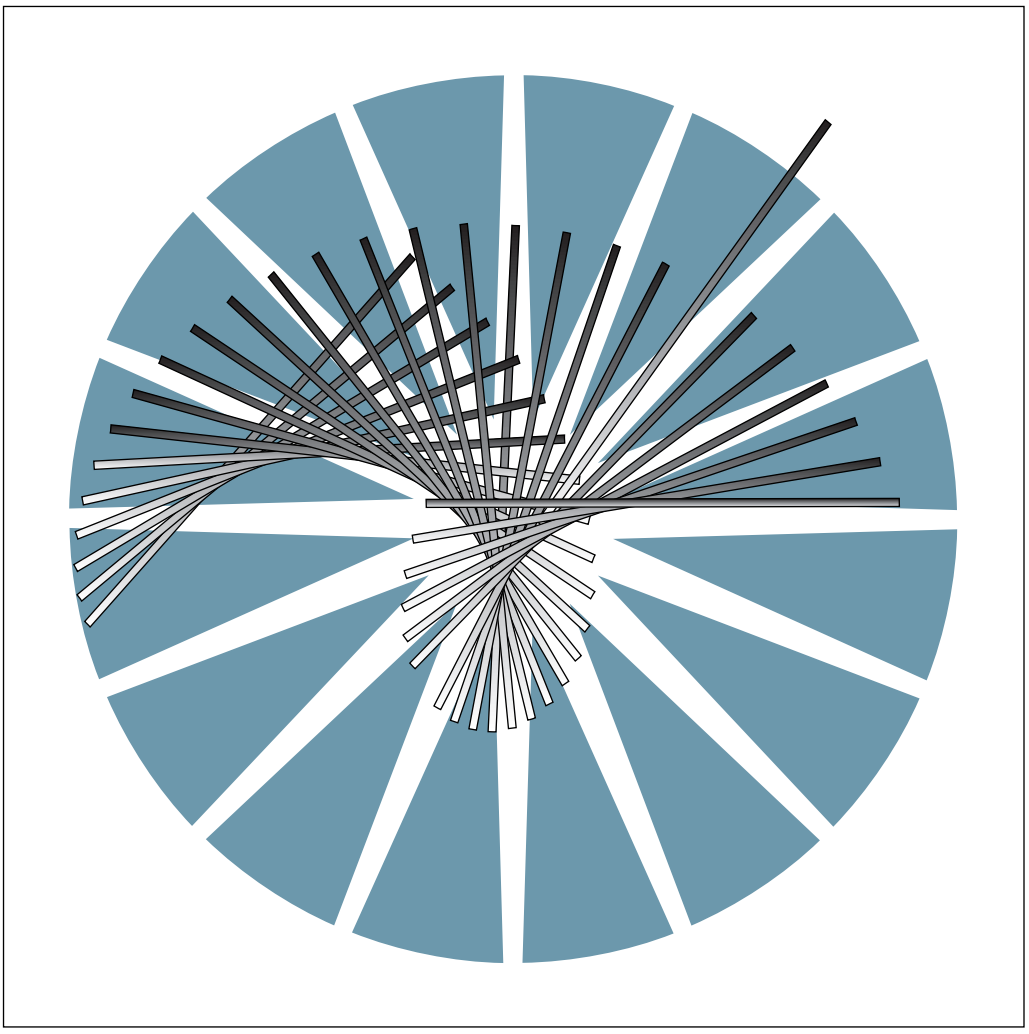
3746 Nways Multiprotocol Controller
Models 900 and 950

Network Node Processor Installation and Maintenance (based on 7585 or 3172)



SY33-2112-03

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Note!

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

Fourth Edition (December 1997)

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Product Safety Information

General Safety

This product meets IBM safety standards.

Safety Notices

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

Safety Notices for United Kingdom

1. The IBM 3746 Expansion Unit Model 900 and IBM 3746 Nways Multiprotocol Controller Model 950 are manufactured according to the International Safety Standard EN 60950 and as such are approved in the UK under the General Approval Number NS/G/1234/J/100003 for indirect connection to the public telecommunication network.
2. The network adapter interfaces housed within the IBM 3746 Expansion Unit Model 900 and IBM 3746 Nways Multiprotocol Controller Model 950 are approved separately, each one having its own independent approval number. These interface adapters, supplied by IBM, do not use or contain excessive voltages. An excessive voltage is one that exceeds 42.4 V peak ac or 60 V dc. They interface with the IBM 3746 Expansion Unit Model 900 and IBM 3746 Nways Multiprotocol Controller Model 950 using Safety Extra Low Voltages (SELV) only. In order to maintain the separate (independent) approval of the IBM adapters, it is essential that other optional cards, not supplied by IBM, do not use mains voltages or any other excessive voltages. Seek advice from a competent engineer before installing other adapters not supplied by IBM.

Service Inspection Procedures

The Service Inspection Procedures help service personnel check whether the 3745/3746 conforms to IBM safety criteria. They have to be used each time the 3745/3746 safety is suspected. The *Service Inspection Procedures* section is located at the beginning of the:

- *3745 Communication Controller Models 210 to 61A Maintenance Information Procedures*, SY33-2054
- *3745 Communication Controller Models 130 to 17A Maintenance Information Procedures*, SY33-2070
- *3746-950 Service Guide*, SY33-2108
- *3746-900 Service Guide*, SY33-2116.

The 3745/3746 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. Test of emergency power OFF/control power switch.
8. Power-ON indicator

About This Book

Who Should Use This Book

The IBM personnel using this manual should be:

- Trained to service the network node processor, IBM 3745 Communication Controller, 3746-900, and 3746-950.
- Familiar with the network node processor service documentation,
- Familiar with the configuration of the 3745 Communication Controller, 3746-900, and 3746-950.

How to Use This Book

This manual provides procedures for installing and maintaining a network node processor. 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 through the chapters sequentially.

How This Book is Organized

Chapter 1	Presents the procedures to install and connect the network node processor.
Chapter 2	Presents the procedures to manage the network node processor and the control point.
Chapter 3	Presents the problem determinattion procedures for the network node processor.
Chapter 4	Gives the procedures to exchange the network node processor FRUs.
Appendix A	Gives the locations of the controller expansion components.
Appendix B	Provides network node processor aids.
Appendix C	Provides network node processor aids.

A **service and customer documentation bibliography**, a **list of abbreviations**, and an **index** are provided at the end of this manual.

Where to Find More Information

For a complete list of the network node processor, 3745, 3746-900, and 3746-950 customer and service information manuals, see at the end of this manual. In this *NNPIM*, references are made to the following publications:

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

3745 Communication Controller Models 130 to 17A Maintenance Information Procedures, SY33-2070

3746-950 Service Guide, SY33-2108

3746-900 Service Guide, SY33-2116

Nways Multiprotocol Controller Models 900 and 950 Migration and Planning Guide, GA33-0349

3745 Communication Controller Models A and 3746 Expansion Unit Model 900: Migration and Planning Guide, GA33-0183

World Wide Web

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

Online Documentation from CD-ROM

Starting at EC F12380 with the service processor is now shipped a CD which contains the LIC and a copy of the 3746 web site. You will find from this web page, marketing, PE, and all information about CCP products.

To access this page:

1. Insert the CD into the CD disk drive of the SP.
2. From the MOSS-E primary menu, click on **Information**
3. Double click on **CD-ROM documentation**
4. Then if you want to display the CCP documentation, click on **Documentation**
5. Click on **La Gaude Information Development: Communication Controllers Information**

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

Service Personnel Definitions

See the *3745 Communication Controller Models 210 to 61A Maintenance Information Procedures*, SY33-2054, *3745 Communication Controller Models 130 to 17A Maintenance Information Procedures*, SY33-2070 or *3746-950 Service Guide*, SY33-2108.

Summary of Changes

This revised edition gives information about the new procedures used to:

1. Upgrade the LIC on the NNP.
2. Restore the LIC.
3. Change the active LIC version.
4. Starting at EC F12380 and above, the LIC is shipped on a CD. On this CD you can get online documentation, for details refer to “Online Documentation from CD-ROM” on page xviii.

Chapter 1. Installing and Setting Up Your Network Node Processor

Network Node Processor Overview

The network node processor is based on an **7585-P02** or IBM **3172 Model 003**, for 7585 refer to “Network Node Processor Based on 7585-P02” on page C-1, for 3172 refer to “Devices List for the Network Node Processor (3172)” on page C-16 and “Network Node Processor Hardware Configuration Reference (3172)” on page C-22 for details.

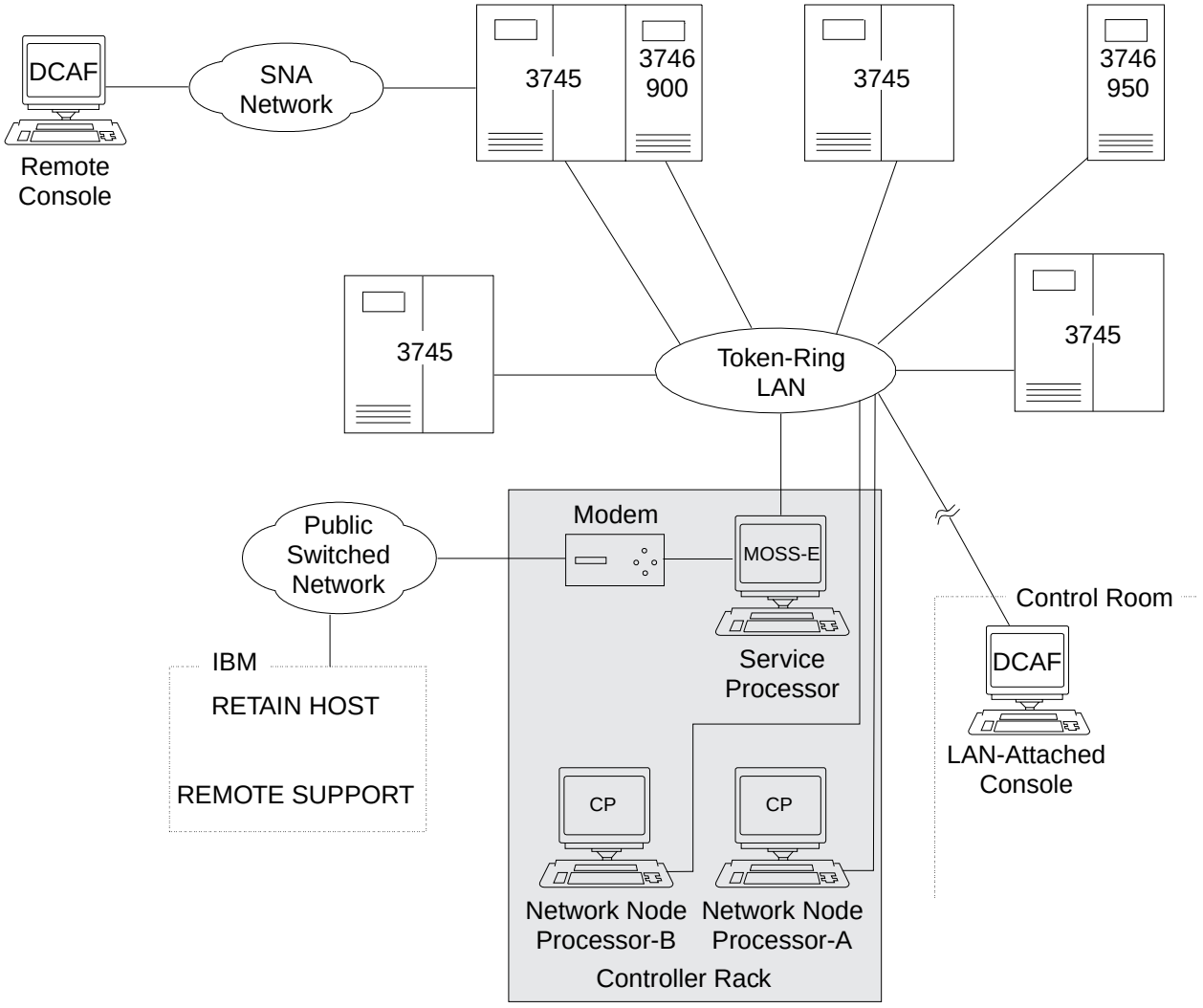


Figure 1-1. Network Node Processor Environment

Preparing Your Installation

1. ____ You have received two diskettes with the Network Node Processor. Using a felt-tipped pen, identify one diskette as **Normal** and the other as **Backup**.
2. ____ Obtain from the customer the following **Parameter worksheet**:

   - **"Definition of Service LAN IP Addresses" on page A-1**

   This parameter worksheet is part of the *3745 Communication Controller Models A and 3746 Models 900 and 950: Planning Guide*, GA33-0457 Appendix A and must be filled in by the customer. A copy of this parameter worksheet is given at the end of this manual see Appendix A, "Parameter Worksheet" on page A-1.

Attention

The network node processor is connected to a **220V** power receptacle, if you connect other units on the ac outlet distribution box verify the voltage of these units.

Go To

If you are installing a **Network Node Processor** type:

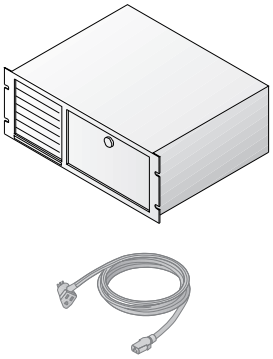
- **7585**, go to "Installing Your Network Node Processor (7585)" on page 1-4
- **3172**, go to "Installing Your Network Node Processor (3172)" on page 1-14

Installing Your Network Node Processor (7585)

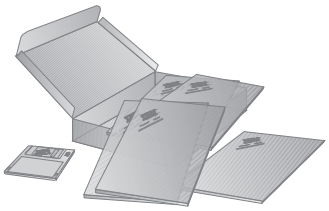
1. ____ **Unpack** Your Network Node Processor

   For installing a **NNP-A** or a **NNP-B**, you need the following items to complete this installation:

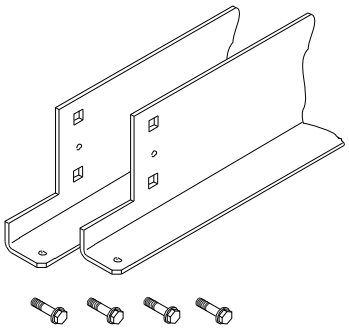
   - □ Network Node Processor (7585) and Power Cord



   - □ Publications and diskette



   - □ Brackets and screws



2. ____ Using label (PN 0782966), **identify** your Network Node Processor-A or Network Node Processor-B by sticking the appropriate label **A** on the front and rear side of the unit (refer to Figure 1-2).

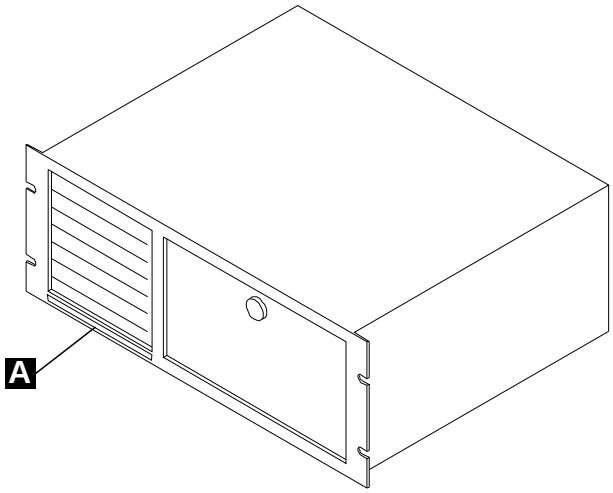


Figure 1-2. Installing Label on the Front Side of the Network Node Processor (7585)

Go To

If you are installing:

- **NNP-A**, go to “Installing the 7585 Network Node Processor - A” on page 1-6
- **NNP-B**, go to “Installing the 7585 Network Node Processor - B” on page 1-9

Installing the 7585 Network Node Processor - A

Note: The location of the NNP can be in different places in the controller expansion. It depends on the type of service processor and if other units are installed in this controller expansion. Go to Appendix B, “Controller Expansion Component Locations” on page B-1 and refer to Figure B-1 on page B-2 and Figure B-2 on page B-3 to determine with your customer where the NNP can be installed.

1. ____ Open the front and rear doors of the controller expansion. and locate the position to install the brackets used for the NNP-A (refer to Figure B-3 on page B-4). Install the left and right brackets **1** (PN 58G5752) and secure using four screws **2** (PN 2665527). If the captive nuts are already installed, go to step 1 on page 1-7, otherwise go to step 2.

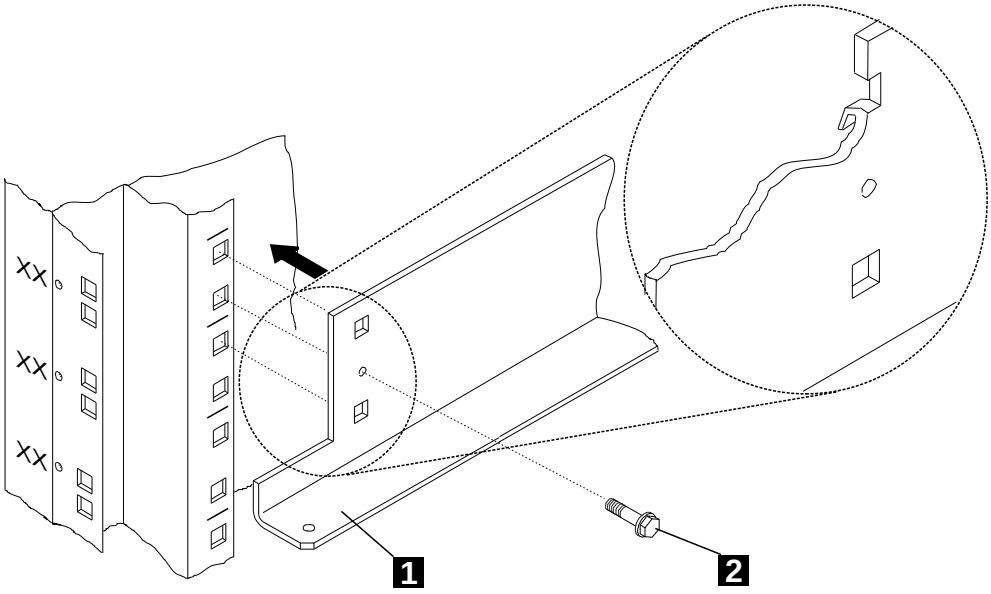


Figure 1-3. Installing the NNP-A Brackets

2. ____ Refer to Figure 1-4 and install four captive nuts (PN 58G5766) on the left and right side of the controller expansion.

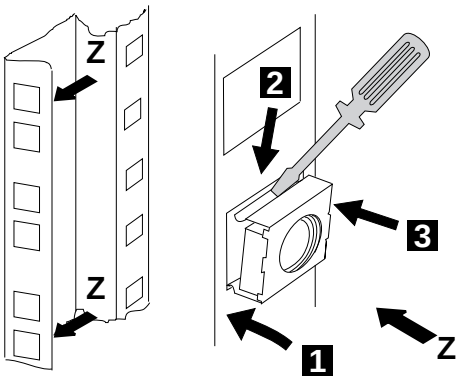


Figure 1-4. Installing the Captive Nuts for the 7585

Installing the 7585 System Unit (NNP-A)

1. ____ Slide the network node processor unit in the controller expansion from the front side as shown in Figure 1-5., then fasten the unit using four screws (PN 1621230).

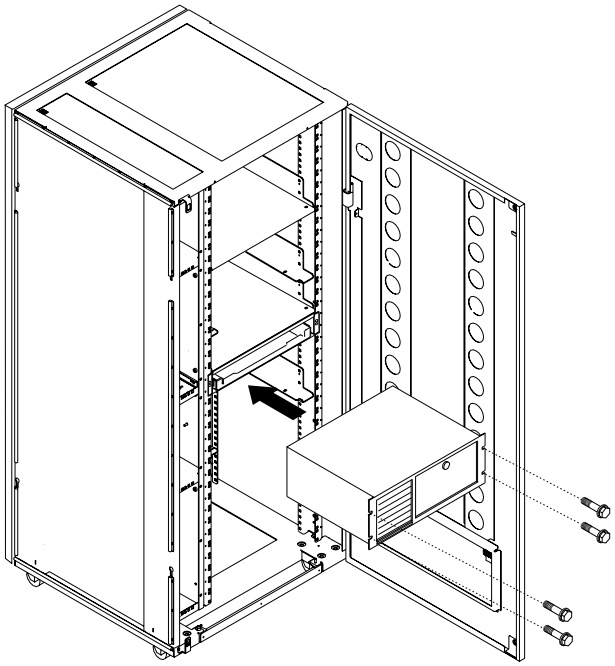


Figure 1-5. Installing the 7585 NNP-A Unit in the Controller Expansion (Front Side)

Connecting the 7585 (NNP-A)

1. ____ Plug connector **1** of cable **A** (PN 6339098) to the token-ring card connector.
2. ____ Using a sticker, identify the cable **A** as the "network node processor cable" and plug connector **2** to **any plug** of the 8228 from **1 to 8**
3. ____ Connect power cord **3** from J2 to the ac outlet of the NNP-A.

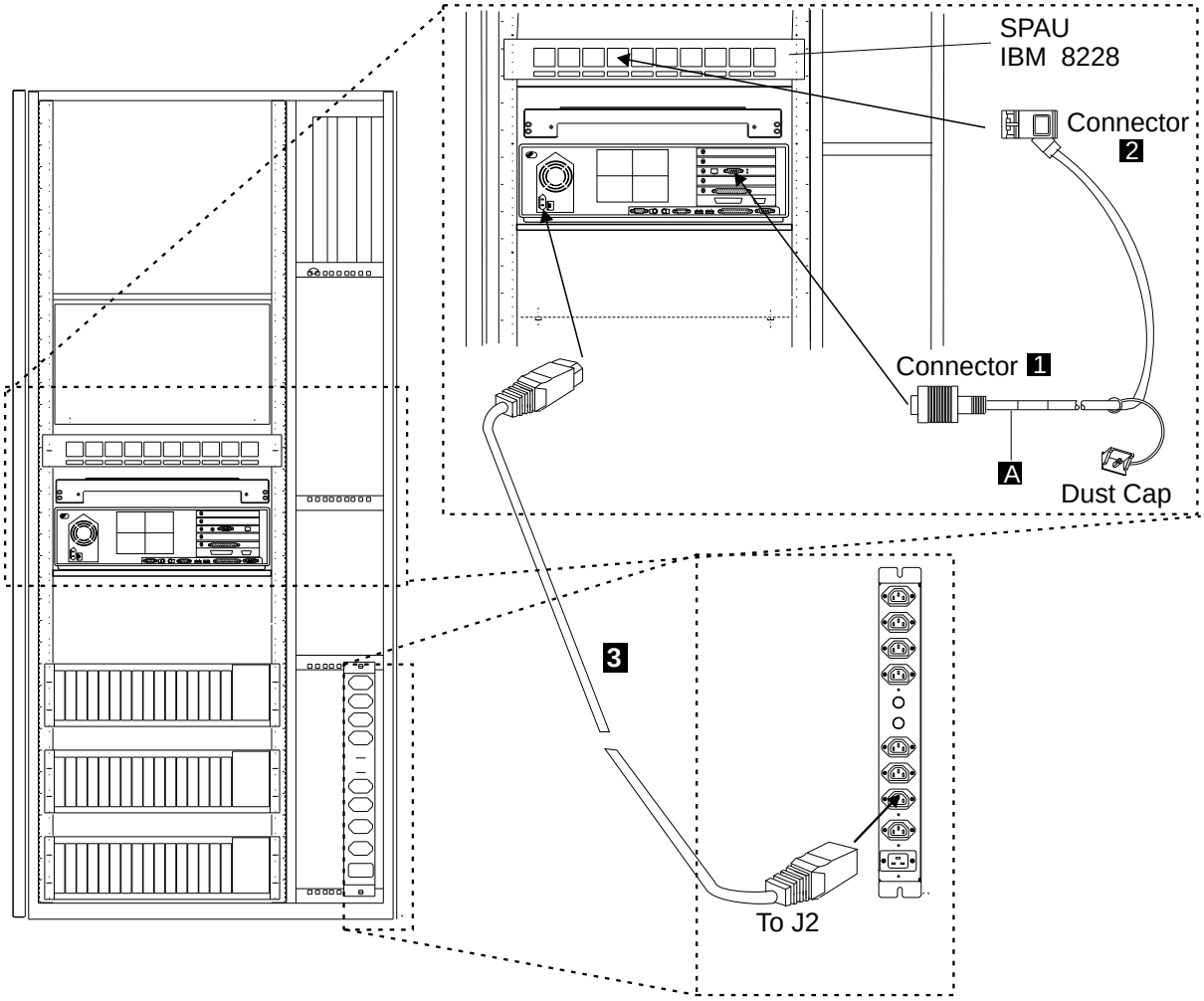


Figure 1-6. Connecting the 7585 NNP-A

If the customer ordered a **NNP-B**, go to “Installing the 7585 Network Node Processor - B” on page 1-9, otherwise go to “Installing the Code on the Network Node Processor” on page 1-24.

Installing the 7585 Network Node Processor - B

Note: The location of the NNP can be in different places in the controller expansion. It depends on the type of service processor and network node processor-A, and if other units are installed in this controller expansion. Go to Appendix B, “Controller Expansion Component Locations” on page B-1 and refer to Figure B-1 on page B-2 and Figure B-2 on page B-3 to determine with your customer where the NNP can be installed.

1. ____ Open the front and rear doors of the controller expansion and locate the position of the brackets used to install the NNP-B (if the service processor and the NNP-A are two 7585, refer to Figure B-3 on page B-4).
2. ____ Install the left and right brackets **1** (PN 58G5752) and secure using four screws **2** (PN 2665527). If the captive nuts are already installed, go to step 1 on page 1-10, otherwise go to step 3

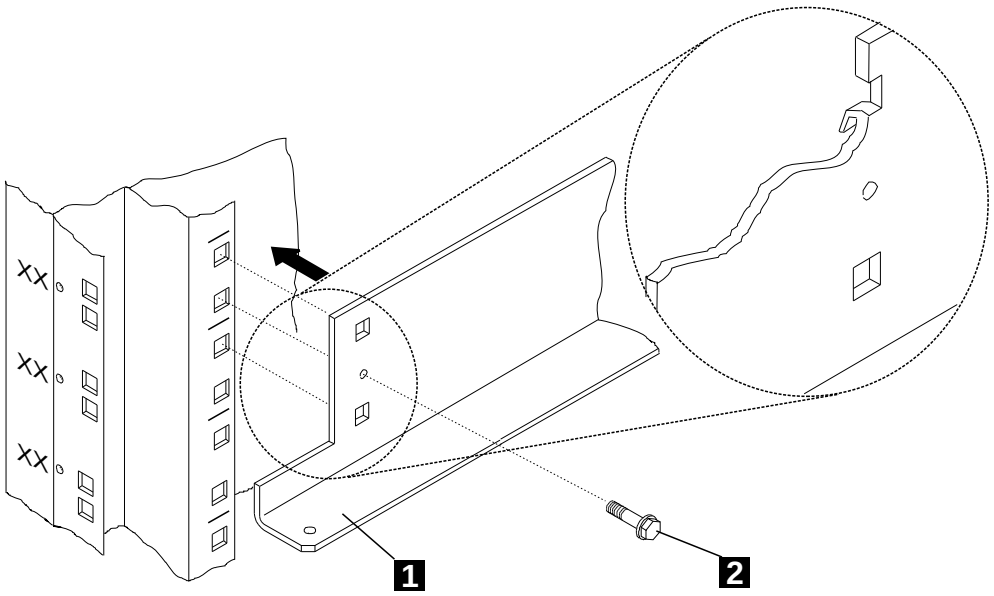


Figure 1-7. Installing the NNP-B Brackets

3. ____ Refer to Figure 1-8 and install four captive nuts (PN 58G5766) on the left and right side of the controller expansion.

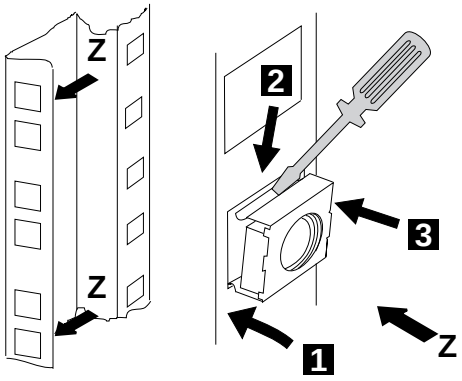


Figure 1-8. Installing the Captive Nuts for the 7585

Installing the 7585 System Unit (NNP-B)

1. ____ Slide the network node processor unit in the controller expansion from the front side as shown in Figure 1-9, then fasten the unit using four screws (PN 1621230).

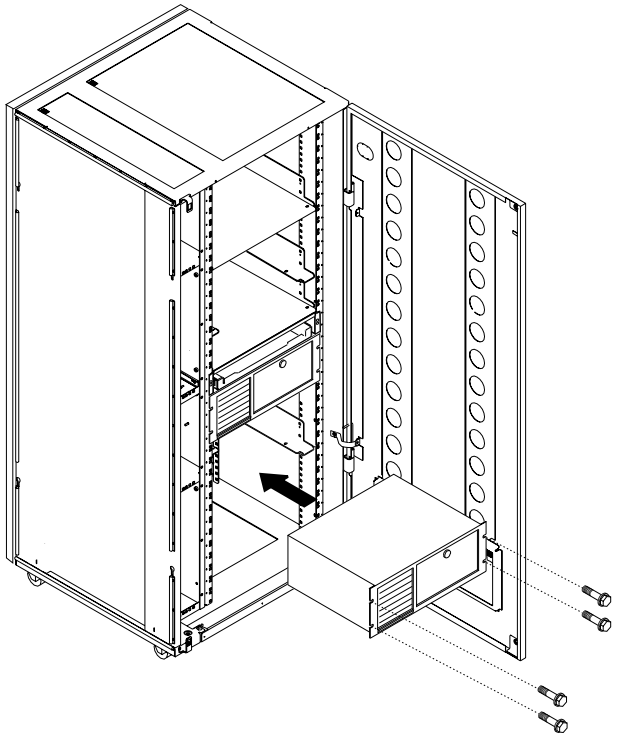


Figure 1-9. Installing the 7585 NNP-B Unit in the Controller Expansion (Front Side)

Go To

Do you have to install a second **ac outlet distribution box** ?

- **Yes**, go to “Installing a Second ac Outlet Distribution Box” on page 1-11.
- **No**, go to “Connecting the 7585 Network Node Processor - B” on page 1-13.

Installing a Second ac Outlet Distribution Box

1. ____ **Identify** the location to install the two captive nuts **A** (second hole from the left) , if already installed go to step 3, otherwise go to step2.

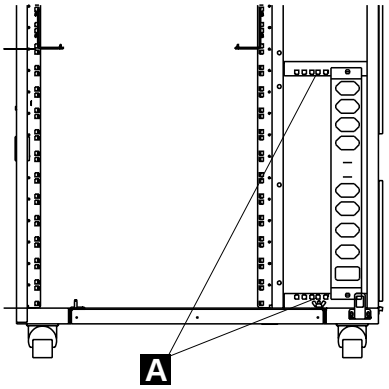


Figure 1-10. Locating the Captive Nuts

2. ____ Refer to Figure 1-11 to **install** the two captive nuts (PN 58G5766).

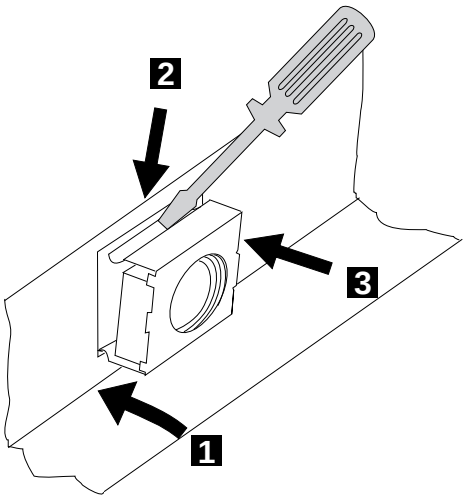


Figure 1-11. Installing the Captive Nuts

3. ____ Refer to Figure 1-12 on page 1-12, using one lockwasher (PN 1622319), one starwasher (PN 1622347), and one screw (PN1673983), **connect** the ground jumper **A** (PN 63F2459) to the new ac outlet distribution box. Then, **install** the second ac outlet distribution box close to the first ac outlet distribution box and fasten using two screws **C** (PN 1621230).

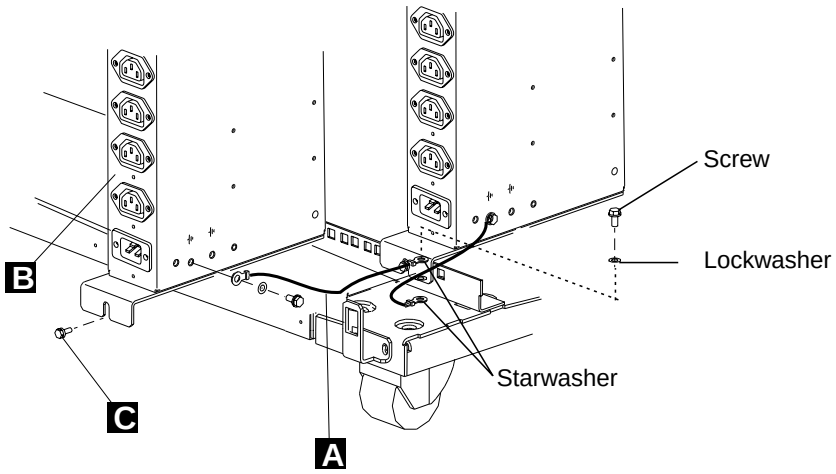


Figure 1-12. Installing the Second ac Outlet Distribution Box

4. ____ Using the same washers and screw used to connect the first ac outlet distribution box, **connect** the other lead of the ground jumper **A** to the frame.
5. ____ Plug the power cord **A** (country dependant) into location **IN** of the ac outlet distribution box. Then route and connect the other lead of the power cord to the customer's power socket.

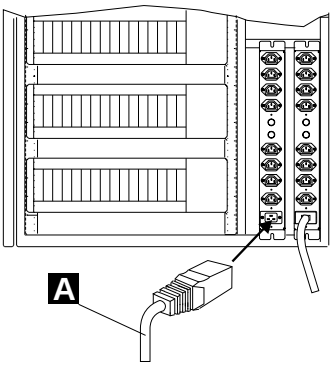


Figure 1-13. Power Cord Installation

6. ____ Switch or ask the customer to switch ON the circuit breaker to be used for the ac outlet distribution box.
7. ____ Verify that the phase is distributed as shown below: **if not, notify the customer and do not proceed until the problem is corrected**.

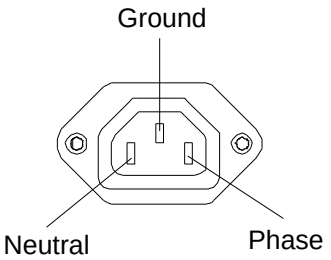


Figure 1-14. Power Distribution

Connecting the 7585 Network Node Processor - B

1. ____ Plug connector **1** of cable **A** (PN 6339098) to the token-ring card connector.
2. ____ Using a sticker, identify the cable **A** as the "network node processor cable" and plug connector **2** to **any plug** of the 8228 from **1 to 8**
3. ____ Connect power cord **3** from J5 to the ac outlet of the NNP-B.

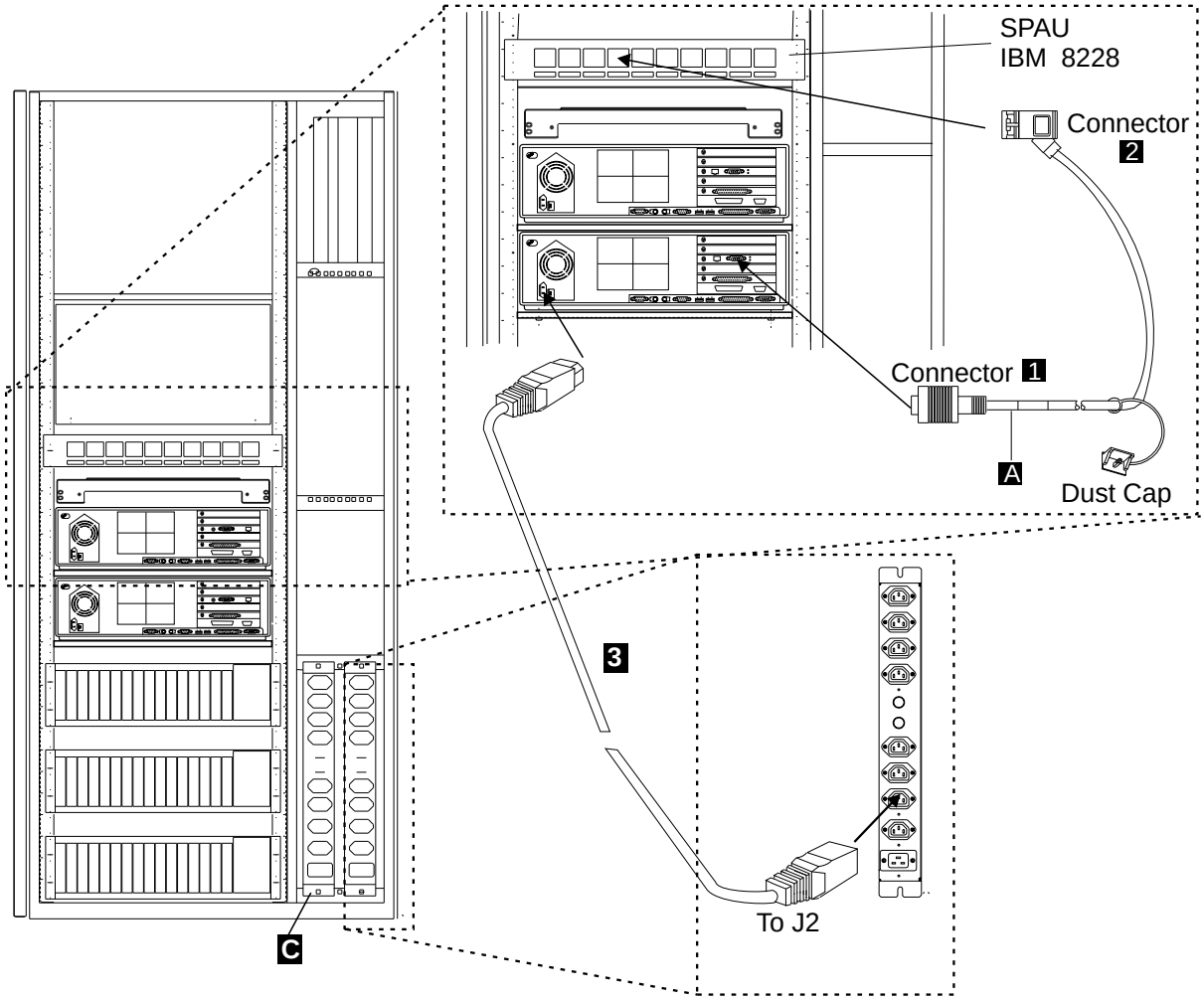


Figure 1-15. Connecting the NNP-B (7585)

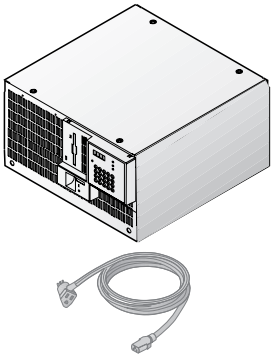
Go to "Installing the Code on the Network Node Processor" on page 1-24.

Installing Your Network Node Processor (3172)

1. ____ **Unpack** Your Network Node Processor

   For installing a **NNP-A** or a **NNP-B**, you need the following items to complete this installation:

   - □ Network Node Processor (3172) and Power Cord



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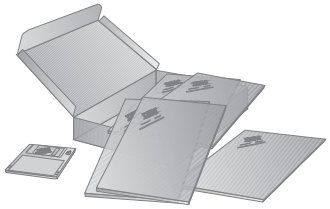
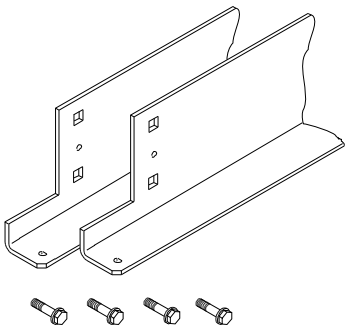
   - □ Publications and diskette



   - □ Brackets and screws



2. ____ Using label (PN 80G0680), **identify** your Network Node Processor-A or Network Node Processor-B by sticking the appropriate label **A** on the front and rear side of the unit (refer to Figure 1-16 and Figure 1-17).

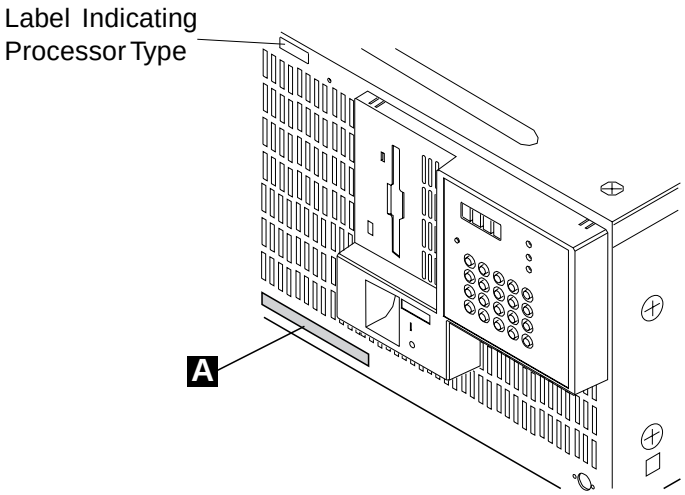


Figure 1-16. Installing Label on the Front Side of the Network Node Processor (3172)

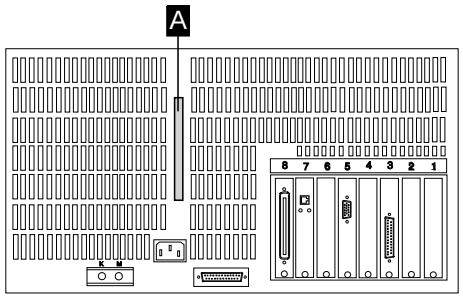


Figure 1-17. Installing Label on the Rear Side of the Network Node Processor (3172)

Go To

If you are installing:

- **NNP-A**, go to “Installing the 3172 Network Node Processor - A” on page 1-16.
- **NNP-B**, go to “Installing the 3172 Network Node Processor - B” on page 1-19.

Installing the 3172 Network Node Processor - A

Note: The location of the NNP can be in different places in the controller expansion. It depends on the type of service processor and if other units are installed in this controller expansion. Refer to Figure B-1 on page B-2 and Figure B-2 on page B-3 to determine with your customer where the NNP can be installed.

1. ____ Open the front and rear doors of the controller expansion and locate the position of the brackets used to install the network node processor-A. (if the service processor is a 3172, refer to Figure B-4 on page B-5).
2. ____ Install the left and right brackets **1** (PN 58G5752) and secure using four screws **2** (PN 2665527).
3. ____ When the NNP will be installed, install four screws **3** (PN 0782986)

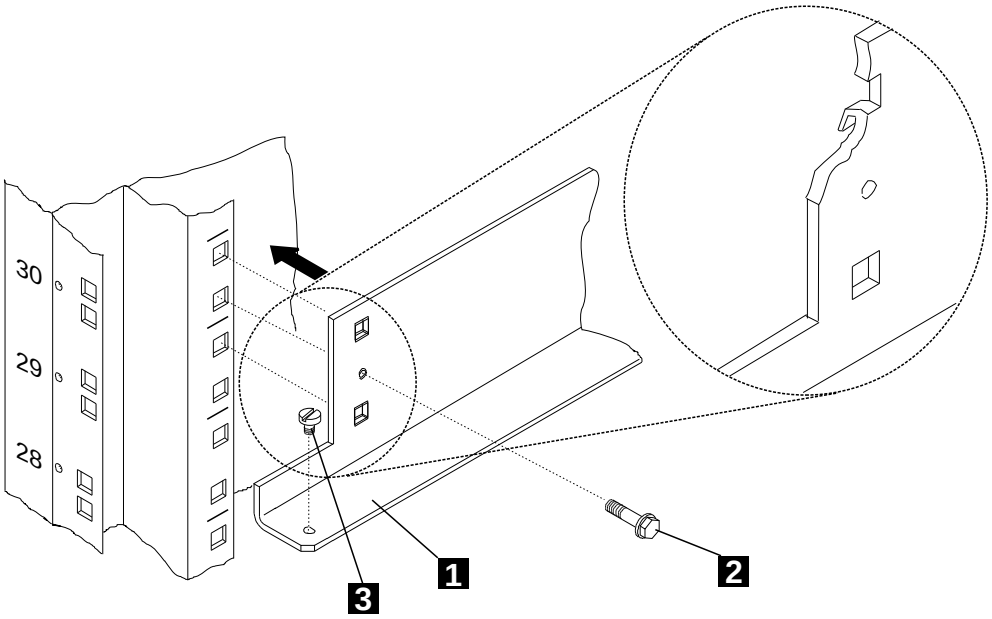


Figure 1-18. Installing the Network Node Processor Brackets (NNP Type 3172)

Installing the 3172 System Unit (NNP-A)

1. ____ If installed, remove the four pads located under the unit.
2. ____ Slide the network node processor unit in the controller expansion from the rear side as shown in Figure 1-19 on page 1-17.

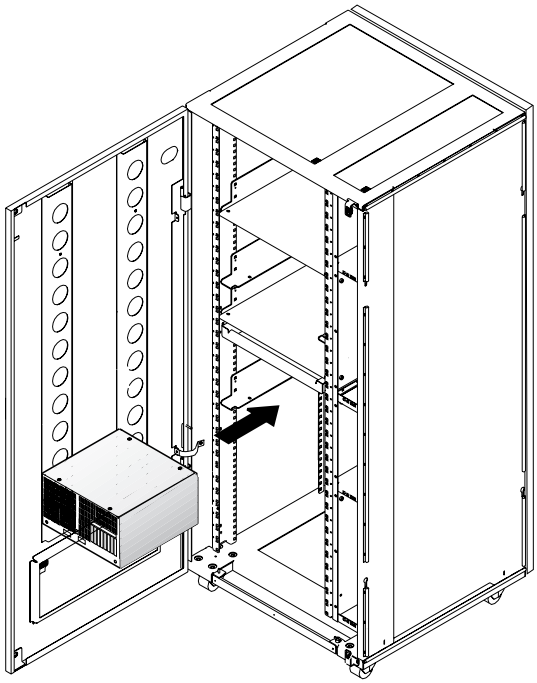


Figure 1-19. Installing the 3172 NNP-A Unit in the Controller Expansion (Rear Side)

Connecting the 3172 (NNP-A)

1. ____ Plug connector **1** of cable **A** (PN 6339098) to cable **B** (PN 60G1066).
2. ____ Using a sticker, identify the cable **A** as the "network node processor cable" and plug connector **2** to **any plug** of the 8228 from **1 to 8**
3. ____ Plug cable **B** to **slot 7** of the network node processor.
4. ____ Connect power cord **3** from J2 to the ac outlet of the NNP-A.

Temporary Procedure

Connect the keyboard shipped with the network node processor to connectors K and M located at the rear side of the NNP.

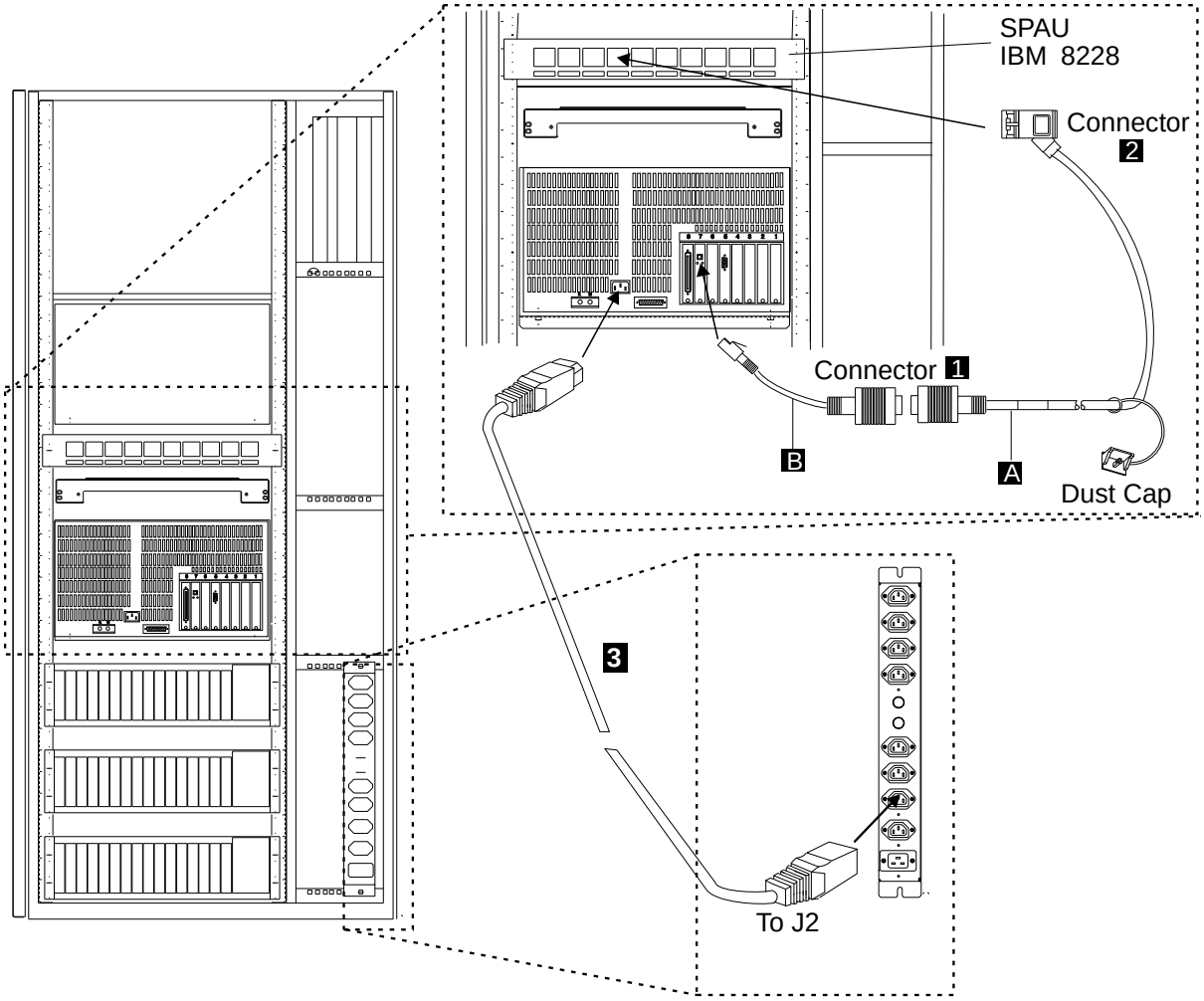


Figure 1-20. Connecting the NNP-A

If the customer ordered a **NNP-B**, go to “Installing the 3172 Network Node Processor - B” on page 1-19, otherwise go to “Installing the Code on the Network Node Processor” on page 1-24.

Installing the 3172 Network Node Processor - B

Note: The location of the NNP can be in different places in the controller expansion. It depends on the type of service processor and network node processor-A, and if other units are installed in this controller expansion. Refer to Figure B-1 on page B-2 and Figure B-2 on page B-3 to determine with your customer where the NNP can be installed.

1. ____ Open the front and rear doors of the controller expansion. Locate the position of the brackets used to install the NNP-B (if the service processor and the NNP-A are 3172, refer to Figure B-4 on page B-5).
2. ____ Install the left and right brackets **1** (PN 58G5752) and secure using four screws **2** (PN 2665527).
3. ____ When the NNP will be installed, install four screws **3** (PN 0782986)

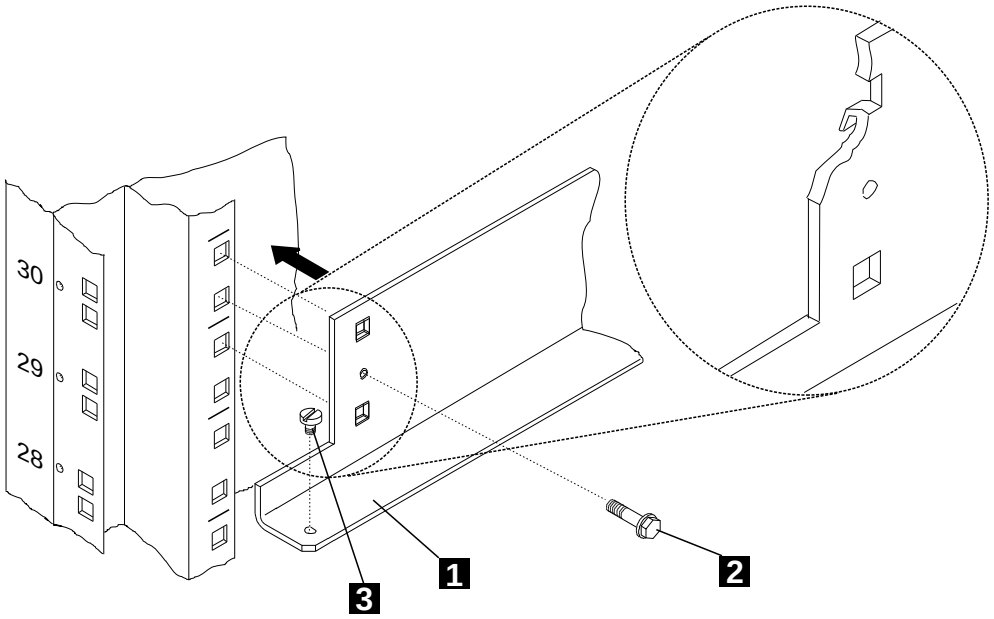


Figure 1-21. Installing the NNP-B Brackets

Installing the 3172 System Unit (NNP-B)

1. ____ If installed, remove the four pads located under the unit.
2. ____ Slide the network node processor unit in the controller expansion from the rear side as shown in Figure 1-22. Refer also to Appendix B, “Controller Expansion Component Locations” on page B-1.

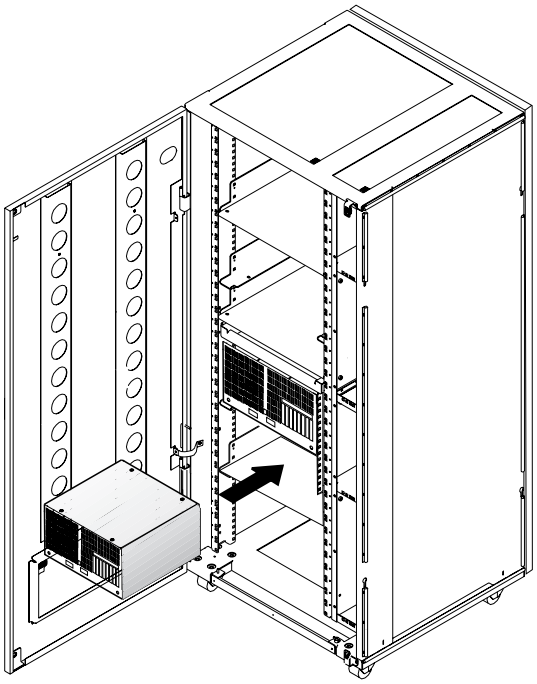


Figure 1-22. Installing the 3172 NNP-B Unit in the Controller Expansion (Rear Side)

Go To

Do you have to install a second **ac outlet distribution box** ?

- **Yes**, go to “Installing a Second ac Outlet Distribution Box” on page 1-21.
- **No**, go to “Connecting the 3172 Network Node Processor - B” on page 1-23.

Installing a Second ac Outlet Distribution Box

1. ____ **Identify** the location to install the two captive nuts **A** (second hole from the left) , if already installed go to step 3, otherwise go to 2.

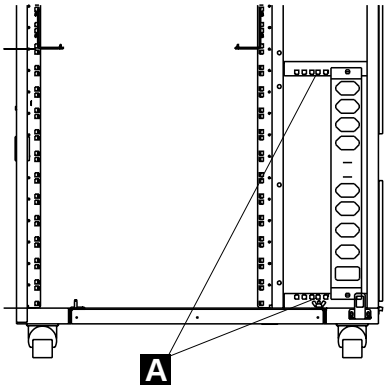


Figure 1-23. Locating the Captive Nuts

2. ____ Refer to Figure 1-24 to **install** the two captive nuts (PN 58G5766).

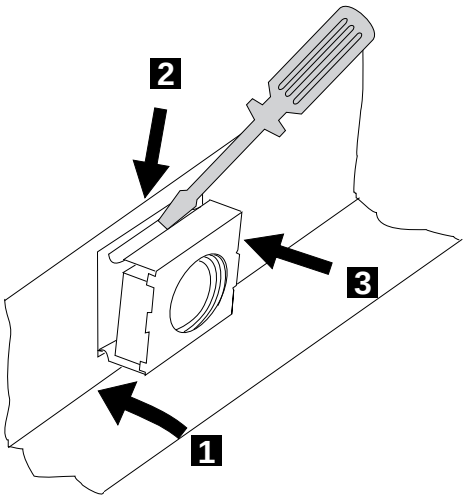


Figure 1-24. Installing the Captive Nuts

3. ____ Refer to Figure 1-25 on page 1-22, using one lockwasher (PN 1622319), one starwasher (PN 1622347), and one screw (PN1673983), **connect** the ground jumper **A** (PN 63F2459) to the new ac outlet distribution box. Then, **install** the second ac outlet distribution box close to the first ac outlet distribution box and fasten using two screws **C** (PN 1621230).

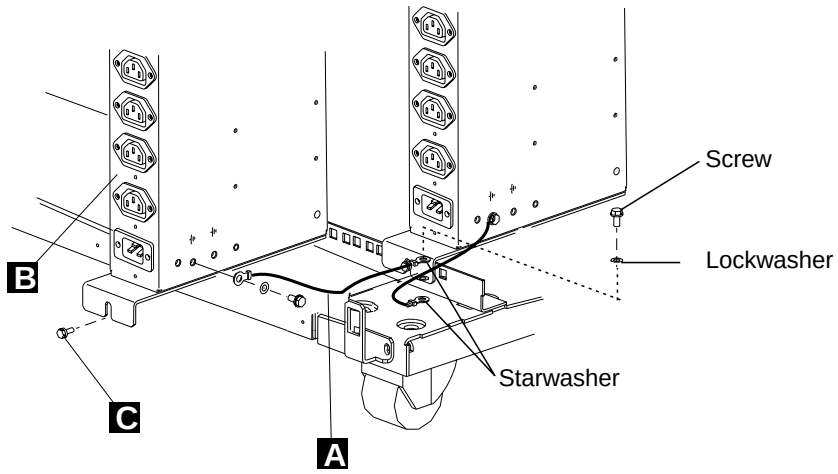


Figure 1-25. Installing the Captive Nuts

4. ____ Using the same washers and screw used to connect the first ac outlet distribution box, **connect** the other lead of the ground jumper **A** to the frame.
5. ____ Plug the power cord **A** (country dependant) into location **IN** of the ac outlet distribution box. Then, route and connect the other lead of the power cord to the customer's power socket.

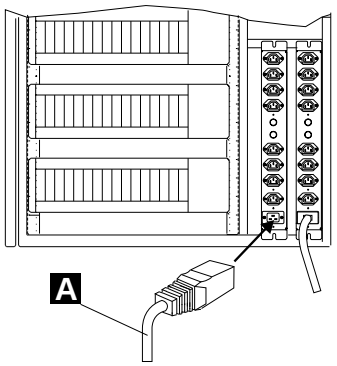


Figure 1-26. Power Cord Installation

6. ____ Switch or ask the customer to switch ON the circuit breaker to be used for the ac outlet distribution box.
7. ____ Verify that the phase is distributed as shown below: **if not, notify the customer and do not proceed until the problem is corrected**.

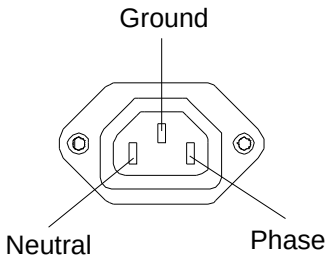


Figure 1-27. Power Distribution

Connecting the 3172 Network Node Processor - B

1. ____ Plug connector **1** of cable **A** (PN 6339098) to cable **B** (PN 60G1066).
2. ____ Using a sticker, identify the cable **A** as the "network node processor cable" and plug connector **2** to **any plug** of the 8228 from **1 to 8**
3. ____ Plug cable **B** to **slot 7** of the network node processor.
4. ____ Connect power cord **3** from J5 to the ac outlet of the NNP-B.

Temporary Procedure

Connect the keyboard shipped with the network node processor to connectors K and M located at the rear side of the NNP.

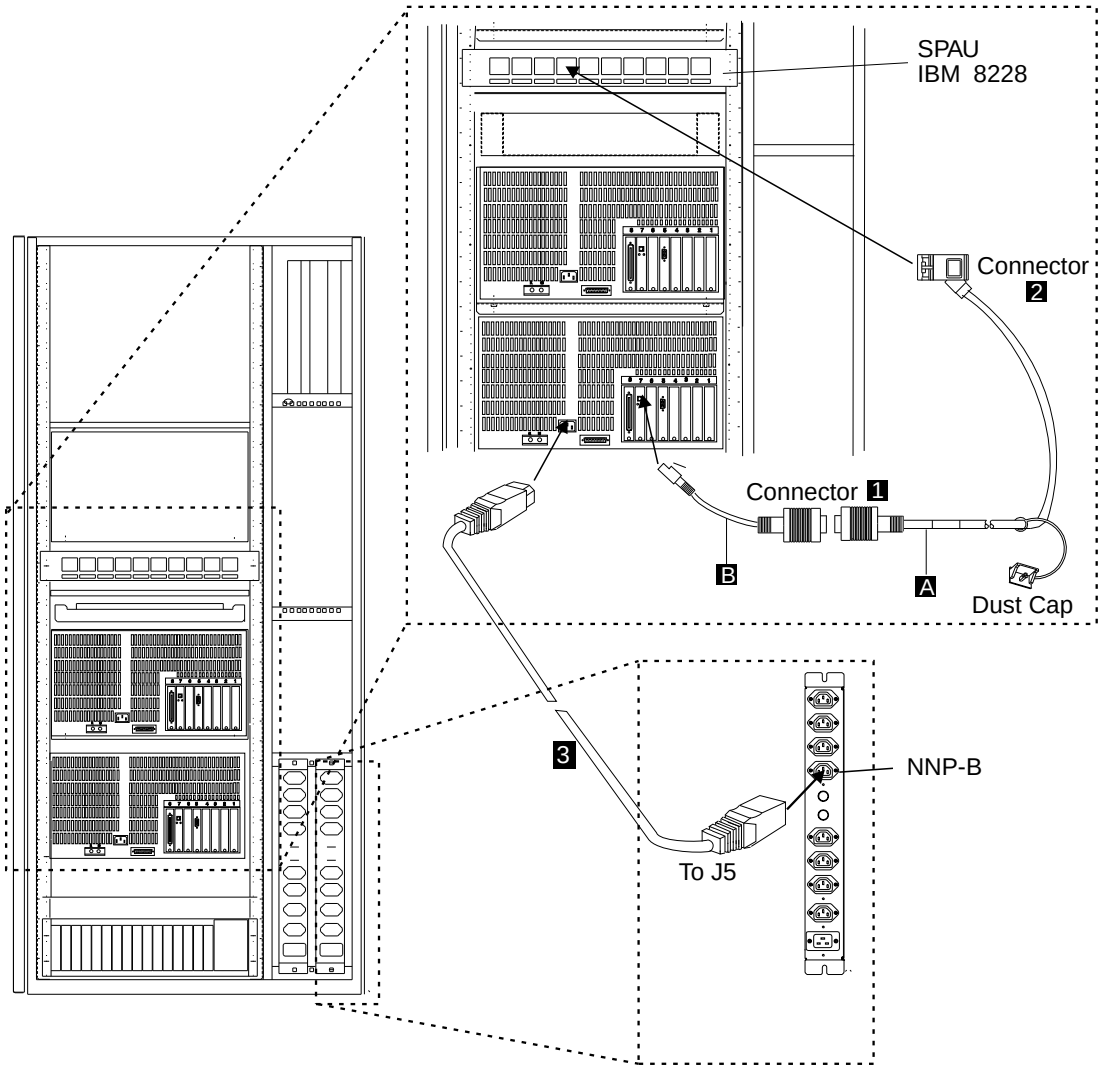


Figure 1-28. Connecting the NNP-B

Go to "Installing the Code on the Network Node Processor" on page 1-24.

Installing the Code on the Network Node Processor

Notes

For any unexpected message or error concerning the network node processor:

- Go to, “MAP: Entry Point for Problem Isolation” on page 3-1

For any other message or error displayed on the control panel, go to:

- The **START** page of the *3745 Communication Controller Models 210 to 61A Maintenance Information Procedures*, SY33-2054, if you are working on a **3745 Model X1A**.
- The **START** page of the *3745 Communication Controller Models 130 to 17A Maintenance Information Procedures*, SY33-2070, if you are working on a **3745 Model 17A**.
- Or go to the **START** page of the *3746-950 Service Guide*, SY33-2108, if you are working on a **3746-950**.

1. ____ Double click on the 3746-950 or 3746-900 icon where you are going to install the NNP.
2. ____ From the 3746-9x0 menu, click on **Network Node Processor (NNP) Management**.

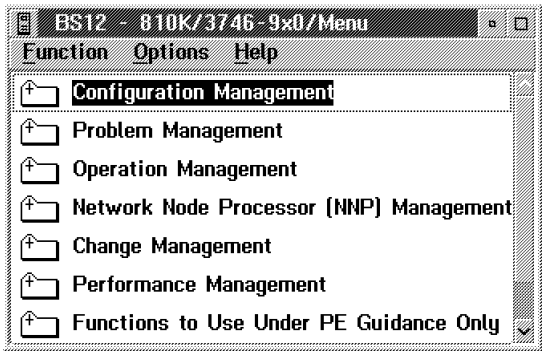


Figure 1-29. 3746-9x0 Menu

3. ____ Double click on **(M) Install/Remove/Change/Restore LIC/NNP**.

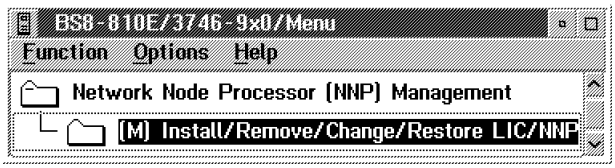


Figure 1-30. Network Node Processor Menu

If you are installing:

- **NNP-A**, go to step 4 on page 1-25
- **NNP-B**, go to step 7 on page 1-26

4. ____ Select the NNP-A, then click on **Install NNP**.

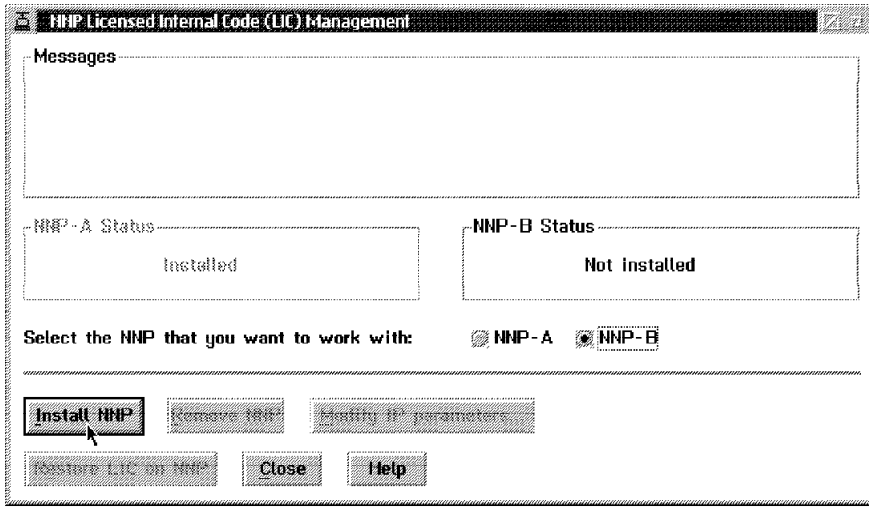


Figure 1-31. NNP-A LIC Management Menu

5. ____ Read the information message, then click on **OK**.
6. ____ If necessary, modify the **IP address** for the **service processor**, **NNP-A**, and **3746 NN** according to the values recorded by the customer on the worksheet **"Definition of Service LAN IP Addresses" on page A-1** . The **Subnet mask** can also be modified for the service processor but will be automatically updated for the **NNP-A**, and **3746 NN**. Otherwise keep the default values and record the hostnames for later use.

   Notes:

   a. If the customer defines with CCM an IP configuration file, the IP address and the subnet mask for the adapter 2080 must be defined in the same IP subnet. That means in this example, IP address 192.9.200.4 and subnet mask 255.255.255.240.
   b. The hostnames can't be modified but they will be used in the alerts and alarms sent to NetView.

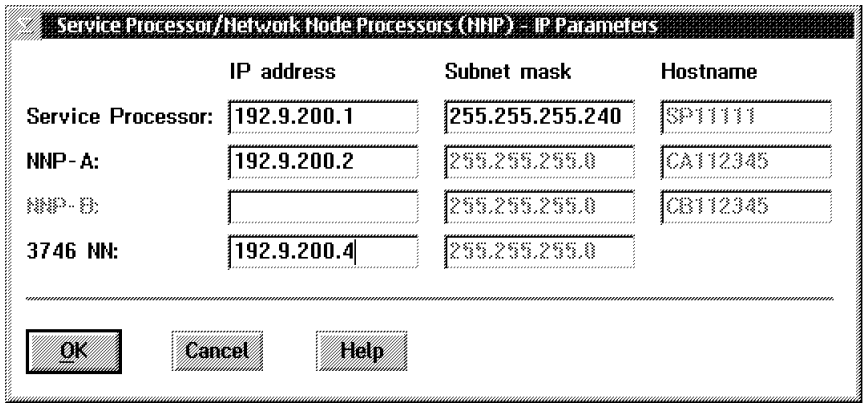


Figure 1-32. Network Node Processor IP Parameters Menu

Then go to step:

- **10 on page 1-27** , if you do **not** have to install a **NNP-B**
- **7 on page 1-26** , if you have to install a **NNP-B**

7. ____ Select the NNP-B, then click on **Install NNP**.

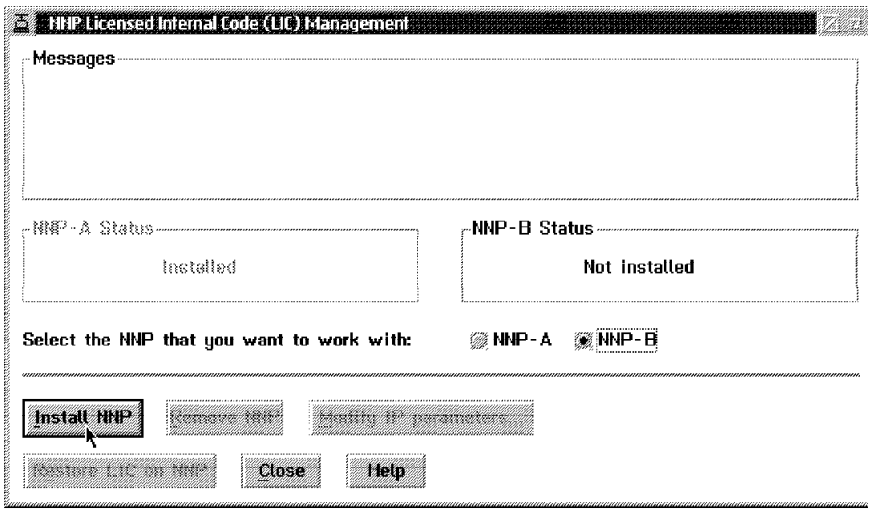


Figure 1-33. NNP-B LIC Management Menu

8. ____ Click on **OK**.
9. ____ If necessary, modify the **IP address** and the **Subnet mask** for the **NNP-B** according to the values recorded by the customer on the worksheet **"Definition of Service LAN IP Addresses" on page A-1** . Otherwise keep the default values and record the hostnames for later use.

   Notes:

   a. If the customer defines with CCM an IP configuration file, the IP address and the subnet mask for the adapter 2080 must be defined in the same IP subnet. That means in this example, IP address 192.9.200.4 and subnet mask 255.255.255.240.

   b. The hostnames can't be modified but they will be used in the alerts and alarms sent to NetView.

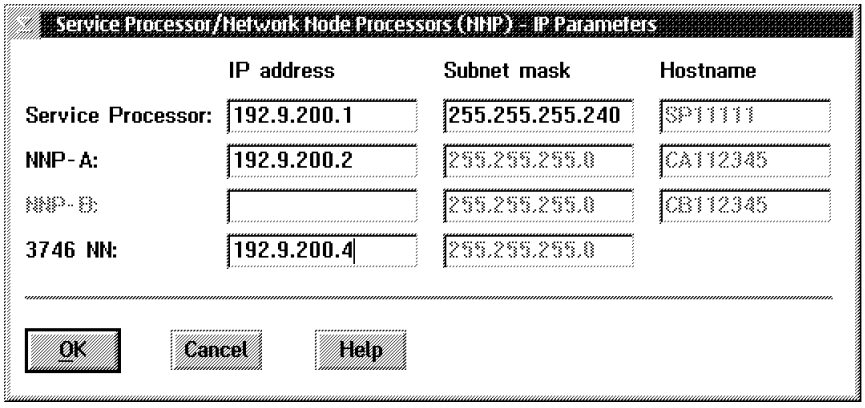


Figure 1-34. Network Node Processor IP Parameters Menu

10. ____ Click on **OK**, then insert the **Network Node Processor installation diskette** in the diskette drive of the **service processor**, then click on **OK**.

    Note: The following figure is a view of a service processor based on a 7585, it can be a 3172, 9585 or a 9577.

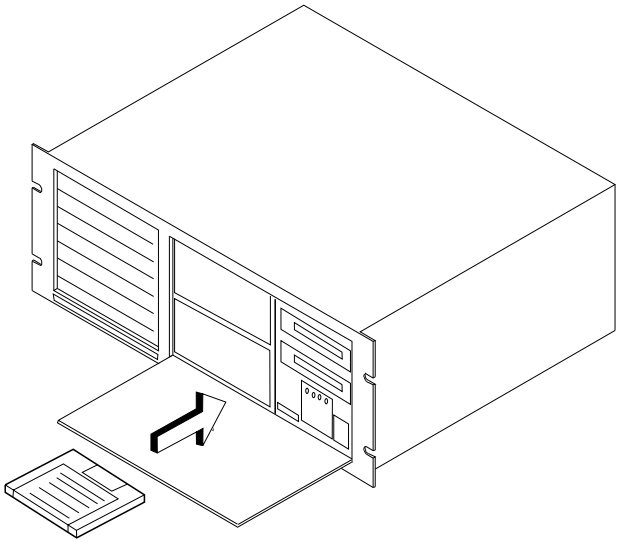


Figure 1-35. Service Processor Front View (Type 7585)

11. ____ Select the type of NNP installed, then click on **OK**.

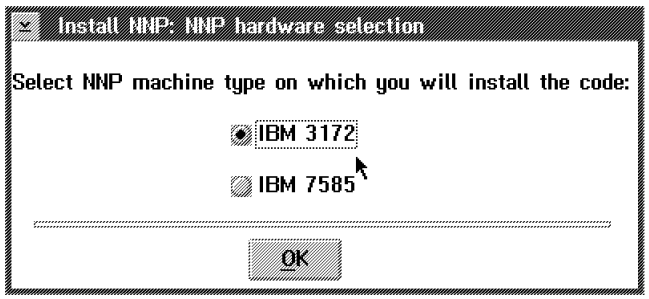


Figure 1-36. Service Processor Front View (Type 7585)

12. ____ When the process is completed, record the following procedures listed on Figure 1-37, then click on **OK**.

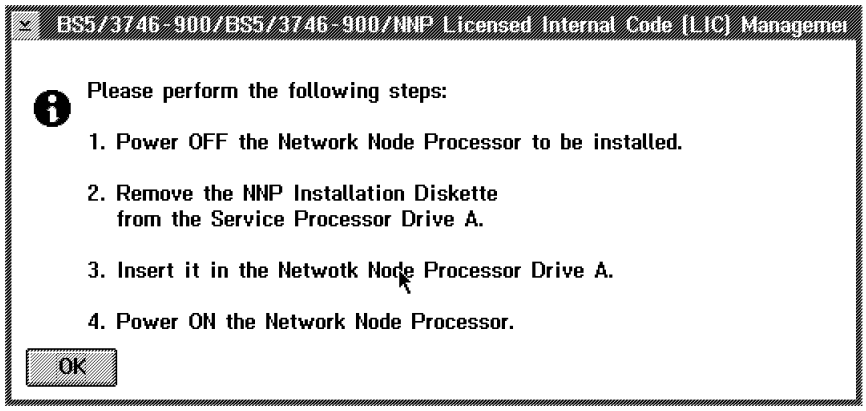


Figure 1-37. NNP-A Licensed Internal Code Management

13. ____ To follow the progress of the installation, read the messages prompted in '**Messages**' box.

    Note: It takes about 20 minutes to complete the installation

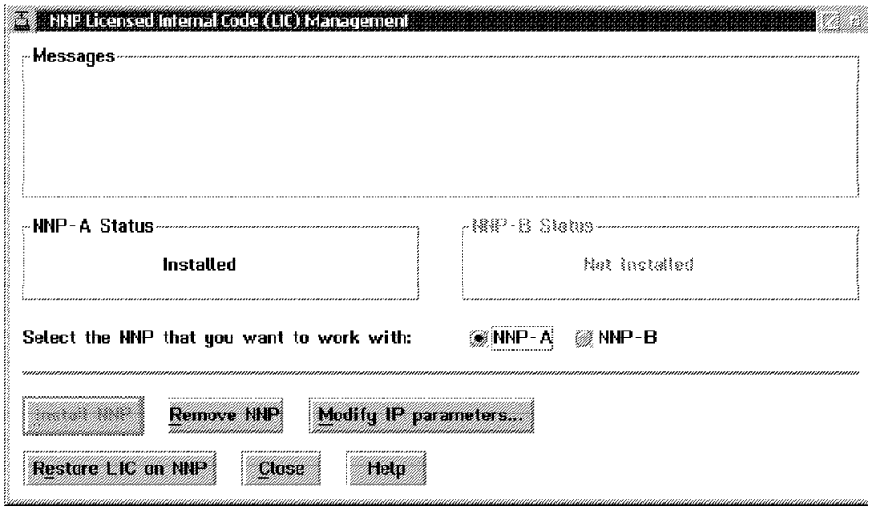


Figure 1-38. Network Node Processor LIC Management Menu

14. ____ As indicated in the following information message, remove the Network Node Processor installation diskette, then click on **OK**.

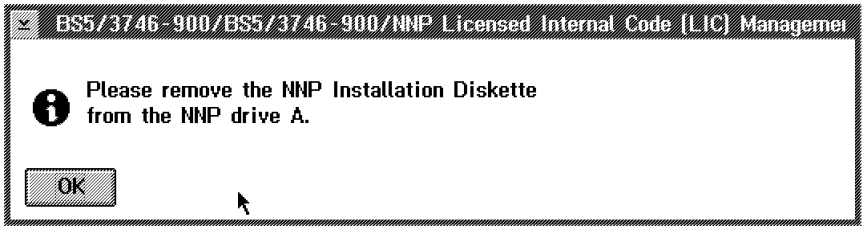


Figure 1-39. NNP-A Licensed Internal Code Management Information Message

15. ____ The installation is completed, click on **OK**, then click on **Close**.

Complete Your Installation

End of Network Node Processor Installation

Return where you left the previous installation procedure using one of the following guide, if you are installing a:

- **3746-900**, return to the *3746-900 Installation Guide*, SY33-2114.
- **3746-950**, return to the *3746-950 Installation Guide*, SY33-2107.

Chapter 2. Managing the Network Node Processor and the Control Point

Important Note

Procedures “Changing or Restoring LIC on a Network Node Processor (LIC on OD)” on page 2-16 applies to LIC EC **up to D46130**.
For other EC level starting at **F12380 and above** refer to “Upgrading the LIC on a Network Node Processor (LIC on CD-ROM)” on page 2-5, or “Restoring the LIC on a Network Node Processor (LIC on CD-ROM)” on page 2-6.
The LIC is shipped on an **OD** up to EC **D46130** then on a **CD** starting at EC **F12380**.

General Information

Figure 2-1 represents the configuration of one communication controller with a 3745 base frame and a 3746-900 frame running APPN.
Figure 2-2 represents the configuration of one 3746-950.

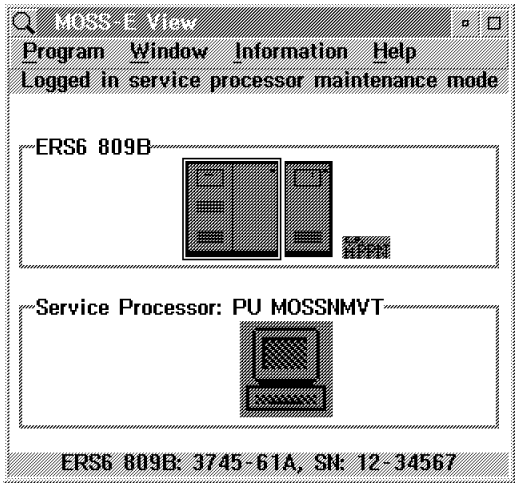


Figure 2-1. One 3745 and a 3746-900 APPN

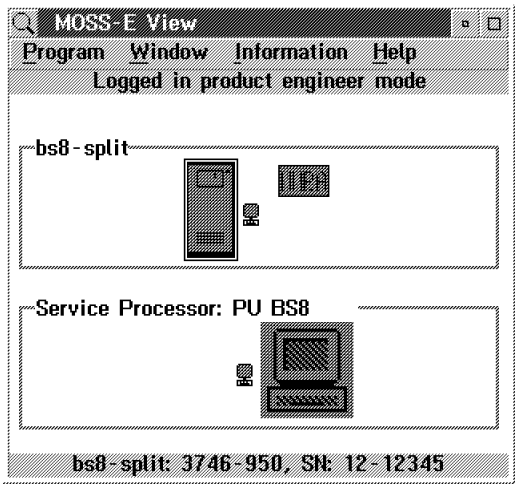


Figure 2-2. One 3746-950

The color of the network node processor icon gives the status of the nnp-a. This information can be obtained on-line from the information pulldown menu when selecting 'Legend'. Top to bottom the icon's color is: transparent, grey, blue, purple, white, and green.

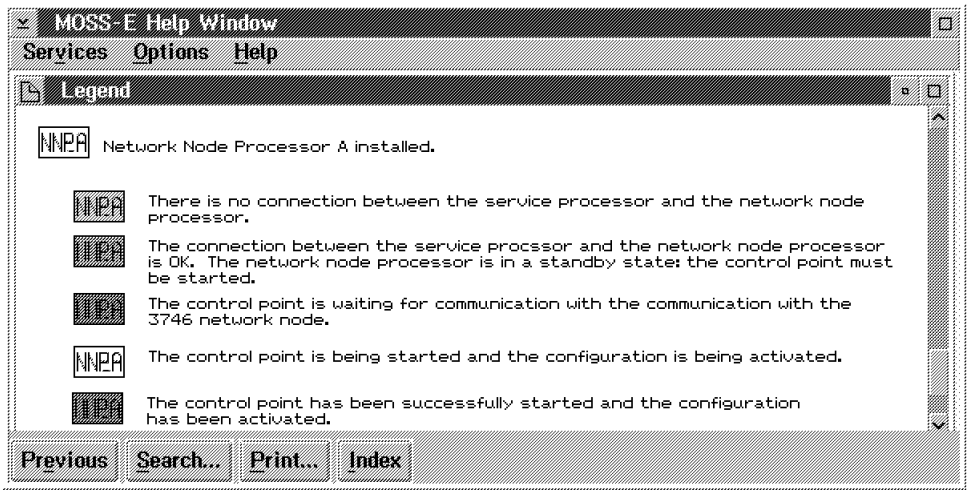


Figure 2-3. Network Node Processor Status

Accessing the Network Node Processor Functions

Note

All maintenance functions are identified by an **(M)** preceding the text (example: see Figure 2-5 function "(M) Install/Remove/Change/Restore LIC").

1. Enter the **Service Processor Maintenance** password on the signon menu (default password: *IBM3745* or ask the customer if a specific password has been defined).
2. Double click on the **3746-900 or 3746-950 object icon** , you will get the following screen:

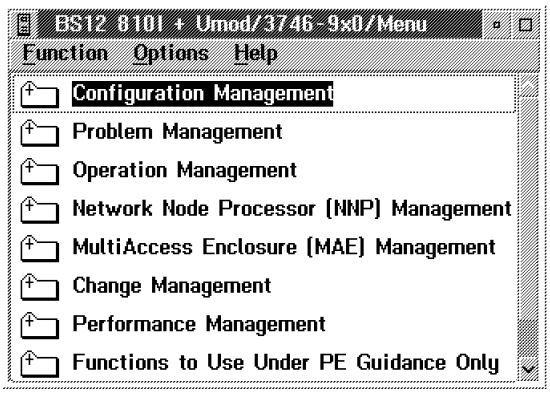


Figure 2-4. 3746-9x0 Maintenance Functions

3. Click on **Network Node Processor (NNP) Management**.

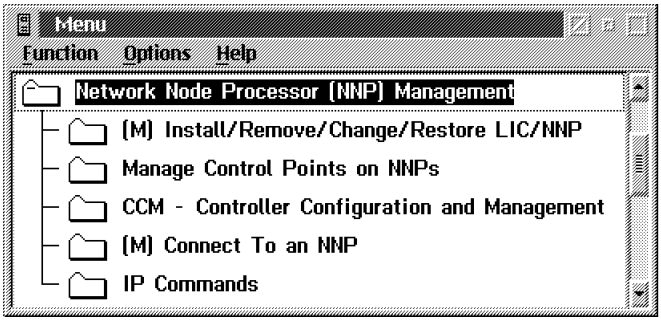


Figure 2-5. Network Node Processor Management Functions

1. ____ Double click on **Install/Remove/Change/Restore LIC/NNP**

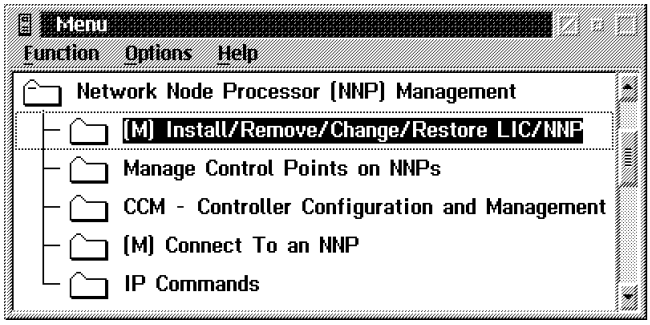


Figure 2-6. NNP-A Licensed Internal Code Management

2. ____ Select the NNP (A or B) then click on **Install NNP** or **Remove NNP**

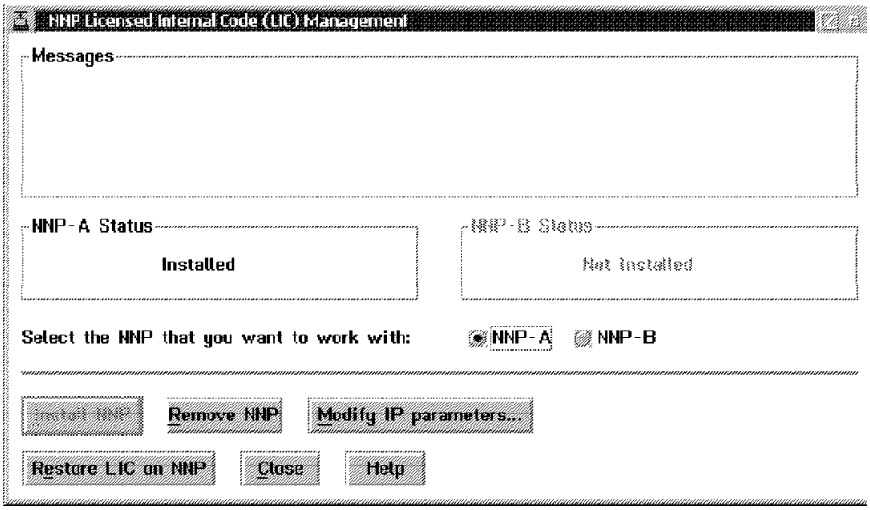


Figure 2-7. Installing or Removing a NNP-A

Upgrading the LIC on a Network Node Processor (LIC on CD-ROM)

Notes:

1. This function is **not disruptive** as it modifies the LIC loaded on the non-active partition and it updates the SP and NNP LIC at the same time.
2. It applies only on SP/NNP running LIC EC **F12380 and above** (using CD drive), for other EC **up to D46130**, refer to**"Changing or Restoring LIC on a Network Node Processor (LIC on OD)" on page 2-16** .

1. ____ From the service processor menu, click on **Change Management**

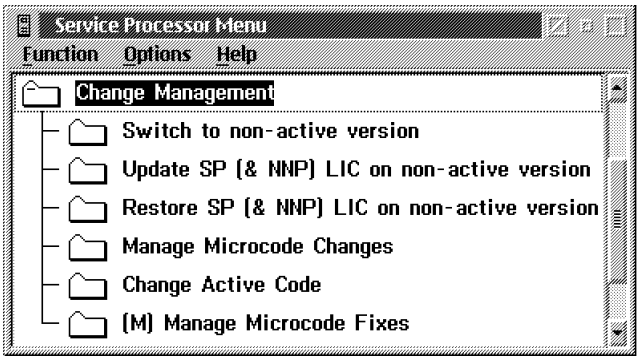


Figure 2-8. SP Change Management Menu

2. ____ Insert the compact disk in the CD disk drive, double click on **Update SP (&NNP) LIC on non-active version**, then follow the prompts.

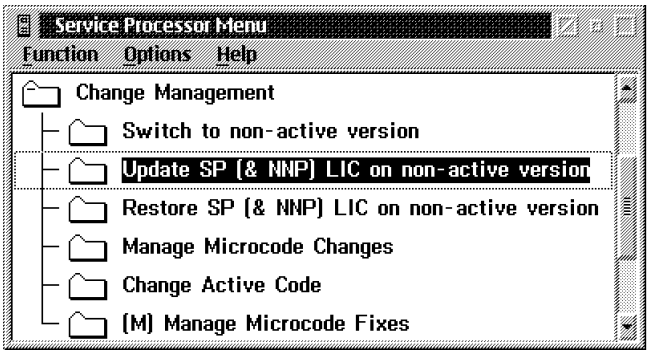


Figure 2-9. Service Processor Menu

3. ____ Then to activate the changes, use the function 'toggle to non-active version' to load and execute the new code in the processors (refer to "Changing the Active LIC (LIC on CD-ROM)" on page 2-7).

   Note: If an NNP backup is installed, its code is also updated automatically.

Restoring the LIC on a Network Node Processor (LIC on CD-ROM)

Notes:

1. This function is **not disruptive** as it applies on the LIC loaded on the non-active partition. This function can be used to reload a back level of code.
2. It applies only on SP/NNP running LIC EC **F12380 and above** (using CD drive), for other EC **up to D46130**, refer to**"Changing or Restoring LIC on a Network Node Processor (LIC on OD)" on page 2-16** .

1. ____ From the service processor menu, click on **Change Management**

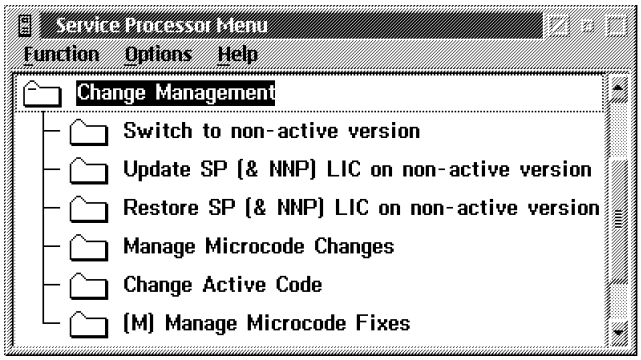


Figure 2-10. SP Change Management Menu

2. ____ Insert the compact disk into the CD disk drive and the configuration diskette into the diskette drive. Double click on **Restore SP (&NNP) LIC on non-active version**, then follow the prompts.

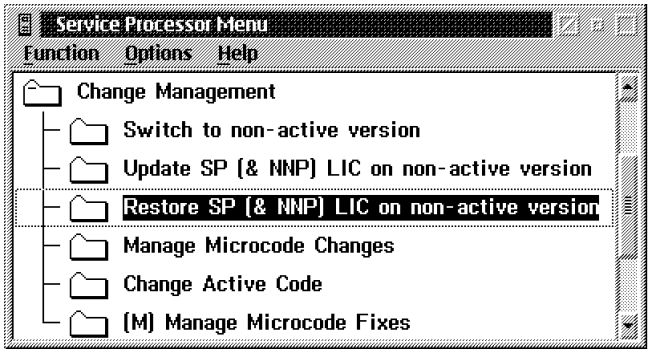


Figure 2-11. Service Processor Menu

3. ____ Then to activate the changes, use the function 'toggle to non-active version' to load and execute the new code in the processors (refer to "Changing the Active LIC (LIC on CD-ROM)" on page 2-7).

   Note: If an NNP backup is installed, its code is also restored automatically.

Changing the Active LIC (LIC on CD-ROM)

Notes:

1. This function is **disruptive** and it is used to switch the non-active partition and the active partition. It reboots the SP and the NNPs (if any). Use this function after a LIC upgrade or a LIC reload to load the processors with the new LIC.
2. It applies only on SP/NNP running LIC EC **F12380 and above** (using CD drive).

1. ____ From the service processor menu, click on **Change Management**

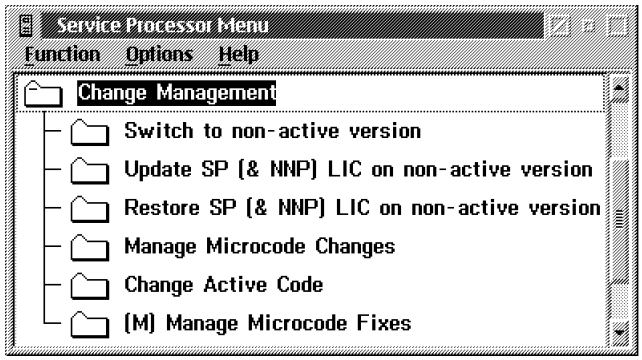


Figure 2-12. SP Change Management Menu

2. ____ Double click on **Switch to non-active version**, then follow the prompts.

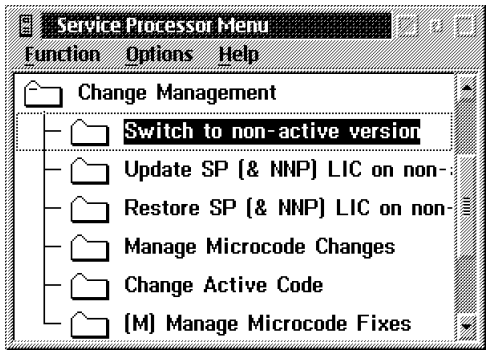


Figure 2-13. Service Processor Menu

Note: If an NNP backup is installed, its active code is also switched to the non-active version.

Modifying IP Parameters

1. ____ Double click on **Install/Remove/Change/Restore LIC/NNP**

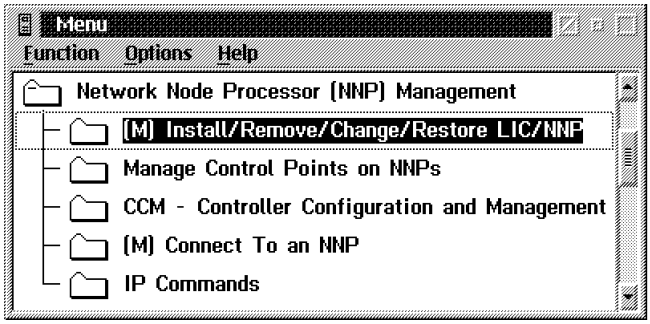


Figure 2-14. NNP Licensed Internal Code Management

2. ____ Select the NNP (A or B) then click on **Modify IP Parameters...**

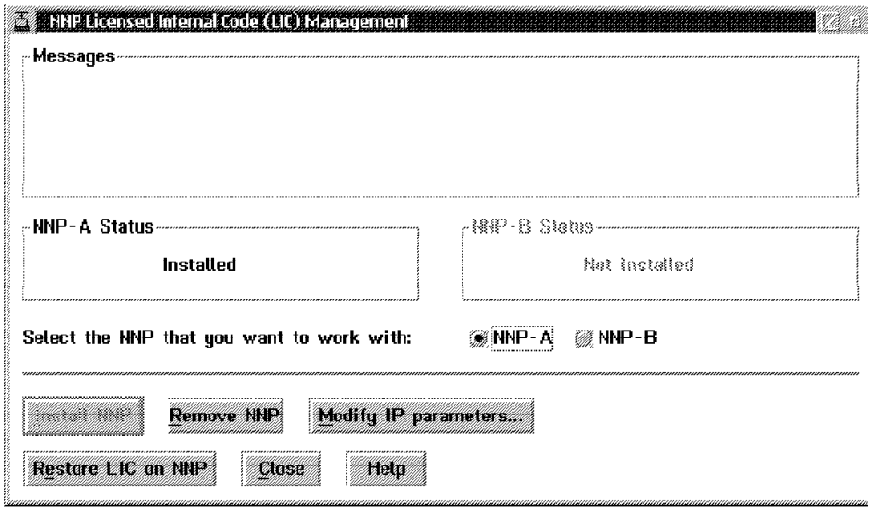


Figure 2-15. Modifying IP Parameters

3. ____ On this screen you can modify the IP address and Subnet mask parameters (press Help pushbutton for details).

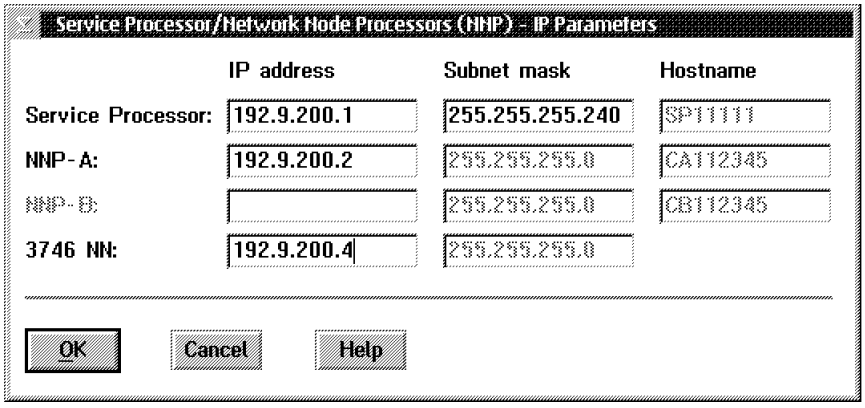


Figure 2-16. IP Parameters

1. ____ Double click on **Manage Control Point on NNPs**

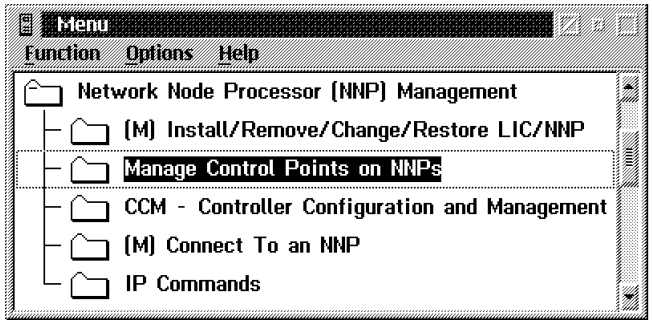


Figure 2-17. Manage Control Point on NNPs

2. ____ From this screen, select the NNP (A or B) then you are able to:
   a. Start, stop, or stop and restart a control point
   b. Activate a specific configuration
   c. Take a dump of a control point
   d. Shutdown and restart a NNP
   e. Manage NPM configuration.

   Note: Press help pushbutton to get details.

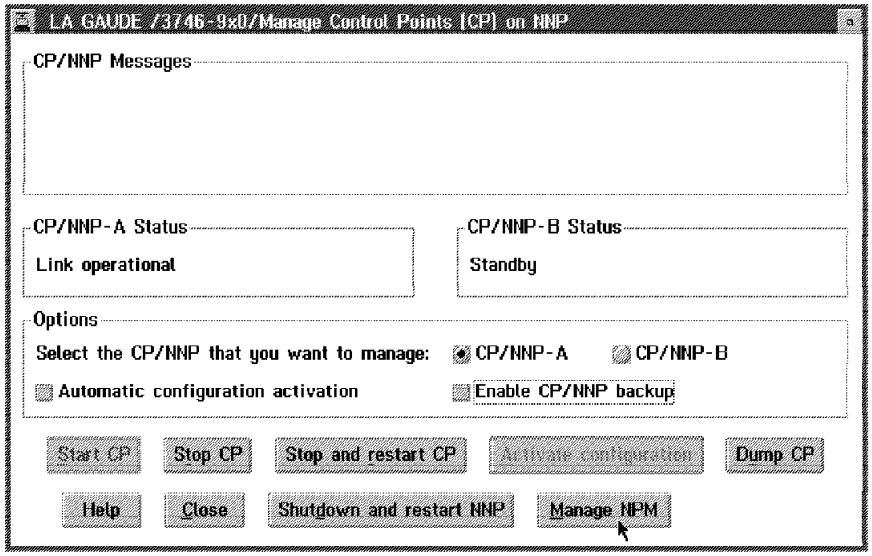


Figure 2-18. Managing the Control Point and NNPs

Importing a Configuration

CCM will be used mainly by the CE to import or export a configuration, for more details refer to *3745 Communication Controller Models A and 3746 Expansion Unit Model 900: Migration and Planning Guide*, SH11-3081.

1. ____ Double click on **Controller Configuration and Management (CCM)**

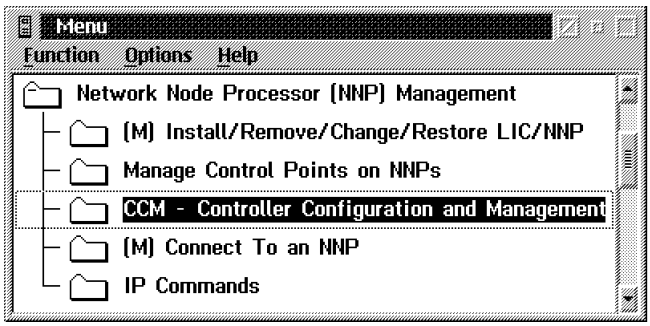


Figure 2-19. CCM

2. ____ Click on OK, click on file then double click on **Import a configuration**

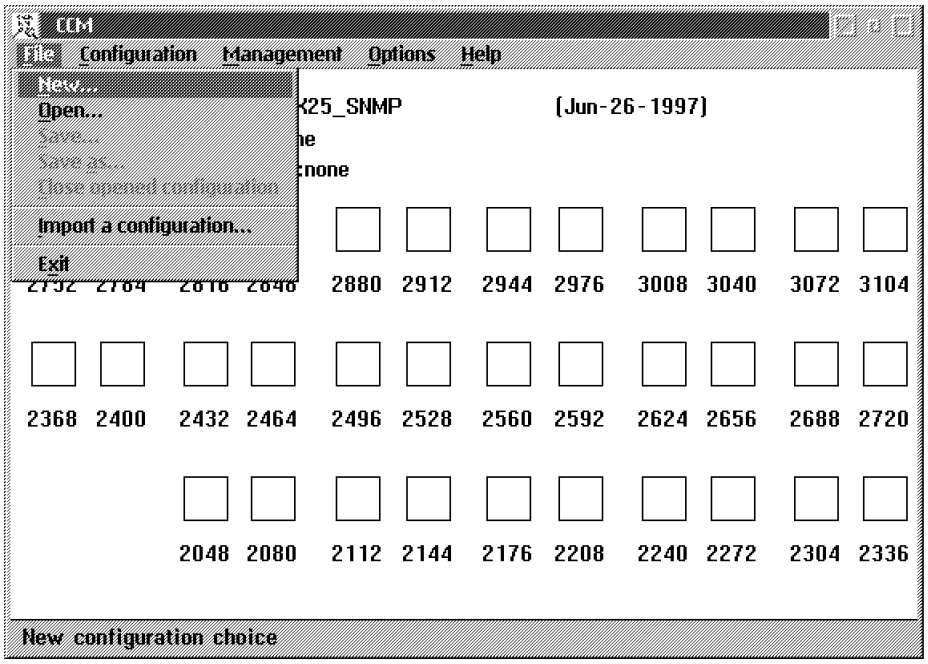


Figure 2-20. Importing a Configuration

3. ____ Insert a diskette in drive A, then click on **OK**

Exporting a Configuration

1. ____ Double click on **CCM - Controller Configuration and Management**

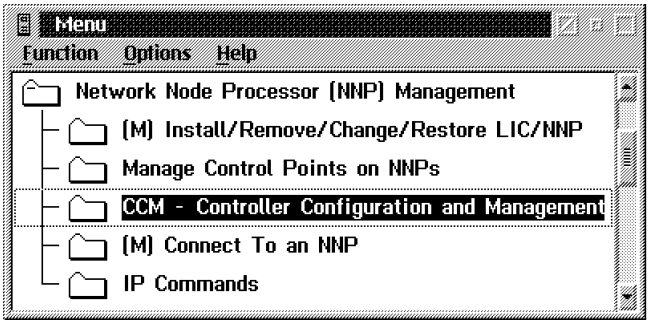


Figure 2-21. CCM

2. ____ Click on **OK**, click on **file**, then click on **Open**

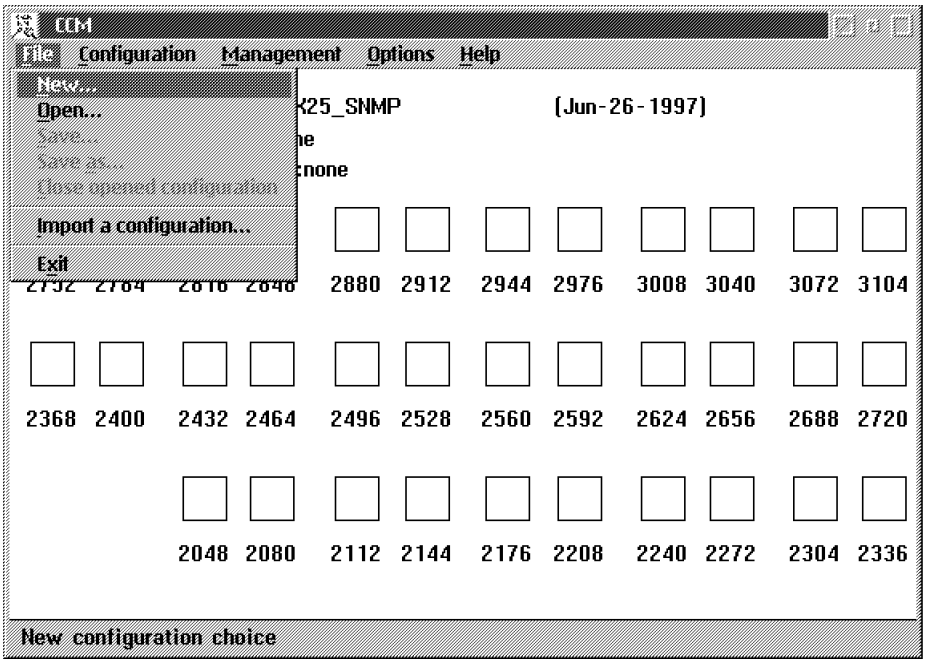


Figure 2-22. Selecting a Configuration

3. ____ Select the configuration to be exported, then click on **Export**

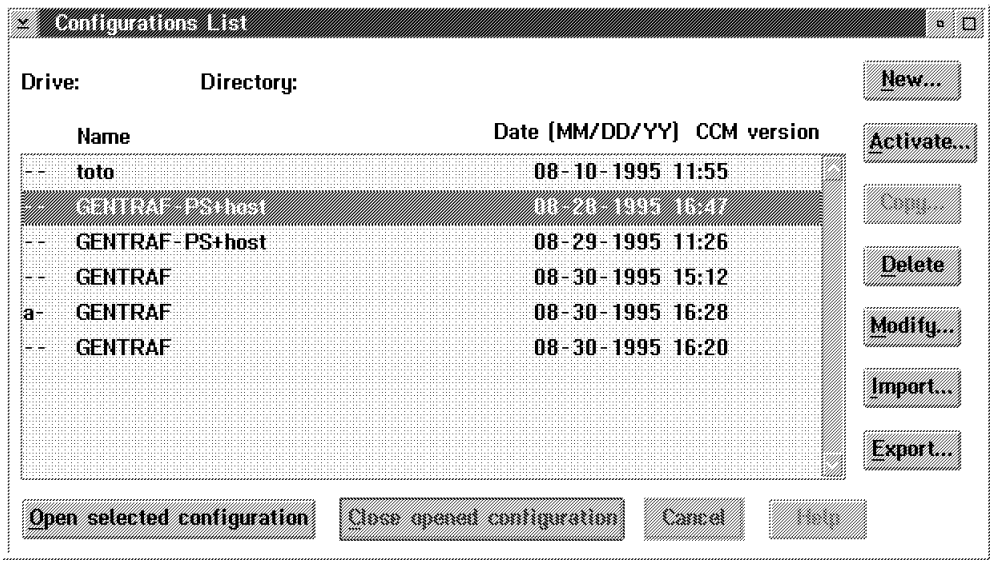


Figure 2-23. Exporting a Configuration

4. ____ Insert a diskette in drive A, then click on **OK**

Accessing a Network Node Processor

1. ____ Double click on **Connect to an NNP**

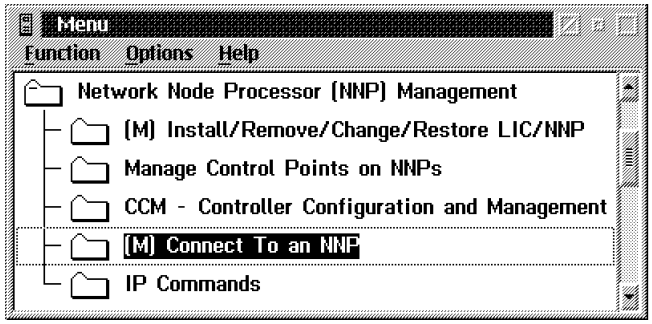


Figure 2-24. Accessing a NNP

2. ____ On the following screen, select the NNP (A or B) then click on **Connect**

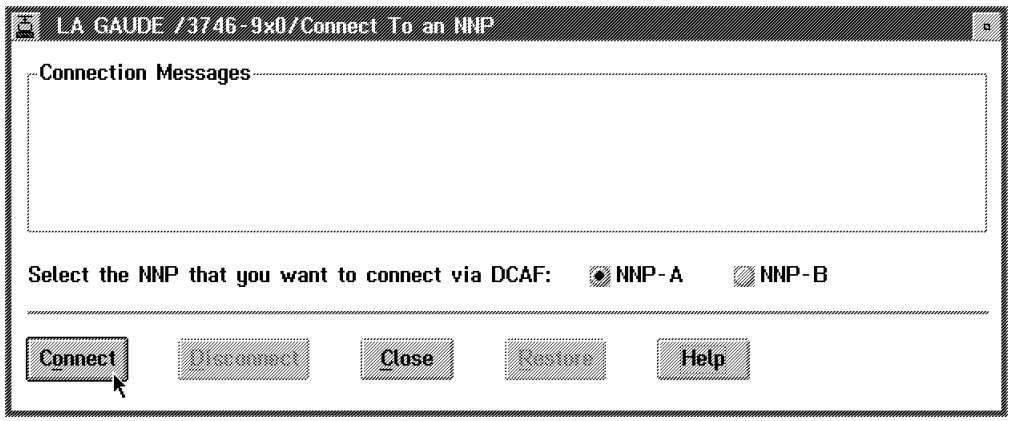


Figure 2-25. Connecting to a NNP

3. ____ Click on **NNP Management**.

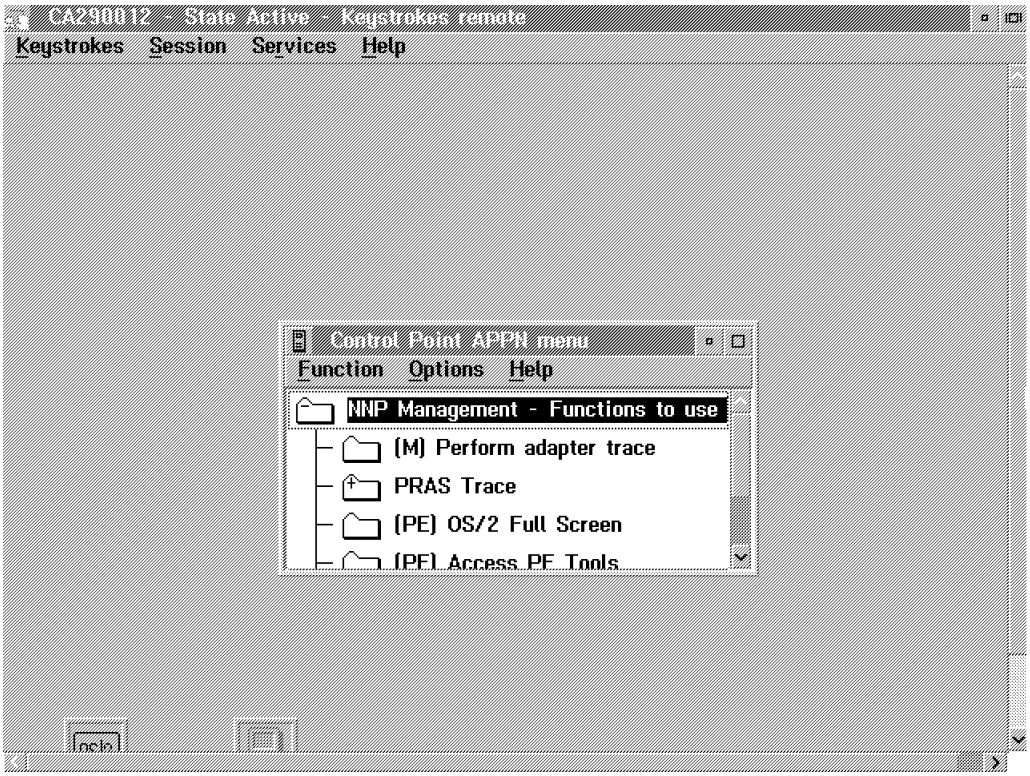


Figure 2-26. NNP Functions

4. ____ Click on **Session**, and click on **Terminate**. to close a session.

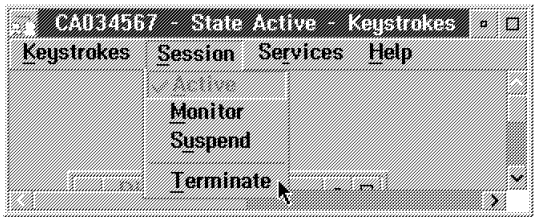


Figure 2-27. Terminating a Session

Accessing IP Commands from the MOSS-E

1. ____ Double click on **IP Commands**

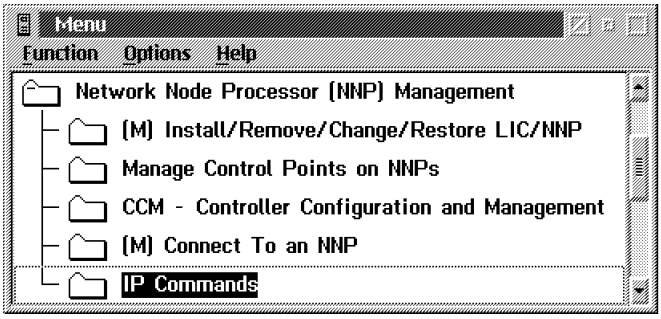


Figure 2-28. Accessing IP Commands

2. ____ On the following screen, enter the user ID and password (defaults are NNPIP and 37469X0A), then click on **enter**.
   You are now able to navigate within the internet protocol environment (for details refer to the *3745/17A-61A and 3746-900 Basic Operations Guide*, SA33-0177 or *3745 Communication Controller Models A and 3746 Expansion Unit Model 900: Migration and Planning Guide*, SA33-0356).

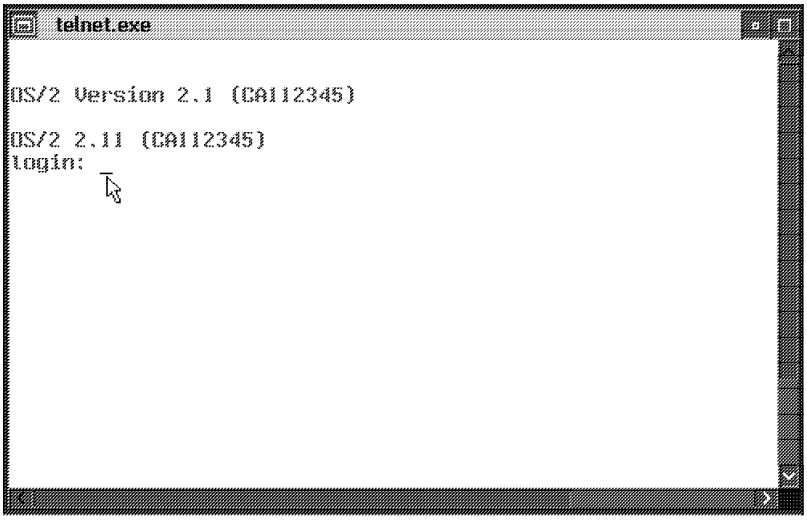


Figure 2-29. Telnet Access

Changing or Restoring LIC on a Network Node Processor (LIC on OD)

Note: This procedure can be used only on SP/NNP running LIC EC level **up to D46130** (any suffix). For other ECs, starting with EC **F12380 and above**, use the procedures “Upgrading the LIC on a Network Node Processor (LIC on CD-ROM)” on page 2-5 or “Restoring the LIC on a Network Node Processor (LIC on CD-ROM)” on page 2-6.

Use the **Change** option to copy the control point (CP) from the service processor to the network node processor hard drive. This function is used following the installation of a new version of the Licensed Internal Code or after applying MCLs or MCFs concerning the CP.
The **Restore** option will be used after a hard disk replacement of the network node processor. For details see “Procedure after Hard Disk Drive Exchange on NNP Based on 3172” on page 4-11.

1. ____ Double click on **Install/Remove/Change/Restore LIC/NNP**

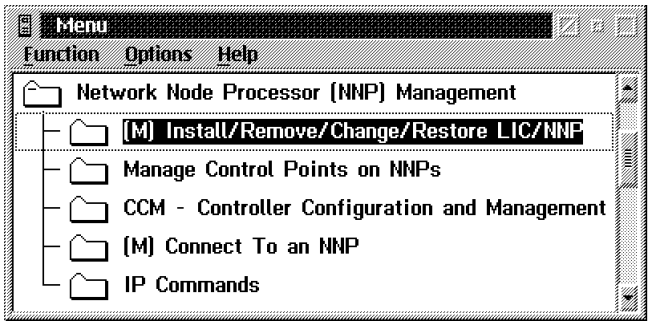


Figure 2-30. NNP Licensed Internal Code Management

2. ____ Select the NNP (A or B), then click on **Change LIC on NNP** or **Restore LIC on NNP**, then follow the prompts.

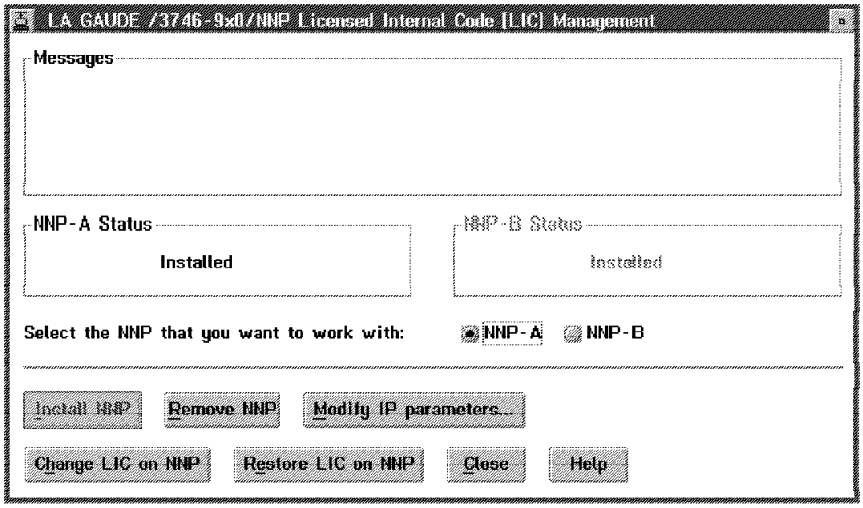


Figure 2-31. Changing or Restoring LIC on NNP.

Chapter 3. Network Node Processor Problem Determination

MAP: Entry Point for Problem Isolation

You are here because you have a problem on the network node processor.

001

Are you here for a network node processor power ON problem?

Yes **No**

002

- For service processor based on 3172 go to “MAP: Problem Isolation on Network Node Processor Based on 3172” on page 3-6.
- For service processor based on 7585 go to “MAP: Problem Determination on Network Node Processor Based on 7585” on page 3-15.

003

- Check that the suspected network node processor is powered ON.
- If not switch the power ON button to the ON position.

Is the network node processor powered ON?

Yes **No**

004

Check that the ac power cable of the network node processor is well connect at:

- The rear of the network node processor
- On the ac outlet distribution box.

Is the problem solved?

Yes **No**

005

Continue with Step 008 on page 3-2.

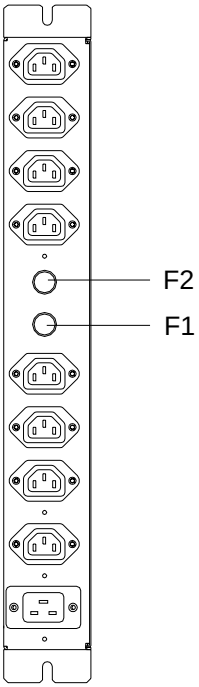
006

Problem solved. Go to “CE Leaving Procedure” on page 5-47.

007

Problem solved. Go to “CE Leaving Procedure” on page 5-47

008



Fuse Location on ac outlet distribution box

- On the ac outlet distribution box:
  - Fuse F1 controls the range of connectors J1 to J4
  - Fuse F2 controls the range of connectors J5 to J8.
- Check if other units are connected to the same range of connectors than the suspected unit.

Are there other units connected to the same range than the suspected unit?

Yes **No**

009

Go to Step 018 on page 3-3.

010

Check that the other units have their power ON/OFF switch to ON.

Are other units powered ON?

Yes **No**

011

Go to Step 013

012

Go to Step 021 on page 3-4.

013

Check the corresponding fuse.
(Step **013** continues)

013 (continued)

Is the fuse OK?
Yes **No**

014

- Switch to OFF all the units controlled by this fuse.
- Exchange the defective fuse.
- Switch ON all the units controlled by this fuse.

Is the fuse blown again?
Yes **No**

015

Problem solved go to “CE Leaving Procedure” on page 5-47.

016

- Suspect a power problem in a unit powered through the ac outlet distribution box.
- Switch to OFF all the units controlled by this fuse.
- Exchange the fuse.
- Switch one by one the units controlled by this fuse to identify the unit which has a problem.
- Once you have identified the faulty unit continue with Step 025 on page 3-4.

017

Suspect the ac wall socket.

018

Check the corresponding fuse.

Is the fuse OK?
Yes **No**

019

- Switch to OFF the network node processor controlled by this fuse.
- Exchange the defective fuse.
- Switch ON the network node processor.

Is the fuse blown again?
Yes **No**

020

Problem solved go to “CE Leaving Procedure” on page 5-47.

021

Suspect a power problem in the network node processor. .

- If your network node processor is based on 3172, refer to the *3172 Interconnect Controller Maintenance Information Model 3*, SY27-0334 manual to identify the problem. Then if you have to exchange a FRU, go to "FRU Exchange on Network Node Processor Based on 3172" on page 4-1.
- If your network node processor is based on 7585, refer to the *7585 P02 Industrial Computer Installation, Operation, Hardware Maintenance*, S76H-3792 manual to identify the problem. Then if you have to exchange a FRU, go to "FRU Exchange on Network Node Processor Based on 7585" on page 5-34.

022

Are all other units installed in the controller rack powered ON?
Yes No

023

Suspect the ac wall socket.

024

Suspect a power problem in the network node processor. .

- If your network node processor is based on 3172, refer to the *3172 Interconnect Controller Maintenance Information Model 3*, SY27-0334 manual to identify the problem. Then if you have to exchange a FRU, go to "FRU Exchange on Network Node Processor Based on 3172" on page 4-1.
- If your network node processor is based on 7585, refer to the *7585 P02 Industrial Computer Installation, Operation, Hardware Maintenance*, S76H-3792 manual to identify the problem. Then if you have to exchange a FRU, go to "FRU Exchange on Network Node Processor Based on 7585" on page 5-34.

025

According to the defective unit type select, the action to be performed.

Unit Type	Action
Service Processor	Refer to the service processor documentation.
Network Node Processor	• If your network node processor is based on 3172, refer to the *3172 Interconnect Controller Maintenance Information Model 3*, SY27-0334 manual to identify the problem. Then if you have to exchange a FRU, go to "FRU Exchange on Network Node Processor Based on 3172" on page 4-1. • If your network node processor is based on 7585, refer to the *7585 P02 Industrial Computer Installation, Operation, Hardware Maintenance*, S76H-3792 manual to identify the problem. Then if you have to exchange a FRU, go to "FRU Exchange on Network Node Processor Based on 7585" on page 5-34.
Display	Exchange it. Refer to the corresponding *Service Processor Installation and Maintenance* manual on which the display is connected.
Optical Disk or CD-ROM	Exchange it. Refer to the corresponding *Service Processor Installation and Maintenance* manual on which the optical disk or the CD-ROM is connected.
Modem	Refer to the following modem documentation: • For the IBM 7855, refer to the *7855 Modem Model 10 Guide to Operation*, GA33-0160 • For the IBM 7857, refer to the *IBM 7857 Guide to Operation*, GA13-1839 • For other modems, refer to the corresponding documentation.
Other Units	Refer to the corresponding documentation shipped with the unit.

MAP: Problem Isolation on Network Node Processor Based on 3172

You are here because you suspected:

- **A network node processor problem.**
- **A connection problem between the network node processor and a 3746-900 or a 3746-950.**
- **A connection problem between the service processor and the network node processor.**

The network node processor is powered ON.

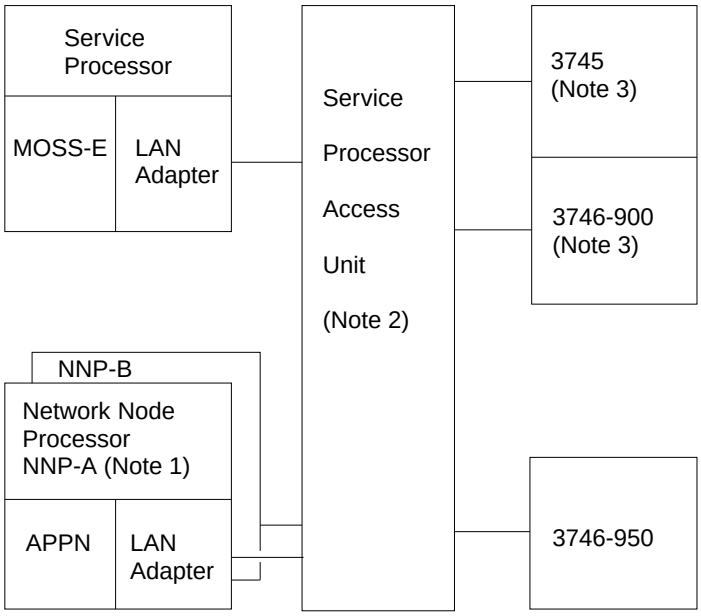


Figure 3-1. LAN attached to the Service Processor

Notes:

1. The network node processor is an optional feature which is present only when APPN is installed. A backup network node processor can be also present. Until four network node processors can be installed on the same LAN.
2. Up to two service processor access units (8228) can be used depending on the number of network node processor used.
3. Only 3745, 3746-900, 3746-950, service processor and network node processor can be connected to the LAN when APPN is installed.

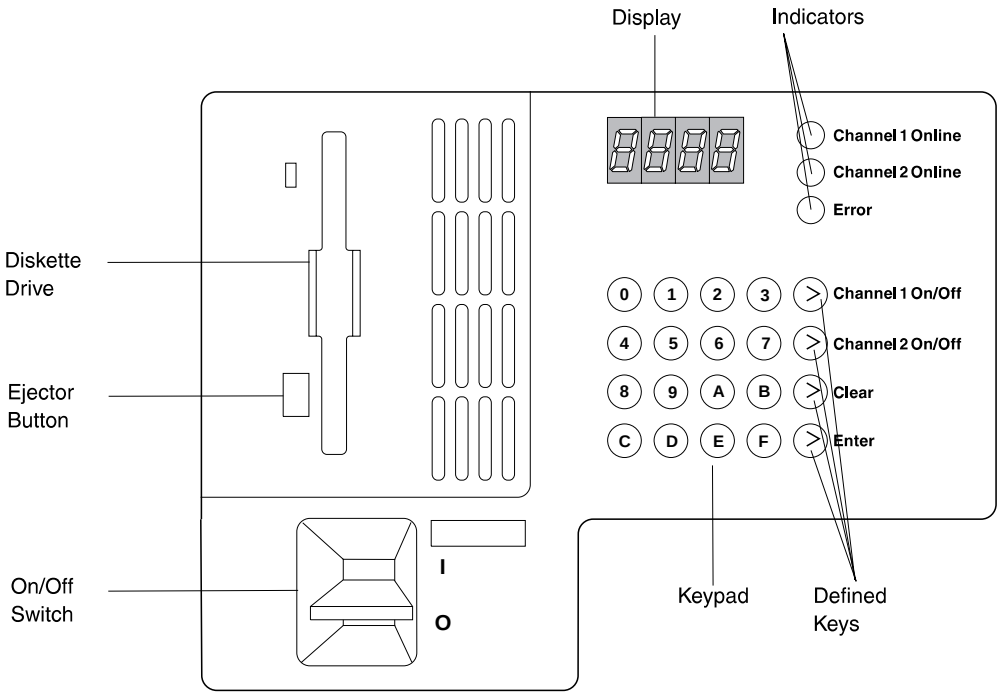


Figure 3-2. Network Node Processor Panel Based on 3172

001

Is the error LED lit or blinking on the network node processor operator panel?

Yes **No**

002

Go to step Step 004.

003

Refer to the *3172 Interconnect Controller Status Codes*, GA27-3951 to identify the problem and perform the appropriate action. Then if you have to exchange a FRU, go to "FRU Exchange on Network Node Processor Based on 3172" on page 4-1.

004

Check on the network node processor operator panel if one of the following code is displayed, and perform the action specified.

Code Displayed	Symptom Explanation	Action
Ab01	network node processor shutdown, restart request	None. If always displayed after several minutes power OFF then power ON the network node processor. If the problem persists call you support.

Code Displayed	Symptom Explanation	Action
Ab02	network node processor configuration file not found	Create CCM configuration
Ab03	network node processor supervisor received a STOP_CP command from operator	None
Ab04	network node processor configuration activation disabled	Activate configuration
Ab07	network node processor supervisor failed to read the network node processor system configuration	Check that the LAN cable is well connected on the rear of the network node processor and in the service processor access unit. If that does not solve the problem go to Step 005 on page 3-13
Ab08	network node processor supervisor failed to search the network node processor system configuration	
Ab0A	network node processor supervisor failed to read the network node processor system configuration 2	Check that the LAN cable is well connected on the rear of the network node processor and in the service processor access unit. If that does not solve the problem go to Step 005 on page 3-13
Ab0b	network node processor supervisor failed to search the network node processor system configuration 2	
Ab0c	CP is started and waiting connection with the 3746-9xx.	• Check LAN connection of the 3746-9xx. • Perform a general IML on the 3746-9xx. • If problem not solved call your support.
Ab14	network node processor supervisor received an invalid request	Call your support
Ab21	network node processorsupervisor has received a LINK_LOST command	• Check the LAN between the network node processor and the 3746-9x0. • If the problem not solved call your support.
Ab22	network node processorsupervisor has received a LINK_UP command	None
Ab23	network node processorsupervisor has received a LINK_READY command	None. Should disappears after few minutes. If always present call your support.
Ab30	network node processorsupervisor detected the linl operational with the 3746-9xx.	None. Normal operation.
Ab31 Ab36	network node processor supervisor has detected a reboot threshold	Power OFF the power ON the network node processor. • If you have always the same error code call your support. • If you have an other error code restart the problem determination. • Otherwise go to “CE Leaving Procedure” on page 5-47.

Code Displayed	Symptom Explanation	Action
Ab40	network node processorsupervisor failed to start service processor program (EXITLIST)	If this code stays permanently on the display: • Go to Step 005 on page 3-13. • If that does not solve the problem call your support.
Ab41	network node processorsupervisor failed to start service processor program (SESSION_REGISTER)	
Ab42	network node processorsupervisor failed to start service processor program (SIM_INIT ERROR)	
Ab43	network node processorsupervisor failed to start service processor program (TIMER_SERVER)	
Ab44	network node processorsupervisor failed to start service processor program (TIMER_SERVER)	
Ab60	GETCPNAME failed (REBOOT_NNP)	
Ab61	Create synchro semphore failed (REBOOT_NNP)	
Ab62	Remove synchro semaphore failed (REBOOT_NNP)	
Ab66	Remote procedure call (RPC) link error	If this code permanently displayed Check that the LAN cable connection at the rear of the network node processor and in the service processor access unit. If that does not solve the problem suspect a network node processor LAN adapter card problem. Go to Chapter 4, “Network Node Processor Based on 3172” on page 4-1 to exchange the LAN adapter card.
Ab68	System status thread exit	• Go to Step 005 on page 3-13. • If that does not solve the problem call your support.
Ab90	SRC server create queue error	• Go to Step 005 on page 3-13. • If that does not solve the problem call your support.
Ab91	CPWAITSRC error found	
Ab92	GETCPNAME error found	
Ab93	SRC thread exit	

Code Displayed	Symptom Explanation	Action
AbC1	network node processor supervisor fatal error (create CP semaphore failed)	• Power OFF then ON the network node processor • If that does not solve the problem go to Step 005 on page 3-13 • If the error persists call your support
AbC3	network node processor supervisor fatal error (cannot read EULAASPS config.file)	
AbC4	network node processor supervisor fatal error (environment error)	
AbC5	network node processor supervisor fatal error (error setting CP semaphore)	
AbC6	network node processor supervisor fatal error (cannot read EULAASPS config.file)	
AbC7	network node processor supervisor fatal error (error setting CP semaphore)	
AbC8	network node processor supervisor fatal error (cannot read EULNCFG config.file)	• Power OFF then ON the network node processor • If that does not solve the problem go to Step 005 on page 3-13 • If the error persists call your support
AbC9	network node processor supervisor fatal error (cannot read EULNCFG config.file)	
AbCA	network node processor supervisor fatal error (cannot read EULNCFG config.file)	
AbCB	network node processor supervisor fatal error (cannot read EULAASPS config.file)	
AbCC	network node processor supervisor fatal error (DOSALLOCSEG - SP CP-1A THREAD)	
AbCD	network node processor supervisor fatal error (DOSALLOCSEG - SP CP-1B THREAD)	• Power OFF then ON the network node processor • If that does not solve the problem go to Step 005 on page 3-13 • If the error persists call your support
AbCE	network node processor supervisor fatal error (DOSALLOCSEG - SP CP2-A THREAD)	
AbCF	network node processor supervisor fatal error (DOSALLOCSEG - SP CP2-B THREAD)	
AbD0	network node processor supervisor fatal error (DOSALLOCSEG - SP CP-B THREAD)	
AbD1	network node processor supervisor fatal error (DOSALLOCSEG - SP CP-A THREAD)	

Code Displayed	Symptom Explanation	Action
AbD2	network node processor supervisor fatal error (DOSALLOCSEG - RPC SP STS THREAD)	• Power OFF then ON the network node processor • If that does not solve the problem go to Step 005 on page 3-13 • If the error persists call your support
AbD3	network node processor supervisor fatal error (DOSALLOCSEG - RPC CP STS THREAD)	
AbD4	network node processor supervisor fatal error (DOSALLOCSEG - RPC SP/CP STS THREAD)	
AbD5	network node processor supervisor fatal error (DOSALLOCSEG - RPC SP/CP THREAD)	
AbD6	network node processor supervisor fatal error (DOSALLOCSEG - MOSS-E REBOOT THREAD)	
AbD7	network node processor supervisor fatal error (DOSALLOCSEG - RPC CP CTRL. THREAD)	• Power OFF then ON the network node processor • If that does not solve the problem go to Step 005 on page 3-13 • If the error persists call your support
AbD8	network node processor supervisor fatal error (DOSALLOCSEG - RPC SRC THREAD)	
AbD9	network node processor supervisor fatal error (DOSALLOCSEG - REBOOT COUNT THREAD)	
AbDA	network node processor supervisor fatal error (trap occured inside its code)	
AbDC	network node processor supervisor fatal error (cannot read EULNCFG config.file)	
AbDD	network node processor supervisor fatal error (search EULNCFG failed)	• Power OFF then ON the network node processor • If that does not solve the problem go to Step 005 on page 3-13 • If the error persists call your support
AbDE	network node processor supervisor fatal error (read VP2.INI file failed)	
AbDF	network node processor supervisor fatal error (read VPD2.INI file failed)	
AbE0	network node processor supervisor fatal error (session register failed)	
AbE1	network node processor supervisor fatal error (create backup NNP failed)	

Code Displayed	Symptom Explanation	Action
AbE2	network node processor supervisor fatal error (update VPD failed)	• Power OFF then ON the network node processor • If that does not solve the problem go to Step 005 on page 3-13 • If the error persists call your support
AbE3	network node processor supervisor fatal error (cannot init LAN global data)	
AbE5	network node processorRPC (remote procedure call) cannot decode arguments	
AbE6	network node processorRPC cannot decode results	
AbE7	network node processorRPC cannot send	
AbE8	network node processorRPC cannot receive	• Power OFF then ON the network node processor • If that does not solve the problem go to Step 005 on page 3-13 • If the error persists call your support
AbE9	network node processorRPC call program version mismatch	
AbEA	network node processorRPC call authentication error	
AbEB	network node processorRPC call program unavailable	
AbEC	network node processorRPC call cannot decode arguments	
AbED	network node processorRPC call system error	• Power OFF then ON the network node processor • If that does not solve the problem go to Step 005 on page 3-13 • If the error persists call your support
AbEE	network node processorRPC call unknown host	
AbEF	network node processorRPC call port mapper failure	
AbF0	network node processorRPC call program not registered	
AbF1	network node processorRPC call unspecified error	
AbF2	network node processorinit client host not found	• Power OFF then ON the network node processor • If that does not solve the problem go to Step 005 on page 3-13 • If the error persists call your support
AbF3	network node processorinit client try again	
AbF4	network node processorinit client no recovery	
AbF5	network node processorinit client no address	
AbF6	network node processorCLNTTCP_CREATE Failed	
AbF8	CP RPC THREAD ABORTED	

Code Displayed	Symptom Explanation	Action
All other Codes	A SRC should have been generated.	Refer to the alarm message for explanation. If no SRC call your support. To display the alarms continue with Step 011 on page 3-14.

005

Return on the ***service processor*** console to load the licensed internal code on the NNP, using the following procedure:

- Return to the **MOSS-E View** window.
- Double click on the **3746-950** icon.
- On the **3746-900 Menu** select the **Network Node Processor (NNP) Management** option.
- On the **Network Node Processor (NNP) management** window double click on the **Install/change/Restore LIC/NNP** option.
- The **3746-900/NNP Licensed Internal Code (LIC) Management** window is displayed.
- Select the NNP (A or B), then click on **Restore LIC on NNP**
- On the following window click on **OK**
- Follow the prompts to insert the **Network Node Processor Diskette Installation** in the ***service processor*** then click on **OK**.
- Follow the prompts to insert the **Network Node Processor Diskette Installation** in the ***network node processor*** then click on **OK**.
- The **3746-900/NNP Licensed Internal Code (LIC) Management** window is displayed with a message for waiting (Installation duration is about 30 minutes).
- When installation is complete a message warms you to remove the **Network Node Processor Diskette Installation** from the ***network node processor*** then click on **OK**.
- A new message indicates that the "Network Node Processor LIC Restoration, Operation Successfully Completed", click on **OK**.
- The **3746-900/NNP Licensed Internal Code (LIC)** is displayed, click on **Close** to return to the **MOSS-E View** window.
- Power OFF then power ON the ***network node processor***.

Is the problem solved?

Yes **No**

006

Go to Step 008.

007

Go to “CE Leaving Procedure” on page 5-47.

008

(Step **008** continues)

008 (continued)

Do you have the same code displayed on the network node processor control panel?

Yes **No**

009

Restart the problem determination.

010

Call your support

011

Return on the ***service processor*** console to display the alarms, using the following procedure:

- Return to the **MOSS-E View** window.
- Double click on the **Service Processor** icon.
- On the **Service Processor Menu** click on the **Problem Management** option.
- Click on the **Display Alarms** option.
- On the screen displayed look for the alarm text related to the network node processor which explains the problem. Correct it.

MAP: Problem Determination on Network Node Processor Based on 7585

You are here because you suspected

- **A network node processor problem**
- **A connection problem between the network node processor and a 3746-900 or a 3746-950.**

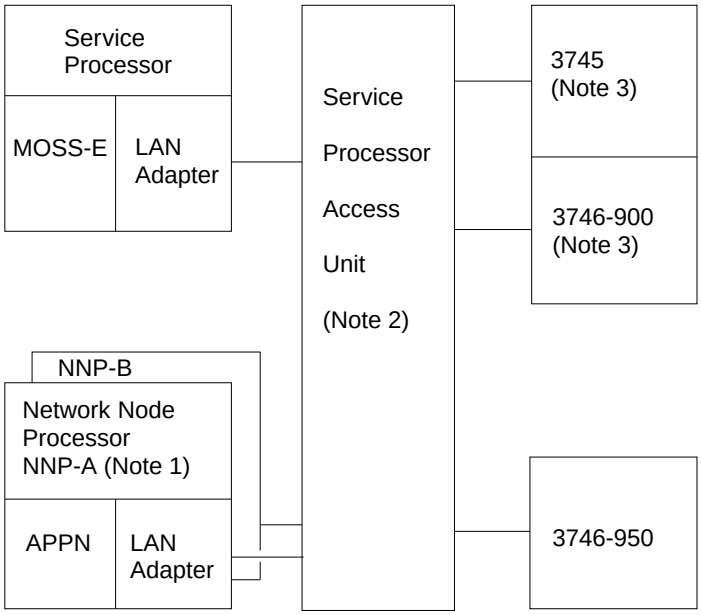


Figure 3-3. LAN attached to the Service Processor

Notes:

1. The network node processor is an optional feature which is present only when APPN is installed. A backup network node processor can be also present. Until four network node processors can be installed on the same LAN.
2. Up to two service processor access units (8228) can be used depending on the number of network node processor used.
3. Only 3745, 3746-900, 3746-950, service processor and network node processor can be connected to the LAN when APPN is installed.

Important

To continue this procedure you must have a display and keyboard connected to the network node processor Refer to “How to Install a Display and Keyboard on your Network Node Processor” on page 3-18.

001

Switch OFF the network node processor, then after few seconds, switch ON the network node processor.
(Step **001** continues)

001 (continued)

Is there something displayed on the network node processor attached display?

Yes **No**

002

Go to "MAP: 7585 Network Node Processor Troubleshooting" on page 5-2.

003

Is the service processor IML complete with MOSS-E View window displayed?

Yes **No**

004

Is there a message SYSxx-xxxxx (OS/2 message) displayed on screen?

Yes **No**

005

Go to "MAP: 7585 Network Node Processor Troubleshooting" on page 5-2.

006

Call support for assistance.

007

Is the keyboard locked?

Yes **No**

008

Go to Step 012 on page 3-17.

009

- Check that the keyboard cable is properly plugged into the keyboard and into the rear of the service processor.

Do you find the problem?

Yes **No**

010

Replace the system board. Go to "FRU Exchange on Network Node Processor Based on 7585" on page 5-34

011

(Step **011** continues)

011 (continued)

Go to Step 012.

012

- Check that the service processor LAN cable is correctly connected at the rear of the service processor and in the service processor access unit.
- Check that all the LAN cables are correctly connected in the service processor access unit.

Did you find the problem?

Yes **No**

013

- Run diagnostics on the service processor, go to "How to Run the 7585 Network Node Processor Diagnostics" on page 5-32 to identify the problem. Then if you have to exchange a FRU, go to "FRU Exchange on Network Node Processor Based on 7585" on page 5-34.

014

Problem solved go to "CE Leaving Procedure" on page 5-47.

How to Install a Display and Keyboard on your Network Node Processor

1 Have a display an keyboard.

2 Power OFF the network node processor.

3 Connect the display and keyboard at the rear of the network node processor.

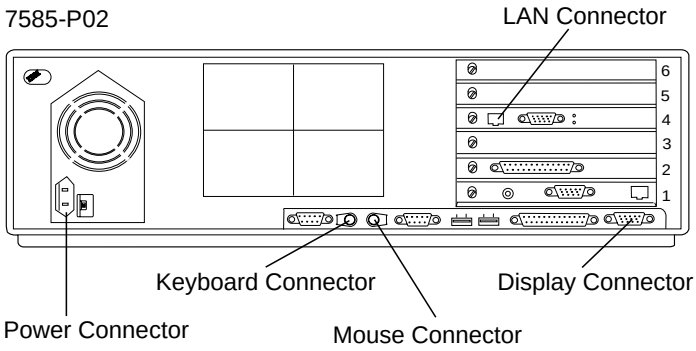


Figure 3-4. How to Connect the Display and the Keyboard on Network Node Processor

4 Connect the display power cable to a know working ac source.

5 Power ON the network node processor and the display.

6 Return to the procedure where you came from.

Chapter 4. Network Node Processor Based on 3172

Important

The procedures described here are only for network node processor with Pentium* processor card.

FRU Exchange on Network Node Processor Based on 3172

You are here to exchange a FRU on the network node processor.

Before any FRU exchange, you must remove the network node processor from the rack following the above procedure:

1. Locate the network node processor in the rack processor using Figure 4-1.
2. Switch OFF the network node processor using its power ON/OF switch located on the front panel.

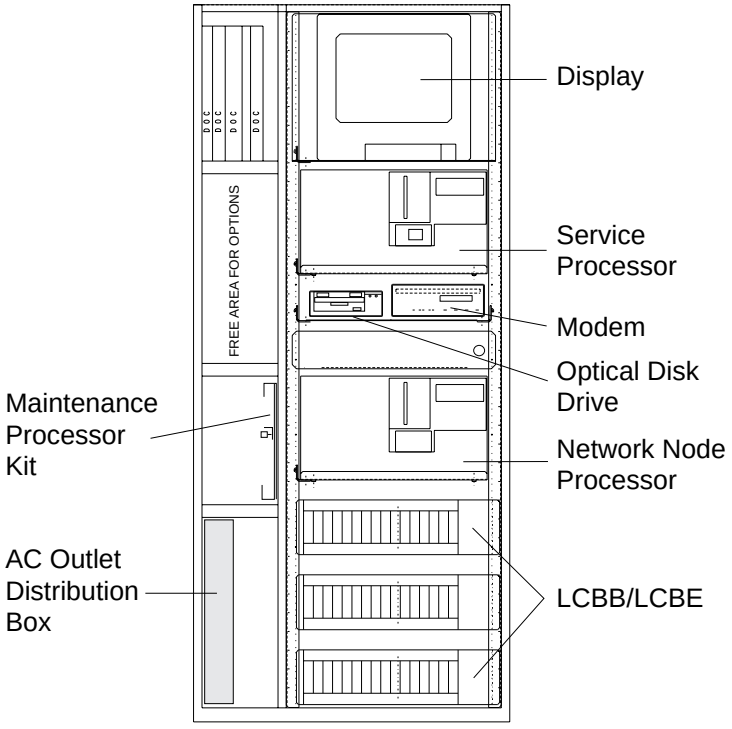


Figure 4-1. IBM Controller Rack Locations

3. On the rear of the network node processor disconnect all the cables.

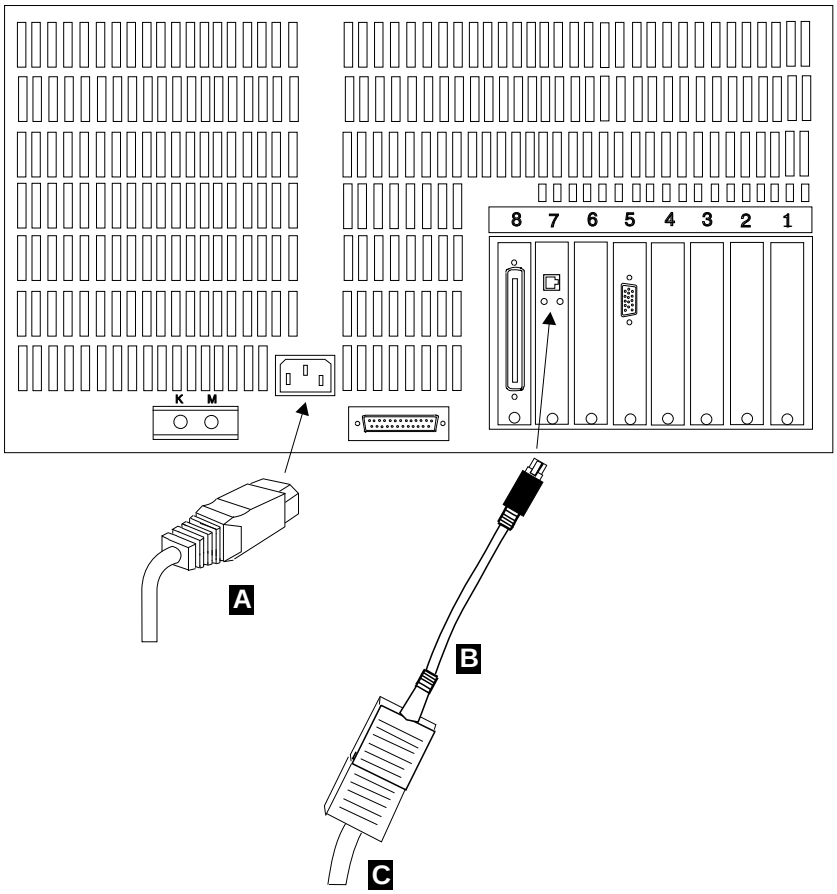


Figure 4-2. Network Node Processor Cables

4 Slide out the network node processor from the rack and install it on a table to continue the FRUs removal.

Warning

Be careful the weight of the processor is about 19 kg.

5 Use the following table to find the procedure you need to follow to exchange a FRU.

Network Node Processor FRU to Exchange	**Action**
LAN Adapter **XGA Adapter** **SCSI**	Go to "Adapter Card Exchange Procedure on NNP Based on 3172" on page 4-4 for FRU replacement, then **return here** and continue with 6.
Other FRU	Go to the *3172 Interconnect Controller Maintenance Information Model 3*, SY27-0334 manual chapter *Repairing the 3172 Model 3* for FRU replacement, then **return here** and continue with 6.

6 For setting up the Network Node Processor after FRU exchange use the following steps:

a Re-install all the covers of the processor.

b Slide the processor into the rack.

c At the rear of the network node processor re-connect all the cable previously removed (see Figure 4-2 on page 4-2).

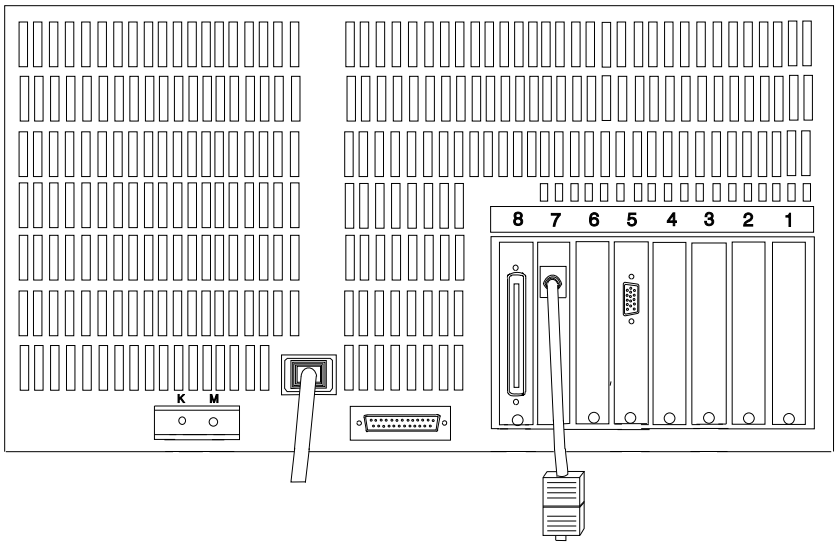
d **Some FRUs of the processor need and additional procedure after exchanging. Use the following table to find the MAP you need to follow, according to the FRU that you are exchanging.**

Network Node Processor FRU to Exchange	Action
System Board Battery	Go to “Procedure after System Board or Battery Exchange on NNP Based on 3172” on page 4-19
Hard Disk Drive	Go to “Procedure after Hard Disk Drive Exchange on NNP Based on 3172” on page 4-11
LAN Adapter	Go to “Procedure After LAN Adapter Exchange on NNP Based on 3172” on page 4-9
Processor Card	Go to “Procedure after Processor Card exchange on NNP Based on 3172” on page 4-14
SCSI Card	Go to “Procedure after SCSI Card Exchange on NNP Based on 3172” on page 4-17
Other FRUs	Go to “Procedure after Other FRUs Exchange on NNP Based on 3172” on page 4-21

Adapter Card Exchange Procedure on NNP Based on 3172

Removing Adapter

1 Locate the adapter that you want to exchange.



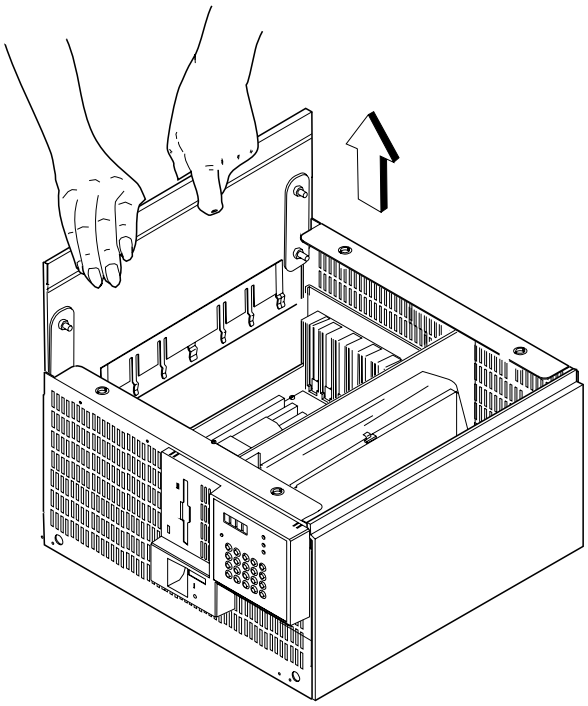
Card	Slot Location
XGA Adapter	Slot 5
LAN Adapter	Slot 7
SCSI	Slot 8

2 Remove the top cover

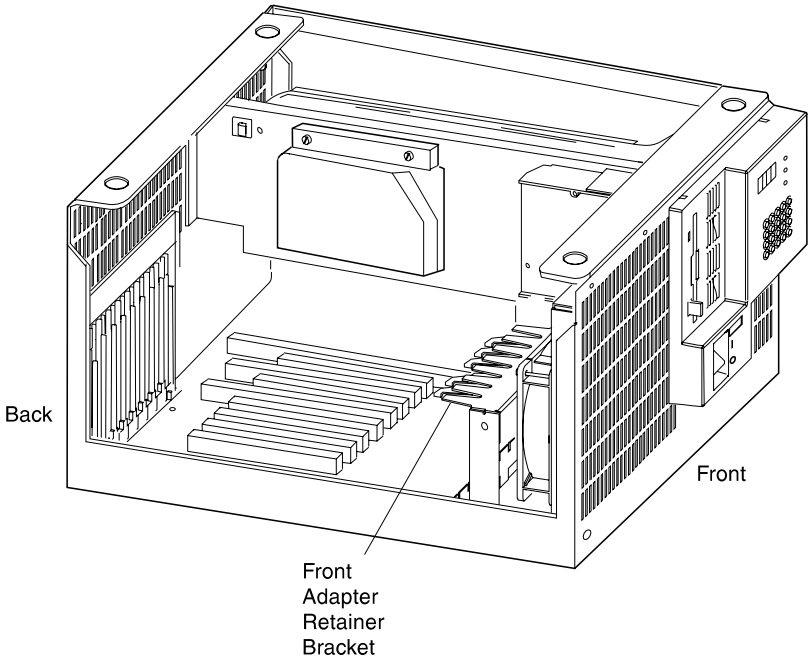
a. Loosen the quarter-turn fasteners on the top of the processor.
b. Hold the edges of the top and lift up.
c. As you remove the top, note the position of the plastic baffle attached to the inside surface. You must reinstall the top so that the baffle covers the left side of the processor.

3 To loosen the left side piece.

a. Loosen, but not remove, the four screws with a screwdriver.
b. Holding the top of the sidepiece with both hands, lift straight up.



4 Locate the adapter retainer bracket, and remove the two screws from the front adapter retainer bracket and raise the bracket.

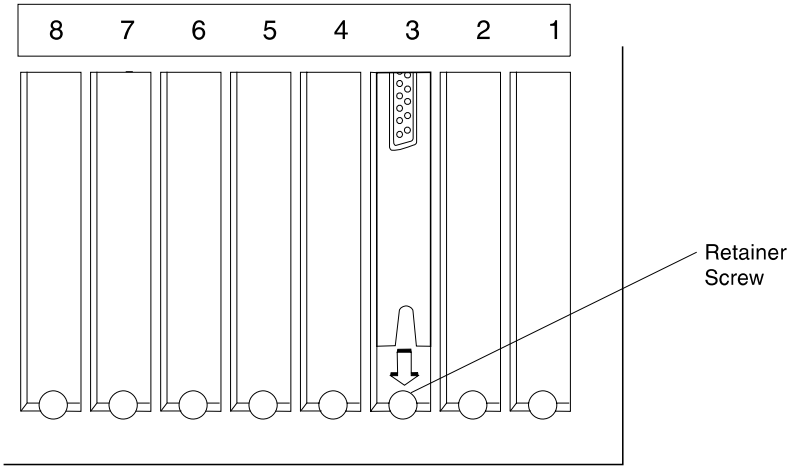


5 Loosen the retainer screw on the adapter you want to remove.

6 Pull the adapter firmly with both hands.

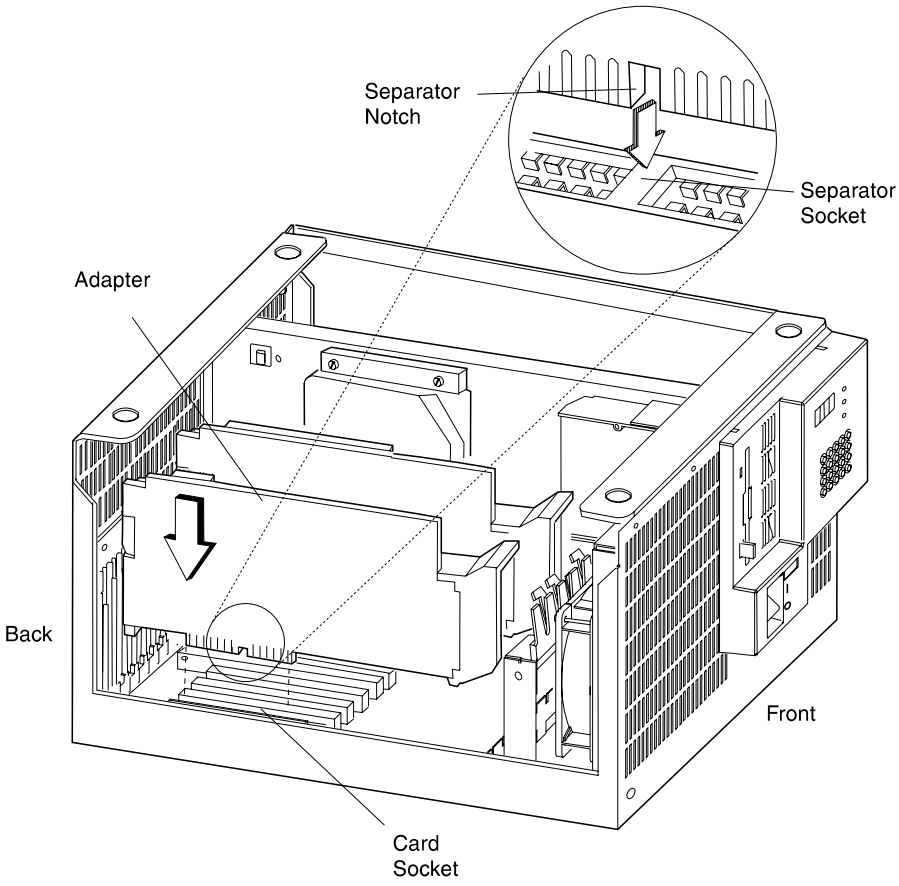
Installing Adapter

1 Slide the adapter down the back of the base uit, above the card socket you intend to use, until the notch on the bottom of the card retainer straddles the retainer screw.



Rear View

2 Align the separator notch on the edge connector of the adapter with the separator in the card socket.



3 Press the adapter into the notch at the bottom of the front retainer bracket.

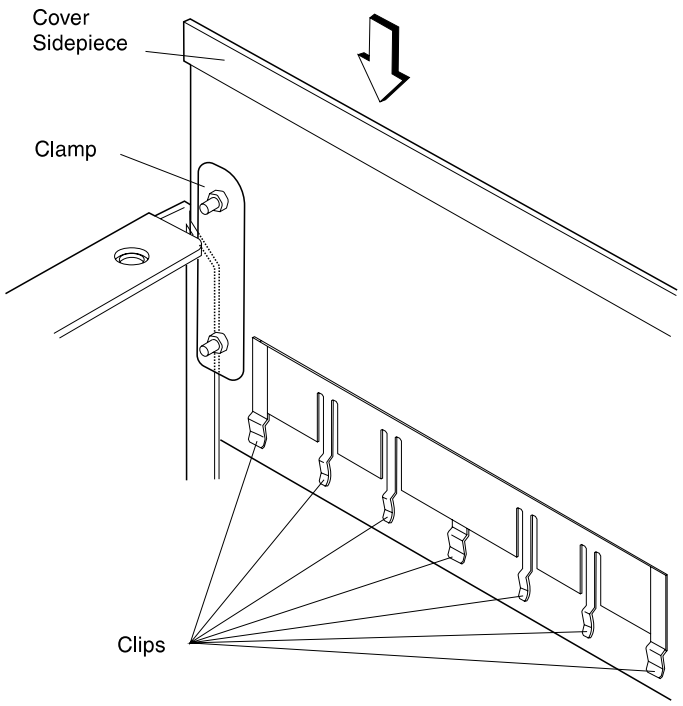
4 Press the adapter firmly into the card socket.

5 Tighten the adapter retainer screw with your fingers.

6 Secure the front retainer bracket with its two screws.

7 Reinstall the sidepiece of the cover:

a. Hold the sidepiece so that the clips are on the bottom.
b. Slide the sidepiece down, so that the lips on the sides of the processor are between the sidepiece and the clamps on the cover.



c. Make sure that the clips on the bottom of the sidepiece are attached firmly to the lip on the bottom of the processor.
d. Tighten the four retainer screws with a screwdriver to clamp the side firmly.

8 Reinstall the top of the cover:

a. Position the top so that the plastic baffle is inside the top on the left as you face the front of the processor.
b. Slide the top down, placing the top so that its edges overlap the top edges of the sidepiece.
c. Tighten the four retainer screws with a screwdriver.

9 Return and continue with step **6 on page 4-2** .

Procedure After LAN Adapter Exchange on NNP Based on 3172

You are here after exchanging the LAN adapter card.

The default adapter data rate and the default RAM size must be changed using the following procedure.

1 Insert the **Reference Diskette A** in the network node processor.

2 Power ON the network node processor.

3 The following list provides the sequence of code when the network node processor reconfigures. Temporary errors will be displayed (code displayed on the operator panel with error LED ON). Press **Enter** on the operator panel keypad after each code appears.

Code	Description
0000	POST
00A5	Hardware configuration needed. Press **Enter** on the operator panel keypad.
0000	Loading the program
ACF0	Reconfiguration
0000	POST and loading the diagnostic programs
1000	Complete

4 Did **0000** appear, followed by **1000** within five minutes?

Yes	Continue with the step **5** .
No	A POST error occurred. Record the error code and refer to *3172 Interconnect Controller Status Codes*, GA27-3951 to resolve the error.

5 Run the diagnostic tests on the LAN adapter card using the following steps:

a Before starting be sure that the LAN cable is:

- Connected on the rear of the LAN adapter card
- Disconnected from the service processor access unit.

b Key in **1**. **1001** appears.

c Press **Enter**. **d5Cb** appears.

d Remove **Reference Diskette A** and insert **Reference Diskette B**.

e Press **Enter**. **d5CC** appears.

f Remove **Reference Diskette B** and insert **Reference Diskette C**.

g Press **Enter**. After a short delay, **A000** appears.

h Key in **2**. **A002** appears.

i Press **Enter**. **bbbb** appears.

j Key in **00A6**.

k Press **Enter**. **71A6** appears. The test runs about 35 seconds.

l Did **A000** appear?

Yes Continue with the step **6** .

No **00A6** appears Check the LAN adapter card is well installed with its cable connected on the rear of the LAN adapter cable but not in the service processor access unit. Suspect the new LAN adapter card, contact your support.

6 To exit, switch the power OFF (**O**) to the network node processor and remove the **Reference Diskette C**.

7 Go to “CE Leaving Procedure” on page 5-47.

Procedure after Hard Disk Drive Exchange on NNP Based on 3172

Reference Diskettes A, B, C are shipped with the network node processor. Use these diskettes to perform the following procedure.

1 After disk drive exchange format the hard disk following these steps:

a Insert the **Reference Diskette A** in the network node processor.

b Power ON the network node processor.

c If temporary errors are displayed (code displayed on the operator panel with error LED ON), press **Enter** on the operator panel keypad.

Code	Description
0000	POST
XXXX	Temporary codes
0000	Loading the program
1000	Complete

d Did **0000** appear, followed by **1000** about 90 seconds later?

Yes	Continue with the step **1e** .
No	A POST error occurred. Record the error code and refer to *3172 Interconnect Controller Status Codes*, GA27-3951 to resolve the error.

e Key in **2**. **1002** appears.

f Press **Enter**. **b000** appears.

g Key in **4**. **b000** appears.

h Press **Enter**. **b004** appears.

i Key in **F**. **b4FF** appears.

j To continue press **1**.

k Formatting proceeds for approximately 15 minutes. The **Channel 2 Online** indicator is lit and **0000** appears.

- The display is updated every 5 seconds, showing the percentage of the fixed disk that is formatted.
- When formatting is complete, the network node processor restarts.

l **1000** appears.

2 Run the diagnostic tests on the hard disk drive using the following steps:

a Key in **1**. **1001** appears.

b Press **Enter**. **d5Cb** appears.

c Remove **Reference Diskette A** and insert **Reference Diskette B**.

d Press **Enter**. **d5CC** appears.

e. Remove **Reference Diskette B** and insert **Reference Diskette C**.

f. Press **Enter**. After a short delay, **A000** appears.

g. Key in **2**. **A002** appears.

h. Press **Enter**. **bbbb** appears.

i. Key in **0070**.

j. Press **Enter**. **0070** appears and the **Channel 2 Online** indicator is lit. The test runs about two minutes.

k. Did **A000** appear?

Yes	Continue with the step **2l** .
No	Go to *3172 Interconnect Controller Maintenance Information Model 3*, SY27-0334 for disk adapter problem investigation.

l. Key in **2**. **A002** appears.

m. Press **Enter**. **bbbb** appears.

n. Key in **00d2**.

o. Press **Enter**. **00d2** appears and the **Channel 2 Online** indicator is lit. The test run about two minutes.

p. Did **A000** appear?

Yes	Continue with the step **3** .
No	Suspect the Disk that you have installed. Go to *3172 Interconnect Controller Maintenance Information Model 3*, SY27-0334 for disk problem investigation.

3. Power OFF the network node processor

4. Remove the **Reference Diskette C** from the drive A.

5. Power ON the network node processor **FEd7** code is displayed (No operating system found).

6. Return on the ***service processor*** console to load the licensed internal code on the NNP, using the following procedure:

   a. Return to the **MOSS-E View** window.

   b. Double click on the **3746-950** icon.

   c. On the **3746-900 Menu** select the **Network Node Processor (NNP) Management** option.

   d. On the **Network Node Processor (NNP) management** window double click on the **Install/change/Restore LIC/NNP** option.

e The **3746-900/NNP Licensed Internal Code (LIC) Management** window is displayed.

f Select the NNP (A or B), then click on **Restore LIC on NNP**

g On the following window click on **OK**

h Follow the prompts to insert the **Network Node Processor Diskette Installation** in the ***service processor*** then click on **OK**.

i Follow the prompts to insert the **Network Node Processor Diskette Installation** in the ***network node processor*** then click on **OK**.

j The **3746-900/NNP Licensed Internal Code (LIC) Management** window is displayed with a message for waiting (Installation duration is about 30 minutes).

k When installation is complete a message warms you to remove the **Network Node Processor Diskette Installation** from the ***network node processor*** then click on **OK**.

l A new message indicates that the "NNP LIC Restoration, Operation Successfully Completed", click on **OK**.

m The **3746-900/NNP Licensed Internal Code (LIC)** is displayed, click on **Close** to return to the **MOSS-E View** window.

7 Is **0000** displayed on the ***network node processor*** operator panel?

Yes	Go to “CE Leaving Procedure” on page 5-47.
No	See the alarm logged on the ***service processor***

Procedure after Processor Card exchange on NNP Based on 3172

You are here to reconfigure the network node processor after processor card exchange.

1. Insert the **Reference Diskette A** in the network node processor.

2. Power ON the network node processor.

3. The following list provides the sequence of code when the network node processor reconfigures. Temporary errors will be displayed (code displayed on the operator panel with error LED ON). Press **Enter** on the operator panel keypad after each code appears.

Code	Description
0000	POST
ACF0	Appears when the network node processor is being reconfigured.
0000	Loading the program
1000	Complete

4. Did **0000** appear, followed by **1000** within five minutes?

   Yes Continue with the Step **5** .
   No If a POST error occurred. Record the error code and refer to *3172 Interconnect Controller Status Codes*, GA27-3951 to resolve the error. If the configuration loop go to Step **17 on page 4-16** to boot first with the **Update BIOS** diskette, then continue with Step **1** .

5. Did you have a **00A3** error code?

   Yes Continue with the step **6** .
   No Continue with the step **12 on page 4-15** .

6. Key in **2**. **1002** appears.

7. Press **Enter**. **b000** appears.

8. Key in **1**. **b001** appears.

9. Press **Enter**. **b100** appears and no indicators are lit.

10. To set the date, follow these steps:

    a. Key in **3**. **b103** appears.

    b. Press **Enter**. **AAbb** appears and the **Channel 1 Online** indicator is lit.

    c. Key in the month and the day: for example, **0131** for January 31.

    d. Press **Enter**. **CCCC** appears.

    e. Key in the year: for example, **1991** for the year 1991.

    f. Press **Enter**.

    g. Does **AAbb** appear?

Yes The date is not valid. return to step **10c** .
No **b100** appears and the **Channel 1 Online** indicator is not lit. Continue with step **11** .

11 To set the time, follow these steps:

a Key in **4**. **b104** appears.

b Press **Enter**. **dddd** appears and the **Channel 1 Online** indicator is lit.

c Key in the time in the 24-hour format: for example, **1330** for 1:30p.m.

d Press **Enter**.

e Does **dddd** appear?

Yes The time is not valid. return to step **11c** .
No **b100** appears and the **Channel 1 Online** indicator is not lit. Continue with step **12** .

12 Switch OFF the network node processor

13 Power ON the network node processor.

14 Wait POST and loading program until

15 Did **0000** appear, followed by **1000** about 90 seconds later?

Yes Continue with the step **16** .
No A POST error occurred. Record the error code and refer to *3172 Interconnect Controller Status Codes*, GA27-3951 to resolve the error.

16 Run the diagnostic tests on the processor card using the following steps:

a Key in **1**. **1001** appears.

b Press **Enter**. **d5Cb** appears.

c Remove **Reference Diskette A** and insert **Reference Diskette B**.

d Press **Enter**. **d5CC** appears.

e Remove **Reference Diskette B** and insert **Reference Diskette C**.

f Press **Enter**. After a short delay, **A000** appears.

g Key in **2**. **A002** appears.

h Press **Enter**. **bbbb** appears.

i Key in **0000** and press **Enter** to test the processor board.

j Did **A000** appear?

Yes Continue with the step **17 on page 4-16** .

No Suspect another problem. Refer to the chapter **Maintenance Analysis Procedures** in the *3172 Interconnect Controller Maintenance Information Model 3*, SY27-0334

17 Run the update POST Utility following these steps:

a Switch OFF the network node processor.

b Remove the **Reference Diskette C**.

c Insert the **Update POST** diskette.

d Switch ON the network node processor.

e **dC03** appears when the utility is running.

f When the update is complete **dC04** appears.

g Switch OFF the network node processor and remove the diskette.

18 Go to “CE Leaving Procedure” on page 5-47.

Procedure after SCSI Card Exchange on NNP Based on 3172

You are here to test the SCSI card after exchanging.

1 Insert the **Reference Diskette A** in the network node processor.

2 Power ON the network node processor.

3 If temporary errors are displayed (code displayed on the operator panel with error LED ON), press **Enter** on the operator panel keypad.

Code	Description
0000	POST
XXXX	Temporary codes
0000	Loading the program
1000	Complete

4 Did **0000** appear, followed by **1000** about 90 seconds later?

Yes Continue with the step **5** .
No A POST error occurred. Record the error code and refer to *3172 Interconnect Controller Status Codes*, GA27-3951 to resolve the error.

5 Run the diagnostic tests on the hard disk drive using the following steps:

a Key in **1**. **1001** appears.

b Press **Enter**. **d5Cb** appears.

c Remove **Reference Diskette A** and insert **Reference Diskette B**.

d Press **Enter**. **d5CC** appears.

e Remove **Reference Diskette B** and insert **Reference Diskette C**.

f Press **Enter**. After a short delay, **A000** appears.

g Key in **2**. **A002** appears.

h Press **Enter**. **bbbb** appears.

i Key in **0070**.

j Press **Enter**. **0070** appears and the **Channel 2 Online** indicator is lit. The test runs about two minutes.

k Did **A000** appear?

Yes Continue with the step **5l** .
No Go to *3172 Interconnect Controller Maintenance Information Model 3*, SY27-0334 for disk adapter problem investigation.

l Key in **2**. **A002** appears.

m Press **Enter**. **bbbb** appears.

n Key in **00d2**.

o Press **Enter**. **00d2** appears and the **Channel 2 Online** indicator is lit. The test run about two minutes.

p Did **A000** appear?

Yes	Continue with the step **6** .
No	Suspect a disk problem. Go to *3172 Interconnect Controller Maintenance Information Model 3*, SY27-0334 for disk problem investigation.

6 Switch OFF the network node processor.

7 Remove the **Reference Diskette C** from the drive A.

8 Go to “CE Leaving Procedure” on page 5-47.

Procedure after System Board or Battery Exchange on NNP Based on 3172

You are here to reconfigure the network node processor after battery exchange.

1 Insert the **Reference Diskette A** in the network node processor.

2 Power ON the network node processor.

3 The following list provides the sequence of code when the network node processor reconfigures. Temporary errors will be displayed (code displayed on the operator panel with error LED ON). Press **Enter** on the operator panel keypad after each error code appears.

Code	Description
0000	POST
00Ad	Hardware configuration needed. Press **Enter** on the operator panel keypad.
00A3	Date and time not set. Press **Enter** on the operator panel keypad.
0000	Loading the program
ACF0	Reconfiguration
1000	Complete

4 Did **0000** appear, followed by **1000** within five minutes?

Yes Continue with the step **5** .

No A POST error occurred. Record the error code and refer to *3172 Interconnect Controller Status Codes*, GA27-3951 to resolve the error.

5 Key in **2**. **1002** appears.

6 Press **Enter**. **b000** appears.

7 Key in **1**. **b001** appears.

8 Press **Enter**. **b100** appears and no indicators are lit.

9 To set the date, follow these steps:

a Key in **3**. **b103** appears.

b Press **Enter**. **AAbb** appears and the **Channel 1 Online** indicator is lit.

c Key in the month and the day: for example, **0131** for January 31.

d Press **Enter**. **CCCC** appears.

e Key in the year: for example, **1991** for the year 1991.

f Press **Enter**.

g Does **AAbb** appear?

Yes The date is not valid. return to step **9c** .

No **b100** appears and the **Channel 1 Online** indicator is not lit. Continue with step **10 on page 4-20** .

10 To set the time, follow these steps:

a Key in **4**. **b104** appears.

b Press **Enter**. **dddd** appears and the **Channel 1 Online** indicator is lit.

c Key in the time in the 24-hour format: for example, **1330** for 1:30p.m.

d Press **Enter**.

e Does **dddd** appear?

Yes The time is not valid. return to step **10c** .
No **b100** appears and the **Channel 1 Online** indicator is not lit. Continue with step **11** .

11 To exit, switch the power OFF (**O**) to the network node processor and remove the **Reference Diskette A**.

12 Go to “CE Leaving Procedure” on page 5-47.

Procedure after Other FRUs Exchange on NNP Based on 3172

1 Did you change the **operator panel**, the **diskette drive**, or the **power supply**?

Yes Go to step **2** .
No Go to “CE Leaving Procedure” on page 5-47.

2 Refer to the *3172 Interconnect Controller Model 3 and Model 390 Diagnostics Guide*, GA27-4063 manual, and run tests on the components or on all components of the network node processor.

3 Is the diagnostic error free?

Yes Go to “CE Leaving Procedure” on page 5-47.
No Follow the recommended action in the *3172 Interconnect Controller Model 3 and Model 390 Diagnostics Guide*, GA27-4063 manual.

Chapter 5. Network Node Processor Based on 7585

MAP: 7585 Network Node Processor Troubleshooting

Note about POST error code

The zeros before and after the error code may be not present for some PS/2 models. Messages might appears on your screen as three-, four-, or five-characters messages. When this occurs, add two zeros after the last characters and one, two, or three zeros before the first character, so that you can look up the error as an eight-character message.

Example:

101 displayed means 00010100

1701 displayed means 00170100

16680 displayed means 01668000

Notes:

1. If you have both an error message and an incorrect audio response, diagnose the error message first.
2. If you cannot run the diagnostic tests, but did receive a POST error message, diagnose the POST error message.
3. If you did not receive any error message, look for a description of your error symptoms in the first part of this index.
4. Check all power supply voltages before you replace the system board. (See "Power-Supply Voltage Check (7585)" on page 5-25)
5. Check the hard disk drive jumper settings before you replace a hard disk drive. All supported hard disk drives use jumpers or tabs to set drives as either primary or secondary. Refer to the jumper instructions that came with your hard disk drives.

Important

- Some errors are indicated with a series of beep codes. See "BEEP CODE INDEX" on page 5-21 for an explanation of the beep codes.
- For all system boards, the processor is a separate FRU from the system board; that is, the processor is not included with the system board FRU. See "Before Replacing a System Board" on page 5-26 before replacing the system board.

001

- Power-off the system.
- Check all cables and power cords.
- Make sure there are no diskettes in the drives.
- Set all display controls to the middle position.
- Power-on the system.

Note: If you get a POST error code, press the pause key (while the error code is on the screen). Write down any error codes that are displayed, then press F1 to continue.
(Step **001** continues)

001 (continued)

DID YOU RECEIVE A POST ERROR CODE?

Yes **No**

002

Go to Step 006 on page 5-14

003

Check your FIRST POST ERROR with the following list.

Symptom / Error	FRU / Action
000 SCSI Adapter not enabled.	**Be sure adapter device and Bus Master fields are enabled in PCI configuration program. See documentation shipped with computer.**
02X	**SCSI Adapter**
08X Check SCSI terminator installation.	**SCSI Cable** SCSI Terminator SCSI Device SCSI Adapter
101 Interrupt failure.	**System Board**
102 Timer error.	**System Board**
106	**System Board**
110 System board parity error.	**Memory Module** System Board
111 I/O channel parity error.	**Reseat adapters** Any Adapter System Board
114 External ROM checksum error.	**Memory Module** System Board
129 Internal cache test error.	**Processor** L2 Cache Memory System Board
151 Real-time clock failure.	**System Board**
161 Bad CMOS battery.	**Run Configuration/Setup Utility** Clock Battery System Board
162 And unable to run diagnostics.	**Diskette Drive** System Board Diskette Drive Cable
162	**Run Setup** Clock Battery System Board

Symptom / Error	FRU / Action
163 Clock not updating or invalid time set.	**Time and Date Set?** Clock Battery System Board
164 POST detected a base memory or extended memory size mismatch error.	**Run Configuration/Setup Utility** See “RAM Memory Modules (SIMMs/DIMMs)” on page 5-28. System Board
17X, 18X	**C2 Security**
175	**Riser Card** System Board
176	**Covers were removed from the computer**
177 Corrupted Administrator Password.	**Riser Card** System Board
178	**Riser Card** System Board
183	**Enter the administrator password**
184 Password removed due to check-sum error.	**Enter new password**
185 Corrupted boot sequence.	**Set configuration and reinstall the boot sequence**
186	**Riser Card** System Board
189	**More than three password attempts were made to access the computer**
199	**See “Devices List” on page 5-27**
1XX Not listed above.	**System Board**
201 Memory data error.	**Memory Module** System Board
225	**Unsupported Memory**
229 External cache test error.	**L2 Cache Memory** System Board
2XX	**See “RAM Memory Modules (SIMMs/DIMMs)” on page 5-28** Memory Module System Board
301	**Keyboard** Keyboard Cable System Board
303 With an 8603 error.	**Mouse** Keyboard Keyboard Cable System Board
303 With no 8603 error.	**Keyboard** Keyboard Cable System Board

Symptom / Error	FRU / Action
305	**System Board** Keyboard Keyboard Cable Mouse
3XX Not listed above.	**Keyboard** Keyboard Cable System Board
5XX	**Display Adapter** (if installed) System Board
601	**Diskette Drive A** Diskette Drive Cable System Board
604 And unable to run diagnostics.	**Diskette Drive A** Diskette Drive Cable System Board
604 And able to run diagnostics.	**Diskette Drive B** Diskette Drive Cable System Board
605 POST cannot unlock the diskette drive.	**Diskette Drive** Diskette Drive Cable System Board
662	**Diskette drive configuration error or wrong diskette drive type**
663	**Wrong media type**
6XX Not listed above.	**Diskette Drive** System Board External Drive Adapter Diskette Drive Cable Power Supply
762 Math coprocessor configuration error.	**Run Setup** Math Coprocessor System Board
7XX Not listed above.	**Math Coprocessor** System Board
962 Parallel port configuration error.	**Run Configuration** Parallel Adapter (if installed) System Board
9XX	**Printer** System Board
1047	**16-Bit AT Fast SCSI Adapter**
10XX (where X is not equal to digits above)	**Alternate Parallel Adapter** Riser Card
107X Check SCSI terminator installation.	**Check SCSI terminator installation**. SCSI Cable SCSI Terminator SCSI Device SCSI Adapter

Symptom / Error	FRU / Action
1101 Serial connector error, possible system board failure.	**Run Advanced Diagnostics**
1101, **1102**, **1106**, **1108**, **1109**	**System Board** Any Serial Device
1107	**Communications Cable** System Board
1102 Card selected feedback error.	**Run Advanced Diagnostics**
1103 Port fails register check.	**Run Advanced Diagnostics** System Board
1106 Serial option cannot be turned off.	**Run Advanced Diagnostics** System Board
1107	**Serial Device Cable** System Board
1110 Register test failed.	**Run Advanced Diagnostics** System Board
1116 Interrupt error.	**Run Advanced Diagnostics**
1117 Failed baud rate test.	**Run Advanced Diagnostics**
1162 Serial port configuration error.	**Run Configuration** Serial Adapter (if installed) System Board
11XX Not listed above.	**System Board**
1201	**System Board** Any Serial Device
1202, **1206**, **1208**, **1209**, **12XX**	**Dual Async Adapter/A** System Board Any Serial Device
12XX	**Alternate Serial Adapter** Riser Card
1207	**Communications Cable** Dual Async Adapter/A
13XX	**Game Control Adapter** Riser Card
1402 Printer not ready.	Information only
1403 No-paper error, or interrupt failure.	Information only
1404 System board timeout failure.	**Run Advanced Diagnostics**
1405 Parallel adapter error.	**Run Advanced Diagnostics**
1406 Presence test error.	**Run Advanced Diagnostics**

Symptom / Error	FRU / Action
14XX Not listed above. Check printer before replacing system board.	**See "Printer" on page 5-24** System Board
15XX	**SDLC Adapter** Riser Card
1692 Boot sequence error.	**Run FDISK to ensure at least one active partition is set active**
16XX	**36/38 Workstation Adapter**
1762 Hard disk drive configuration error.	**Run Configuration/Setup Utility**
1780 (Disk Drive 0) **1781** (Disk Drive 1) **1782** (Disk Drive 2) **1783** (Disk Drive 3)	**See "Power-Supply Voltage Check (7585)" on page 5-25** System Board Hard Disk Drive Hard Disk Cable Power Supply
1962 Boot sequence error.	**Possible hard disk drive problem**
209X	**Diskette Drive** Diskette Cable 16-bit AT Fast SCSI Adapter
20XX Not listed above	**BSC Adapter** Riser Card
21XX	**SCSI Device** 16-bit AT Fast SCSI Adapter Alternate BSC Adapter Riser Card
2401, 2402 If screen colors change.	**Display**
2401, 2402 If screen colors are OK.	**System Board** Display
2409	**Display**
2410	**System Board** Display
2462 Video memory configuration error.	**Run Configuration** Video Memory Modules Video Adapter (if installed) System Board
3015, 3040 Check for missing wrap or terminator plug on the adapter.	**Network Attached?** LF Translator Cable Problem PC Network Adapter Riser Card
30XX	**PC Network Adapter** LF Translator Cable Problem? Riser Card

Symptom / Error	FRU / Action
3115, 3140	**Network Attached?** LF Translator Alternate PC Network-Adapter Cable Problem Riser Card
31XX	**Alternate PC Network Adapter** LF Translator Cable Problem? Riser Card
36XX	**GPIB Adapter** Riser Card
38XX	**DAC Adapter** Riser Card
4611, **4630**	**Multiport/2 Interface Board** Multiport/2 Adapter
4612, **4613 4640**, **4641**	**Memory Module Package** Multiport/2 Adapter
4650	**Multiport Interface Cable**
46XX Not listed above.	**Multiport/2 Adapter** Multiport/2 Interface Board Memory Module
5600	**Financial System Controller Adapter**
5962 CD-ROM configuration error.	**Run Configuration** CD-ROM Drive CD-ROM Adapter System Board
62XX	**1st Store Loop Adapter** Adapter Cable
63XX	**2nd Store Loop Adapter** Adapter Cable
64XX	**Network Adapter**
71XX	**Voice Adapter**
74XX	**Display Adapter** (if installed) Riser Card
76XX	**Page Printer Adapter**
78XX	**High Speed Adapter**
79XX	**3117 Adapter**
80XX	**PCMCIA Adapter**
84XX	**Speech Adapter** Speech Control Assembly Riser Card
8601, **8602**	**Pointing Device** (Mouse) System Board
8603, **8604**	**System Board** Pointing Device (Mouse)

Symptom / Error	FRU / Action
86XX Not listed above	**Mouse** System Board
89XX	**PC Music Adapter** MIDI Adapter Unit Riser Card
91XX	**Optical Drive** Adapter
96XX	**SCSI Adapter** Any SCSI Device System Board
10101, **10102**, **10104** **10105**, **10106**, **10107** **10108**, **10109**, **10111** **10112**, **10113**, **10114** **10115**, **10116**	**Have customer verify correct operating system device drivers are installed and operational** Modem
10103, **10110**, **101171**	**System Board** Data/Fax Modem
10117 Not listed above.	**Check system speaker** Check PSTN cable External DAA (if installed) Modem
10118	**Run Diagnostics and verify the correct operation of the modem slot** Modem
10119	**Diagnostics detected a non-IBM modem** Modem
10120	**Check PSTN Cable** External DAA (if installed) Modem
10132, **10133**, **10134** **10135**, **10136**, **10137** **10138**, **10139**, **10140** **10141**, **10142**, **10143** **10144**, **10145**, **10146** **10147**, **10148**, **10149** **10150**, **10151**, **10152**	**Modem**
10153	**Data/Fax Modem** System Board
101XX Not listed above.	**Modem Adapter/A** Data/Fax Modem System Board
10450, **10451**, **10490** **10491**, **10492**, **10499** Read/write error.	**Run Advanced Diagnostics** Riser Card Hard Disk Drive System Board
10452 Seek test error.	**Run Advanced Diagnostics**
10453 Wrong drive type?	Information only

Symptom / Error	FRU / Action
10454 Sector buffer test error.	**Run Advanced Diagnostics**
10455, **10456** Controller error.	**Run Advanced Diagnostics**
10459 Drive diagnostic command error.	Information only
10461 Drive format error	**Run Advanced Diagnostics**
10462 Controller seek error.	**Run Advanced Diagnostics**
10464 Hard Drive read error.	**Run Advanced Diagnostics**
10467 Drive non-fatal seek error.	**Run Advanced Diagnostics**
10468 Drive fatal seek error.	**Run Advanced Diagnostics**
10469 Drive soft error count exceeded.	**Run Advanced Diagnostics**
10470, **10471**, **10472** Controller wrap error.	**Run Advanced Diagnostics**
10473 Corrupt data. Low-level format might be required.	Information only
10480	**Hard Disk Drive** (ESDI) Drive Cable System Board
10481 ESDI drive D seek error.	**Run Advanced Diagnostics**
10482 Drive select acknowledgement bad.	**Run Advanced Diagnostics**
106X1	**Check Configuration** Ethernet Adapter
10635	**Power-off computer, wait ten seconds, then power-on the computer** Ethernet Adapter
10651, 10660	**Check Cables** Ethernet Adapter
106XX Not listed above.	**Ethernet Adapter**
107XX	**5.25-inch External Diskette Drive** 5.25-inch Diskette Drive Adapter/A
109XX Check the adapter cables.	**ActionMedia Adapter/A** System Board
112XX This adapter does not have cache.	**SCSI Adapter** Any SCSI Device System Board
119XX	**3119 Adapter**

Symptom / Error	FRU / Action
121XX	**Modem Adapter** Any Serial Device System Board
12902	**Run Diagnostics** System Board
12904	**Run Diagnostics** System Board
136XX	**ISDN Primary Rate Adapter** System Board
137XX	**System Board**
141XX	**Realtime Interface Co-Processor** **Portmaster Adapter/A**
143XX	**Japanese Display Adapter** System Board
14710, **14711**	**System Board Display Adapter** Adapter Video Memory
148XX	**Display Adapter**
14901, **14902** **1491X**, **14922**	**Display Adapter** System Board Display (any type)
14932	**External Display** Display Adapter
16101	**Riser Card Battery**
161XX	**FaxConcentrator Adapter**
164XX	**120MB Internal Tape Drive** Diskette Cable System Board
16500	**6157 Tape Attachment Adapter**
16520, **16540**	**6157 Streaming Tape Drive** 6157 Tape Attachment Adapter
166XX, 167XX	**Token Ring Adapter** System Board Riser Card
18001 to **18029**	**Wizard Adapter** Wizard Adapter Memory
18031 to **18039**	**Wizard Adapter Cable**
185XXXX	**DBCS Japanese Display Adapter/A** System Board
20001 to **20003**	**Image Adapter/A** **Image-I Adapter/A** Memory Module DRAM, VRAM
20004	**Memory Module DRAM, VRAM** Image Adapter/A Image-I Adapter/A
20005 to **20010**	**Image Adapter/A** **Image-I Adapter/A** Memory Module DRAM, VRAM

Symptom / Error	FRU / Action
200XX Not listed above.	**Image Adapter/A** **Image-I Adapter/A** Memory Module DRAM, VRAM System Board
20101 to **20103**	**Printer/Scanner Option** Image Adapter/A Memory Module DRAM, VRAM
20104	**Memory Module DRAM, VRAM** Printer/Scanner Option Image Adapter/A
20105 to **20110**	**Printer/Scanner Option** Image Adapter/A Memory Module DRAM, VRAM
206XX	**SCSI-2 Adapter** Any SCSI Device System Board
208XX Verify there are no duplicate SCSI ID settings on the same bus.	**Any SCSI Device**
210XXXX Internal bus, size unknown. **210XX**X**1** External bus, size unknown.	**SCSI Hard Disk Drive** SCSI Adapter or System Board SCSI Cable SCSI ID Switch (on some models)
212XX	**SCSI Printer** Printer Cable
213XX	**SCSI Processor**
214XX	**WORM Drive**
215XXXC **215XX**XD **215XX**XE **215XX**XU If an external device and power-on LED is off, check external voltages.	**CD-ROM Drive I** **CD-ROM Drive II** **Enhanced CD-ROM Drive II** **Any CD-ROM Drive** SCSI Cable SCSI Adapter or System Board
216XX	**Scanner**
217XX If an external device and power-on LED is off, check external voltages.	**Rewritable Optical Drive** SCSI Adapter or System Board SCSI Cable
218XX Check for multi-CD tray, or juke box.	**Changer**
219XX	**SCSI Communications Device**
24201Y0, **24210**Y0 Be sure wrap plug is attached.	**ISDN/2 Adapter** ISDN/2 Wrap Plug ISDN/2 Communications Cable
273XX	**1M bps Micro Channel Infrared LAN Adapter**
27501, **27503** **27506**, **27507**	**ServerGuard Adapter** System Board

Symptom / Error	FRU / Action
27502, **27504**, **27510** **27511**, **27533**, **27534** **27536**, **27537**	**ServerGuard Adapter**
27509	**Remove redundant adapters, run Auto Configuration program, then retest**
27512	**WMSELF.DGS diagnostics file missing** WMSELF.DGS diagnostics file incorrect.
27535	**3V Lithium Backup Battery** ServerGuard Adapter
27554	**Internal Temperature out of range** ServerGuard Adapter
27555, **27556**	**ServerGuard Adapter** Power Supply
27557	**7.2V NiCad Main Battery Pack** ServerGuard Adapter
27558, **27559** **27560**, **27561**	**PCMCIA Type II Modem** ServerGuard Adapter
27562	**External Power Control not connected** External Power Control ServerGuard Adapter
27563, **27564**	**External Power Control** ServerGuard Adapter
275XX	**Update Diagnostic Software**
27801 to **27879**	**Personal Dictation System Adapter** System Board
27880 to **27889**	**External FRU** (Speaker, Microphone)
I9990301 Hard disk reset failure.	**Possible hard disk drive problem**
I9990305 No startable device found.	**Reset computer from diskette, or check for valid startup sequence**
I999XXXX There is an optional SCSI adapter installed.	**SCSI Hard Disk Drive** SCSI Adapter SCSI Cable

DID YOU FIND YOUR POST ERROR CODE IN THE LIST?

Yes **No**

004

Error Range Is Not Listed

If the error code *range* presented is not listed in this index, it may be generated by a device that requires an additional service package. Refer to that service package.

005

(Step **005** continues)

005 (continued)

- **Action:**
  - **Change the FRU suspected**, go to “FRU Exchange on Network Node Processor Based on 7585” on page 5-34.
  - **or perform the specified action.**

006

Check your network node processor symptom with the following list.

ERROR MESSAGE

Symptom / Error	FRU / Action
Address Exceeds the Size of Your Memory An invalid memory address was entered. Diagnostics Tests display this message during the Locate Bad Chips option.	**Enter the correct address.** Memory Module System Board
Arithmetic Functions Failed An error was detected during the CPU Test.	**Microprocessor** System Board
Base Memory Test Failed An error was detected in base memory.	**Memory Module** System Board
Boot Sector Unreadable A boot sector read error was detected on the hard disk drive.	**Hard Disk Drive** Hard Disk Drive Cable Hard Disk Drive Adapter (if installed) System Board
Bus Noise Test Failed RAM Test detected an error in the memory bus.	**Memory Module** System Board
Butterfly Cylinder Access Test Failed Hard Disk Drive Test detected mismatch between the data read and the data stored on the drive.	**Hard Disk Drive** Hard Disk Drive Cable Hard Disk Drive Adapter (if installed) System Board
Clock Stopped Real-time clock has stopped working.	**Real-Time Clock Assembly** System Board
CMOS Clock Test Failed Time and Date Settings for CMOS and DOS **do not** Match.	**Real-Time Clock Assembly** System Board
Controller Diagnostic Test Failed An error was detected while testing the Hard Disk Controller (Adapter).	**Hard Disk Drive Adapter** (if installed) Hard Disk Drive System Board
Cylinder 0 errors Test detected an error reading the first cylinder of the hard disk drive.	**Hard Disk Drive** Hard Disk Drive Adapter (if installed) System Board
Device is Not Ready **Ready the Device...** **or** **Press Any Key**	**Ensure the device is powered-on.** Replace failing device Device Adapter (if installed) System Board

Symptom / Error	FRU / Action
Disk Error Encountered Opening Output File Press Any Key To Continue.	**Hard Disk Drive** Hard Disk Drive Adapter (if installed) System Board
DMA #X Failed Main Components Test detected an error while testing the DMA controller.	**System Board**
DMA Page Register Failed DMA page register error	**System Board**
Drive (x) Media (y) Mismatch FAT ID mismatch with installed drive.	**Check diskette and diskette drive capacity.** Diskette Drive System Board
Error in video buffer. **Bad bits.** Video memory test error.	**Video Adapter** System Board Display
Exception Interrupt In Protected Mode Diags Cannot Continue Server error, remove one adapter at a time until the symptom goes away.	**Any Adapter** System Board Processor
Extended Memory Test Failed Extended memory error.	**Memory Module** System Board
Floppy Drive Failed Diskette drive(s) failed.	**Diskette Drive** System Board Diskette Drive Cable
General Function Failed Remove one adapter at a time until the symptom goes away.	**Any Adapter** System Board Processor
Hard Drives Failed Hard Disk Drive test error.	**Hard Disk Drive** Hard Disk Drive Adapter (if installed) System Board
Incorrect DOS version	**Ensure you are using DOS version 3.0 or higher.**
INT Mask Register Failed INT Mask Register error.	**Microprocessor** System Board
Invalid Date Clock/DOS date mismatch.	**Real-Time Clock Assembly** System Board
Invalid Time Clock/DOS time mismatch. Back-up clock and DOS time of day settings do not match.	**Real-Time Clock Assembly** System Board
Linear Cylinder Access Test Failed Hard disk drive error.	**Hard Disk Drive** Hard Disk Drive Cable Hard Disk Drive Adapter (if installed) System Board
Logic Function Failed CPU Logic test error.	**Microprocessor** System Board
Loopback Error COM Port Test or Parallel Port error.	**System Board** Wrap Plug A wrap plug must be installed to successfully complete these tests

Symptom / Error	FRU / Action
Main Components Failed System board error.	**System Board** Processor
Memory test cannot run at this location in memory Not enough free memory available to start the memory test.	**Memory Module** System Board
Missing QAPlus/PRO Files(s) One or more diagnostic support files are missing.	**Diagnostic Diskette**
NO LOOP-BACK PLUG. Skipping External loopback test No wrap plug installed.	**Install wrap plug on the serial port, rerun test** System Board
Not ready Printer not on-line or not ready.	**Ready Printer** Printer Printer Cable System Board
No 'type-amatic' repeat At least one repeat key must be tested during this test or an error will occur. Type-amatic test error.	**Keyboard** System Board
Not used by any standard device IRQ is not currently being used by a non-standard device.	**System Board**
Numeric Proc Failed NPU test error.	**Microprocessor** System Board
Parallel Ports Failed Test Report Summary message.	**System Board**
Pass (N): ** Errors ** Drive (X) Failed Diskette drive read/write test error.	**Diskette Drive** System Board Diskette Drive Cable
Pass (N) Drive Not Ready Diskette drive door is open or defective.	**Ensure diskette drive is ready** Diskette Drive System Board Diskette Drive Cable
Pass (N): Drive (X) Write Protected or Unformatted	**Insert a non-write protected, formatted diskette into the diskette drive; then rerun the test** Diskette Drive System Board Diskette Drive Cable
Pass (N): Unknown Media Drive (X) Diskette Drive Test error.	**Diskette** Diskette Drive System Board Diskette Drive Cable
Place Hi-density Media in Drive Media/drive mismatch.	**Diskette** Diskette Drive System Board Diskette Drive Cable
Printer Failed Printer powered-on and ready?	**Printer** Printer Cable System Board

Symptom / Error	FRU / Action
Printer Fault Printer powered-on and ready?	**Printer** Printer Cable System Board
Printer Not Selected Ensure the printer is powered-on and ready.	**Printer** Printer Cable System Board
Program or File Not Found **Press Any Key** Diagnostics cannot find the USER(N).COM file.	**Diagnostic Diskette** Diskette Drive System Board
Program Too Big To Fit In Memory Too many Terminate and Stay Resident programs in memory.	**Reboot the system from the Diagnostic Diskette**
QAPlus/PRO Cannot Be Re-run Because Of Error In Relocating Program Diagnostics failed to relocate the Diagnostics Test programs so the memory space it resides in was not tested.	**Diagnostic Diskette** Memory Module System Board
RAM Memory Error in Block n. Bad bits n Memory error.	**Memory Module** System Board
RAM Test Failed Memory error.	**Memory Module** System Board
Read error on cylinder n Hard disk drive format error.	**Hard Disk Drive** Hard Disk Drive Adapter (if installed) System Board
Read Errors Diskette drive read error.	**Diskette** Diskette Drive System Board Diskette Drive Cable
Receive Error Serial Port loopback test error.	**Serial Port Cable** System Board
Refresh Failure Diagnostics Test detected an error while testing the DMA controller's RAM refresh cycle.	**Memory Module** System Board
RTC Interrupt Failure Diagnostics Test cannot detect the Real-Time clock interrupt.	**Real-Time Clock Assembly** System Board
Serial Chip Error COM Port error, general.	**Serial Port Cable** System Board
Serial Compare Error COM Port error, information transmitted is not the same as information received.	**Serial Port Cable** System Board
Serial Time-out Error COM Port error, time interval is too long between transmitted and received data.	**Serial Port Cable** System Board

Symptom / Error	FRU / Action
Serious Memory Error — Diags Cannot Continue Memory Test error.	**Memory Module** System Board
Sorry You Need A Mouse Mouse or mouse driver was not detected.	**Mouse** System Board
System Hangs Go to “Undetermined Problems” on page 5-26.	**Any device** Any adapter System Board
The Address Exceeds The Size Of Your Memory An invalid memory address was entered. The Diagnostics Tests display this message during the Locate Bad Chips option under the interact menu if an invalid memory address was entered at the "Enter Memory Address Of Bad Chip" prompt.	**Enter correct address** Memory Module System Board
That Number is Out Of Range An invalid bit number was entered. Diagnostics Tests display this message during the Locate Bad Chips option.	**Enter the correct number** Memory Module System Board
Too Many Errors — Test Aborted Too many errors, the Diagnostics Test cannot continue.	**Microprocessor** System Board
Transmit Error Internal or external serial port loopback test failure.	**Serial Port Cable** System Board
Video Adapter Failed Test Result Summary, displayed if "Fail" was at the Quit/Fail/Pass menu of any video test.	**Video Adapter** System Board Display
Write error on cylinder n Hard disk drive write error.	**Hard Disk Drive** Hard Disk Drive Adapter (if installed)
Write Errors Diskette drive write error.	**Diskette** Diskette Drive System Board Diskette Drive Cable
Write Protected or Unformatted Diskette is Write Protected or not formatted.	**Insert a non-write protected, formatted diskette into the diskette drive; then rerun the test** Diskette Drive System Board Diskette Drive Cable
You Cannot Delete the Motherboard "Remove Board" option was selected. The Diagnostics Tests display this message during the Locate Bad Chips option.	**Make the correct selection** Memory Module System Board Processor
Image Adapter/A Memory Test failure indicated by graphic of adapter.	**Replace memory module (shown in the graphic)**

Symptom / Error	FRU / Action
SCSI ID on rotary switch does not match SCSI ID set in configuration. Verify drive switches inside cover are set to zero.	**Rotary Switch Circuit Board** Circuit Board Cable Tape Drive

MISCELLANEOUS ERROR MESSAGES

Message/Symptom	FRU/Action
Changing colors.	**Display**
Clock Battery inaccurate.	**Clock Battery** System Board
Continuous beep.	**System Board**
Computer will **not** power-off.	**See "Power-Supply Voltage Check (7585)" on page 5-25** Power Switch System Board
Customer indicator lights not working, but computer works correctly.	**Customer Cable or Device** LED Board Power Supply (if used as power source) (Note: for easy checkout of LED board and power supply, swap the two LED cables.)
Dead computer.	**See "Power-Supply Voltage Check (7585)" on page 5-25** Power Switch Power Supply System Board
Diskette drive in-use light remains on or does not light when drive is active.	**Diskette Drive** System Board Diskette Drive Cable
Flashing cursor with an otherwise blank display.	**System Board** Primary Hard Disk Drive Hard Disk Drive Cable
Incorrect memory size during POST.	**Run the Memory tests** Memory Module System Board
"Insert a Diskette" icon appears with a known-good diagnostics diskette in the first 3.5-inch diskette drive.	**Diskette Drive** System Board Diskette Drive Cable Network Adapter
Intensity or color varies from left to right of characters and color bars.	**Display** System Board
No beep during POST but computer works correctly.	**Speaker** System Board

Message/Symptom	FRU/Action
No beep during POST.	**See "Undetermined Problems" on page 5-26** System Board Memory Module Any Adapter or Device Riser Card Power Cord Power Supply
No power, or fan not running.	**See "Power-Supply Voltage Check (7585)" on page 5-25**
Nonsystem disk or disk error-type message with a known-good diagnostic diskette.	**Diskette Drive** System Board Diskette Drive Cable
One long and two short beeps during POST.	**System Board**
One or both system cooling fans not running.	**See "Undetermined Problems" on page 5-26** Fan Cables Fan Power Supply
Other display symptoms not listed above (including blank or illegible display).	**See "Display" on page 5-23** System Board Display
Power-on indicator or hard disk drive in-use light not on, but computer works correctly.	**Power Supply** System Board LED Cables
Printer problems.	**See "Printer" on page 5-24**
Program loads from the hard disk with a known-good diagnostics diskette in the first 3.5-inch diskette drive.	**Check the Configuration/Setup Utility** Diskette Drive Diskette Drive Cable System Board Power Supply
Repeating short beeps.	**Keyboard (stuck key?)** Keyboard Cable System Board
Serial or parallel port device failure (system board port).	**External Device Self-Test OK?** External Device Cable System Board
Serial or parallel port device failure (adapter port).	**External Device Self-Test OK?** External Device Cable Alternate Adapter System Board Riser Card
Some or all keys on the keyboard do not work.	**Keyboard** Keyboard Cable System Board
Three short beeps during POST.	**See "RAM Memory Modules (SIMMs/DIMMs)" on page 5-28.** System Board

BEEP CODE INDEX

In the following Beep Code Index, the numbers indicate the sequence and number of beeps. For example, a “2-3-2” error symptom (a burst of two beeps, three beeps, then a burst of two beeps) indicates a memory-module problem. (Continue with the Symptom-to-FRU index below for other beep/no-beep symptoms.)

Beep Code	FRU/Action
1-1-3 CMOS read/write error	**Run Setup** System Board
1-1-4 ROM BIOS check error	**System Board**
1-2-X DMA error	**System Board**
1-3-X	**Memory Module** System Board
1-4-4	**Keyboard** System Board
1-4-X Error detected in first 64KB of RAM.	**Memory Module** System Board
2-1-1, 2-1-2	**Run Setup** System Board
2-1-X First 64KB of RAM failed.	**Memory Module** System Board
2-2-2	**Video Card** System Board
2-2-X First 64KB of RAM failed.	**Memory Module** System Board
2-3-X	**Memory Module** System Board
2-4-X	**Run Setup** Memory Module System Board
3-1-X DMA register failed.	**System Board**
3-2-4 Keyboard controller failed.	**System Board** Keyboard
3-3-4 Screen initialization failed.	**Video Adapter** System Board Display
3-4-1 Screen retrace test detected an error.	**Video Adapter** System Board Display
3-4-2 POST is searching for video ROM.	**Video Adapter** System Board
4	**Video Adapter** System Board
All other beep code sequences.	**System Board**

Beep Code	FRU/Action
One long and one short beep during POST. Base 640KB memory error or shadow RAM error.	**Memory Module** System Board
One long beep and two or three short beeps during POST. (Video error)	**Display Adapter, if installed.** System Board **Note: This is normal when there is no display connected to the network node processor**.
Three short beeps during POST.	**System Board**
Continuous beep.	**System Board**
Repeating short beeps.	**Keyboard stuck key?** Keyboard Cable System Board

DID YOU FIND YOUR SYMPTOM IN THE LIST?

Yes **No**

007

Go to “Undetermined Problems” on page 5-26.

008

- **Action:**
  - **Change the suspected FRU**, go to “FRU Exchange on Network Node Processor Based on 7585” on page 5-34.
  - **or perform the specified action.**

Display

If the screen is rolling, blooming, distorted, or cannot be adjusted for brightness and contrast, replace the display assembly with a known good display assembly, if possible. If that does not correct the problem, replace the system board.

Note: During the first two or three seconds after the display is powered on, the following might occur while the display synchronizes with the computer.

- Unusual patterns or characters
- Static, crackling, or clicking sounds
- A “power-on hum” on larger displays

A noticeable odor might occur on new displays or displays recently removed from storage.

These sounds, display patterns, and odors are normal; do not replace any parts.

To verify the operation of the display, do the following to run the display self-test.

Note: This test does not work on all displays. If the test does not work, but you suspect the display, replace it. If that does not solve the problem, reinstall the original display, then replace the system board.

1. Power off the computer and display.
2. Disconnect the display signal cable.
3. Power on the display.
4. Turn the brightness and contrast controls to their maximum setting.
5. Check for the following conditions:
   - The screen should be white or light gray, with a black margin (test margin) on the screen.
   - You should be able to vary the screen intensity by adjusting the contrast and brightness controls.

     Note: The location of the test margin varies with the type of display. The test margin might be on the top, bottom, or one or both sides.

   If you do not see any test margin on the screen, or if you cannot adjust either the brightness or contrast with their respective controls, replace the display.

   If you are unable to correct the problem, go to “Undetermined Problems” on page 5-26.

Keyboard

Note: If a mouse or other pointing device is attached, remove it to see if the error symptom goes away. If the symptom goes away, the mouse or pointing device is defective.

001

– Power-off the computer.
– Disconnect the keyboard cable from the system unit.
– Power-on the computer and check the keyboard cable connector on the system unit for the voltages shown.
All voltages are ± 5%.

Pin	Voltage (Vdc)
1	+5.0
2	Not Used
3	Ground
4	+5.0
5	+5.0
6	Not Used

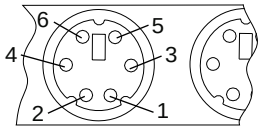


Figure 5-1. Keyboard Connector Voltages

ARE THE VOLTAGES CORRECT?
Yes No

002

Replace the system board.

003

On keyboards with a detachable cable, replace the cable. If the problem remains or if the cable is permanently attached to the keyboard, replace the keyboard. If the problem remains, replace the system board.

Printer

1. Make sure the printer is properly connected and powered on.
2. Run the printer self-test.

If the printer self-test does not run correctly, the problem is in the printer. Refer to the printer service manual.

If the printer self-test runs correctly, install a wrap plug in the parallel port and run the diagnostic tests to determine which FRU failed.

If the diagnostic test (with the wrap plug installed) do not detect a failure, replace the printer cable. If that does not correct the problem, replace the system board or adapter connected to the printer cable.

Power-Supply Voltage Check (7585)

If the power-on indicator is not on or if the power-supply fan is not running, check the power cord for proper installation and continuity. Verify that the voltage-selector switch is set for the correct voltage (See “Power Voltage Setting”).

If this setting is correct, check the power supply connector voltages shown in Figure 5-2. The power supply connector is located at the right rear of the system board.

Note: These voltages must be checked with the power supply cables connected to the system board.

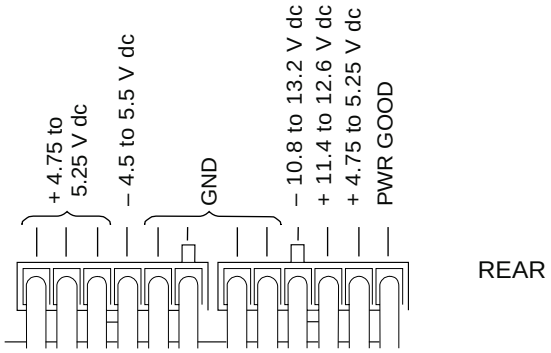


Figure 5-2. Power Supply Connector Voltages

If the voltages are not correct, do the following.

- Check the power cord for continuity.
- Check the on/off switch for continuity.
- Replace the power supply.

Power Voltage Setting

The power supply on the 7585-P02 has a switch on it that must be manually set before the computer is powered up. This switch is located in the area where the power cord plugs into the system unit. It is marked either "110/220" or "115/230".

Use the following instructions to set the switch. You can use a ball-point pen to slide the switch to the correct position.

- If the voltage range in your country is between 90 and 137 volts, set the switch so "110" or "115" is visible.
- If the voltage range in your country is between 180 and 265 volts, set the switch so "220" or "230" is visible.

Attention

Be sure the voltage selection switch is in the correct position. If you set this switch to the wrong position, you might damage your computer when you turn it on.

Undetermined Problems

If an undetermined problem exists, check the power supply voltages (see “Power-Supply Voltage Check (7585)” on page 5-25). If the voltages are correct, return here and continue with the following steps.

1. Power-off the computer.
2. Remove or disconnect the first (or next) of the following:
   a. Non-IBM devices
   b. External devices (modem, printer, or mouse)
   c. Any adapters
   d. Riser card
   e. Memory modules, other that Bank 0
   f. Extended video memory
   g. External Cache
   h. Hard drive
   i. Diskette drive
3. Power-on the computer to re-test the system.
4. Repeat steps 1 through 3 until you find the failing device or adapter.

If all devices and adapters have been removed, and the problem continues, replace the system board (see “Before Replacing a System Board”). If the problem continues after replacing the system board, reinstall the old system board and replace the microprocessor (see “FRU Exchange on Network Node Processor Based on 7585” on page 5-34).

Before Replacing a System Board

The processor is not included with the system board FRU; it is a separate FRU.

If you are instructed to replace the system board, you should do the following.

- Install the processor from the old system board onto the new system board.
- If any options (RAM modules, cache, or video memory) are on the old system board, install them onto the new system board.
- Ensure that all the new system board jumper settings are the same as the old system board jumper settings.

If the new system board does not correct the problem, reinstall the options back onto the old system board, reinstall the old system board, and replace the processor with a new one.

Devices List

Follow the instructions on the screen for the installed devices list.

Attention:
A customized setup configuration (other than default settings) might exist on the computer you are servicing. Running the Configuration/Setup Utility program might alter those settings. Note the current configuration settings and verify that the settings are in place when service is complete.

If the number of diskette drives shown in the installed devices list is not correct, do the following.

1. Restart the computer.
2. Run the Configuration/Setup Utility program to correct the drive information.
3. Run the diagnostic tests.
4. If you cannot correct the drive information, replace FRUs, in the following order, until the problem goes away:
   - Diskette drive
   - Diskette-drive cable
   - System board

If the number of hard disk drives shown in the installed devices list is not correct, do the following.

1. Check the hard disk drive jumper settings. All supported hard disk drives use jumpers or tabs to set drives as either primary or secondary. Refer to the jumper instructions that came with your hard disk drives.
2. Check the voltages to the hard disk drives (see “Power-Supply Voltage Check (7585)” on page 5-25).
3. Restart the computer and check the configuration.
   - If the first drive is missing, replace the primary drive.
   - If any other drive is missing, replace that drive.
   - If all drives are missing, replace the primary drive.
   - If the problem remains, replace the drive cable.
   - If the problem still remains, replace the system board.

If any other adapter or device is missing from the installed devices list, run the Configuration/Setup Utility program. Check to see if any adapter or device is set to a conflicting address with any other adapter or device. Also be sure that any adapter or device missing from the list is not set to “disabled.”

Note: If the device is still missing from the list, run the diagnostics provided with that device.

RAM Memory Modules (SIMMs/DIMMs)

The 7585-P02 supports the following memory modules.

Dual In-line Memory Module (DIMM)

Bank 0 is populated with a single 168-pin DIMM. This module can be 8MB, 16MB, and 32MB with a speed of 60 nanoseconds.

Single In-line Memory Modules (SIMM)

Banks 1 and 2 are populated by pairs of 72-pin SIMMs. Memory SIMMs supported are 4MB, 8MB, 16MB, and 32MB with a speed of 60 nanoseconds. Memory SIMMs must be installed in pairs, one pair to a bank. Both SIMMs in either bank must be the same size and speed.

If a problem with memory modules is suspected, perform the memory test procedure. See “Memory Test” on page 5-29.

Memory Test

Important

To continue this procedure you must have a display and keyboard connected to the network node processor Refer to “How to Install a Display and Keyboard on your Network Node Processor” on page 3-18.

1 Power OFF the network node processor.

2 Insert the Diagnostics diskette into drive A.

3 Power ON the computer and the attached display.

4 Make a note of any POST errors you receive. Disregard 164 errors (memory size).

5 Did you received a 2XX POST error?

Yes Go to **Step 15 on page 5-30** .
No Continue with **Step 6** .

6 Did the computer boot from the diagnostic diskette and the following logo screen appear?

```
            QAPlus/PRO
            by Diagsoft
                for
                IBM

Press any key to continue
```

Yes Go to **Step 7** .
No You might have to press Esc to continue.

When the previous screen is displayed continue with **Step 7** .

If the computer did not boot from the diagnostic diskette with the previous diagnostic logo screen displayed, go to “MAP: 7585 Network Node Processor Troubleshooting” on page 5-2.

7 Follow the prompts until the following window is displayed.

```
              QAPlus/PRO

      QAPlus/PRO Advanced Diagnostic

      System is being analysed
```

8 Wait until the main Menu is displayed

```
Main Menu

Diagnostics
System Info
Reports
Utility
Exit
```

9 Select the **Diagnostics** option.

10 The **Diagnostics Menu** menu is displayed.

```
Diagnostics

Quick Check
Module Tests
Options
```

11 Select the **Module Tests** .

12 A window is displayed showing all groups.

13 Select the **memory** , press the **Enter** key and follows the prompts.

14 Did the memory tests finish without an error?

No Follow the instructions on the display. If there are no instructions on the display, go to **Step 23 on page 5-31** .

Yes Your computer memory is now functioning correctly. If you suspect an intermittent problem, start an error log.

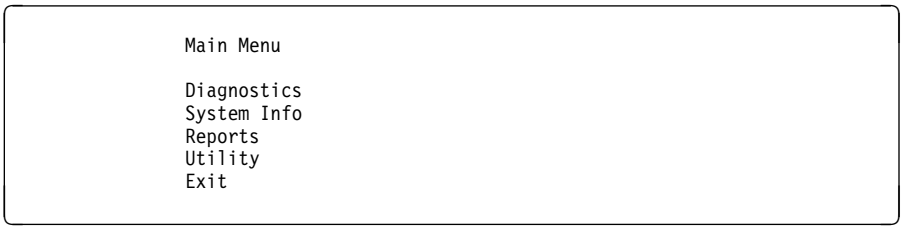
15 Press Esc to continue until the following screen is displayed:

```
            QAPlus/PRO
            by Diagsoft
                for
                IBM

  Press any key to continue
```

16 Follow the prompts until the following window is displayed.

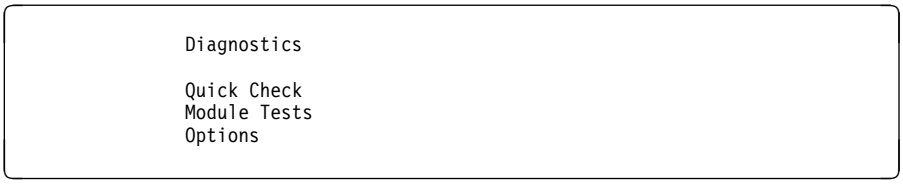
```
              QAPlus/PRO

      QAPlus/PRO Advanced Diagnostic

      System is being analysed
```

17 Wait until the main Menu is displayed



18 Select the **Diagnostics** option.

19 The **Diagnostics Menu** menu is displayed.



20 Select the **Module Tests** .

21 A window is displayed showing all groups.

22 Select the **memory** , press the **Enter** key and follows the prompts.

23 At the end of group testing follows the prompts. If you cannot run the memory test or the test does not find a problem, replace the memory modules, one pair/bank at a time, until the problem goes away. When the problem goes away, replace the last memory module removed. If that does not fix the problem, replace the system board.

How to Run the 7585 Network Node Processor Diagnostics

Important

To continue this procedure you must have a display and keyboard connected to the network node processor Refer to “How to Install a Display and Keyboard on your Network Node Processor” on page 3-18.

Use the **Diagnostic** diskette to test the basic system hardware with the following procedure.

1. Power OFF the network node processor.
2. Insert the **Diagnostic** diskette in drive A.
3. Power ON the network node processor and the attached display.
4. Do not press **F1** when the icon appears
5. If any POST errors appear after POST, make a note of the error(s) and press the **Esc** key.
6. The following window is displayed.

```
              QAPlus/PRO
              by Diagsoft
                  for
                  IBM

   Press any key to continue
```

7. Follow the prompts until the following window is displayed.

```
                 QAPlus/PRO

       QAPlus/PRO Advanced Diagnostic

       System is being analysed
```

8. Wait until the main Menu is displayed

```
              Main Menu

              Diagnostics
              System Info
              Reports
              Utility
              Exit
```

9. Select the **Diagnostics** option.
10. The **Diagnostics Menu** menu is displayed.

11 Select the **Quick Check** option (for complete testing) or **Module Tests** (for testing part of your network node processor).

12 A window is displayed showing which group is tested. At the end of group testing follows the prompts.

Note: Refer to the *7585 P02 Industrial Computer Installation, Operation, Hardware Maintenance*, S76H-3792 to identify the problem. Then if you have to exchange an FRU, go to “FRU Exchange on Network Node Processor Based on 7585” on page 5-34.

FRU Exchange on Network Node Processor Based on 7585

Before any network node processor FRU exchange, perform the above procedure:

1. Switch OFF the network node processor and the display (if you have already connected it to the network node processor).
2. On the rear of the network node processor disconnect all the cables.
3. If your network node processor is installed in the controller rack go to Step **4** . Otherwise go to Step **7** .
4. Remove the four screws which secure the network node processor in the rack. Slide out the network node processor from the rack and install it on a table to continue the FRUs removal.

   Attention

   Be carefull the weight of the processor is about 18 kg.

   FRU Exchange

5. Go to the *7585 P02 Industrial Computer Installation, Operation, Hardware Maintenance*, S76H-3792 to replace the suspected FRU, then **return here** and continue with Step **6** .
6. For Setting up the network node processor after FRU exchange use the following steps:

   a. Re-install all the covers of the network node processor.

   b. If the network node processor was installed in a controller rack continue with Step **6c** . Otherwise go to Step **6e** .

   c. Slide the network node processor into the rack.

   d. Secure the network node processor using the four screws previously removed, then continue with Step **6e** .

   e. At the rear of the network node processor re-connect all the cable previously removed.

7.

   Important

   To continue this procedure you must have a display and keyboard connected to the network node processor Refer to “How to Install a Display and Keyboard on your Network Node Processor” on page 3-18.

   Use the following table to find the procedure you need to follow after exchanging an FRU.

Network Node Processor FRU to Exchange	Action
Battery Board	Go to “Procedure After Board or Battery Exchange on NNP Based on 7585” on page 5-36
Hard Disk Drive	Go to “Procedure After Hard Disk Drive Exchange on NNP Based on 7585” on page 5-43
LAN Adapter	Go to “Procedure After LAN Adapter Exchange on NNP Based on 7585” on page 5-38
Other FRU	Go to “Procedure After Other FRU Exchange on NNP Based on 7585” on page 5-46

Procedure After Board or Battery Exchange on NNP Based on 7585

Your are here after battery or board exchange.

1 Power ON the network node processor.

2 The following error screen is displayed:

```
          Post Startup Error(s)

The following error(s) were detected when the system was
started:

   161 Bad CMOS Battery                              note
  1801 PCI Error. No space available to shadow ROM.note

Select one of the following:
       Continue
       Exit Setup
```

Note: The errors displayed can be different from the errors shown in this screen.

3 Select the **continue** option. Another screen is displayed:

```
            Error

The configuration settings are invalid.
Select one of the following:

   Automatically reconfigure system and continue
   Continue with the corrupted value
   Exit Setup
```

4 Select the **Automatically reconfigure system and continue** option. Another screen is displayed:

```
            Configuration Error

 Configuration errors were detected
 Select one of the following:

   Continue
   Exit Setup
```

5 Select the **Continue** option. The **Configuration / Setup Utility** menu is displayed. Refer to the “Nways Switch Administration Station Configuration Reference Based on 7585-P02” on page C-1 to check and change your configuration according to the configuration reference.

6 When it is done select the **Save Settings** option and follow the prompts.

7 Select **Exit Setup**. You have the following screen:

```
            Exit Setup

    Do you want to exit the Setup Utility?

    Yes, exit the Setup Utility
    No, return to the Setup Utility
```

8 Select **Yes** that reboot the network node processor.

9 Go to “CE Leaving Procedure” on page 5-47.

Procedure After LAN Adapter Exchange on NNP Based on 7585

You are here after LAN adapter card exchange.

Important

For this procedure be sure that the LAN cable **is not connected** to the LAN adapter card.

1 Power ON the network node processor and the attached display.

2 The IBM logo, several messages, and OS/2 logo are displayed. Wait until the following window appears.

```
STARTUP.CMD

                Loading. Please wait..
```

3 Press simultaneously the **Ctrl** and **C** keys.

4 A DOS window appears. Type the following command:

EULANAID

then press **Enter**.

5 The IBM LANAID window is displayed during loading. Wait until the following window is displayed.

```
LANAID V2.21 for IBM Auto/Turbo ISA Adapter

MAC Address                Alternate Format
xx-xx-xx-xx-xx-xx          xx-xx-xx-xx-xx

            Select a function Below

        -   Adapter Configuration

        -   Software Installation

        -   Diagnostics


Exit    Help
```

6 Using the **Tab** key select the **Adapter Configuration**, then press **Enter**.

7 The following window is displayed.

```
           View Adapter Configuration

  Configurable                    |                    Hardware

Select <Suggest> or <Change> to make changes to the configuration below
Then press <Store> to store these changes to the adapter.

  Mode            ISA 16        Adapter Plug and Play    Automatic
 Remote IPL:     Disabled        Interrupt:               9(2)
 Data Rate:      16 MBps         I/O Address:            A20-A23
 Auto Sens       Disabled        ROM Address              CC000-C0FFF
 Bus Width       16 bits         RAM Address              C0000-CBFFF


  Suggest     Change     Defaults      Store

  Done        Cancel     Help
```

8 Using the **Tab** key select the **Change** and press **Enter**.

9 The following window is displayed.

```
           Change Configuration Parameters

  Adapters Mode        Plug and Play         Other Parameters

            Select each mode for a detailed description

           Adapter Modes

         - Enhanced Modes

         - Auto 16 Mode

         - ISA 16 Mode


  OK          Cancel     Help
```

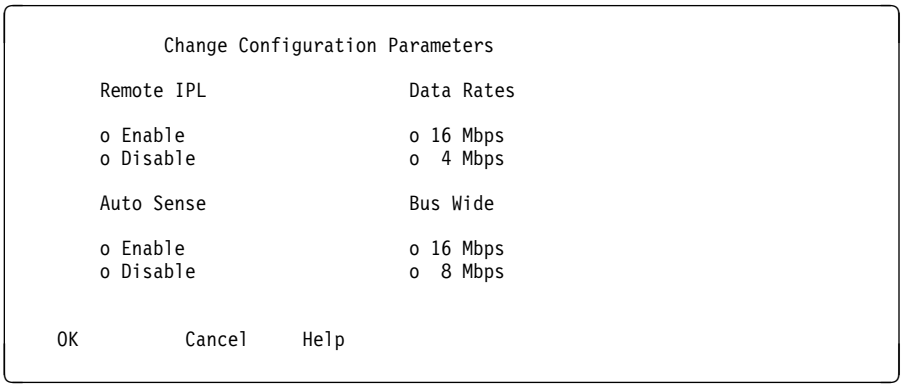
10 Using the **Up** and **Down** keys select the **ISA 16 Mode** and press simultaneously **Alt** and **P** keys to select the **Plug and Play** window.

11 The following window is displayed.

```
           Change Configuration Parameters

  Adapters Mode    |   Plug and Play    |    Other Parameters

       Make any Changes to the configuration, then select <OK>


         - Plug and Play Automatic Configuration

         - Manual (locked) Configuration for Plug and Play systems

         - Manual Configuration for no Plug and Play (legacy) systems



  OK          Cancel     Help
```

12 Press simultaneously the **Alt** and **R** keys.

13 The following window is displayed.

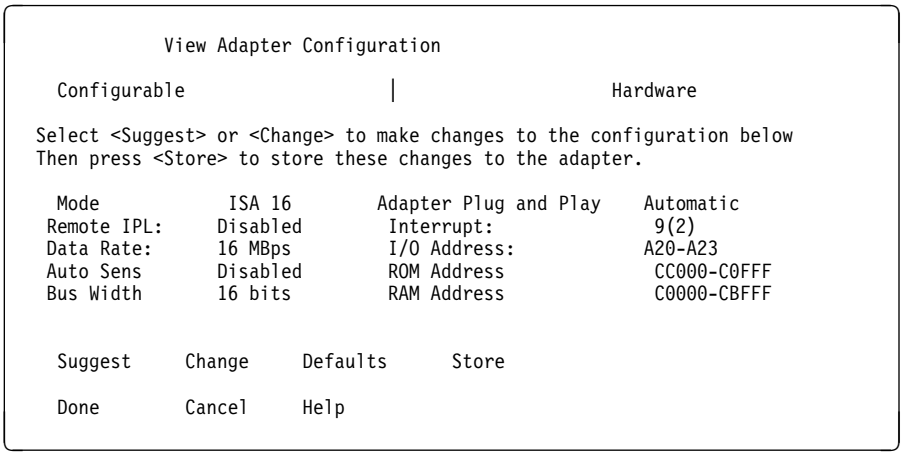


14 Using the **Up**, **Down**, and **Tab** keys select:

- Remote IPL: **Disable**
- Data Rates: **16 Mbps**
- Auto Sense: **Disable**
- Bus Wide: **16 bits**

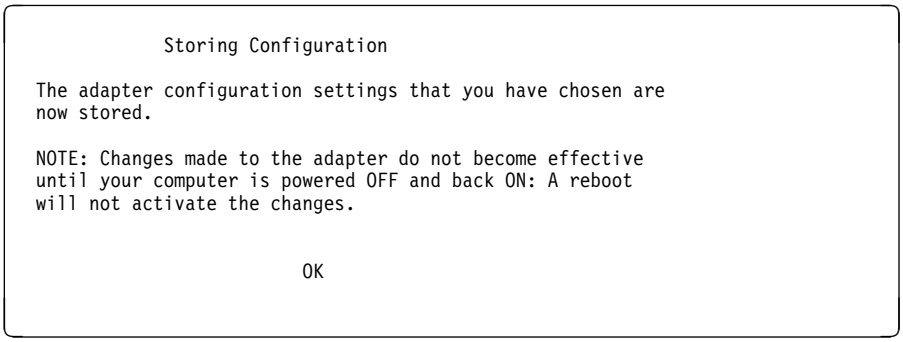
Select **OK** and press **Enter**.

15 The following window is displayed.



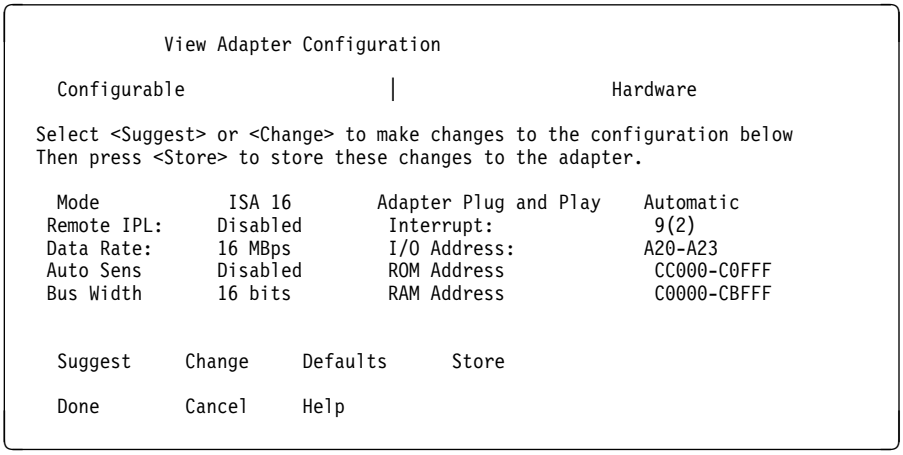
16 Using the **Up** and **Down** keys select the **Store**, then press **Enter**.

17 The adapter configuration is stored. Wait until the following window is displayed.



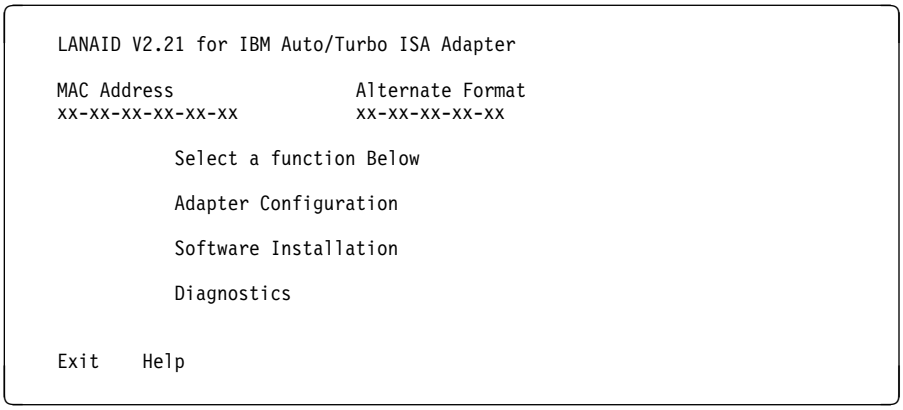
18 Press **Enter**.

19 The following window is displayed.



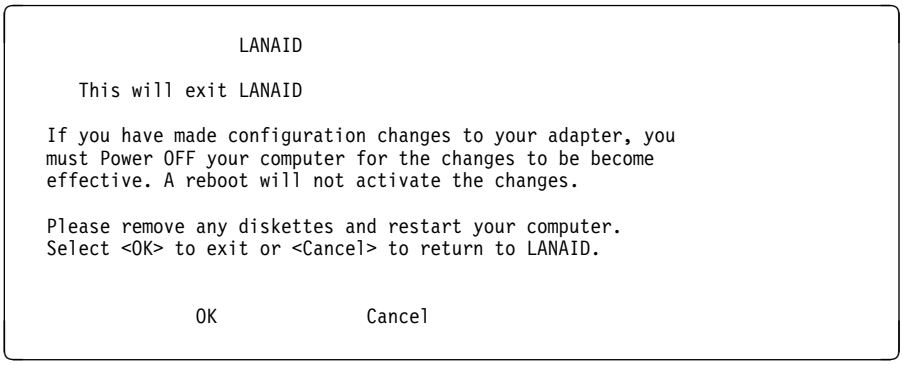
20 Using the **Tab** key, select **Done**, then press **Enter**.

21 The following window is displayed.



22 Using the **Tab** key, select **Exit**, then press **Enter**.

23 The following window is displayed.



24 Using the **Tab** key, select **OK**, then press **Enter**.

25 Power OFF the network node processor.

26 Reconnect the LAN adapter cable to the rear of the LAN adapter card.

27 Disconnect the display and the keyboard previously installed.

28 Power ON the network node processor

29 Go to “CE Leaving Procedure” on page 5-47.

Procedure After Hard Disk Drive Exchange on NNP Based on 7585

You are here after exchanging the hard disk drive.

1 Insert the **Diagnostic Diskette**

2 Power On the network node processor and the display.

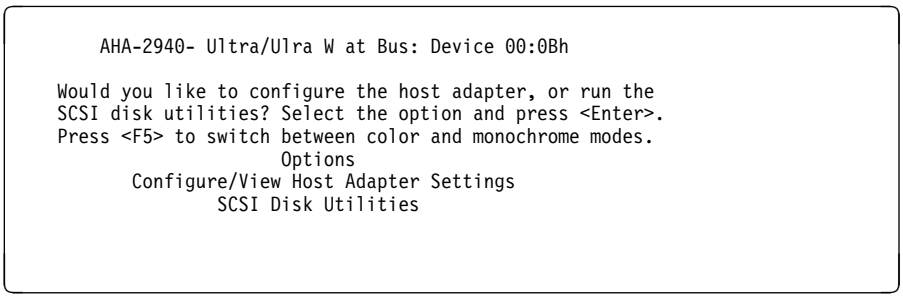
3 When the following is displayed

```
Adaptec AHA<2940 Ultra/Ultra WBios v1.2
(c) 1995 Adaptec, Inc. All rights Reserved.

<<<Press CCtrl><A> for SCSI Select (TM) Utility>>>
SCSI ID : LUN NUMBER - : - 6:0 - IBM DFH5S2F       Note
```

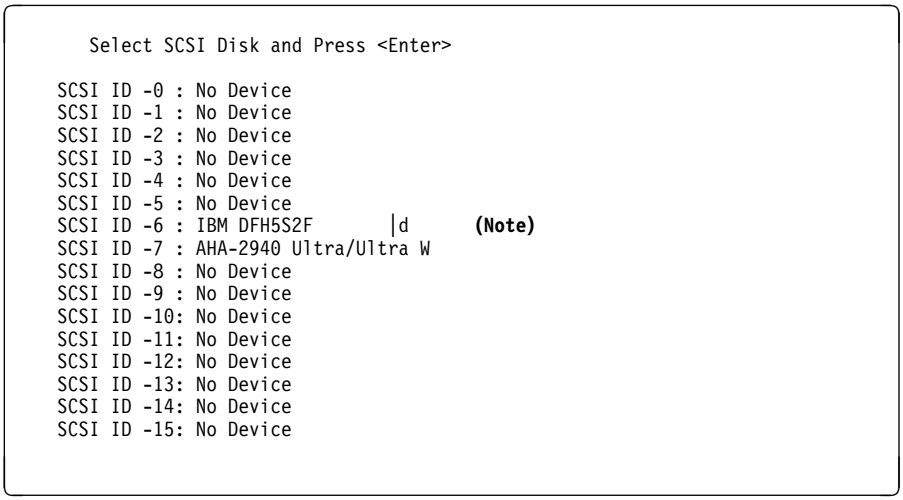
Note: The device identification may be different.

4 Press simultaneously the **Ctrl** and the **A** key.

5 The following screen is displayed:



6 Select the **SCSI Disk Utilities**



Note: The device identification may be different.

7 Select the **SCSI ID -6: IBM DFH5S2F** (the device identification **IBM DFH5S2F** may be different).

```
Format Disk
Verify Disk Media
```

8 Select the **Verify Disk Media** option. the following screen is displayed:

```
SCSI ID -6 IBM FFHS52F     |d      (Note)
Capacity: 2150 MBytes

This drive will be scanned for media defects. All
recoverable defects will be remapped.
           Verify Disk?
               Yes
               No
```

Note: The device identification may be different.

9 Select the **Yes** option. the following screen is while the diagnostic runs.

```
     Verifying IBM DFHS52F     |d

Sector - sssssss                  2150 Mbytes

             xx% Complete

          Press <Esc> to abort
```

10 At the end of the diagnostic you obtain:

```
          Disk Verification Complete
```

11 Click on the **ESC** key until the following screen is displayed:

```
          Exit Utility
              Yes
              No
```

12 Select **Yes** the following screen is displayed:

```
          Please press any key to reboot
```

13 Is the diagnostic error free?

No Restart the problem determination.

Yes You must restore the network node processor hard disk after its replacement, continue with **Step 14 on page 5-45**

14 Return on the ***service processor*** console to load the licensed internal code on the NNP, using the following procedure:

a Return to the **MOSS-E View** window.

b Double click on the **3746-900** or **3746-950** icon.

c On the **3746-9x0 Menu** select the **Network Node Processor (NNP) Management** option.

d On the **Network Node Processor (NNP) management** window double click on the **Install/change/Restore LIC/NNP** option.

e The **3746-900/NNP Licensed Internal Code (LIC) Management** window is displayed.

f Select the NNP (A or B), then click on **Restore LIC on NNP**

g On the following window click on **OK**

h Follow the prompts to insert the **Network Node Processor Diskette Installation** in the ***service processor*** then click on **OK**.

i Follow the prompts to insert the **Network Node Processor Diskette Installation** in the ***network node processor*** then click on **OK**.

j The **3746-900/NNP Licensed Internal Code (LIC) Management** window is displayed with a message for waiting (Installation duration is about 30 minutes).

k When installation is complete a message warms you to remove the **Network Node Processor Diskette Installation** from the ***network node processor*** then click on **OK**.

l A new message indicates that the "NNP LIC Restoration, Operation Successfully Completed", click on **OK**.

m The **3746-900/NNP Licensed Internal Code (LIC)** is displayed, click on **Close** to return to the **MOSS-E View** window.

15 Go to “CE Leaving Procedure” on page 5-47.

Procedure After Other FRU Exchange on NNP Based on 7585

You are here after other FRU exchange.

1 Run diagnostics (see “How to Run the 7585 Network Node Processor Diagnostics” on page 5-32).

2 Is the diagnostic error free?

No Restart the problem determination.

Yes Return the network node processor to the customer, then go to “CE Leaving Procedure” on page 5-47.

CE Leaving Procedure

1 Check that:

a The network node processor is properly installed.

b All the cables previously removed are properly connected.

c The display and keyboard previously installed are deconnected.

d The network node processor IML is complete and linked with the service processor.

2 At the beginning of the problem determination, did you modify the **Remote Support Facility** parameters, using the procedure described in the *Maintenance Information Procedure* for 3745 and 3746-900, or in the *Service Guide* for 3746-950?

Yes Go to step **3** .
No Go to step **4** .

3 Modify the **Remote Support Facility** parameters using the following steps:

- On the "MOSS-E VIEW" window, double click on the service processor icon.
- The "Service Processor Menu" window is displayed.
- Click on the "Configuration Management" option.
- Double click on the "Manage Remote Operations" option.
- On the "Remote Operation Management" window, select the "Remote operations authorization" option and click on "OK".
- On the "Remote Support Facility" window, select the two following options:
  - "Enable Remote Support Facility"
  - "Generate alerts"

  and click on "OK".
- Click on "Cancel" to return to "Service Processor Menu", then click on "Function" and "Exit" to return to the "MOSS-E View" window.
- On the "MOSS-E VIEW" window, click on "Program" in the action bar.
- Click on "Log off MOSS-E".
- Continue with step **4** .

4 You should use the following list to ensure that the machine is in suitable condition for customer operation and that call information is recorded.

- If previously, you have worked on 3745 or 3746, be sure to have restore them at a correct status for customer application (MOSS online, 3746 online, FRU active in CDF-E).
- Ask the customer to restart his application.
- If you have a problem, call your support for assistance

Appendix A. Parameter Worksheet

The worksheet in this appendix lists the MOSS-E parameters needed during the NNP installation.
When applicable, default parameter values are included (in parentheses) in the tables.

Definition of Service LAN IP Addresses

For details, refer to chapter 'Service LAN IP Addresses (MOSS-E)' in *3745 Communication Controller Models A and 3746 Models 900 and 950: Planning Guide*, GA33-0457.

Table A-1. For the Service Processor	
IP address	(192.9.200.1)
Subnet mask	(255.255.255.240)

Table A-2. For the Network Node Processor-A	
IP address	(192.9.200.2)
Subnet mask	(255.255.255.240)

Table A-3. For the Network Node Processor-B	
IP address	(192.9.200.3)
Subnet mask	(255.255.255.240)

Table A-4. For the 3746 NN	
IP address	(192.9.200.4)
Subnet mask	(255.255.255.240)

Appendix B. Controller Expansion Component Locations

If you want more information about:	Refer to
• Positioning the units in the front side of the controller expansion	• Figure B-1 on page B-2
• Positioning the units in the rear side of the controller expansion	• Figure B-2 on page B-3
• Installing captive nuts and brackets (for 7585)	• Figure B-3 on page B-4
• Installing captive nuts and brackets (for 3172, 9585, or 9577)	• Figure B-4 on page B-5
• Installing captive nuts for LCBs	• Figure B-5 on page B-6
• Installing captive nuts for 8229s	• Figure B-6 on page B-7
• Installing captive nuts and brackets for MAE	• Figure B-7 on page B-8
• Installing brackets for processor type 7585	• Figure B-8 on page B-9
• Installing brackets for processor type 3172	• Figure B-9 on page B-10
• Example of units installation (processor type 7585)	• Figure B-10 on page B-11
• Example of units installation (processor type 7585 + MAE)	• Figure B-11 on page B-11
• Example of units installation (processor type 3172)	• Figure B-12 on page B-12
• Example of units installation (processor type 9585)	• Figure B-13 on page B-12
• Example of units installation (processor type 9577)	• Figure B-14 on page B-13
• Connecting the units to the ac Outlet Distribution Box.	• Figure B-15 on page B-13

Use this drawing to setup the **units** on the **front side** of the controller expansion, for the units that can be installed on the rear, refer to Figure B-2 on page B-3.

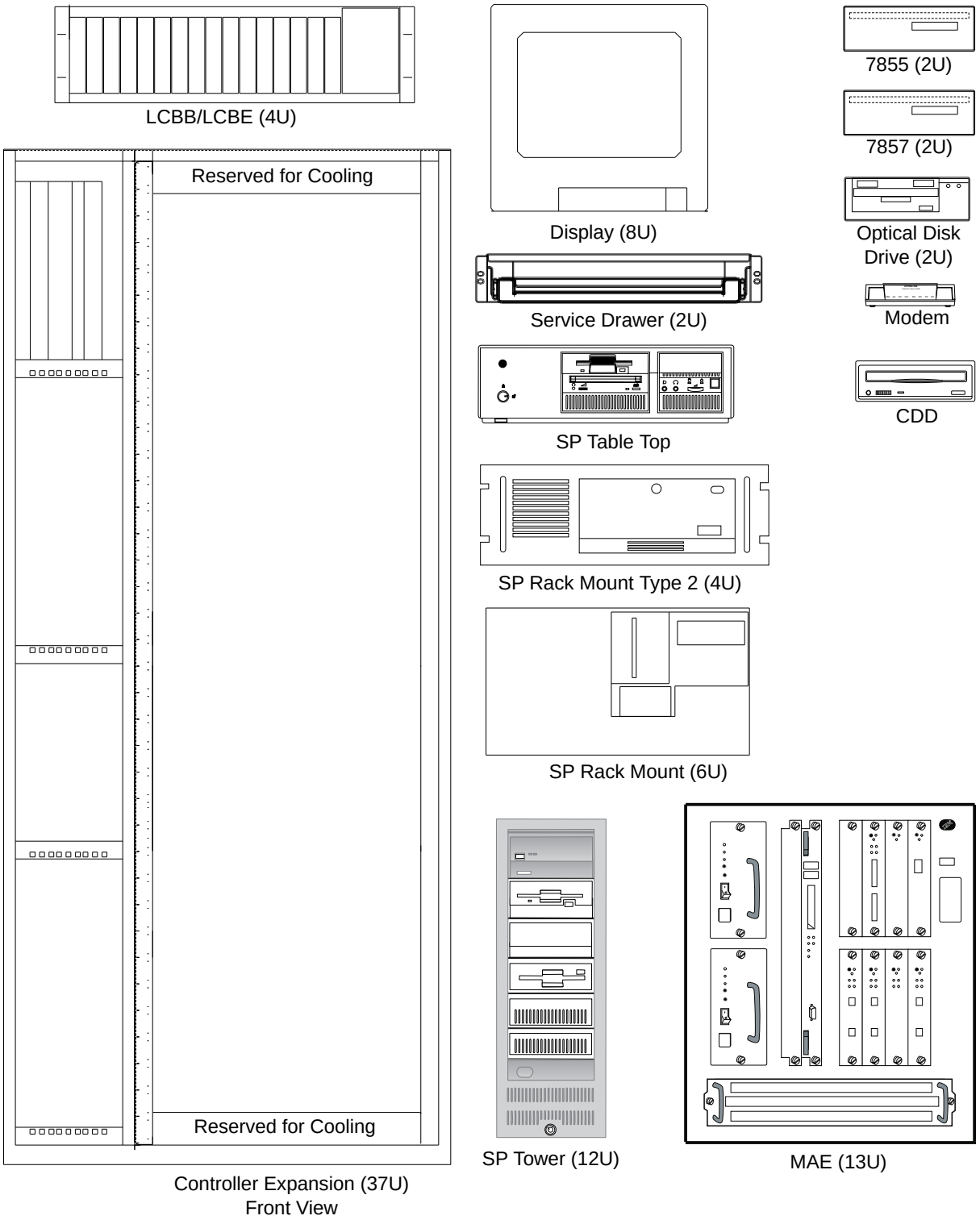


Figure B-1. Controller Expansion Inventory Chart (Front View).

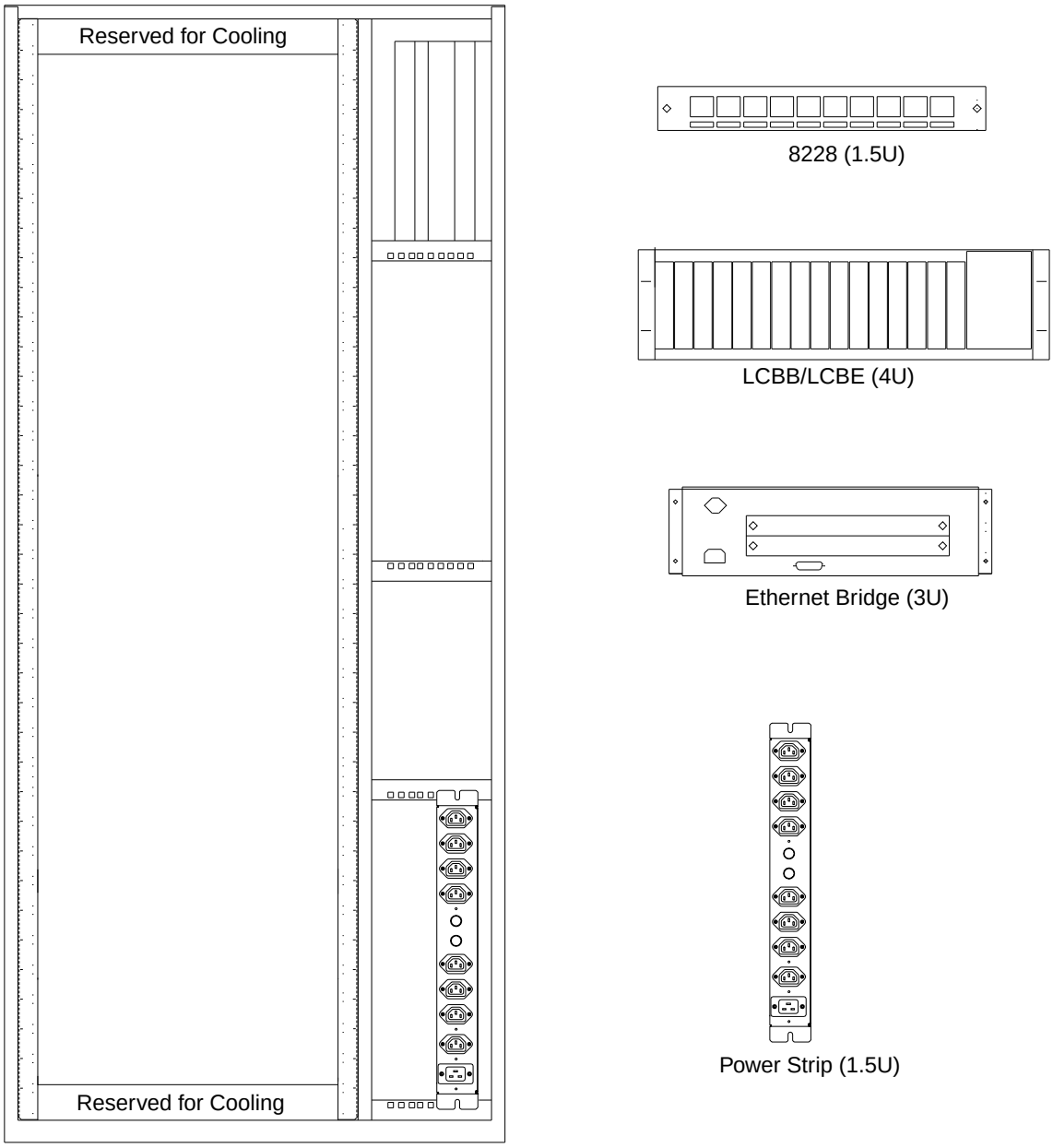


Figure B-2. Controller Expansion Inventory Chart (Rear View).

Notes:

1. The units dimensions are scaled to the size of the controller expansion diagram. The values represent the size used to setup the units in the controller expansion, it is not the size of the units themself.
2. The attachment holes along each side of the controller expansion are divided into units of measure called EIA units. Each EIA unit (U) equals 44.5 millimeters (1.75 inches).
3. The controller expansion is 37 U high but only 35 are usable, one U must be reserved at the top and at the bottom for proper cooling.

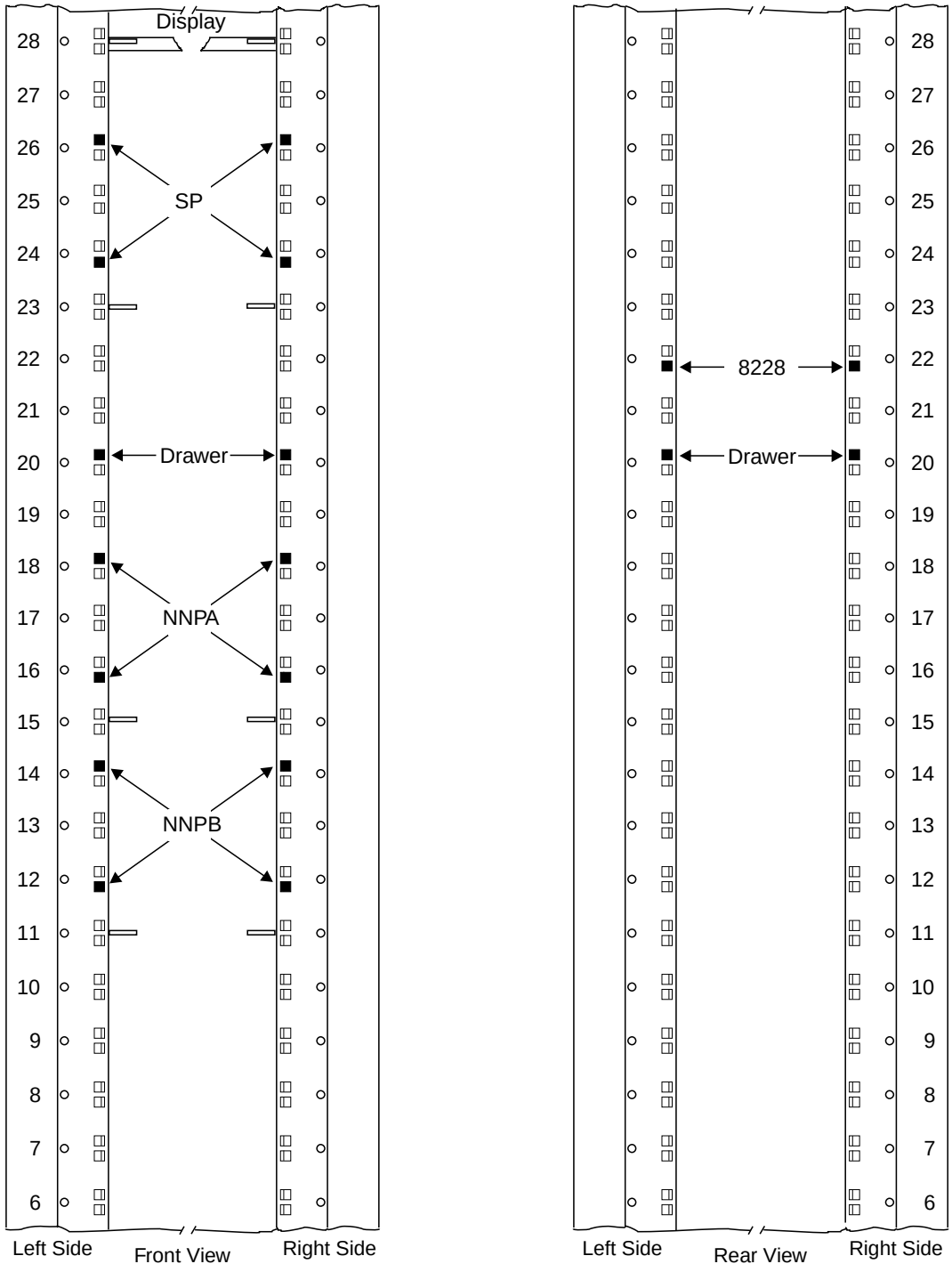


Figure B-3. Installing Captive Nuts and Brackets for the Display, Drawer, SP and NNP Type 7585

Note: This symbol '■' identify the locations to install the captive nuts.

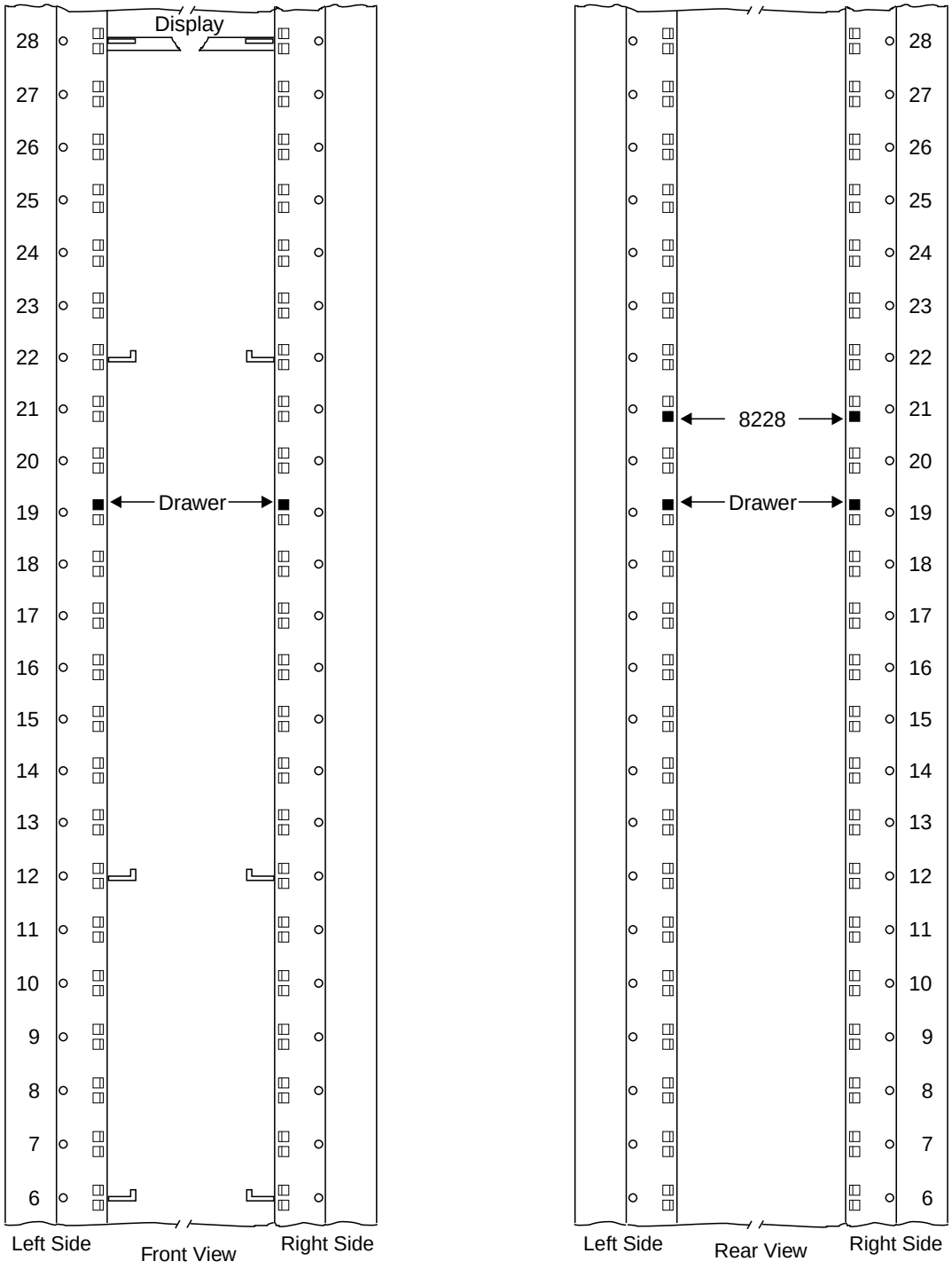


Figure B-4. Installing Captive Nuts and Brackets for the Display, Drawer, SP and NNP Type 3172

Notes:

1. This drawing can be used to setup the SP type **9585** or **9577**
2. This symbol '■' identify the locations to install the captive nuts.

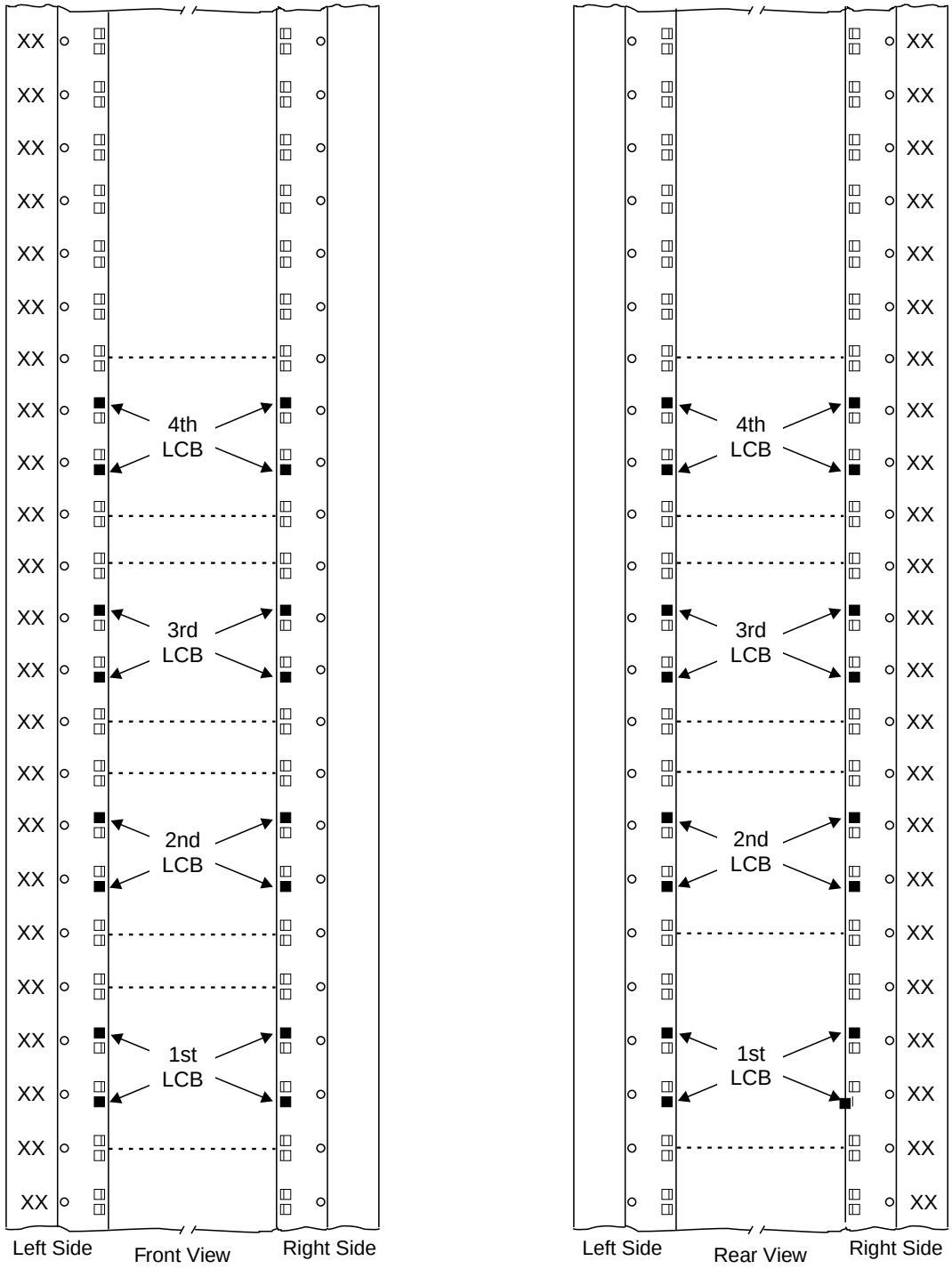


Figure B-5. Installing Captive Nuts for LCBs

Note: This symbol '■' identify the locations to install the captive nuts.

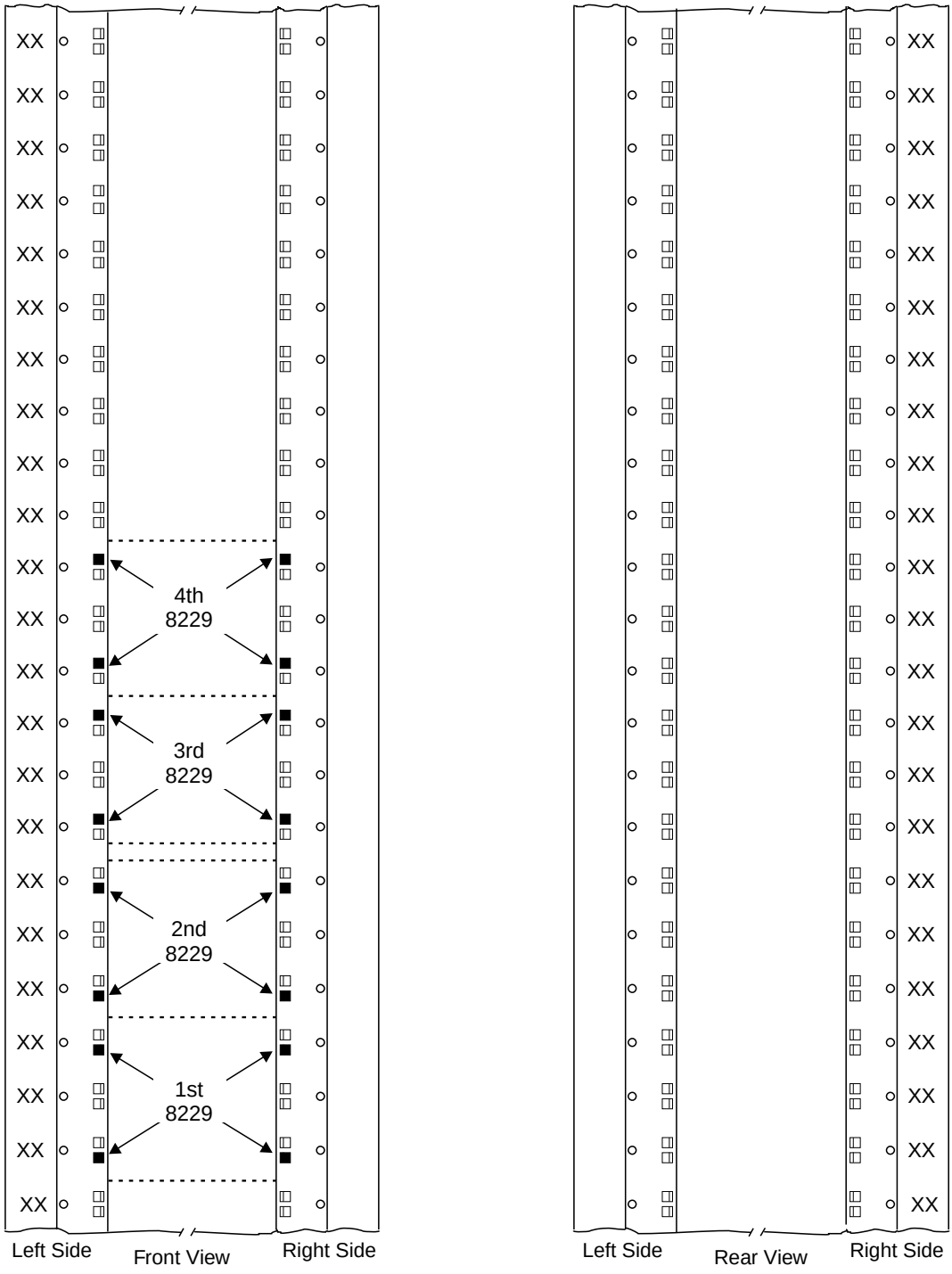


Figure B-6. Installing Captive Nuts for 8229s

Note: This symbol '■' identify the locations to install the captive nuts.

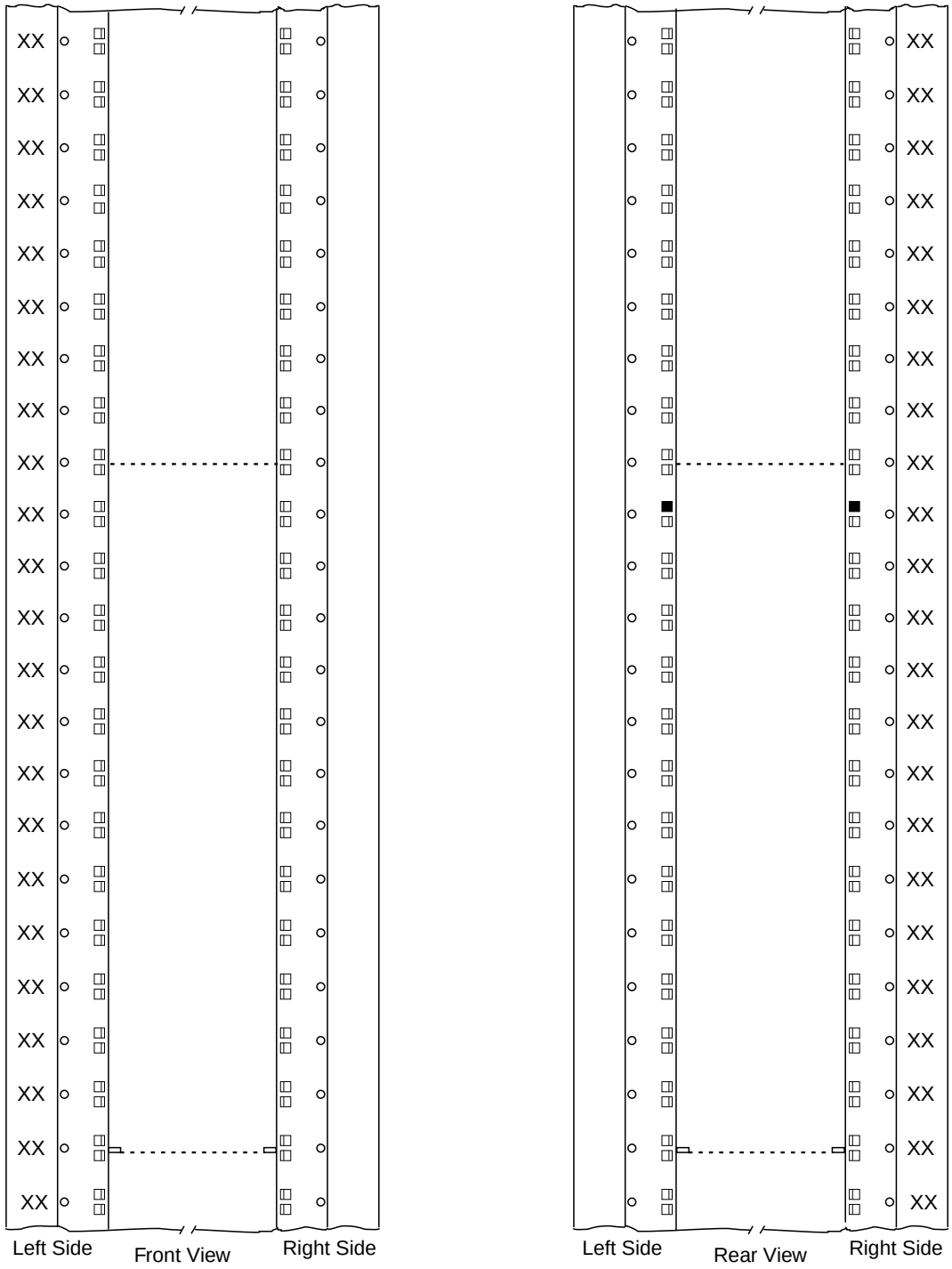


Figure B-7. Installing Captive Nuts and Brackets for MAE

Note: This symbol '■' identify the locations to install the captive nuts.

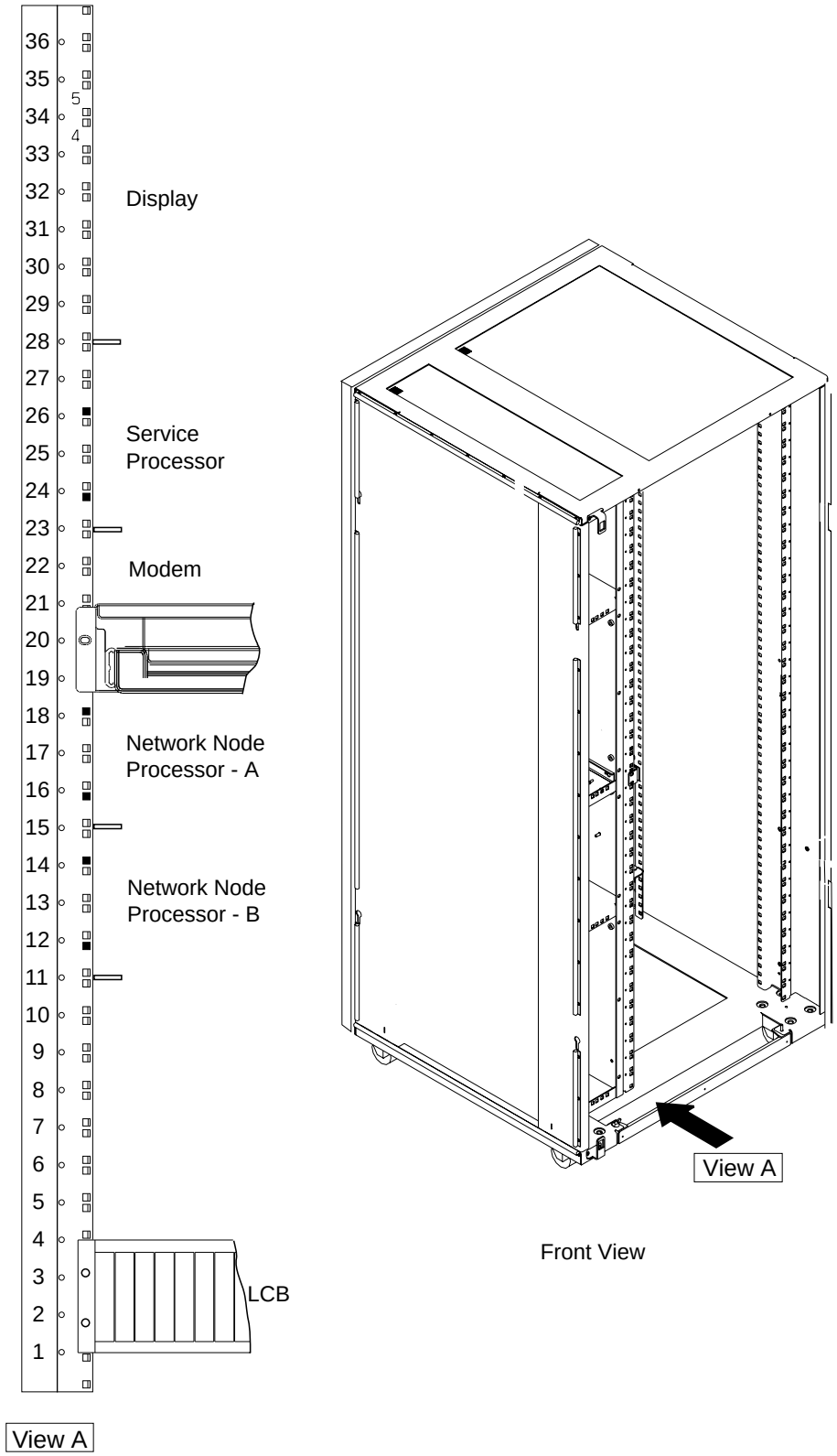


Figure B-8. Installing Brackets (PN 58G5752) for Processor Type 7585

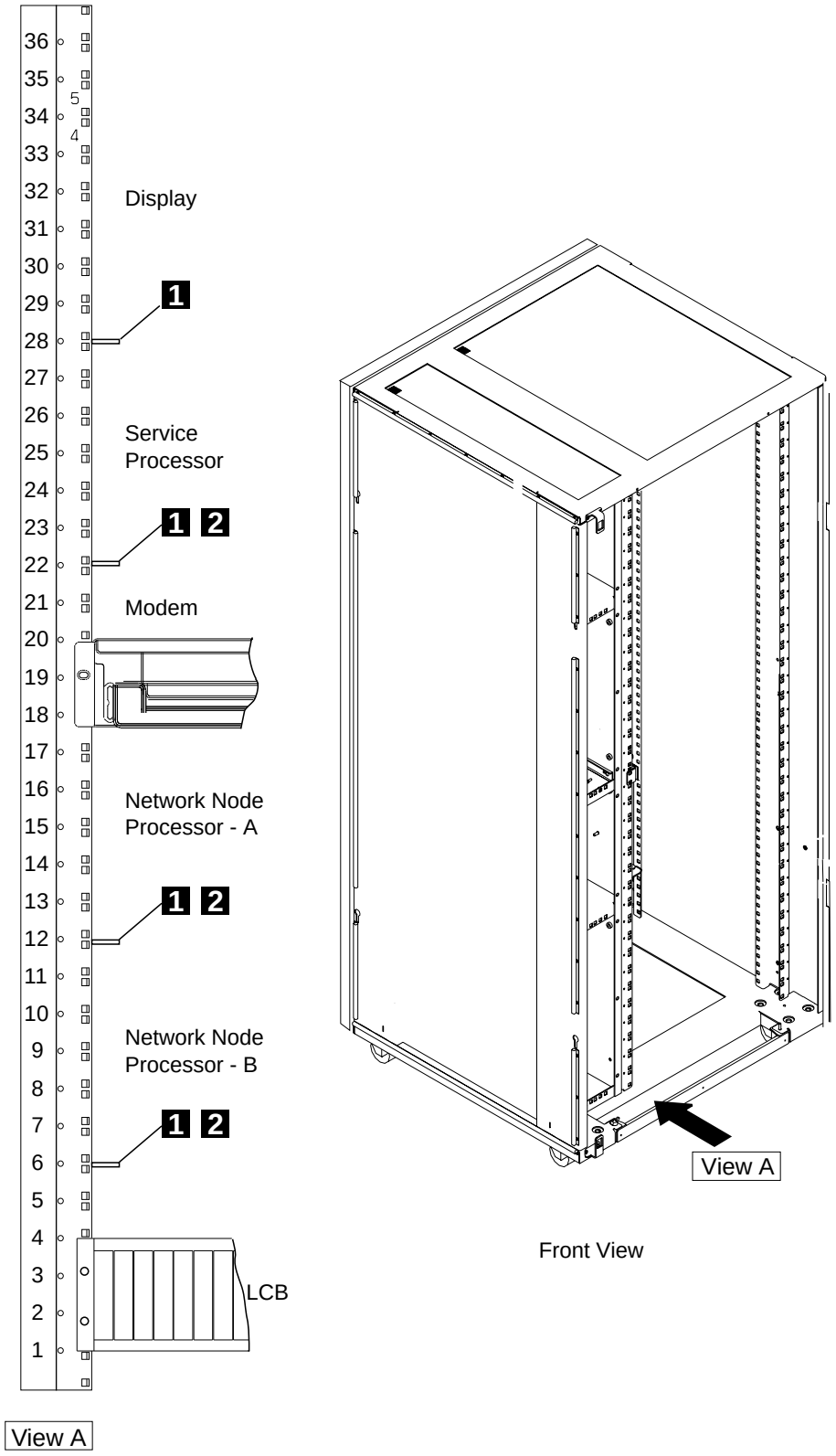


Figure B-9. Installing Brackets for Processor Type 3172

- **1** bracket used to install the display (PN 58G5752)
- **2** screws used to install the SP and NNP (PN 0782986)

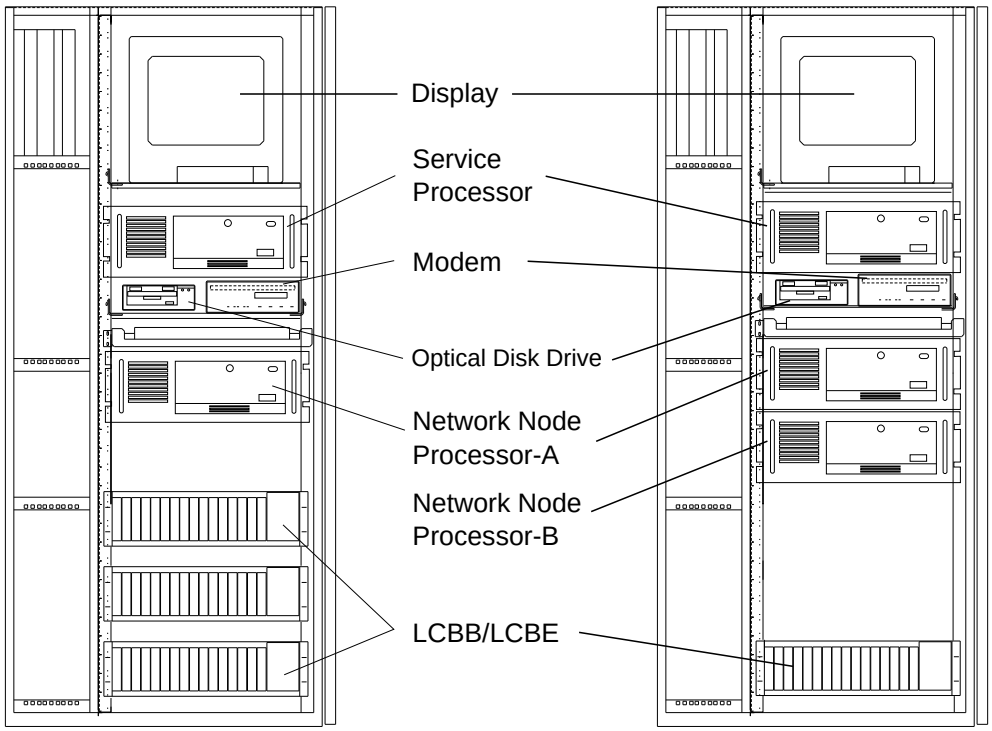


Figure B-10. Units Installation in the Controller Expansion (SP Type 7585)

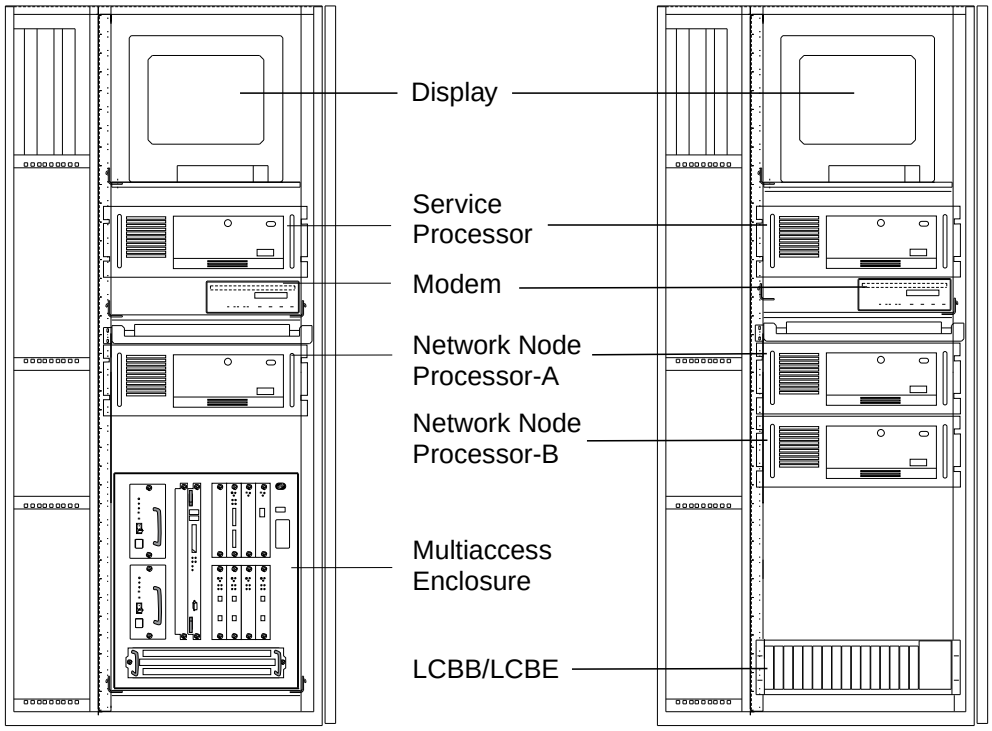


Figure B-11. Units Installation in the Controller Expansion (SP Type 7585 + MAE)

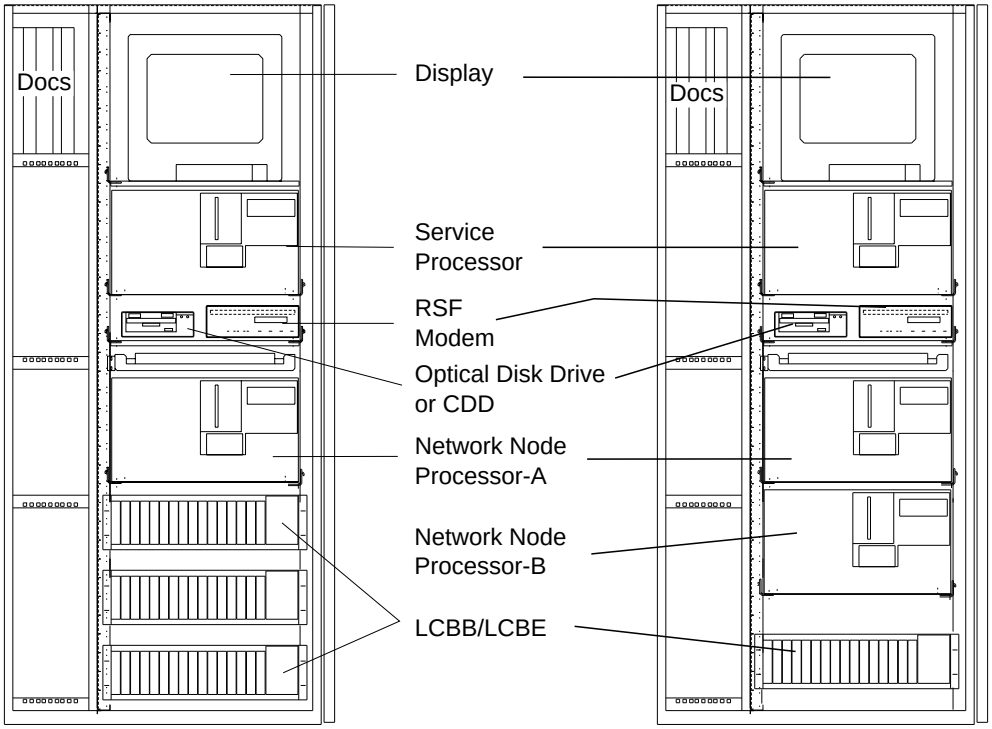


Figure B-12. Units Installation in the Controller Expansion (SP Type 3172)

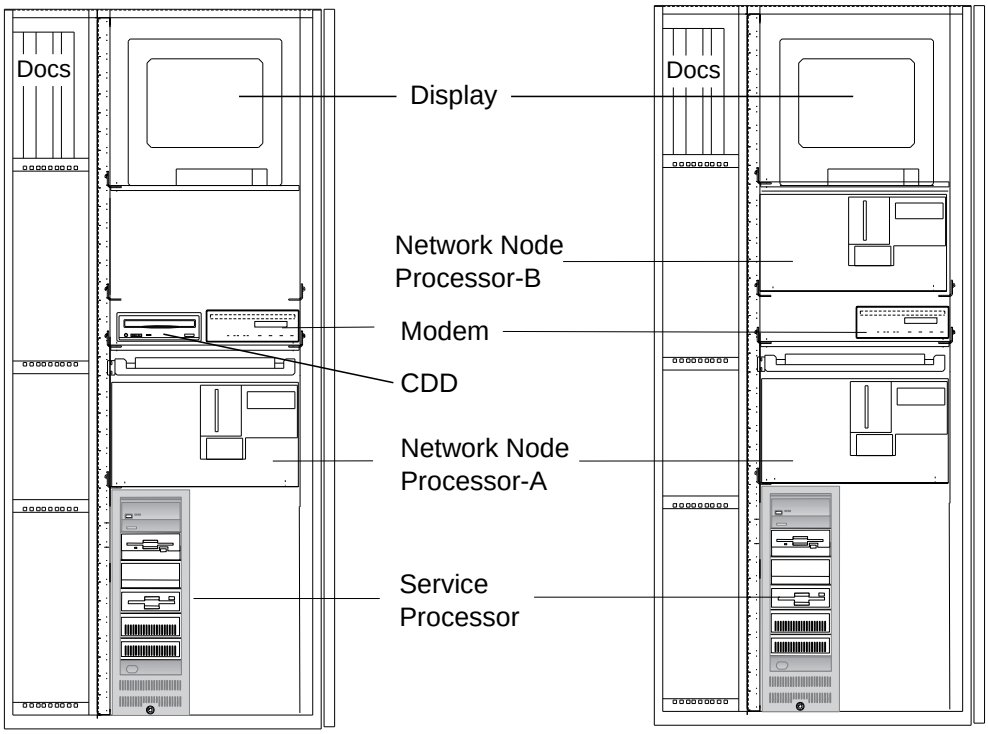


Figure B-13. Units Installation in the Controller Expansion (SP Type 9585)

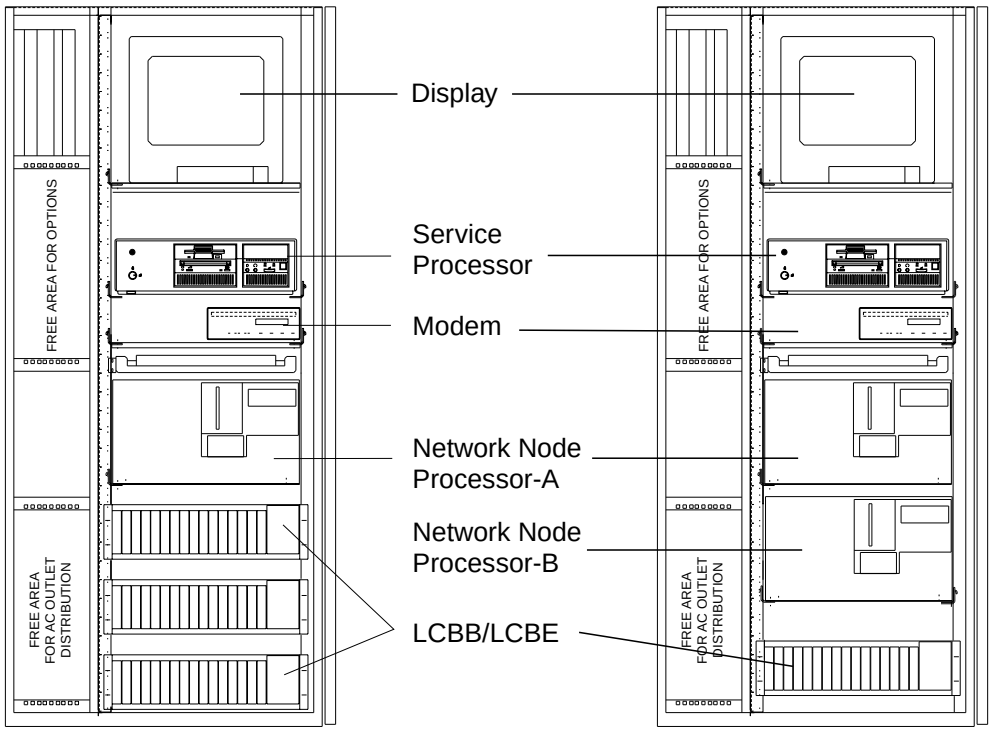


Figure B-14. Units Installation in the Controller Expansion (SP Type 9577)

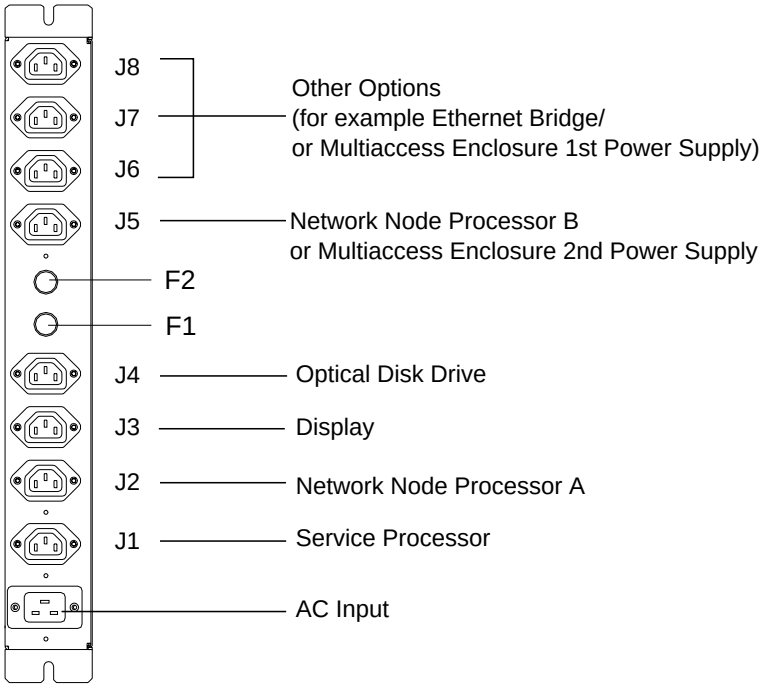


Figure B-15. Connecting the Units to the ac Outlet Distribution Box.

Appendix C. Network Node Processor Aids

Network Node Processor Based on 7585-P02

How to check the Device Configuration (7585-P02)

Important

Before continuing this procedure you **must** have installed a display and a keyboard on your network node processor. Refer to "How to Install a Display and Keyboard on your Network Node Processor" on page 3-18.

1. Power ON the network node processor
2. Press the **F1** key to invoke the configuration/Setup utility after POST completion, and continue with the "Nways Switch Administration Station Configuration Reference Based on 7585-P02."

Nways Switch Administration Station Configuration Reference Based on 7585-P02

The following window is displayed. From the following window select the different options and go to the new windows for checking.

```
Configuration/Setup Utility

Select Option:

- System Summary              1
- Product Data                2
- Device and I/O Ports        3
- Date and Time               4
- System Security             5
- Start Options               6
- Advanced Setup              7
- ISA Legacy Resources        8
- Advanced Power Management   9

Save Settings
Restore Settings
Load Default Settings

Exit Setup
```

1

```
          System Summary

Processor         Pentium
Processor Speed   200MHz
Math Coprocessor  Internal
System Memory     640 KB
Extended Memory   95 MB
Video Controller  S3 Incorporated. TRIO64V+
Cache Size        512 KB                    (Note 1)
Cache State       Enabled
Shadow RAM        384 KB
System ROM        F000h-FFFFFh
Memory Type       Parity
Diskette Drive A  2.88 MB 3.5"              (Note 2)
Diskette Drive B  Not Installed
Hard Disk Drive 0 Not Installed
Hard Disk Drive 1 Not Installed
Hard Disk Drive 2 Not Installed
Hard Disk Drive 3 Not Installed
```

Notes:

1. If the value of the **Cache Size** is not correct, set it before continuing (see “How to Set the Cache Size Value” on page C-13).
2. The diskette drive can also be a: 1.44 MB 3.5".

2

```
          Product Data

  Machine type/ Model          7585LG1
  Flash EEPROM Revision Level  LVKT21AUS
  System Board Identifier      -A123456789
  System Serial Number         xxxxxxx
  BIOS Date                    02/27/97
```

3

```
          Device and I/O Ports

   Mouse                     (Not Installed)
   Diskette Drive A:         (2.88 MB 3.5")   (Note)
   Diskette Drive B:         (Not Installed)

 - Serial Port Setup...
 - Parallel Port Setup...
 - Video Setup...
 - IDE Drives Setup...
```

Note: The diskette drive can also be a: 1.44 MB 3.5".

```
          Serial Port Setup

 Serial Port A Address           (3F8h)
 Serial Port A IRQ               (IRQ 4)
 Infra Red Port Address          (Disabled)
 Infra Red Port Address          (IRQ 3)
```

```
          Parallel Port Setup

 Parallel Port                   (Disabled)
 Parallel Port Mode              (Standard)
 Parallel Port Extended Mode     (Bidirectional)
 Parallel Port Extended Mode DMA (No DMA       )
 Parallel Port IRQ               (IRQ 7)
```

```
          Video Setup

 Video Controller                S3 Incorporated. trio64V+
 Video Memory                    1024 KB
 DDC Monitor checking            (Enabled)
 Video interrupt                 (Disabled)
 Palette Spooning                (Enabled)

 Video Display Type              (Custom       )
 Monitor Horizontal Frequency    (Not Supported)
 Refresh Rate for ( 640 X  480)  (60 Hz)
 Refresh Rate for ( 800 X  600)  (60 Hz)
 Refresh Rate for (1024 X  768)  (43 Hz Interlaced)
 Refresh Rate for (1180 X 1024)  (not supported)
 Refresh Rate for (1600 X 1200)  (not supported)
```

```
          IDE Drives Setup

- Hard Disk Drive 0
- Hard Disk Drive 1
- Hard Disk Drive 2
- Hard Disk Drive 3
```

```
          Hard Disk Drive 0

Size                  (Not Installed)
```

4

```
          Date and Time

   Time                  HH/MM/SS
   Date                  MM/JJ/YY
```

5

```
         System Security

- Secure Hard Disk Drives and Diskettes Drives
- Power On Password
- Administrator Password
```

```
  Secure Hard Disk Drives and Diskette Drives

Hard Disk Access           (Enable )
Diskette Drive Access      (Enable )
```

```
         Power-On Password

Enter your new Power-on password twice.

Enter Power-on Password        (       )
Enter Power-on Password Again  (       )

Set or Change Power-on Password
Delete Power-on Password

Password Prompt                (ON)
```

```
         Administrator Password

Enter your new Administrator password twice.

Enter Administrtor Password          (       )
Enter Administrator Password Again   (        )

Set or Change Administrator Password
Delete Administrator Password

Power-on Password changeable by user (NO)
```

6

```
          Start Options

  Keyboard Numlock State     (ON)
  Keyboard Speed             (Fast)
  Diskettes Operation        (Disabled)
  Monitorles Operation       (Enabled)
  Keyboardles Operation Mode (Enabled)

  First Startup Device       (Diskette Drive 0)
  Second Startup Device      (Hard Disk 0     )
  Third Startup Device       (Disabled        )
  Fourth Startup Device      (Disabled        )

  Power On Self-Test         (Quick)   (Note)
  Power On Log               (Enabled )
  Power On F1/Esc Option     (Enabled )
  Virus detection            (Disabled)
```

Note: If you want a complete testing of the network node station at power ON set this parameter to: Enhanced.

7

```
          Advanced Setup

  Warning:

  Items on the following menus control advanced Hardware features
  if they are configured incorrectly, the system might
  malfunction.

  - Memory Control
  - Cache Control
  - ROM Shadowing
  - PCI Control
  - Plug and Play Control
```

```
          Memory Control

    Memory Access Speed  (60ns Access)
```

```
          Cache Control

    Cache State          (Enabled    )
    Cache Size           512 KB          (note)
```

Note: You cannot set this value in this procedure. For changing the **Cache Size** value see the “How to Set the Cache Size Value” on page C-13.

```
          ROM Shadowing

F0000h-FFFFFh (System BIOS)         (Enabled)
E8000h-EFFFFh                       (Enabled)
E0000h-E7FFFh                       (Enabled)
DC000h-DF000h                       (Disabled)
D8000h-DB000h                       (Disabled)
D4000h-D7000h                       (Disabled)
D0000h-D3000h                       (Disabled)
CC000h-CF000h                       (Disabled)
C8000h-CB000h                       (Disabled)
C0000h-C7FFFh (Adapter Video BIOS)  (Enabled)
```

```
               PCI Control

  PCI Burst Mode       (Enabled    )
```

```
            Plug and Play Control

  Set Device Mode      (Enabled    )
```

8

```
         ISA Legacy Resources

Information: ISA legacy Resources (DMA, Interrupts, Memory,
             and I/O Ports) are resources that are used by
             ISA adapter which are not Plug-and-Play adapters.
             Use this menus to indicate which resources are
             Used by ISA Legacy adapters. Resources used by
             the system are already indicated.

- Memory Resources
- I/O Ports Resources
- DMA Resources
- Interrupt Resources
```

```
         Memory Resources

 A0000h-A3FFFh               (System Resource)
   -      -                      -
 C6000h-C7FFFh               (System Resource)
 C8000h-C9FFFh               (Available      )
   -      -                      -
 DE000h-DFFFFh               (Available      )
 E0000h-FFFFFh               (System Resource)
100000h-1FFFFh               (Available      )
   -      -                      -
E00000h-EFFFFFh               (Available      )
F00000h-FFFFFFh               (Available      )
```

```
      I/O Port Resources

   100h-103h    (System Resource)
   104h-107h    (System Resource)
   108h-10Bh    (Available      )
     -   -           -
   170h-173h    (System Resource)
   174h-177h    (System Resource)
   178h-17Bh    (Available      )
     -   -           -
   1ECh-1EFh    (Available      )
   1F0h-1F3h    (System Resource)
   1F4h-1F7h    (System Resource)
   1F8h-1FBh    (Available      )
     -   -           -
   2F4h-2F7h    (Available      )
   2F8h-2FBh    (Available      )
   2FCh-2FFh    (Available      )
   300h-303h    (Available      )
     -   -           -
   370h-373h    (Available      )
   374h-377h    (System Resource)
   378h-37Bh    (Available      )
     -   -           -
   3B0h-3B3h    (Available      )
   3B4h-3B7h    (System Resource)
     -   -           -
   3B8h-3BBh    (System Resource)
   3BCh-3BFh    (Available      )
   3C0h-3C3h    (System Resource)
     -   -           -
   3DCh-3DFh    (System Resource)
   3E0h-3E3h    (Avaialble      )
     -   -           -
   3ECh-3EFh    (Available      )
   3F0h-3F4h    (System Resource)
     -   -           -
   3FCh-3FFh    (System Resource)
```

```
      DMA Resources

  Channel 0      (Available      )
  Channel 1      (Available      )
  Channel 2      (System Resource)
  Channel 3      (Available      )
  Channel 4      (Available      )
  Channel 5      (Available      )
  Channel 6      (Available      )
  Channel 7      (Available      )
```

```
      Interrupt Resources

     0          (System Resource)
     1          (System Resource)
     2          (System Resource)
     3          (Available      )
     4          (System Resource)
     5          (Available      )
     6          (System Resource)
     7          (Available      )
     8          (System Resource)
     9          (Available      )
    10          (Available      )
    11          (Available      )
    12          (Available      )
    13          (System Resource)
    14          (Available      )
    15          (Available      )
```

9

```
       Advanced Power Management

 APM BIOS Mode               (Enabled        )

 - Automatic Hardware Power Management
 - Activity Monitor
 - Automatic Power On
```

```
         Automatic Hardware Power Management

Automatic Hardware Power Management  (Enabled)
  Time to Level 1 Power Management   (15 min)
       System Power                  (ON)
       Processor Speed               (25%  )
       Display                       (Standby)
  Time to Level 2 Power Management   (30 min)
       System Power                  (ON)
       Processor Speed               (01%  )
       Display                       (Suspend)
  Time to Level 3 Power Management   (1 hr  )
       System Power                  (ON)
       Processor Speed               (01%  )
       Display                       (OFF    )
  Hard File                          (Enabled)
```

```
          Activity Monitor

    Hard Files    (Enabled)
    IRQ 1         (Enabled)
    IRQ 2         (Enabled)
    IRQ 3         (Enabled)
    IRQ 4         (Enabled)
    IRQ 5         (Enabled)
    IRQ 6         (Enabled)
    IRQ 7         (Enabled)
    IRQ 8         (Enabled)
    IRQ 9         (Disabled)
    IRQ10         (Disabled)
    IRQ11         (Disabled)
    IRQ12         (Enabled)
    IRQ13         (Enabled)
    IRQ14         (Disabled)
    IRQ15         (Disabled)
```

```
          Automatic Power On

   Serial Port Ring Detect     (Disabled)
   Modem Ring Detect           (Disabled)

   Wake Up on Alarm            (Disabled)
     Alarm Date MM/DD/YY       (MM/DD/YY)
     Alarm Time                (HH:mm)

- LAN Wake Up
```

```
          LAN Wake Up

   Warning

   The following item controls LAN wake up
   requests only if a network adapter is
   installed in your system, the network
   adapter supports wake up requests,
   and the network adapter is configured
   properly

   LAN Wake UpDetect            (Disabled)
```

How to Set the Cache Size Value

1 From the **Configuration/Setup Utility** select the **Load Default Settings** option, then press the **Enter** key.

2 Exit from the **Configuration/Setup Utility** by selecting **Exit Setup** option.

```
       Settings were changed
       Do you want save them

  Yes, save and exit the Setup utility
  No, exit the Setup Utility without saving
  No, return to the Setup Utility
```

3 Select the **Yes, save and exit the Setup utility** option, then press the **Enter** key.

4 When the IBM logo is displayed, press the **F1** key to display again the **Configuration/Setup Utility** and check that the **Cache Size** is well set at 256 KB.

5 Return to the procedure where you came from.

How to check the SCSI Device Configuration (7585-P02)

Important

To continue this procedure you must have a display and keyboard connected to the network node processor Refer to “How to Install a Display and Keyboard on your Network Node Processor” on page 3-18.

1 Power ON the network node processor.

2 When the following is displayed

```
Adaptec AHA<2940 Ultra/Ultra WBios v1.2
(c) 1995 Adaptec, Inc. All rights Reserved.

<<<Press CCtrl><A> for SCSI Select (TM) Utility>>>
SCSI ID : LUN NUMBER - : - 6:0 - IBM DFH5S2F
```

3 Press simultaneously the **Ctrl** and the **A** key.

4 The following screen is displayed:

```
     AHA-2940- Ultra/Ulra W at Bus: Device 00:0Bh

Would you like to configure the host adapter, or run the
SCSI disk utilities? Select the option and press <Enter>.
Press <F5> to switch between color and monochrome modes.
                    Options
       Configure/View Host Adapter Settings
               SCSI Disk Utilities
```

5 Select the **Configure/View Host Adapter Settings**

```
     AHA-2940- Ultra/Ulra W at Bus: Device 00:0Bh

  Configuration

SCSI Bus Interface Definition
 Host Adapter SCSI ID           7
 SCSI Parity Checking           Enabled
 Host Adapter SCSI Termination  Automatic

Additional Option
 Boot Device Options            Press<Enter>
 SCSI Device Configuration      Press<Enter>
 Advanced Configuration Options Press<Enter>

    <F6> - Reset to Host Addapter Defaults
```

6 Select **SCSI Disk Utilities** option, then press **Enter**.

```
      AHA-2940- Ultra/Ulra W at Bus: Device 00:0Bh

   Would you like to configure the host adapter, or run the
   SCSI disk utilities? Select the option and press <Enter>.
   Press <F5> to switch between color and monochrome modes.
                        Options
          Configure/View Host Adapter Settings
                  SCSI Disk Utilities
```

7 The following window appears while the SCSI ID number is incrementing.

```
Scaning SCSI ID: LUN Number  : xx:0
```

8 The following window is displayed.

```
          AHA-2940 Ultra/Ultra W at Bus Device 00:0Bh

          Select SCSI Disk and Press Enter

   SCSI ID  0: No Device
        ID  1: No Device
        ID  2: No Device
        ID  3: No Device
        ID  4: No Device
        ID  5: No Device
        ID  6: IBM  XP32275W
        ID  7: AHA-2940 Ultra/ultra W
        ID  8: No Device
        ID  9: No Device
        ID 10: No Device
        ID 11: No Device
        ID 12: No Device
        ID 13: No Device
        ID 14: No Device
        ID 15: No Device
```

Press the **Esc** key until a message ask you if you want to exit from the **Utility**.

Select the **Yes** option and press the **Enter** key. Follow the prompts.

Devices List for the Network Node Processor (3172)

Use the following procedure to view the list of components in the network node processor.

1. Insert the **Reference Diskette A** in the network node processor.
2. Power ON the network node processor.
3. If temporary errors are displayed (code displayed on the operator panel with error LED ON), press **Enter** on the operator panel keypad.

Code	Description
0000	POST
XXXX	Temporary codes
0000	Loading the program
1000	Complete

4. Did **0000** appear, followed by **1000** about 90 seconds later?

Yes	Continue with the step 5.
No	A POST error occurred. Record the error code and refer to *3172 Interconnect Controller Status Codes*, GA27-3951 to resolve the error.

5. Key in **1**. **1001** appears.
6. Press **Enter**. **d5Cb** appears.
7. Remove **Reference Diskette A** and insert **Reference Diskette B**.
8. Press **Enter**. **d5CC** appears.
9. Remove **Reference Diskette B** and insert **Reference Diskette C**.
10. Press **Enter**. After a short delay, **A000** appears.
11. Key in **1**. **A001** appears.
12. Press **Enter**. The first component number appears. Check with the following list.

Code	Description
0146	System board where 46 is the processor type (Pentium)
02xx	SIMMs where is the amount of memory, in MB
6001	Fixed Disk Adapter
9801	XGA Adapter
A601	Token Ring 16/4
d201	Hard Disk
F001	Diskette drive
F101	Operator panel

Note: Additional information on you network node processor can be obtained with a display and keyboard installation, refer to “Additional Information” on page C-18.

Additional Information

To check the following additional information:

- Devices List (see “Devices List for the Network Node Processor (3172)” on page C-21)
- Hardware Configuration (see “Network Node Processor Hardware Configuration Reference (3172)” on page C-22)
- SCSI Device Configuration (see “SCSI Device Configuration” on page C-21)

you must have a keyboard (QWERTY) and display connected to the network node processor.

Use the following procedure **1** and **2** in order to install the keyboard, the display and have access to the additional information:

When you have obtained the additional information, use procedure **3** to remove display and keyboard.

1 Keyboard and Display installation

a Power OFF the network node processor

b Connect the keyboard and mouse cable on the rear of the network node processor **1** .

c Connect the display on the rear of the XGA adapter card, in position 5 of the network node processor **2** .

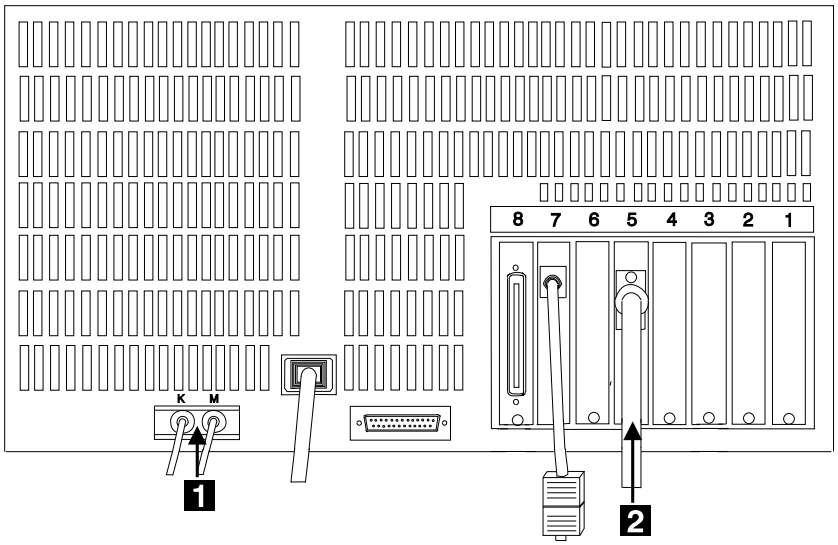


Figure C-1. Network Node Processor Keyboard and Display Cables Installation

2 How to display the additional information

a Insert the **Reference Diskette A** in the network node processor

b Power ON the network node processor

c The **Reference Diskette Main Menu** is displayed.

d Select the **2-Diagnostics utilities** then press the **Enter** key.

e The **Diagnostic Utilities** is displayed.

f From there if you want:

- The **Devices List of the Network Node Processor**, go to step 2g.
- The **Network Node Processor Hardware Configuration** go to step 2j.
- The **SCSI Hardware Configuration** go to step 2n.

g Select the **1-Diagnostic Test** option and press the **Enter** key.

h Follow the prompts to remove the **Diskette Reference A** then insert successively the **Reference Diskette B** and the **Reference Diskette C**.

i Key in **1**, then press **Enter** to display the Device list.

See “Devices List for the Network Node Processor (3172)” on page C-21.

j Select the **2-Diagnostics Utilities** option and press **Enter**.

k The **Diagnostics Utilities** window is displayed.

l Select the **6-Set configuration** option and press **Enter**.

m On the next **Set configuration** menu, select the **1-View Configuration** option and press **Enter** to display the hardware configuration.

See “Network Node Processor Hardware Configuration Reference (3172)” on page C-22.

n Select the **2-Diagnostics Utilities** option and press **Enter**.

o The **Diagnostics Utilities** window is displayed.

p Select the **6-Set configuration** option and press **Enter**.

q On the next **Set configuration** menu, select the **7-Set View SCSI Device Configuration** option and press **Enter** to display the SCSI harware configuration.

See “SCSI Device Configuration” on page C-21.

3 Keyboard and display removal

a Power OFF the network node processor

b Disconnect the keyboard and mouse cable on the rear of the network node processor **1** .

c Disconnect the display on the rear of the XGA adapter card, in position 5 of the network node processor **2** .

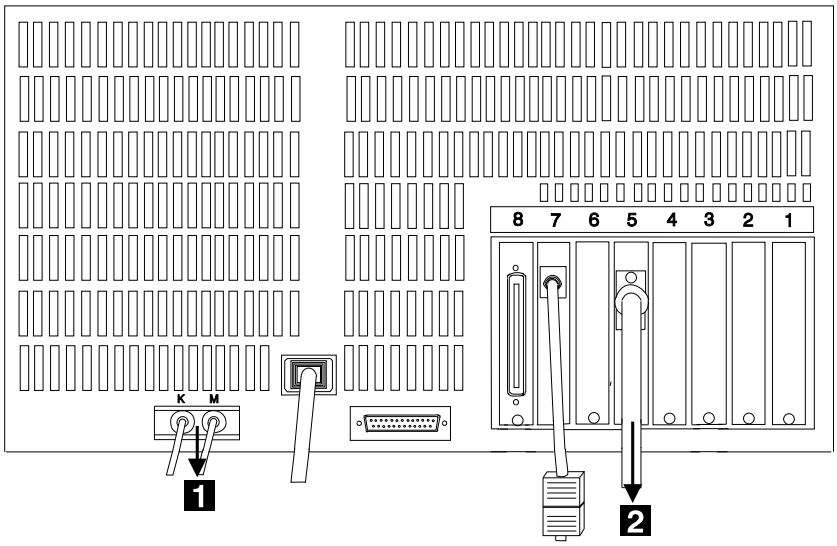


Figure C-2. Network Node Processor Keyboard and Display Cables Removal

Devices List for the Network Node Processor (3172)

```
  90MHz Pentium(tm) CPU Processor Board                              "
  Model 95 XP System Board
64MB System Memory, 64MB Enabled
  Keyboard
1 Cached SCSI I/O Adapter
  XGA-2 Display Adapter/A
Token-Ring Adapter 1
1 SCSI Hard Disks
1 Diskette Drive(s)
  Hex Keypad/Display
```

SCSI Device Configuration

```
                    Set and View SCSI Device Configuration

SCSI Configuration Verification..... (ENABLED)
Slot 8 -  IBM PS/2 SCSI AdapterW/Cache

    SCSI Address (ID)................... 7
    SCSI Device Type.................... Hard Disk
         Device Address (ID, LUN)....... 6,0
         Device Size.................... 2255MB
         Presence Error Reporting....... (ENABLED)
         Operational Error Reporting.... (ENABLED)
```

Network Node Processor Hardware Configuration Reference (3172)

View Configuration

Total System Memory

```
Installed Memory..................... 65536KB (64.0MB) Note
Usable Memory........................ 65152KB (63.6MB) Note
```

Built in Features

```
Installed Memory..................... 65536KB (64.0MB) Note
Diskette Drive 0 Type................ 2.88MB 3.5"
Diskette Drive 1 Type................ Not Installed
Diskette Drive 2 Type................ Not Installed
Math Coprocessor..................... Installed
Display F1 Prompt to Access System pro. YES
Serial Port.......................... SERIAL 1
Serial Transmit Arbitration Level..... Shared 4
Serial Received Arbitration Level..... Shared 3
Parallel Port Arbitration Level....... PARALLEL 1
Parallel Port Arbitration Level....... Shared 7
Preempt Enable/Disable............... Enable
Usable System-Board Memory........... ECC
Bypass System Progress on Error...... Disable
Processor............................ 90MHZ Pentium(tm) CPU
```

Slot 1 - Empty

Slot 2 - Empty

Slot 3 - Empty

Slot 4 - Empty

Slot 5 - XGA-2 Display Adapter/A

```
Video I/O Address.................... Instance 6: 2160h - 216Fh
1 MB VRAM Aperture Base Address...... Disabled
Video Arbitration Level.............. Arbitration Level 13
Video Fairness....................... Fairness On
ROM Address Range.................... C2000h - C3FFFh
```

Slot 6 - Empty

Slot 7 - IBM Token-Ring Network 16/4 Adapter/A

```
Primary or Alternate adapter......... Primary
Adapter Data Rate.................... 16 Mbps
ROM Address Range.................... DA000/DBFFF
RAM Size and Address Range........... 16 KB /DC000-DFFFF
Interrupt Level...................... Interrupt 2
```

Slot 8 - IBM PS/2 SCSI AdapterW/Cache

```
I/O Address.......................... 3540-3547
DMA Arbitration Level................ Level C
Fairness On/Off...................... On
ROM Wait State Disable............... Enable Wait State
SCSI Adapter Address (ID)............ 7
ROM Address Range.................... No Resources Allocated
```

Note: The memory size may be bigger.

Appendix D. Network Node Processor External Cable References

Network Node Processor Cables for the 3746-900

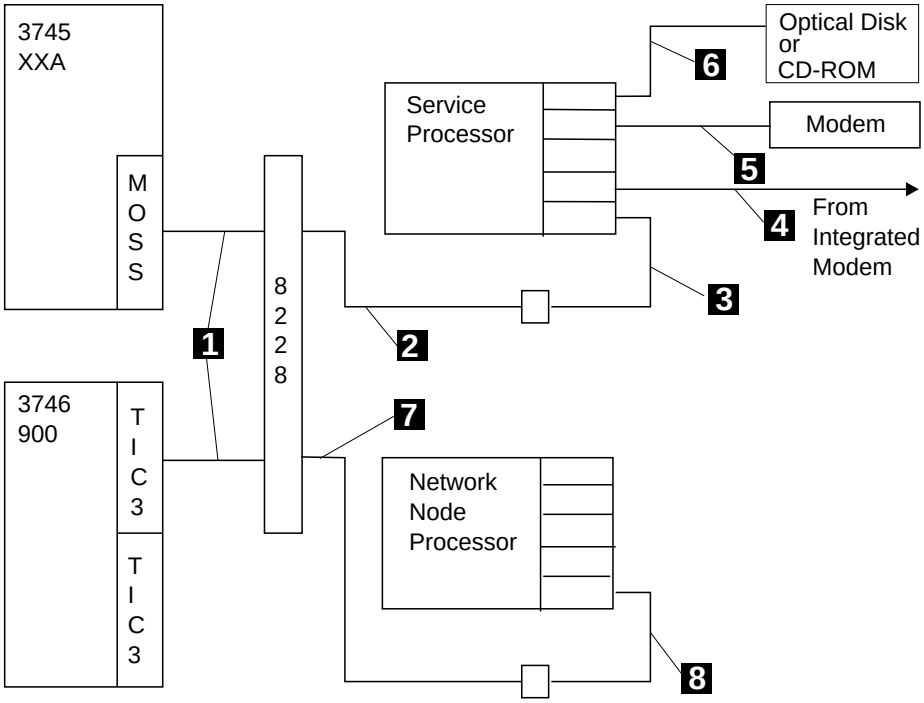


Figure D-1. Network Node Processor Cables for 3746-900

Notes:

1. For cable 1 refer to the appropriate *External Cable References* manual.
2. For cable 2, 3, 4, 5, and 6 refer to the appropriate *Service Processor Installation and Maintenance* manual.
3. For cable 7 and 8 refer to "Cable from the Network Node Processor Processor to the 8228" on page D-3.

Service Processor and Network Node Processor Cables for the 3746-950

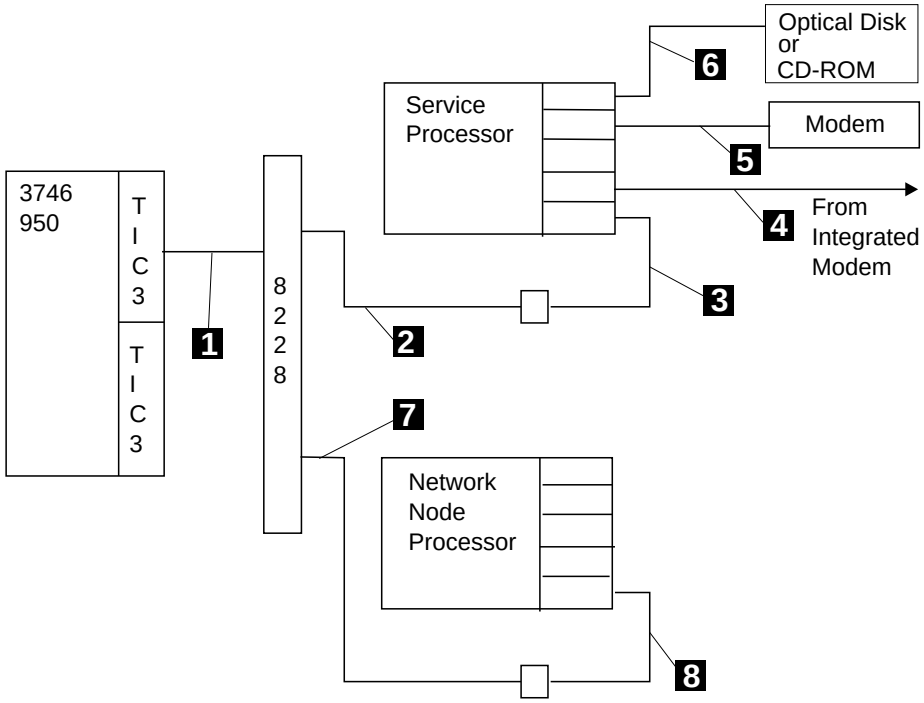


Figure D-2. Service Processor and Network Node Processor Cables for 3746-950

Notes:

1. For cable 1 refer to the appropriate *External Cable References* manual.
2. For cable 2, 3, 4, 5, and 6 refer to the appropriate *Service Processor Installation and Maintenance* manual.
3. For cable 7 and 8 refer to "Cable from the Network Node Processor Processor to the 8228" on page D-3.

Cable from the Network Node Processor Processor to the 8228

Refer to Figure D-1 on page D-1 and Figure D-2 on page D-2 reference **7** for details. This cable is a standard LAN cable.

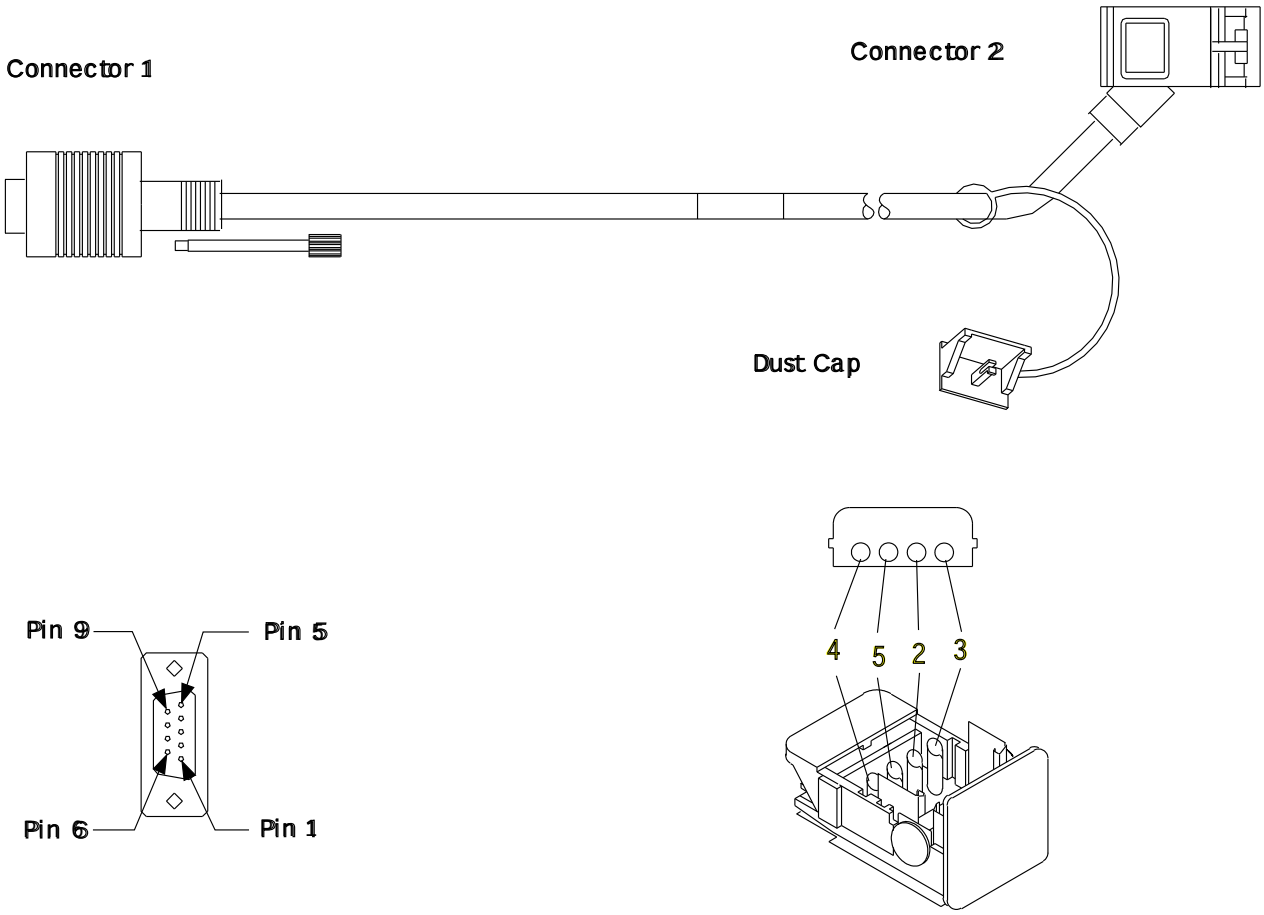


Figure D-3. LAN Cable

Interchange Circuit for Standard LAN Cable

Table D-1. LAN Cable Pin Assignment

Wire Nbr	Wire Color	Connector 1 Position	Connector 2 Position
1	SHIELD	GND	SHIELD
2	ORN	9	ORN
3	BLACK	5	BLACK
4	RED	1	RED
5	GREEN	6	GREEN

Table D-2. Cable from a network node processor to a 8228

Cable Type	Length, m (ft)	Feature Code	Cable PN
Standard Fixed	2.4 m (8)	9088	6339098

Note: Some new network node processor LAN adapter cards (with a RJ45 connector) need an additional adapter cable **8** (PN 60G1066) to connect the standard LAN cable.

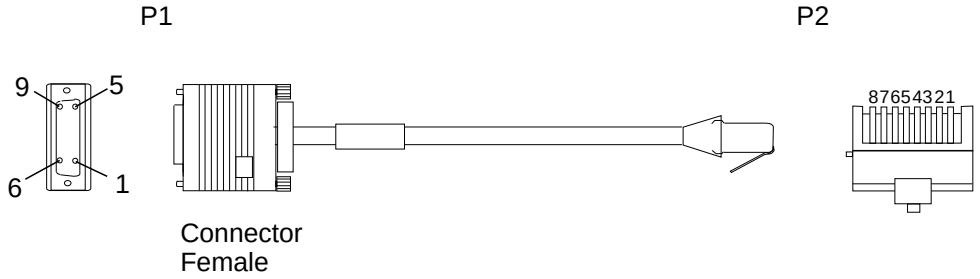


Figure D-4. Adapter Cable (PN 60G1066)

Table D-3. Adapter Cable Pin Assignment

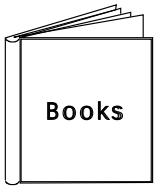
9 Pin D Connector (P1)	**RJ45 Connector (P2)**	**Wire color**
9	6	ORN
5	3	BLK
1	4	RED
6	5	GRN

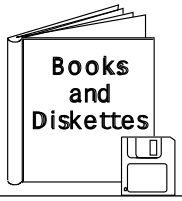
Appendix E. Bibliography

Customer Documentation for the 3746 Model 950

Table E-1 (Page 1 of 2). Customer Documentation for the 3746 Model 950

This customer documentation has the following formats:





Finding Information

3745 Models A and 3746 Books

Starting with engineering change (EC) F12380, all of the books in the 3745 Models A and 3746 library are available on the CD-ROM that contains the Licensed Internal Code (LIC) for this EC.

Preparing for Operation

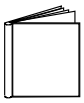
GA33-0400

IBM 3745 Communication Controller All Models[1]
IBM 3746 Expansion Unit Model 900
IBM 3746 Nways Multiprotocol Controller Model 950

Safety Information[2]

Provides general safety guidelines

Evaluating and Configuring



GA33-0180

IBM 3745 Communication Controller Models A[3]
IBM 3746 Nways Multiprotocol Controller
Models 900 and 950

Overview

Gives an overview of connectivity capabilities within SNA, APPN, and IP networking.

GA33-0457

IBM 3745 Communication Controller Models A[2]
IBM 3746 Expansion Unit Model 900
Models 900 and 950

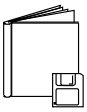
Planning Guide

Planning for:

- Field upgrades
- Service processor and alert management configuration
- Network integration (NCP, APPN, and IP control)
- Physical installation.

Table E-1 (Page 2 of 2). Customer Documentation for the 3746 Model 950

Operating and Testing



SA33-0356

IBM 3746 Nways Multiprotocol Controller Model 950

***User's Guide*[2]**

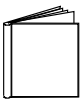
Explains how to:

- Carry out daily routine operations on Nways controller
- Install, test, and customize the Nways controller after installation
- Configure user's workstations to remotely control the service processor using:
  - DCAF program
  - Telnet client program.

On-line information

Controller Configuration and Management Application

Provides a graphical user interface for configuring and managing a 3746 APPN/HPR network node and IP Router, and its resources.
Is also available as a stand-alone application, using an OS/2 workstation.
Defines and explains all the 3746 Network Node and IP Router configuration parameters through its on-line help.



SH11-3081

IBM 3746 Nways Multiprotocol Controller Models 900 and 950

***Controller Configuration and Management: User's Guide*[2]**

Explains how to use CCM and gives examples of the configuration process.

Managing Problems

On-line information

Problem Analysis Guide

An on-line guide to analyze alarms, events, and control panel codes on:

- IBM 3745 Communication Controller Models A[3]
- IBM 3746 Nways Multiprotocol Controller Models 900 and 950.

SA33-0175

***IBM 3745 Communication Controller Models A*[3]**
IBM 3746 Expansion Unit Model 900
IBM 3746 Nways Multiprotocol Controller Model 950

Alert Reference Guide

Provides information about events or errors reported by alerts for:

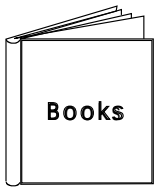
- IBM 3745 Communication Controller Models A[3]
- IBM 3746 Nways Multiprotocol Controller Models 900 and 950.

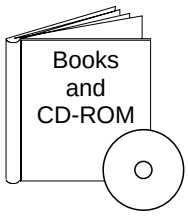
[1] Models 130 to 61A.
[2] Documentation shipped with the 3746-950
[3] 3745 Models 17A to 61A.

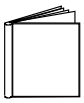
Service Documentation for the IBM 3746 Model 950

Table E-2 (Page 1 of 2). Service Documentation for the 3746 Model 950

This service documentation has the following formats:







SY33-2107

IBM 3746 Nways Multiprotocol Controller Model 950

Installation Guide[1]

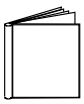
Provides instructions for installing or relocating the Nways Controller.

SY33-2108

IBM 3746 Nways Multiprotocol Controller Model 950

Service Guide[1]

Provides procedures for isolating and fixing the IBM 3746-950 problems.

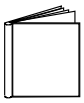


SY33-2115

IBM 3745 Communication Controller Models A[2]
IBM 3746 Expansion Unit Model 900
IBM 3746 Nways Multiprotocol Controller Model 950

Service Processor Installation and Maintenance[3]
(Based on the 7585, 3172, 9585, or 9577)

Provides information on installing and maintaining the service processor based on PS/2 Types 7585, 3172, 9585, or 9577. Can be for systems with microcode that has up to and including EC D46130 (any level) installed.

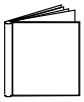


SY33-2120

IBM 3745 Communication Controller Models A[3]
IBM 3746 Expansion Unit Model 900
IBM 3746 Nways Multiprotocol Controller Model 950

Service Processor Installation and Maintenance[4]
(Based on the 7585, 3172, or 9585)

Provides information on installing and maintaining the service processor based on PS/2 Types 7585, 3172, or 9585. Can be for systems with microcode EC F12380 or higher installed.



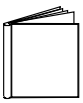
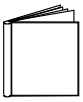
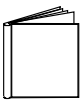
SY33-2118

IBM 3746 Nways Multiprotocol Controller Models 900 and 950

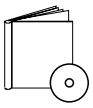
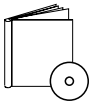
Multiaccess Enclosure Installation and Maintenance[4]

Provides information on installing and maintaining the Multiaccess Enclosure (MAE).

Table E-2 (Page 2 of 2). Service Documentation for the 3746 Model 950

	SY33-2112	***IBM 3746 Nways Multiprotocol Controller Models 900 and 950*** ***Network Node Processor Installation and Maintenance***[3] ***(Based on the 7585 or 3172)*** Provides information on installing and maintaining the network node processor based on the PS/2 Type 7585 or 3172.
	SY33-2117	***IBM 3746 Nways Multiprotocol Controller Models 900 and 950*** ***External Cable Reference***[4] Provides references to console and line cables used for connecting the IBM 3746 Models 900 and 950.
	S135-2015	***IBM 3746 Nways Multiprotocol Controller Models 900 and 950*** ***Parts Catalog***[4] Provides reference information for ordering parts for the IBM 3746 Models 900 and 950.
	S135-2014	***IBM Controller Expansion*** ***Parts Catalog*** Provides reference information for ordering parts for the controller expansion attached to the IBM 3745 Models A[2], and 3746 Models 900 and 950.

CD-ROM Bibliography

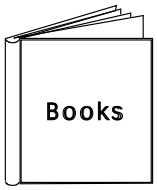
	ZK2T-8214	***IBM Networking Softcopy Collection Kit*** Allows service manuals consulting via CD-ROM viewer. EMEA version.
	ZK2T-8187	***IBM Networking Softcopy Collection Kit*** Allows service manuals consulting via CD-ROM viewer. US version.

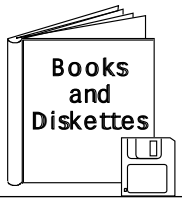
[1] Documentation shipped with the 3746 Model 950
[2] 3745 Models 17A to 61A
[3] Documentation shipped with the processor
[4] Documentation shipped with the 3746 Models 900 and 950

Customer Documentation for the 3745 (Models 210, 310, 410, 610, 21A, 31A, 41A, and 61A), and 3746 (Model 900)

Table E-3 (Page 1 of 4). Customer Documentation for the 3745 Models X10 and X1A, and 3746 Model 900

This customer documentation has the following formats:

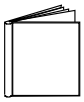




Finding Information

3745 Models A and 3746 Books

Starting with engineering change (EC) F12380, all of the books in the 3745 Models A and 3746 library are available on the CD-ROM that contains the Licensed Internal Code (LIC) for this EC.



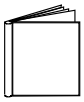
SA33-0172

IBM 3745 Communication Controller
Models 210 to 61A
IBM 3746 Expansion Unit Model 900

Customer Master Index[1]

Provides references for finding information in the customer documentation library.

Evaluating and Configuring



GA33-0092

IBM 3745 Communication Controller
Models 210, 310, 410, and 610

Introduction

Gives an introduction of the IBM Models 210 to 610 capabilities.

For Models A refer to the *Overview*, GA33-0180.

GA33-0180

IBM 3745 Communication Controller Models A[2]
IBM 3746 Nways Multiprotocol Controller
Models 900 and 950

Overview

Gives an overview of connectivity capabilities within SNA, APPN, and IP networking.

Table E-3 (Page 2 of 4). Customer Documentation for the 3745 Models X10 and X1A, and 3746 Model 900

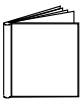
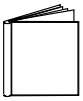
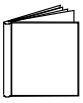
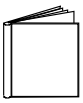
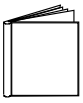
	GA33-0457	***IBM 3745 Communication Controller Models A***[2] ***IBM 3746 Expansion Unit Model 900*** ***Models 900 and 950*** ***Planning Guide*** Planning for: • Field upgrades • Service processor and alert management configuration • Network integration (NCP, APPN, and IP control) • Physical installation.
Preparing Your Site		
	GC22-7064	***IBM System/360, System/370, 4300 Processor*** ***Input/Output Equipment Installation Manual-Physical Planning*** (Including Technical News Letter GN22-5490) Provides information for physical installation for the 3745 Models 130 to 610. For 3745 Models A and 3746 Model 900, refer to the *Planning Guide*, GA33-0457.
	GA33-0127	***IBM 3745 Communication Controller*** ***Models 210, 310, 410, and 610*** ***Preparing for Connection*** Helps for preparing the 3745 Models 210 to 610 cable installation. For 3745 Models A refer to the *Connection and Integration Guide*, SA33-0129.
Preparing for Operation		
	GA33-0400	***IBM 3745 Communication Controller All Models***[3] ***IBM 3746 Nways Multiprotocol Controller*** ***Models 900 and 950*** ***Safety Information***[1] Provides general safety guidelines.
	SA33-0129	***IBM 3745 Communication Controller All Models***[3] ***IBM 3746 Nways Multiprotocol Controller Model 900*** ***Connection and Integration Guide***[1] Contains information for connecting hardware and integrating network of the 3745 and 3746-900 after installation.
	SA33-0416	***Line Interface Coupler Type 5 and Type 6*** ***Portable Keypad Display*** ***Migration and Integration Guide*** Contains information for moving and testing LIC types 5 and 6.

Table E-3 (Page 3 of 4). Customer Documentation for the 3745 Models X10 and X1A, and 3746 Model 900

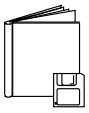
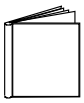
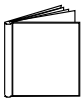
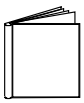
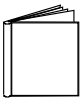
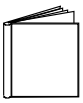
	SA33-0158	***IBM 3745 Communication Controller All Models***[3] ***IBM 3746 Nways Multiprotocol Controller Model 900*** ***Console Setup Guide***[1] Provides information for: • Installing local, alternate, or remote consoles for 3745 Models 130 to 610 • Configuring user workstations to remotely control the service processor for 3745 Models A and 3746 Model 900 using: – DCAF program – Telnet Client program.
Customizing Your Control Program		
	SA33-0178	***Guide to Timed IPL and Rename Load Module*** Provides VTAM procedures for: • Scheduling an automatic reload of the 3745 • Getting 3745 load module changes transparent to the operations staff.
Operating and Testing		
	SA33-0098	***IBM 3745 Communication Controller All Models***[4] ***Basic Operations Guide***[1] Provides instructions for daily routine operations on the 3745 Models 130 to 610.
	SA33-0177	***IBM 3745 Communication Controller Models A***[2] ***IBM 3746 Nways Multiprotocol Controller Model 900*** ***Basic Operations Guide***[1] Provides instructions for daily routine operations on the 3745 Models 17A to 61A, and 3746 Model 900 operating as an SNA node (using NCP), APPN/HPR Network Node, and IP Router.
	SA33-0097	***IBM 3745 Communication Controller All Models***[3] ***Advanced Operations Guide***[1] Provides instructions for advanced operations and testing, using the 3745 MOSS console.
	On-line Information	***Controller Configuration and Management Application*** Provides a graphical user interface for configuring and managing a 3746 APPN/HPR Network Node and IP Router, and its resources. Is also available as a stand-alone application, using an OS/2 workstation. Defines and explains all the 3746 Network Node and IP Router configuration parameters through its online help.

Table E-3 (Page 4 of 4). Customer Documentation for the 3745 Models X10 and X1A, and 3746 Model 900

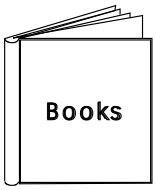
	SH11-3081	***IBM 3746 Nways Multiprotocol Controller Models 900 and 950*** ***Controller Configuration and Management: User's Guide***[5] Explains how to use CCM and gives examples of the configuration process.
Managing Problems		
	SA33-0096	***IBM 3745 Communication Controller All Models***[3] ***Problem Determination Guide***[1] A guide to perform problem determination on the 3745 Models 130 to 61A.
	On-line Information	***Problem Analysis Guide*** An online guide to analyze alarms, events, and control panel codes on: • IBM 3745 Communication Controller Models A[2] • IBM 3746 Nways Multiprotocol Controller Models 900 and 950.
	SA33-0175	***IBM 3745 Communication Controller Models A***[2] ***IBM 3746 Expansion Unit Model 900*** ***IBM 3746 Nways Multiprotocol Controller Model 950*** ***Alert Reference Guide*** Provides information about events or errors reported by alerts for: • IBM 3745 Communication Controller Models A[2] • IBM 3746 Nways Multiprotocol Controller Models 900 and 950.

[1] Documentation shipped with the 3745.
[2] 3745 Models 17A to 61A.
[3] 3745 Models 130 to 61A.
[4] Except 3745 Models A.
[5] Documentation shipped with the 3746-900.

Additional Customer Documentation for the 3745 Models 130, 150, 160, 170, and 17A

Table E-4. Additional Customer Documentation for the 3745 Models 130 to 17A

This customer documentation has the following format:



Finding Information

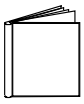
SA33-0142

IBM 3745 Communication Controller
Models 130, 150, 160, 170, and 17A
IBM 3746 Nways Multiprotocol Controller Model 900

Customer Master Index[1]

Provides references for finding information in the customer documentation library.

Evaluating and Configuring



GA33-0138

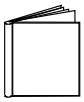
IBM 3745 Communication Controller
Models 130, 150, and 170

Introduction

Gives an introduction about the IBM Models 130 to 170 capabilities, including Model 160.

For Model 17A refer to the *Overview*, GA33-0180.

Preparing Your Site



GA33-0140

IBM 3745 Communication Controller
Models 130, 150, 160, and 170

Preparing for Connection

Helps for preparing the 3745 Models 130 to 170 cable installation.

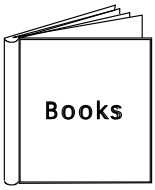
For 3745 Model 17A refer to the *Connection and Integration Guide*, SA33-0129.

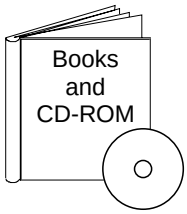
[1] Documentation shipped with the 3745.

Service Documentation for the IBM 3745 (Models 210, 21A, 310, 31A, 410, 41A, 610, and 61A) and 3746 (Model 900)

Table E-5 (Page 1 of 4). Service Documentation for the 3745 Models x10 and x1A, and 3746 Model 900

This service documentation has the following formats:





3745 Models A and 3746 Books

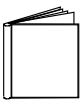
Starting with engineering change (EC) F12380, all of the books in the 3745 Models A and 3746 library are available on the CD-ROM that contains the Licensed Internal Code (LIC) for this EC.

SY33-2080

IBM 3745 Communication Controller
Models 210 to 61A

Service Master Index[1]

Provides references for finding information in the IBM 3745 Models X10 and X1A shipping group documentation.

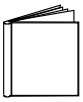


SY33-2057

IBM 3745 Communication Controller
Models 210 to 61A

Installation Guide[1]

Provides instructions for installing or relocating the IBM 3745 Models X10 and X1A.

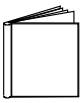


SY33-2114

IBM 3746 Nways Multiprotocol Controller
Model 900

Installation Guide[2]

Provides instructions for installing or relocating a 3746-900.

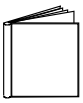


SY33-2116

IBM 3746 Nways Multiprotocol Controller
Model 900

Service Guide[2]

Provides procedures for isolating and fixing the IBM 3746-900 problems.



SY33-2055

IBM 3745 Communication Controller
Models 210, 310, 410, and 610

IBM 3746 Expansion Units
Models A11, A12, L13, L14, and L15

Service Functions[1]

Describes MOSS functions using the IBM 3745 Models X10 and X1A consoles.

Table E-5 (Page 2 of 4). Service Documentation for the 3745 Models x10 and x1A, and 3746 Model 900

SY33-2054

IBM 3745 Communication Controller
Models 210 to 61A

Maintenance Information Procedures[1]

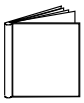
Provides procedures for isolating and fixing the IBM 3745 Models X10 and X1A problems.

SY33-2115

IBM 3745 Communication Controller Models A[3]
IBM 3746 Expansion Unit Model 900
IBM 3746 Nways Multiprotocol Controller Model 950

Service Processor Installation and Maintenance[4]
(Based on the 7585, 3172, 9585, or 9577)

Provides information on installing and maintaining the service processor based on PS/2 Types 7585, 3172, 9585, or 9577.
Can be for systems with microcode that has up to and including EC D46130 (any level) installed.



SY33-2120

IBM 3745 Communication Controller Models A[3]
IBM 3746 Expansion Unit Model 900
IBM 3746 Nways Multiprotocol Controller Model 950

Service Processor Installation and Maintenance[4]
(Based on the 7585, 3172, or 9585)

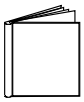
Provides information on installing and maintaining the service processor based on PS/2 Types 7585, 3172, or 9585.
Can be for systems with microcode EC F12380 or higher installed.

SY33-2118

IBM 3746 Nways Multiprotocol Controller Models 900 and 950

Multiaccess Enclosure Installation and Maintenance[4]

Provides information on installing and maintaining the Multiaccess Enclosure (MAE).



SY33-2112

IBM 3746 Nways Multiprotocol Controller
Models 900 and 950

Network Node Processor Installation and Maintenance[4]
(Based on the 7585 or 3172)

Provides information on installing and maintaining the network node processor based on the PS/2 Type 7585 or 3172.

SY33-2056

IBM 3745 Communication Controller
Models 210 to 61A

Maintenance Information Reference[1]

Provides in-depth hardware reference information on the IBM 3745 Models X10 and X1A.

Table E-5 (Page 3 of 4). Service Documentation for the 3745 Models x10 and x1A, and 3746 Model 900

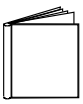
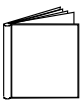
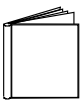
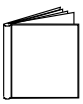
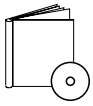
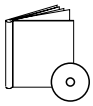
	SY33-2075	***IBM 3745 Communication Controller*** ***All Models***[5] ***External Cable References***[1] Provides references to console and line cables used for connecting the IBM 3745 Models 130 to 61A.
	SY33-2117	***IBM 3746 Nways Multiprotocol Controller*** ***Models 900 and 950*** ***External Cable Reference***[6] Provides references to console and line cables used for connecting the IBM 3746 Models 900 and 950.
	S135-2015	***IBM 3746 Nways Multiprotocol Controller*** ***Models 900 and 950*** ***Parts Catalog***[6] Provides reference information for ordering parts for the IBM 3746 Models 900 and 950.
	S135-2010	***IBM 3745 Communication Controller*** ***Models 210 to 61A*** ***Parts Catalog***[1] Provides reference information for ordering IBM 3745 Models X10 and X1A parts.
	S135-2014	***IBM Controller Expansion*** ***Parts Catalog*** Provides reference information for ordering parts for the controller expansion attached to the IBM 3745 Models A[3], and 3746 Models 900 and 950.

Table E-5 (Page 4 of 4). Service Documentation for the 3745 Models x10 and x1A, and 3746 Model 900

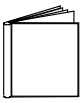
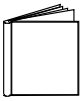
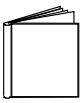
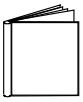
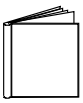
CD-ROM Bibliography		
	ZK2T-8214	***IBM Networking Softcopy Collection Kit*** Allows service manuals consulting via CD-ROM viewer. EMEA version.
	ZK2T-8187	***IBM Networking Softcopy Collection Kit*** Allows service manuals consulting via CD-ROM viewer. US version.

[1] Documentation shipped with the 3745.
[2] Documentation shipped with the 3746-900.
[3] 3745 Models 17A to 61A.
[4] Documentation shipped with the processor.
[5] 3745 Models 130 to 61A.
[6] Documentation shipped with the 3746 Models 900 and 950.

Additional Service Documentation for the IBM 3745 Models 130, 150, 160, 170, and 17A

Table E-6. Additional Service Documentation for the 3745 Models 1x0 and 17A

This service documentation has the following formats:

	Books	Online
	SY33-2079	***IBM 3745 Communication Controller Models 130, 150, 160, 170, and 17A*** ***Service Master Index***[1] Provides references for finding information in the IBM 3745 Models 1X0 and 17A shipping group documentation.
	SY33-2067	***IBM 3745 Communication Controller Models 130, 150, 160, 170, and 17A*** ***Installation Guide***[1] Provides instructions for installing or relocating the IBM 3745 Models 1X0 and 17A.
	SY33-2069	***IBM 3745 Communication Controller Models 130, 150, 160, and 170*** ***Service Functions***[1] Describes MOSS functions using the IBM 3745 Models 1x0 and 17A consoles.
	SY33-2070	***IBM 3745 Communication Controller Models 130 to 17A*** ***Maintenance Information Procedures***[1] Provides procedures for isolating and fixing the IBM 3745 Models 1X0 and 17A problems.
	S135-2012	***IBM 3745 Communication Controller Models 130 to 17A*** ***Parts Catalog***[1] Provides reference information for ordering IBM 3745 Models 1X0 and 17A parts.
	SY33-2066	***IBM 3745 Communication Controller Models 130, 150, 160, and 170*** ***Hardware Maintenance Reference***[1] Provides in-depth hardware reference information on the IBM 3745 Models 1X0 and 17A.

[1] Documentation shipped with the 3745.

Glossary

ac. alternating current

ACPW. AC power (box)

AFD. airflow detector

alarm. A message sent to the MOSS console. In case of an error a reference code identifies the nature of the error.

alert. A message sent to the host console. In case of an error a reference code identifies the nature of the error.

AMD. air moving device

APPN. advanced peer-to-peer networking

ARC. active remote connector

ARC1A1. ARC V.24 DCE attachment with 5 meter tethered cable

ARC1A2. ARC V.24 DCE attachment with 15 meter tethered cable

ARC1B. ARC V.24 DTE attachment with 15 meter tethered cable

ARC1C. ARC V.24 DCE 3745 interface with 5 meter tethered cable

ARC1D. ARC V.24 DTE 3745 interface with 5 meter tethered cable

ARC1E. ARC V.24 3174 AEA interface (1)

ARC1F. ARC V.24 3174 PCA EIA interface (1)

ARC2A. ARC V.25 autocall interface with 5 meter tethered cable

ARC2C. ARC V.25 autocall interface 3745 with 5 meter tethered cable

ARC3A1. ARC V.35 DCE attachment with 5 meter tethered cable

ARC3A2. ARC V.35 DCE attachment with 15 meter tethered cable

ARC3B. ARC V.35 DTE attachment with 15 meter tethered cable

ARC3C. ARC V.35 DCE 3745 interface with 5 meter tethered cable

ARC3D. ARC V.35 DTE 3745 interface with 5 meter tethered cable

ARC4A1. ARC X.21 DCE attachment with 5 meter tethered cable

ARC4A2. ARC X.21 DCE attachment with 15 meter tethered cable

ARC4B. ARC X.21 DTE attachment with 15 meter tethered cable

ARC4C. ARC V.21 DCE 3745 interface with 5 meter tethered cable

ARC4D. ARC V.21 DTE 3745 interface with 5 meter tethered cable

ARC5A. Reserved

ARC5B. Reserved

ARC5C. ARC RS-422 3708 interface (or RJ-11 connection) (1)

ARC5D. ARC RS-422 IBM Cabling System interface (1)

ARC6A. ARC V.25 autocall interface with 15 meter tethered cable

ARC6C. ARC V.25 autocall 3745 interface with 15 meter tethered cable

BA. basic access

BAS. basic board

BATS. basic assurance tests

BER. box event record

BLPU. basic level packaging unit

BMI. bit multiplex interface

box event record (BER). Information about an event detected by the controller. It is recorded on the disk/diskette and can be displayed on the operator console for event analysis.

bps. bits per second

BSC. binary synchronous communication

BSI. bus synchronism interface

C. Celsius

C&SM. customer and service information

CA. channel adapter

cache. A high-speed buffer storage that contains frequently accessed instructions and data; it is used to reduce access time.

CB. circuit breaker

CBA. controller bus adapter

CBC. controller bus coupler

CBR. circuit burst request

CBSA. controller bus and service adapter (CBSP+CBC+TIC3)

CBSP. controller bus and service processor

CBTRA. controller bus and token-ring adapter (TRP+CBC+TIC3)

CBTRM. cable terminator (IOC and DMA buses)

CCITT. Comite Consultatif International Telephonique et telegraphique

CCU. central control unit

CDF. configuration data file (3745)

CDF-E. configuration data file extended (37CS)

CE. customer engineer

CEPT. Comite Europeen des Postes et Telecommunications

CLA. communication line adapter (CLP+LICnn)

CLDP. controller load/dump program

clear channel. Mode of data transmission where the data passes through the DCE and network, and arrives at the receiving communication controller (for example, the IBM 3745) unchanged from the data transmitted. The DCE or network can modify the data during transmission because of certain network restrictions, but must ensure the received data stream is the same as the transmitted data stream.

CLP. communication line processor

CMIP. common management interface protocol

CNM. communication network management

CP. 1.communication processor 2.control program 3.circuit protector 4.control point

CPLR. coupler

CPN. customer problem number

CPx. FRU name of circuit protector

CRC. cyclic redundancy check character

CS. connectivity switch

CSA. common subassembly

CSB. connectivity switch bus

CSC. connectivity switch cable

CSCE. connectivity switch cable extension

CSM. centralized support module

CSP. central service point

CSS. control subsystem (3745)

CTDA. configuration target device (processor) address

dc. direct current

DCAF. Distributed Console Access Facility (licensed program)

DCCS. DC to connectivity subsystem

DCE. data circuit-terminating equipment

DCDP. DC distribution and protection (box)

DCM. diagnostic control monitor

DCPW. DC power box

DICO. DMA IOC connection card

DM. distribution manager

DMA. direct memory access

DS. data storage

DSB. data storage bus

DSI. data storage interface

DSM. data storage manager

DSS. data storage interface for SBA

DSU. data service unit (DCE-like for high-speed communication lines)

DTE. data terminal equipment

EC. engineering change

EE. extended edition

EIA. Electronic Industries Association

EPO. emergency power-off

EPROM. eraseable PROM

ESCA. ESCON adapter

ESCC. ESCON coupler

ESCON*. Enterprise Systems Connection

ESCP. ESCON processor

ESD. electrostatic discharge

EXP. expansion enclosure

EXP1. first expansion enclosure

EXP2. second expansion enclosure

FCS. frame check sequence

FRU. field-replaceable unit

HCS. Hardware Central Service

HDLC. high-level data link control

hex. hexadecimal

host processor. (1) A processor that controls all or part of a user application network. (2) In a network, the processing unit in which the access method for the network resides. (3) In an SNA network, the processing unit that contains a system services control point (SSCP). (4) A processing unit that executes the access method for attached communication controllers. Also called *host.*

HPPB. high-performance parallel bus

HSC. hardware support center

HSF. hardware service facility

Hz. Hertz

IBM service representative. An individual in IBM who performs maintenance services for IBM products or systems.

IEEE. Institute of Electrical and Electronics Engineers

IML. initial microcode load

initial microcode load (IML). The process of loading the microcode into a scanner or into MOSS.

initial program load (IPL). The initialization procedure that causes the 3745 control program to commence operation.

IO. input/output

IOC. input/output control

IOCB. input/output control bus

IPL. initial program load

IRAM. instruction random access memory

ISO. International Organization for Standardization

kbps. kilobits per second

LA. line adapter

LAN. local area network

LCB. line connection box

LED. light-emitting diode

LIC. line interface coupler

LICx. FRU name of line interface coupler type x (3745)

LLC. logical link control

LS. local storage

LSA. link service architecture

LSCT. LIM software configuration table

LSM. local storage manager

LSSD. level-sensitive scan design (total hardware latches chain collection)

LU. logical unit

MAC. medium access control

MAE. Multiaccess enclosure

MAP. maintenance analysis-procedure

MAU. multistation access unit

MB. megabyte; 1 048 576 bytes

MCF. microcode fix

MCL. microcode change level

MES. miscellaneous equipment specification

MG. motor generator

MI. maskable interrupt

microcode. A program, that is loaded in a processor (for example, the MOSS processor)

MLA. MOSS LAN adapter

MMIO. memory mapped input/output

maintenance and operator subsystem (MOSS). The part of the controller that provides operating and servicing facilities to the customer's operator and the IBM service representative.

MOSS. maintenance and operator subsystem (3745)

MOSS-E. maintenance and operator subsystem extended (37CS)

NA. network addressable

NCP. Network Control Program

NDM. netview distribution manager

NetView. An IBM licensed program used to monitor a network, manage it, and diagnose its problems.

Network Control Program (NCP). An IBM licensed program that provides communication controller support for single-domain, multiple-domain, and interconnected network capability.

NMI. non-maskable interrupt

NMVT. network management vector transport

NNP. network node processor

NODA. next origin device (processor) address

NPM. NetView performance monitor

NTDA. next target device (processor) address

OEMI. original equipment manufacturer's interface

OLT. online test

online tests. Testing of a remote data station concurrently with the execution of the user's programs (that is, with only minimal effect on the user's normal operation).

OSI. open system interconnect

PA. primary access

PBC. packet burst control

PBG. packet burst grant

PCR. 1.pico-processor command register 2.power check reset

PICA. process and intertask communication architecture

PMH. problem management hardware

PN. part number

PNL. control panel

POR. power-ON reset

PP. pico-processor

PPB. primary power box

PRC. processor

PRDA. packet request device (processor) address

PROM. programable read-only memory

PS. power supply

PSI. packet switch interface

PSN. public switched network

PTCE. product-trained CE

PTF. program temporary fix

PTT. Post, Telephone and Telegraph (agency)

PU. physical unit

RETAIN. Remote Technical Assistance Information Network

RNR. receiver not ready

RPL. remote program load

RPO. remote power-off

RSC. remote service center

RSF. remote support facility

RVX. stands for RS232, RS422, V.24-35, X.21-2x connections

SATS. specific assurance tests

SBA. switch bus adapter

SBI. switch bus interface

SC. switch control

SDLC. synchronous data link control

SL. service logic

SNA. Systems Network Architecture

SNMP. Simple network management protocol

SPD1. signal and power distribution type 1

SPD2. signal and power distribution type 2

SPDL. signal and power distribution card in LCB

SPS. service and power support

SQL. structured query language

SRC. system reference code

SSA. system service architecture

SSCP. system services control point

STCn. signal transfer card n

SSS. subsystem support service

Systems Network Architecture (SNA). The description of the logical structure, formats, protocols, and operational sequences for transmitting information through a user application network. The structure of SNA allows the users to be independent of specific telecommunication facilities.

TB. terminator block

TDM. time division multiplexing

TDR. technical data record

TERC. terminator card

TIC1. token-ring interface coupler type 1 (3745) running at speed of 4 Mbits

TIC2. token-ring interface coupler type 2 (3745) running at speed of 4 or 16 Mbits

TIC3. token-ring interface coupler type 3 (37CS) running at speed of 4 or 16 Mbits

time out. The time interval allotted for certain operations to occur.

TPS. two-processor switch

TR. token-ring

TRA. token-ring adapter (TRP+TIC3)

TRFM. transformer

TRP. token-ring processor

TRS. transmitter/receiver subassembly

UEPO. unit emergency power-off

URSF. universal remote support facility

UTP. Unshielded twisted pair cable

V. volt

V.24. CCITT V.24 recommendation

V.25. CCITT V.25 recommendation

V.28. CCITT V.28 recommendation

V.35. CCITT V.35 recommendation

VPD. vital product data

VTAM*. Virtual Telecommunications Access Method

VTL. vendor technology logic

W. watt

X.21. CCITT X.21 recommendation

X.25. CCITT X.25 recommendation

YZxxx. wiring diagram

Index

Readers' Comments — We'd Like to Hear from You

3746 Nways Multiprotocol Controller
Models 900 and 950
Network Node Processor
Installation and Maintenance
(based on 7585 or 3172)

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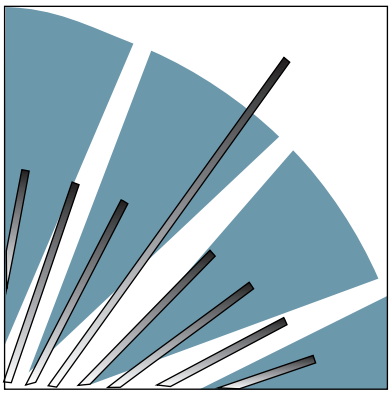

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