

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

- 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)
- Check all items listed on the bill of material. Verify that all parts have been received.
- 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)

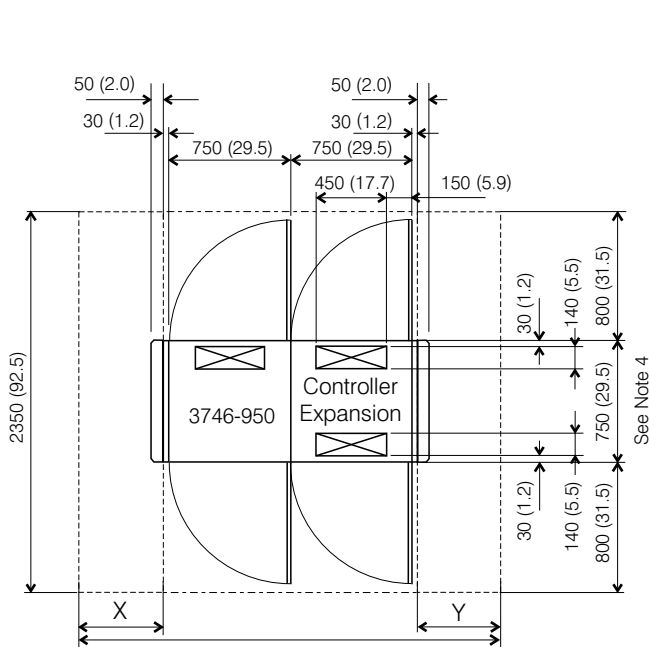


Figure 1. Plan View of a 3746-950 with Controller Expansion.

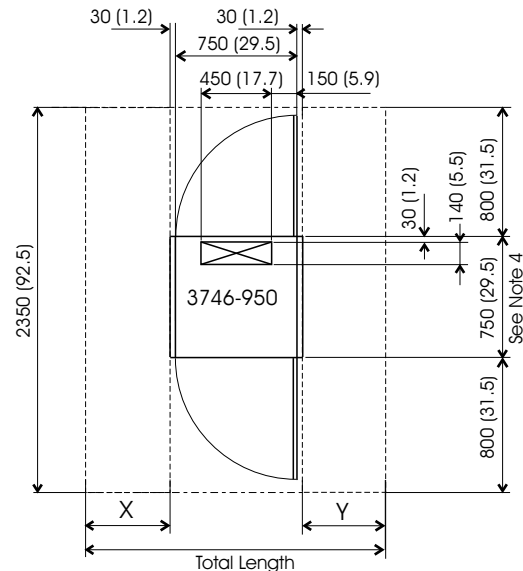


Figure 2. Plan View of a 3746-950 Alone

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

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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**.

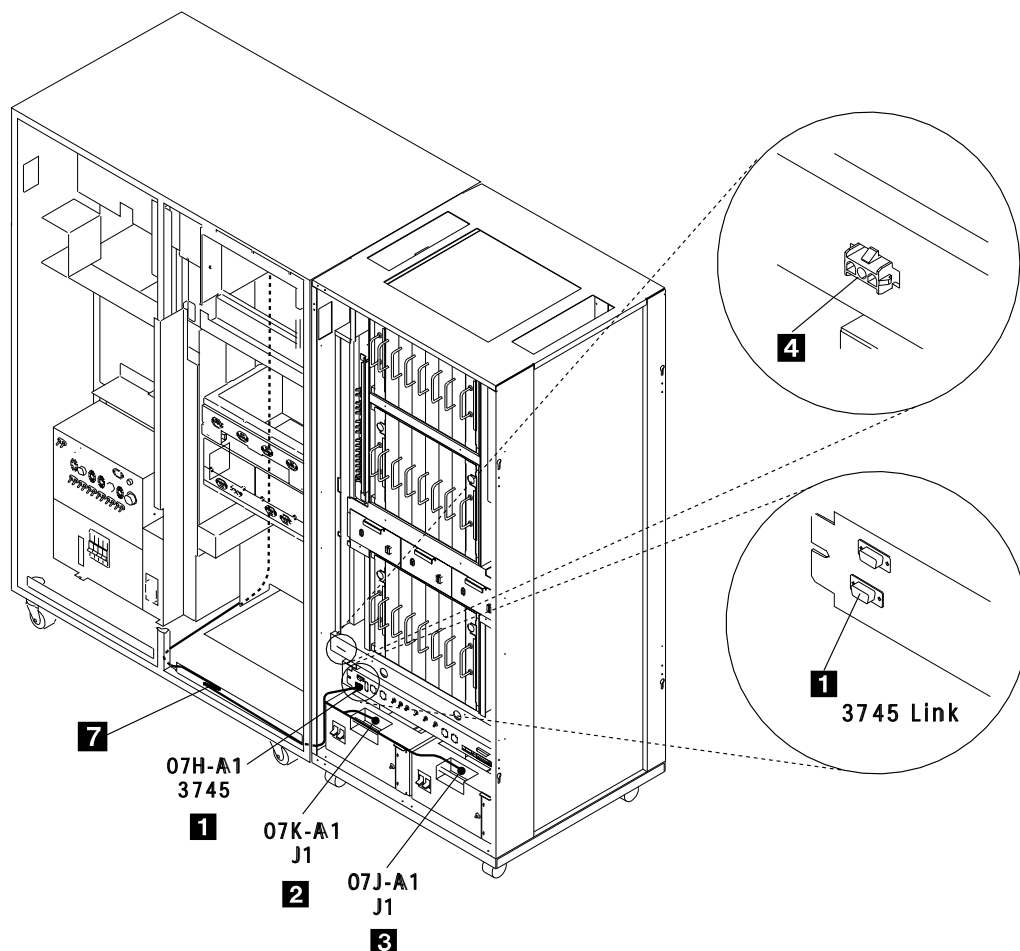


Figure 3. 3746-900 Power Control Cabling.

- ___ 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.

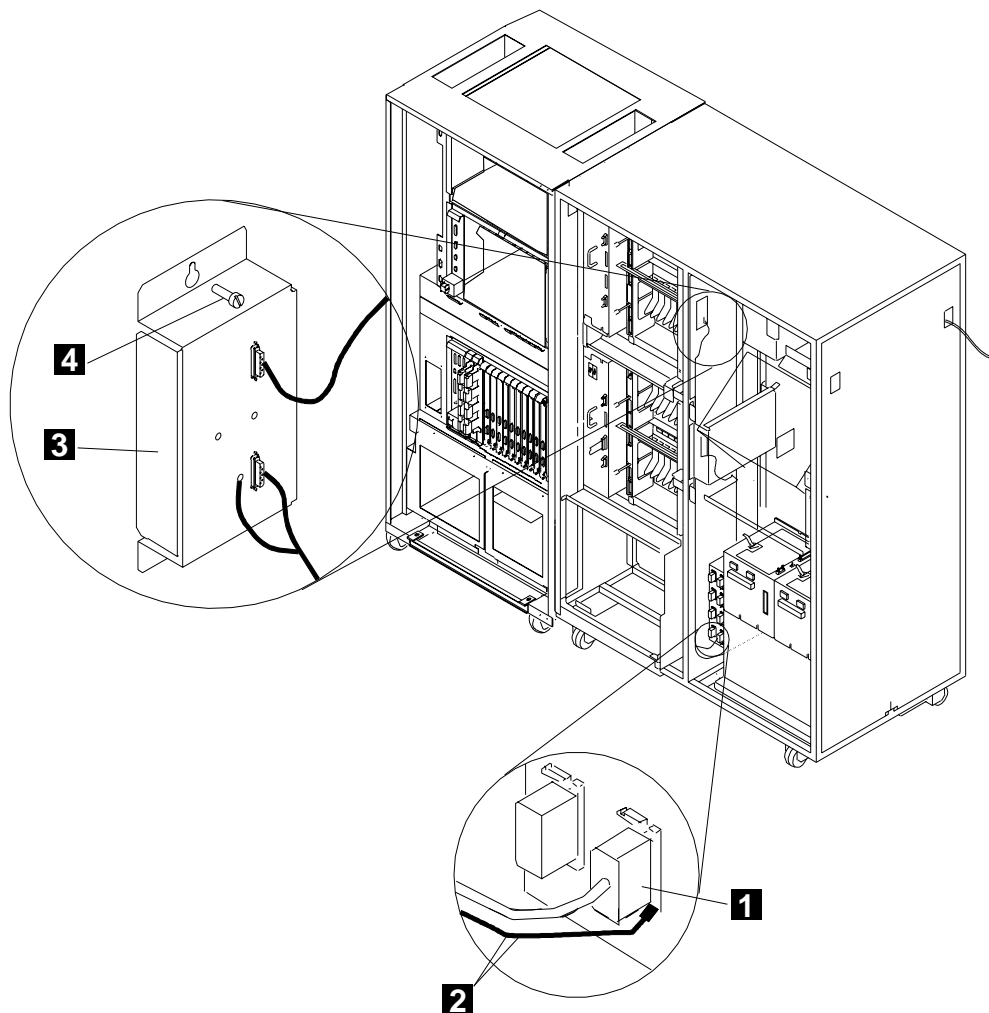


Figure 4. 3745-X1A Power Control Cabling.

- ___ 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**

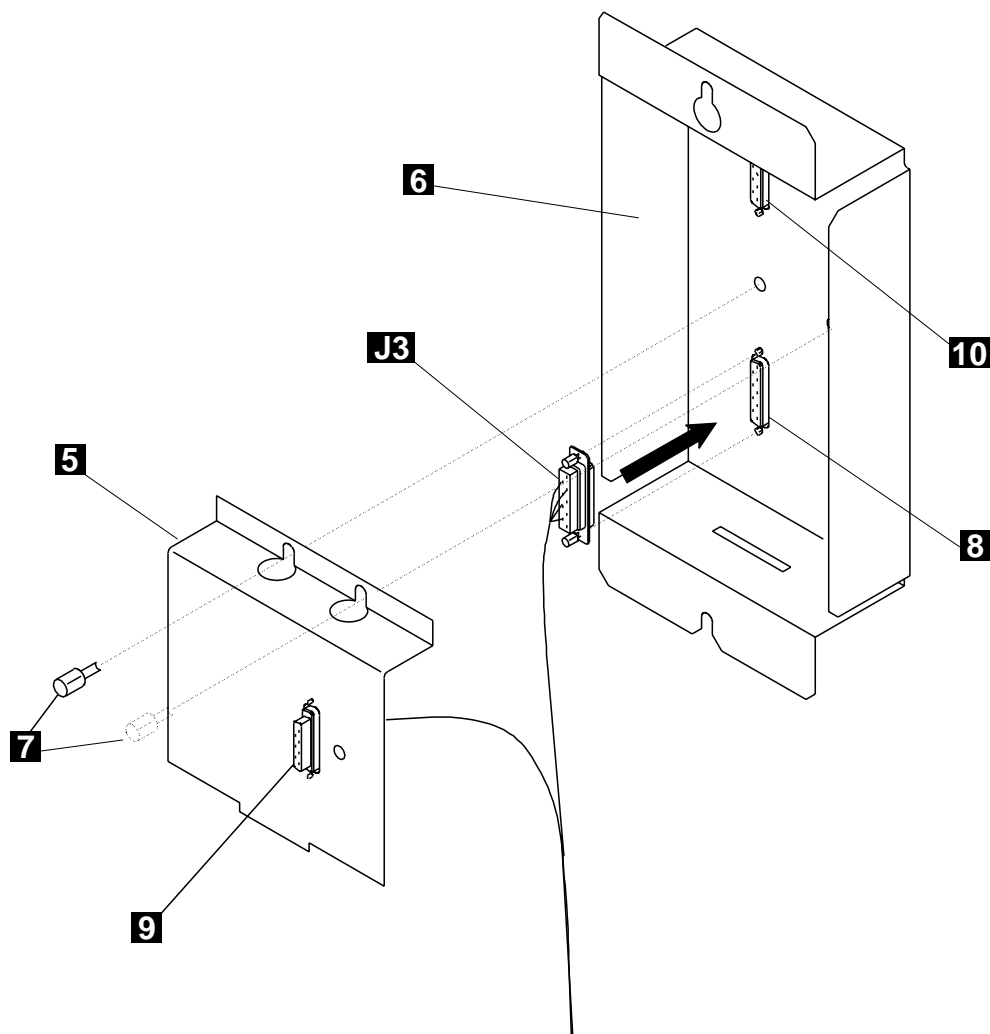


Figure 5.

- ___ 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,

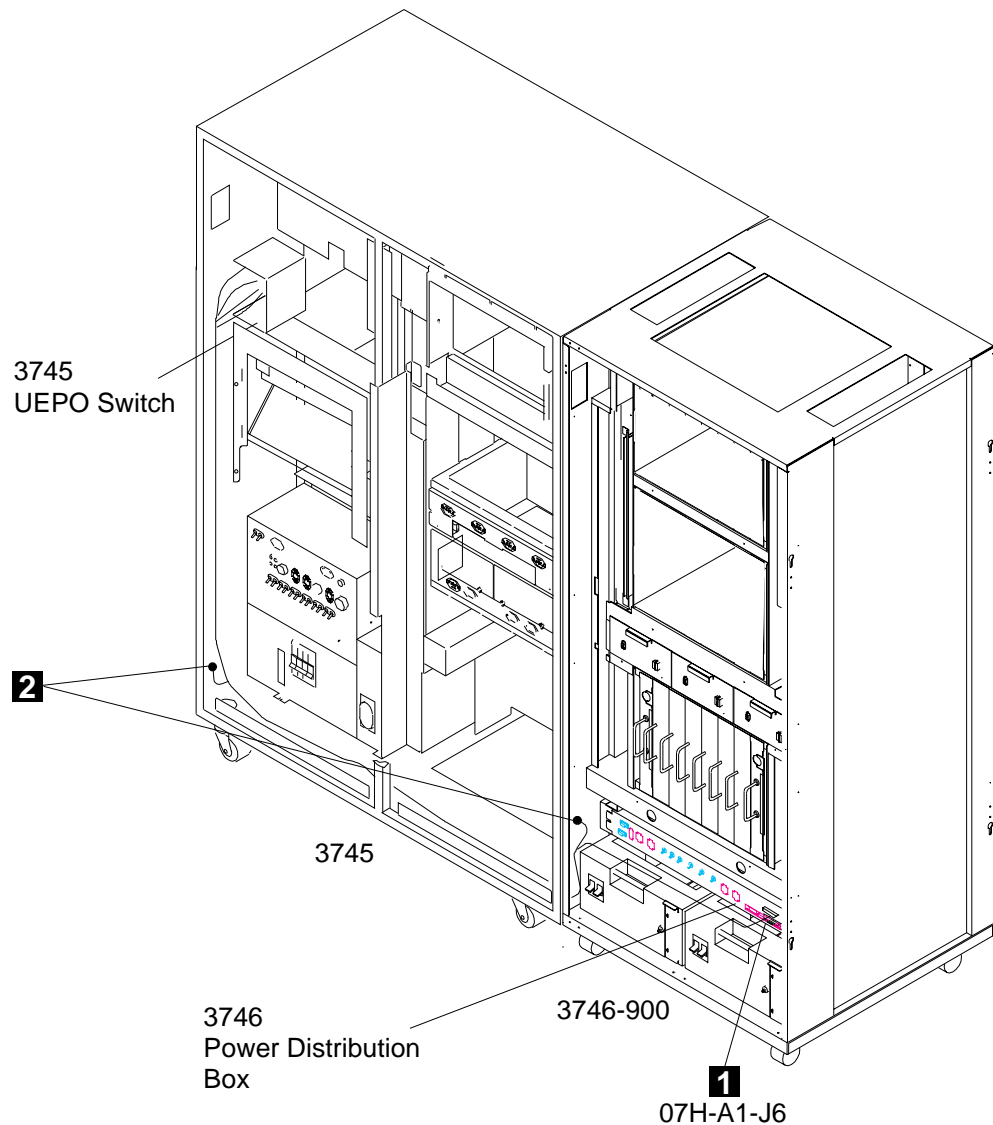


Figure 6. 3745-X1A and 3746-900 UEPO Cabling.

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**

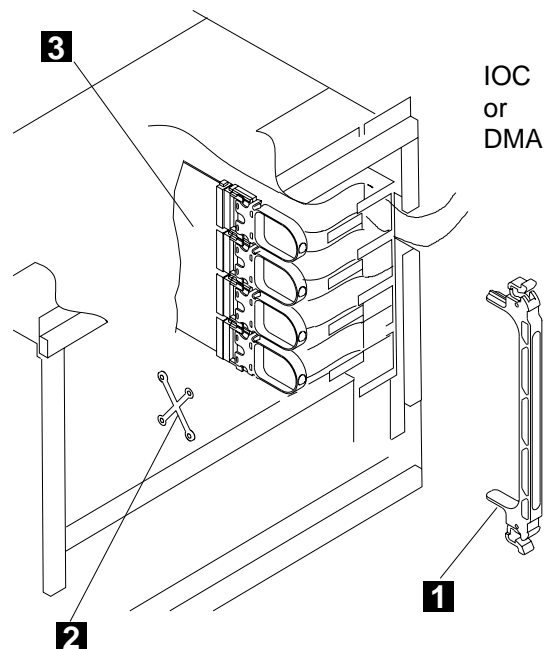


Figure 7.

- ___ 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.

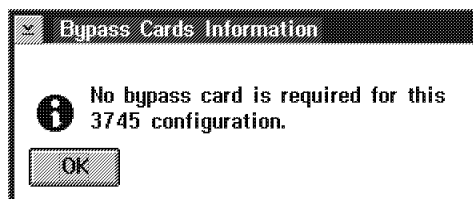


Figure 8. Information Message.

- ___ 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.

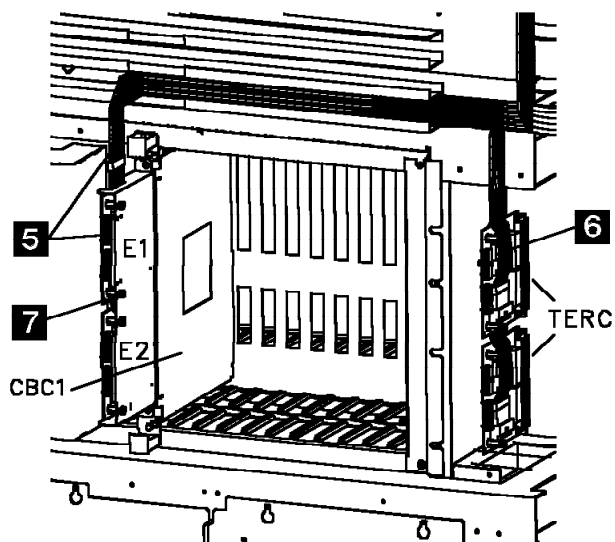


Figure 9. IOC/DMA Cable Termination with single CBC.

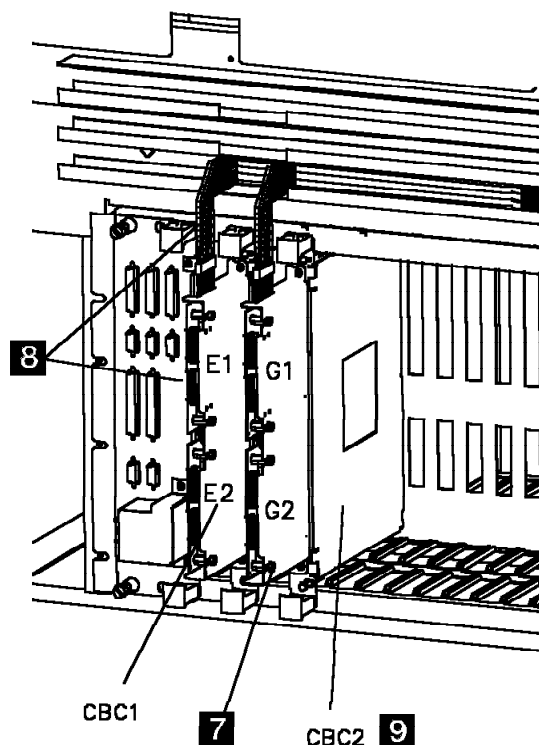


Figure 10. IOC/DMA Cable Termination with two CBC's.

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.

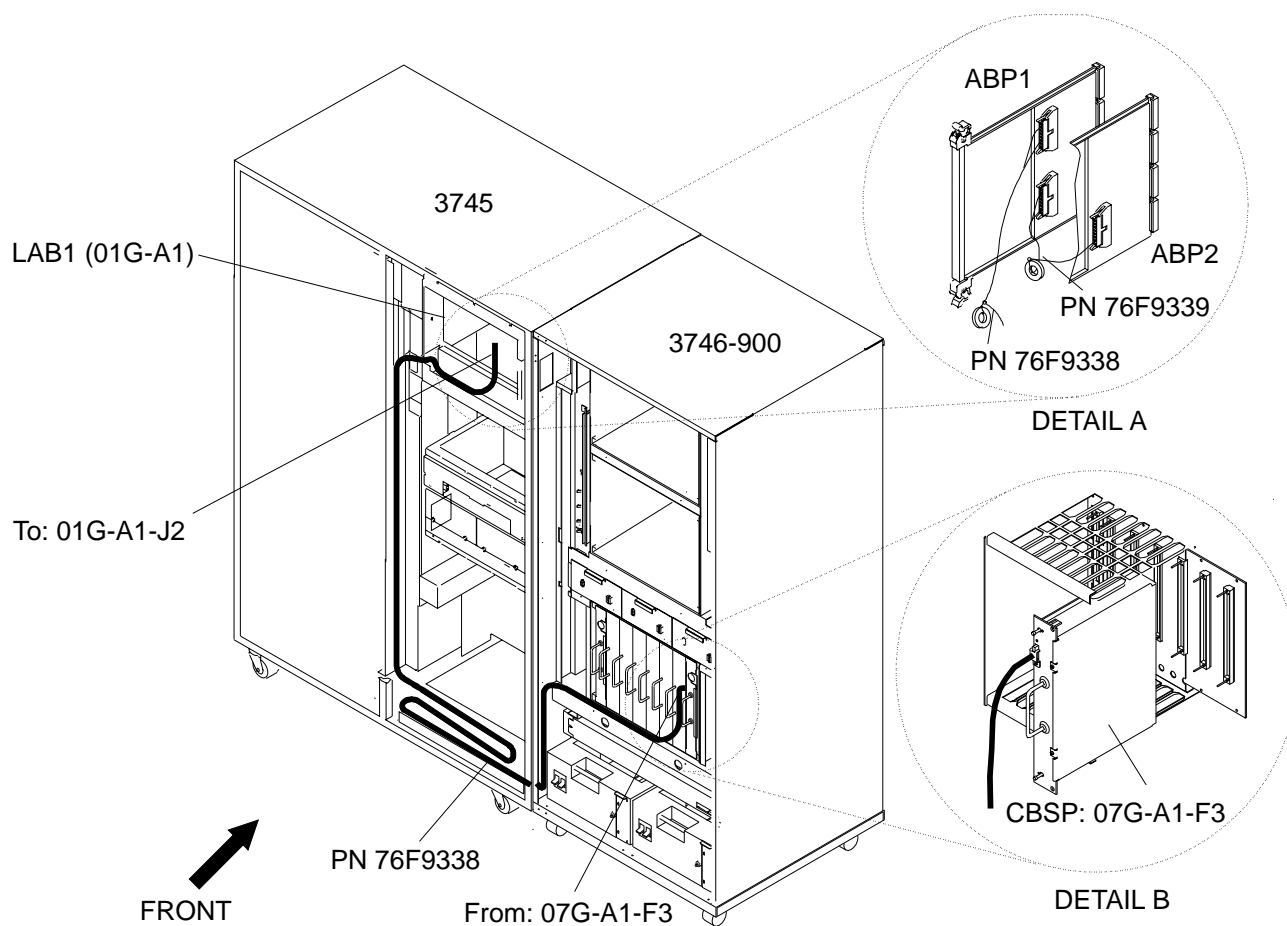


Figure 11.

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.

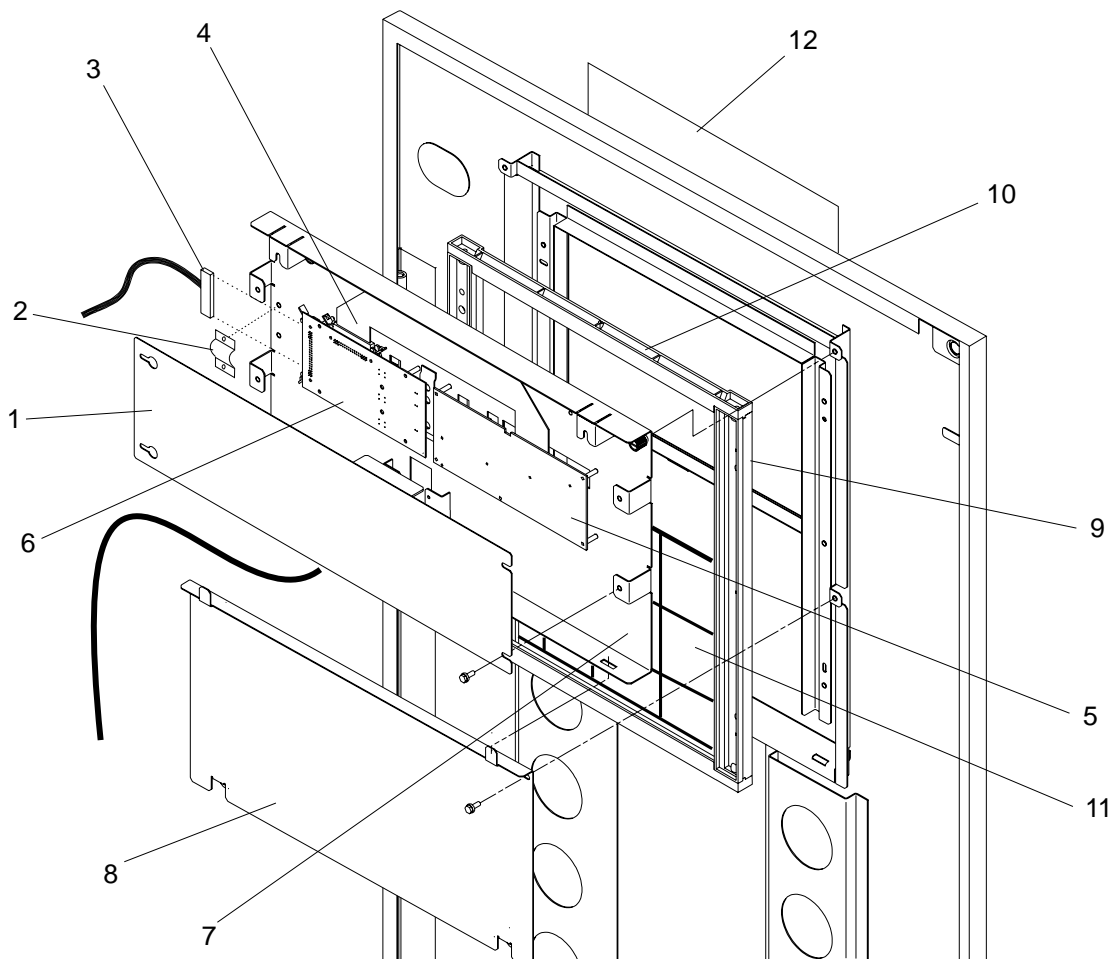


Figure 12. Control Panel Conversion to 3746-950.

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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.

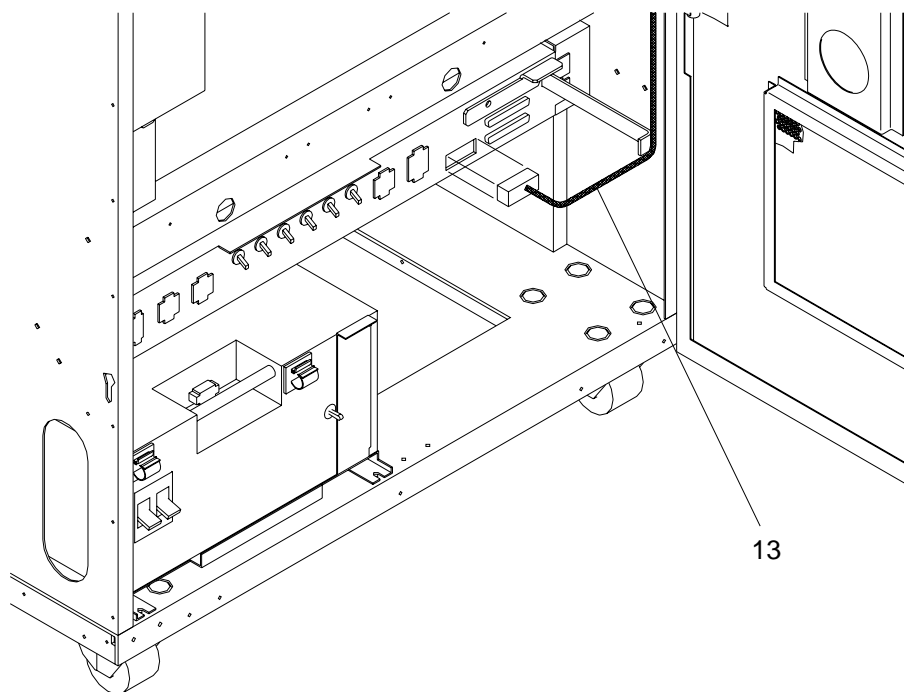


Figure 13. 3746-950 UEPO Cable connection.

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.

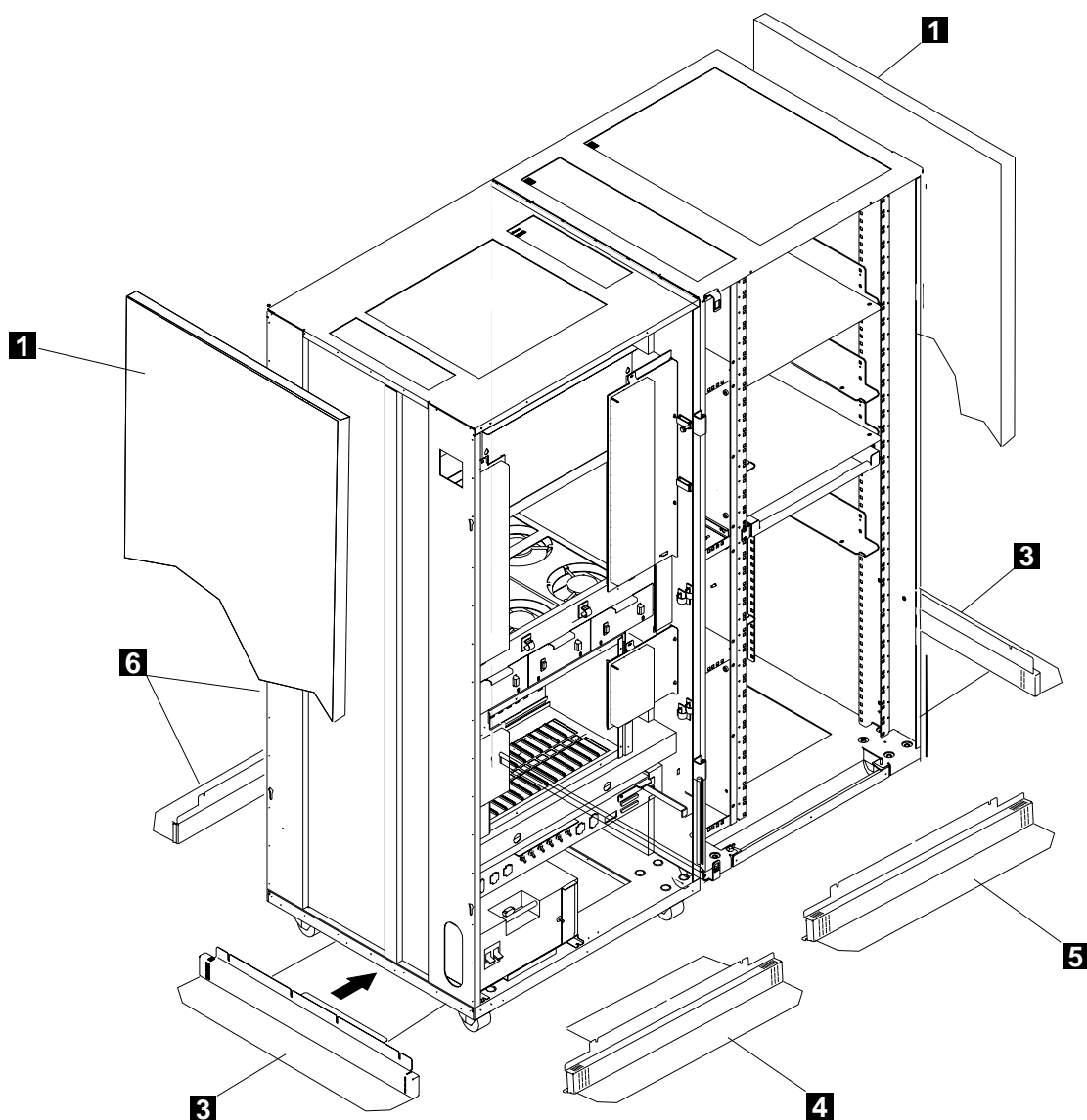


Figure 14. 3746-950 and Controller Expansion Ground Brackets (Front View).

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**.

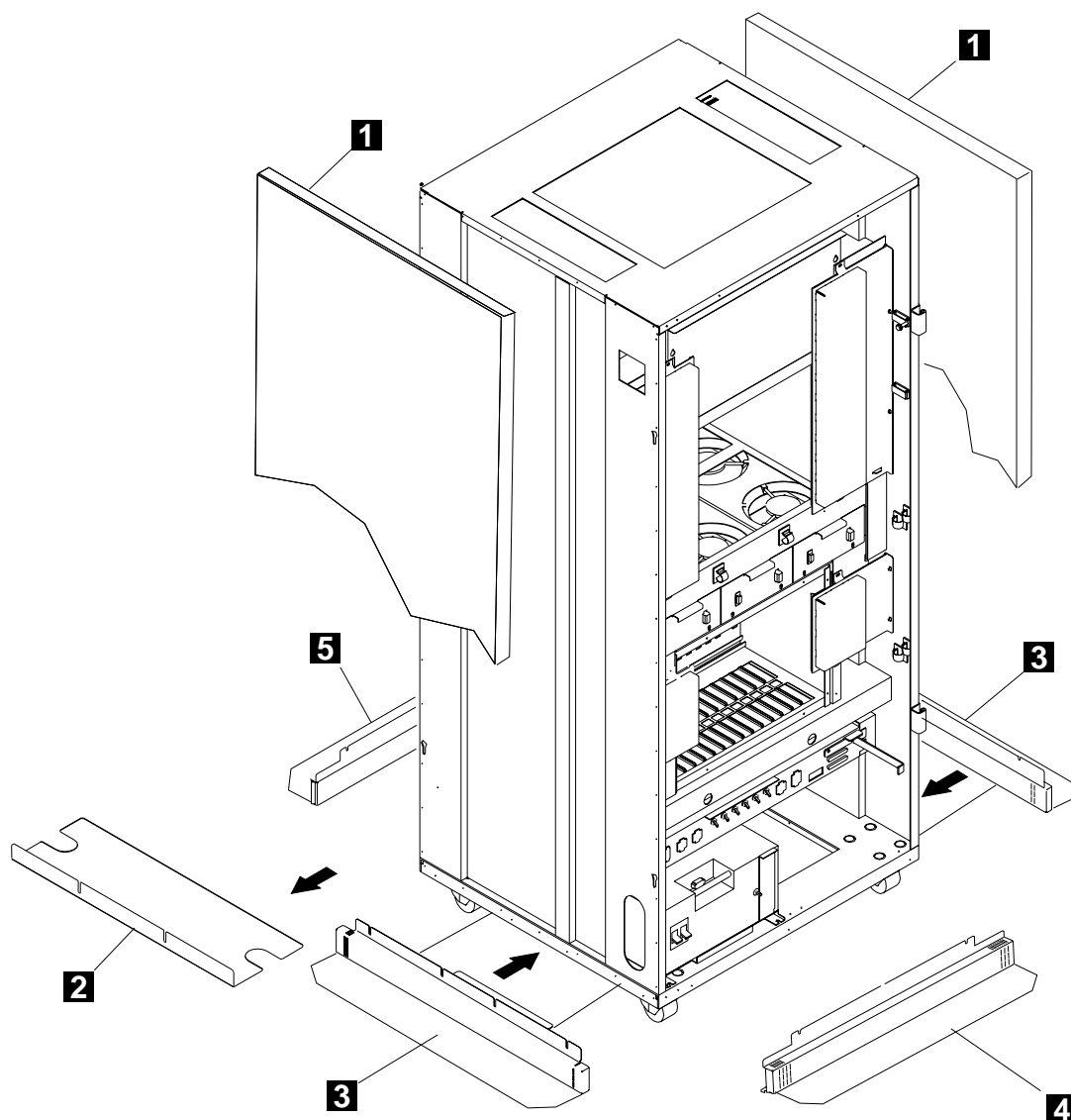


Figure 15. 3746-950 Ground Brackets (Front View).

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

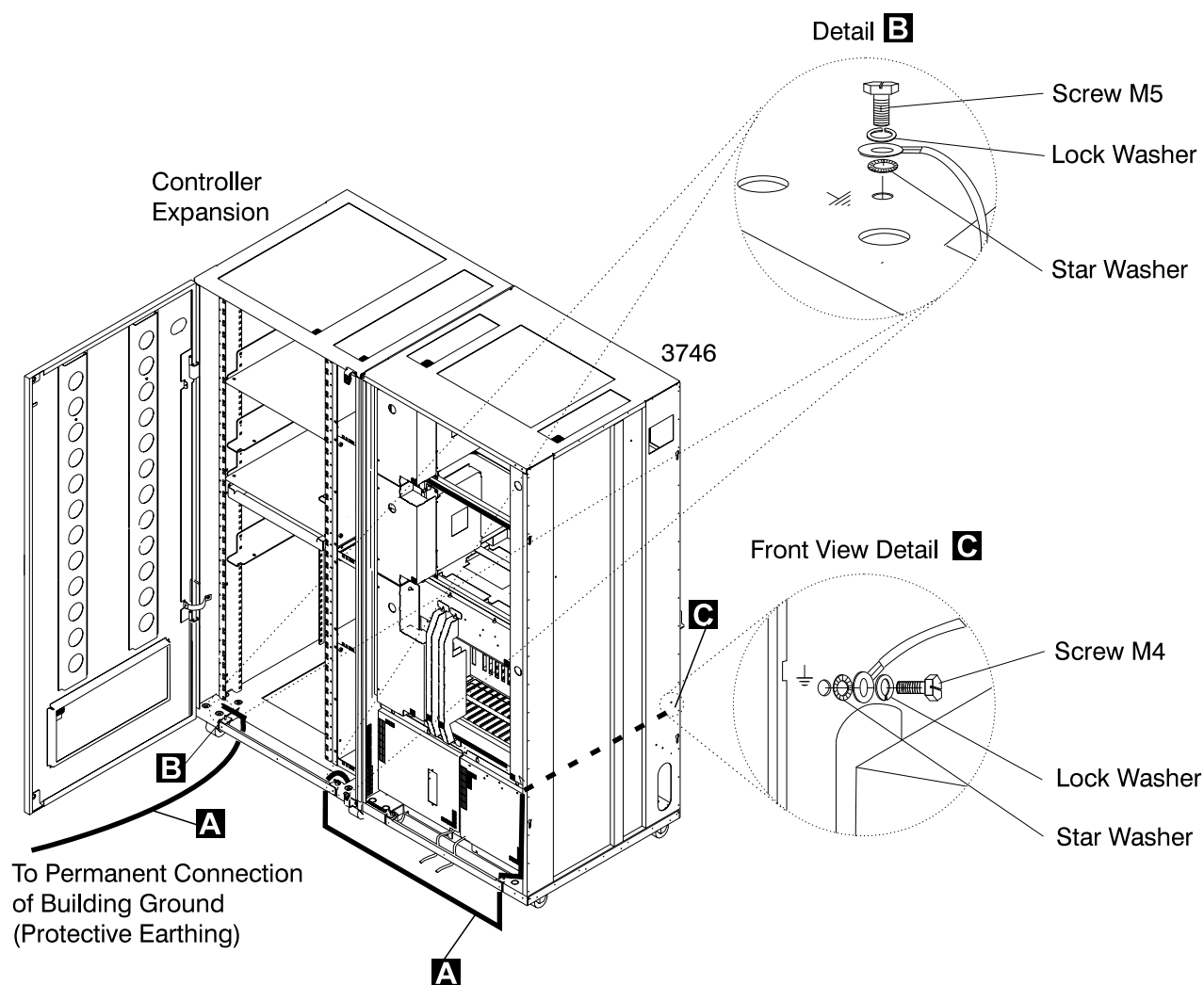


Figure 16. Controller Expansion attached or at less than 6m to 3746-950

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.

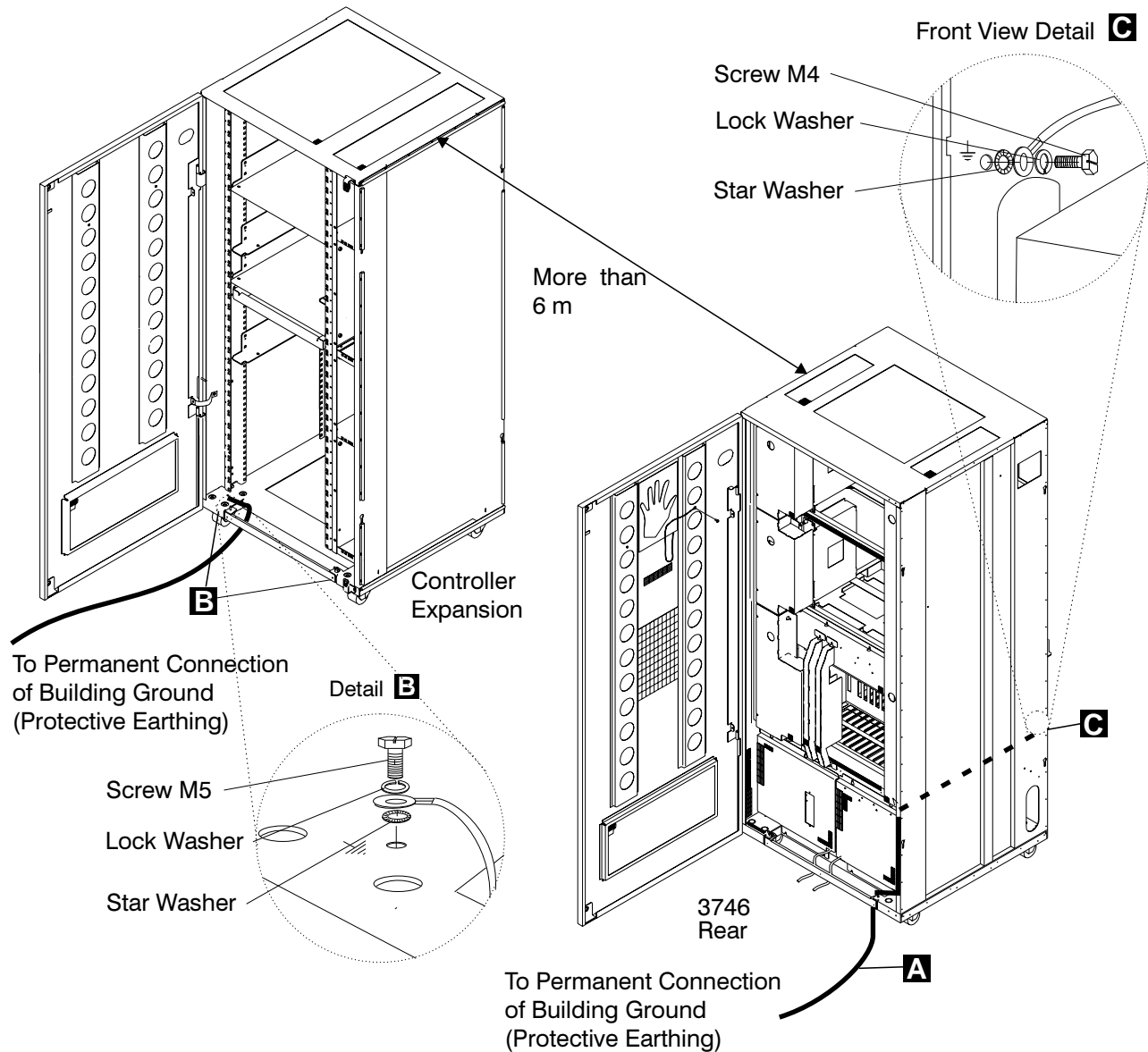


Figure 17. Controller Expansion at more than 6m to 3746-950

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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)

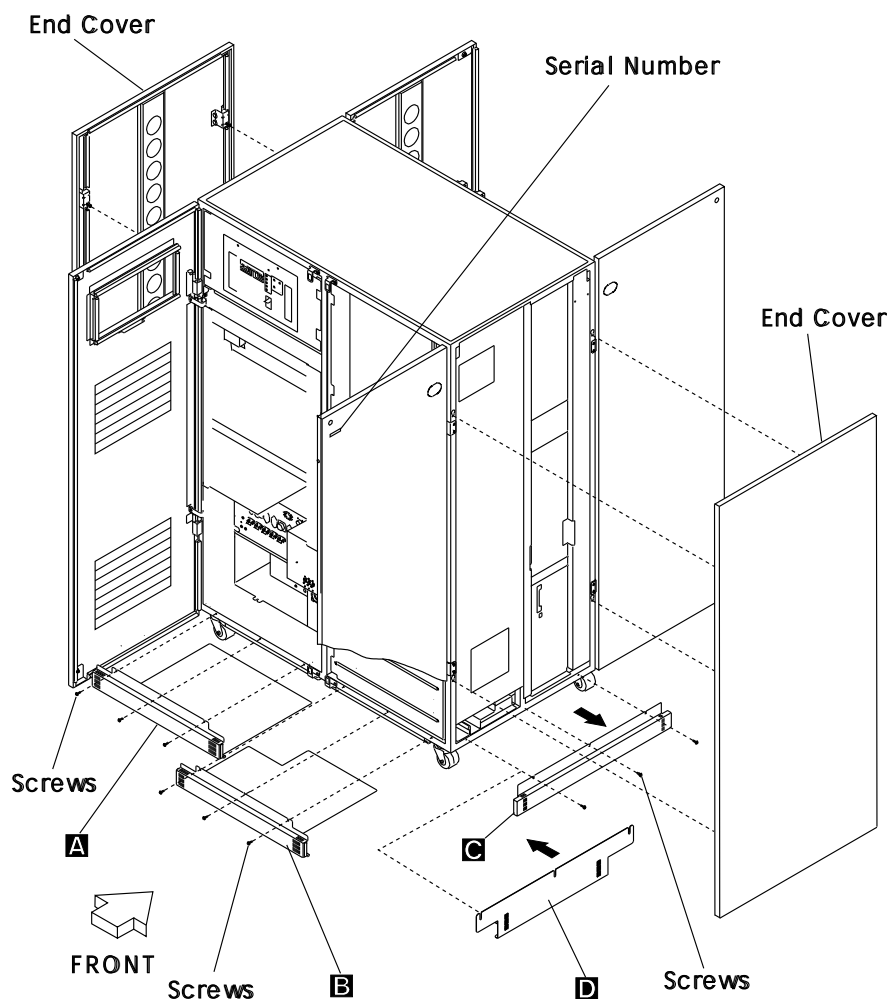


Figure 18. Ground plate installation.

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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