

Field Bill of Material (FBM)

PN 80G2812

**Convert a 3746 Model 900 APPN attached to a 3745 X1A
to
3746 Model 950**

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Before Installation (Steps 1-8)

1.0 Machines Affected

3746 Model 900 attached to 3745 Model X1A.

2.0 Related BMs and ECs

2.1 Prerequisites

(Must be installed prior to this installation)

- Network Node Control Point FC 5022 (FFBM 29H4170)

2.2 Concurrent

(Must be installed together)

- FFBM 76F9457- Removal Second CBC (Only FC 5602 is present)
- FFBM - Language Group (See table below).

FFBM	Language Group
29H4762	English
29H4763	French
29H4764	German
29H4765	Italian
29H4766	Spanish
29H4767	Japanese
Note: Only one of the above BM will be received, depending on the base machine language code.	

2.3 Companion

(May be installed separately)

None.

3.0 BMs to be Used

- FFBM 80G2812 - Convert 3746-900 APPN to 3746-950

4.0 Preparation

1. Check that all TRP and/or ESCP are type 2. If not inform the customer to order the MES(s) to exchange or remove the TRP and/or ESCP type 1:
 - Exchange ESCP FC 5500 by ESCP2 FC 5522 (FFBM 80G2809) and/or Remove ESCP FC 5500 (FFBM 09G2973)
 - Exchange TRP FC 5600 by TRP2 FC 5622 (FFBM 80G2807) and/or Remove TRP FC 5600 (FFBM 09G2973)
2. Check all items listed on the bill of material. Verify that all parts have been received.
3. Make sure that the re-installation areas, the floor cutout size and location areas are in accordance with Figure 1 or Figure 2. If not inform the customer.

Servicing Area.

- Front and back 0.75m (2.5ft)
- Right and Left at least 0.85m (2.8ft)

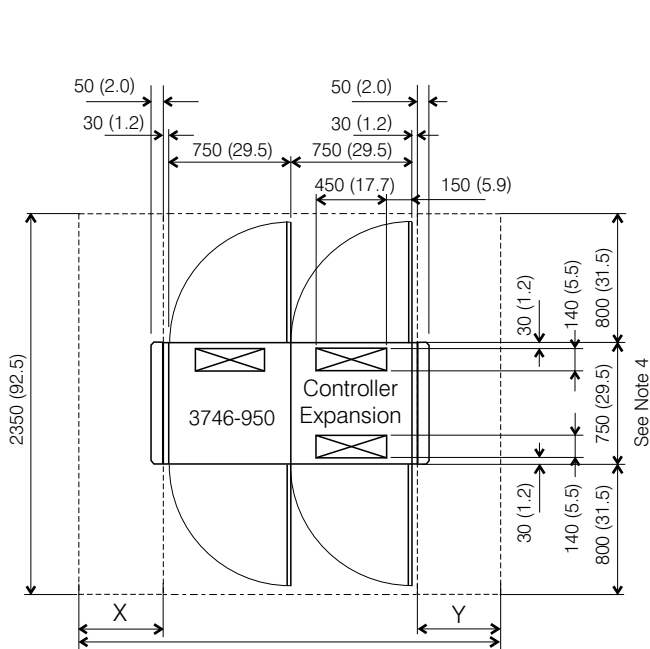


Figure 1. Plan View of a 3746-950 with Controller Expansion.

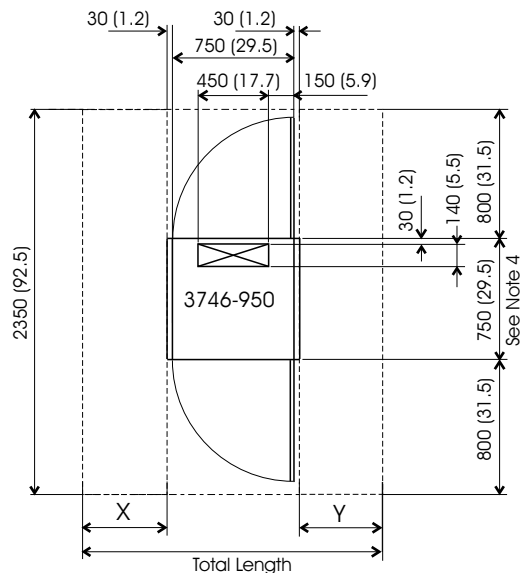


Figure 2. Plan View of a 3746-950 Alone

4. Familiarize yourself with the purpose and details of the installation instruction before negotiating machine time with the customer.

5.0 Programming

None

6.0 Purpose and Description

6.1 Purpose

Convert 3746-900 attached to 3745-X7A, into 3746-950

6.2 Description

This Migration is divided into three main parts:

Electical/physical split

Software split

3746-900 and 3745-X1A relocation.

7.0 Installation Time

FFBM	Machine Hours	System Hours	Nbr of CE
80G2812	6.0	0.0	1

8.0 Tools/Materials Required

- ESD kit (PN 6428316).

Installation (Steps 9-12)

9.0 Safety

Review the **Safety Notices** and the **Safety Inspection Procedures** located at the beginning of the *3745 Maintenance Information Procedure (MIP)* manual, SY33-2054.

10.0 Details of Installation.

Notes

1. For all locations refer to *IBM 3746 Expansion Unit Model 900 Installation Guide* SY33-2088, Appendix A and B.
2. This procedure is disruptive to the 3745 and 3746 mod 900 traffic.

10.1 Powering Off the 3746-900

- ___ 1. At the control panel, ensure that the Power Control window displays '3' (Local), and then push the Standby key.
- ___ 2. **Switch** the main circuit breaker CB1 and CP1 **OFF** at the 3746-900 primary power box.

10.2 Powering Off the 3745

- ___ 1. Press the **Power Off** key on the 3745 control panel.
- ___ 2. **Switch CB1 to Off** at the primary power box

10.3 Removing the power control cable (PN 03F7538):

From the 3746-900:

- ___ 1. Disconnect the connector **3** from 07J-A1-J1 of the optional power supply, or from the dummy connector **4** located on the filter box (if the optional power is installed).
- ___ 2. Disconnect the connector **2** from 07K-A1-J1 of the basic power supply.
- ___ 3. Disconnect the connector **1** from 07H-A1-3745 link of distribution box,
- ___ 4. Un-clamp the cable from the power supply,
- ___ 5. Route it back to the 3745 base frame,
- ___ 6. Remove the cable from the raceway **7**.

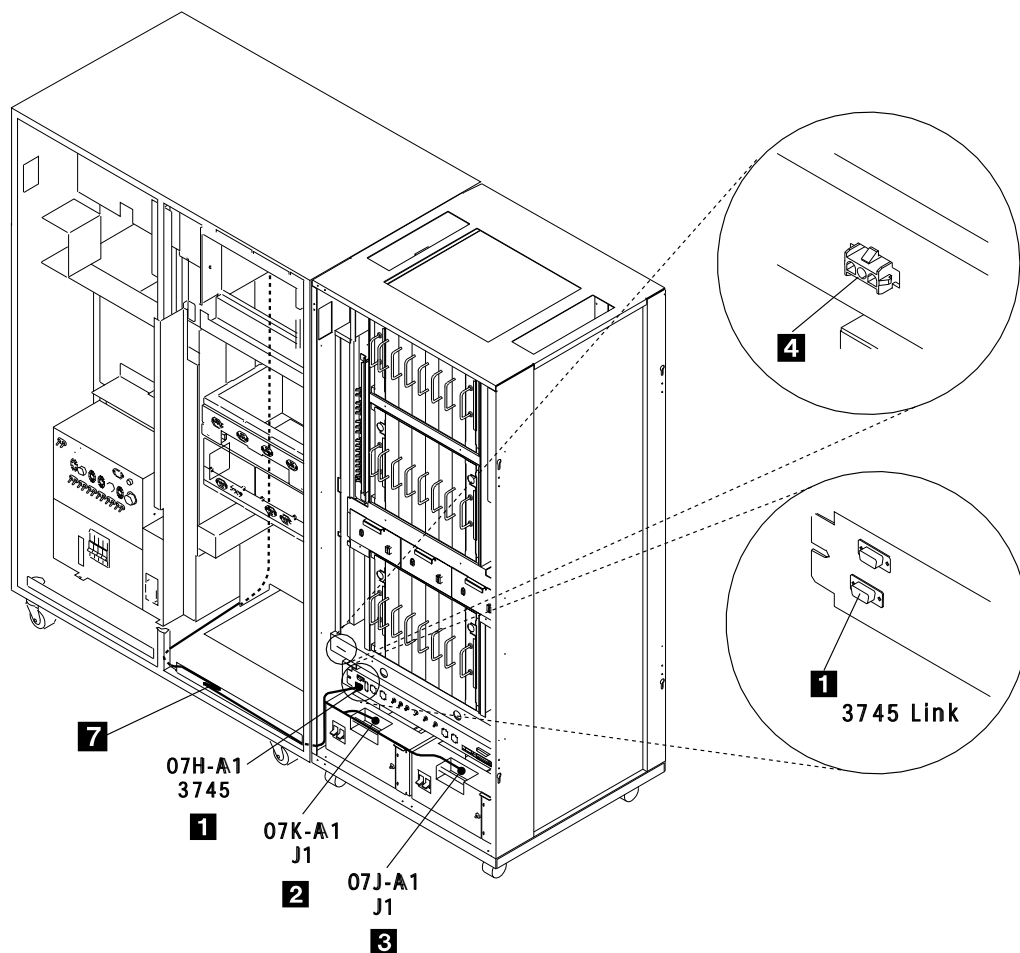


Figure 3. 3746-900 Power Control Cabling.

- ___ 7. Route back the cable to the rear side of the 3745 base frame.

From the 3745 Base Frame:

- ___ 8. Disconnect the EPO connector **1** from the 3745 EPO tailgate in 01S-A0 (see Figure 4).
- ___ 9. Disconnect the ground lead **2** from the plug under the EPO plug.

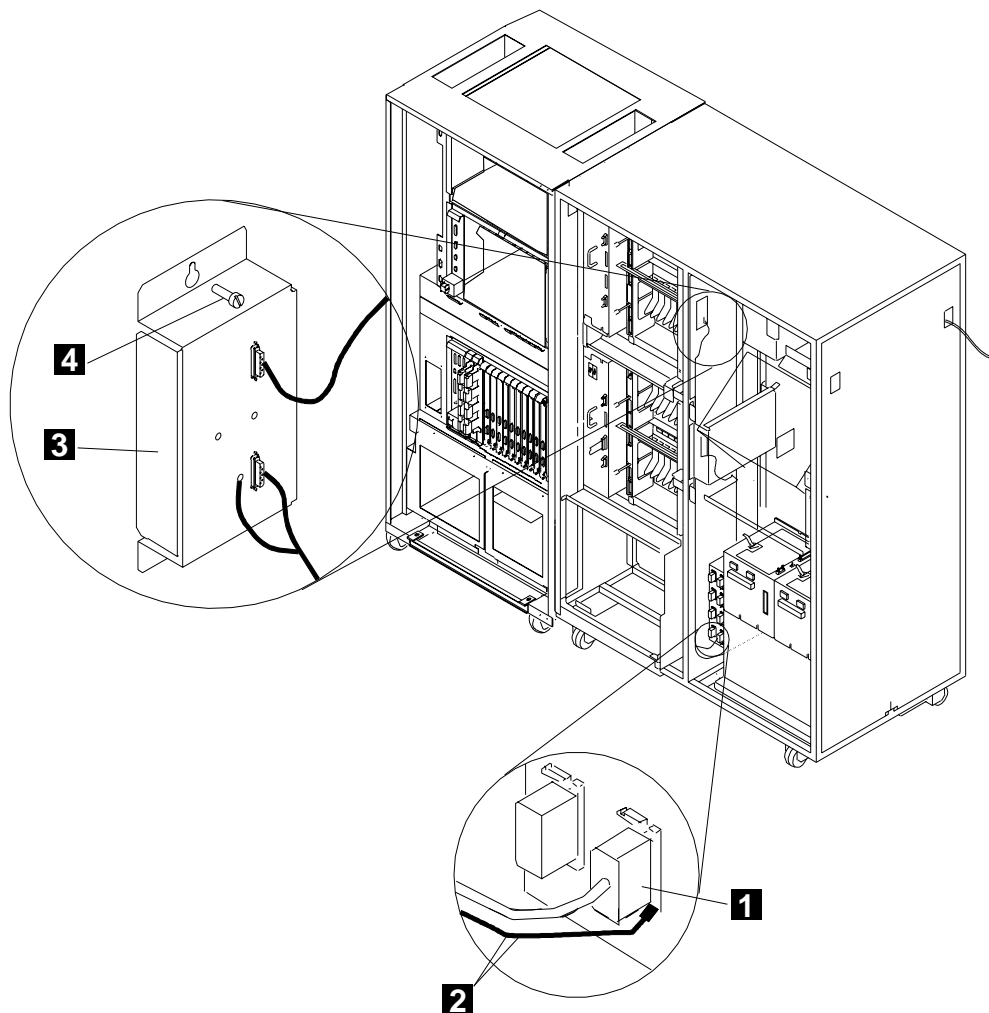


Figure 4. 3745-X1A Power Control Cabling.

- ___ 10. If present, remove the customer cable and if necessary the console cable plugged on the console tailgate.
- ___ 11. Remove the console tailgate **3** from the 3745 frame by loosening the two screws **4**

- ___ 12. Remove the bracket **5** on the console tailgate **6** and the two screws **7** PN 1621191 (see Figure 5).
- ___ 13. Disconnect the connector **J3** from the plug **8** of the console tailgate **1**
- ___ 14. Remove the connector **9** from the console tailgate **6**

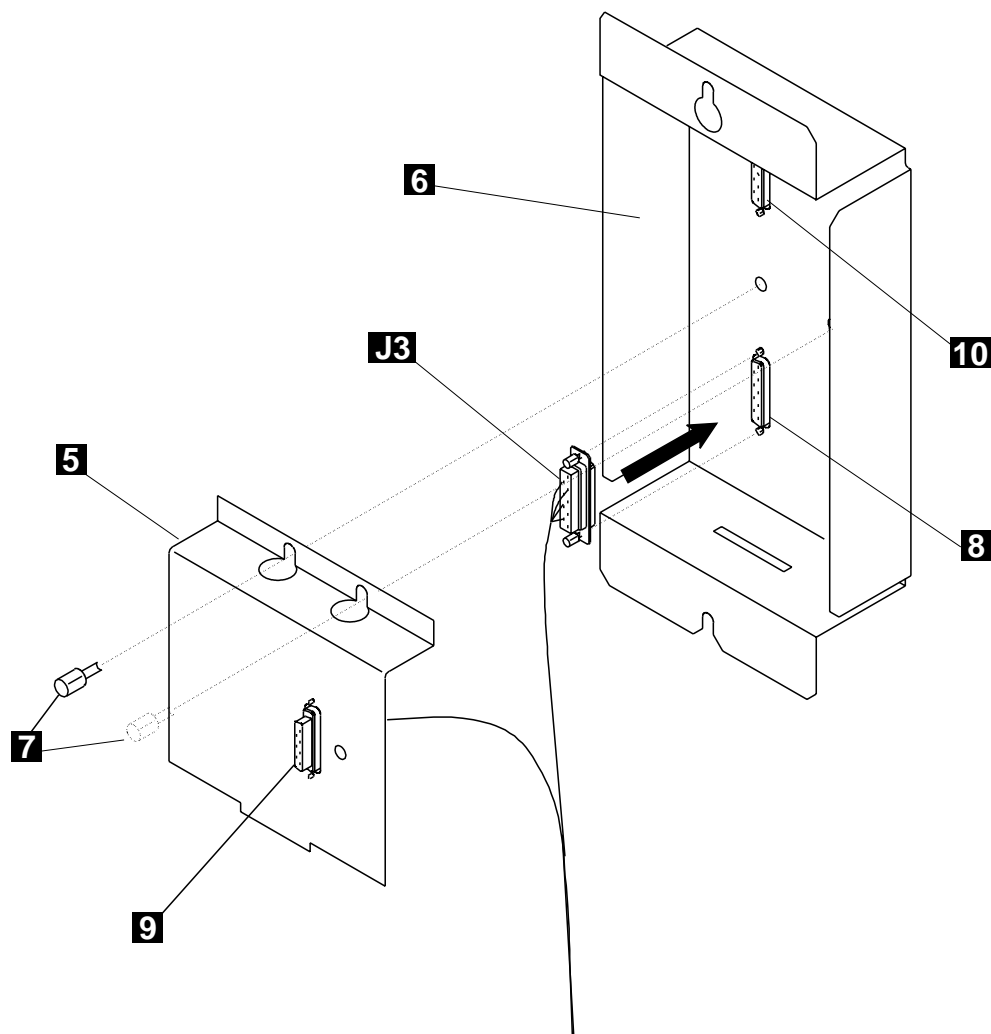


Figure 5.

- ___ 15. Reinstall the console tailgate **3** on the 3745 frame, tighten the two screws **4** (see Figure 4 on page 8).

10.4 Removing UEPO cable (PN 76F9341).

From the 3746-900:

- 1. Disconnect the connector **1** from the distribution box (Position 07H-A1-J6)
- 2. Disconnect the ground cable **2**, (leave screw and lockwasher in place), and then
- 3. Route back the UEPO and Ground cables to the 3745 base frame,

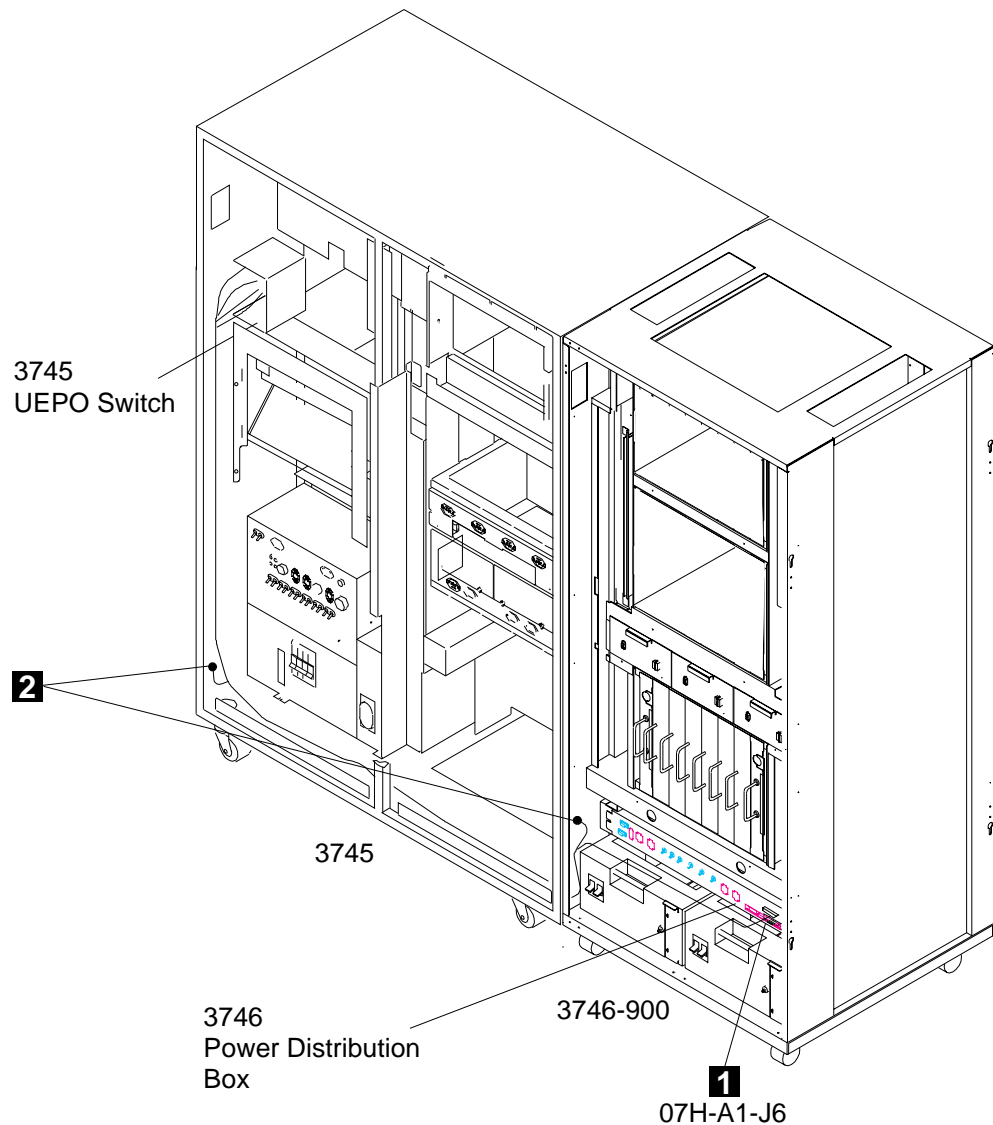


Figure 6. 3745-X1A and 3746-900 UEPO Cabling.

From the 3745 Base Frame:

- 4. Open the 3745 control panel. Locate the unit emergency power OFF (UEPO) switch at the rear of the control panel.
- 5. Disconnect the UEPO cable leads from the UEPO switch.

- 6. Disconnect the ground cables **2** from the frame (Leave the screws and lockwashers in place).

10.5 Removing the IOC and DMA Bus Cables.

From the 3745 Base Frame:

- ___ 1. Locate the IOC and DMA buses connections:
 - DMA: 01G-01W02 to W05
 - IOC:
 - If frames A11 and A12 are not installed: 01G-01X02 to X05
 - If frame A11 is installed and frame A12 is not installed, and
 - If LAB 3 is not installed: 02A-01X02 to X05.
 - If LAB 3 is installed: 02F-01X02 to X05
 - If frame A12 is installed: 03F-01X02 to X05
- ___ 2. Remove the intermix brackets **1** (PN 1953110).
- ___ 3. Remove the retainers **2** (PN 1953188).
- ___ 4. Disconnect the IOC and DMA buses, from their respective positions from W02 to W05 and X02 to X05.
- ___ 5. Remove the flat cables from the raceways, reinstall the retainers **2** (PN 0813519).
- ___ 6. Remove the DICO cards **3**

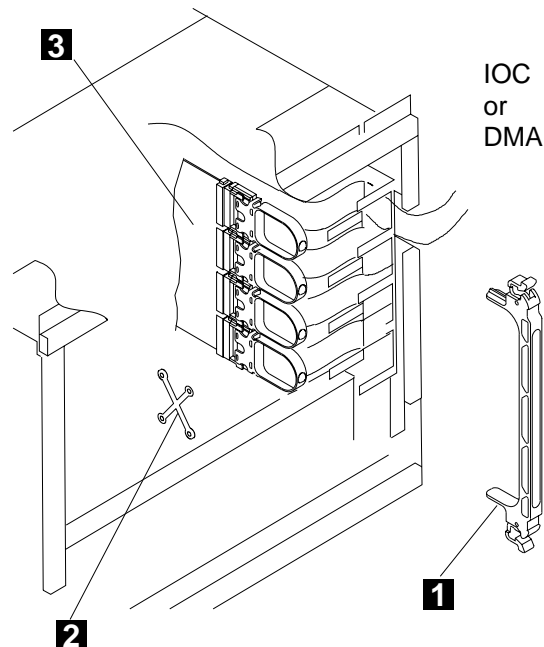


Figure 7.

- ___ 7. Retrieve and Plug the LA bus terminator cards into the 3745 or 3746 boards, where the IOC and DMA cables have been removed.

- ___ 8. From the Service Processor invoke the "Locate Bypass Card Position" function.
 - ___ a. From the 3745 menu, click on "**Operation Management**"
 - ___ b. Double click on "**Locate Bypass Card Position**", the function is running.

Note: If the configuration does not require a bypass card you will get an information message (see Figure 8).
In that case, click on "**OK**" to return to the 3745 menu.

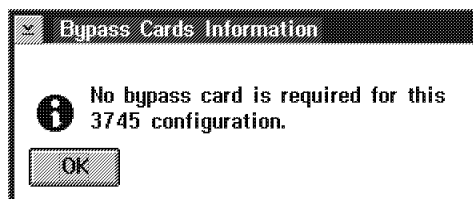


Figure 8. Information Message.

- ___ c. **Record** the card positions (if any) for the active (ABP1 and ABP2) and passive (BPC1)
- ___ d. Remove these cards and put them in the 3746-900 shipping group.

From the 3746-900:

- ___ 9. Remove the covers **1 to 4** (Refer to Component location label on the rear door).

Notes

- If the 3746-900 was attached to a 3745 base frame with a single CCU, only one CBC is installed, the second IOC/DMA cable assembly will be attached to terminators (TERC).
- If the 3746-900 was attached to a 3745 Base frame with a Dual CCU, there are two CBC's installed.
- If you have one **CBC** go to step 10
- If you have two **CBC's** go to step 16 on page 14

- ___ 10. Unplug the cables **6** (see Figure 9 on page 14) from the TERC card.
- ___ 11. Loosen the four nuts **7** on the CBC1 Cassette.
- ___ 12. Unplug the cables **5** marked E1 and E2 from the CBC1 cassette and remove the two cable sets from the frame.
- ___ 13. Remove CBC1 Cassette, then place the Cassette in an ESD protective bag.
- ___ 14. Store the Cassette in the customers ship group.

- ___ 15. Install a dummy cassette (PN 03F7522), in position where the CBC1 has been removed, then go to 21 on page 14.
- ___ 16. Loosen the eight nuts **7** from **CBC1** and **CBC2**
- ___ 17. Unplug the cables **8** from the CBC1 and CBC2 cassette, and remove both cable sets from the frame.
- ___ 18. Remove CBC1 and CBC2 Cassettes, then place the Cassettes in an ESD protective bag.
- ___ 19. Store the Cassettes in the customers ship group.
- ___ 20. Install the dummy cassettes (PN 03F7522). in position where the CBC1 and CBC2 have been removed.
- ___ 21. Reinstall the covers **1 to 3** (Refer to the Component location label on the rear door).

Note: Do not replace cover **4**, store it in the customer ship group.

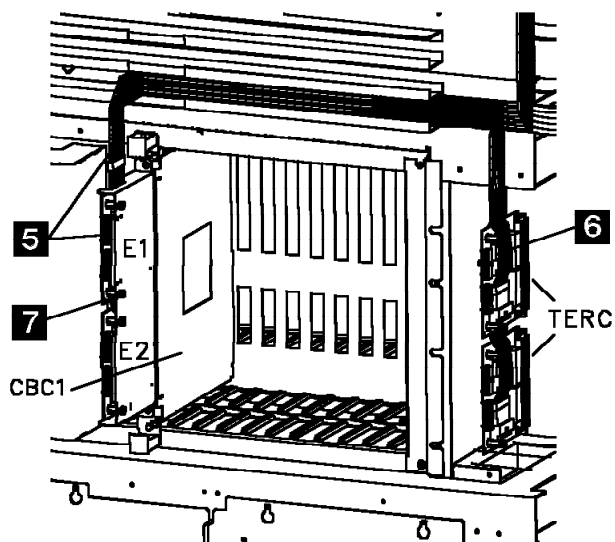


Figure 9. IOC/DMA Cable Termination with single CBC.

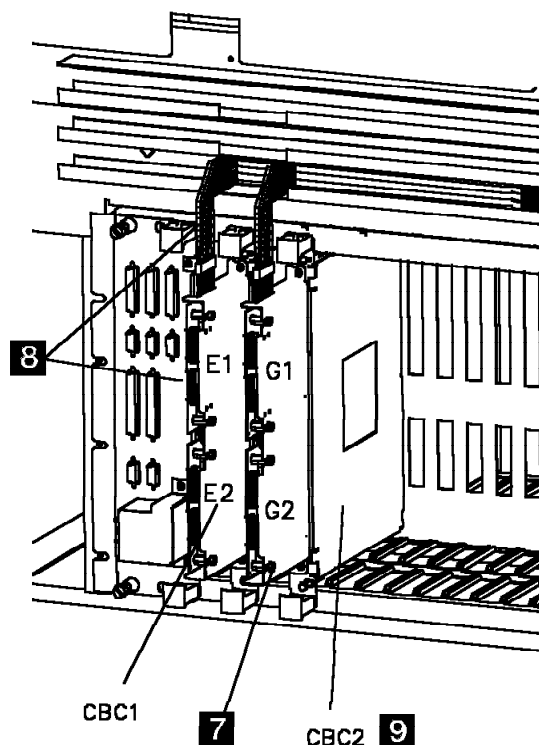


Figure 10. IOC/DMA Cable Termination with two CBC's.

10.6 Removing +5V cables, if they exist:

From the 3746-900:

- 1. Disconnect the cable 76F9338 from the CBSP/CBSP2 (Position 07G-A1-F3).
- 2. If a cable is installed on the TRP (position 07G-A1-H3), remove a second cable set.
- 3. Route it(them) back to the 3745 base frame,

From the 3745 Base Frame:

- 4. Disconnect the cable 76F9338 from the ABP1 bypass card.
- 5. Disconnect the cable 76F9339 between the ABP1 and ABP2 bypass cards.

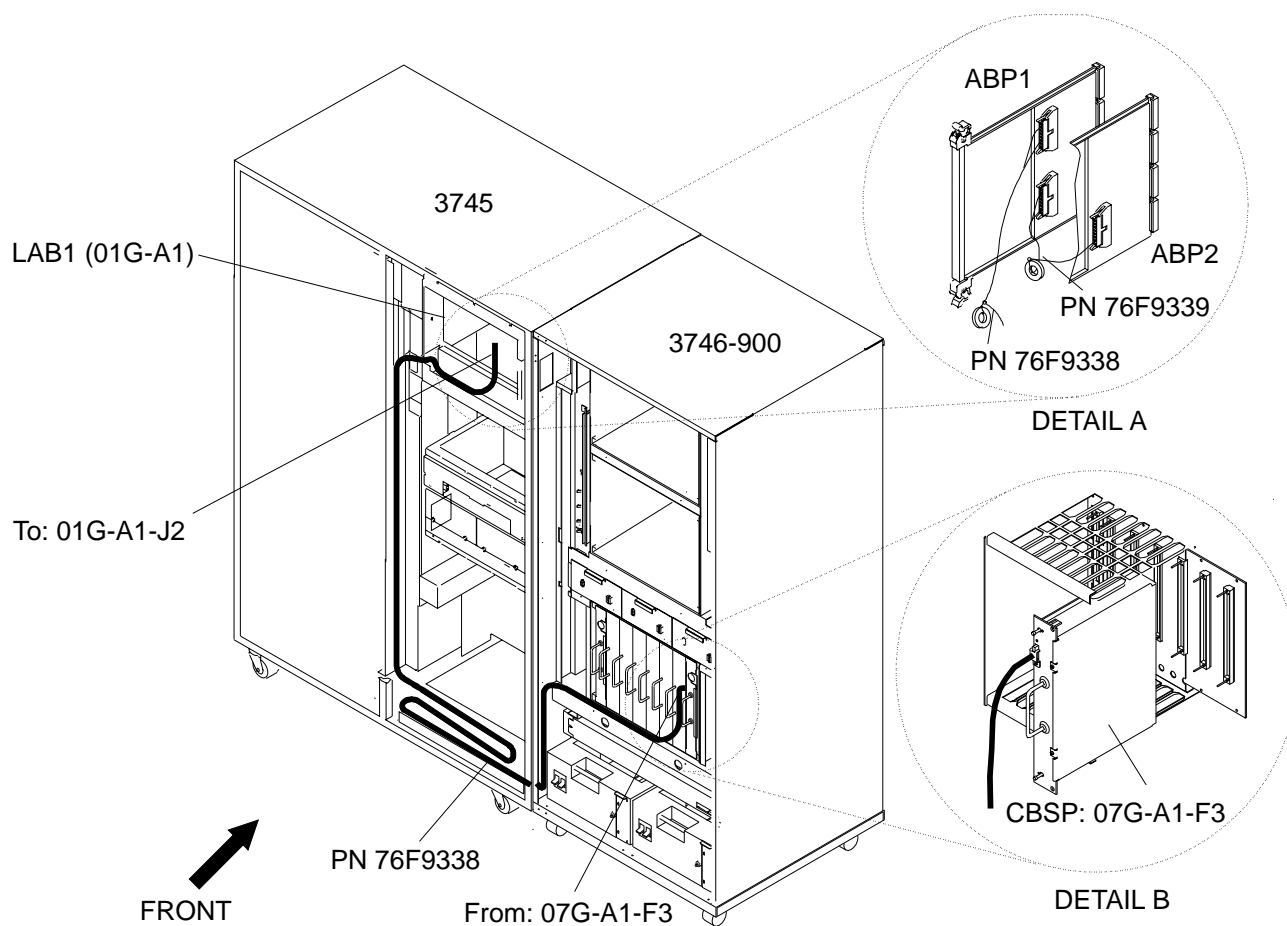


Figure 11.

10.7 Exchanging the Control Panel in the 3746

10.7.1 Removing the 3746-900 Control Panel

- 1. Remove the cover and the 4 screws **1**
- 2. Remove the clamp and the 2 screws **2**
- 3. Disconnect the connector **3** from the control panel.
- 4. Disconnect the connector **4** on the Operator panel card.
- 5. Remove the Operator panel card **5** and the 4 screws.
- 6. Remove the Keyboard/display card **6** and the 4 screws.
- 7. Remove the 3746-900 control panel **7**.
- 8. Remove the cover **8** and the 2 screws
- 9. Remove the shutter assembly **9** and the 4 screws
 - a. Remove the spacer **10** and the 2 screws
 - b. Remove the shutter **11**
 - c. Reinstall the spacer **10**
- 10. Reinstall the shutter assembly **9** and the 4 screws
- 11. Reinstall the cover **8** and the 2 screws.

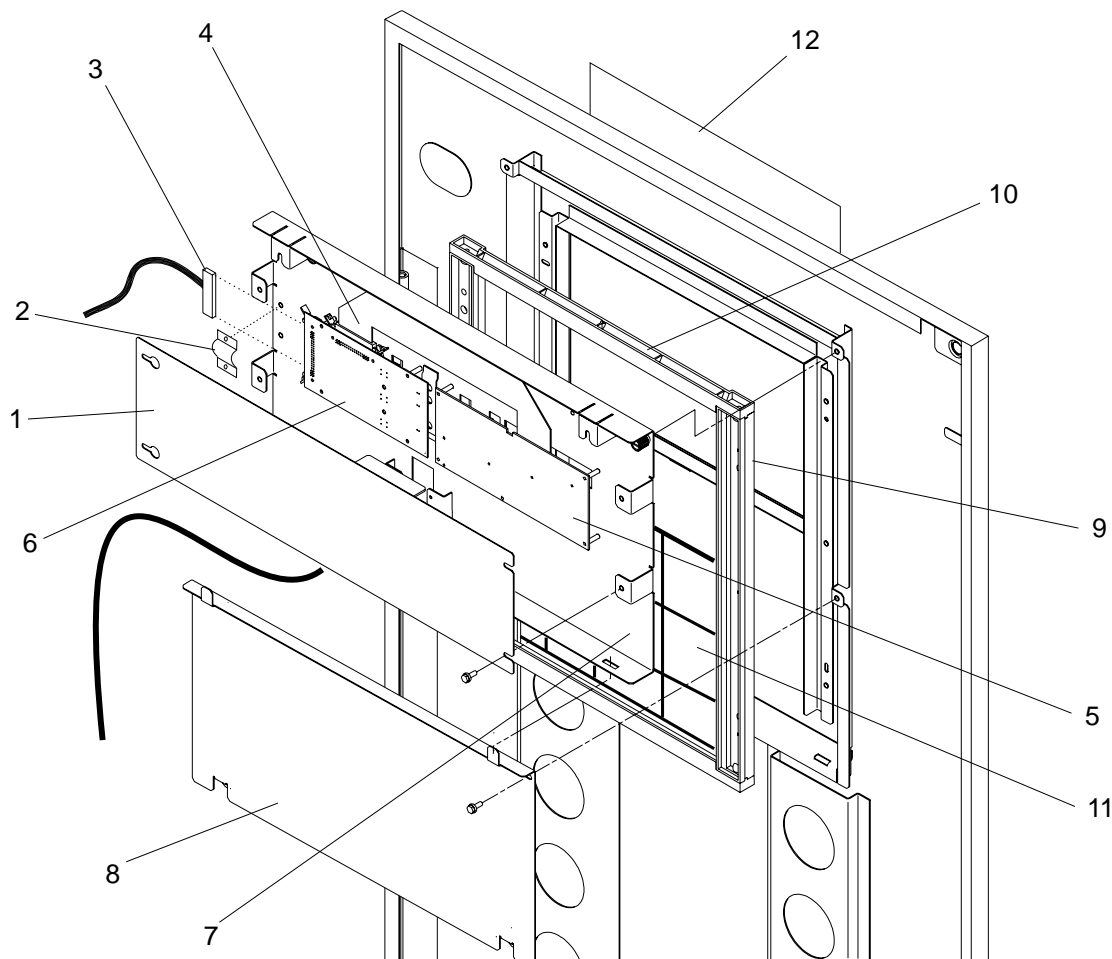


Figure 12. Control Panel Conversion to 3746-950.

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10.7.2 Installing the 3746-950 Control Panel.

Refer to Figure 12 on page 16

- ___ 1. Stick the overlay **12** on the new control panel 5PN 58G5699).
- ___ 2. Install the new control panel assembly **7**
- ___ 3. Reinstall the Operator panel card **6** and the 4 screws
- ___ 4. Reinstall the Keyboard/display card **5** and the 4 screws
- ___ 5. Reconnect the connector **4** on the Operator panel card.
- ___ 6. Reconnect cable **3** and fasten it with the clamp **2**.
- ___ 7. Reinstall cover **1**.
- ___ 8. Route the UEPO cable **13** thru the clamp along the frame to the bottom of the machine, then connect it to the distribution box (Position 07H-A1-J6) See Figure 13.

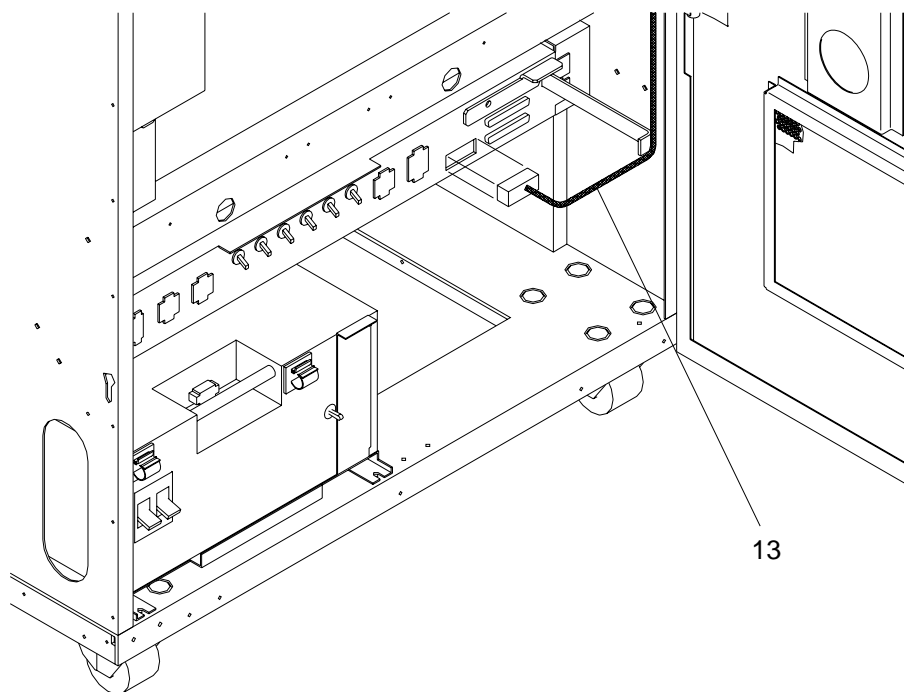


Figure 13. 3746-950 UEPO Cable connection.

10.7.3 Installing the 3746-950 Nameplates and Component Location Label.

- ___ 1. On the front and rear doors, replace the **IBM 3746 Model 900** nameplates with the **IBM 3746 Model 950** ones (PN 58G5573).
- ___ 2. On the rear door, stick the 3746-950 component location label (PN 58G5574) on the 3746-900 label.

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10.8 Setting the Service Processor.

10.8.1 Powering ON the 3746-950

- ___ 1. **Switch** the main circuit breaker CB1 and CP1 **ON** at the 3746-900 primary power box.
- ___ 2. At the control panel, ensure that the Power Control window displays '3' (Local),

10.8.2 Powering ON the 3745

- ___ 1. Switch CB1 to **ON** at the primary power box
- ___ 2. Press the **Power ON** key on the 3745 control panel.

10.8.3 Splitting the 3746-900 and 3745.

- ___ 1. Enter the Service Processor Maintenance Password (*default is: IBM3745*)
- ___ 2. Double click on the "**Service Processor object icon**".
- ___ 3. Click on "**Configuration Management**".
- ___ 4. Double click on "**Manage 3745/3746-9x0 installation/Removal**"
- ___ 5. On the Controller Installation menu, select the 3746 to be split by clicking on.
- ___ 6. Click on **MES 900 > 950** button.
- ___ 7. When general IML message appears, click on **OK**
- ___ 8. Follow the instructions.
- ___ 9. When successfully ended message appears, click on **OK**
- ___ 10. The Service processor reboot, follow the instructions.

10.8.4 Saving Configuration Parameters on diskette.

- ___ 1. Enter the Service Processor Maintenance Password
- ___ 2. Double click on the **Service Processor** object icon.
- ___ 3. Click on "**Configuration Management**".
- ___ 4. Double click on the new **3746-950** object icon, then click on **Save**.
- ___ 5. When prompted, insert a configuration diskette.

Important

Repeat the procedure on all the diskette copies.

10.9 Relocating the 3746-950 or 3745-17A.

- ___ 1. Power **OFF** the 3745-X1A (See 10.2, "Powering Off the 3745" on page 6), 3746-950 (See 10.1, "Powering Off the 3746-900" on page 6).
- ___ 2. If the Controller Expansion is connected to the 3746-950, Power **OFF** the equipment installed in the Controller Expansion
- ___ 3. Switch or ask the customer to switch the branch circuit breaker that feeds the 3746-950, 3745-17A and Controller Expansion to the **OFF** position.
- ___ 4. Disconnect the External Cables and Main Power Cord
Note: It is advisable to disconnect the cables, starting at the top of the machine and working down.
- ___ 5. Undo the caster locking screws.
- ___ 6. Ensuring all cables have been disconnected, move the 3746-950 or the 3745-17A away.
- ___ 7. Move the 3746-950 or 3745-17A frame to it's planned location, then tighten the casters lock screws.
- ___ 8. Re-install the external cables and main power cord.

10.9.1 Installing the Ground Brackets on 3746-950.

If the Controller Expansion is:

- **Attached** to the 3746-950 frame go to 10.9.1.1, "Installing the 3746-950 and Controller Expansion Ground Brackets."
- **Detached** from the 3746-950 frame, go to 10.9.1.2, "Installing the 3746-950 Ground Brackets" on page 21.

10.9.1.1 Installing the 3746-950 and Controller Expansion Ground Brackets

- ___ 1. Remove the end covers **1**
- ___ 2. Remove the ground plate **2**
- ___ 3. Install the end ground plates **3** (PN 58G5676) using screws (PN 2665527).
- ___ 4. Install the front ground plate **4** (PN 58G5677) and the rear bracket **5** (PN 58G5675) using screws (PN 2665527).
- ___ 5. Install the rear brackets **6** (PN 58G5675) using screws (PN 2665527).

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

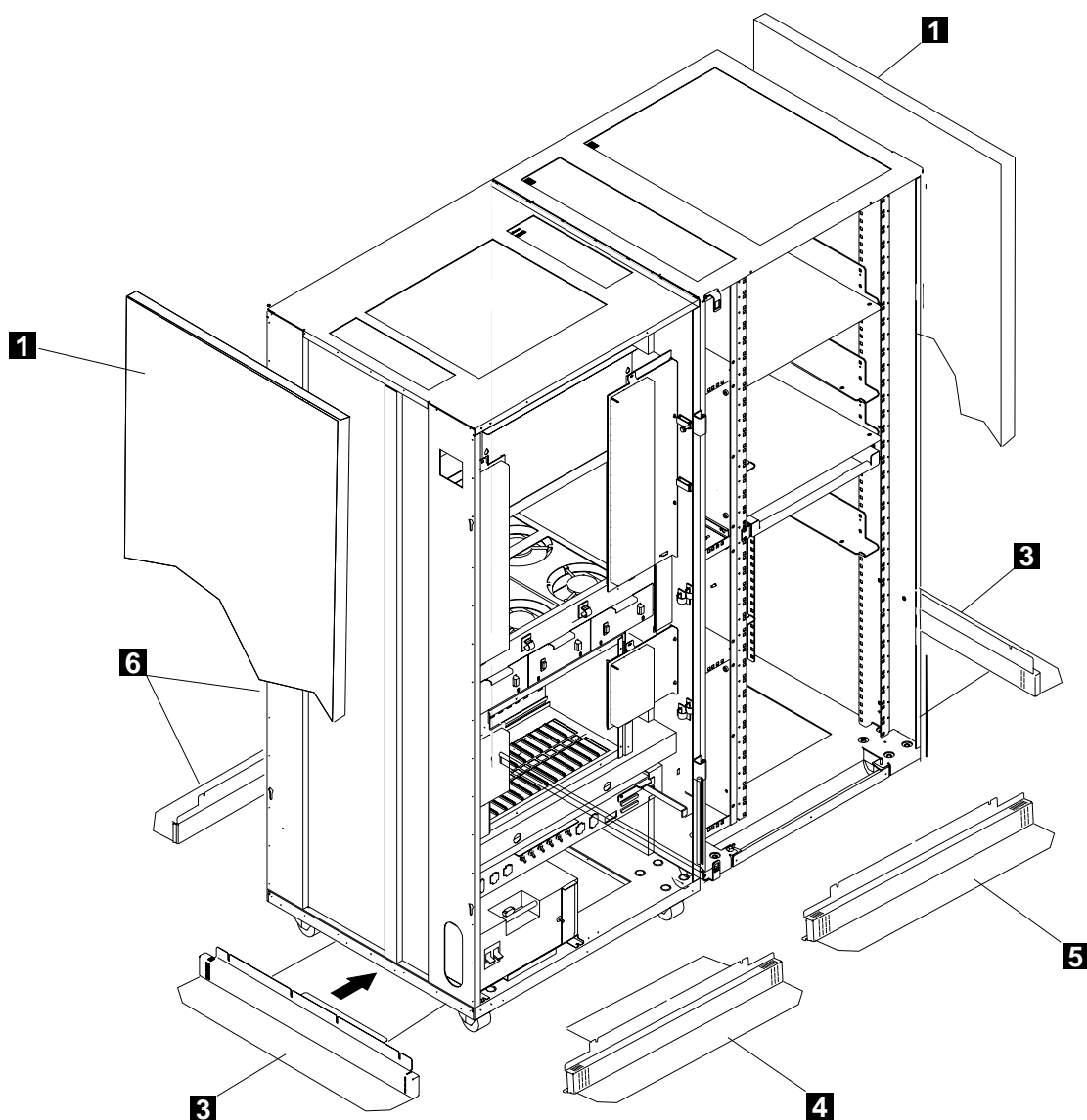


Figure 14. 3746-950 and Controller Expansion Ground Brackets (Front View).

Go to 10.9.2, “Installing the Ground Wire” on page 22 .

10.9.1.2 Installing the 3746-950 Ground Brackets

- 1. Remove the end covers **1**, then
- 2. Remove the ground plates **2** on both side.
- 3. Install the right and left brackets **3** (PN 58G5676) using screws (PN 2665527).

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

- 4. Install the front ground plate **4** (PN 58G5677) and rear ground plate **5** (PN 58G5675) using screws (PN 2665527) then re-installed covers **1**.

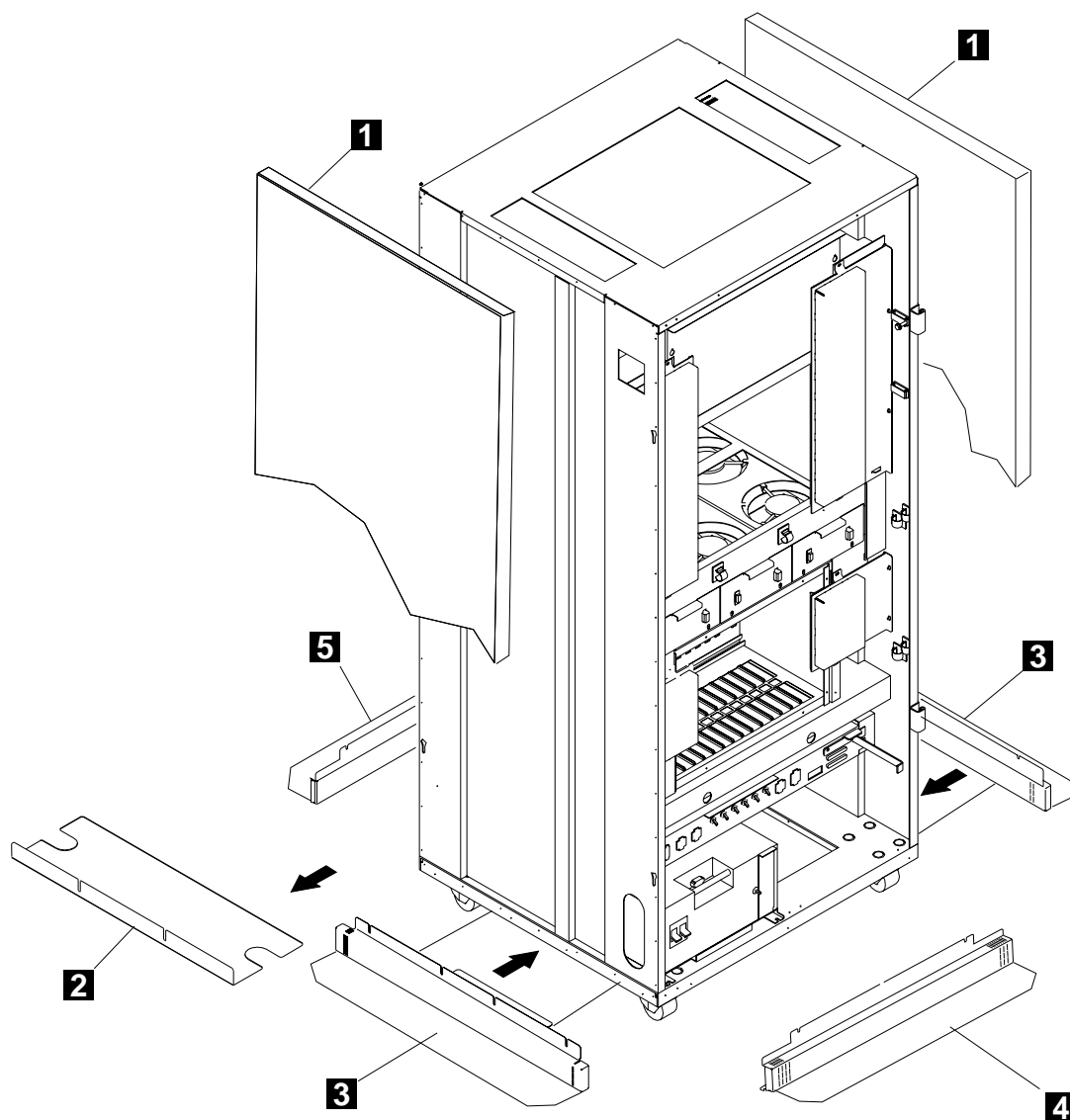


Figure 15. 3746-950 Ground Brackets (Front View).

10.9.2 Installing the Ground Wire

If the Controller Expansion is:

- **Attached or at 6m or less** to the 3746-950 go to 10.9.2.1, "Controller Expansion Attached or at 6m or less."
- **At more than 6m** to the 3746-950 go to 10.9.2.2, "Controller Expansion at More than 6m." on page 23

10.9.2.1 Controller Expansion Attached or at 6m or less.

1. Connect a ground wire (PN 58G5691) to the Controller Expansion and the other end to the building ground.
2. Connect a ground wire (PN 58G5691) to the 3746-950 and the other end to 3746-950

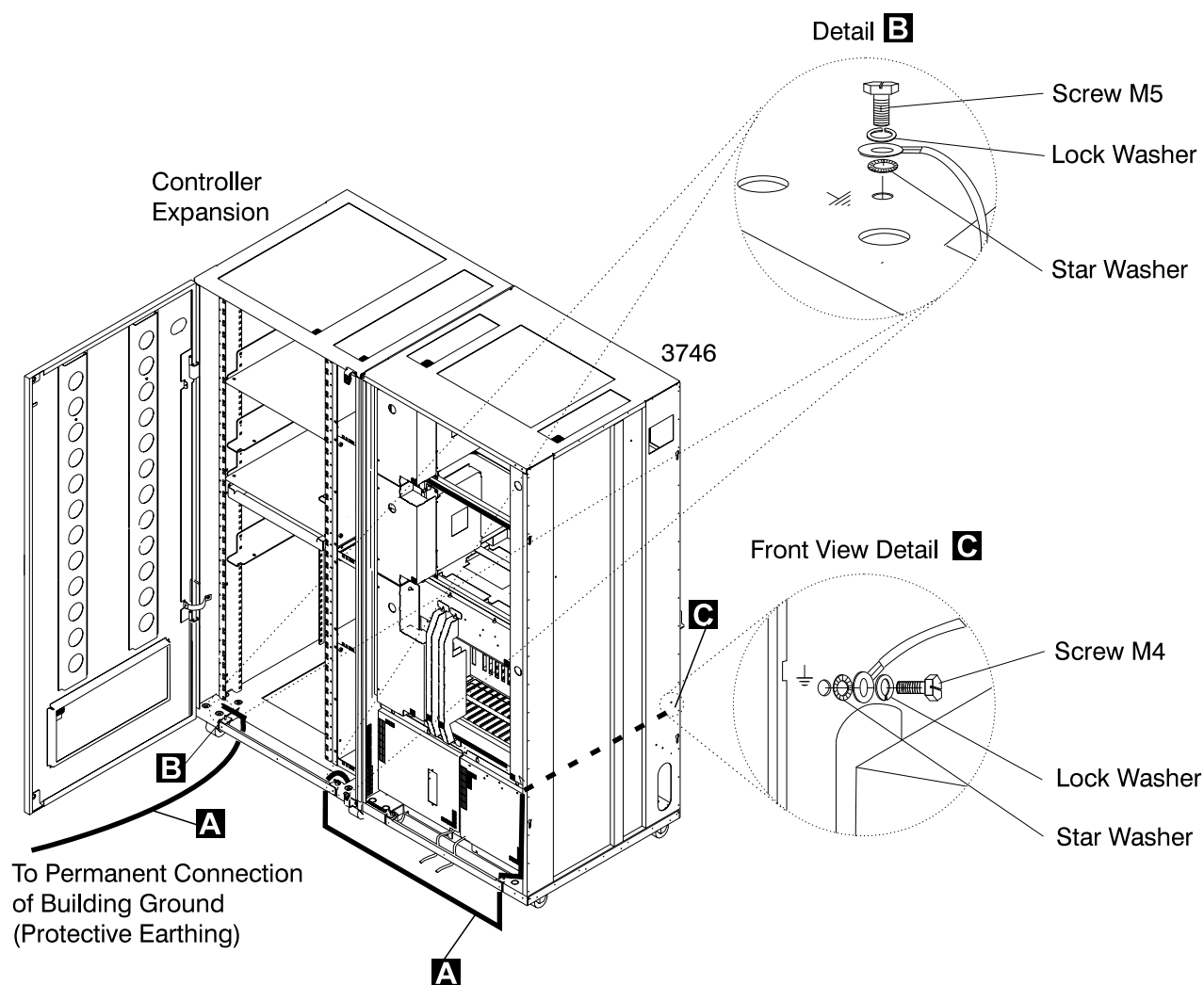


Figure 16. Controller Expansion attached or at less than 6m to 3746-950

Go to 10.12, "Testing the 3745" on page 26.

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10.9.2.2 Controller Expansion at More than 6m.

- 1. Connect a ground wire (PN 58G5691) to the Controller Expansion and the other end to the building ground.
- 2. Connect a ground wire (PN 58G5691) to the 3746-950 and the other end to the building ground.

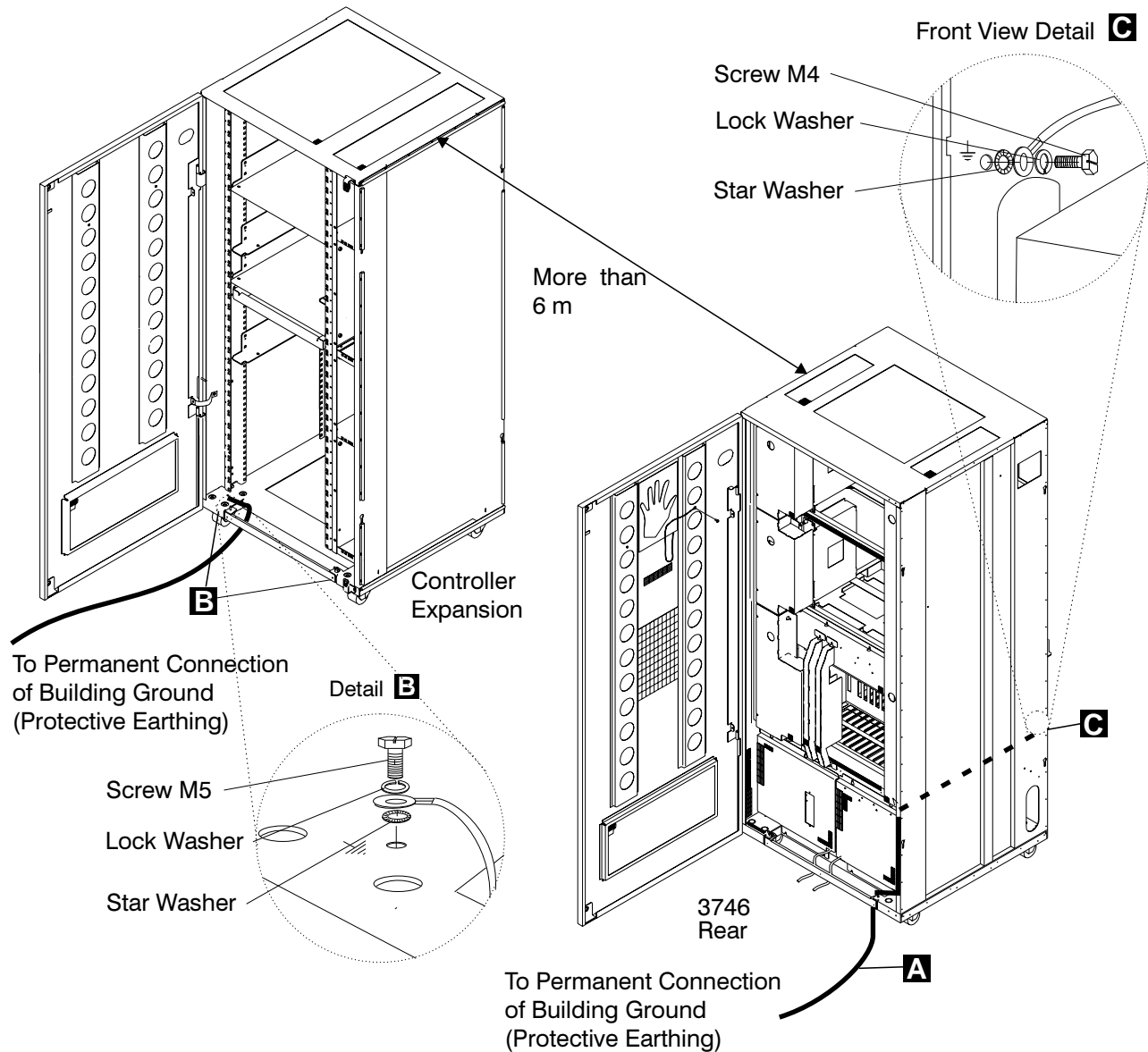


Figure 17. Controller Expansion at more than 6m to 3746-950

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10.9.3 Powering ON the Controller Expansion and 3746-950

- ___ 1. Switch or ask the customer to switch the branch circuit breaker that feeds the 3746-950 and Controller Expansion to the **ON** position.
- ___ 2. Power **ON** all the equipment in the Controller Expansion attached to the 3746-950.
- ___ 3. Powering ON the 3746-950
 - ___ a. **Switch** the main circuit breaker CB1 and CP1 **ON** at the 3746-900 primary power box.
 - ___ b. At the control panel, ensure that the Power Control window displays '3' (Local),

10.10 Testing the 3746-950

Notes

For all steps contained in section 10.12, "Testing the 3745" on page 26 refer to *IBM 3746 Nways Multinetwork Controller Installation Guide SY33-2107*, Chapter 3.

- Step 1. Power the 3746-950 Off
- Step 2. Verify the 3746-950 Standby State.
- Step 3. 3746-950 Control Panel test.
- Step 4. Perform the 3746-950 General IML and Build the CDF-E
- Step 5. Compare the Active CDF-E to the reference CDF-E
- Step 6. Select Diagnostics to Test all Resources
- Step 7. Define the ESCA Parameters
- Step 8. Test the ESCON Network

10.11 Reinstalling Hardware to the 3745

1. At the right hand side of the 3745 base frame (or the 3746 A-11/A12 depending on the configuration of the 3745 base frame), remove the ground plate **D** (PN 72F1046) and replace it with the original bracket **C** (PN 65X8885)

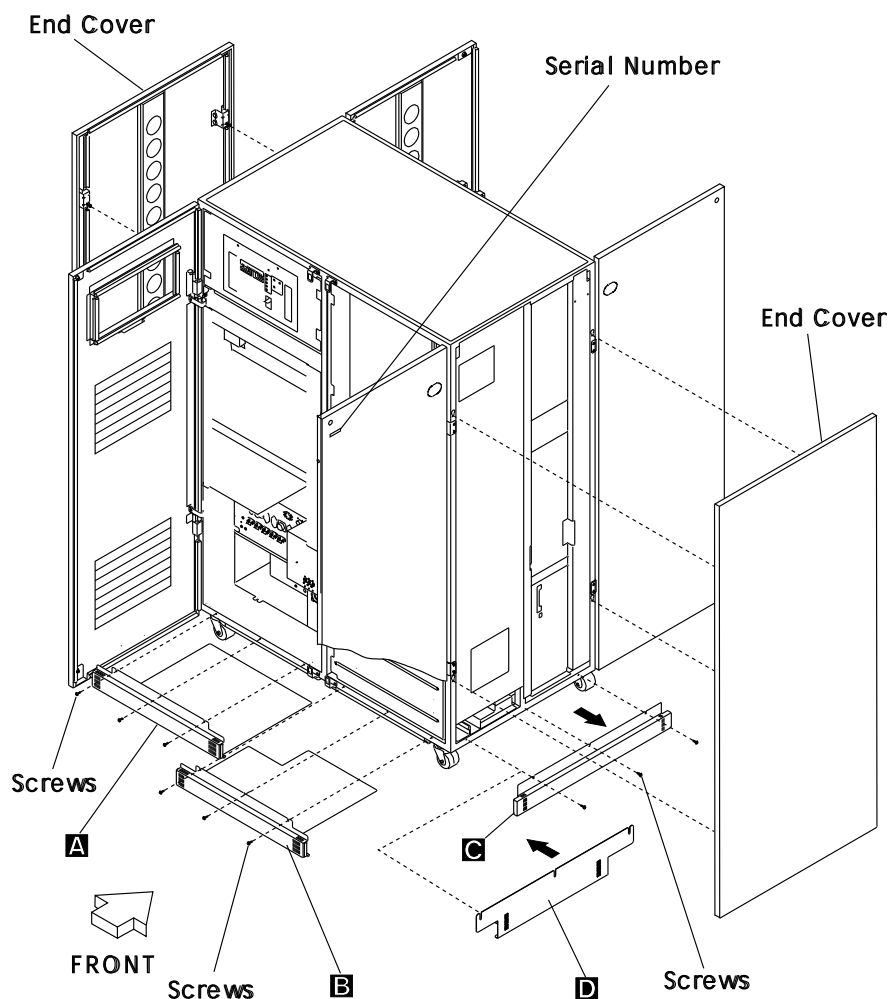


Figure 18. Ground plate installation.

Note: Only the 3745 base frame is shown for clarity

2. Re-install the end cover at the right side of the 3745 base frame, 3746-A11, or 3746-A12, depending on the 3745 configuration.
3. Re-install all other parts removed from frames, covers, and doors.

10.12 Testing the 3745

- ___ 1. Run **CDF verify** (refer to chapter " CDF Verify" *3745/210-61A Service Functions*, SY33-2055, or *3745 Communication Controller Models 210 to 61A Maintenance Information Procedures*, SY33-2054 in case of a problem.
- ___ 2. Run the IOC and DMA diagnostics
- ___ 3. Ask the customer to re-start and check the network on the 3745.

After Exchange (steps 13-16)

11.0 Field Updating

Ensure that both the 3745 and 3746-9x0, types and models, are registered in RETAIN (CCPF).

For U.S.A machines, please call the Raleigh Multiplexor Support Center and verify your machine's registration in CCPF for:

- The seven digit serial number of the 3745 and 3746-9x0 are correct.
- The three digit model designation for the 3745 and 3746-9x0 are correct.

12.0 Publications Update

Install the 3746-950 documentation delivered according to the Publication Reference Drawing (PRD).

13.0 Parts Disposition

14.0 Machine Records

- Record in the **MACHINE HISTORY** the new EC D55806 installed.
- Report installation and quality to existing procedures.

End of instructions.

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