



Field Feature Bill of Material

P/N 89H4316

Installation of an Ethernet Port (FC 5631)

or

P/N 89H4324

Installation of an Ethernet to Token Ring Bridge (FC 5632)

In IBM 3746-9x0

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3746	PN 89H4317	EC E63488C	EC E46562			
FFBM	1 of 28	07AUG 96	21FEB97			



Before Installation (Steps 1-8)

1.0 Machines Affected

IBM 3746 Model 9x0.

This feature should only be applied on the machine serial for which it is specified.

2.0 Related BMs and ECs

2.1 Prerequisites

(Must be installed prior to this installation)

Microcode level: EC D46100 or higher.

Checkpoint: Refer to *SPIM*, Chapter 3. 'Displaying the EC Level of Code'. Check that the Basic Level Packaging Unit 3746-900 EC level is D22571-XXX or higher.
If the EC level is not present you must upgrade the Service Processor and the 3746-9x0.

2.2 Concurrent ECs

(Must be installed together)

None.

2.3 Companion ECs

(May be installed together)

None.

3.0 BM to be Installed

- Install one of the following B/M:
 - 89H4316** Ethernet Port FC 5631, or
 - 89H4324** Ethernet to Token Ring Bridge FC 5632.
- As required B/M:
 - 94H7352** Access Unit for Ethernet (One for two feature 5631 and/or 5632).

3746 FFBM	PN 89H4317 3 of 28	EC E63488C 07AUG 96	EC E46562 21FEB97			
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4.0 Preparation

- 1. Familiarize yourself with the purpose and details of the installation instruction before negotiating machine time with the customer.
- 2. Up to **two ethernet bridges** can be connected to the **same Ethernet Bridge Access Unit (EBAU)**.
- 3. The ethernet bridge is based on the 8229. For details refer to *8229 Bridge Manual*, GA27-4025.
- 4. Check all the items and count the parts listed on the BM(s) to be installed to determine whether all the parts were received.
- 5. See the *HONE configuration sheet/plugging sheet* and the following figures to determine the position to install the TIC3 cassette (FC 5631 only).

A	D	E	F	G	H	J	K	L	M	N	P	Q
SPD1	Dummy	CBC or TIC3	TIC3 (Service LAN)	TIC3 / ESCC / LIC11 or 12	TIC3 / LIC11 or 12	TIC3 / ESCC / LIC11 or 12	TIC3 / LIC11 or 12	TIC3 / ESCC / LIC11 or 12	TIC3 / LIC11 or 12	TIC3 / ESCC / LIC11 or 12	TIC3 / LIC11 or 12	Dummy

Figure 1. 3746-9X0 Rear Side - Basic Expansion Enclosure.

A	C	D	E	F	G	H	J	K	L	M	N	P	Q
SPD2	TIC3 / ESCC / LIC11 or 12	TIC3 / LIC11 or 12	TIC3 / ESCC / LIC11 or 12	TIC3 / LIC11 or 12	TIC3 / ESCC / LIC11 or 12	TIC3 / LIC11 or 12	TIC3 / ESCC / LIC11 or 12	TIC3 / LIC11 or 12	TIC3 / ESCC / LIC11 or 12	TIC3 / LIC11 or 12	TIC3 / ESCC / LIC11 or 12	TIC3 / LIC11 or 12	Dummy

Figure 2. 3746-9X0 Rear Side - 1st and 2nd Expansion Enclosure.

- 6. Get the cabling chart from the network administrator.



- ___ 7. Obtain the Service Processor Maintenance Password from the customer.
- ___ 8. Obtain from your Customer the **Parameter Worksheet for ethernet bridge** filled. See form below.

Parameter worksheet for Ethernet Bridge**Location and Cable Type**

Ethernet bridge name	
Ethernet attachment type	<ul style="list-style-type: none">• 10 Base T• <i>AUI</i>
TIC3 location	
8229 location	<ul style="list-style-type: none">• controller expansion A• controller expansion B

SNMP Community Name

Community name	
IP address (in dotted notation) of the community name owner	
Privilege	<ul style="list-style-type: none">• Read• Write

SNMP Trap Community Name.

Trap community name	
IP address (in dotted notation) of the network manager	
Authentication of failure traps	<ul style="list-style-type: none">• Enable• Disable

5.0 Programming

None.

6.0 Purpose and Description

6.1 Purpose

To support Ethernet operation on 3746-9x0

6.2 Description

- Installation of a TIC3 coupler (with FC 5631 only).
- Installation of the Ethernet Bridge.
- Installation of an Ethernet Bridge Access Unit (IBM 8228).
One for two FC 5631 and/or 5632.

7.0 Installation Time

FFBM	Machine Hrs.	System Hrs.	Nbr of CEs
89H4316	0.0	0.0	1
89H4324	0.0	0.0	1

8.0 Tools/Material Required

ESD Kit p/n 6428316.

Installation (Steps 9-11)

9.0 Safety

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

10.0 Details of installation.

Are you installing a feature 5631? _____

- If **Yes**, go to 10.1, "Installing the TIC-3 (FC5631 only).."
- If **No**, go to 10.2, "Unpacking the Ethernet Bridge" on page 9.

10.1 Installing the TIC-3 (FC5631 only).

10.1.1 Setting 3746-9X0 Power Mode

If the 3746-9X0 is in Power Mode 1 (remote) :

- ___ 1. set the **Power Control** indicator of the 3746-9X0 control panel to **3** (local).
- ___ 2. Press the **Validate** key.

10.1.2 Log the SP ON

- ___ 1. On **MOSS-E View** window, click on **Program**.
- ___ 2. Click on **LOG ON MOSS-E**.
- ___ 3. Enter the maintenance password, press **Enter**.

10.1.3 TIC3 Coupler Installation

- ___ 1. Double click on the 3746-9X0 icon.
- ___ 2. On **3746-9X0 Menu** window, click on **Configuration Management**.
- ___ 3. Double click on **Display/Update Active Configuration (CDF-E)**.
- ___ 4. Verify that the TRP is available for the position of the TIC3 coupler you are installing, then
Click on **Cancel**.
- ___ 5. Double click on **Add/Retrieve Resources in Concurrent Mode**.
- ___ 6. When **Confirmation** screen is displayed, follow this procedure:
 - ___ a. Remove the dummy cassette.
 - ___ b. Plug TIC3 coupler following the instructions on the label fitted to the frame.



- ___ 7. **Wait** for alarm 0052 or 0572 as instructed on the confirmation window, verify the displayed positions of the coupler cassette, then Click on **OK**.
- ___ 8. On confirmation screen, click on **OK**.
- ___ 9. On **Resource Selector** window, click on the resource you want to add, then Click on **OK**.
- ___ 10. On **Add/Retrieve Resource Options** window, click on **OK**.
- ___ 11. On **Test and Running Option Selection** window, click on **TIC3 SAT**, then click on **OK** (test time: about 1.3 minute).
- ___ 12. On **Information** message, click on **OK**.
- ___ 13. On **Diagnostic Active Status** window, check that no errors are logged, then click on **Cancel**.
- ___ 14. On **Add/Retrieve Resource Options** window, click on **Initialize the resource**, then click on **OK**.
- ___ 15. **Wait** for request is complete warning screen to appear, click on **OK**.
- ___ 16. Click on **Remove the resource from the concurrent mode**, then click on **OK**.
- ___ 17. On the Warning window, click on **OK**.
Wait for alarm 0657 concurrent mode, click on **OK**.
- ___ 18. If a confirmation window is displayed, click on **Cancel**.
If the **Resource Selector** is displayed, click on **Cancel**.
- ___ 19. On **Confirmation** window, click on **OK**.

Important Note

According to the level of microcode the following pop up screen **Active CDF-E has been successfully saved as reference CDF-E** may not be displayed (within 1 minute).
Click on **OK** if displayed.

10.1.4 Save CDF-E on Diskette

- ___ 1. Double click on the SP icon.
- ___ 2. On **Service Processor Menu** window, click on **Configuration Management**.
- ___ 3. Double click on **Manage 3745-3746-9X0 Installation**.
- ___ 4. On **Controller Installation** window, select the machine you are installing/removing the cassette.
- ___ 5. Click on **Save**.
- ___ 6. When requested, insert the **Installation Parameters Diskette** in the diskette drive of the SP.
- ___ 7. When the **Warning** window is displayed, remove the diskette and click on **OK**.

- ___ 8. On **Controller installation** window, click on **Cancel**.

10.1.5 Re-setting 3746-9x0 Power Mode

- ___ 1. On the 3746-9x0 control panel, set the **Power Control** indicator to its original value.
- ___ 2. Press the **Validate** key.

10.1.6 Log the SP OFF

- ___ 1. On the **3746-9x0 Menu** window, click on **Function**, then, click on **Exit**.
- ___ 2. On the **MOSS-E View** window, click on **Program**.
- ___ 3. Click on **LOG OFF MOSS-E**.

10.2 Unpacking the Ethernet Bridge

- ___ 1. Remove the power cord, diskette, and mounting accessories. (The mounting brackets, small package of screws, cable mounting handle, cable management bracket, and rubber feet are in the plastic bag.)
- ___ 2. Remove the ethernet bridge from its packaging.
- ___ 3. Make sure that you have everything (see Figure 3), then go to step 4 on page 10.

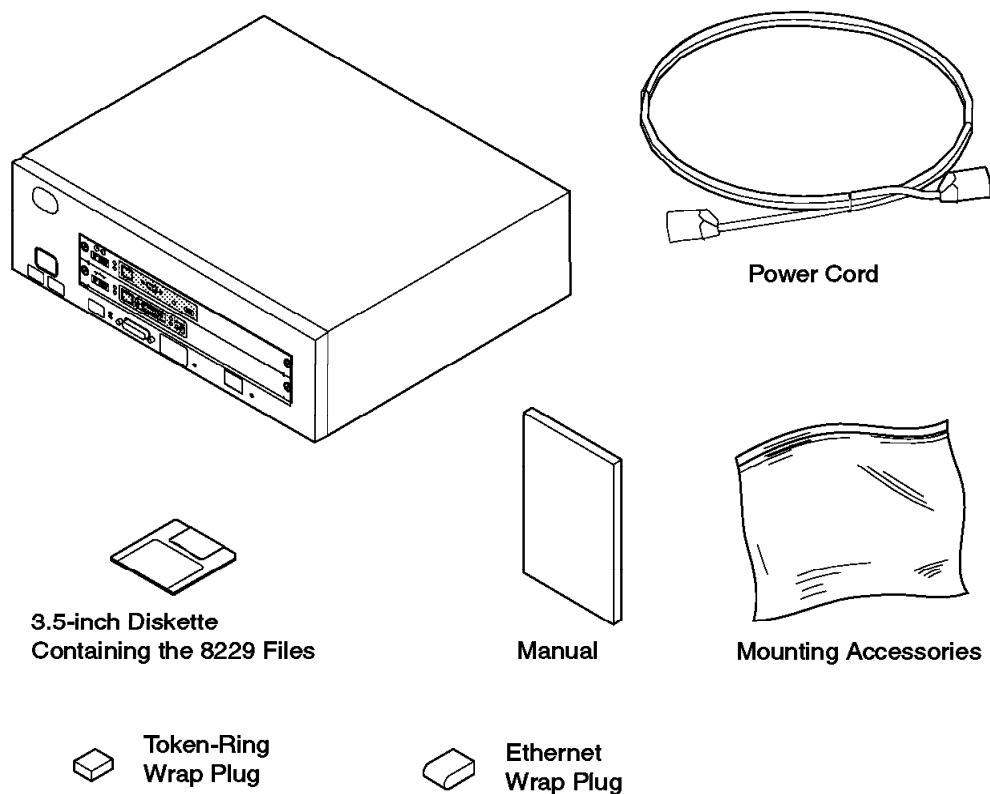


Figure 3. Contents of the Shipping Carton for the Ethernet Bridge.



- 4. Verify that the **token-ring module** is installed in the **upper slot** and the **Ethernet** in the **lower slot** of the ethernet bridge, refer to Figure 6 on page 10.

Note: Notice the icon in the upper left-hand corner on the front. (See the matching symbol in the figures below.)

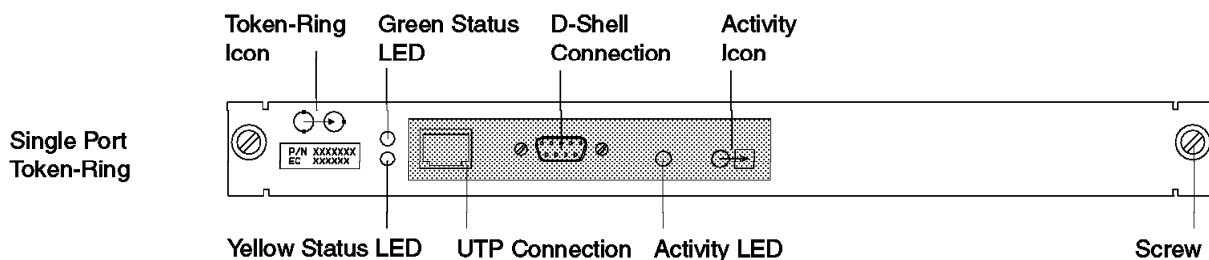


Figure 4. Single-Port Token-Ring Attachment Module

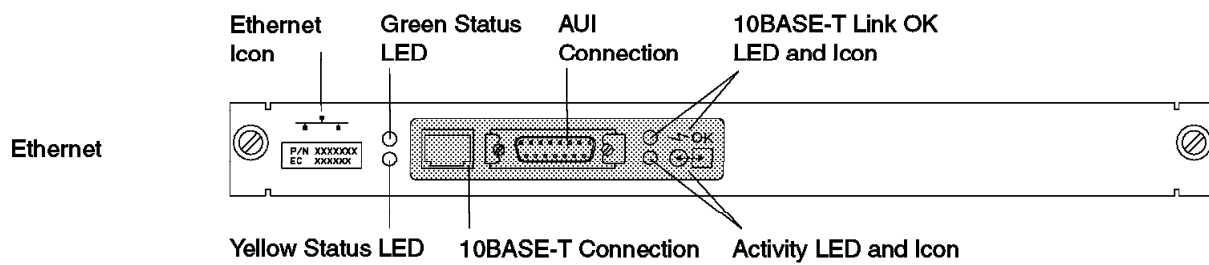


Figure 5. Ethernet Attachment Module

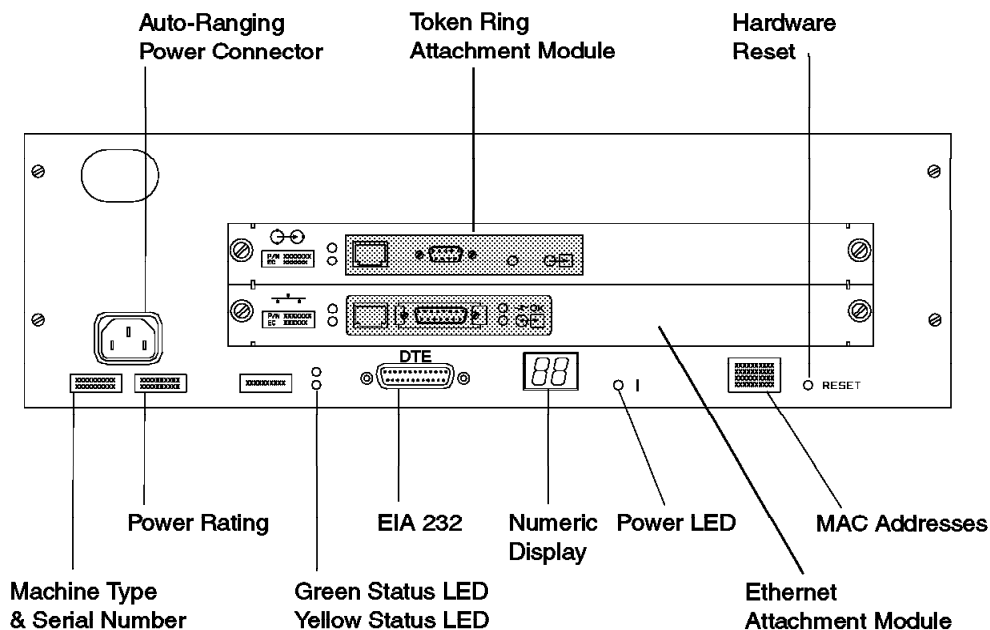


Figure 6. The Ethernet Bridge Front Panel

10.3 Configuring the Ethernet Bridge.

1. Install the Ethernet Bridge on a table close to the controller expansion

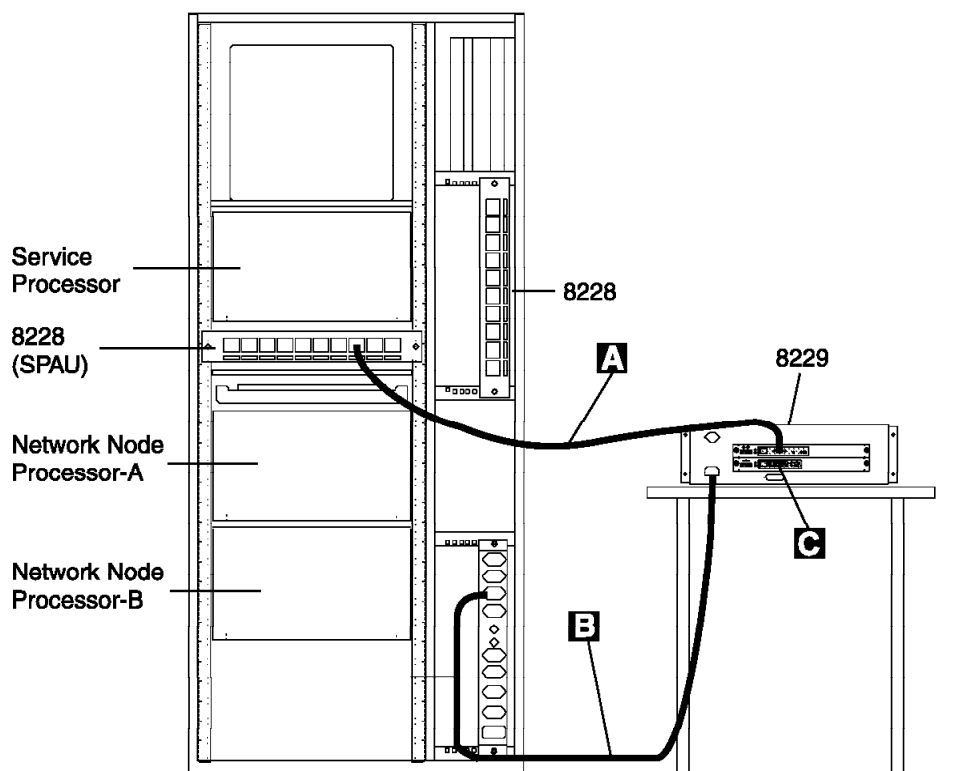


Figure 7. Connecting the Ethernet Bridge to the Service Processor

2. Connect cable **A** (PN 6339098) from the D-Shell connector of the token ring module (refer to Figure 4 on page 10) to the SPAU (8228).
3. Plug wrap plug **C** (PN 55F4897) in the AUI connector of the Ethernet module (refer to Figure 5 on page 10).
4. Locate the numeric display in the center of the lower portion of the front of the ethernet bridge display.
5. Remove the protective film from the numeric display.
6. Connect power cord **B** (PN 58G5783) first to the ac outlet distribution box and then to the Ethernet Bridge(refer to Figure 6 on page 10).

Note: There is no power switch. The power supply is auto-ranging (100/240 V ac 50/60 Hz). Connection of the power cord from a primary power source supplies power the ethernet bridge.

7. Observe the following bring-up sequence:

When you connect power to the ethernet bridge, it will go through a basic assurance test (BAT) that lasts about 90 seconds.

- All of the LEDs should light momentarily and the numeric display should show ascending values.
- At the conclusion of the test:



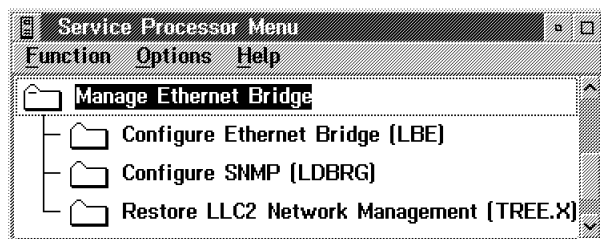
the numeric display should go blank, the power and green status LEDs on the ethernet bridge should be lit,

the green status and the activity LEDs should be lit on each attachment module.

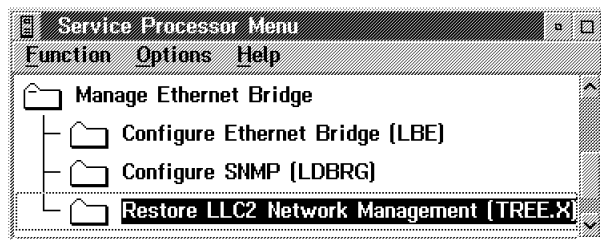
- If any number is still displayed, or if any yellow LED is lit, refer to *8229 Bridge Manual*, GA27-4025, chapter 'Problem Determination and Servicing'.

On the service processor:

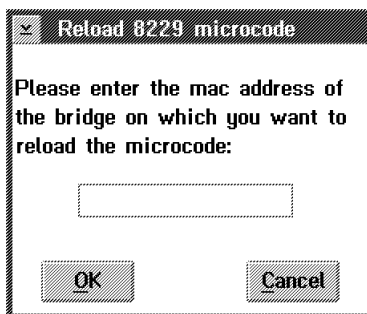
8. Double click on the **"Service Processor object icon"**.
9. Click on **"Manage Ethernet Bridge"**.



10. Double click on **Restore LLC2 Network Management (TREE.X)**



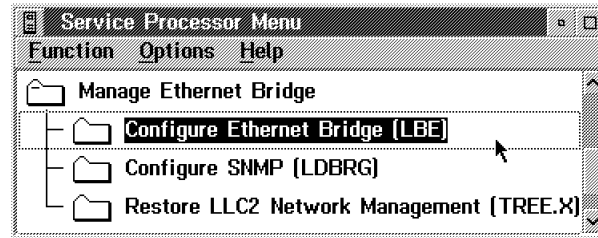
11. Locate the MAC address label on the front of the ethernet bridge (to the left of the reset button). See Figure 6 on page 10.
12. Enter the first MAC address (top) listed on the MAC address label, then click on **OK**.



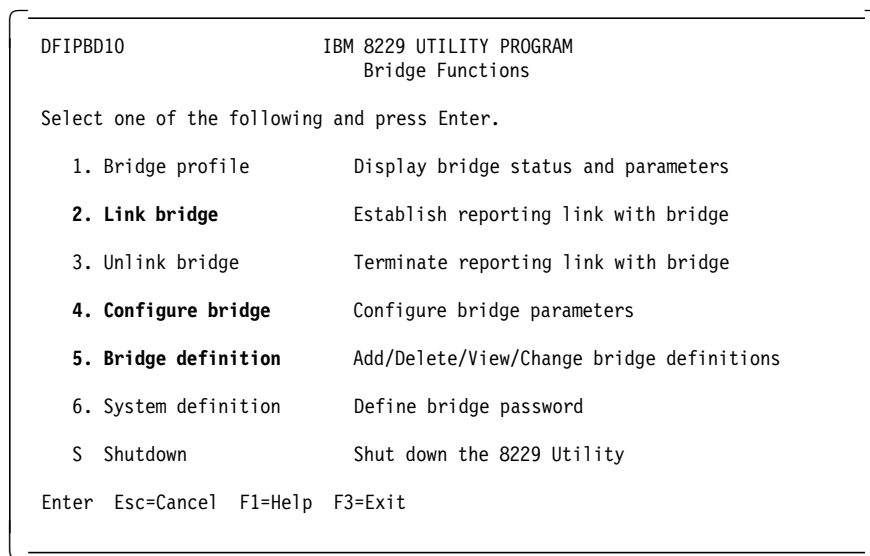


The Ethernet Bridge is reinitialized twice and it last about 3 minutes to complete.

- ___ 13. Double click on "**Configure Ethernet Bridge**"



- ___ 14. select option **5. Bridge definition**, then press **enter**.



- ___ 15. A panel comes up asking wheter you want to add, view, or list the bridge definition. Select option **1. Add bridge definition**, then press **enter**.



- ___ 16. In the **Add Bridge Definition** screen:
- Enter the **bridge name**, listed on the **Parameter Worksheet for ethernet bridge**
 - Click on the check mark to **enable the link during bring up**
 - Locate the MAC address label on the front of the ethernet bridge (to the left of the reset button). See Figure 6 on page 10.
 - Enter the top two MAC address listed on the MAC address label, then press **enter**.
 - Press **Escape** twice.

```
DFIPBD25          IBM 8229 UTILITY PROGRAM
                  Add Bridge Definition

Type the information below and press Enter

Bridge name . . . . . 1-8 characters

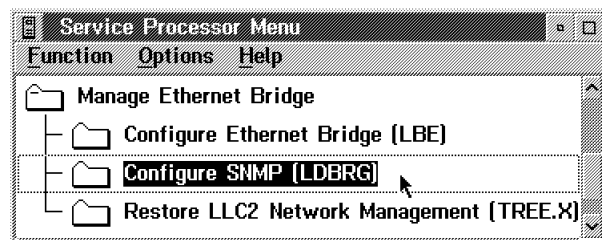
Link during bring-up. . . . Y=Yes  N=No

Bridge adapters:
Port 1 adapter address . . . 12 hexadecimal digits
Port 2 adapter address . . . 12 hexadecimal digits

Comments:

Enter  Esc=Cancel  F1=Help  F3=Exit  F5=Refresh
```

- ___ 17. Press **escape**, select **S** to shutdown, enter **Yes**, then press **Enter**.
- ___ 18. Double click on "**Configure SNMP**", and modify the parameters according to the customer specifications, listed on the **Parameter Worksheet for ethernet bridge**





- ___ 19. Select (Click on) the **configuration** file from the Existing Configurations list.

- ___ 20. In **<SYSTEM>** square box enter:
- Click on the **SysDescr** right button
 - Select the 3746-9x0.
- ___ 21. In **<Community>** square box enter:
- Session/Community name
 - IP address of community name owner
 - Select privileges (read or write)
- ___ 22. In **<Trap Community>** square box enter:
- Session/Trap Community name
 - IP address of network manager
- ___ 23. Click on **Save configuration** then click on **Send configuration**
- ___ 24. Click on **OK**.
- ___ 25. Click on **Cancel**. The Ethernet Bridge is reinitialized twice and it last about 3 minutes to complete.

Refer to Figure 7 on page 11

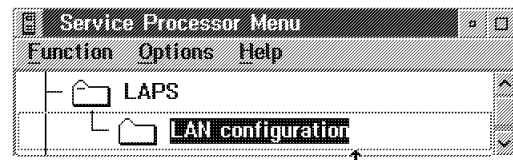
- ___ 26. Disconnect the power cord **B** first from the Ethernet Bridge and then from the ac outlet distribution box.
- ___ 27. Remove cable **A** from the SPAU (8228) plug.



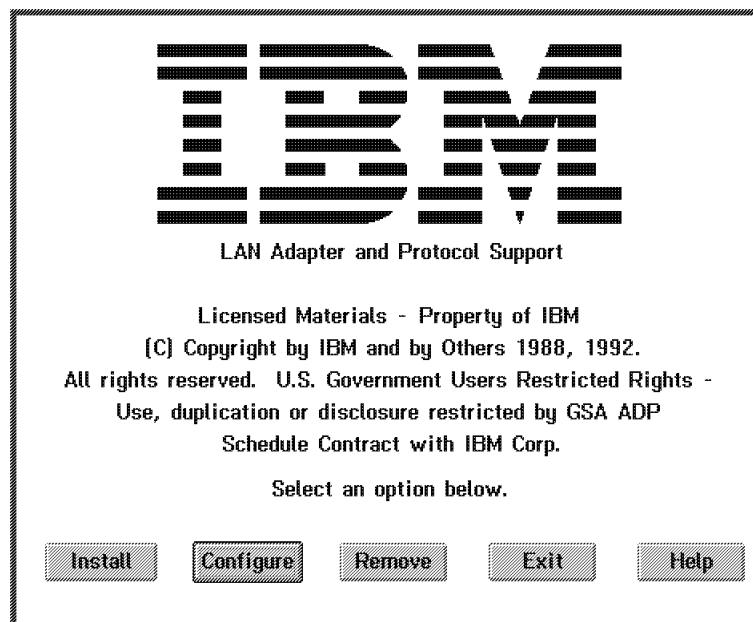
10.4 Verifying the Service LAN and Protocol Value.

Verify the LAN and Protocol value and do the appropriate changes as follow:

- ___ 1. On the **MOSS-E View** screen, double click on the "**Service Processor object icon**".
- ___ 2. Click on "**Configuration Management**".
- ___ 3. Click on "**LAPS**", then double click on "**LAN configuration**".

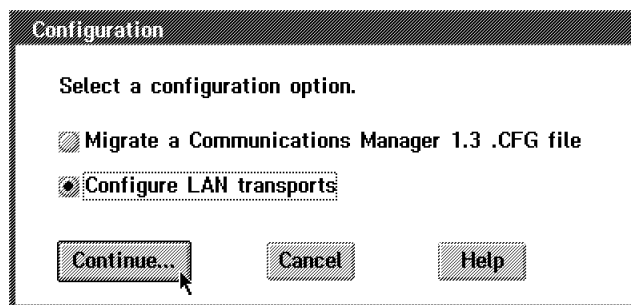


- ___ 4. Click on **Configure** button.

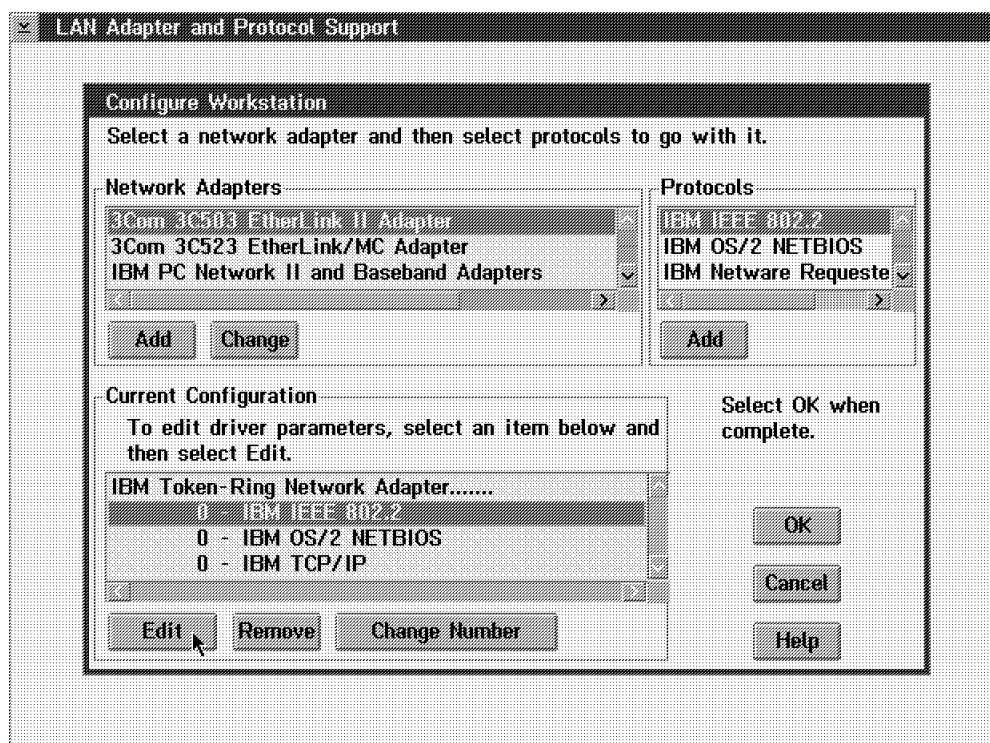




- ___ 5. Click on **Continue** button.



- ___ 6. Click on **0 - IBM IEE 802.2**, then click on "Edit" pushbutton.





- ___ 7. Modify the **Link stations** to **62** and enter **8** for the **SAP**. then click on **'OK'**.

Parameters for IBM IEEE 802.2

Edit the parameters as needed. Except for parameters preceded by "*", changes affect all instances of the driver.

*Network adapter address	<input type="text"/>
*Type of Ethernet driver support	<input type="text" value="1"/>
*System key value	<input type="text" value="0"/>
*Adapter open options	<input type="text" value="2000"/>
*802 trace level	<input type="text" value="0"/>
*Maximum link stations	<input type="text" value="62"/>
*Maximum SAPs	<input type="text" value="8"/>
*Maximum group SAPs	<input type="text" value="0"/>
*Maximum number of users	<input type="text" value="5"/>
*Group 1 inactivity timer - Ti	<input type="text" value="255"/>

OK Cancel Range Help

- ___ 8. The previous screen is displayed again, click on **"OK"**.
- ___ 9. Click on **"Exit"**.
- ___ 10. Click on **"Continue..."**.

CONFIG.SYS Updates

To update CONFIG.SYS files to reflect the current configuration, select the drives on which CONFIG.SYS should be updated; then select Continue. Otherwise, select Exit and updates will not be made to any CONFIG.SYS files.

Note: A backup of each CONFIG.SYS file called CONFIG.LAP will be created before updates are made.

Drives to update

<input type="checkbox"/>	C
--------------------------	---

Continue... Exit Help

- ___ 11. Click on **"OK"**, then on **"Exit"**.



Shutdown and reinitialize your Service Processor:

- ___ 12. On the 'MOSS-E view' click on "**Program**", then click on "**Shut Down**".
- ___ 13. Enter the maintenance password, then click on "**OK**".
- ___ 14. Press "**Ctrl + Alt + Del**" to reinitialize your service processor.

10.5 Installing the Ethernet Bridge in a Controller Expansion.

- ___ 1. Attach the rack-mounting brackets **B** using the four short screws **C** which are shipped in a plastic bag.

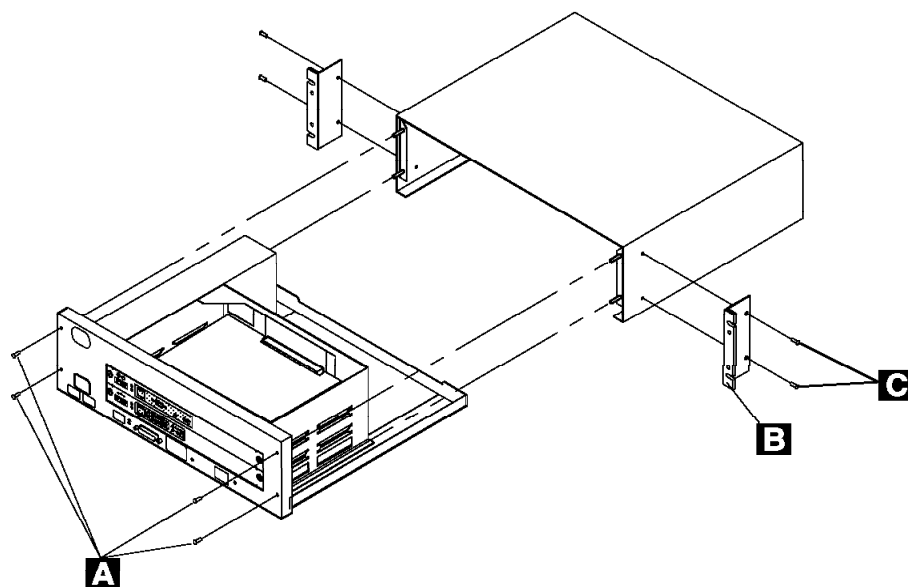


Figure 8. Attaching the rack-mounting brackets to the ethernet bridge.

- ___ 2. If you prefer to reduce the weight of the box temporarily to facilitate installation, you can separate the cover from the inner power supply and planar board combination:
 - a. Put the ethernet bridge on a flat surface.
 - b. Remove the four retaining screws **A** on the front of the ethernet bridge. See Figure 8.
 - c. Slide the cover off backwards.



- ___ 3. Examine the controller expansion inventory chart provided by the network administrator to determine where in the controller expansion the ethernet bridge should be mounted.

Where are you installing the ethernet bridge? ___

- In the **controller expansion-A**, Refer to **Figure 9**
- In the **controller expansion-B**, Refer to **Figure 10 on page 21**

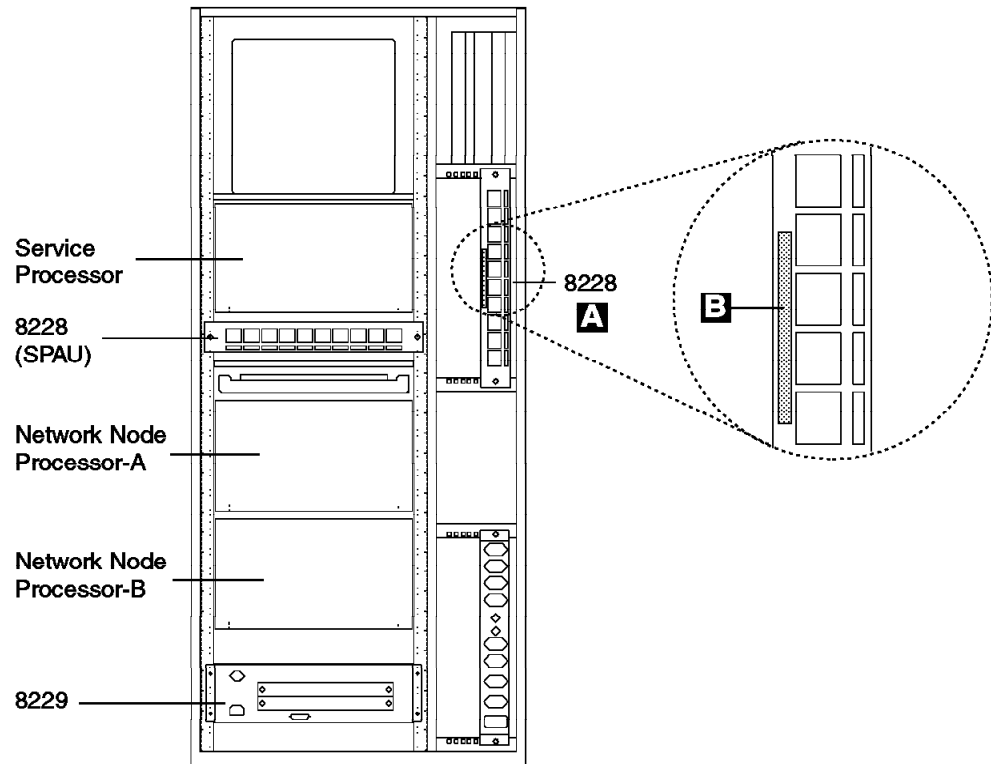


Figure 9. Installing One Ethernet Bridge in the Controller Expansion-A (Rear View)

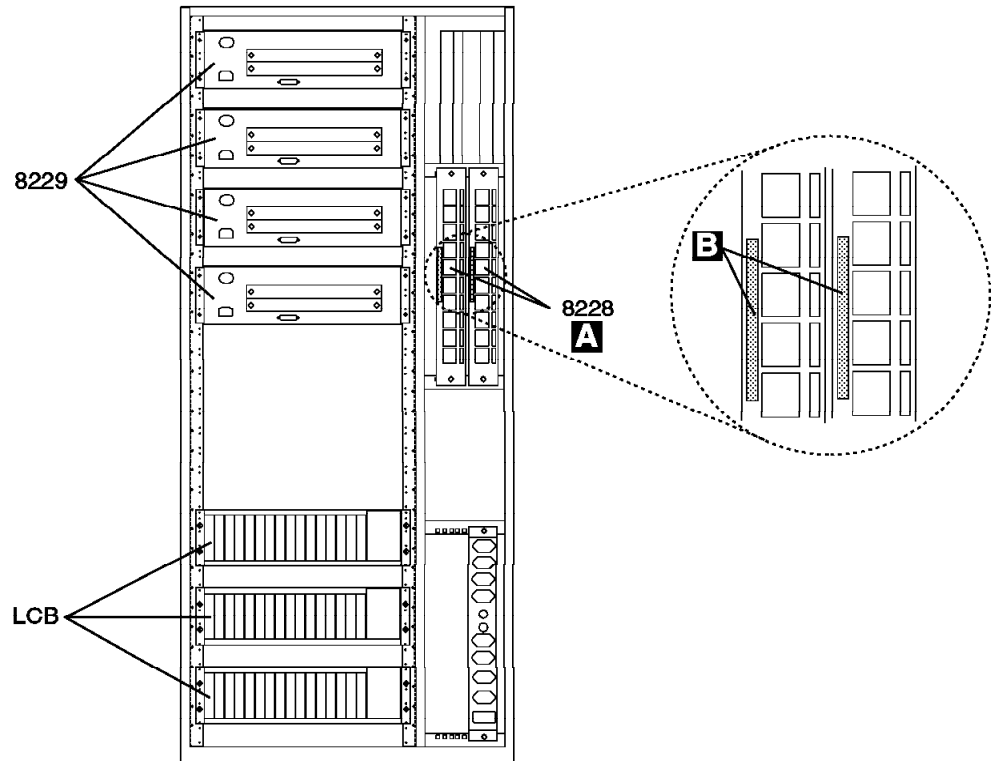


Figure 10. Installing Four Ethernet Bridge in the Controller Expansion-B (Rear View)



- 4. Install four captive nuts **3** (PN 58G5766) in the proper locations **Z**, refer to Figure 11.

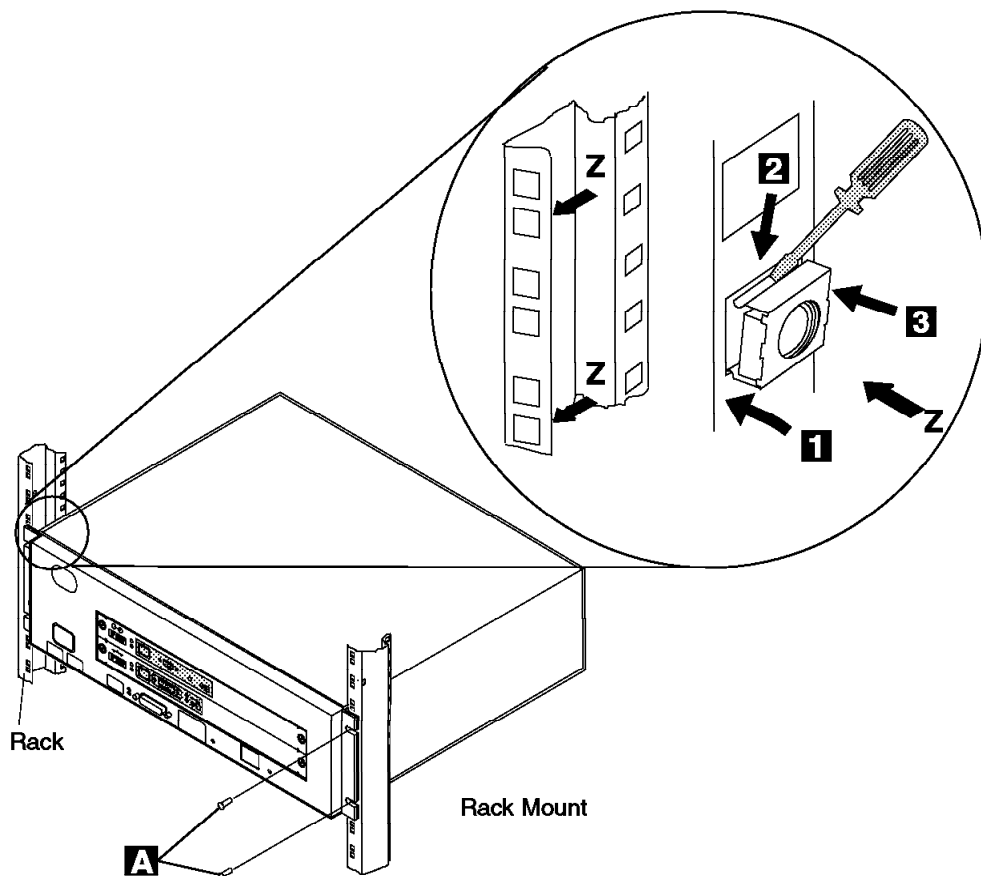


Figure 11. Captive Nuts and Ethernet Bridge Installation

- 5. Mount the cover (or the entire ethernet bridge) in the controller expansion, using four screws **A** (PN 1621232).
- 6. If you have removed the chassis (the inner power supply and planar board combination), slide it back into the cover and replace the four retaining screws, which you removed earlier. See Figure 8 on page 19.
- 7. Record the addresses in the spaces provided on the cabling chart.

Do not connect the power cord yet, go to step 10.6.1, “Connecting the ethernet bridge” on page 24

**Do you have to install a EBAU (8228)?**

- **Yes**, go to **step 10.6**, “Installing the Ethernet Bridge Access Unit.” on **page 23**.
- **No**, go to **step 10.5**, “Installing the Ethernet Bridge in a Controller Expansion.” on **page 19**.

10.6 Installing the Ethernet Bridge Access Unit.

1. Unpack the 8228, and then reset the 8228 ports as explained in the following steps:
2. Make sure no cables are connected to the 8228. If a cable bracket has been installed on the 8228, remove it.
3. Insert the aid into receptacle 1 of the 8228. The yellow stripe should be aligned with the edge of the receptacle to ensure that the aid is firmly seated.

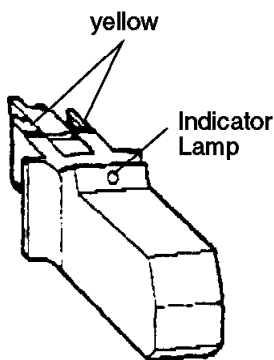


Figure 12. IBM 8228 Setup Aid

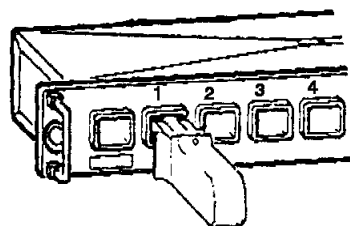


Figure 13. Use of the 8228 Setup Aid

- The light will glow brightly when the aid is initially inserted and will gradually dim when the aid is firmly seated in the receptacle.
 - If the light does not glow brightly when you insert the Setup Aid, remove the screw from the aid and replace the battery.
 - If the light still does not glow brightly after you have replaced the battery, try another Setup Aid.
 - Leave the aid in the receptacle for four seconds after the light has gone out.
 - Remove the aid from the receptacle.
4. Repeat procedure 3, until you have set each receptacle, 1 through 8.
 5. When you have set receptacle 8, insert the aid into the RI receptacle for four seconds.

The light should glow brightly while the aid is in the receptacle. If the light does not come on or goes out while the aid is connected to the



receptacle, the 8228 must be replaced. Notify your network planner or supervisor.

Important

- The 8228 Setup Aid is to be used only in setting up the 8228 either initially or after relocating the 8228 and before you connect any cables to it.
- It should never be used when the network is operating.

- ___ 6. Save the Setup Aid to be used later if you relocate an 8228.

Where are you installing the 8228?

- In the **controller expansion-A**, Refer to **Figure 9 on page 20**
- In the **controller expansion-B**, Refer to **Figure 10 on page 21**

- ___ 7. Install 2 captive nuts (PN 58G5766) in the proper locations, refer to Figure 11 on page 22.
- ___ 8. Install vertically the 8228 **A** on the rear side of the controller expansion using two screws (PN 1621232).
- ___ 9. Identify the EBAU (8228) just installed, stick label (PN 782964), see **B**.

10.6.1 Connecting the ethernet bridge

- ___ 1. Locate the TIC3 and the 8228 where you are connecting the ethernet bridge.
- ___ 2. Route and connect the **8228** to the TIC3 using the token ring attachment cable PN 76F9441 (9 m, 27 ft). To route the cable, refer to Figure 15 on page 25 or Figure 16 on page 26.
- ___ 3. Using a sticker, identify the cable as the "8228-XX cable".
- ___ 4. Plug connector **1** to the TIC3
- ___ 5. Plug connector **2** to one of the 8228 LAN adapter plugs 1 to 8 (Refer to Figure 14 on page 25 below).

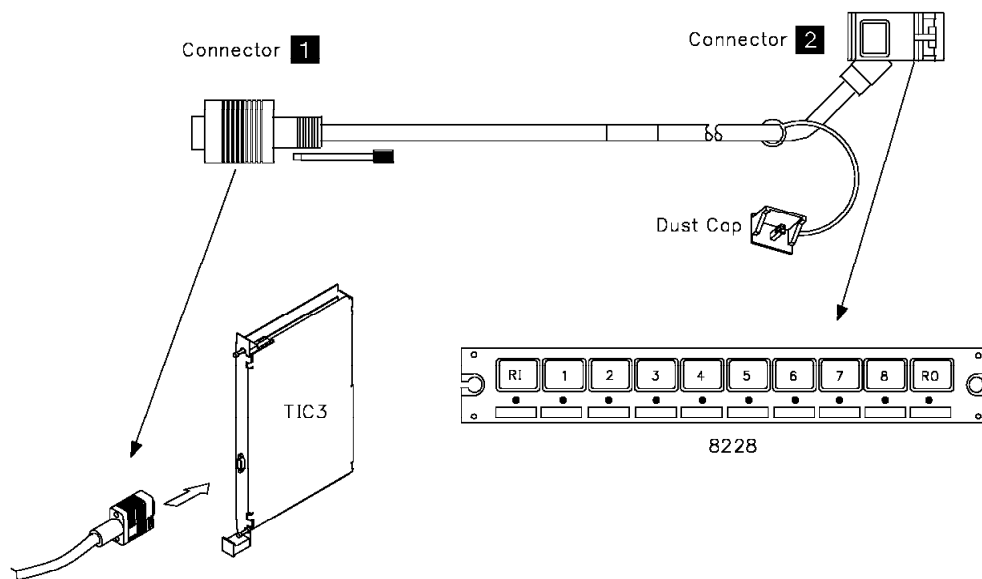


Figure 14. Connection of the 8228 to a TIC3

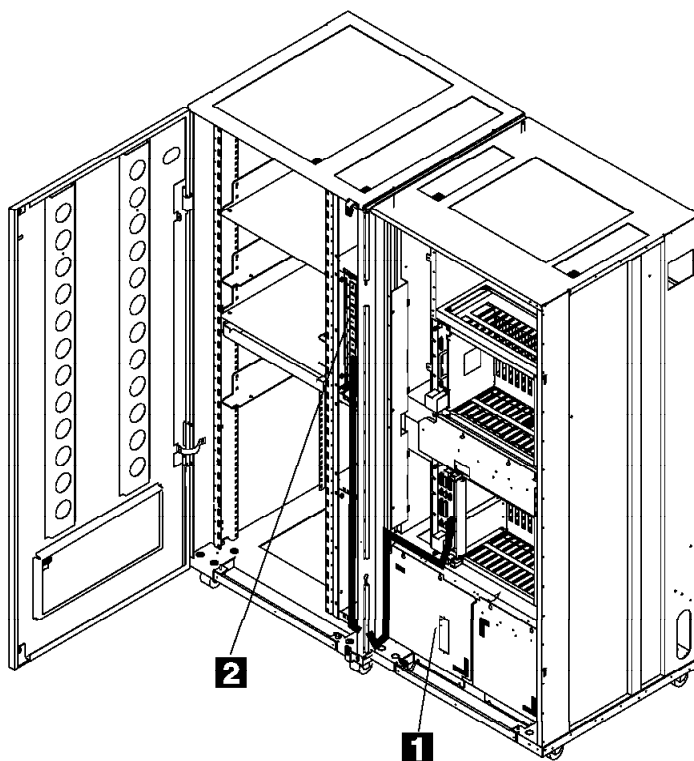


Figure 15. Routing the Cable from a TIC3 to a 8228 (Controller Expansion Attached)

Note: The controller expansion can be detached from the 3746-9x0 frame.

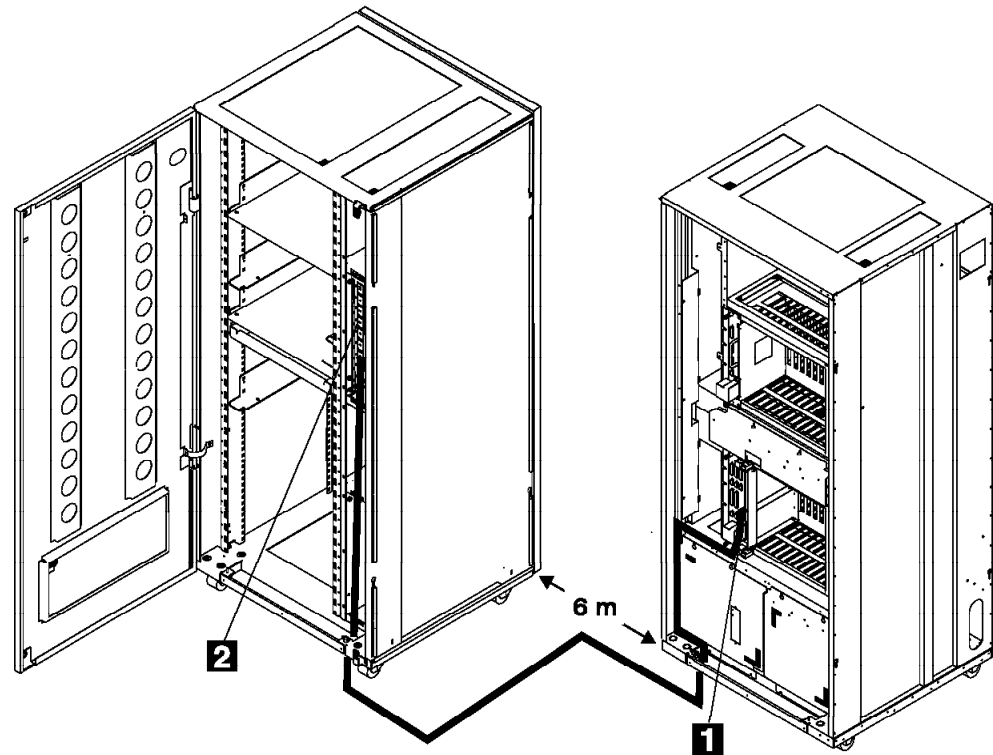


Figure 16. Routing the Cable from a TIC3 to a 8228 (Controller Expansion Detached)

- 6. Connect the **ethernet bridge** to the **8228** using cable **A** PN 6339098 (2.4 m, 8ft). (See Figure 17 on page 27)
- 7. Verify that the wrap plug is plugged in the AUI connector of the Ethernet module.
- 8. Connect the **ethernet bridge** to the ac outlet distribution box using power cable **B** PN 58G5783, and observe the bring-up sequence.

Note: At the conclusion of the test, the numeric display should go blank, the power and green status LEDs on the ethernet bridge should be lit, the green status on each attachment module. should be lit, and the green status LED should be lit.

If any number is still displayed, or if any yellow LED is lit, refer to *8229 Bridge Manual*, GA27-4025, chapter 'Problem Determination and Servicing'.

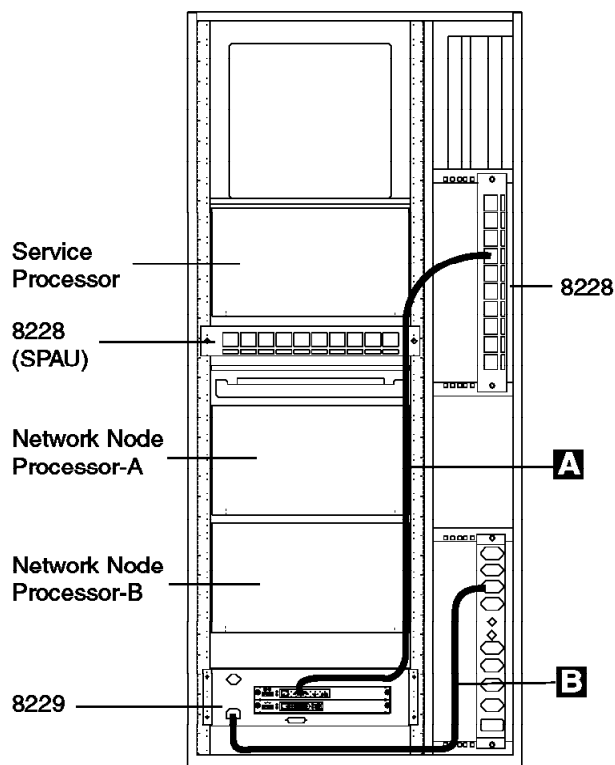


Figure 17. Connection of the Ethernet Bridge to the 8228 and Power

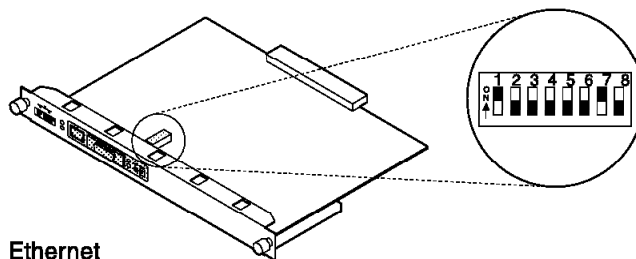
Attachment Type.

Refer to **Parameter Worksheet for Ethernet bridge**. Is the the Ethernet Attachment type 10base-T selected?

- If **Yes**, go to 10.7, "Setting the 10base-T Attachment Type.."
- If **No**, go to 10.8, "Returning the Machine to the Customer" on page 28.

10.7 Setting the 10base-T Attachment Type.

- ___ 1. Remove the Ethernet Module from the ethernet bridge,
- ___ 2. Set switch 7 to **ON**, then



Ethernet

Figure 18. Attachment Module Switches location and Default Settings.

- ___ 3. Reinstall the Ethernet Module on the ethernet bridge.



10.8 Returning the Machine to the Customer

- 1. Inform the Customer that the 3746-9X0 is now ready to support Ethernet operation, and tell him that he can start the traffic.

11.0 Test Procedures

No test required.

After Installation (steps 12-15)

12.0 Field Updating

None.

13.0 Publications Update

None.

14.0 Parts Disposition

Not applicable

15.0 Machine Records

- Install the new **MACHINE HISTORY** supplied.
- Report installation and quality problems using existing procedures.

End of instructions.