chapter 2

TROUBLESHOOTING

Follow these basic steps when beginning the troubleshooting process:

1. Complete the preliminary steps listed in Section 2.1.
2. Run the Power-On Self-Test (POST) as described in Section 2.3.
3. Run Computer Setup as described in Section 2.5.
4. Run the Computer Checkup (TEST) as described in Section 2.6.
5. If you are unable to run POST or Computer Checkup or if the problem persists after running POST and Computer Checkup, perform the recommended actions described in the diagnostic tables in Section 2.5.
6. Remove non-Compaq devices and components prior to troubleshooting.

Follow these guidelines when troubleshooting:

- Complete the recommended actions in the order in which they are given.
- Repeat POST and Computer Checkup after each recommended action until the problem is resolved and the error message does not return.
- When the problem is resolved, stop performing the troubleshooting steps and do not complete the remaining recommended actions.
- Refer to Chapter 5 for removal and replacement procedures that are recommended.
- If the problem is intermittent, check the computer several times to verify that the problem is solved.

The following table describes the troubleshooting actions:

If You Want To:	**Then Run:**
Check for POST error messages	POST
Check that computer components are recognized and running properly	Computer Checkup (TEST) under Compaq Utilities
View information about the computer and installed or connected devices	View System Information (INSPECT) under Compaq Utilities
Perform any of the following: ■ Check the system configuration ■ Set the system power management parameters ■ Return the system to its original configuration ■ Check system configuration of installed devices	Computer Setup

2.1 Preliminary Steps

IMPORTANT: Use AC power when running POST, Computer Setup, or Computer Checkup. A low battery condition could initiate Hibernation and interrupt the test.

Before running POST and Computer Checkup, complete the following steps:

1. Obtain established passwords. If you must clear the passwords, go to Section 2.2.
2. Ensure that the battery pack is installed in the computer and the power cord is connected to the computer and plugged into an AC power source.
3. Turn on the computer.
4. If a power-on password has been established, type the password and press **Enter.**
5. Run Computer Setup (Section 2.5). If a Setup password has been established, type the password and press **Enter.**
6. Turn off the computer and all external devices.
7. Disconnect external devices that you do not want to test. If you want to use the printer to log error messages, leave it connected to the computer.

NOTE: If a problem only occurs when an external device is connected to the computer, the problem could be with the external device or its cable. Isolate the problem by running POST with and without the external device connected.

9. Use Compaq Utilities and loopback plugs in the serial and parallel connectors if you plan to test these ports.

Follow these steps to run Compaq Utilities:

a. If you are running Compaq Utilities from the hard drive, turn on or restart the computer. Press **F10** when the cursor appears in the upper right corner of the screen. If you do not press **F10** in time, restart the computer and try again.

   If you are running Compaq Utilities from diskette, insert the Compaq Utilities diskette in drive A. Turn on or restart the computer.

b. Press **Enter** to accept **OK.**

c. Select Computer Checkup (TEST).

d. Select Prompted Diagnostics.

e. After “Identifying System Hardware” completes, select Interactive Testing and follow the instructions on the screen.

2.2 Clearing Passwords

The power-on password prevents use of the computer until the password is entered. The setup password prevents unauthorized changes to Computer Setup. To clear unknown passwords, you must remove all power from the system board. If you do not know the passwords, use the following procedure to clear the password:

1. Remove the battery pack from the battery bay.
2. Disconnect the AC power.
3. Remove the real-time clock battery (Refer to Chapter 5, "Removing the Lithium Real Time Clock Battery.")
4. Remove the auxiliary battery (Refer to Chapter 5, "Removing the Nickel Cadmium Standby Battery.")
5. Wait five minutes.
6. Reconnect the AC power.
7. Restart the computer. During Power-On Self Test (POST), a "162 System Options not set" message appears.
8. Turn off the computer, then disconnect AC power again.
9. Replace the real-time clock battery.
10. Replace the auxiliary battery.
11. Install the battery pack.
12. Proceed with the troubleshooting procedures.

Note: Fn + F11 clears the ESCD configuration information. If the **Fn + F11** sequence is pressed very early after powering the machine on (after you see the keyboard LEDs blink, but before the video is initialized), CMOS memory will be invalidated. The ESCD is cleared, the machine is reset and boots with the "162 - System Options Not Set" message. This is a way to clear out configuration information, such as Windows 95's knowledge about a docking station. It may help clear up problems if the configuration information had been corrupted. Timing of this keystroke sequence is critical, as there is a **very** narrow window during which the keys will be recognized. These keys are not documented to users.

2.3 Power-On Self-Test (POST)

The Power-On Self-Test (POST) is a series of tests that run every time the computer is turned on. POST verifies that the system is configured and functioning properly.

To run POST, complete the following steps:

1. Complete the preliminary steps (Section 2.1).
2. Turn on the computer.

If POST does not detect any errors, the computer beeps once or twice to indicate that POST has run successfully. The computer boots from the hard drive or from a bootable diskette if one is installed in the diskette drive.

2.4 POST Error Messages

If the system is not functioning well enough to run POST, or if the display is not functioning well enough to show POST error messages, refer to the Troubleshooting tables in Section 2.6.

If POST detects an error, one of the following events occurs:

- A message with the prefix "WARNING" appears informing you where the error occurred. The system pauses until you press **F1** to continue.
- A message with the prefix "FATAL" appears informing you where the error occurred. After the message, the system emits a series of beeps and stops.
- The system emits a series of beeps and stops.

Warning messages indicate that a potential problem, such as a system configuration error, exists. When **F1** is pressed, the system should resume. You should be able to correct problems that produce WARNING messages.

IMPORTANT: When a WARNING message includes the prompt to "RUN SCU," press **F10** to run Computer Setup. (Computer Setup replaces the SCU utility.)

If you receive one of the error messages listed below, follow the recommended action.

Table 2-1
Warning Messages

Message	Description	Recommended Action
CMOS checksum invalid, run SCU	CMOS RAM information has been corrupted.	Run Computer Setup to reinitialize CMOS-RAM.
CMOS failure, run SCU	CMOS RAM has lost power.	Run Computer Setup to reinitialize CMOS-RAM.
Diskette controller error	The diskette drive controller failed to respond to the recalibrate command.	If there is no diskette drive in the system, run Computer Setup to properly configure the CMOS-RAM to show no diskette drive present. If the problem persists, or if a diskette drive is present, complete these steps until the problems is solved: 1. Check diskette drive connections. 2. Replace diskette drive. 3. Replace system board.
Diskette track 0 failed	The diskette drive cannot read track 0 of the diskette in the drive.	Try another diskette. If the problem persists, you may need to replace the diskette drive.
Hard disk controller error	The hard drive controller failed to respond to the reset command.	Check the drive parameters. Turn off the system and check all related connections.
Keyboard controller failure	The keyboard failed the self-test command.	Replace the system board.
Keyboard failure	The keyboard failed to respond to the RESET ID command.	Replace the keyboard. If the problem persists, replace the system board.
No interrupts from Timer 0	The periodic timer interrupt is not occurring.	Replace the system board.
ROM at xxxx (LENGTH yyyy) with nonzero checksum (zz)	An illegal adapter ROM was located at the specified address.	Check the external adapter (such as a video card) to determine if it is causing the conflict.
Time/Date corrupt - run SCU	The time and date stored in the real time clock have been corrupted, possibly by a power loss.	1. Run Computer Setup. 2. If problem persists, replace RTC battery. 3. If problems persists, replace system board.
Hard disk xx failure (or error)	A failure or an error occurred when trying to access the hard drive.	1. Run Scan disk. 2. Check disk in DOS and Windows 95. If problem persists, refer to Table 2-10.
Unsupported memory module	An EDO memory module was installed in the memory expansion slot.	Remove the EDO memory module and replace with SDRAM memory module.

Fatal errors emit a beep and may display a FATAL message. Fatal errors indicate severe problems, such as a hardware failure. Fatal errors do not allow the system to resume. Some of the Fatal error beep codes are listed at the end of this section.

Table 2-2
Fatal Error Messages

Message	Description	Beep Code

CMOS RAM test failed	A walking bit test of CMOS RAM location 0E (Hex) - 3F (Hex) failed.	3
DMA controller faulty	A sequential read/write of the transfer count and transfer address registers within the primary and secondary DMA controllers failed.	4
Faulty DMA page registers	A walking bit read/write of the 16 DMA controller page registers starting at location 80 Hex failed.	0
Faulty refresh circuits	A continuous read/write test of port 61h found that bit 4 (Refresh Detect) failed to toggle within an allotted amount of time.	1
Interrupt controller failed	A sequential read/write of various Interrupt Controller registers failed.	5
ROM checksum incorrect	A checksum of the ROM BIOS does not match the byte value at F000:FFFF.	2
RAM error at location xxxx	RAM error occurred during memory test.	None

Table 2-3
Fatal Error Beep Codes

Beep Code	Beep Sequence	Description	Recommended Action
0	S-S-S-P-S-S-L-P	The DMA page registers are faulty.	Replace system board.
1	S-S-S-P-S-L-S-P	The refresh circuitry is faulty.	
2	S-S-S-P-S-L-L-P	The ROM checksum is incorrect.	
3	S-S-S-P-L-S-S-P	The CMOS RAM test failed.	
4	S-S-S-P-L-S-L-P	The DMA controller is faulty.	
5	S-S-S-P-L-L-S-P	The interrupt controller failed.	
6	S-S-S-P-L-L-L-P	The keyboard controller failed.	
7	S-S-L-P-S-S-S-P	Graphics adapter is faulty.	
8	S-S-L-P-S-S-L-P	Internal RAM is faulty.	Replace memory board or system board if memory on system board is faulty.

S = Short, L = Long, P = Pause

2.5 Compaq Utilities

Compaq Utilities contain several functions that

- Determine if various computer devices are recognized by the system and are operating properly.
- Provide information about the system once it is configured.

Compaq Utilities include the following programs:

- Computer Setup
- Computer Checkup (TEST)
- View System Information (INSPECT)

To access Compaq Utilities:

1. Turn on or restart the computer by clicking Start ⇒ Shut Down ⇒ Restart the computer.
2. Press **F10** when the blinking cursor appears in the upper-right corner of the display.
3. Select a menu option.

2.5.1 Computer Setup

Computer Setup contains utilities that give you an overall picture of the computer hardware configuration and aid in troubleshooting. These utilities also allow you to set custom features such as security options, power conservation levels, and startup preferences.

If you are running Windows 95, the computer automatically recognizes and configures the system for new devices. If you have a configuration problem or want to view or reset configuration settings, you can use Computer Setup.

NOTE: In Windows 95, you should use Computer Setup only to adjust system features such as the power-on password or battery conservation level. Windows 95 may override other configuration changes.

In Windows NT, the computer does not automatically recognize new devices added to the system. All devices ordered with your system have been configured for you. Use Computer Setup to view settings for a new device you have added or to reset configuration settings for preinstalled devices.

Computer Setup provides two methods of viewing the computer configuration: by type (factory setting) or connection.

Categories by type:

- System Features—security, power, boot management
- Communication—port, modem, and other communication devices
- Storage—storage-related devices such as hard drive, CD-ROM drive, diskette drive
- Input Devices—keyboard, mouse, and other input devices
- Network—network adapter or other network-related devices
- Audio—sound properties and audio device settings
- Video—display timeouts and video device resources
- Other—miscellaneous devices

Categories by connection:

- System Features—security, power, boot management
- System Devices—keyboard, mouse, parallel and serial ports
- ISA—ISA bus and connected devices
- PCI—PCI bus and connected devices
- PC Card—PC Card devices

2.5.1.1 Running Computer Setup

1. Turn on or restart the computer by clicking Start ⇒ Shut Down ⇒ Restart the computer.
2. Press **F10** when the blinking cursor appears in the upper-right corner of the screen.
   NOTE: If you a setup password is enabled, it must be used to access Computer Setup.
3. Click a language and press **Enter.**
4. Click Computer Setup and press **Enter**.
5. When you are finished, click **Exit.**

2.5.1.2 Exiting Computer Setup

1. Click **Exit.**
2. Select one of the following Exit options:
   - Save—Saves the new settings and exits Computer Setup.

     NOTE: Some settings may not take effect until the computer is restarted.
   - Ignore—Exits Computer Setup and restores previous settings.
   - Cancel—Returns to Computer Setup.

2.5.2 Computer Checkup (TEST)

Computer Checkup (TEST) determines whether the various computer components and devices are recognized by the computer and are functioning properly. You can display, print, or save the information that Computer Checkup generates.

NOTE: Compaq Utilities are intended for testing only Compaq-supplied components. Testing of non-Compaq components may be inconclusive.

2.5.2.1 Running Computer Checkup (TEST)

1. Plug the computer into an external power source. A low battery condition can interrupt the program.
2. Connect a printer if you want to print a log of error messages.
3. Turn on the external devices that you want to test.
4. Turn on or restart the computer.
5. Access Compaq Utilities by pressing **F10** when the blinking cursor appears in the upper-right corner of the display.
6. Click Computer Checkup ⇒ View the Device List.
   - If the list of installed devices is correct, click **OK.**
   - If the list is incorrect, ensure that any new devices are installed properly.
7. Select one of the following from the Test Option menu:
   - Quick Check Diagnostics
   - Automatic Diagnostics
   - Prompted Diagnostics
8. Follow the instructions on the screen as the devices are tested.
9. Click Exit Diagnostics ⇒ Exit from this utility.

2.5.2.2 Computer Checkup (TEST) Error Codes

Computer Checkup (TEST) error codes occur if the system recognizes a problem while running Computer Checkup. These error codes help identify possible defective assemblies. Table 2-4 through Table 2-14 list Computer Checkup error codes, a description of the error condition, and the recommended action for resolving the condition. For removal and replacement procedures, refer to Chapter 5.

IMPORTANT: Run Computer Checkup each time you complete a recommended action step. If the problem is resolved when POST and Computer Checkup are rerun (i.e., with no error codes), do not perform the remaining recommended action steps.

NOTE: The error codes in the following tables are listed in an "AYE-XX" format, where:

A or AA = Number that represents the faulty assembly

YY = Test or action that failed

XX = Specific problem

Table 2-4
Processor Test Error Codes

Error Code	Description	Recommended Action
101-xx	CPU test failed.	Replace the processor board and retest.
103-xx	DMA page registers test failed.	Replace the system board and retest.
104-xx	Interrupt controller master test failed.	
105-xx	Port 61 error.	
106-xx	Keyboard controller self-test failed.	
107-xx	CMOS RAM test failed.	
108-xx	CMOS interrupt test failed.	
109-xx	CMOS clock test failed.	
110-xx	Programmable timer load data test failed.	
113-xx	Protected mode test failed.	

Table 2-5
Memory Test Error Codes

Error Code	Description	Recommended Action
200-xx	Memory machine ID test failed.	The following steps apply to error codes 200-xx and 202-xx:
202-xx	Memory system CMOS checksum failed.	1. Flush the system CMOS and retest. See note. 2. Replace the system board and retest.
203-xx	Write/Read test failed.	The following applies to error codes 203-xx through 215-xx:
204-xx	Address test failed.	Remove and replace the SODIMM memory board or system board (if the memory on the system board is faulty) and retest.
211-xx	Random pattern test failed.	
214-xx	Noise test failed.	
215-xx	Random address test failed.	

Table 2-6
Keyboard Test Error Codes

Error Code	Description	Recommended Action
300-xx	Failed ID Test.	1. Reseat the keyboard connector.
301-xx	Failed Self test/Interface Test.	2. Replace the keyboard and retest.
302-xx	Failed Individual Key Test.	3. Replace the system board and retest.
304-xx	Failed Keyboard Repeat Test.	

Table 2-7
Parallel Printer Test Error Codes

Error Code	Description	Recommended Action
401-xx	Printer failed or not connected.	1. Connect the printer.
402-xx	Failed Port Test.	2. Check power to the printer.
403-xx	Printer pattern test failed.	3. Install bi-directional printer cable and retest. 4. Install the loopback connector and retest. 5. Check port and IRQ configuration. 6. Replace the system board and retest.

Table 2-8
Diskette Drive Error Codes

Error Code	Description	Recommended Action
600-xx	Diskette ID drive types test failed.	The following steps apply to error codes 600-xx through 698-xx:
601-xx	Diskette format failed.	1. Replace the diskette.
602-xx	Diskette read test failed.	2. Replace the diskette drive and retest.
603-xx	Diskette write, read, compare test failed.	3. Replace the system board and retest.
604-xx	Diskette random read test failed.	
605-xx	Diskette ID media test failed.	
606-xx	Diskette speed test failed.	
609-xx	Diskette reset controller test failed.	
610-xx	Diskette change line test failed.	
697-xx	Diskette type error.	
698-xx	Diskette drive speed not within limits.	
699-xx	Diskette drive/media ID error.	1. Replace media. 2. Run Compaq Utilities.

Table 2-9
Serial Test Error Codes

Error Code	Description	Recommended Action
1101-xx	Serial port test failed.	1. Check port configuration. 2. Replace the system board and retest.

Table 2-10
Hard Drive Test Error Codes

Error Code	Description	Recommended Action
1701-xx	Hard drive format test failed.	1. Run Compaq Utilities and verify drive type.
1702-xx	Hard drive read test failed.	2. Verify that all secondary drives have secondary drive capability.
1703-xx	Hard drive write/read/compare test failed.	3. Replace the hard drive and retest.
1704-xx	Hard drive random seek test failed.	4. Replace the system board and retest.
1705-xx	Hard drive controller test failed.	
1706-xx	Hard drive ready test failed.	
1707-xx	Hard drive recalibration test failed.	
1708-xx	Hard drive format bad track test failed.	
1709-xx	Hard drive reset controller test failed.	
1710-xx	Hard drive park head test failed.	
1715-xx	Hard drive head select test failed.	
1716-xx	Hard drive conditional format test failed.	
1717-xx	Hard drive ECC* test failed.	
1719-xx	Hard drive power mode test failed.	
1724-xx	Network preparation test failed.	
1736-xx	Drive monitoring test failed.	

* ECC = Error Correction Code

Table 2-11
Video Test Error Codes

Error Code	Description	Recommended Action
501-xx	Video controller test failed.	The following actions apply to error codes 501-xx through 516-xx:
502-xx	Video memory test failed.	1. Disconnect external monitor and test with internal LCD display.
503-xx	Video attribute test failed.	2. Replace the display assembly and retest.
504-xx	Video character set test failed.	3. Replace the system board and retest.
505-xx	Video 80 × 25 mode 9 × 14 character cell test failed.	
506-xx	Video 80 × 25 mode 8 × 8 character cell test failed.	
507-xx	Video 40 × 25 mode test failed.	
511-xx	Video screen memory page test failed.	
512-xx	Video gray scale test failed.	
514-xx	Video white screen test failed.	
516-xx	Video noise pattern test failed.	
2402-xx	Video memory test failed.	The following actions apply to error codes 2402-xx through 2456-xx:
2403-xx	Video attribute test failed.	1. Run Compaq Utilities.
2404-xx	Video character set test failed.	2. Disconnect external monitor and test with internal LCD display.
2405-xx	Video 80 × 25 mode 9 × 14 character cell test failed.	3. Replace the display assembly and retest.
		4. Replace the system board and retest.
2406-xx	Video 80 × 25 mode 8 × 8 character cell test failed.	
2411-xx	Video screen memory page test failed.	
2412-xx	Video gray scale test failed.	
2414-xx	Video white screen test failed.	
2416-xx	Video noise pattern test failed.	
2418-xx	ECG/VGC memory test failed.	
2419-xx	ECG/VGC ROM checksum test failed.	
2421-xx	ECG/VGC 640 × 200 graphics mode test failed.	
2422-xx	ECG/VGC 640 × 350 16 color set test failed.	
2423-xx	ECG/VGC 640 × 350 64 color set test failed.	
2424-xx	ECG/VGC monochrome text mode test failed.	
2425-xx	ECG/VGC monochrome graphics mode test failed.	

Continued

Table 2-11 Video Test Error Codes *Continued*

Error Code	Description	Recommended Action
2431-xx	640 × 480 graphics test failed.	
2448-xx	Advanced VGA Controller test failed.	
2451-xx	132-column Advanced VGA test failed.	
2456-xx	Advanced VGA 256 Color test failed.	
2458-xx	Advanced VGA Bit BLT test failed.	The following action applies to error codes 2458-xx to 2480-xx:
2468-xx	Advanced VGA DAC test failed.	Replace the system board and retest.
2477-xx	Advanced VGA data path test failed.	
2478-xx	Advanced VGA BitBLT test failed.	
2480-xx	Advanced VGA Linedraw test failed.	

Refer to Table 2-25 for information about other video errors.

Table 2-12
Audio Test Error Codes

Error Code	Description	Recommended Action
114-01	Speaker test failed.	1. Check system configuration. 2. Check speaker cable connection to system board 3. Replace speaker.
3206-xx	Audio System Internal Error.	Replace the system board and retest.

Table 2-13
Pointing Device Interface Test Error Codes

Error Code	Description	Recommended Action
8601-xx	Pointing device test failed.	Replace the keyboard.
8602-xx	Interface test failed.	

Table 2-14
CD-ROM Test Error Codes

Error Code	Description	Recommended Action
3301-xx	CD-ROM drive read test failed.	1. Replace the CD and retest. 2. Verify that drivers are loaded and properly installed.
3305-xx	CD-ROM drive seek test failed.	3. Replace the CD-ROM drive and retest. 4. Replace the system board and retest.
6600-xx	ID test failed.	
6605-xx	Read test failed.	
6608-xx	Controller test failed.	
6623-xx	Random read test failed.	

2.5.3 Running View System Information (INSPECT)

The View System Information (INSPECT) utility provides information about the computer and installed or connected devices. You can display, print, or save the information.

In order to access the INSPECT utility, follow the instructions below:

1. Connect a printer if you want to print the INSPECT information.
2. Turn on or restart the computer.
3. Access Compaq Utilities by pressing **F10** when the cursor blinks in the upper-right corner of the display.
4. If prompted, select a language.
5. Click View System Information (INSPECT).
6. Click the item you want to view. The list includes the following:

- System
- ROM
- Keyboard
- System ports
- System storage
- Graphics
- Memory
- Audio
- Operating system
- System files
- Windows files
- Miscellaneous
- Network (applicable only if computer is docked in the Convenience Base II)

7. Follow the instructions on the screen to cycle through the screens, to return to the list and choose another item, or to print the information.
8. Select Exit Inspect.

2.5.4 Running Compaq Diagnostics

Compaq Diagnostics provides computer component information when the operating system is working.

If you are running Windows 95, access Compaq Diagnostics for Windows by double-clicking My Computer ⇒ Control Panel ⇒ Compaq Diagnostics.

2.5.5 Boot Sequencing

1. Run Computer Setup.
2. Click the System Features icon ⇒ Boot Management box ⇒ MultiBoot tab.
3. Designate the hard drive boot (startup) sequence you want.
4. Click **OK** to accept the changes.

2.5.6 Factory Default Settings

Initialization	
Enable POST Memory Test	Checked (enabled)
Keyboard numbers Lock	Unchecked (Off)
1	Hard drive in the computer
2	Hard drive in the computer MultiBay
Boot display	Auto
Language	Language of country
Ports	
Serial/infrared ports	
Serial port	3F8, IRQ4
Infrared port	2F8, IRQ3
Parallel port	378, IRQ7
Ethernet port	300, IRQ9
Power	
Low Battery Warning Beep	Checked (enabled)
External Energy Saving Monitor Connected	Unchecked (not connected)
Power Management	
Enabled	While operating power on battery
Conservation Level	Medium
Level Definition	
High	Suspend Time: 5 minutes Hibernation Timeout: Immediate Drive Timeout: 2 minutes Screen Timeout: 2 minutes
Medium	Suspend Time: 10 minutes Hibernation Timeout: 1 hour Drive Timeout: 6 minutes Screen Timeout: 4 minutes
Custom	Suspend Time: disabled Hibernation Timeout: low battery Drive Timeout: always on Screen Timeout: always on
Security	
Enable QuickLock/QuickBlank	Unchecked (Disabled)
Enable Power-On Password	Unchecked (Disabled)
Disable Serial/Infrared Ports	Unchecked (Enabled)
Disable Parallel Port	Unchecked (Enabled)
Disable PC Card Slots	Unchecked (Enabled)
Setup Password	Password blank
Power-On Password	Password blank
Diskette Drives	
Disable Diskette Drives	Unchecked (Enabled)
Disable Diskette Boot	Unchecked (Enabled)

2.6 Troubleshooting without Diagnostics

This section provides information about how to identify and correct some common hardware, memory, and software problems. It also explains several types of messages that may be displayed on the screen.

Since symptoms can appear to be similar, carefully match the symptoms of the computer malfunction against the problem description in the Troubleshooting tables to avoid a misdiagnosis.

2.6.1 Before Replacing Parts

When troubleshooting a problem, check the following items for possible solutions before replacing parts:

- Verify that cables are connected properly to the suspected defective parts.
- Verify that all required device drivers are installed.
- Verify that all printer drivers have been installed.

2.6.1.1 Solving Audio Problems

Table 2-15
Solving Audio Problems

Problem	Probable Cause	Recommended Action(s)
Computer does not beep after the Power-On Self-Test (POST).	Speaker volume has been turned down.	Adjust the volume with the volume control buttons located at the top left corner of the computer.
Computer does not beep to indicate a low-battery condition.	Low-battery warning beeps have been turned off.	Enable low-battery warning beeps in Windows 95 Power Properties or in Computer Setup power management.
	System beeps have been turned down too low.	Press **Fn+F5**, then press the right arrow key to increase the volume of the system beeps.
Audio playback is too low or too loud.	The computer volume control and/or the software volume control needs to be adjusted.	In Windows 95, adjust the computer volume control buttons and adjust the volume control in Multimedia Properties. **NOTE**: The volume control in Multimedia Properties only affects the "Wave" audio sources such as system sounds and *.wav file playback. To change other sources such as MIDI, video sound, and game effects, use the Volume Control application in accessories/Multimedia. In Windows NT, adjust the multimedia volume control under the Accessories folder.
Internal speakers produce no sound.	Volume has been muted.	Press the increase volume control button to increase the volume. Press **Fn+F5**, then press the right arrow key to increase the volume of the system beeps

Continued

Table 2-15 Solving Audio Problems ***Continued***

Problem	Probable Cause	Recommended Action(s)
Internal speakers produce no sound (continued).	External speakers or headphones are connected to the computer.	Use the external speakers or headphones or use the Convenience Base II speakers.
		To use the internal speakers, disconnect the external speakers or headphones or undock the computer.
	Speaker wires are not connected.	Make sure the speaker wires are connected properly.
	Speakers are bad.	Replace the speakers.
Internal speaker does not produce sound when an external audio source is connected to the stereo line-in jack.	Volume may be turned off or set too low.	■ Adjust the volume control located at the top right corner of the computer. ■ Use the volume control and mixing features available in Control Panel ⇒ Multimedia. ■ Adjust the volume using the speaker icon on the taskbar.
	Line input may not be connected properly.	Check line input connection.
	Headphones or speakers are connected to the stereo speaker/headphone jack, which disables the internal speakers.	Disconnect the headphones or speakers to enable the internal speakers.
External microphone does not work.	The wrong type of microphone or microphone plug is being used.	Check to see if a monophonic electret condenser microphone with a 3.5-mm plug is being used.
	The microphone may not be connected properly.	Ensure that the microphone plug is properly connected to the mono microphone jack.
	Sound source is not selected.	Ensure that microphone is selected as the recording source in Control Panel ⇒ Multimedia and that the recording level is adjusted.
No sound from game program.	Audio settings are not set correctly.	Check the game program audio settings.
	Computer volume control is turned down.	Adjust the volume with the volume control buttons located at the top right corner of the computer.
	Headphones are connected.	Use or disconnect the headphones.
No sound from headphones.	Volume or mixing controls set incorrectly.	■ Adjust the volume with the volume control buttons located at the top right corner of the computer. ■ Use the volume control and mixing features available in Control Panel ⇒ Multimedia.
	Sound source not selected.	Verify that the sound source is selected in Control Panel ⇒ Multimedia.
	Volume or mixing controls set incorrectly.	■ Adjust the volume with the volume control buttons located on the right side of the computer. ■ Check the volume and mixer controls in Control Panel ⇒ Multimedia.

2.6.1.2 Solving Battery Problems

The following table lists some common battery problems and recommended actions to take when they occur. The "Solving Power Problems" section in this chapter also may be applicable.

Table 2-16
Solving Battery and Battery Gauge Problems

Problem	Probable Cause	Recommended Action(s)
The computer turns on the first time it is used, but the battery does not charge.	The battery pack is in ship mode.	Remove and reinsert the battery pack.
Computer does not turn on when battery pack is inserted and power cord is unplugged.	Battery is discharged.	Ensure that the battery pack is properly installed.
		Connect the computer to an external power source and charge the battery pack.
		Replace the battery pack with a fully charged battery pack.
		Check battery status by pressing **Fn+F8**.
Computer beeped five times and battery light is blinking.	Computer has entered a low-battery condition.	Immediately save any open file(s). Then do one of the following: 1. Connect the computer to an external power source. 2. Turn the computer off and replace the battery pack.
Computer battery light blinks to indicate low battery condition, but computer does not beep.	Low battery beeps were turned off.	Run Computer Setup and turn on the low battery warning beeps.
	Volume is turned off or turned down too low.	Press **Fn+F5** to adjust the volume of the system warning beeps.
Battery light does not turn on to indicate battery pack Is charging.	Battery pack is already charged.	No action is necessary.
	Battery pack was exposed to temperature extremes.	Allow time for the battery pack to return to room temperature.
	Battery pack is at the end of its life.	Replace the battery pack.
Battery pack is warm to the touch after charging.	Warming occurs during charging.	No action is required.

Continued

Table 2-16 Solving Battery and Battery Gauge Problems *Continued*

Problem	Probable Cause	Recommended Action(s)
Computer turned off and information in memory was lost when the battery pack was replaced.	Hibernation was disabled, Suspend was not initiated, or AC power was not connected before the discharged battery pack was removed.	To prevent loss of information next time, initiate Suspend, enable Hibernation, or connect AC power before changing batteries..
You have to set the date and time every time you turn on the computer.	Real time clock (RTC) battery is at the end of its life.	Replace the RTC battery.
Battery pack charge does not last as long as expected.	Battery pack is being exposed to high temperatures or extremely cold temperatures.	Keep the battery pack within the recommended operating temperature range 50°F to 104°F (10°C to 40°C) or recommended storage range -4°F to 86°F (-20°C to 30°C). Recharge the battery pack.
	Battery pack has partially self-discharged.	If the computer is disconnected from the external power for more than two weeks, remove the battery pack to reduce the self-discharge rate.
	Power management is disabled.	Press **Fn+F7** and set the power conservation level.
	An external device or PC Card is draining the battery.	Turn off or disconnect external devices when not using them.
Computer is beeping and battery power light is blinking.	Battery pack charge is low.	Do one of the following: ■ Charge the battery pack. ■ Replace the battery pack. ■ Connect the computer to an external power source. ■ Initiate Hibernation.

2.6.1.3 Solving CD-ROM Drive Problems

Table 2-17
Solving CD-ROM Drive Problems

Problem	Probable Cause	Recommended Action(s)
CD-ROM drive cannot read a compact disc.	Compact disc is not properly seated in the CD-ROM drive.	Open the CD loading tray, lay the compact disc on it, then close the tray.
	Compact disc is loaded in the CD loading tray upside down.	Open the CD loading tray, turn over the compact disc (label facing up), then close the tray.
	Compact disc has a scratch on its surface.	Insert a different compact disc.
CD-ROM drive is not recognized by the computer.	CD-ROM drive is not connected properly.	Turn off the computer, remove the CD-ROM drive and reinsert it.

2.6.1.4 Solving Diskette and Diskette Drive Problems

Table 2-18
Solving Diskette and Diskette Drive Problems

Problem	Probable Cause	Recommended Action(s)
Diskette drive cannot read a diskette.	Diskette media has a bad sector.	Copy remaining files to the hard drive or another formatted diskette. Reformat the diskette.
	Using the wrong diskette type for the diskette drive type.	Use the required diskette type.
	Diskette is not formatted.	Format the diskette. If you are using Windows 95: 1. From the Windows 95 desktop, double-click My Computer. 2. Click 3 ½ Floppy (A:) ⇒ File ⇒ Format. 3. Fill in the appropriate information, then click Start. If you are using Windows NT, format the diskette by entering **format a:** at the system prompt.
Diskette drive cannot write to a diskette.	Diskette is not formatted.	Format the diskette. If you are using Windows 95: 1. From the Windows 95 desktop, double-click My Computer. 2. Click 3 ½ Floppy (A:) ⇒ File ⇒ Format. 3. Fill in the required information, then click Start. If you are using Windows NT, format the diskette by entering **format a:** at the system prompt.
	Diskette is write-protected.	Use another diskette that is not write-protected or disable the write-protect feature.
	Writing to the wrong drive.	Check the drive letter in your path statement.
	Not enough space is left on the diskette.	Save the information to another diskette.
	Disable diskette write ability is turned on.	Run Computer Setup. Click on the Storage icon. Make sure Disable diskette write ability is not checked.

2.6.1.5 Solving Hard Drive Problems

CAUTION: To prevent loss of information, always maintain an up-to-date backup of the hard drive.

Table 2-19
Solving Hard Drive Problems

Problem	Probable Cause	Recommended Action(s)
Cannot access hard drive.	Hard drive is not seated.	Shut down the computer, remove and reinsert the hard drive, then turn on the computer.
	Hard drive was inserted while computer was on, in Suspend, or in Hibernation.	Shut down the computer, then turn it on again to initialize it during power on.
	Hard drive may be damaged.	Try inserting another hard drive.
Reading hard drive takes an unusually long time after restarting the computer.	Hibernation was initiated and system is now exiting from it.	Give the system time to restore the previously saved data.
Hard drive error occurs.	Hard drive has bad sectors or has failed.	Do one of the following: ■ If you are running Windows 95, access ScanDisk by clicking Start ⇒ Programs ⇒ Accessories ⇒ System Tools ⇒ ScanDisk, then check the Automatically fix errors box. Click Start to begin scanning. If you are running Windows NT, go to the system prompt and type **chkdsk** to scan for errors. ■ Reformat the hard drive.
Hard drive error occurs.	Hard drive may be damaged.	Try inserting another removable drive, if the hard drive is in the MultiBay.
Errors occur after starting from an additional hard drive.	Additional hard drive does not have the software and drivers necessary to boot and operate correctly.	Boot from the hard drive supplied with the computer or another hard drive that has the necessary software and drivers.
Hard drive does not work.	Hard drive is not seated.	Turn off and unplug the computer, remove the hard drive, then reinsert it.

2.6.1.6 Solving Hardware Installation Problems

Table 2-20
Solving Hardware Installation Problems

Problem	Probable Cause	Recommended Action(s)
New device is not recognized as part of the computer system.	The system did not automatically configure the new device.	In Windows 95, double-click the Add New Hardware icon in Control Panel.
		Refer to the documentation that came with the new device for installation instructions.
	Cable(s) of new external device are loose or power cables are unplugged.	Ensure that all cables are properly and securely connected and the power cord is plugged into an electrical outlet.
	Power switch of new external device is not turned on.	1. Turn off the computer. 2. Turn on the external device. 3. Turn on the computer to integrate the device with the computer system.
	New device is not configured for Windows NT.	Use Computer Setup to view settings for the new device or to reset the configuration settings for preinstalled devices.

2.6.1.7 Solving Infrared Connection Problems

NOTE: The computer is shipped with the infrared port disabled. The port must be enabled each time the computer is started or restarted. Follow these steps to enable the infrared port.

1. Click Start ⇒ Settings ⇒ Control Panel.
2. Double click the Infrared icon.
3. Select the Options tab.
4. Check the box labeled Enable Infrared Communications to select the Com3 port.
5. Click **OK.** The infrared icon appears on the task bar.

NOTE: Windows NT does not support infrared communication.

Table 2-21
Solving Infrared Connection Problems

Problem	Cause	Recommended Action(s)
Cannot link with another computer.	Interrupt request (IRQ) conflict	Check IRQ assignments for conflicts and reassign as necessary.
	Baud rate conflict	Select the same baud rate for both computers.
	# bits conflict	Select the same "#bits" setting for both computers.
	Stop bit conflict	Select the same stop byte for both computers.
	Parity conflict	Select the same parity setting for both computers.
Data transmission problem	Direct sunlight, fluorescent light, or flashing incandescent light is close to the infrared connections.	Remove the interfering light sources.
	Interference from other infrared devices	Keep remote control units and other infrared devices away from the infrared connections.
	Physical obstruction	Do not place objects between the two units that will interfere with a line-of-sight data transmission.
	Movement	Do not move either unit during data transmission.
	Orientation	Adjust devices so that they point within 30 degrees of each other.
	Distance	Verify that devices are not more than 3 feet (1 meter) apart.
Cannot connect at 4 MB/sec	Fast IR driver not installed	Fast-IR is not preinstalled. Download FAST-IR driver from Compaq web site and install.

2.6.1.8 Solving Modem Problems

Table 2-22
Solving PC Card Modem Problems

Problem	Probable Cause	Recommended Action(s)
Modem loses connection.	The connection from the phone line to the modem is loose.	Check to make sure the telephone cable is properly connected.
	Call Waiting has not been disabled.	Disable Call Waiting. 1. Click Start ⇒ Control Panel ⇒ double-click Modems. 2. From the General tab of the Modems Properties page, click Dialing Properties. 3. From the My Locations tab of the Dialing Properties page, check the box labeled **This location has call waiting.** Select *70, 70#, or 1170 from the drop-down list to disable call waiting for your dialing area.
Noisy telephone line	Phone line noise causing garbled or missing characters, or slow data transfer speeds.	Check your telephone and modem cable connections. If they are a little loose, they can cause noise on the line.
		Check with your local telephone company for a phone line filter.
Phone line noise causing a disconnection.	Hang-up Delay S Register (S10) set too low.	Change S10 default to 150. 1. Click Start ⇒ Programs ⇒ Accessories ⇒ HyperTerminal. 2. Go to Command Mode. 3. Type **ATS10=150** and press **Enter.** This command causes the modem to take longer to disconnect even if there is noise on the line.

Continued

Table 2-22 Solving PC Card Modem Problems *Continued*

Problem	Probable Cause	Recommended Action(s)
No dial tone	Phone service is not connected to the telephone wall jack.	Verify service from the local phone company: 1. Unplug the telephone cable from the telephone wall jack. 2. Connect a telephone to the jack, pick up the handset, and listen for a dial tone. If there is a dial tone, reconnect the modem to the telephone wall jack with the telephone cable and make sure all connections are secure. 3. If there is still no dial tone, contact your local phone company or building manager.
	The modem is not responding to commands from the computer keyboard.	Verify the modem and computer are connected: 1. Click Start ⇒ Programs ⇒ Accessories ⇒ HyperTerminal. 2. Go to Terminal Mode, then type AT and press the Enter key. If the modem displays OK, the modem and computer are working together. If the modem displays ERROR, or does not respond, restart the computer and repeat step 1. 3. Type **ATDT** and listen for a dial tone. 4. Type **ATH0** (zero) to hang up.
	Speaker Control AT Command (ATM) is set to 0.	Set the Speaker Control to 1: 1. Click Start ⇒ Programs ⇒ Accessories ⇒ HyperTerminal. 2. Go to Command Mode, type **ATM1** and press **Enter.** 3. Type **ATH1** and listen for a dial tone. 4. Type **ATH0** (zero) to hang up.
	The modem is plugged into a digital PBX line rather than an analog line.	Plug the modem into an analog line. If you are in an office, the analog line is often the one connected to a fax machine or modem. To get an analog line in a hotel, request a room with a "data" line.
Characters are garbled and transfer rates are slow.	There is noise in the telephone line.	■ Check your telephone and modem cable connections. If they are loose, they can cause noise on the line. ■ Check with your local telephone company for a phone line filter.

Continued

Table 2-22 Solving PC Card Modem Problems *Continued*

Problem	Probable Cause	Recommended Action(s)
Phone line noise causes a disconnection.	Hang-Up Delay S Register (S10) set too low.	Change S10 default to 150. 1. Click Start ⇒ Programs ⇒ Accessories ⇒ HyperTerminal. 2. Go to Command Mode. 3. Type **ATS10=150** and press **Enter.** This command causes the modem to take longer to disconnect even if there is noise on the line.
Ten-digit dialing does not work correctly under Windows 95.	Ten-digit dialing doesn't work correctly under Windows 95, making it difficult to dial numbers in a different area code that are not long distance calls.	Since Windows 95 does not limit the number of digits you can enter in the Phone Number field, set the Area Code field to match your local area code. Then type the ten-digit telephone number in the Phone Number field.
Modem cable disables/interferes with other telephony devices (Germany, Austria, and Switzerland only).	The modem cable does not provide the additional 4-wire connection required in Germany, Austria, and Switzerland to form the serial pass-through necessary so that other devices can work on the same phone line.	To use another telephony device on the same line in these countries, unplug the modem cable from the wall jack first.
Modem does not dial correctly under Windows 95 (Switzerland and Germany only).	The "Wait for dial tone before dialing" check box is checked. This causes Windows 95 to issue an ATDT; command. A typical dial string would look like this: ATDT; ATDTnnn-nnnn In Germany and Switzerland, the ';' dial modifier is not permitted to be used in this fashion by regulatory agencies since ATDT; takes the modem off-hook without dialing. Therefore, the modem returns an error message when attempting to dial. The error message reads: "The computer is not receiving a response from the modem. Check that the modem is plugged in, and if necessary, turn the modem off, then turn it back on."	1. Click Start ⇒ Settings ⇒ Control Panel. 2. Double-click the Modems icon. 3. Click the Properties button. 4. Select the Connection tab. 5. Click the "Wait for dial tone before dialing" check box to clear it. 6. Click **OK** ⇒ Close.

2.6.1.9 Solving PC Card Problems

Table 2-23
Solving PC Card Problems

Problem	Probable Cause	Recommended Action(s)
Computer does not beep when PC Card is inserted but PC Card works correctly.	System beeps are turned down.	Press **Fn+F5,** then press the right arrow key to increase the system beeps volume.
	PC Card sound effects have been disabled.	In Windows 95, double-click PC Card icon ⇒ Global Settings tab. Deselect Disable PC Card Sound Effects.
Computer does not beep when PC Card is inserted and PC Card does not work.	PC Card is not inserted properly.	Remove and reinsert the card gently to avoid damaging the pins.
	The PC Card slots have been disabled.	Run Computer Setup to enable the PC Card slots. When the system starts, press **F10** then select Computer Setup ⇒ Other Devices ⇒ PC Card Controller ⇒ Resources. Deselect the "Disabled" check box.
		In Windows 95, click Start ⇒ Settings ⇒ Control Panel ⇒ System ⇒ Device Manager ⇒ PCMCIA Socket. Double-click the Texas Instruments TI-1131 CardBus controller to view device properties. Deselect the "Disable in this hardware profile" check box.
	Card or card driver is not compatible with the computer or with the operating system.	Contact service provider for a list of compatible PC Cards.
Computer beeps twice, but modem and/or fax does not work.	Telephone cord is not plugged in all the way.	Verify that the telephone connection is secure.
	The wrong COM port is being used to access the card.	Verify the COM port assigned to the card and within the application is correct.
		In Windows 95, click Start ⇒ Help ⇒ Contents ⇒ Troubleshooting ⇒ Problem. Follow the instructions on the screen.
Computer beeps twice but network card does not work.	Network server is unavailable.	Contact system administrator.
Computer beeps twice when a storage card is inserted, but the card does not work.	The wrong drive letter is being used to access the storage card.	Open Windows Explorer and verify the drive letter.
PC Card does not work	Windows NT was running when the PC Card was inserted.	Turn off the computer and reinsert the PC Card.

2.6.1.10 Solving Power Problems

Table 2-24
Solving Power Problems

Problem	Probable Cause	Recommended Action(s)
Computer will not turn on.	Computer is not connected to a power source.	Insert battery pack or connect an external power source.
	Power cord to the external power source is unplugged.	Ensure that power cord connecting the computer and the external power source is plugged in properly.
	Battery pack is discharged.	Insert a fully charged battery pack or connect an external power source.
	CMOS data is corrupt	Refer to "Remove Battery and Wait"
Computer will not turn on when connected to external power if battery pack is in the computer.	Battery pack may be defective.	Remove battery pack, insert another battery pack, and try again.
Computer turned off while it was left unattended and the power/suspend light is off.	System initiated Hibernation after a preset timeout.	Turn on the computer to restore information at the point where Hibernation was initiated. **NOTE**: To change the Hibernation timeout setting in Windows 95, click the Hibernation tab in Power Properties. In Windows NT, run Computer Setup and select Power Management.
Computer turned off while it was left unattended and will not turn on.	System initiated Hibernation and/or shut down because of a critical low-battery condition.	Replace the battery pack with a fully charged battery pack or connect an external power source, then turn on the computer.
Computer initiated Suspend or turned off when it was docked.	The maximum operating temperature was exceeded.	Computer is in a high temperature environment and the fan is not able to cool it. Let the computer cool down and turn it on again.
		Make sure the ventilation intake and exhaust are not obstructed.
Hibernation does not work properly.	Hibernation was not reset after a memory upgrade.	Reset Hibernation in the Power Management utility.
Computer does not turn on when connected to external power and no batteries are installed.	Internal power supply is bad.	Replace the internal power supply.

2.6.1.11 Solving Screen Problems

IMPORTANT: Conduct all tests on a working monitor. If the recommended actions do not solve the problem, replace the display. If the problem persists with a new display, replace the system board.

Table 2-25
Solving Screen Problems

Problem	Probable Cause	Recommended Action(s)
Characters are dim.	The brightness or contrast control (if applicable) is not set properly.	Adjust the control(s) with the hotkeys: **Fn+F9** and **Fn+F10**.
	Computer screen is in direct light.	Tilt the display or move computer.
	Display is damaged.	Replace the display.
Screen is blank.	QuickLock/QuickBlank was initiated.	Enter the password to exit QuickLock/QuickBlank.
	Screen save was initiated after the Power Management timeout period.	Press any key or click the mouse.
	Brightness or contrast needs adjusting.	Adjust the control(s) with the hotkeys: **Fn+F9** and **Fn+F10**.
	Screen has overheated.	If computer is in direct sunlight, move it and allow it to cool.
Computer screen is blank and the screen on an external monitor displays information.	Display was switched to the external monitor.	Press the **Fn**+**F4** hotkeys to display information on the computer screen.
Screen is blank and the power/suspend light is blinking.	System initiated Suspend.	Press the suspend button to exit Suspend. Enter the power-on password if prompted.
Screen is blank and the power/suspend light and the battery light are blinking.	System has entered a critical low-battery condition.	Immediately connect the computer to an external power source or replace the battery pack.
External monitor does not display information.	External monitor was connected after the computer was turned on.	Press the **Fn+F4** hotkeys to switch to the external monitor.
	The external monitor signal cable or power cord is not properly connected.	Ensure that the cables are properly connected.
Small red, green, or blue spots appear on the computer CTFT display.	Small spots, called on-pixels, often appear on CTFT screens. Compaq limits the number of these on-pixels to 0.003 percent.	No action is required.

Continued

Table 2-25 Solving Screen Problems *Continued*

Problem	Probable Cause	Recommended Action(s)
Display on an external monitor is distorted.	Incorrect display device drivers are installed or incorrect resolution is set.	Double-click the Display icon in Control Panel, click the Settings tab, and set the correct display type and resolution for the external monitor.
	The external monitor is not Energy Star compliant, but monitor energy saving feature is enabled.	Complete these steps: 1. Press any key or move the pointing device to restore the display. 2. If display remains distorted, turn off the monitor, then turn it on again. 3. Disable the monitor energy saving feature in Display Properties or in Computer Setup Power Management.
The image has a black border and does not fill the screen.	The Desktop Area setting is smaller than the Resolution setting.	Adjust the settings for the Desktop Area and Resolution. Double-click Control Panel Display ⇒ Settings ⇒ Compaq.
		Press the **Fn+T** keys to expand or shrink the image.

2.6.1.12 Solving USB Problems

Table 2-26
Solving USB Problems

Problem	Probable Cause	Recommended Action(s)
External device connected to a USB connector does not work.	The operating system limits external devices connected by USB to two tiers that can include no more than two hubs on the first tier and no more than one keyboard and one pointing device on the first or second tier.	Reduce the number of connected external USB devices to no more than two hubs on the first tier, and no more than one keyboard and one pointing device on the first or second tier.
External device connected to a USB connector does not work during startup (before Windows 95 loads).	During startup, only two tiers are supported by the USB connector. These tiers can include no more than two hubs on the first tier and no more than one keyboard and one pointing device on the first or second tier.	■ Use the external device only after Windows 95 has loaded. ■ Reduce the number of connected external USB devices to no more than two hubs on the first tier, and no more than one keyboard and one pointing device on the first or second tier.
External devices in lower tiers do not work.	An unpowered hub is connected to another unpowered hub.	■ Use only powered hubs. ■ Make sure that all unpowered hubs are immediately preceded by powered hubs in the USB chain.