

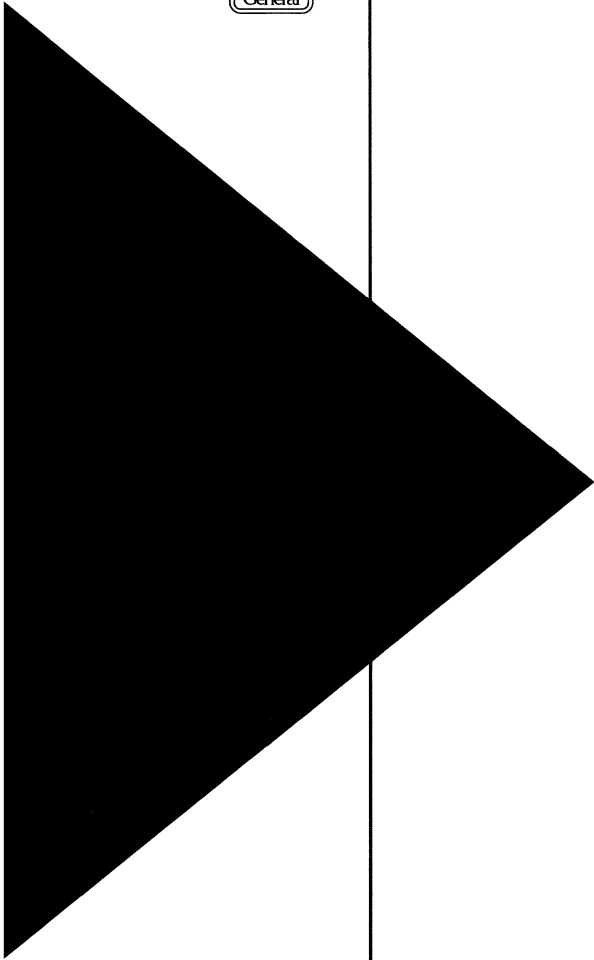


Network General Corporation

SNIFFER® NETWORK ANALYZER
MODEL 54/55 INSTALLATION GUIDE



Network General Corporation



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MODEL 54/55 INSTALLATION GUIDE

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Preface

About This Manual

Welcome to the *Sniffer Network Analyzer: Model 54/55 Installation Guide*. This installation guide explains how to set up the Model 54/55 network analyzer, connect it to a network, and start up the Sniffer Network Analyzer.

The information presented here is intended to help you get started. For the most part, you will use this installation guide before you begin capturing and interpreting frames on your network. For more information about the Sniffer Network Analyzer, refer to the *Sniffer Network Analyzer Operations* manual, and the *Network and Protocol Reference*.

Organization of This Manual

Figure i describes the organization of this manual.

| Chapter | Contents |
|--|---|
| Chapter 1, "Before You Begin" | Provides specifications for the Model 54/55 Sniffer Network Analyzer, as well as unpacking instructions. |
| Chapter 2, "The Model MS-54/55" | Describes how to configure a Compaq Portable 486/486c into a Model 54/55 Sniffer Network Analyzer. |
| Chapter 3, "Protecting the Sniffer Network Analyzer" | Describes how to back up the hard disk of the Sniffer Network Analyzer, as well as how to restore backed up files. |
| Chapter 4, "Installing the Sniffer Network Analyzer" | Describes how to install and configure the Model 54/55 Sniffer Network Analyzer, as well as how to connect it to a network. |
| Chapter 5, "Starting the Sniffer Network Analyzer" | Provides instructions for starting the Sniffer Network Analyzer, followed by notes about various display options. |

Figure i. Organization of this Installation Guide.

To help you find procedures easily, a List of Procedures is provided in addition to the Table of Contents and List of Figures.

Navigational Aids Used in This Manual

This manual uses icons in the margin to help you locate important information as explained below:



IMPORTANT INFORMATION. Next to this icon is information that is especially important; you should be certain to read it carefully before you proceed.



CAUTION. Next to this icon are instructions that you must follow to avoid possible damage to data files, program files, or hardware devices.



PROCEDURE. Next to this icon is a series of steps for accomplishing a particular task.

Conventions Used in This Manual

Special Notations

The following describes the conventions used in this manual:

| | |
|---------------------|--|
| Bold | Menu options are in bold type. For example: Move to Display , and press Enter. |
| UPPERCASE | Filenames and commands you type at a DOS prompt are in uppercase. For example: Modify the AUTOEXEC.BAT file if necessary. To duplicate the file, use the COPY command. |
| <i>Bold italics</i> | Variables, for which you provide values, are in bold italics. For example: Type the number of minutes and seconds in the <i>mm:ss</i> format. |
| Screen font | Screen messages are printed in monospaced font. For example: If a monitoring session is in progress, the following message appears: You must stop monitoring before you can use this feature. |
| ITEM1\ITEM2 | A menu title made up from the succession of menu items chosen to get to the submenu. For example, to filter out MAC frames during capture, you would go to the Capture filters\Protocol menu. |

Terminology

Hexadecimal numbers in the manual are followed by "(hex)"; numbers without any notations are decimal. For example, "The maximum number of stations is 75. The default memory address is D8000 (hex)."

The terms "monitor" and "analyzer" refer to software applications that run on the Sniffer Network Analyzer.

Other Sources of Information

Network General Corporation (NGC) provides other sources of information that can help you become familiar with the Sniffer Network Analyzer.

On-Line Help

After highlighting an item in an analyzer or monitor menu, you can see a phrase or sentence in a panel near the bottom of the screen. It explains the meaning of the highlighted item. To obtain general help information about a particular feature of the Sniffer Network Analyzer, press F1 at any time within the menus of the analysis or monitoring applications. A window containing a list of topics opens. If you are displaying a monitor statistics screen, pressing F1 gives you information about the current screen.

Do not confuse explain messages with help messages, which are also invoked by the same function key when the analyzer is not capturing in Expert mode. The help messages serve as reminders about items in the analyzer's menus. When displaying an Expert screen, you can press F1 to show a detailed context-sensitive help message pertaining to a connection, problem, or network layer that is highlighted. The explain messages provide further information that cannot be accommodated in the current Expert view but is important for your investigation of network problems.

Technical Support

A toll-free number is available to obtain technical support for the Sniffer Network Analyzer. Before calling, however, please refer to the section entitled, "Troubleshooting," in the *Sniffer Network Analyzer Operations* manual. You will find tips for troubleshooting your system as well as information you will need before requesting help.

Figure ii lists the telephone numbers for contacting Network General.

| | |
|---|----------------|
| Phone for Network General's Technical Support Department: | (800) 395-3151 |
| FAX: | (415) 327-9436 |

Figure ii. Technical support numbers.

Before You Begin

Overview

The Model 54 Sniffer Network Analyzer and the Model 55 Sniffer Network Analyzer are identical except for their displays: the Model 54 has a monochrome display and the Model 55 has a color display. They will be referred to as the Model 54/55 throughout this manual since the Sniffer Network Analyzer's functionality is not affected by its type of display.

There are two different varieties of the Model 54/55:

Model PL-54/55. The PL-54/55 includes a Compaq Portable 486/486c computer, network cards, and Sniffer software already installed on the hard disk drive. The PL-54/55 is ready to connect to a network and use when you receive it from the factory.

Model MS-54/55. The MS-54/55 includes network interface cards and the Sniffer software. These are used to convert a Compaq Portable 486/486c into a Model 54/55 Sniffer Network Analyzer.

This chapter provides basic information about both the Model PL-54/55 and the Model MS-54/55 Sniffer Network Analyzers and the items that accompany them. The following topics are discussed:

- Unpacking your Sniffer Network Analyzer and the items that come with it. This section also contains important information about the licensing agreement.
- Documentation accompanying your analyzer.
- Hardware specifications for the Compaq Portable 486/486c computer.
- Notes about the Sniffer software.

Once you have read this document and set up your Sniffer Network Analyzer, you'll want to learn about capturing, triggering, and other Sniffer functions. At that point, turn to the *Sniffer Network Analyzer Operations* manual.

Unpacking

- Unpack the PL-54/55 by removing the following items from the shipping carton: the Sniffer Network Analyzer, the documentation, the related items packed with it, the packing list, and the license agreement. Check these items against the packing list.
- Unlike the PL-54/55, when you unpack the MS-54/55, you are not taking out a complete unit. Remove the following items from the carton: documentation, the network interface card(s), and the diskettes containing the Sniffer software.



- Read the license agreement. If you cannot accept its terms, go no further! You have three days to put everything back into the shipping carton and return the Sniffer Network Analyzer. When you connect the Sniffer Network Analyzer to a power source, you are signaling that you accept the terms of the license agreement.
- Fill out the warranty registration card and return it to Network General.

Documentation

In addition to this document, the following reference publications are included with the Model 54/55 Sniffer Network Analyzer:

Sniffer Network Analyzer Operations
Sniffer Network Analyzer: Ethernet Monitor Operations
Sniffer Network Analyzer: Token Ring Monitor Operations
FDDI Monitor Operations Manual
Network and Protocol Reference
Quickstart (if Expert)
DCA Remote2 Supplement

Additionally, if you ordered the PL version of the Model 54/55, you will receive:

COMPAQ Portable 486/486c Reference Guide
COMPAQ Portable 486/486c Setup Instructions
COMPAQ User Programs Reference

Hardware

The Model PL-54/55 Sniffer Network Analyzer is based on an 80486 platform manufactured for Network General by Compaq Computer Corporation, and operates under Compaq DOS 5.0.

The Model PL-54/55 is equipped with:

- **Processor.** 80486 processor running at 33 MHz.
- **Memory.** 8MB of main memory for networks *other* than FDDI, and 16MB minimum (up to a maximum of 32MB) of main memory for FDDI.
- **Hard Drive.** One 120MB hard disk.
- **Diskette Drive.** One 1.44MB, 3.5-inch, internal, double-sided, high-density diskette drive.

- **Display.** The Compaq Portable 486c has a 10.5-inch diagonal Active Matrix Color Display. The Compaq Portable 486 has a 10.5-inch diagonal Active Matrix Black and White Display. Both displays support VGA, EGA, and CGA graphics resolutions and have a video port for an external VGA color monitor. No screen saver is necessary for the internal display.
- **Adapter.** One or two network adapters are installed in the Model 54/55, depending upon which packaging option you order. The Model 54/55 supports a maximum of two installed adapters. For information on installing network adapters, see “Installing Network Interface Cards” on page 4–25.
- **Power Supply.** The auto-sensing universal power supply converts AC power to DC power and reduces the voltage for Sniffer Network Analyzer use. The power supply automatically senses whether you’ve plugged the Model 54/55 into a 110 or 220 volt power source.
- **Fold Down Panels.** For carrying, the Active Matrix Display panel locks into position with the keyboard acting as a cover for the front of the computer. A handle on top of the computer makes it easy to carry.
- **Connectors.** Network connectors and external video connectors are located on the left side of the unit, above the ON/OFF switch. They are protected by the Options Door. Additionally, parallel and serial ports are located at the back of the Model 54/55 behind the connector cover. See the *COMPAQ Portable 486/486c: Reference Guide* for more information.
- **Power Cord.** The Sniffer Network Analyzer comes with a power cord, fitted with a standard three-prong plug for 117 volt 60 cycles AC or 250 volt 50 cycles AC (6 ft. long).
- **Screen Control.** A dial for controlling the brightness and screen contrast is located on the front of the unit, to the right of the display.
- **Volume Control.** A dial for controlling the speaker volume of the Model 54/55 is located below the brightness dial, to the right of the display.

Software

Sniffer software diskettes are supplied with the Model MS-54/55 but not with the PL-54/55. The Model PL-54/55 comes with Sniffer software installed on the hard disk.

To convert your Compaq Portable 486/486c into a Sniffer Network Analyzer, you must install the Sniffer software on the Compaq Portable 486/486c hard disk drive. The software is provided on a set of 3.5-inch diskettes. For further instructions, refer to “Installing Sniffer Software” on page 2–6.

The Model MS-54/55

Overview

The following sections explain how to convert a Compaq Portable 486/486c computer into a Model MS-54/55 Sniffer Network Analyzer. This part of the Installation Guide includes information on the following topics:

- System and memory requirements
- Installing DOS
- Disabling the CD-ROM Adapter
- Converting to linear addressing
- Installing Sniffer software
- Applying Sniffer labels to your Compaq Portable 486/486c

Building the Model MS-54/55

Below is a summary of the installation and configuration sequence for the Model MS-54/55 Sniffer Network Analyzer.



To convert the Compaq Portable 486/486c into a Sniffer Network Analyzer:

1. Configure and install the appropriate network interface cards (see Chapter 4).
2. If not already loaded, load Compaq MS-DOS 5.0 onto the hard disk of the Compaq Portable 486/486c.
3. Load the Sniffer software onto the hard disk of the Compaq Portable 486/486c.
4. Apply Sniffer labels to the Compaq Portable 486/486c.

Each of these steps is explained below.

System Requirements

Before installing network interface cards or the Sniffer software, make certain that your Compaq Portable 486/486c meets the following requirements:

- Your computer must be a Model 120 or Model 210 Compaq Portable 486/486c for FDDI, or a Model 120 Compaq Portable 486/486c for other networks.
- Your Compaq Portable 486/486c must have at least 8MB of main memory for network cards *other* than FDDI, and at least 16MB of main memory (up to a maximum of 32MB) for the FDDI Network Interface Card.
- At least 10MB of disk space must be free on the hard disk.

Installing Network Interface Cards

Install the supplied network interface card(s) in your Compaq Portable 486/486c. Refer to "Installing Network Interface Cards" in Chapter 4 for instructions.

Installing DOS

If your Compaq Portable 486/486c does not already have MS-DOS 5.0 installed on the hard disk, you need to install it from the MS-DOS diskettes supplied with your Model MS-54/55 package. Install Compaq MS-DOS 5.0 in a subdirectory called \DOS, including the file COMMAND.COM. If MS-DOS 5.0 is already loaded, ensure that it is located in a subdirectory called \DOS and skip to the next section, "Disabling the CD-ROM Adapter."



To install Compaq MS-DOS 5.0:

1. Refer to the *MS-DOS Version 5.0 Beginning User's Guide* for instructions on how to use the bootable FASTART diskette to install MS-DOS 5.0.
2. The FASTART menu will offer you three options for loading MS-DOS. Choose the **Automatic** option, rather than **Manual** or **Partial**.
3. Follow the FASTART instructions as they appear on your screen.



Be sure that you don't install the Compaq User Programs or any software upgrades you receive directly from Compaq. The Sniffer Network Analyzer will not run if you install these programs.

Disabling the CD-ROM Adapter

Your Compaq Portable 486/486c has a built-in CD-ROM Adapter that conflicts with the operation of the Sniffer Network Analyzer. You must disable it using the System Configuration diskette supplied by Compaq for the Portable 486/486c.



To disable the CD-ROM Adapter:

1. Insert the System Configuration diskette that accompanies the Compaq Portable 486/486c into the floppy drive.
2. Boot the computer. The System Configuration screen is displayed.
3. Follow the System Configuration instructions as they appear to reach the Main Menu of the System Configuration utility.
4. From the Main Menu, scroll down to the third entry in the Main Menu, **Configure Computer**, and press Enter.
5. Scroll down to **Step 3: View or edit details** in the menu Steps In Configuring Your Computer and press Enter.
6. Scroll down to the **CD-ROM Adapter** entry in the Integrated Interfaces submenu and press Enter.
7. Toggle the **Resources Disabled** menu option so that a small, black dot appears between the parentheses to the left.

8. Press F10 to verify your choice within the menu. Be sure that the CD-ROM Adapter's menu option reads **Resources Disabled**.
9. Press F10 again to return to the menu **Steps In Configuring Your Computer**.
10. Scroll down to **Step 5: Save and exit**. Press Enter.
11. At the menu choice **Save the configuration and restart the computer**, press Enter to save your configuration.
12. Remove the System Configuration utility diskette and power off the Compaq Portable 486/486c.

Converting to Linear Addressing

If your Compaq Portable 486/486c has 32MB of main memory, you need to use the System Configuration diskette supplied by Compaq for the Portable 486/486c to enable linear addressing. This enables the Sniffer analyzer software to work correctly with the additional memory.



To convert the Compaq Portable 486/486c to linear addressing:

1. With the power off, insert the System Configuration diskette that accompanies the Compaq Portable 486/486c into the floppy drive.
2. Boot the computer.
3. Follow the System Configuration instructions as they appear to reach the Main Menu of the System Configuration utility.
4. From the Main Menu, scroll down to the third entry in the Main Menu, **Configure Computer**, and press Enter.
5. Scroll down to **Step 3: View or edit details** in the menu **Steps In Configuring Your Computer** and press Enter.
6. Scroll down to **Compaq Memory** and press Enter.
7. Scroll down to **Base Memory ... 640Kbytes, COMPAQ compatible** and press Enter.
8. Scroll down to the third entry, **640Kbytes, Linear**, so that a small, black dot appears between the parentheses to the left.
9. Press F10 to save the change to linear addressing.
10. Press F10 again to exit the menu **Step 3: View or edit details**.
11. Scroll down to **Step 5: Save and exit**. Press Enter.
12. At the menu choice **Save the configuration and restart the computer**, press Enter to save your configuration.
13. Remove the System Configuration utility diskette and power off the Compaq Portable 486/486c.

Installing Sniffer Software



During installation, new CONFIG.SYS and AUTOEXEC.BAT files are put in the root directory. Any previously existing CONFIG.SYS or AUTOEXEC.BAT files are saved as CONFIG.420 and AUTOEXEC.420 during the installation procedure. If you install Sniffer software more than once (for instance, for both an Ethernet and a token ring analyzer), the original CONFIG.SYS and AUTOEXEC.BAT files will be overwritten. This won't be a problem unless you have created custom CONFIG.SYS and AUTOEXEC.BAT files. If you do have custom files, rename them with a special extension, .OLD, for example, **before** installing the Sniffer software. After completing the installation, you can use your original files when not using the Sniffer Network Analyzer.

Note: The extension for files saved during installation will vary depending on the version of software you are installing. For example, during the installation of Version 4.2 Sniffer software, previously existing CONFIG.SYS and AUTOEXEC.BAT files will be saved with a .420 extension.



To install the Sniffer software:

1. At the DOS prompt, insert the diskette marked "****Insert Me First****" into the floppy diskette drive A:.
2. Type the following command and press Enter.

```
C:> a: install
```

Result: The installation process reminds you to back up your hard disk drive before proceeding.



The Sniffer installation process does **NOT** save any previously existing Sniffer software, including any customization you may have done. This affects custom protocol interpreters, startup files, and capture files. However, existing CONFIG.SYS and AUTOEXEC.BAT files will be saved with a .410 extension (see the note above). **It is imperative that you back up the hard disk in order to save important files and to retain the ability to revert to a previous version of the Sniffer software.**

The installation process continues by loading the installation software onto the hard disk. You are then prompted to load the platform software.

3. Insert the diskette labeled "(Model) Platform Software" and "Diskette 01". The "(Model)" indicates your Sniffer Network Analyzer; PL-54/55, for example, describes software for the Model 54/55. At the prompt, press Enter to continue or press "Q" to quit.

The installation process continues as the platform software is loaded onto the hard disk. When this is complete, you will be prompted to insert the diskettes for the Sniffer analyzer and monitor software.

4. Insert the first applicable diskette labeled "(Network) Software". The "(Network)" indicates your network topology. The installation process continues and you are prompted for each successive network diskette.

Result: When complete, the installation process informs you of the success or failure of its operation. If the installation process fails, it creates the file C:\UPDATE.ERR that contains a more detailed explanation of the failure.

Applying Sniffer Labels to your Compaq Portable 486/486c

To finish transforming your Compaq Portable 486/486c into an authentic Sniffer Network Analyzer, the Model MS-54/55 comes packaged with a keyboard template and three labels. There are four places to affix these:

- The two larger Sniffer labels belong on the outside of the unit: one in the back and one in the front. Carefully pry the *COMPAQ* labels from their oval housings and replace them with Sniffer labels.
- Release the keyboard panel, putting the display into viewing position. Then, carefully remove the *COMPAQ* label at the upper right of the display. Apply the smaller Sniffer label in its place.
- The Sniffer keyboard template labels the function keys, indicating key uses during different modes of operation. Peel off the backing and place the template above the function keys at the top of the keyboard.

Protecting the Sniffer Network Analyzer

Overview

This chapter explains hard disk backup precautions you should take before using the Sniffer Network Analyzer. Restoration procedures are also described should a problem occur. Read this chapter before using your Sniffer Network Analyzer.

Precautions

When you are setting up the Sniffer Network Analyzer for the first time, you should make backups of the Sniffer software and DOS utilities before capturing or analyzing data. You can easily protect yourself from a disaster by preparing a few diskettes in advance. Follow these procedures to ensure the safety of your software:

- Back up the Sniffer software and DOS utilities on the hard disk to diskettes.
- Remember to back up capture files periodically as you accumulate them on the hard disk.
- If you lose files, restore them from your backup diskettes.

Backing Up the Contents of the Hard Disk

You can back up the Sniffer Network Analyzer's hard disk several different ways: you can back up the entire hard disk (full backup), you can back up only those files which have changed since your last backup (incremental backup), or you can back up a particular directory or subdirectory. Each method is described below.



To back up the entire hard disk of the Sniffer Network Analyzer:

1. Make sure you have enough diskettes on hand before you start. The diskettes do not need to be previously formatted and the number of diskettes may vary. Saved setup or capture files also require space.
2. Estimate the number of diskettes needed to perform a backup using the following equation:

Hard disk space used / Diskette capacity = number of diskettes

For example: If 7.5MB is in use on your analyzer and you are backing up to 1.44MB diskettes, divide 7.5 by 1.4 to get 5.3 ($7.5 / 1.4 = 5.3$). Since the quotient is more than 5, you need at least 6 diskettes to back up your Sniffer Network Analyzer.

3. Power on the Sniffer Network Analyzer.

Result: The Main Selection Menu appears.

4. Use the cursor keys to highlight the menu selection **Return to DOS**, and press Enter.

Result: Look for the DOS prompt C:\>.

5. Type the following DOS command:

```
BACKUP C:\ *.* A: /S
```

Note: The parameter A: indicates that A is the destination drive. The parameter /S tells DOS to include all files in the directory and all files in any subdirectories of the directory.

6. Press Enter.

Result: Look for the message,

Files in the target drive A:\ root directory will be erased. Press any key to continue.

7. After the first diskette, supply diskettes as BACKUP prompts. You will be prompted until the entire job is finished. During BACKUP a file may be split so that it starts on one diskette and continues on another.
8. Label each diskette with a sequence number to keep them in order.

Note: You may want to indicate on the diskette label or in your sequence numbers that this is a full backup. For example, your numbers might be F-1, F-2, F-3, and so on, to distinguish between a full backup and an incremental backup. You may want to include the date as well.



To make an incremental (update) backup:

1. Make certain you have enough diskettes on hand before you begin.
2. Type the following DOS command.

```
BACKUP C:\ *.* A: /S /M
```

Note: The parameter /S tells DOS to include all files in the directory and all files in any subdirectories of the directory. The parameter /M means "modified," that is, only files that are new or have changed since your last backup will be copied.

3. Press Enter.

Result: Look for the message,

Files in the target drive A:\ root directory will be erased. Press any key to continue.

4. Insert the first diskette, and press any key.
5. After the first diskette, supply diskettes as BACKUP prompts. You will be prompted until the entire job is finished. During BACKUP a file may be split so that it starts on one diskette and continues on another.
6. Label each diskette with a sequence number to keep them in order.

Note: You may want to indicate on the diskette label or in your sequence numbers that this is an incremental backup. For example, your numbers might be I-1, I-2, I-3, and so on, to distinguish between an incremental backup and a full backup. You may want to date the backup as well.



To limit a backup to a particular directory:

Type the following command at the DOS prompt:

```
BACKUP C:\[DIRECTORYNAME]\*.* A:
```

Note: You may, for example, store files saved from the capture buffer in a particular directory named CAPTURE. You would then type:

```
BACKUP C:\CAPTURE\*.* A:
```



To restore files from a backup to the hard disk if the hard disk is functioning and has DOS installed on it:

1. Exit all applications, and return to the DOS prompt C:\>.
2. At the DOS prompt, type a RESTORE command as follows:

```
RESTORE A: C:\*.* /S
```

Note: The parameter /S indicates that you want all files in the directory as well as its subdirectories.

3. Press Enter.
4. Insert the first backup diskette when the RESTORE program prompts you.



You can elect to restore only files in a particular directory, particular files, or files that were modified since the date you ran the backup. The parameters described in the backup procedures above work the same way with RESTORE. For example, you would limit a restore to a particular directory by typing the following command at the DOS prompt:

```
RESTORE A:\[DIRECTORY NAME]\*.* C:
```


Installing the Sniffer Network Analyzer

Overview

This chapter explains how to install network adapters in the Model 54/55 and connect them to the network. This part of the installation guide includes descriptions, illustrations, and special considerations for each of the following network connectors:

- Token ring
- Ethernet[®]
- Fiber Distributed Data Interface (FDDI)
- IBM PC[®] Network
- StarLAN
- LocalTalk
- WAN/Synchronous (Sniffer Internetwork Analyzer)

Connecting the Model 54/55 to a Network

The Model 54/55 Sniffer Network Analyzer is available for the following networks: 16/4 token ring, Ethernet, FDDI, IBM PC Network, StarLAN, LocalTalk, and WAN/Synchronous (the Sniffer Internetwork Analyzer). The Sniffer software is different for each network. You must have both the correct software and network card installed on your Sniffer Network Analyzer before it will run on your network. The Sniffer software and network card are installed on the Model PL-54/55 to your specifications at the factory.

Configuring Network Adapters

Figure 4-1 illustrates the Model 54/55 Sniffer Network Analyzer. The network connector jacks, occupying the two full-length expansion slots, are located behind the Options Door. The Options Door is located directly above the power switch on the left side of the Compaq Portable 486/486c. It opens from the back and swings toward the display. You will be unable to close the door while the Sniffer Network Analyzer is connected to a network.

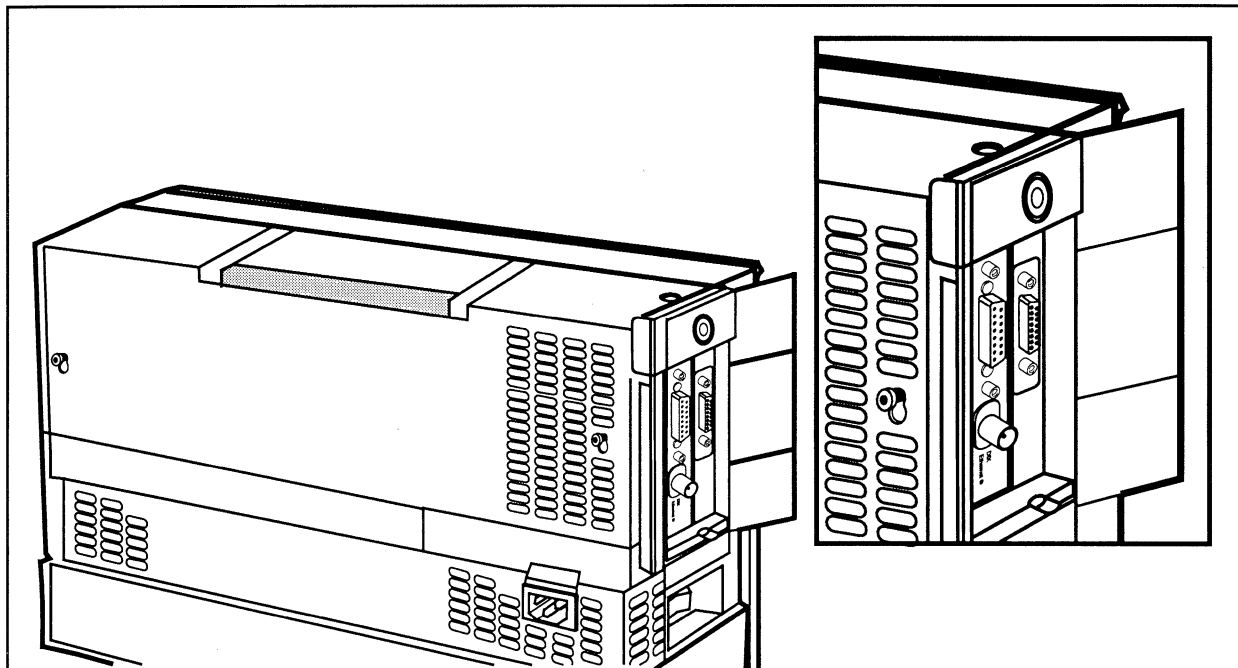


Figure 4-1. Model 54/55 Sniffer Network Analyzer with Ethernet and token ring network interface connectors.

Each network has its own particular type of connector. The following section illustrates and describes each of the possible connectors for the Model 54/55.

Token Ring

Model 54/55 Token Ring 16/4. The 16/4 token ring card has one DB-9 female (socket) connector shown in Figure 4-2. You can order a token ring connector cable to go with the Model 54/55. This 8-foot cable has an IBM data connector (hermaphroditic) for a token ring MAU at one end and has a male DB-9 connector at the other. Plug the male (plug) DB-9 connector from the cable into the female DB-9 connector on the token ring adapter card in the Sniffer Network Analyzer's connection slot. Connect the other end to an IBM MAU Model 8228. Always use a numbered port rather than using ports labeled RI or RO.



Carefully read the following section. It contains important information about matching the adapter speed with the network speed.

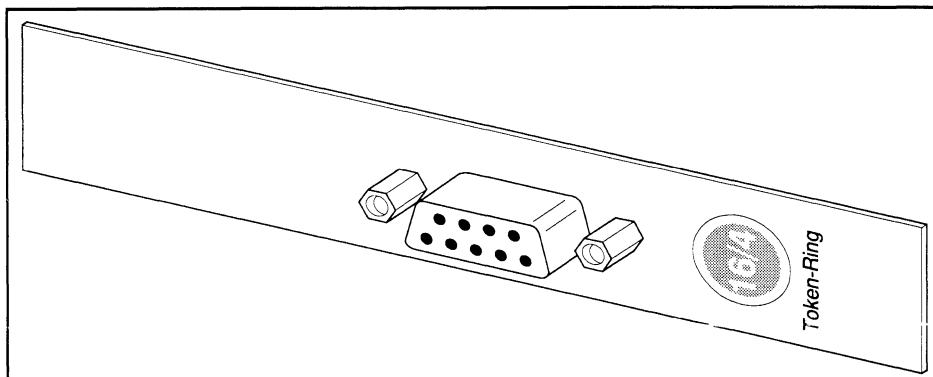


Figure 4-2. Token ring network connector.

Special Considerations for Token Ring

Important Notice: Match Adapter Speed to Network Speed!



The 16/4 token ring adapter card transmits and captures data over a token ring network at two rates: 16 megabits per second (Mbps) and 4 Mbps. Make sure you have set the data rate at the appropriate speed *before* connecting the Model 54/55 to a network. Connecting a 4 Mbps analyzer to a 16 Mbps network, or vice versa may bring down the LAN.

Setting the Adapter Speed for Capture

To set the adapter speed for capture, select the appropriate speed in the Sniffer Network Analyzer main menu under **Options** and press the Spacebar to turn it on *before* connecting the Model 54/55 to a network.

Setting the Adapter Speed for Transmit

To set the adapter speed for transmit, the data rate switch on the adapter card must match the network data rate before you connect the Model 54/55. The Model 54/55 Sniffer Network Analyzer comes from the factory with the data rate switch set for use with a 4 Mbps network. You can use your Model 54/55 on either a 4 Mbps or 16 Mbps network by changing the data rate switch on the token ring adapter card to match the data rate of the network to which you are connecting.

The following section includes a description of the switch block on the token ring adapter card and lists directions for setting the adapter switches.

After you have set the adapter speed for transmit, you must select the appropriate speed in the Sniffer Network Analyzer main menu under **Options**.

Setting the Transmit Data Rate on the Token Ring Card

Each token ring adapter card has one switch block with twelve switches on its component side. Figure 4-3 illustrates the location of the switch block on the token ring board. The switch settings represent no particular order.



The twelve switches on the block can easily be moved into the wrong positions. Always handle the card carefully and check each switch to make sure it is in the appropriate position.

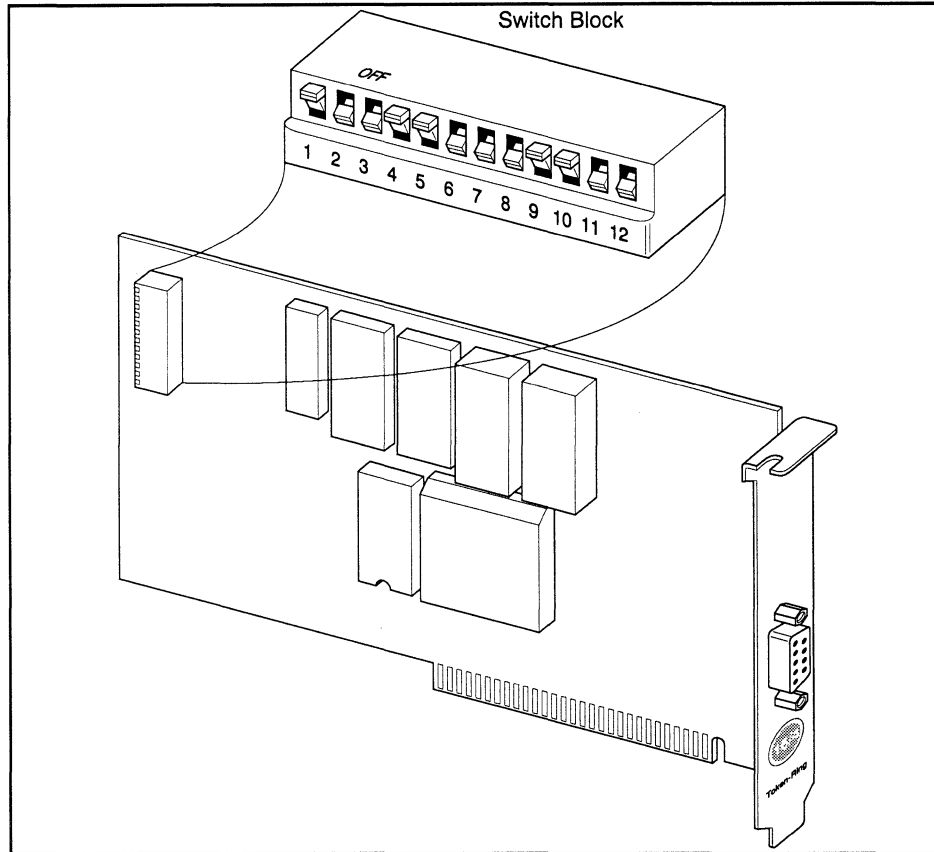


Figure 4-3. Switch block on the token ring board.

Figure 4-4 illustrates a switch from this block set in the off position.

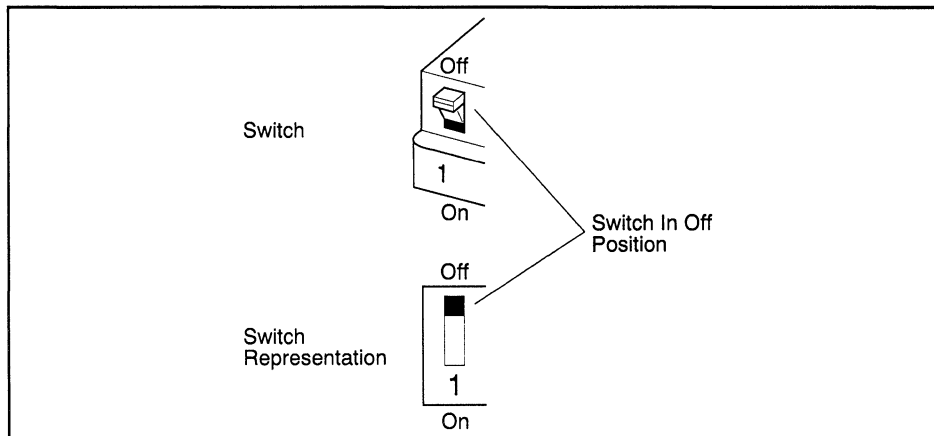


Figure 4-4. Switch in the off position.

Switch 12 on the switch block (see Figure 4-5) controls the rate at which the adapter will pass data to the network. You can set the adapter data rate to either 16 Mbps or 4 Mbps depending on the network speed.

The Model 54/55 is shipped from the factory with switch 12 in the **on** position and sends data at the rate of 4 Mbps. If you want to connect the Model 54/55 to a 16 Mbps network, power off the Model 54/55, remove the token ring card, and move switch 12 to the **off** position, changing the data rate to 16 Mbps. See the illustration of switch 12 on the switch block in Figure 4-5.



The switches in Figure 4-5 show the switches in their default positions.

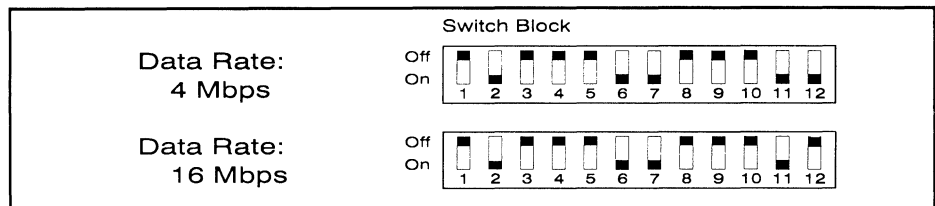


Figure 4-5. Set data rate with switch 12.

Ethernet

Model 54/55 Ethernet. The Ethernet card has two connectors: an AUI connector used to attach to an external transceiver for “Thick Ethernet” and a BNC connector for “Thin Ethernet” (Figure 4-6). The Ethernet card comes set for use with “Thick Ethernet.”

See “Changing the Transceiver Select Jumper (to Thin Ethernet)” for more information.

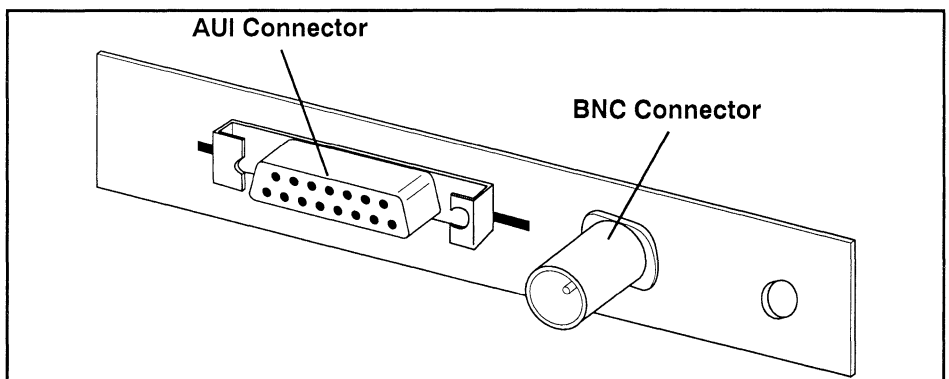


Figure 4-6. Ethernet network connectors.

Special Considerations for Connecting Model 54/55 Ethernet

Changing the Transceiver Select Jumper (to Thin Ethernet)

Your Ethernet card is installed at the factory with the transceiver select jumper in the AUI position for use with “Thick Ethernet.” To use your Ethernet card

with "Thin Ethernet," you must change the jumper block from the AUI position to the BNC position (Figure 4-7).

Selecting the On-board Transceiver



To select the BNC (Thin) Ethernet port:

1. Power off the Model 54/55 Sniffer Network Analyzer and remove the Ethernet card.
2. Using your fingers, or a pair of needle-nose pliers, carefully remove the transceiver select jumper block on the Ethernet card. Be careful not to bend any of the transceiver select pins.
3. After you remove the jumper block, look for any bent or damaged pins. Line up the jumper block with the pins and carefully press it into the BNC position.
4. Apply even pressure when you push down on the jumper block to avoid bending any of the pins.
5. Put the Ethernet card back in the Sniffer Network Analyzer and turn it on.

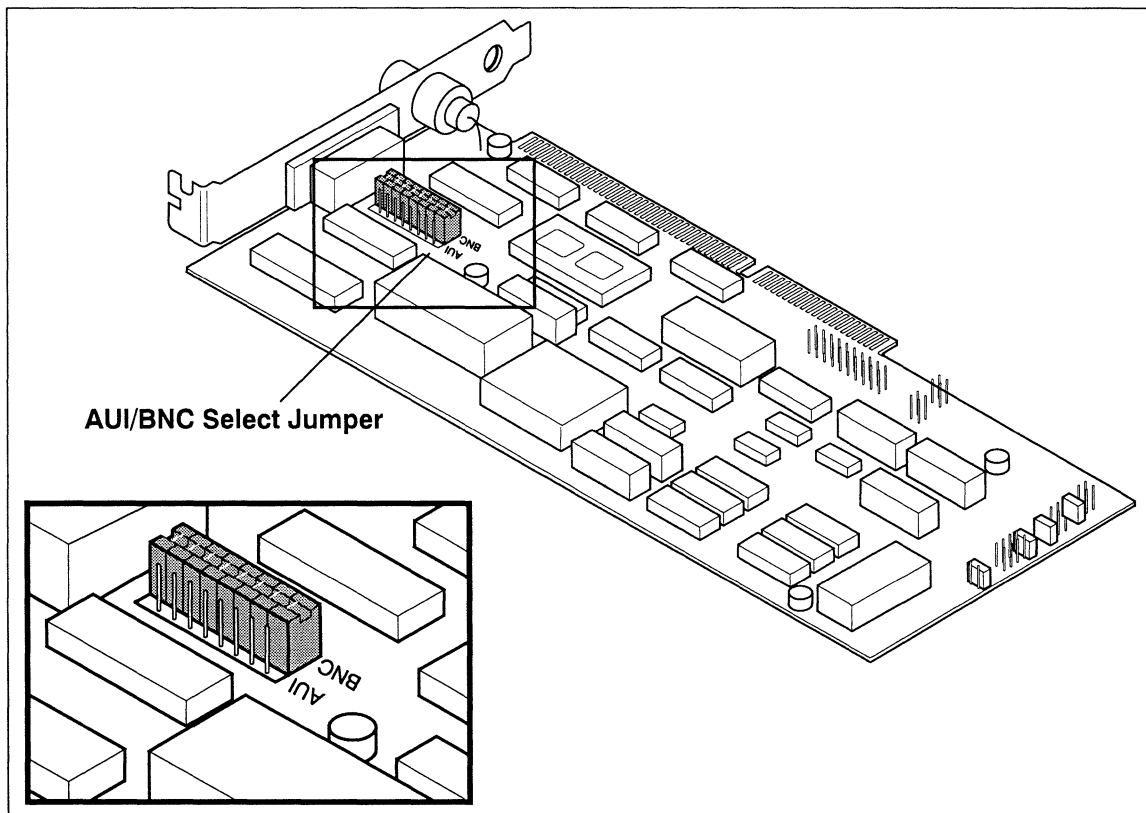


Figure 4-7. Transceiver select jumpers (two-pin jumpers).

Ethernet Jumper Settings

Figure 4–8 illustrates the default jumper settings on the Model 54/55 Ethernet network interface card.

| Jumper | Setting |
|-----------|---------|
| PROM SIZE | 16K |
| PROM BASE | NO PROM |
| I/O BASE | 300H |
| LAN | A |
| DACK | 6 |
| DRQ | 6 |
| IRQ | 11 |

Figure 4–8. Ethernet card jumper settings.

Fiber Distributed Data Interface (FDDI)

Model 54/55 FDDI. The Model 54/55 FDDI Sniffer Network Analyzer has two configurations: Single Attachment Station (SAS) and Dual Attachment Station (DAS). The SAS option uses one expansion slot, while the DAS option uses both expansion slots. The FDDI interface card has a fiber-optic transceiver connector and a diagnostic LED indicator light on its connector edge (Figure 4–9). A five-meter MIC-to-MIC (Media Interface Connector) cable is supplied with each FDDI network interface card.

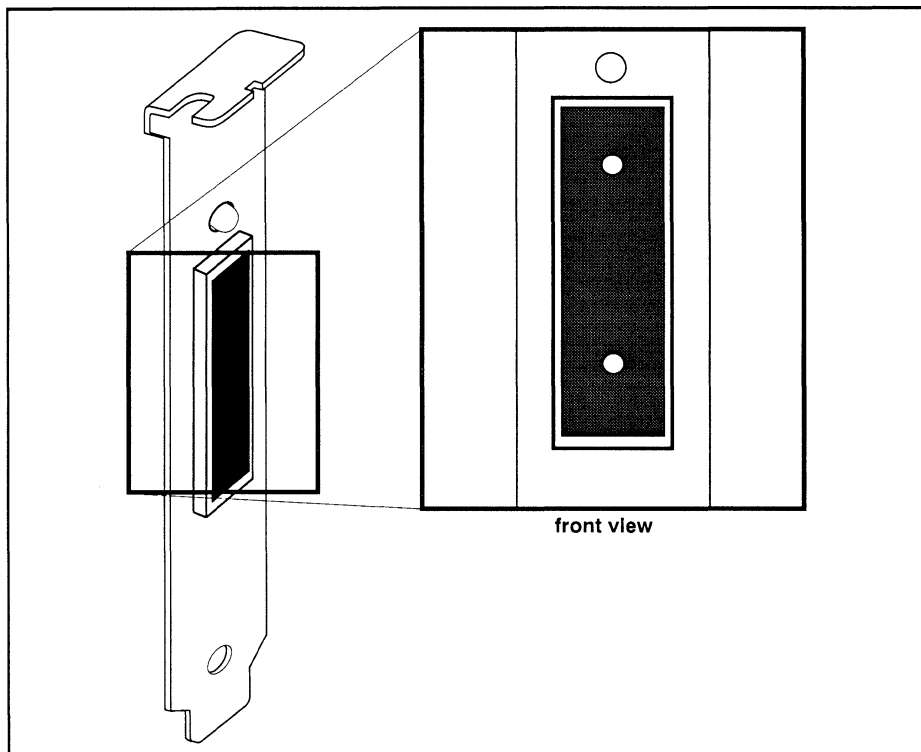


Figure 4-9. FDDI network connector.



Warning: The FDDI network card is extremely sensitive to static discharge! Always use the provided static wrist strap when handling the network card outside its antistatic bag. Wrap the static wrist strap loop snugly around your wrist, attach the other end to the metal chassis of the Model 54/55, and touch the metal chassis before handling, installing, or configuring the FDDI network adapter card. See "Installing Network Adapters" on page 4-26 for more information.

Media Interface Connector (MIC)

Connections between FDDI stations are achieved through Media Interface Connectors (MICs). The MIC connector properly aligns the input and output fibers of the FDDI cable using mechanical keying. The FDDI Sniffer Network Analyzer supports "A" and "B" port types.

Single Attachment Station (SAS)

The Model 54/55 SAS is configured with a "B" port for connection to an FDDI concentrator. The SAS option's network interface card must be installed in slot 2, nearest the Model 54/55's display.



When installing the FDDI network interface card, be sure to seat the card securely in its EISA slot. See "Installing Network Interface Cards" on page 4-25 for more information.

Attach a MIC connector from the "B" port of the FDDI card to the "M" port of the concentrator.

SAS options can be upgraded to DAS configurations with the addition of an add-on PHY board (AT half card). See "Dual Attachment Station (DAS)" on page 4-11 for more information.

Dual Attachment Station (DAS)

The Model 54/55 DAS is configured for connection via both "A" and "B" MIC connectors directly to the backbone of the network (Figure 4-10).

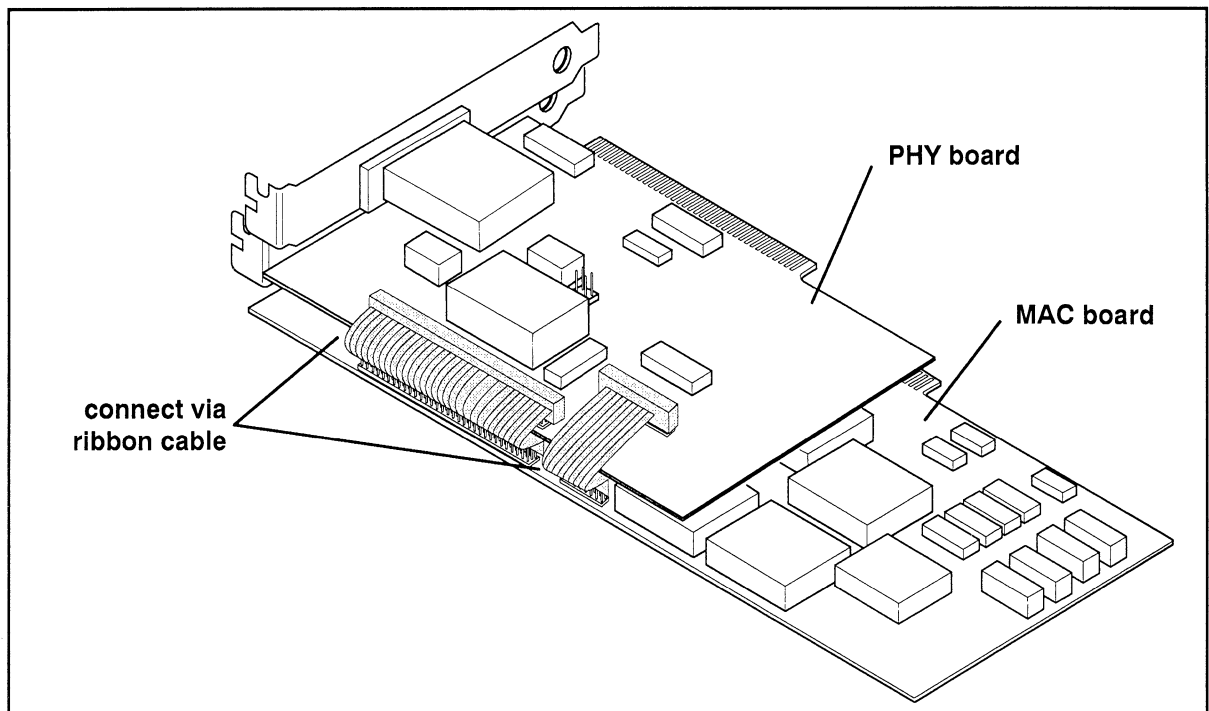


Figure 4-10. FDDI DAS option.

The DAS option consists of a MAC board (EISA card) and a PHY board (AT half card) connected together via two ribbon cables. The MAC board must be installed in slot 2, nearest the display, and the PHY board must be installed in slot 1.



To install the Dual Attachment Station option:

1. Connect the 50-pin ribbon cable between jumpers JP6 and JP4 on the MAC board and J9 and J10 on the PHY board (the jumper directly above the PHY board's main processor). The ribbon cable's connector is mechanically keyed and can only be inserted one way.
2. Connect the 20-pin ribbon cable straight (no twists) between JP5 on the MAC board to JP7 on the PHY board. This connector is also mechanically keyed and can only be inserted one way.
3. Insert the FDDI MAC board in slot 2, the slot nearest the display.

4. Insert the PHY board in slot 1.
5. Gently flatten the ribbon cables so that the options cover can be easily reinstalled. Often, the ribbon cables are stiff and hinder reinstallation of the metal options cover.
6. Run Network General's "Compaq 486/33 System Configuration, EISA Configuration Utility, NPI FDDI Adapter with Diagnostics" program supplied on diskette to configure your FDDI system. See "System Configuration Utility" below for more details.

To connect the FDDI Sniffer Network Analyzer, attach the "A" port of the Sniffer Network Analyzer's FDDI network card to the "B" port of a backbone station, and attach the "B" port of the Sniffer Network Analyzer's FDDI network card to the "A" port of a backbone station.

System Configuration Utility

After installing the FDDI interface card, you need to run Network General's "Compaq 486/33 System Configuration, EISA Configuration Utility, NPI FDDI Adapter with Diagnostics" program supplied on diskette with your Sniffer Network Analyzer. This utility configures your Model 54/55 to properly run the FDDI interface card.

Note: Do not confuse this Network General diskette with the Compaq System Configuration utility discussed in "Disabling the CD-ROM Adapter" on page 2-4.



To run the EISA Configuration Utility:

1. Insert the diskette labeled "Compaq 486/33 System Configuration, EISA Configuration Utility, NPI FDDI Adapter with Diagnostics" into the floppy diskette drive.
2. Boot the computer.
3. Follow the instructions that appear on the screen to configure your FDDI system.

Diagnostic LED Indicator

The diagnostic LED indicator on the card's connector edge shows the status of the Sniffer Network Analyzer's connections with neighboring stations. Figure 4-11 describes the relationship between the LED indicator's color and the Sniffer Network Analyzer's status.

| Color | Status |
|-------------|--|
| Clear (Off) | Inactive and not attempting a connection. |
| Yellow | Attempting a connection. |
| Green | Connected to a remote system. |
| Red | Active, but not connected to a remote system. Indicates a problem. The card may be defective, or there may be a problem with the ring. |

Figure 4–11. Diagnostic LED connection status indicator.

IBM PC Network

Model 54/55 IBM PC Network. The PC network card comes with a single coaxial cable with male F-connectors at each end (Figure 4–12). This connector comes with a Push-on adapter. See “Attaching the Push-on Adapter for PC Network” below.

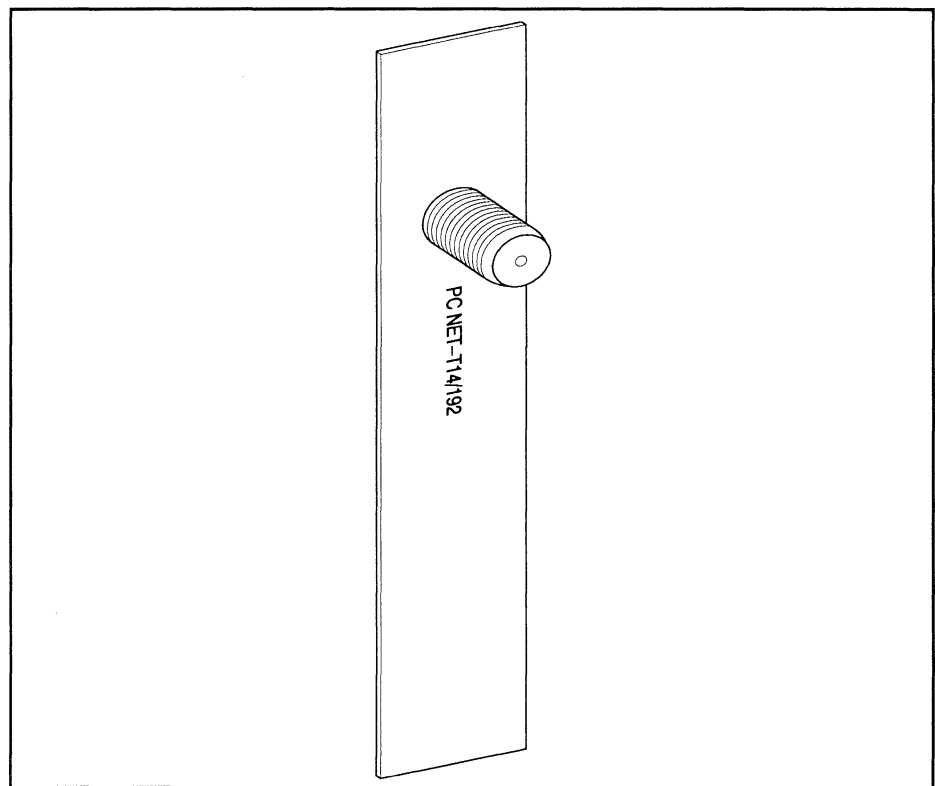


Figure 4–12. PC network connector.

Attaching the Push-on Adapter for PC Network

Attach the push-on adapter (Figure 4–13) to one end of the cable by screwing it on securely. The push-on adapter makes it easier to connect the cable in the small space. Plug it into the jack on the Sniffer Network Analyzer’s PC Network

adapter. Attach the other end of the cable to the network tap, or to an open port on a broadband splitter connected to the network.

To attach the cable to a previously unused connector on a network splitter, you have to remove its terminator cap. The terminator cap prevents reflections of the signal at a point where nothing is connected to the cable. Retain the terminator cap in a safe place because you'll have to put it back if you subsequently disconnect the Sniffer Network Analyzer from the network.

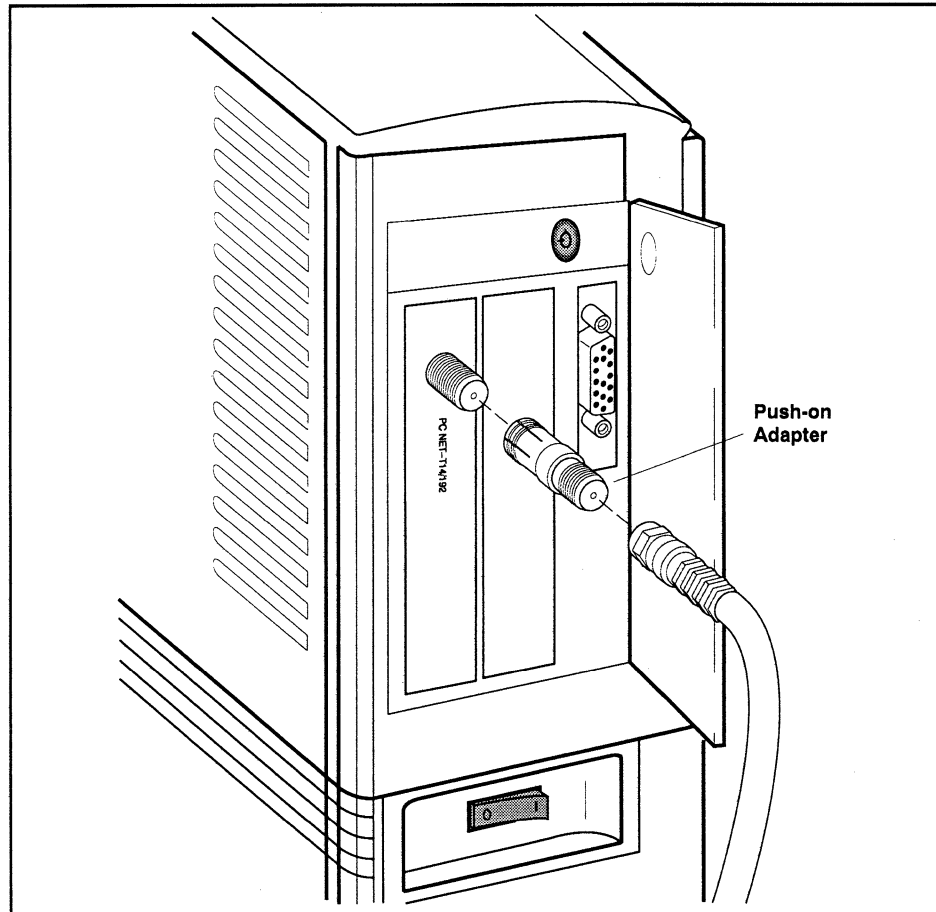


Figure 4-13. Attaching PC cable to Model 54/55.

StarLAN

Model 54/55 StarLAN. The StarLAN card has one RJ-45 connector (Figure 4-14). Connect one end of a twisted-pair cable to the RJ-45 connector on the adapter card and the other end to a StarLAN hub.

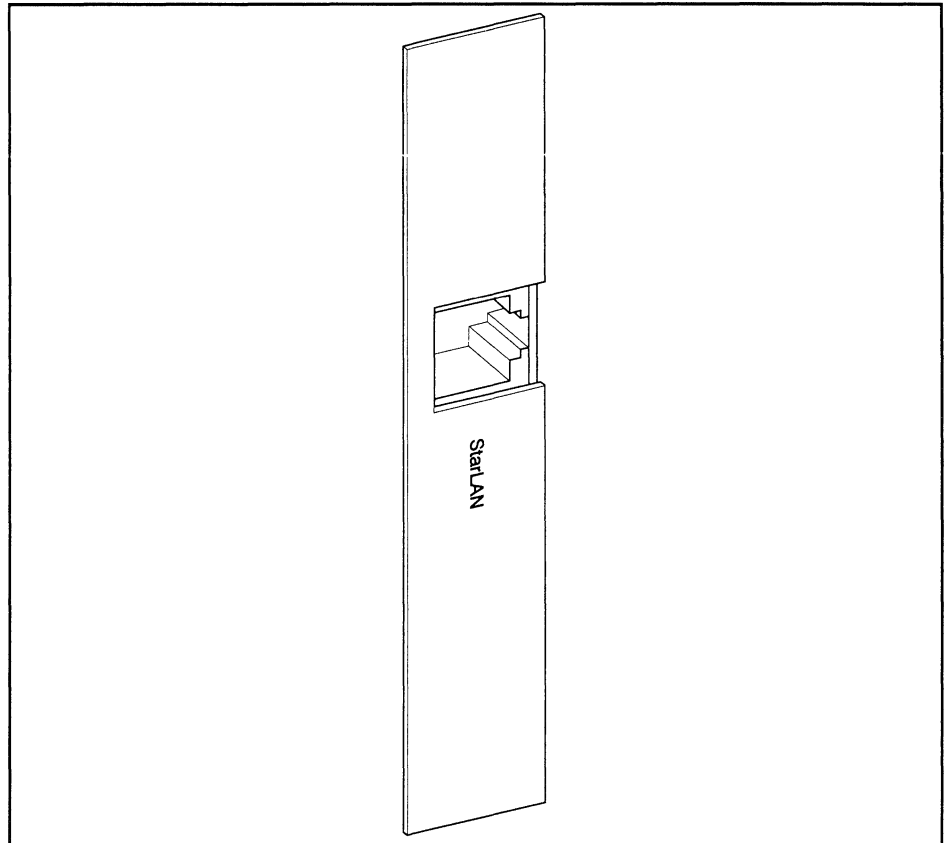


Figure 4-14. StarLAN network connector.

LocalTalk

Model 54/55 LocalTalk. The LocalTalk card comes with a DB-9 connector (Figure 4-15).



The LocalTalk connector and token ring connector are very similar in appearance. To avoid confusion, each connector is labeled with its respective network name.

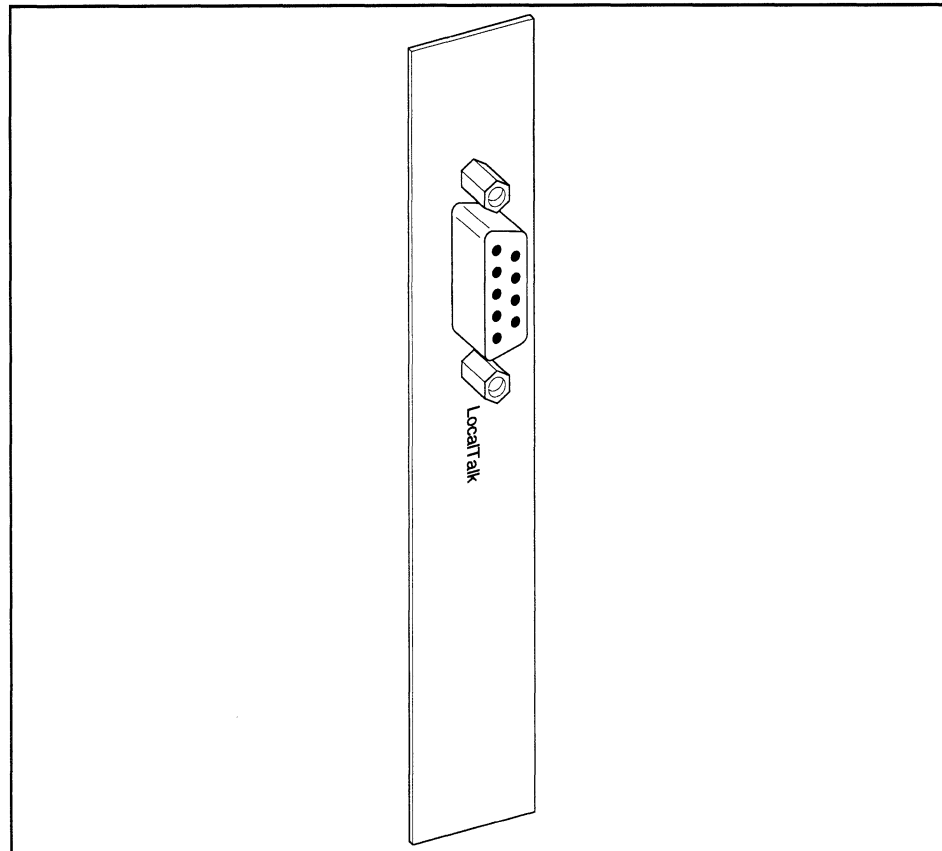


Figure 4-15. LocalTalk network connector.

WAN/Synchronous (Sniffer Internetwork Analyzer)

Model 54/55 WAN/Synchronous. The Sniffer Internetwork Analyzer (that is, the Sniffer analyzer for WAN/Synchronous) allows you to connect to the following physical line interfaces:

- RS-232 circuits
- RS-422 circuits
- RS-423 circuits
- V.10 circuits
- V.11 circuits
- V.35 circuits

All connections between the Sniffer Internetwork Analyzer and the network are made at one of the two connectors on the line interface card. These two connectors and the adapter cables shipped with the Sniffer Internetwork Analyzer accommodate each of the six network interfaces listed above. This diversity is accomplished through the use of four adapter cables, which provide all necessary wiring conversions between the network interface and the line interface card connectors.

Note: The exact cables provided with your shipment depends on your order. The following cables are provided by default:

| | |
|-----------------|-------------------------|
| U.S. Customers: | RS-232, V.35 |
| International: | RS-232, V.35, V.10/V.11 |
| Optional: | RS-422/423 |

The Connectors

The top connector on the line interface card is a 25-pin, D-type connector (DB-25), and is used only for RS-232 network interfaces. This includes any interface conversion devices that provide an RS-232 output. The lower connector is a 15-pin, D-type connector (DB-15) and is used for RS-422 and RS-423 (RS-449), V.10, V.11, and V.35. Figure 4-16 shows the two network connectors on the Sniffer Internetwork Analyzer line interface card.

Note: The DB-15 connector does not provide a direct V.10/V.11 connection. You must use the V.10/V.11 cable for this type of connection. See, "Connecting the Internetwork Analyzer to V.10 and V.11 Circuits" on page 4-21.

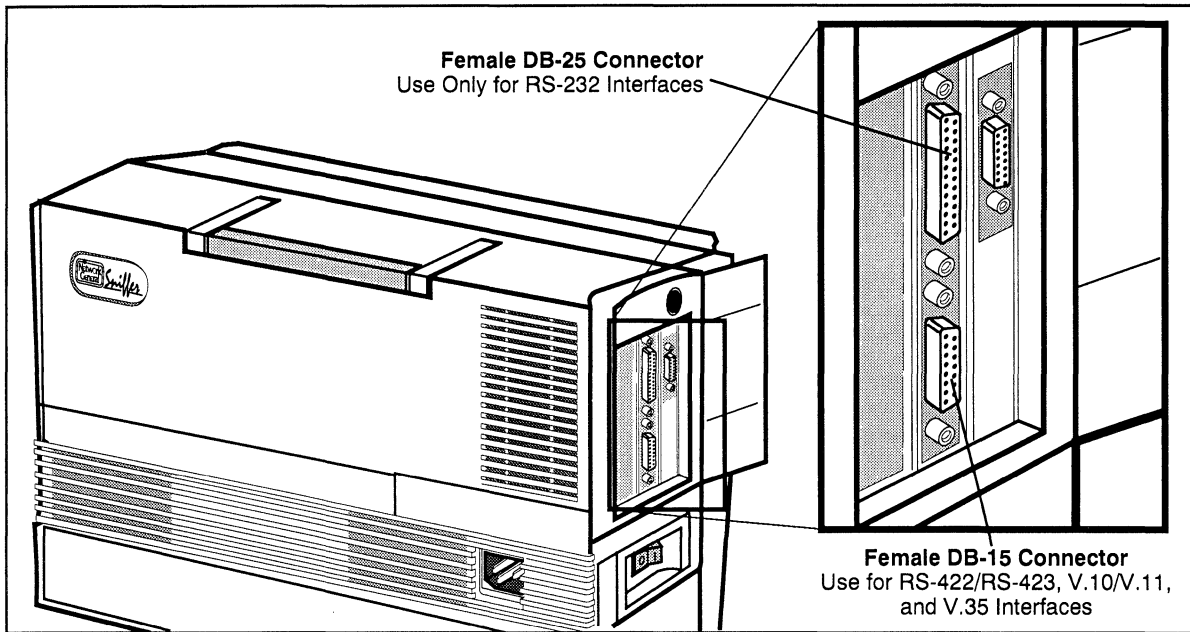


Figure 4-16. Connectors on the WAN/Synchronous line interface card.

The Cables

Connections between the analyzer and the network are made with one of the “Y” cables included with the Sniffer Internetwork Analyzer. Each Y-cable provides one female and two male connectors. The Y-cables provide two ways to connect the analyzer to the network: they can be used in-line with your data transmission line, or they can be used with a patch matrix panel. When making an in-line connection, all three connectors are used. When connecting the Internetwork analyzer to a patch matrix, one connector is left unused. Figure 4-17 illustrates this concept.

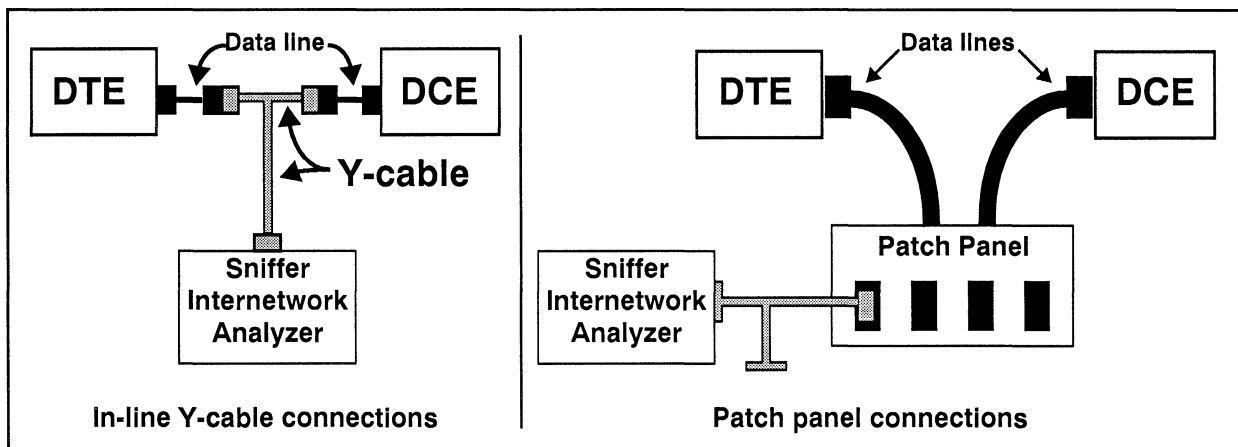


Figure 4-17. Two ways to connect the analyzer to the network.

Connecting the Sniffer Internetwork Analyzer to the Network

The following sections supply procedures for how to connect the Internetwork Analyzer to each of the following physical line interfaces:

- RS-232
- RS-422 and RS-423
- V.10 and V.11
- V.35



CAUTION: Each of the following procedures may require that you disconnect your data line. Before disconnecting the data line:

- Verify that there is no traffic on the line.
- Notify the appropriate parties that the network will be down temporarily.
- Verify that there is no traffic on the line again.

Connecting the Internetwork Analyzer to RS-232 (V.24) Circuits

The Sniffer Internetwork Analyzer provides a standard RS-232 interface to the network through the DB-25 connector on the line interface card.



To connect the Sniffer Internetwork Analyzer via an RS-232 interface:

1. Connect the RS-232 adapter cable to the network at a patch panel or monitor port, or connect the adapter cable in-line with the data line by disconnecting the data line and inserting the adapter cable. Plug one of the adapter cable connectors into the DTE side of the line and the other one into the DCE side. Figure 4-17 on page 4-18 illustrates this concept.
2. Connect the remaining male cable connector to the female DB-25 connector on the line interface card.
3. Before capturing data, ensure that the **Line interface** option in the Sniffer analyzer's Options menu is set to RS-232.

Figure 4-18 shows the pin-outs for the RS-232 adapter cable.

| Function | Lead | RS-232 Circuit | V.24 Circuit | DB-25 Pin | Function | Lead | RS-232 Circuit | V.24 Circuit | DB-25 Pin |
|-----------------------|------|----------------|--------------|-----------|-----------------------------|------|----------------|--------------|-----------|
| Protective Ground | PG | AA | 101 | 1 | Equalization | EQ | — | — | 11 |
| Transmit Data | TD | BA | 103 | 2 | Transmit Clock ¹ | TC | DB | 114 | 15 |
| Receive Data | RD | BB | 104 | 3 | Receive Clock ¹ | RC | DD | 115 | 17 |
| Request To Send | RTS | CA | 105 | 4 | Data Terminal Ready | DTR | CD | 108.2 | 20 |
| Clear To Send | CTS | CB | 106 | 5 | Ring Indication | RI | CE | 125 | 22 |
| Data Set Ready | DSR | CC | 107 | 6 | External Clock ² | EXTC | DA | 113 | 24 |
| Signal Ground | SG | AB | 102 | 7 | Busy | BUSY | — | — | 25 |
| Data Carrier Detected | DCD | CF | 109 | 8 | — | — | — | — | — |

1. The Sniffer analyzer requires clocks on pins 15 and 17 of RS-232.
2. To use pin 24 (EXTC), the Sniffer analyzer requires a separate breakout box and jumpers.

Figure 4-18. RS-232 adapter cable wiring.

Connecting the Internetwork Analyzer to RS-422 and RS-423 Circuits

The Sniffer Internetwork Analyzer provides standard RS-422 and RS-423 interfaces to the network through the DB-15 connector on the line interface card and the RS-449 adapter cable.

Note: The RS-449 adapter cable is not provided as standard issue with the Sniffer Internetwork Analyzer. You must order it from Network General Corporation separately.



To connect the analyzer to the network via an RS-422/RS-423 interface:

1. Connect the RS-422 / RS-423 adapter cable to the network at a patch panel or monitor port, or connect the adapter cable in-line with the data line by disconnecting the data line and plugging one of the DB-37 adapter cable connectors into the DTE side of the line and the other one into the DCE side. Figure 4-17 on page 4-18 illustrates this concept.
2. Connect one of the male cable connectors to the female DB-15 connector on the line interface card.

3. Before capturing data, ensure that the **Line interface** option in the Sniffer analyzer's Options menu is set to RS-422 or RS-423, as appropriate.

Figure 4–19 shows the pin-outs for the RS-449 cable.

| Function | Lead | DB-37 Pin | DB-15 Pin | Function | Lead | DB-37 Pin | DB-15 Pin |
|---------------|---------------|-----------|-----------|-----------------|---------------|-----------|-----------|
| Signal Ground | SG | 19 | 1 | Request to Send | RS (A) (B) | 7 25 | 3 10 |
| Send Data | SD (A) (B) | 4 22 | 2 9 | Receive Timing | RT (A) (B) | 8 26 | 7 14 |
| Receive Data | RD (A) (B) | 6 24 | 4 11 | Clear to Send | CS (A) (B) | 9 27 | 5 12 |
| Send Timing | ST (A) (B) | 5 23 | 6 13 | — | — | — | — |

Figure 4–19. RS-449 adapter cable wiring.

Connecting the Internetwork Analyzer to V.10 and V.11 Circuits

The Sniffer Internetwork Analyzer provides standard V.10 and V.11 interfaces to the network through the DB-15 connector on the line interface card and the V.10/V.11 adapter cable. The DB-15 connector does not provide a V.10/V.11 connection by itself. You must use the adapter cable.

Note: The V.10/V.11 adapter cable is provided to international (non-U.S.) customers only.



To connect the analyzer to the network via a V.10 or V.11 interface:

1. Connect the V.10/V.11 adapter cable to the network at a patch panel or monitor port, or connect the adapter cable in-line with the data line by disconnecting the data line and inserting the adapter cable. Plug one of the adapter cable connectors into the DTE side of the line and the other one into the DCE side. Figure 4–17 on page 4–18 illustrates this concept.
2. Connect the remaining male cable connector to the female DB-15 connector on the line interface card.
3. Before capturing data, ensure that the **Line interface** option in the Sniffer analyzer's Options menu is set to V.10 or V.11, as appropriate.

Figure 4–20 shows the cable pin-outs for the V.10/V.11 adapter cable.

| Function | Lead | DB-15 Pin | Function | Lead | DB-15 Pin |
|---------------|-----------------|-----------|-----------------|--------------|-----------|
| Shield | N/A | 1 | I Indication | I (A) (B) | 5 12 |
| Transmit Data | T (A) (B) | 2 9 | S Signal Timing | S (A) (B) | 6 13 |
| Receive Data | R (A) (B) | 4 11 | G Ground | G | 8 |
| Control | C (A) (B) | 3 10 | — | — | — |

Note: The Internetwork analyzer connects the V.11 return leads (B) to ground in V.10 applications.

Figure 4–20. V.10/V.11 adapter cable wiring.

Connecting the Internetwork Analyzer to V.35 Circuits

The Sniffer Internetwork Analyzer provides a standard CCITT V.35 interface to the network through the DB-15 connector on the line interface card and the V.35 adapter cable.



To connect the analyzer to the network via a V.35 interface:

1. Connect the V.35 adapter cable to the network at a patch panel or monitor port, or connect the adapter cable in-line with the data line by disconnecting the data line and plugging one of the V.35 cable connectors into the DTE side of the line and the other one into the DCE side. Figure 4–17 on page 4–18 illustrates this concept.
2. Connect the DB-15 cable connector to the female DB-15 connector on the line interface card.
3. Before capturing data, ensure that the **Line interface** option in the Sniffer analyzer’s Options menu is set to V.35.

Figure 4–21 shows the cable pin-outs for the V.35 adapter cable.

| Function | Lead | V.35 Pin | DB-15 Pin | Function | Lead | V.35 Pin | DB-15 Pin |
|---------------------|--------|----------|-----------|----------------------------|--------|----------|-----------|
| Transmit Data | TD (A) | P | 2 | Transmit Timing | TC (A) | Y | 6 |
| | (B) | S | 9 | | (B) | AA | 13 |
| Receive Data | RD (A) | R | 4 | Receive Timing | RC (A) | V | 7 |
| | (B) | T | 11 | | (B) | X | 14 |
| Request to Send | RTS | C | 3 | Ring Indication | RI | J | 15 |
| Data Terminal Ready | DTR | H | 10 | Receive Line Signal Detect | RLSD | F | 8 |
| Clear to Send | CTS | D | 5 | Ground | GND | A,B | 1 |
| Data Set Ready | DSR | E | 12 | — | — | — | — |

Figure 4–21. V.35 adapter cable wiring.

Hardware Conflicts

Conflicts may arise if other devices installed in your PC use the same interrupt, I/O address, or memory address as the Sniffer Internetwork Analyzer. By default, the Sniffer Internetwork Analyzer uses IRQ5. Changing the IRQ setting involves resetting switches on the line interface card. Figure 4–22 shows the available interrupt settings for the Sniffer Internetwork Analyzer interface card.

| Interrupt # | SW4 | SW5 | SW6 | SW7 | SW8 |
|-------------|-----|-----|-----|-----|-----|
| IRQ3 | on | off | off | off | off |
| IRQ4 | off | on | off | off | off |
| IRQ5 | off | off | on | off | off |
| IRQ6 | off | off | off | on | off |
| IRQ7 | off | off | off | off | on |

Note: IRQ5 is the default for the Sniffer Internetwork Analyzer.

Figure 4–22. IRQ DIP switch settings for the Sniffer Internetwork Analyzer interface card.



To reset the IRQ setting on the Sniffer Internetwork Analyzer interface card:

1. Remove the line interface card from your PC. See “Installing Network Interface Cards” on page 4–25 for more information.
2. Select a new IRQ setting by using a small screwdriver or similar tool to set the positions of DIP switches SW4-SW8. The location of the DIP switches on the line interface card is shown in Figure 4–23.
3. Record the new IRQ setting and reinstall the card in your PC.

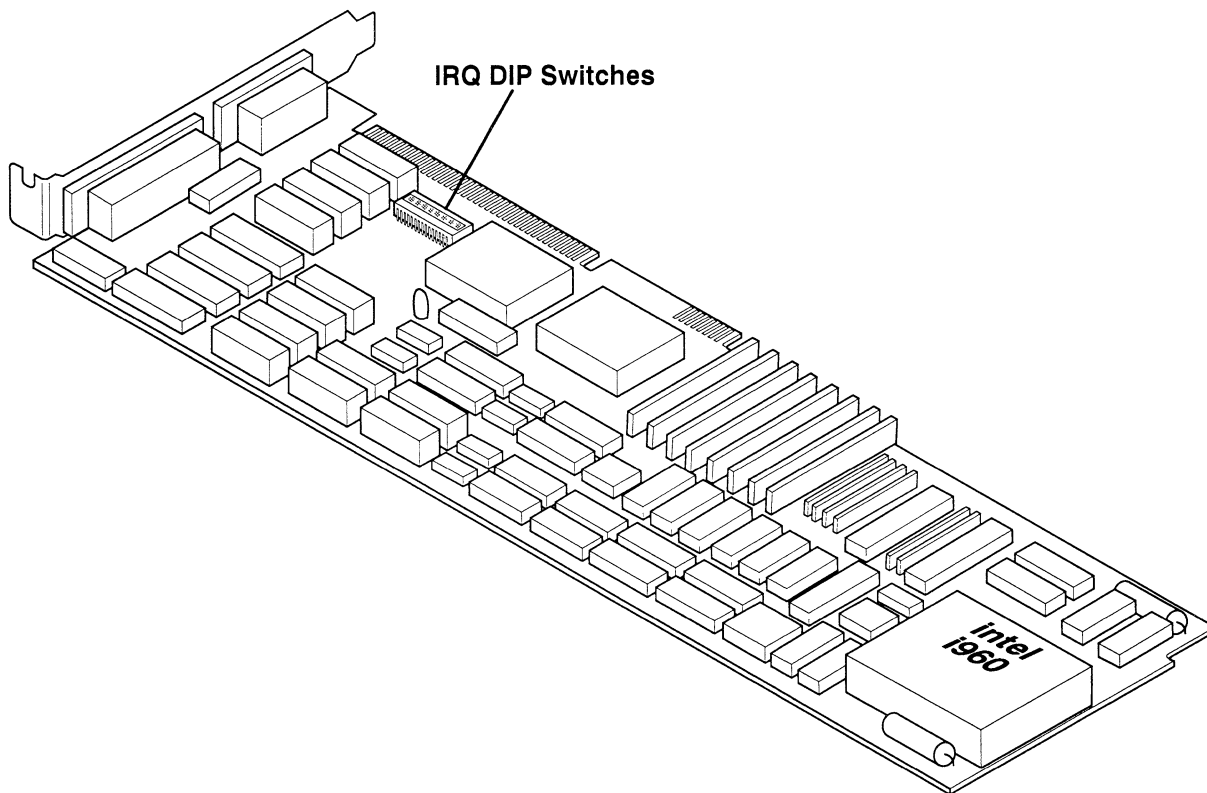


Figure 4-23. The Sniffer Internetwork Analyzer line interface card.

Diagnostics for the WAN/Synchronous Line Interface Card

Because the Sniffer Internetwork Analyzer and the LM2000 Protocol Analyzer (bundled with your Internetwork Analyzer) share the same line interface card (shown in Figure 4-23), you can use the diagnostics provided with the LM2000 to test the operation of the line interface card in general. These diagnostics confirm that the card is firmly seated in your PC and that the onboard memory, microprocessor, and other key devices are functioning properly.



To run the hardware test on the Sniffer Internetwork Analyzer interface card:

1. Start the LM2000 software from the Main Selection Menu by highlighting the LM2000 menu entry and pressing Enter.
2. At the main menu of the LM2000, press <Shift>-F2 to access the Hardware Configuration Screen.
3. At the Hardware Configuration Screen, press F7(Test).
Result: The Diagnostic Test Screen appears.
4. When the tests are complete (TEST reappears next to F7), press F10(Exit) or Esc to return to the Hardware Configuration Screen.

The screen will indicate which tests were successful and which failed.

Note: The LM2000's Hardware Configuration Screen displays the current settings of all switches on the line interface card. To see this screen, press Shift-F2 from the main menu of the LM2000.

You can also use the LM2000's capabilities to change the I/O address and the memory address of the line interface card. For more information on this, see Chapter 1 of the *LM2000 Protocol Analyzer User's Manual*, "Getting Started."

For more information on diagnosing hardware conflicts on the Sniffer Internetwork Analyzer, see Chapter 1, "Getting Started," of the *LM2000 Protocol Analyzer User's Manual*.

Installing Network Interface Cards

This section explains how to install network interface cards in the Model 54/55. You should not attempt to install network interface cards unless you are experienced or trained in technical assembly.

Removing the Rear Panel and Options Cover

Before you can install network adapters in the Model 54/55, you must first remove the plastic rear panel and the metal options cover to gain access to the NIC compartment. To do this, you need a Torx T-15 screwdriver.



To remove the rear panel and options cover of the Model 54/55:

1. Power off the computer, remove the power cord, and disconnect any external devices.
2. Rotate the computer so that the rear is facing you and lift the handle on top of the computer.

Result: Lifting the handle reveals two Torx T-15 screws on the top of the rear panel.

3. Remove the two Torx T-15 screws on the top of the rear panel.
4. Open the options door on the right side of the computer. With the door open, pull on the handle to tilt the rear cover toward you. Lift the cover off and lay it down.

Result: Removing the plastic rear panel reveals the metal options cover.

5. Remove the three Torx T-15 screws securing the top of the options cover to the unit. See the arrows at the top of Figure 4-24.

6. Loosen the two Torx T-15 screws securing the back of the options cover to the unit. See the detail view at the right in Figure 4–24 to see what these screws look like.

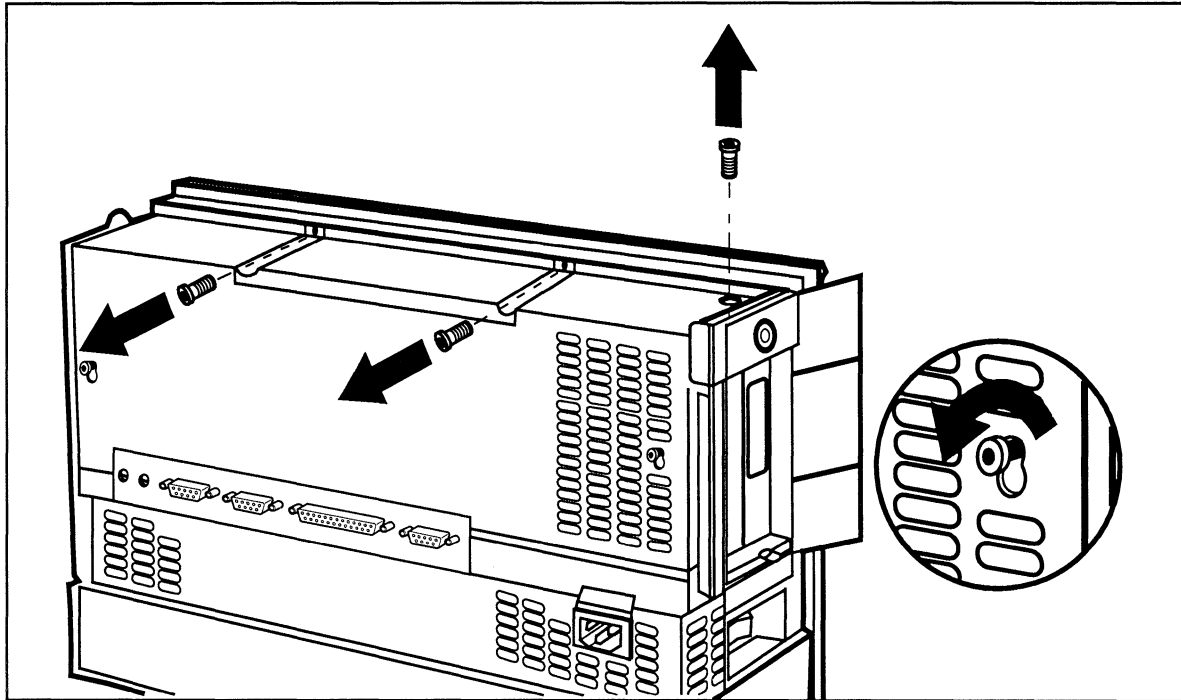


Figure 4–24. Removing the options cover top screws and loosening the rear screws.

7. With the top screws removed, and the rear screws loosened, slide the options cover up and off.

Result: Removing the options cover reveals the NIC compartment.

Installing Network Adapters

Before installing network adapters in the Model 54/55, make sure you have configured them appropriately for your network. Refer to “Configuring Network Adapters” on page 4–3 for more information.



Warning: Wear the provided static strap when handling, configuring, or installing the FDDI network adapter cards. The FDDI card is extremely sensitive to static discharge. Wearing the static strap prevents static discharge from harming the adapter card.



To install a network adapter in the Model 54/55:

1. Turn off the computer and disconnect the AC power cord.
2. Remove the rear panel and options cover (see “To remove the rear panel and options cover of the Model 54/55:” on page 4–25).
3. Select either expansion slot. If you are installing two NICs, you need to rotate the keylock to the unlocked position before you can install the second adapter card.

4. Remove the Torx T-15 retaining screw at the top of the expansion slot. Lift the expansion slot cover up and out of the computer.



The Torx T-15 screw that retains the expansion slot cover has a different thread gauge than the T-15 screws retaining the options cover. Be careful to keep them separate.

Warning: Before installing the FDDI adapter card, wrap the provided static wrist strap loop around your wrist, connect the other end to the metal chassis of the Model 54/55, and touch the chassis.

5. Carefully lower the NIC into the expansion slot and press it firmly until the connectors seal (Figure 4–25).



Due to the tight tolerances of the EISA connector's specifications, it is especially important that the FDDI network interface card be seated firm and flat against the bus connector. Press firmly along the card's edge directly above the connectors to seat the card. Before proceeding to the next step, boot the Sniffer Network Analyzer to ensure that the connectors are correctly seated (the Model 54/55 FDDI Sniffer Network Analyzer may not boot if the FDDI card is not well seated). After verifying that the network interface card is working, power off the Sniffer Network Analyzer and proceed to the next step.

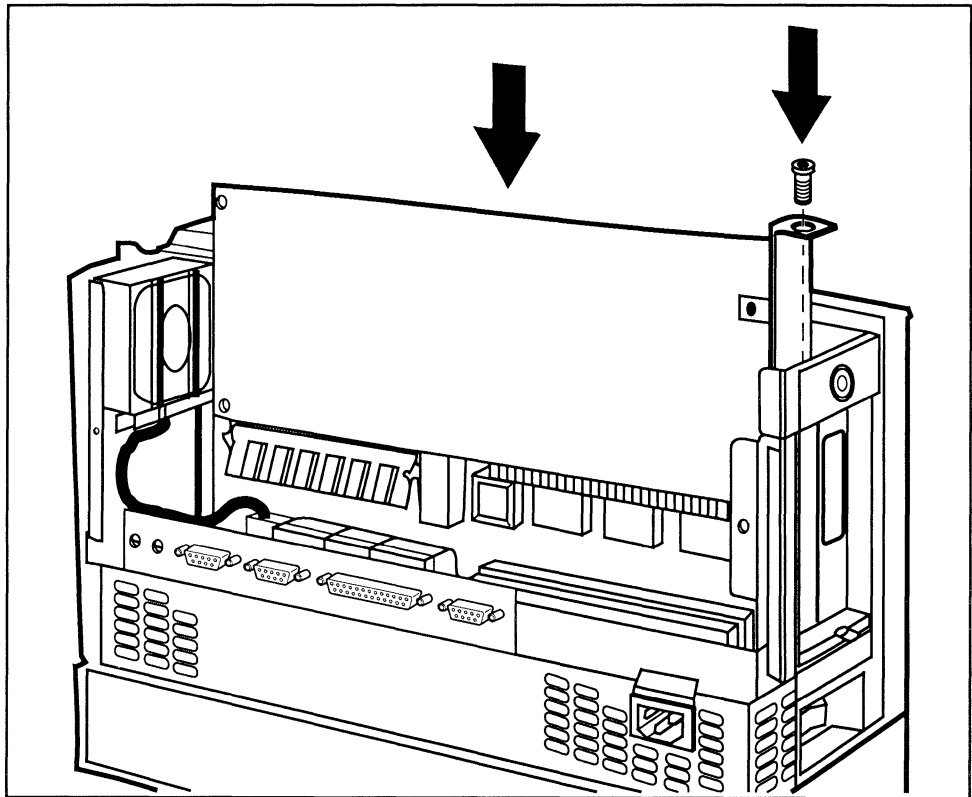


Figure 4–25. Installing a network interface card in the Model 54/55.



6. Reinstall the Torx T-15 retaining screw, as shown in Figure 4–24. Be very careful not to overtighten the retaining screw: it is possible to strip the threads.

7. If you have two NICs, repeat Steps 4-6 for the second adapter.
8. Reinstall the options cover and rear panel ensuring that the black plastic spacers (located on the inside top panel of the rear panel) hold the card securely. Reverse the procedure "To remove the rear panel and options cover of the Model 54/55:" on page 4-25.

Starting the Sniffer Network Analyzer

Overview

Chapter 5 introduces the Sniffer Network Analyzer menus and tells you how to get started. Topics include:

- Starting the Model 54/55 Sniffer Network Analyzer.
- Ending a work session on the Sniffer Network Analyzer.
- External display options.

Starting the Sniffer Analyzer

Once you power on the Sniffer Network Analyzer, the Main Selection Menu of the Sniffer Network Analyzer appears. Figure 5-1 is similar but may not be identical to the Main Selection Menu on your Sniffer Network Analyzer.

You can terminate a work session on your Sniffer Network Analyzer by returning to the Main Selection Menu and then selecting **Return to DOS**. Alternatively, pressing Esc will return you to the DOS prompt from the Main Selection Menu as well.

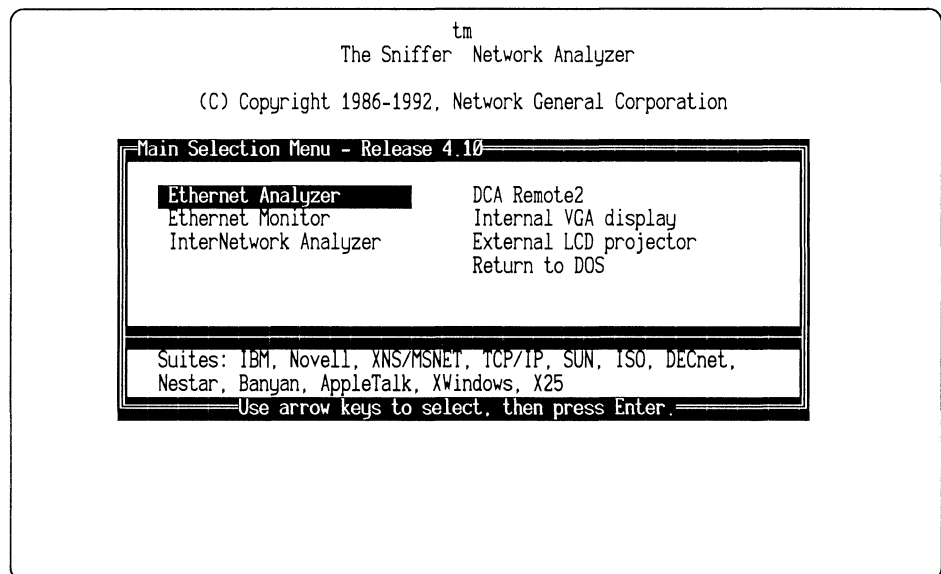


Figure 5-1 . Main Selection Menu of the Sniffer Network Analyzer.

One of the entries shown in Figure 5-1 is highlighted. Using the cursor keys, move the highlight to the option you want, and press Enter.

If a Sniffer analyzer is selected, an initialization screen will appear. This initialization screen indicates the type of Sniffer Network Analyzer, the software version, the serial number of the unit, and the network address of the interface card. Please make a note of the serial number as it will be required if

you call Network General's technical support department. After pressing any key to continue, it takes you to the Sniffer Network Analyzer Main Menu. You will start each of the Sniffer Network Analyzer's principal activities from this menu and eventually return to it when you have finished.

The Brightness Control

The Model 54/55's built-in active matrix display has a brightness control located to the right of the display. Turn the knob clockwise to increase the brightness, or counterclockwise to dim the brightness. The screen cannot be blackened using this control, though after a period of inactivity the screen will become blank. Press the Shift key to restore the screen on your Sniffer Network Analyzer since pressing Enter or any other key may produce an undesired action in addition to activating the display.

LCD Projector and External Displays

The Sniffer Network Analyzer does not include a device for displaying screens to a group or class, but it can be connected to an overhead projector with a device such as a Kodak DATASHOW. There are some differences between the LCD and the Sniffer Network Analyzer displays.

- Displays of this type use an LCD display, usually with dark letters on a bright background, the reverse of the display on a computer monitor.
- The LCD display cannot increase its brightness to highlight lines.
- In LCD mode, the Sniffer Network Analyzer uses reverse video to indicate highlighting, rather than the brightness or color contrast of the monitor screen.
- Only the external projector is visible while using an LCD projector with a Model 54/55 Sniffer Network Analyzer. Since you will not be able to see the internal display, any adjustment to the display must be done to the projector.

The LCD display must be VGA compatible. Like an external color monitor, all you need to do is connect the cable of an LCD projector to the VGA port.

Like a color monitor, the cable for an LCD projector also connects to the 15-pin VGA port of the Model 54/55. The VGA port is located behind the Options Door at the left of the Model 54/55. To operate the Sniffer Network Analyzer with the LCD option, select **External LCD projector** on the Main Selection Menu (See Figure 5-1 on page 5-3) before you start the Sniffer Network Analyzer.

Note that color and LCD are mutually exclusive options. If you want to switch to an external color monitor, you will have to detach your LCD monitor from the VGA port, attach an external VGA monitor, and select **External color monitor** from the Main Selection Menu.

For more information on connecting external displays to the Model 54/55, see the *COMPAQ Portable 486c Reference Guide*.

And Finally...

Congratulations! You've set up your Sniffer Network Analyzer, and now you're ready to go. When you've completed this section, continue reading *Sniffer Network Analyzer Operations* and *Sniffer Network Analyzer: Network Monitor Operations*.

SNIFFER® NETWORK ANALYZER

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