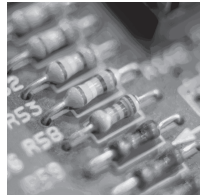


# Hardware Troubleshooting

## OBJECTIVES

1. Unplug the keyboard.
2. Unplug the mouse.
3. Disable the L2 cache.
4. Unplug the video card.
5. Unplug the RAM.
6. Unplug the FDD interface cable.
7. Unplug the power to the FDD, CD-ROM, HDD, and motherboard.



Hardware

## RESOURCES

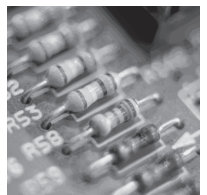
1. Marcraft 8000 Trainer
2. Marcraft Fault Set

## DISCUSSION

This lab will familiarize you with some of the errors associated with bad devices. You will receive different messages from the computer depending on which device has a problem. You will explore a fault with IDE connectivity and various no-signal problems.

## PROCEDURE

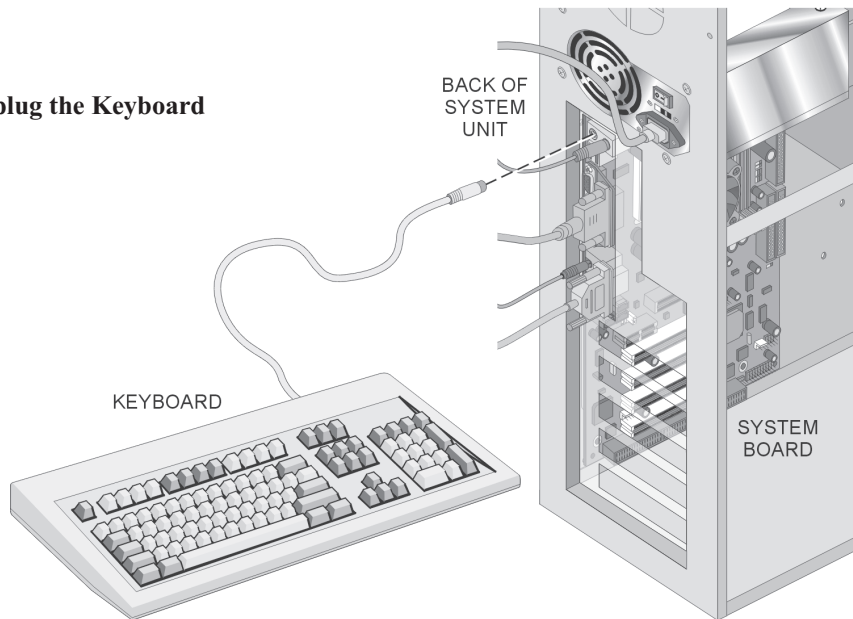
1. Establish the “Halt On” setting in the CMOS Setup Utility
  - \_\_\_ a. Turn the computer on.
  - \_\_\_ b. Press the DELETE key to enter the CMOS Setup Utility.
  - \_\_\_ c. Press ENTER to enter the Standard CMOS Setup.
  - \_\_\_ d. Change the Halt On: setting to “All errors”, and press the ESC key.
  - \_\_\_ e. Press the F10 key and ENTER to save the change and exit the CMOS Setup Utility.



Hardware

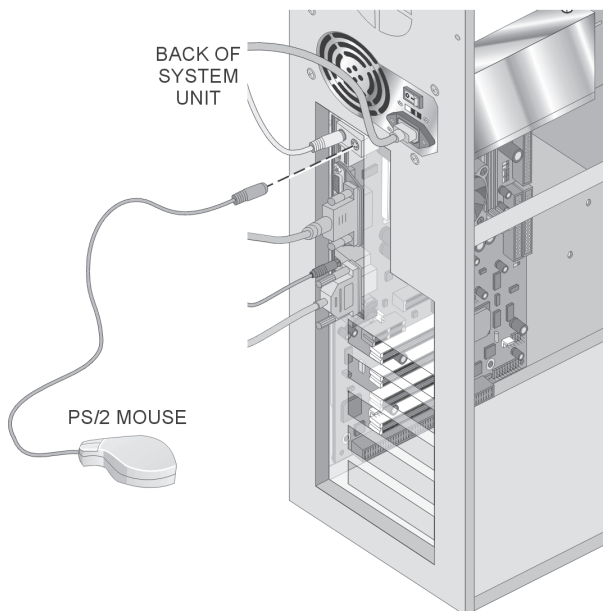
## PROCEDURE - 8

**Figure 8-1: Unplug the Keyboard**



### 2. Keyboard

- \_\_\_ a. Verify that the computer is off; if it is not, shut it down.
- \_\_\_ b. Unplug the keyboard connector from the back of the computer, as shown in Figure 8-1.
- \_\_\_ c. Turn the computer on.
- \_\_\_ d. Record your observations about any errors given in Table 8-1.
- \_\_\_ e. Turn the computer off.
- \_\_\_ f. Plug in the keyboard.



**Figure 8-2: Unplug the Mouse**

### 3. Mouse

- \_\_\_ a. Unplug the mouse (it may be serial or PS/2), as shown in Figure 8-2.
- \_\_\_ b. Plug in the Marcraft faulted mouse.
- \_\_\_ c. Turn the computer on.
- \_\_\_ d. When the Operating System selection screen comes up select Windows 2000 Professional and press ENTER.
- \_\_\_ e. Once the operating system has started try moving the mouse. Record your observations in Table 8-2.
- \_\_\_ f. Press ALT+F4 with the keyboard.
- \_\_\_ g. Verify that "Shut Down" is selected; you may need to use the UP/DOWN ARROW keys.
- \_\_\_ h. Press ENTER to shut down the computer.
- \_\_\_ i. Replace the original mouse.

### 4. L2 Cache

- \_\_\_ a. Turn the computer on and press DELETE to enter CMOS setup.
- \_\_\_ b. Use the arrow keys to browse for L2 Cache, usually in Advanced Settings.

*NOTE: The L2 Cache is sometimes called the External Cache.*

- \_\_\_ c. Disable L2 Cache by pressing the +/- keys or by pressing ENTER and using the arrow keys.
- \_\_\_ d. Save settings and exit CMOS Setup.
- \_\_\_ e. Boot the computer to Windows 2000 Professional.
- \_\_\_ f. Record your observations in Table 8-3.
- \_\_\_ g. Restart the computer and enter CMOS Setup as before.
- \_\_\_ h. Repeat Steps b-d, only this time enable L2 Cache.
- \_\_\_ i. Turn the computer off.

## 5. Video card

- \_\_\_ a. Remove the side panel of the computer.
- \_\_\_ b. Unplug any external connections to the video card, like the monitor, for example.
- \_\_\_ c. Unscrew the mounting screw of the video card.
- \_\_\_ d. Pull the card out of its slot, either a PCI or AGP slot, as shown in Figure 8-3.

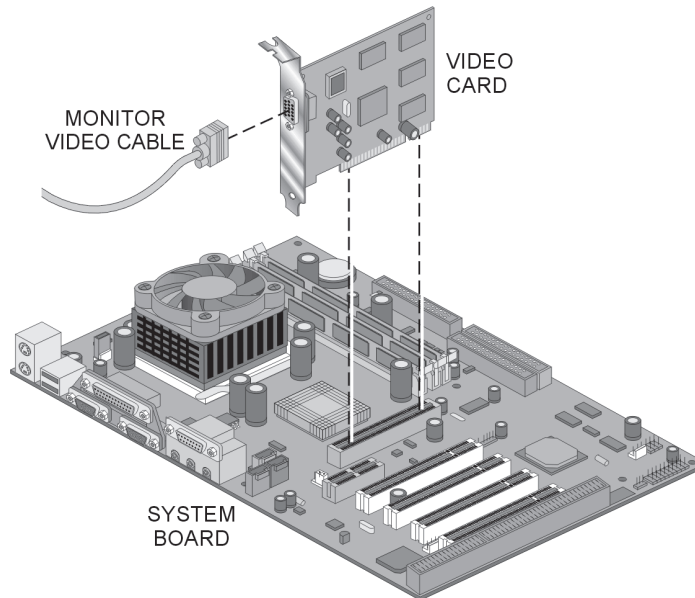


Figure 8-3: Unplug the Video Card

- \_\_\_ e. Turn the computer on and record your observations in Table 8-4.
- \_\_\_ f. Turn the computer off.
- \_\_\_ g. Replace the video card in its slot.
- \_\_\_ h. Replace the mounting screw.
- \_\_\_ i. Replace any external connections.

## 6. RAM

- \_\_\_ a. Unplug all extended memory from the motherboard. Be careful with the clamps on the ends of the memory slots, as shown in Figure 8-4.
- \_\_\_ b. Insert the Marcraft faulted memory from the fault set.
- \_\_\_ c. Turn the computer on and record your observations in Table 8-5.
- \_\_\_ d. Turn the computer off.
- \_\_\_ e. Replace the memory in their original slots.

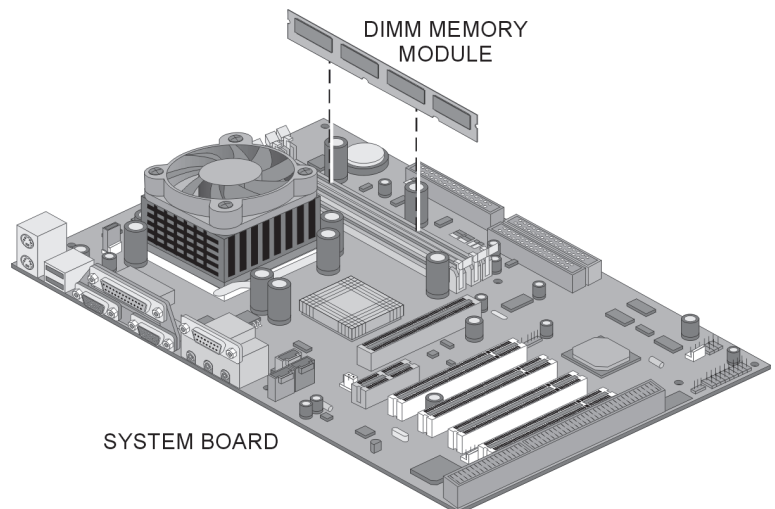
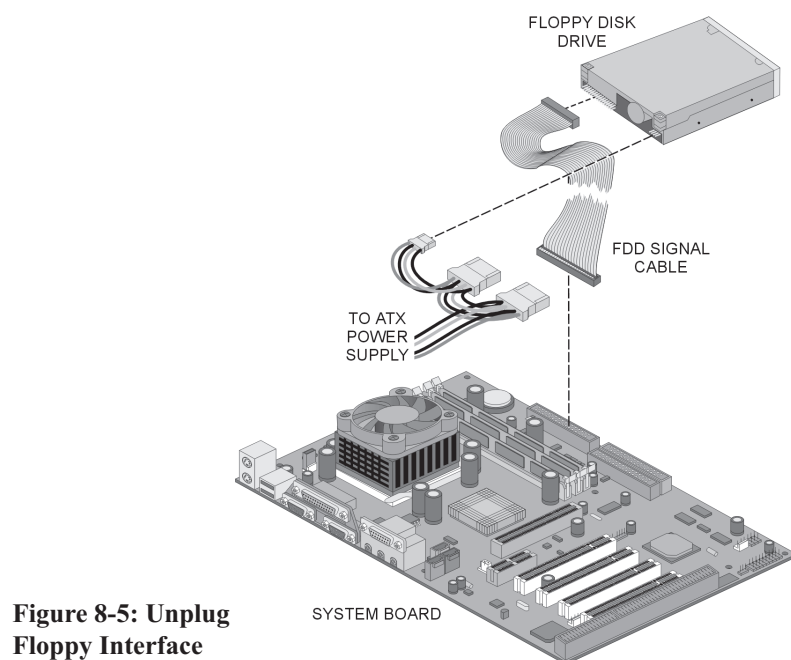


Figure 8-4: Unplug Memory

## PROCEDURE - 8



### 7. FDD interface

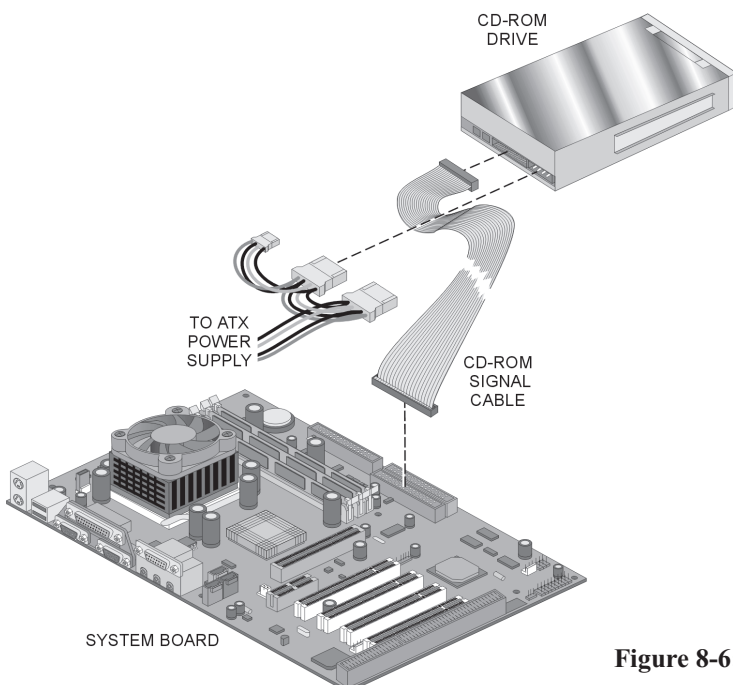
- \_\_\_ a. Unplug the floppy-disk drive interface at the end connected to the floppy drive, as shown in Figure 8-5.
- \_\_\_ b. Plug in the Marcraft faulted floppy interface.
- \_\_\_ c. Turn the computer on.
- \_\_\_ d. Record your observations in Table 8-6.
- \_\_\_ e. Turn the computer off.
- \_\_\_ f. Replace the floppy drive interface to its original location.

### 8. FDD power

- \_\_\_ a. Unplug the floppy disk drive power connector.
- \_\_\_ b. Turn the computer on.
- \_\_\_ c. Record your observations in Table 8-7.
- \_\_\_ d. Turn the computer off.
- \_\_\_ e. Replace the floppy drive power connector to its original location.

### 9. CD-ROM power

- \_\_\_ a. Unplug the power connector to the CD-ROM, as shown in Figure 8-6. Do not unplug the interface cable.
- \_\_\_ b. Turn the computer on.



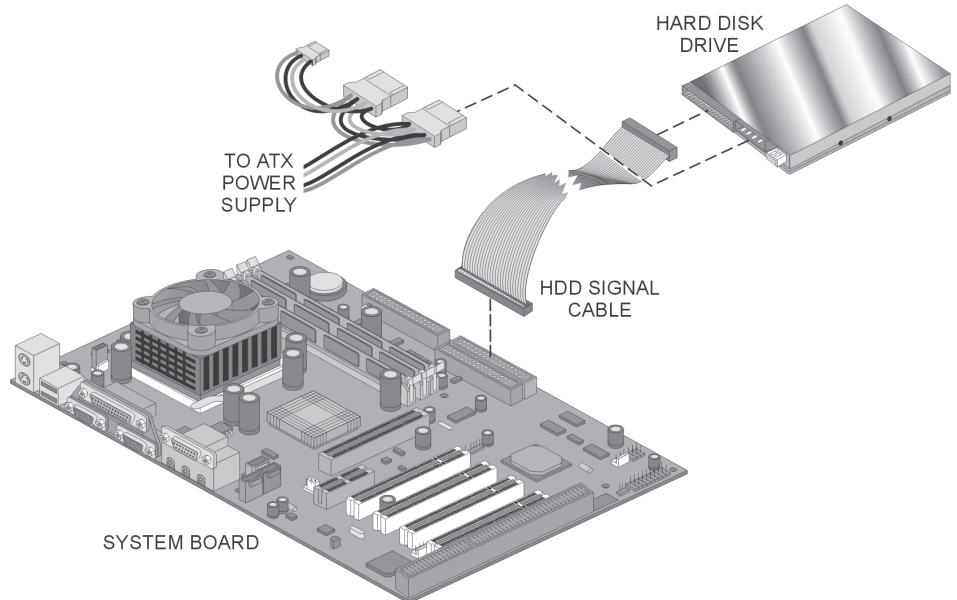
- \_\_\_ c. If the hard drive and CD-ROM are on the same cable record the error of the non-booting system in Table 8-8. Skip to Step i.
- \_\_\_ d. When the Operating System selection screen comes up select Windows 2000 Professional and press ENTER.
- \_\_\_ e. Once Windows has booted move the mouse and double-click on My Computer.
- \_\_\_ f. Record the icons listed on the right in Table 8-9.
- \_\_\_ g. Close My Computer by clicking the X in the top right part of the window.
- \_\_\_ h. Shut down Windows by clicking Start/Shut Down and clicking OK.
- \_\_\_ i. Turn the computer off and replace the CD-ROM power connector into its original location.

**10. HDD power**

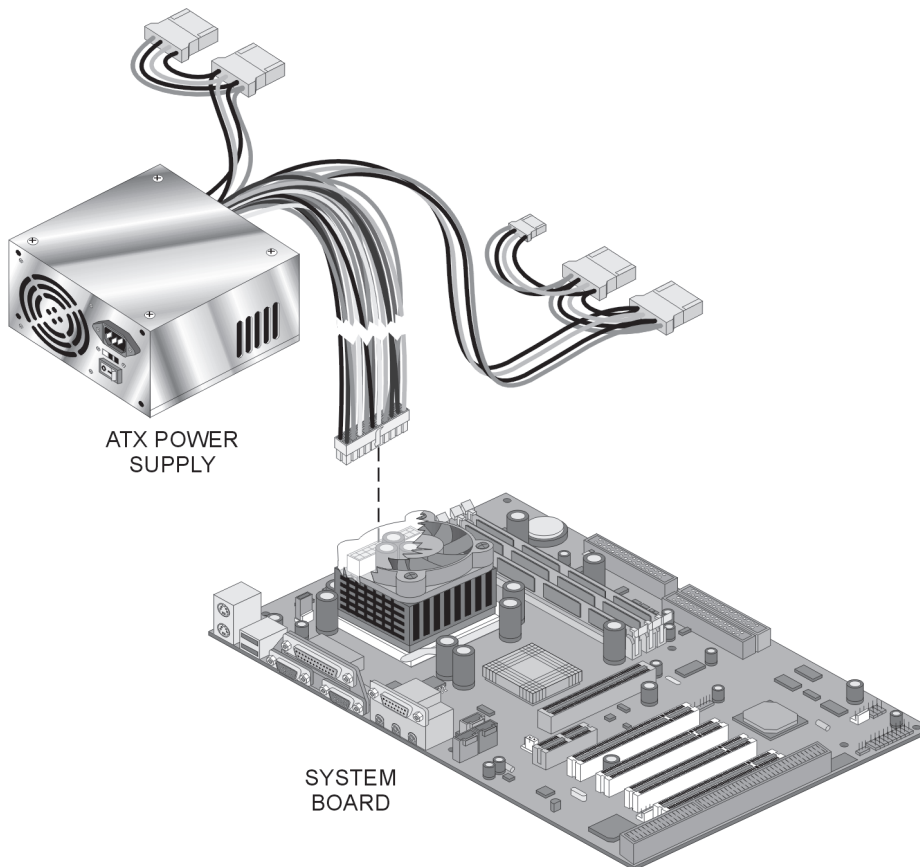
- \_\_\_ a. Unplug the power connector to the hard drive, as shown in Figure 8-7.
- \_\_\_ b. Turn the computer on and record your observations in Table 8-10.
- \_\_\_ c. Turn the computer off and replace the hard drive power connector.

**11. Motherboard**

- \_\_\_ a. Unplug the motherboard power connector, as shown in Figure 8-8.
- \_\_\_ b. Turn the computer on and record your observations in Table 8-11.
- \_\_\_ c. Turn the computer off.
- \_\_\_ d. Replace the motherboard power connector.



**Figure 8-7: Hard Drive Connections**



**Figure 8-8: Power Connectors**

**PROCEDURE - 8**

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**TABLES**

**Table 8-1**

<b>No Keyboard Connected:</b>	
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**Table 8-2**

<b>No Mouse Connected:</b>	
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**Table 8-3**

<b>L2 Cache Disabled:</b>	
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**Table 8-4**

<b>No Video Adapter:</b>	
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**Table 8-5**

<b>No Memory:</b>	
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**Table 8-6**

<b>No Floppy Drive Interface:</b>	
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**Table 8-7**

<b>No Floppy Drive Power:</b>	
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**Table 8-8**

<b>No CD-ROM Drive Power:</b>	
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**Table 8-9**

<b>My Computer Contents:</b>	
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Table 8-10

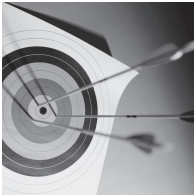
No Hard Drive Power:	

Table 8-11

No Power to Motherboard:	

LAB QUESTIONS

1. What type of mouse did you use?
2. How many memory modules did you remove?
3. What slot does your video card use?
4. What item do you think was missing from My Computer during the CD-ROM steps?
5. Why do you think there are different results between (1) a non-powered CD-ROM set to Slave with a hard drive as the master on one cable and (2) a non-powered CD-ROM set to Master on its own cable?



Feedback

