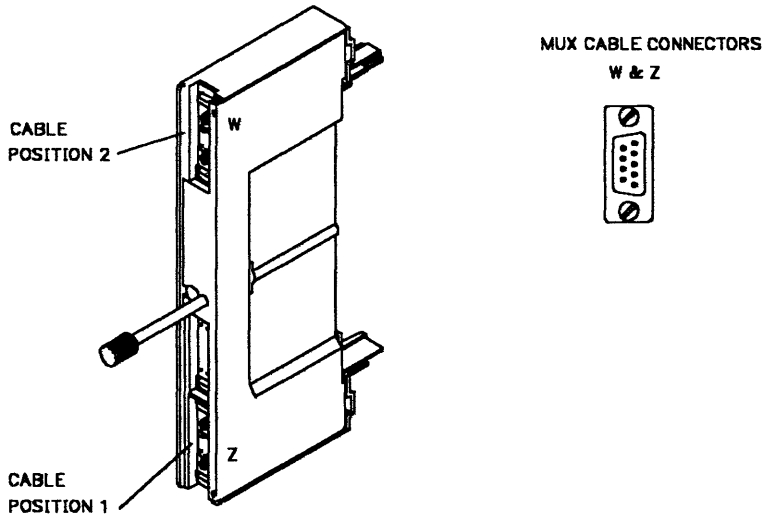


Figure 1-17. DMUX Card

Step 2. ____ Refer to *Page YZ 839*, and check the numbers you have recorded in the *'cable numbered'* column (see step 7 on page 1-1). The number of the cable is the number of the LA (see on page 3-13 for LA numbering). 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 3. ____ Configure the LA-to-MUX cables according to the 'DMUX or SMUX position' column of *Page YZ 839.* See Figure 1-17 and Figure 1-15 on page 1-12 for the socket locations.

Swapping LA-to-MUX cables at DMUX/SMUX card end may necessitate to remove covers and cards to gain access. The swapped cable must be run in the same cable path through the board.

You may have spare LA(s) installed in the basic board with MUX cable(s) saved at the right side of the board in front of the machine. Refer to Figure 1-18 on page 1-15 to route spare MUX cables from the front to the rear of the 3745.

Be careful when connecting LA-to-MUX cables:

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

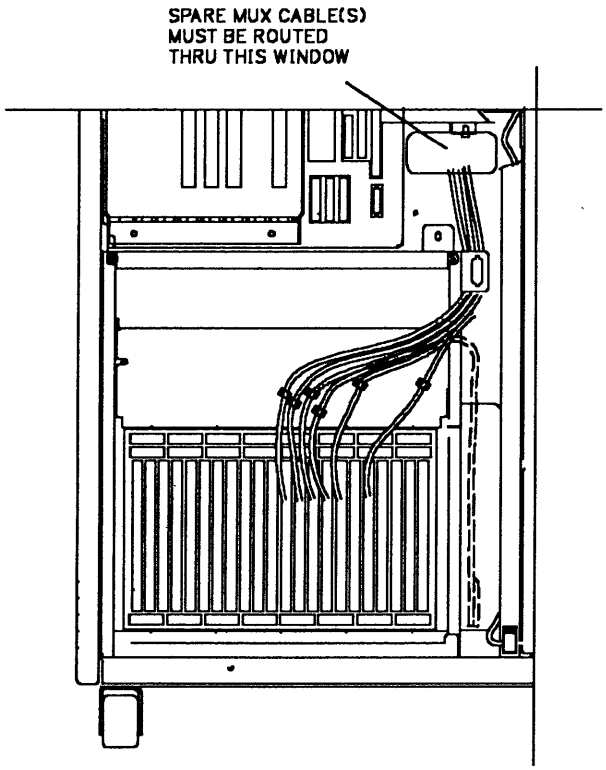


Figure 1-18. Spare MUX Cable Routing (Front)

- **If only one cable is to be installed in a DMUX/SMUX card, it must be installed in position Z (lower). The two screws must be tightened concurrently and evenly to properly seat the plug.**

Step 4. ____ Re-install the DMUX cover(s) on the left of the LIB1 board(s).

Step 5. ____ If applicable, install the SMUX cover(s) P/N 03F4748 on the left of the LIB2 board(s), using two screws P/N 1621210.

Go to Chapter 2, "Connection to Main Power" on page 2-1 .

Chapter 2. Connection to Main Power

The standard voltage input to the 3745 Models 130, 150, or 170 is single-phase, 200 to 240 volts 60 Hz, or 200 to 240 volts 50 Hz.
The power requirement is 1.1 kVA.

Note for the U.S.A., Canada and Japan: If the customer's power supply is 120 volts, you must refer to the *IBM 3745 100/120-Volt Connection RPQ 7L1184, Installation and Maintenance Information*, SY33-2078. This book is shipped with the RPQ package.

Note for other countries: 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 is consistent with the voltage and current values available at the customer's receptacle. If not, stop the installation and notify the sales representative.

Measuring the Customer's Primary Power

CEs are not allowed access to 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.*

Step 1. ____ Ask the customer to place the 3745 branch circuit breaker to the **ON position.** Perform the following voltage measurements. *(It is recommended to use high voltage probes to make these measurements. All voltage values should be less than 1.0 Vac.)*

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

b. ____ If applicable, measure the voltage between the exterior shell of the customer's receptacle and the building ground.

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.

Step 2. ____ Measure the customer's phase-to-neutral or phase-to-phase voltage. Continue only if the measured value is in accordance with the following table:

Nominal Voltage	Acceptable Voltage Limits
200 or 208 Volts	180 through 220 Volts
220 Volts	193 through 240 Volts
240 Volts	210 through 260 Volts

Step 3. ____ Place or ask the customer to place the branch circuit breaker that feeds the 3745 **to the OFF position.**

Step 4. ____ On the front side of the primary power box, set the voltage selection switch SW1 (see Figure 2-1 on page 2-2) according to the following table:

Note: *This adjustment reduces to a minimum, alarms due to external voltage variations, and regulates the blower rotation speed (noise reduction).*

Voltage Selection Switch Setting

Nominal Voltage	Switch Position
200 or 208 Volts	200
220 Volts	220
240 Volts	240

3745 Connection to Customer's Primary Power

Step 1. ____ Ensure that the customer's branch circuit breaker which feeds the 3745 receptacle is in the **OFF position**, and that CB1 is switched to **OFF** in front of the 3745 primary power box (see Figure 2-1 for location).

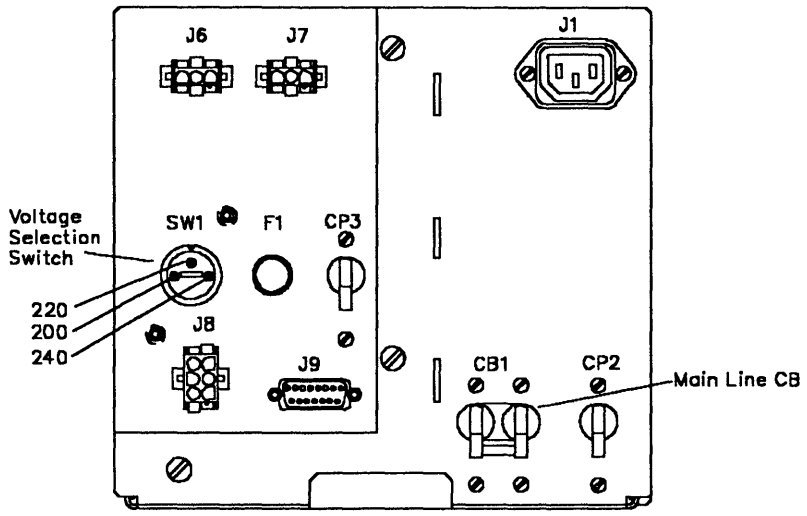


Figure 2-1. Primary Power Box (Front View)

Step 2. Depending on the country, the main line power cable may or may not be plugged at the 3745 end.

- ____ If the power cable is already secured to the 3745, check that its end connector is firmly seated in the 3745 main line socket.
- ____ If the power cable is not secured to the 3745, plug it to connector J3 at the rear of the 3745 primary power box (see Figure 2-2 on page 2-3 for location). Secure the cable with clamp P/N 303538 or 804109, using screw P/N 1621182.

Step 3. ____ Route the power cable to the customer's receptacle, and insert the power plug into the customer's main socket.

(World Trade only) **Ask the customer to connect the power cable leads to the ac power receptacle.**

Note: L1 wire is brown, L2 wire is black, and ground wire is green/yellow.

Step 4. ____ Connect the EPO cables (up to four) to the EPO sockets in location 01S-A0J5 to 01S-A0J8 at the rear of the primary power box (see Figure 2-2 on page 2-3).

Warning: If there is no EPO cable from the host, at least one EPO plug (P/N 8482303) must be installed on anyone of the EPO sockets. If not, the 3745 could be powered OFF by mistake when Power Control = 1.

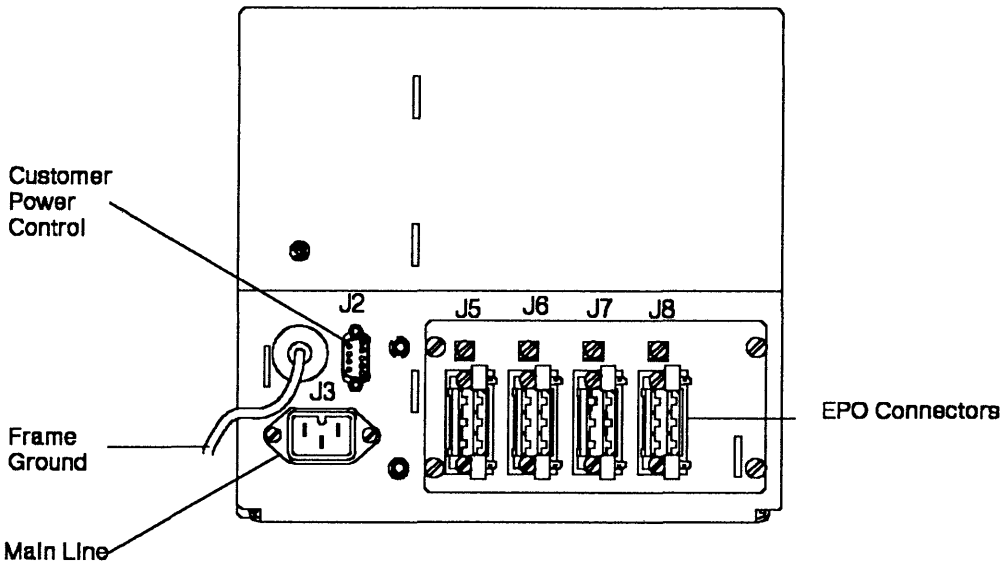


Figure 2-2. Primary Power Box (Rear View)

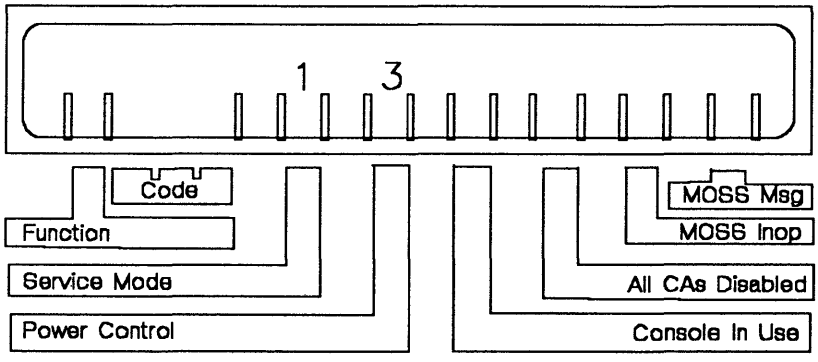
Powering On the 3745

Step 1. ____ Ensure that CP2 and CP3 are set to the **ON** position (refer to Figure 2-1 on page 2-2).

Step 2. ____ Ask the customer to turn the branch circuit breaker which feeds the 3745 to the **ON** position.

Step 3. ____ Switch CB1 to **ON** in front of the 3745 primary power box. **Power is now present in the primary power box.**

Step 4. ____ At the 3745 control panel, check for the following display:



If the display is wrong, and for problem isolation, use the *IBM 3745 Maintenance Information Procedures (MIP)*, SY33-2070, at the START page.

Go to Chapter 3, "Setup and Test Procedures" on page 3-1.

Chapter 3. Setup and Test Procedures

Procedure Summary

Note: *This is only an abstract. You must start on page 3-3 and go sequentially through the Checkout Procedure.*

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.

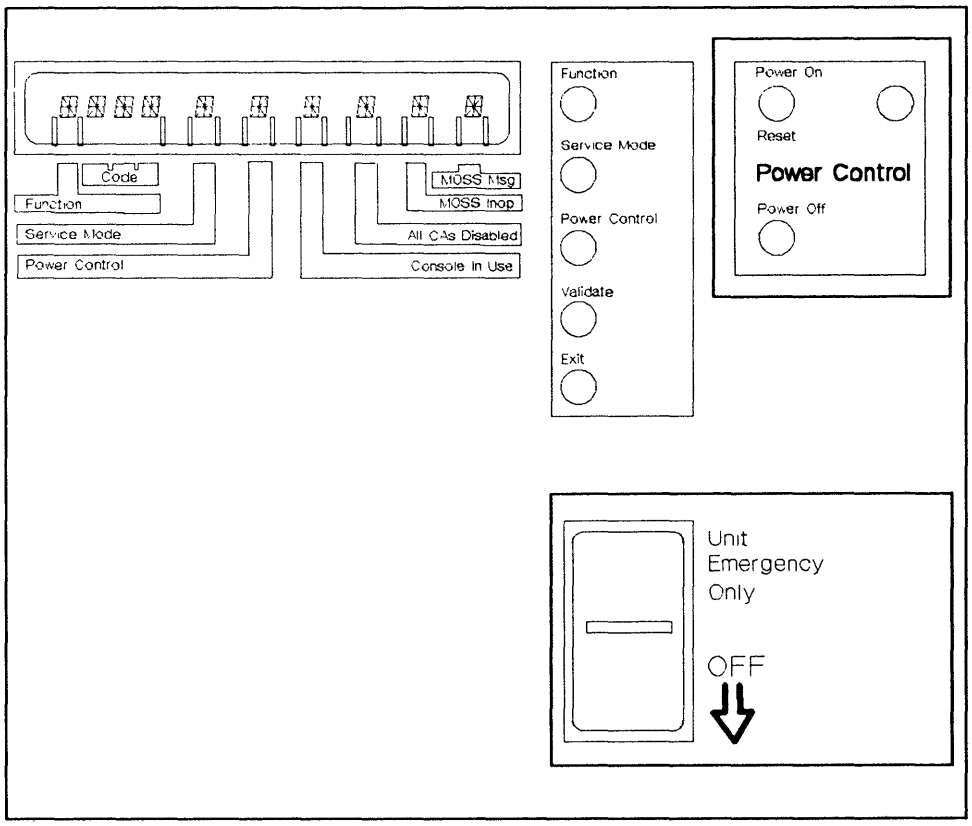


Figure 3-1. Control Panel Layout

For a description of the panel display values, refer to Chapter 1 of the *IBM 3745 Maintenance Information Procedures (MIP)*, SY33-2070.

Checkout Procedure

- 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 key. 8** will be displayed in the *Function* window.

g. Press the **Power OFF key.** *Function* window becomes blank.

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

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]).
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 diskette **(1/5)** into the drive slot, and lock the diskette drive.

---

[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)
```

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 tailgate connector at 01R-A0J3. For locations, refer to Figure 1-3 on page 1-6, and see the following drawing (Figure 3-2):

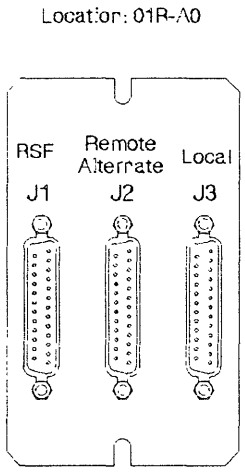


Figure 3-2 Console Tailgate

b. At the control panel, select **Service Mode = 3**, and **validate**.
c. Select **Function = 9**, and **validate**.
d. Press the **Power ON key**. A MOSS IML from diskette is started, during which the local console link test is executed.

   IML takes approximately three 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. When IML is completed, remove the diskette from the drive, and press the **Power OFF** key at the control panel.

Step 4. ___ **Local Console Connection**

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

a. Make sure that the console keyboard cable is plugged to 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.**
c. **Remove** the console wrap tool from the local console tailgate connector in 01R-A0J3, and **plug** the 3745 end of the local console cable in its place.
   - Assembly P/N 26F1794 is shipped as a **local console cable.** This assembly is a kit that includes a 3745-to-7427 cable (P/N 03F4948) and three adapter blocks which allows this one cable to make the 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 26F1470) and wing nut (P/N 6398807).

   The clamp goes over the exposed braid of the cable. The stud to screw onto is located on the bottom left at the rear of the 3745 (see stud area in Figure 1-3 on page 1-6).

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. 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.

Notes:

- *If the 3745 is on a raised floor and the customer wishes to place the console on top of the machine, but does not want to provide an exposed cutout for the console cable, the cable may be routed as explained in the note of step 14c on page 3-10.*
- *The tubing over the cable serves to reduce the possibility of radio frequency interferences (RFI) that might be caused by the operating machine. A proper installation of this tubing is necessary to meet FCC requirements.*

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

Depending on the type of console that is used, **plug the required 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. The arrows molded on the side of both the cable connector and the adapter block should point toward the console.

g. **If 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. **If the local console is an IBM 3727,** apply the adhesive keyboard keytop labels (P/N 03F7773).

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

Step 5. ___ **MOSS IML from Disk**

a. At the control panel, select **Service Mode = 0**, and **validate**.
b. Select **Function = 1**, and **validate**.
c. Press the **Power ON** key. A MOSS IML from the hard disk is started.

IML takes approximately three 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.

Step 6. ___ **Entering the Customer Password**

For details, refer to the "Passwords" chapter of 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 9).

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 is displayed.
c. **Press F4** to get Menu 1.
d. **Type** *PSW* and **press SEND**.
e. **Type** *IBM3745* (customer default management password), and **press SEND**.

Step 7. ___ **Updating and Activating the 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, and 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 8. ___ **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 entered in step 7 above, and **press SEND** (the function selection rules screen is displayed).
e. **Press F4** to get Menu 1.

Step 9. ___ **Entering Time and Date**

a. From Menu 1, type **TIM** (Time Services), and **press SEND.**
b. From the TIM screen, **select option 1.**
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 10. ___ **Configuration Data File (CDF) Verify**

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

a. From Menu 1, **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 about 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.

Wait for the message *CDF VERIFY COMPLETED*.

Step 11. ___ **Offline Diagnostics and External Cable Preparation**

- **Offline Diagnostics**

For details, refer to "How to Run Offline Diagnostics" in Chapter 3 of the Service Functions, *or to "How to Run Internal Function Tests" in Chapter 3 of the* MIP.

Note: *Depending on the configuration tested, the diagnostics may run from 50 minutes up to 1.6 hours.*

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

b. **Type** *ODG*. **Press SEND**.

c. Type **1** in the DIAG area to select all diagnostics, and 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 status 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.

The 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 the 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 26 on page 3-16.
2) All 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) On the MAU, the SQE-TEST (also called HEARTBEAT) function must be enabled.

Go to

- Step 12 when the 3745 is channel-attached.
- Step 17 on page 3-11 when the 3745 is not channel-attached.

Step 12. ___ **Channel Adapter CDF Update**

For details, refer to "Display/Update Channel Adapters" in Chapter 9 of the Service Functions, *or to "Displaying or Updating One Channel Adapter" in Chapter 3 of the* Advanced Operations Guide, *SA33-0097.*

a. **Press F1.**

b. From Menu 1, **type** *CDF* and **press SEND.**

c. From the CDF function selection screen, **select option 1**, and **press SEND.**

d. From the CDF display/update screen, **select option 9** (CHANNEL ADAPTERS), and **press SEND.**

e. Type the **number of the CA** to be updated, and press **SEND**.

Note: *Up to four CAs are available. They are numbered from 5 to 8 (CAs 1-4 are not used, see Figure 3-4 on page 3-10 for CA numbering on the tailgate).*

f. Press **F5** to be in update mode. 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**.

g. **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.*

h. Press **SEND.**

i. **Press F6** and repeat steps 12e through 12h for each installed CA.

j. When all CAs are updated, **press F1** to return to Menu 1.

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 13. ___ **Channel Adapter Wrap Tests**

For details, refer to "How to Run the Channel Wrap Test" in Chapter 3 of the MIP.

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

a. Locate the CA tailgate at the back of the machine (location 01P in Figure 1-3 on page 1-6). Put the **'Select Bypass' switch to the 'Normal' (down) position** for each CA interface installed (see 3-3).

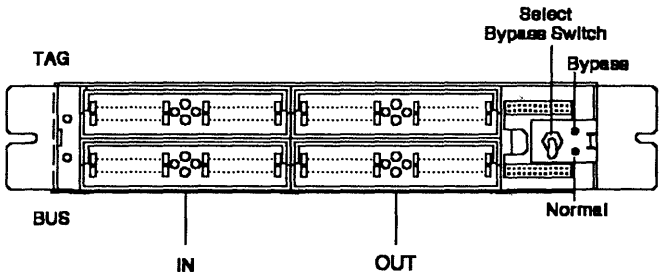


Figure 3-3. Channel Interface

b. Make sure that a BUS terminator (P/N 2282675) and a TAG terminator (P/N 2282676) are installed on the BUS OUT and TAG OUT connectors (light gray) of the first channel interface to be tested (see Figure 3-4 on page 3-10).

c. From the diagnostic request screen **type** *LO01* in the DIAG area, and **press SEND**. **Messages on the screen will prompt you for the required actions.** The CA diagnostics are started and will test the CAs sequentially. 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**.

d. 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 3-4 on page 3-10). 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 a channel, you will be asked to install the wrap tools on interface B after interface A.

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

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

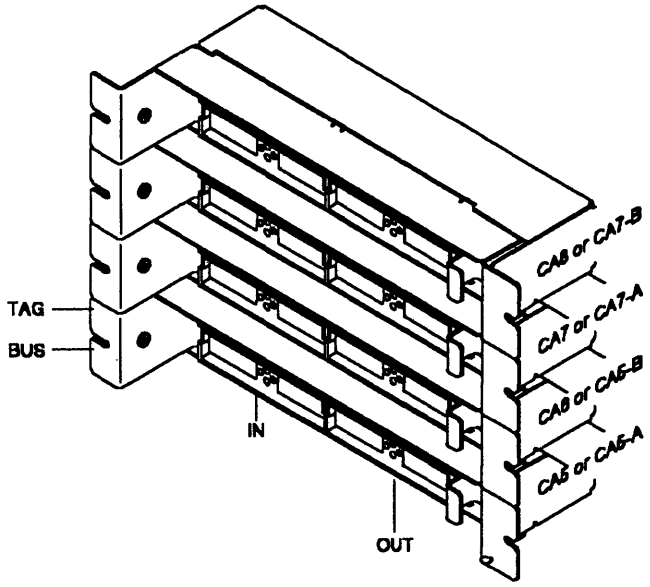


Figure 3-4. Channel Distribution on Tailgate. (Interfaces A and B are used when the TPS feature is present.)

Step 14. ___ **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. **Connect the CA interface cables** for channels 5 through 8 to the 3745 tailgate in 01P (for channel positions, refer to Figure 3-4).
b. **Re-install the cable-retaining bar** on the base at the rear of the machine, and secure with two wing screws (see Figure 1-8 on page 1-9).
c. **If there is a raised floor, install the rear ground plate assembly** P/N 03F4846 (see Figure 1-10 on page 1-9). Slide the two perforated shields between the machine casters and secure the assembly on the cable-retaining bar using three screws P/N 1621210. Before securing the screws, push down on the plate to give it maximum contact with the floor.

Notes:

- *If the customer wishes to place the local console on top of the 3745, you may route the console cable to either side near one of the rear casters, and place the cable in the slot between the caster shield wing of the ground plate assembly and the frame by the caster. Loop the excess cable underneath the floor, and place the RFI tubing as described in step 4e on page 3-5.*
- *The ground plate serves to reduce the possibility of radio frequency interferences that might be caused by the operating machine. A proper installation of the plate is necessary to meet FCC requirements, and to conduct electrostatic discharges to ground.*

Step 15. ___ **Host Attachment Information**

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

a. From Menu 1 or 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** (05 to 08). **Press SEND.**
d. **Fill in** the identification fields (up to 8 characters) for host and channel. **Press SEND.**
e. **Press F6** and **repeat** steps 15c and 15d for each channel installed.
f. **Press F1.**

Step 16. ___ **OLT Running on CA Interface**

For details, see step 14 on page 1-2, 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 (up) 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'** (down), 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'** (down) position for every channel in use.

Step 17. ___ **Configuration Data File (CDF) Upgrade**

For details see "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 network, a Switched X.21 line or an X.25 line*). LIC, HSS, and ESS cable plugging is explained in the *Connection and Integration Guide*, SA33-0141.

   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 31a on page 3-21).

b. From Menu 1, **type** *CDF* and **press SEND.**
c. From the CDF function selection screen, **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 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 the message *CDF UPGRADE COMPLETED*, and **press F1.**

If there is no LIC5/LIC6 modem installed, skip to step 19 on page 3-12.

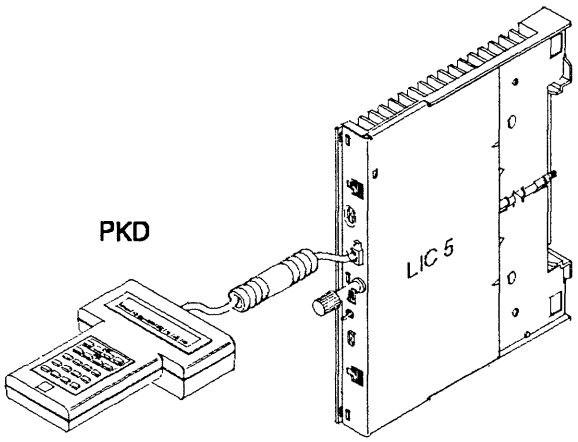
Step 18. ___ **Checking LIC5/LIC6 Modems**

Refer to the *Connection and Integration Guide*, SA33-0141, for an IBM 5869 Portable Keypad Display (PKD) description and LIC5 configuration.

a. In the LIB2 board(s), 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** 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 on a specific LIC5, you must 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**.

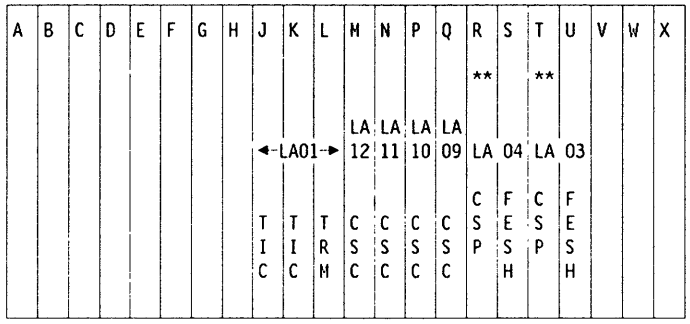
- *The customer will configure the LIC5 and LIC6 modems later when running the system integration procedures described in the* Connection and Integration Guide, *SA33-0141. (Some LIC5/LIC6 parameters may also be set through the NetView* program if available.)*
- *LIC5 and LIC6 are shipped with a default configuration of 9600 bps point-to-point. The only way to set a LIC5 or LIC6 to a speed different 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.*

Step 19. ___ **Line Adapter CDF Display**

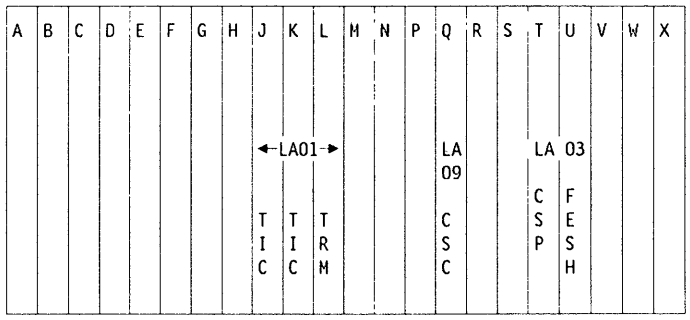
For details, refer to "Display Line Adapters" in Chapter 9 of the Service Functions, *or to "Displaying or Updating Line Adapters" in Chapter 3 of the* Advanced Operations Guide, *SA33-0097.*

a. **Locate** the basic board (see Figure 1-2 on page 1-5), and the LA positions in the board.

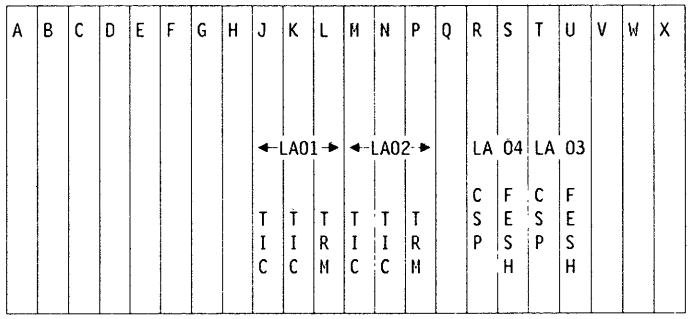
This shows a typical arrangement of the LAs in the basic board of a **3745 Model 170** (front view):



This shows the arrangement of the LAs in the basic board of a **3745 Model 150** (front view):



This shows the arrangement of the LAs in the basic board of a **3745 Model 130** (front view):



b. From Menu 1, **type** *CDF* and **press SEND.**

c. From the CDF functions screen, **select option 1** (DISPLAY/UPDATE), and **press SEND**.

d. From the CDF display/update screen, **select option 10** (LINE ADAPTERS), and **press SEND** to display the LAs.

e. **Check** that each LA installed has a *presence* tag (Y) on the screen, and a type defined (1 through 3). Make a visual check of the basic board to compare.

f. To display and check the LAs one by one, **type** the LA number and press **SEND.** (**Press F8** to display 'Extend', if any for that LA, or the next LA.)

   - **For a TSS**, check the presence and type of the LICs. The number of the displayed LA is the number that you have

recorded in the 'cable numbered' column on *Page YZ839*. Refer to that page to locate the LICs in LIB1 or LIB2 boards.

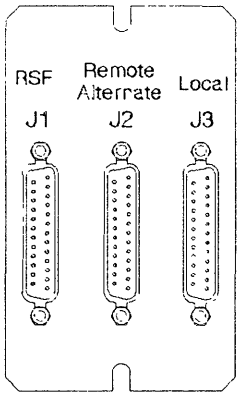
If any error appears (LIC presence missing) make a visual check of the board in error. check that the LA-to-MUX cable is properly connected. If necessary, use the *MIP* for trouble-shooting.

- **For a TRSS/HPTSS**, the LA-to-MUX cabling cannot be modified. Refer to *Page YZ 544* for details on connection and port addresses.

Step 20. ___ **Remote/Alternate Console Link Test**

a. **Install the console wrap tool** (P/N 6398697) in the remote/alternate console connector at 01R-A0J2.

Location: 01R-A0



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 21. ___ **RSF Link Test**

a. **Install the console wrap tool** (P/N 6398697) in the RSF connector at 01R-A0J1.

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 press the **Validate** key; then select **Function** = **1**, and press the **Validate** key. A MOSS IML occurs.

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 no RSF modem is available, go to step 29 on page 3-20.**

Step 22. ___ **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 Recommendation V.23 or V.22bis.

Step 23. ___ **RSF Modem Cable Installation**

a. **Plug** the cable (P/N 03F4945) to the connector labeled RSF in the 3745 location 01R-A0J1.

b. **Secure** the cable to the 3745 with clamp (P/N 26F1470) and wing nut (P/N 6398807). The clamp goes over the exposed braid of the cable. The stud to screw onto is located on the bottom left at the rear of the 3745 (see stud area in Figure 1-3 on page 1-6).

   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 24. ___ **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 25. ___ **HSC/HCS Link**

Note: 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. Transmit the RSF customer information recorded in step 24.

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.

Step 26. ___ **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 **rear door** of the 3745 using the key.

Note: It is not necessary to turn the power off.

c. **Locate** the connectors:

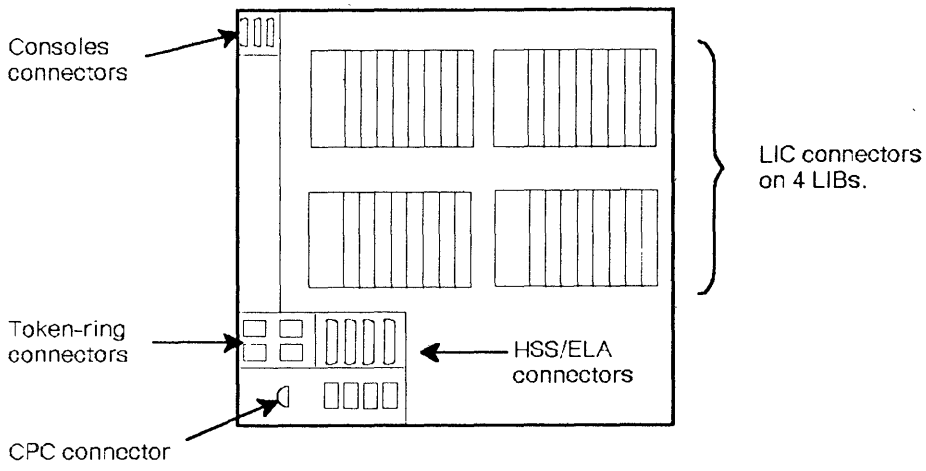


Figure 3-5. TRA, HSS, and ELA tailgate

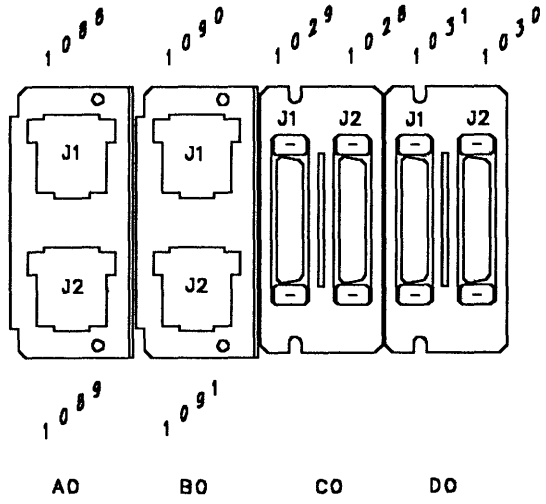


Figure 3-6. TRA and HSS connector locations

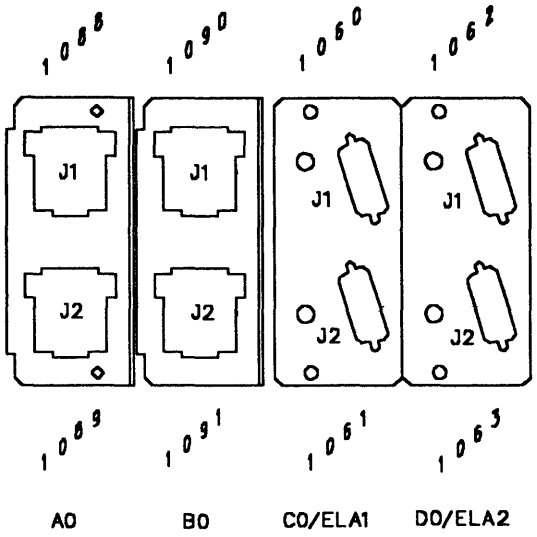
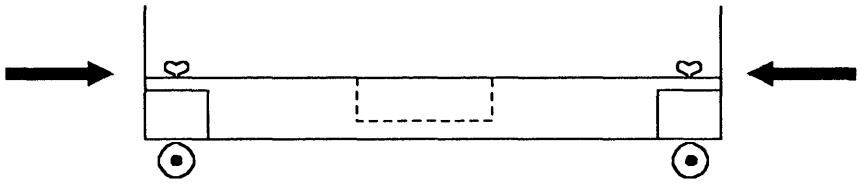


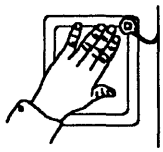
Figure 3-7. TRA and ELA connector locations

d. The **cable-retaining bar** and **ground plate assembly** at the base of the machine may be **removed** to allow easier access to the cables. **Remove** the **two wing screws** and lift it out:



Note: If there is no raised floor, remove the retaining bar only.

e. **Touch** the electrostatic discharge plate:



f. **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.

g. **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 2. of the *Connection and Integration Guide*, SA33-0141.

1) Connect the **remote or alternate console cable** from the console tailgate to the console plug.
For the console tailgate location, refer to Figure 3-2 on page 3-4.
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.

Warning:

a) When you have locked the cables on the connector, use the slide latch carefully.

b) The connector is not specified to prevent operator contact with the shield. Take care that the shield is not brought into contact with any hazardous voltage.

5) Connect the **low-speed cables,** starting with the lower boards and the lower ports.

h. **Replace** the **cable-retaining bar** and **ground plate assembly.**

Step 27. ___ **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. From Menu 1, **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 28. ___ **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. From Menu 1, **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 10** 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 29. ___ **MCF Upgrade**

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. At the local console, **press F4**.

b. Type the maintenance password and press **SEND**.

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

d. From Menu 1, **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 30d**).

g. At upgrade completion, **press SEND.**

h. At the control panel, select **Service Mode = 1**, and press the **Validate** key; then select **Function = 1**, and press the **Validate** key. A MOSS IML occurs. Wait for code **F0E/F0F.** The local console will log off, and the CA interface status will display.

Step 30. ___ **Saving the Disk to Diskettes**

For details see "Save Disk Contents onto Diskettes" in Chapter 11 of the Service Functions, *SY33-2069.*

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. From Menu 1, **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, using a felt-tipped pen write the **date** and **identifiers** on the diskette labels.
i. **Press F1**.
j. Run steps 30d to 30i again to save the disk on the second diskette set.

Step 31. ___ **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** (*step 17a and step 31a*) 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 31b* 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 IPL **option 2** (step-by-step). Press **SEND.**

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.

Step 32. ___ **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 33.

Step 33. ___ **BER File Reset**

For details see "BER File Erasure" in Chapter 2 of the Service Functions.

a. Call Menu 1 and **type** *DDD* (for dump display/delete). Press **SEND**.

b. **Press F6**.

c. **Enter** *CHGCIL* and press **SEND**.

d. **Press F1**.

e. **Type** *OFF* and press **SEND** to log off.

Step 34. ___ **Machine Ready for Customer**

a. At the 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 will occur. The successful completion will display code **FF4** at the control panel.

b. ___ **Place** the diskettes and the diskette drive protective cardboard into the diskette holder, at the left of the control panel.

c. ___ **Ensure** that the control panel gate is closed and secured, and that all internal covers, shields and parts previously removed are re-installed.

d. ___ **Close** the external doors. Lock the front door using a screwdriver. Using the cover lock key, **push and turn** the camlock to fasten the rear door.

e. ___ **Give** the following parts to the customer:

   - 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 26F1801)
   - Cover lock keys (P/N 1643894 or 6834390)
   - Clamp(s) (P/N 26F1470) and wing nut(s) (P/N 6398807) 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).

f. ___ **Clean up** the installation area.

g. ___ Refer to Appendix C 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.

The 3745 and external cable installations are now completed. Ask the customer to:

1. **Configure** *the* **alternate** *or* **remote consoles** *if necessary, using the Console Setup Guide., SA33-0158*
2. **Perform** *the* **integration procedures** *using the Connection and Integration Guide, SA33-0141.*
   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: *Section "Upgrade the Line Parameters in the CDF", must be* **skipped** *if the CE has already performed this during the external cable installation phases.*

Chapter 4. 3745 Removal or Relocation

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.

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 30 on page 3-20).

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 2-1 on page 2-2.)

Step 4. ____ Have the customer's branch-circuit breakers that feed the 3745 receptacle turned OFF.

Step 5. ____ Unplug the 3745 main power cable at each end, or, in World Trade, ask the customer to disconnect the 3745 power cable from its AC power receptacle if any.

Step 6. ____ Coil the disconnected power cable.

Interface Cable Disconnection

Step 1. ____ *If the machine is 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 four), and coil them up.

Preparing Machine for Shipment

Step 1. Perform the following appropriate actions:

a. ____ Remove the SMUX cover(s) from the LIB2 board(s).

b. ____ Remove the safety grid from under the LIB2 board, where installed.

c. ____ Install the shipping retainer bracket in front of LIC5/LIC6 modems.

d. ____ Remove the ground plate assemblies.

e. ____ Unlock the rear caster lock screws.

Step 2. ____ Re-install all parts removed from the frame, covers and doors.

Step 3. ____ Pack the machine using the pack/unpack instructions.

Step 4. ____ Pack the customer's parts and documentation in one package and label: "Customer Package".

Step 5. ____ Pack other parts and all maintenance documentation in another package and label: "Maintenance Package. Hold for use by IBM Service Representative."

Step 6. ____ Coil all removed cables.

Step 7. ____ Complete the removal records according to existing procedures. Inform the IBM Branch Office that the machine is ready for shipment.

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, the next even-numbered CA is not used and replaced by interface B of the TPS channel (see Figure 3-4 on page 3-10).*
3. *The 'ESC Address Range' parameter is not present if the CA is of type 7 (BCCA).*
4. *For each installed CA, circle the selected option, or record the appropriate parameter.*

	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	
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 (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.*

Two-Processor Switch Mode (TPS/TCS)

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 without buffered devices on the channel, **the burst length recommended value is: 32** for 308X or 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 of 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
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
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. 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 determination 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.

The following steps are optional tasks:

__ 15. **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.

__ 16. **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.*

__ 17. **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.

__ 18. **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.

__ 19. **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.

3745 Models 130, 150, and 170 Customer Documentation

Introduction (INTRO) GA33-0138	Provides information for learning about and evaluating 3745 capabilities
S/370 I/O IMPP GC22-7064	Provides information for doing physical site planning
Principles of Operation (POP) SA33-0102	Describes the 3745 instruction set in order to write or modify a control program
Basic Operations Guide (BOG) SA33-0146 *	Provides procedures for carrying out daily routine operations
Problem Determination Guide (PDG) SA33-0096 *	Provides procedures for performing problem determination
Master Index (MI) SA33-0142 *	Provides references to 3745 Models 130, 150, and 170 customer documentation
Remote Load./ Activation Guide (RLA) SA33-0161	Provides information for loading and activating a remote controller
Configuration Program (CP) GA33-0093	Provides information for configuring a 3745
Preparing for Connection (PFC) GA33-0140	Provides information for preparing cable installation and LIC 5/6 configuration
Connection Integration Guide (CIG) SA33-0141 *	Provides information for installing and testing LICs and customizing the 3745 after installation
Advanced Operations Guide (AOG) SA33-0097 *	Provides procedures for carrying out advanced operations and tests from the 3745 console
Console Setup Guide (CSG) SA33-0158 *	Provides information on setting consoles for the 3745
Telecommun. Prod. Safety Handbook TPSH GA33-0126 *	Recalls safety principles

* This manual is part of the shipping group.

3745 Models 130, 150, and 170 Service Documentation

Product-Trained CE

Installation Guide (IG) SY33-2067 *	Provides instructions for installing or relocating a 3745
Service Functions (SF) SY33-2069 *	Describes the MOSS functions used from a 3745 console
Maintenance Information Proc. (MIP) SY33-2070 *	Provides procedures for isolating and fixing a 3745 problem
Parts Catalog (PC) S135-2012 *	Provides reference information for ordering 3745 parts

Product-Support-Trained CE

Hardware Maintenance Refer. (HMR) SY33-2066 *	Provides in-depth hardware reference information
Diagnostic Descriptions (DD) SY33-2076 *	Describes the 3745 diagnostic programs
External Cable Refer. (ECR) SY33-2075 *	Provides references to console and line cables used for connecting a 3745
Service Master Index (SMI) SY33-2079 *	Provides references to 3745 models 130, 150, and 170 shipping group documentation
Channel Adapter OLTs (CAOLT) D99-3745A	Provides procedures to run the CA OLTs on a 3745

* This manual is part of the shipping group.

List of Abbreviations

ac	alternating current
AUI	access unit interface
BCCA	buffer chaining channel adapter
BER	box event record
B/M	bill of material
CA	channel adapter
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
CSC	FRU name of the scanner for medium/low-speed lines
CSP	FRU name of the communication scanner processor associated with the FESH card for high-speed lines
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 the 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
IT	impedent "terre" (earth)
LA	line adapter
LED	light-emitting diode
LIB	line interface coupler board
LIB1	line interface coupler board for LIC1, LIC2, LIC3 or LIC4 cassettes
LIB2	line interface coupler board for LIC5 or LIC6 modems
LIC	line interface coupler
LSS	low-speed scanner
MAU	media access unit
MCF	microcode fix
MES	miscellaneous equipment specification
MIP	maintenance information procedures
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
RPQ	request for price quotation
RSC	remote support center (in the U.S.)
RSF	remote support facility
SDLC	synchronous data link control

SMUX	single multiplex card
TCS	two-channel switch
TIC	token-ring interface coupler card
TPS	two-processor switch
TRA	token-ring adapter
TRSS	token-ring subsystem
TSS	transmission subsystem
UCW	unit control word
UEPO	unit emergency power OFF
U.K.	United Kingdom

Index

IBM 3745 Communication Controller
Models 130, 150, and 170
Installation Guide
Order No. SY33-2067-3

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Please write your comments concerning this manual in the space reserved below. We will greatly appreciate them and will consider them for later releases of the present manual.

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In advance, thank you.

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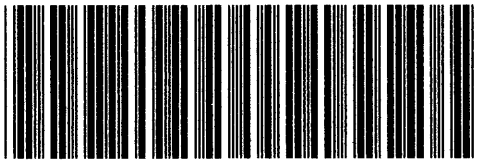

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