



# Apple Multiple Scan 17 Display

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## Basics

Apple Multiple Scan 17 Display





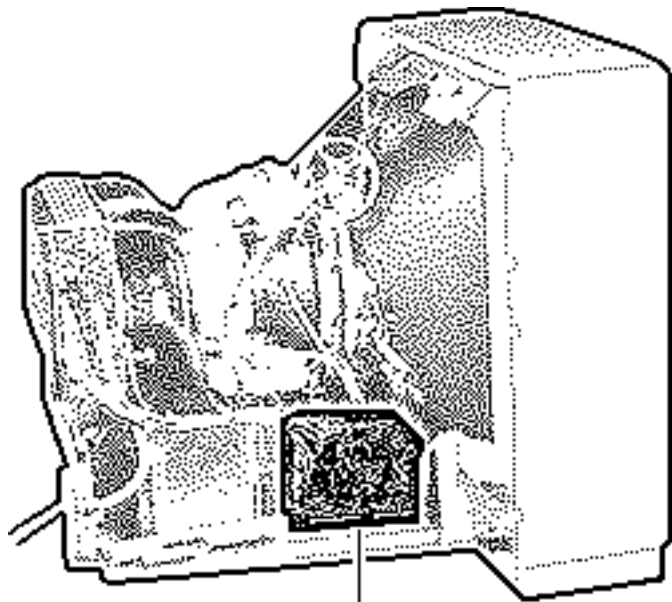
## EEPROM Settings

**Caution:** To prevent data loss or corruption, always save EEPROM settings before you replace the microprocessor board. (See next page.)

See Troubleshooting for instructions on saving the EEPROM settings from the old microprocessor board and restoring the settings on the new microprocessor board.

If the settings are lost before they can be written to the new EEPROM, the display will be impossible to repair, and the whole display will need to be replaced.





Microprocessor Board





## Specifications

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Apple Multiple Scan 17 Display





## Characteristics

**Picture Tube**

17-in. diagonal Trinitron CRT (16.1-in. viewable image)  
Multiple scan  
Bonded glass panel with antiglare/antistatic multilayer coating

**Screen Resolution**

640x480, 800x600, 832x624, or 1024x768  
0.26-mm stripe pitch

**Scan Rates**

Vertical refresh rate: 50 to 150 Hz  
Horizontal scan rate: 29 to 82 kHz  
Macintosh, XGA, VGA, SVGA, and VESA compatible

**Cable Connector**

15-pin miniature D-type





## Input Signals

Video: red, green, and blue analog signals; RS-343A standard;.714 V peak to peak; positive going

Sync on green: RS-343A compatible level;.286 V  $\pm$  10% negative-going during blanking intervals

Separate Sync: 1 to 5 V peak to peak; negative or positive going

Composite Sync: 1 to 5 V peak to peak; negative or positive going

## System Requirements

Power Macintosh, Macintosh Centris, Macintosh Quadra, or any NuBus compatible Macintosh with a Macintosh Display Card 24AC.

Macintosh II family, PowerBooks, Duo and Mini Dock, Macintosh Performa, Macintosh LC, LC II, LC III, and Macintosh computers with Display Cards 4•8, 8•24, 8•24GC work in 640x480 mode. Other modes possible with additional adapters.  
System software version 7.1 or later





## Controls and Ports

### User Controls

Front panel: power, reset, and control buttons; brightness and contrast controls

Additional controls available using the command button: horizontal and vertical shift, horizontal and vertical size, rotation, horizontal and vertical convergence, and color temperature

Automatic degauss at power-on; manual degauss by turning power switch off, then on (capable of full degauss after monitor is turned off for 20 minutes or more)

### I/O Ports

Two Apple Desktop Bus (ADB) ports and one ADB pass-through port

Microphone: One input and one pass-through port

Headphone/Speaker: One input and one pass-through port







## Physical and Electrical

### **Power Supply**

Universal power supply

Voltage: 90–132 and 198–260 VAC, self-configuring

Frequency: 47–63 Hz

Power: 150 W maximum

### **Size and Weight**

Height: 16.5 in. (424 mm)

Width: 15.8 in. (405 mm)

Depth: 17.6 in. (452.3 mm)

Weight: 50.0 lb. (22.5 kg)





## **Monitor Stand**

Built-in, tilt-and-swivel stand

Three ADB ports (two ADB ports are in the front of the stand and one ADB port is at the rear of the stand)

Sound-in and sound-out ports (to the CPU) at the rear of the base

Microphone input and speaker/headphone output ports at the front of the base





## Environmental

### **Temperature**

Operating: 50°F–104°F (10°C–40°C)

Storage: 32°F –140°F (0°C–60°C)

Shipping: -4°F–140°F (-40°C–60°C)

### **Altitude**

Operating: to 10,000 ft. (1,067 m)

Shipping: to 35,000 ft. (3,048 m)

### **Humidity**

Operating: 10–80% maximum, noncondensing

Storage: 5–90% maximum, noncondensing

Shipping: 5–95% maximum, noncondensing

### **Power Savings Feature**

Conforms to the Energy Star Program of the United States  
Environmental Protection Agency





## Troubleshooting

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Apple Multiple Scan 17 Display





## General

The Symptom Charts included in this chapter will help you diagnose specific symptoms related to your product. Because cures are listed on the charts in the order of most likely solution, try the first cure first. Verify whether or not the product continues to exhibit the symptom. If the symptom persists, try the next cure. (Note: If you have replaced a module, reinstall the original module before you proceed to the next cure.)

If you are not sure what the problem is, or if the Symptom Charts do not resolve the problem, refer to the Flowchart for the product family.

For additional assistance, contact Apple Technical Support.





## First Checklist

**Important:** 54% of the Apple Multiple Scan 17 Display modules returned for repair are found to be fully operational. Read this checklist before you return a module. Prevent needless module replacement and unnecessary time delays.



**The Apple Multiple Scan 17 Display is not fully compatible with all Macintosh computers and PowerBooks.**

If you suspect a loss of functionality, especially with the number of screen resolutions available (in Control Panels), check the Tech Info Library or contact Apple Technical Support.





- The CRT raster will not always resemble a perfect rectangle.**

CRT tolerances allow for some distortion. Additional distortion can be caused by magnetized metal objects (desks, file cabinets, etc.). Move the unit to a different location if you notice raster bowing or bent raster edges.

- Jitter, faint lines, or screen movement can be caused by external interference such as electronic devices and fluorescent lights.**

Move the unit to another room or building to help determine if external interference is the source of the problem.





**A misadjusted screen can mimic the symptoms of deflection board or CRT failures.**

By performing the adjustment procedures, you might determine if one or more of the adjustments is the cause of the problem.



**CRTs rarely fail.**

Needless CRT replacements can be prevented by checking display adjustments, checking the possibility of other defective modules, and accepting small imperfections in screen display.

If you have any doubts about whether a CRT is defective, contact Apple Technical Support.







## Display Setting Restoration

Each Multiple Scan 17 Display has an EEPROM (located on the microprocessor controller board) that contains adjustment information specific to that monitor. Before you replace the microprocessor board, save this EEPROM information.

Use MacTest Pro Display Setting Restore Utility to preserve the monitor adjustment settings.

### **Connect the Hardware**

There are two ways to connect the hardware to use the MacTest Pro Display Setting Restore Utility:

- 1 Connect a serial cable (MINI DIN-8) between the malfunctioning display and a separate computer running MacTest Pro. Use either the modem port or the printer port on the computer. (If you use the printer port, AppleTalk





must be turned off). Also connect a power cable to the display.

**Advantage:** You do not have to shut down the host computer or quit MacTest Pro to complete the repair.

**Disadvantage:** This method requires a separate host computer (with display).

- 2 Connect the display as usual, using a video cable and power cable. Also, connect a serial cable (MINI DIN-8) between the display and either the modem or printer port on the computer.

**Advantage:** This method lends itself to on-site repair; the display under repair is the only display required.

**Disadvantage:** Since the microprocessor board on the display needs to be replaced, the display may not be working well enough to view this utility in MacTest Pro.





Another disadvantage is that after creating the data file from the old EEPROM, you must quit MacTest Pro and shut down the computer to install the new EEPROM.

## **Save the EEPROM Information**

To save information from the old EEPROM, create a data file:

- 1 Start MacTest Pro.
- 2 Choose “Apple Multiple Scan 17 Display.”
- 3 Select “Test.”
- 4 Click “Create File.”

## **Install the Microprocessor Board**

See Take Apart for instructions on installing the new microprocessor board.





After the new microprocessor board is installed, the new EEPROM will have default settings that allow you to read the display, but with difficulty. When the settings from the old EEPROM are transferred to the new EEPROM, the display should be clear and the last color temperature mode chosen restored.

## **Restore the EEPROM Information**

To download the saved adjustment information to the new EEPROM,

- 1 Start MacTest Pro.
- 2 Choose “Apple Multiple Scan 17 Display.”
- 3 Select “Test.”
- 4 Click “Write File.”





**Caution:** Make certain that you are aware of the following important information about the EEPROM data file. If data is lost or corrupted, you will have to return the display to Apple for repair.

- Make sure that the data in the saved file is written back to the display used to create the file. Each display is unique, so writing the wrong data to a display may cause severe adjustment problems.
- Make sure that the data file is deleted after writing the data back to the display. This erasure ensures that data from one display is not accidentally written to another.
- Do not delete the new data file before it's written to the new EEPROM. If the file is lost before the data can be written to the new EEPROM, the repair will be impossible to complete and the whole display will need to be returned.





## CRT

If the monitor shuts down shortly after powering up, follow this procedure to determine if the CRT is defective:

- 1 Refer to Take Apart to remove the monitor stand, remove the rear cover, discharge the CRT, remove the EMI shield.
- 2 With the power off, insert a nonconductive shield (such as a strip of plastic or cardboard) between the CRT/video board and the main deflection board to shield both boards from potential shorts.
- 3 **Note:** Twisting, bending, or applying force to the CRT/video board could damage the neck of the CRT. Be sure to pull the CRT/video board straight off the CRT.  
Loosen the mounting screw on the neck clamp.
- 4 Without disconnecting any cables, pull the CRT/video board straight off the neck of the CRT (about 3/4 inch) until the board disconnects from the pins.





- 5 Rest the CRT/video board on the nonconductive shield.
- 6 Connect the monitor to a computer.
- 7 Plug in the power cable and turn on the monitor.
  - If the power indicator light stays on, the CRT is defective.
  - If the monitor shuts down immediately or after a few seconds, replace the main deflection board.





# Symptom Charts

## Raster

No raster; power indicator light on

- 1 Ensure monitor's video cable is properly connected to computer or video card in the computer.
- 2 Replace main deflection board.

Raster edges have color blotches when displaying an all-white screen

- 1 Degauss monitor with an external degaussing coil.
- 2 Move monitor to different location and repeat degaussing procedure.

**Note:** This symptom is caused by strong magnetic fields in the environment. Exchanging boards will not cure the symptom. Refer to "First Checklist" in this chapter.







## Raster (Continued)

Oversized raster; menu bar might be partially cut off; adjustments have no effect on raster

Replace main deflection board, and without disconnecting microprocessor board, check its revision level.

**Important:** On the component side of the board, look for a white mark on the upper left corner and a 9-digit number that ends in -11, -12, or -13.

If you see “-12” and a white mark or “-13” and no white mark, you have an updated board. No board replacement required.

If you see “-11” or “-12” and no white mark, replace the microprocessor board with an updated board after downloading settings as described in “Display Setting Restoration” in this chapter.

**Caution:** To prevent data loss or corruption, always save EEPROM settings before you replace the microprocessor board.





## Power

No power; power indicator light off

- 1 Check that power cord is properly connected to monitor and live power source.
- 2 Ensure monitor's video cable is properly connected to computer or video card in the computer.
- 3 Replace main deflection board.

Monitor shuts down

- 1 Ensure monitor's video cable is properly connected to computer or video card in the computer.
- 2 Determine if CRT is the cause by following the "CRT" procedure in this chapter.
- 3 If CRT is not the cause, replace main deflection board.
- 4 Replace CRT/video board.





## Indicator Lights

Convergence indicator light blinks or stays on; power indicator light might also blink



Replace microprocessor board after downloading settings as described in “Display Setting Restoration” in this chapter.

**Caution:** To prevent data loss or corruption, always save EEPROM settings before you replace the microprocessor board.





## Indicator Lights (Continued)

Rotation indicator  
light blinks or stays  
on; power indicator  
light might also blink

Replace main deflection board.





## Indicator Lights (Continued)

Size indicator light blinks or stays on; power indicator light might also blink



- 1 Replace main deflection board.
- 2 Replace CRT/video board.
- 3 Replace microprocessor board after downloading settings as described in “Display Setting Restoration” in this chapter.  
**Caution:** To prevent data loss or corruption, always save EEPROM settings before you replace the microprocessor board.





## Indicator Lights (Continued)

Centering indicator light blinks or stays on; power indicator light might also blink



- 1 Replace main deflection board.
- 2 Replace microprocessor board after downloading settings as described in “Display Setting Restoration” in this chapter.  
**Caution:** To prevent data loss or corruption, always save EEPROM settings before you replace the microprocessor board.





## Miscellaneous

Unable to download saved adjustment settings to new microprocessor board

- 1 Check that your version of Display Setting Restore Utility matches the current version in the Diagnostics folder on Service Source CD.
- 2 Contact Apple Technical Support.

Picture has vertical jitter

- 1 Move monitor to different location and see if symptom persists.  
**Note:** This symptom is often caused by electromagnetic interference (electronic devices, fluorescent lights, power lines, etc.). Refer to “First Checklist” in this chapter.
- 2 Replace microprocessor board after downloading settings as described in “Display Setting Restoration” in this chapter.  
**Caution:** To prevent data loss or corruption, always save EEPROM settings before you replace the microprocessor board.





Take Apart

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Apple Multiple Scan 17 Display

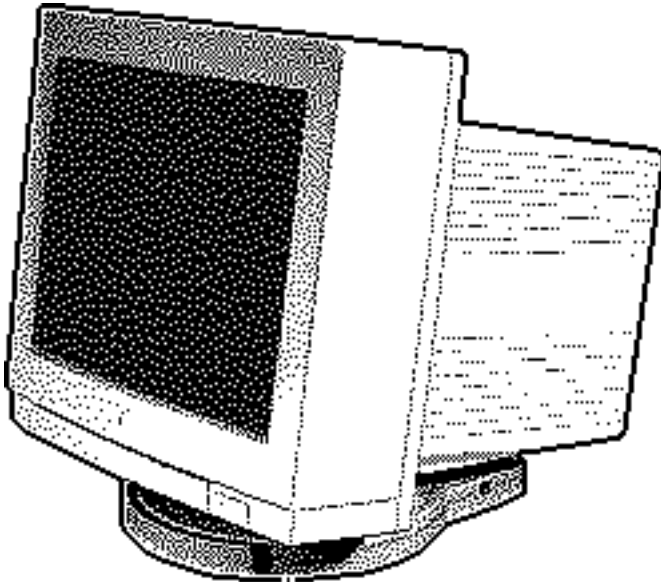






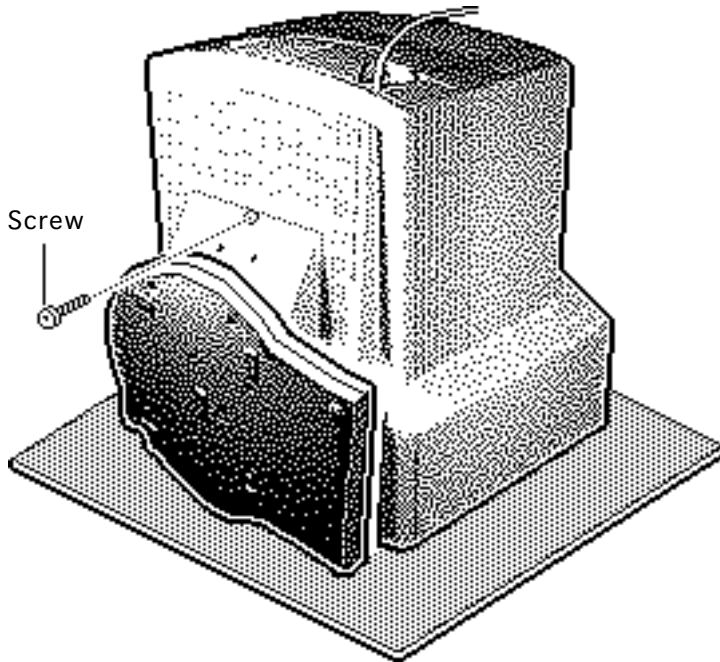
## Monitor Stand

No preliminary steps are required before you begin this procedure.



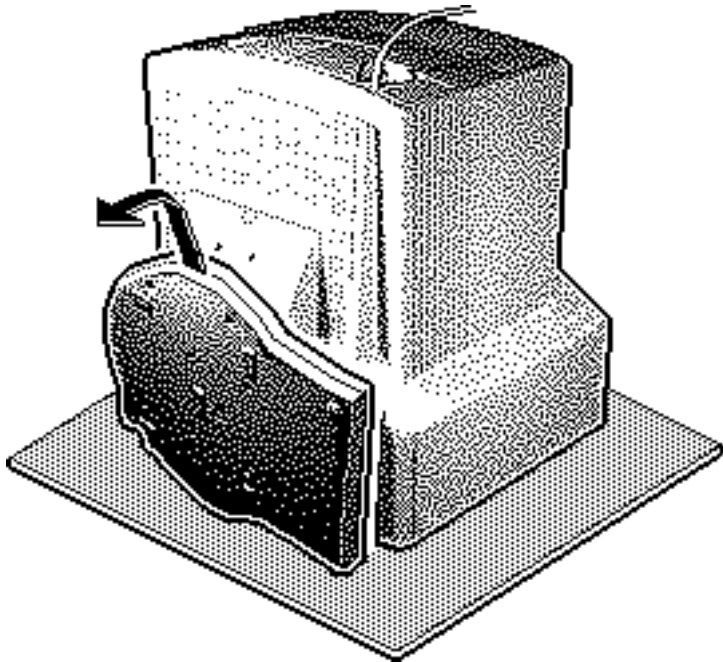
Monitor Stand





- 1 With the monitor face-down on a protective pad, swivel the base to access the monitor stand mounting screw.
- 2 Remove the mounting screw.





- 3 Lift the monitor stand out of the bezel.
- 4 If you do not plan to work on the monitor, return the monitor to an upright position on the protective pad.

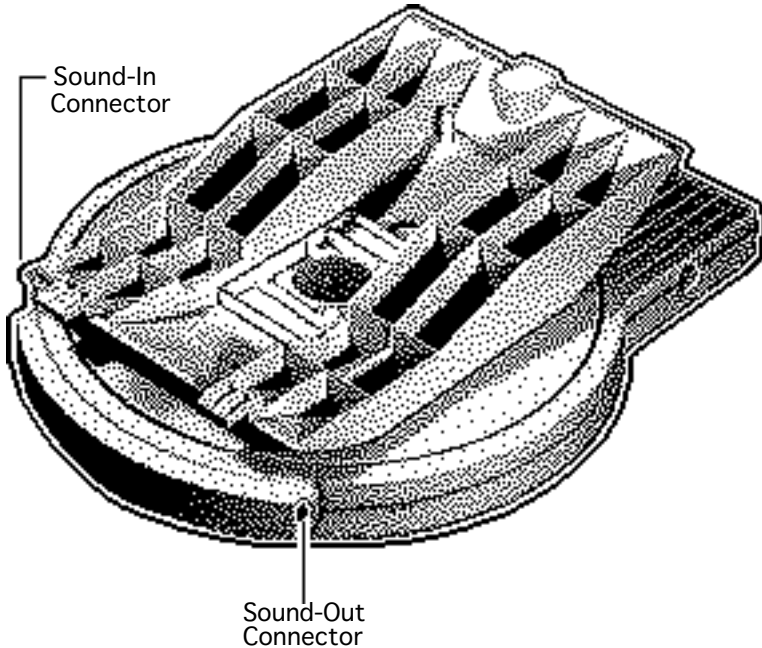


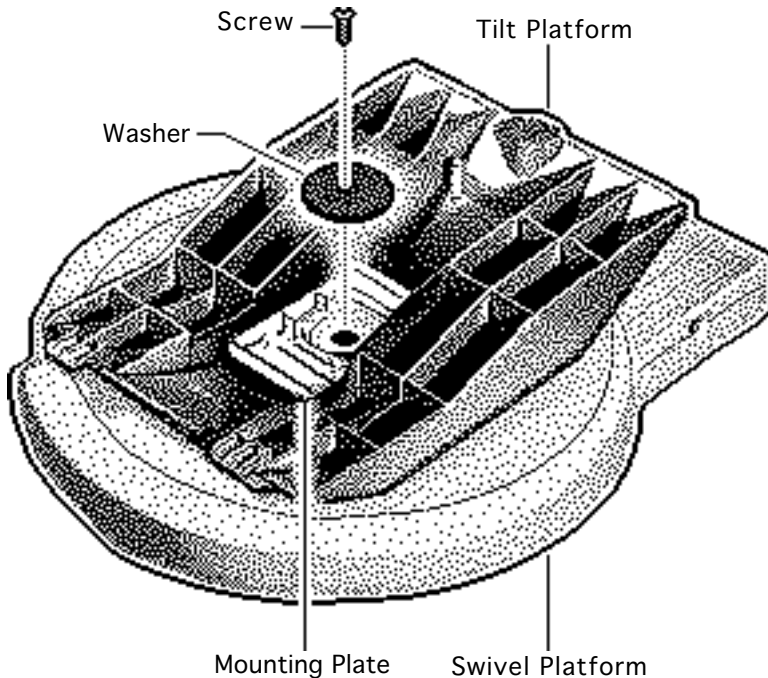


## Monitor Stand Cables

Before you begin, remove the monitor stand.

**Note:** The monitor stand includes sound-in and sound-out cables and an ADB speaker board. You can replace the monitor stand as an assembly, or you can replace its parts individually.

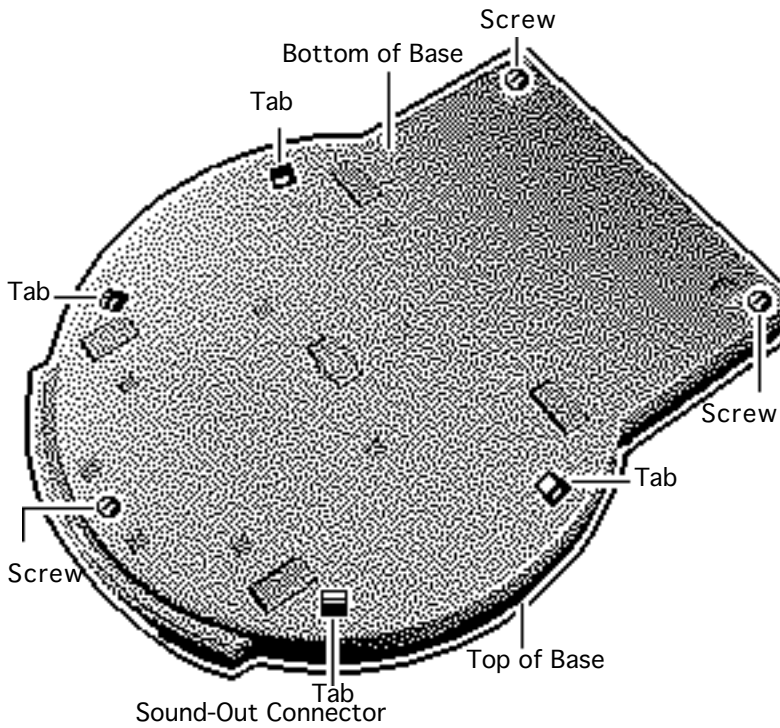




- 1 Remove the mounting plate (with washer) and separate the tilt platform from the swivel platform.

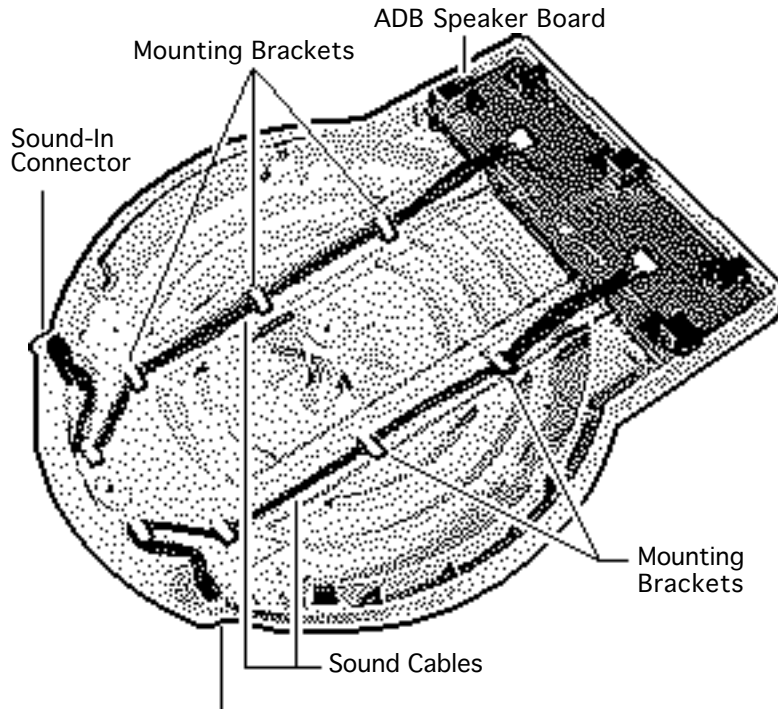
**Replacement Note:**  
When replacing the tilt and swivel platforms, align the arrows etched on the platforms with the front of the base.





- 2 Remove the three screws, push out the four release tabs, and separate the bottom from the top of the base.
- 3 Place the bottom of the base on the protective pad.





- 4 Disconnect the sound-in and sound-out cables from the ADB speaker board.
- 5 Remove the ADB speaker board (if defective).
- 6 Unlace the defective cable(s) from the bottom of the base and remove the cables from the plastic mounting bracket(s).

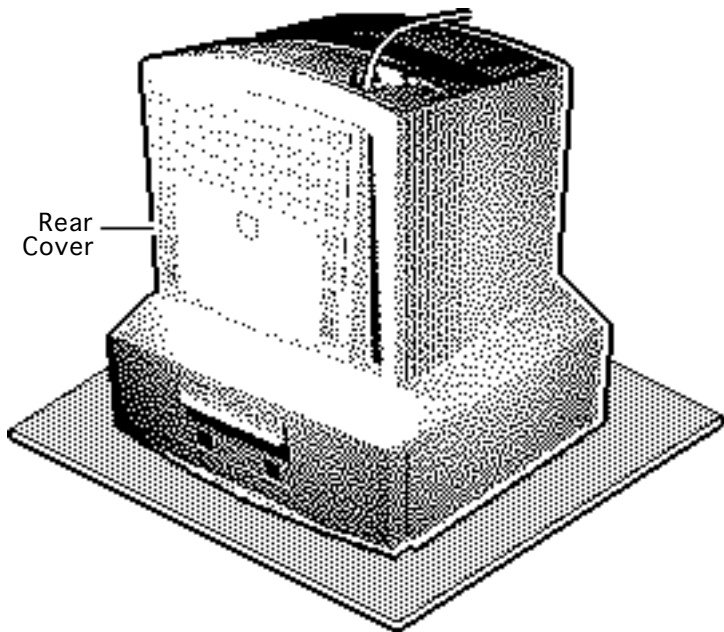




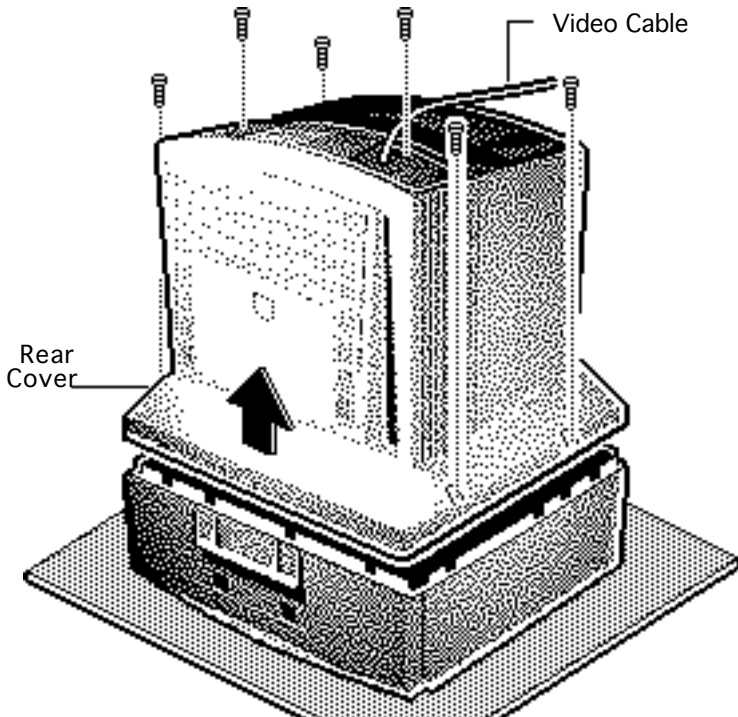
## Rear Cover

Before you begin, remove the monitor stand.

**⚠ Warning:** This product contains high voltage and a high-vacuum picture tube. To prevent serious injury, review CRT safety in Bulletins/Safety.







- 1 With the monitor face-down on a protective pad, remove the six case screws and pull the cover off the chassis.
- 2 Route the video cable through the cover.





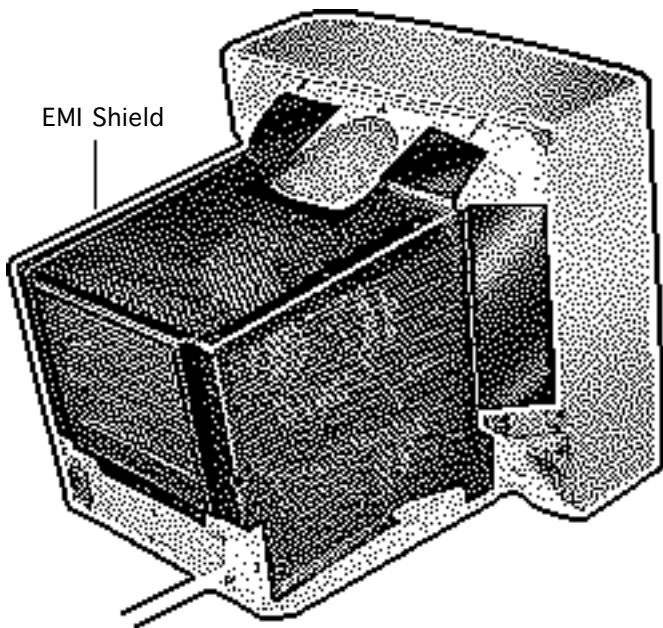
## EMI Shield

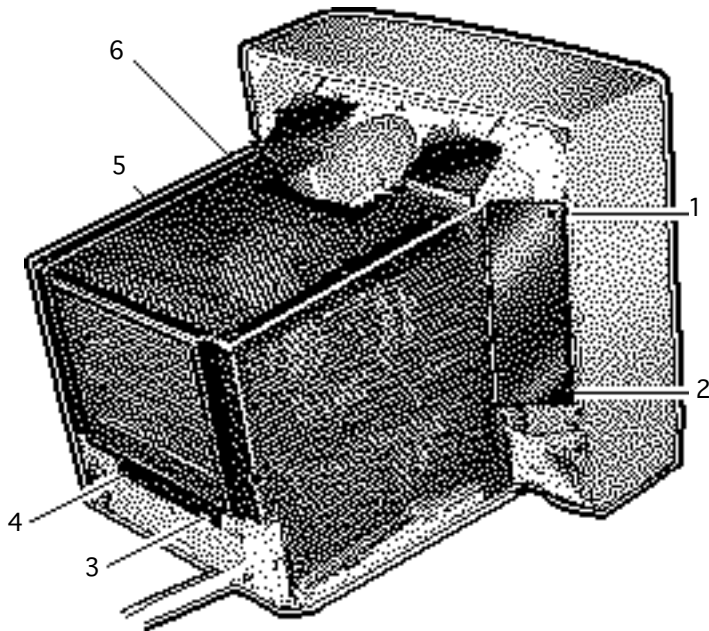
Before you begin,

- Remove the monitor stand
- Remove the rear cover
- Discharge the CRT

**⚠ Warning:** This product contains high voltage and a high-vacuum picture tube. To prevent serious injury, review CRT safety in Bulletins/Safety.

**⚠ Warning:** Never use a grounding wriststrap until after discharging the CRT.

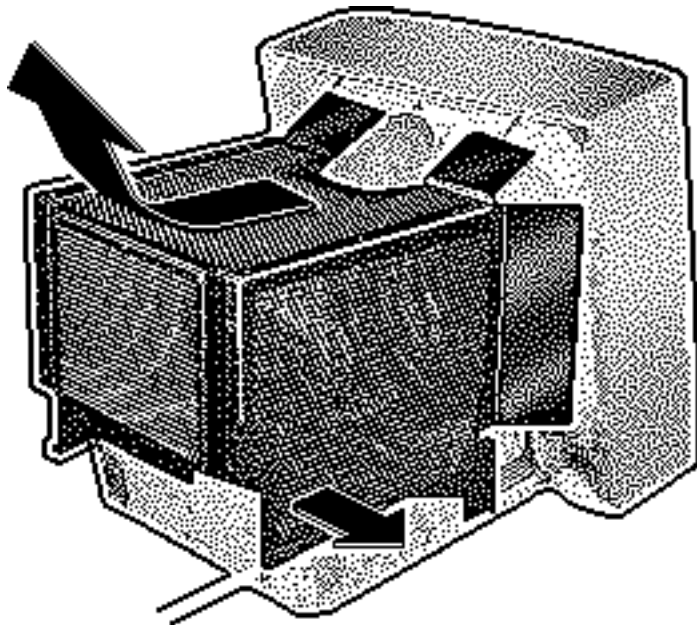




**Note:** The EMI shield is not replaceable.

- 1 Remove the six screws from the shield.





- 2 Slide the shield toward the back of the monitor.
- 3 Bow the sides of the shield out and lift off the shield.



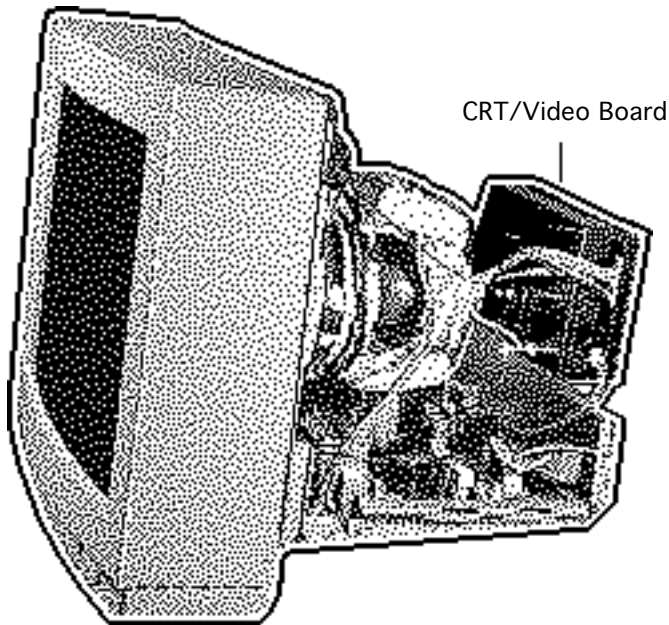


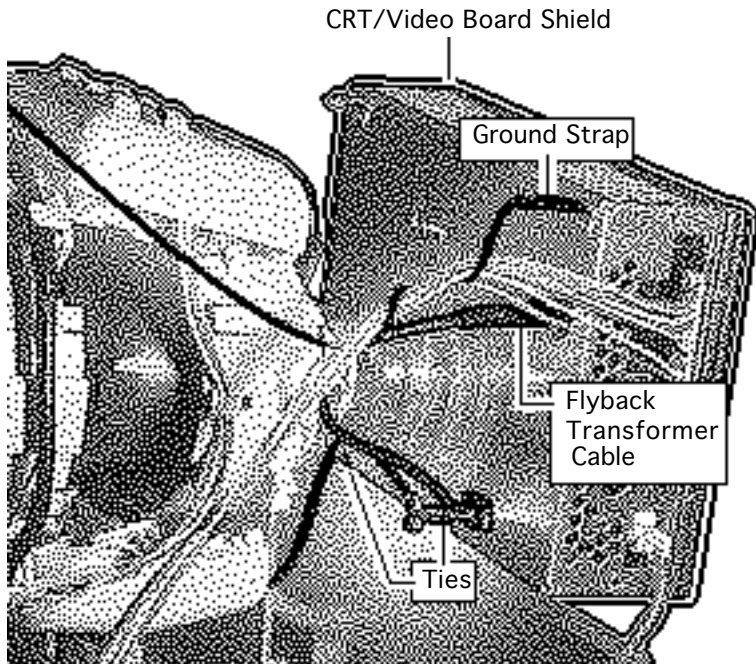
## CRT/Video Board

Before you begin,

- Remove the monitor stand
- Remove the rear cover
- Discharge the CRT
- Remove the EMI shield

**⚠ Warning:** This product contains high voltage and a high-vacuum picture tube. To prevent serious injury, review CRT safety in Bulletins/Safety.



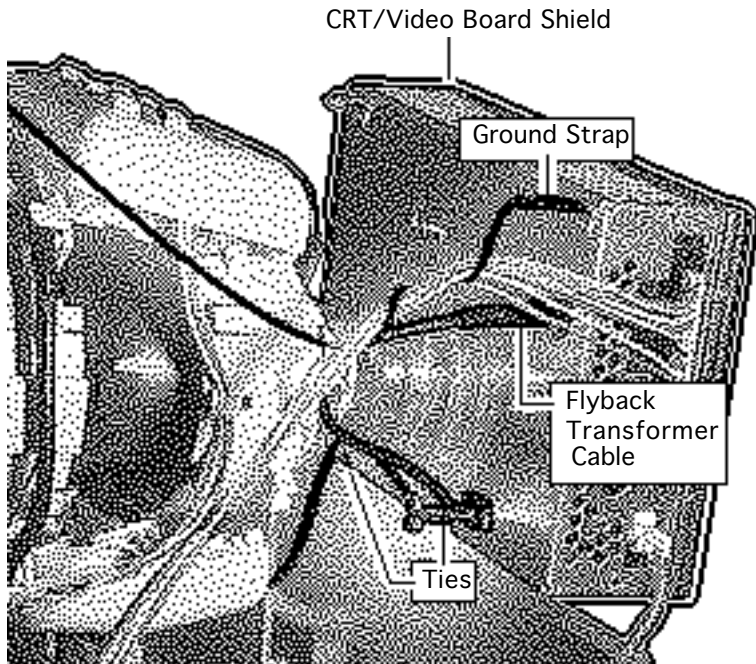


**⚠ Warning:** Never use a grounding wriststrap until after discharging the CRT.

**Caution:** When removing the ground strap and flyback transformer cable from the CRT/video board, avoid excessive pressure on the neck of the CRT.

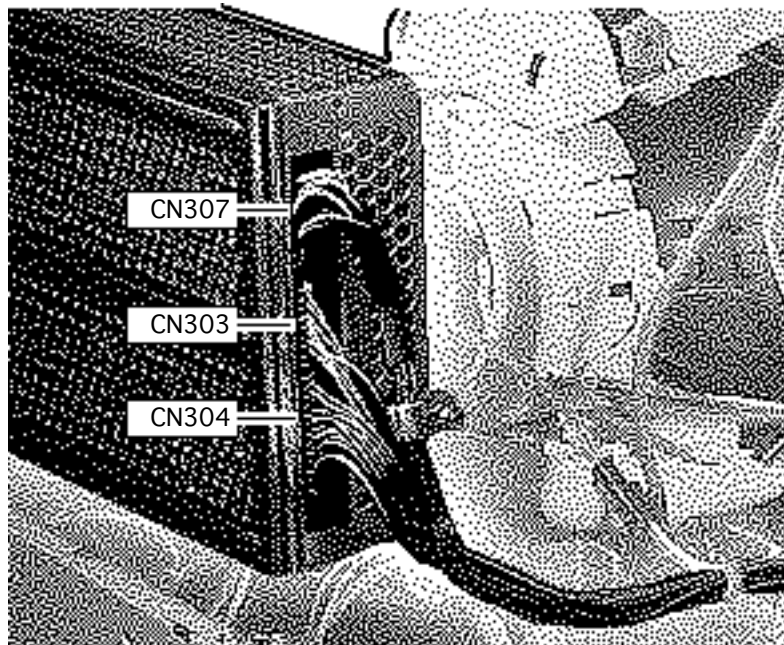
- 1 Disconnect the ground strap from the front of the CRT/video board shield.
- 2 Disconnect the flyback transformer cable from the CRT/video board.





- 3 Remove the flyback transformer cable from the cable ties on the CRT/video board shield.





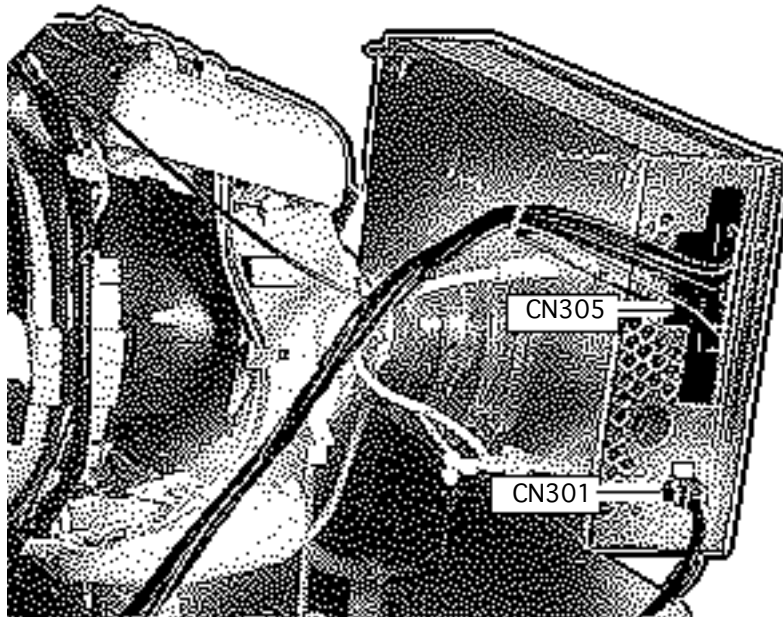
4 **Caution:** When disconnecting the following cables from the CRT/video board, avoid excessive pressure on the neck of the CRT.

Disconnect these cables from the CRT/video board:

- 9-wire video cable (CN307)
- 8-wire microprocessor board cable (CN303)
- 13-wire microprocessor board cable (CN304)





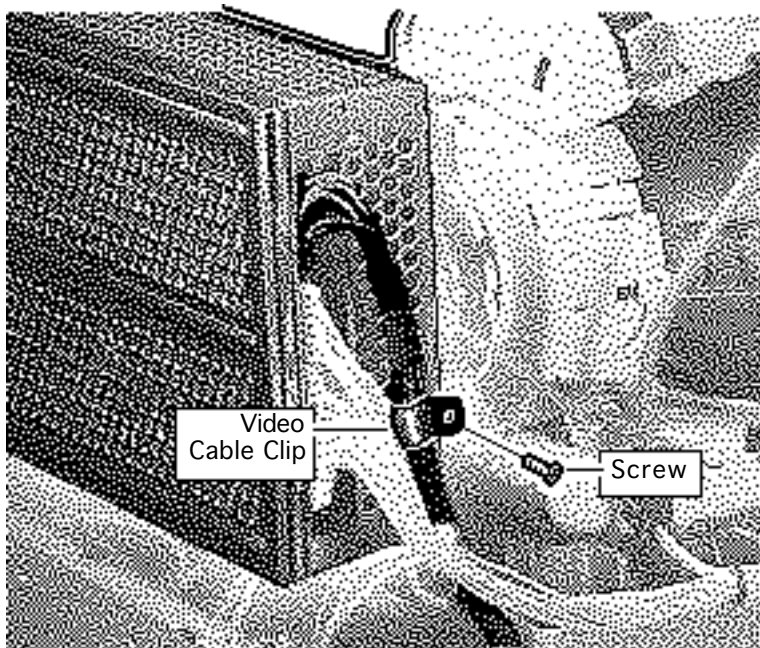


- 5 **Caution:** When disconnecting the following cables from the CRT/video board, avoid excessive pressure on the neck of the CRT.

Disconnect these cables from the CRT/video board:

- 1-wire ground cable (CN301)
- 11-wire power cable (CN305)

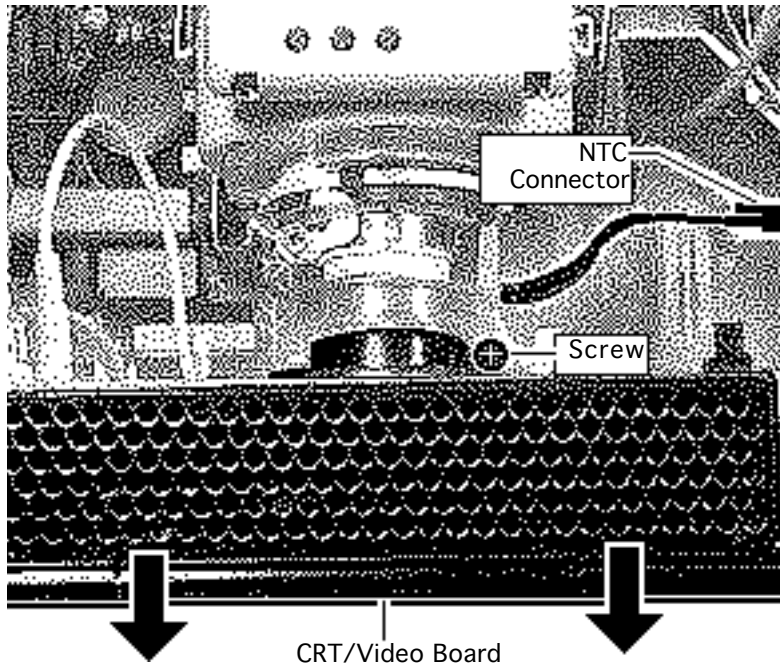




- 6 **Caution:** When removing the video cable clip screw from the CRT/video board, be careful not to apply excessive pressure to the neck of the CRT.

Remove the screw securing the video cable clip to the CRT/video board shield.





- 7 **Caution:** Twisting, bending, or applying force to the CRT/video board could damage the neck of the CRT. Be sure to pull the CRT/video board straight off the CRT.

Disconnect the NTC connector.

- 8 Loosen the mounting screw and pull the CRT/video board straight off the neck of the CRT.





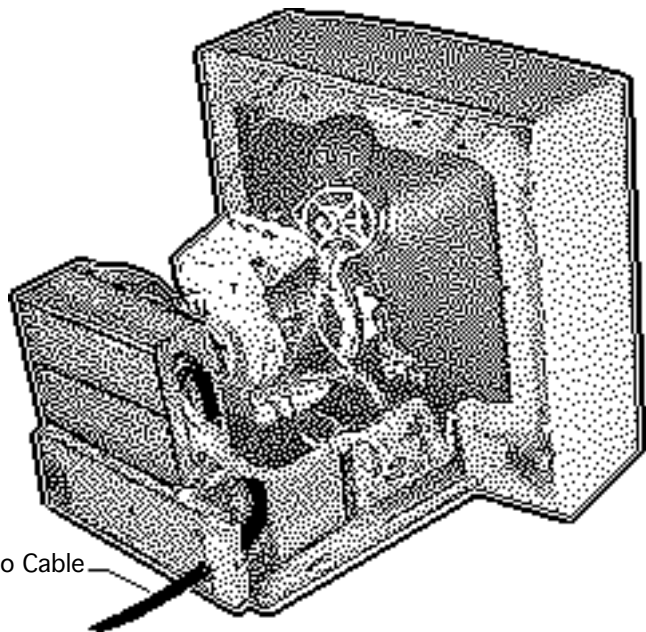
## Video Cable

Before you begin,

- Remove the monitor stand
- Remove the rear cover
- Discharge the CRT
- Remove the EMI shield

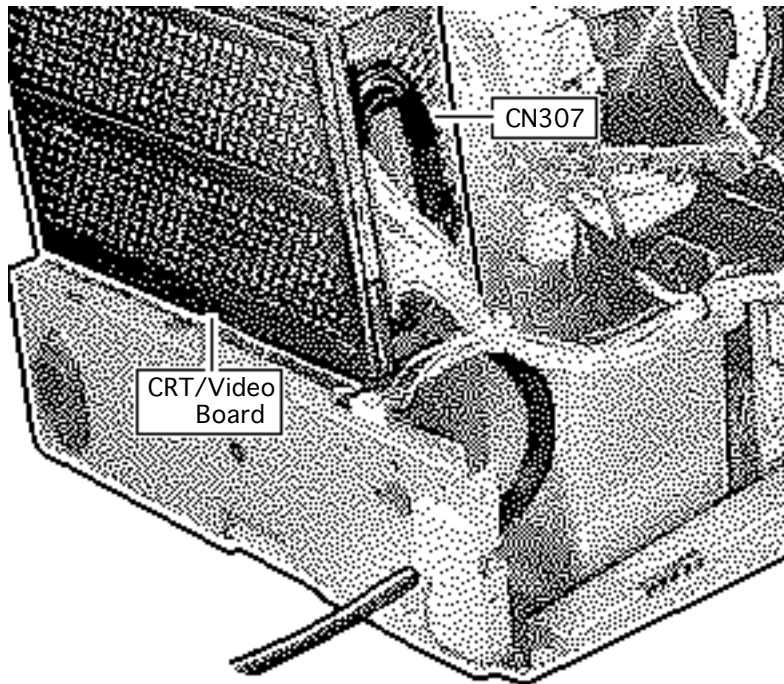
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Video Cable

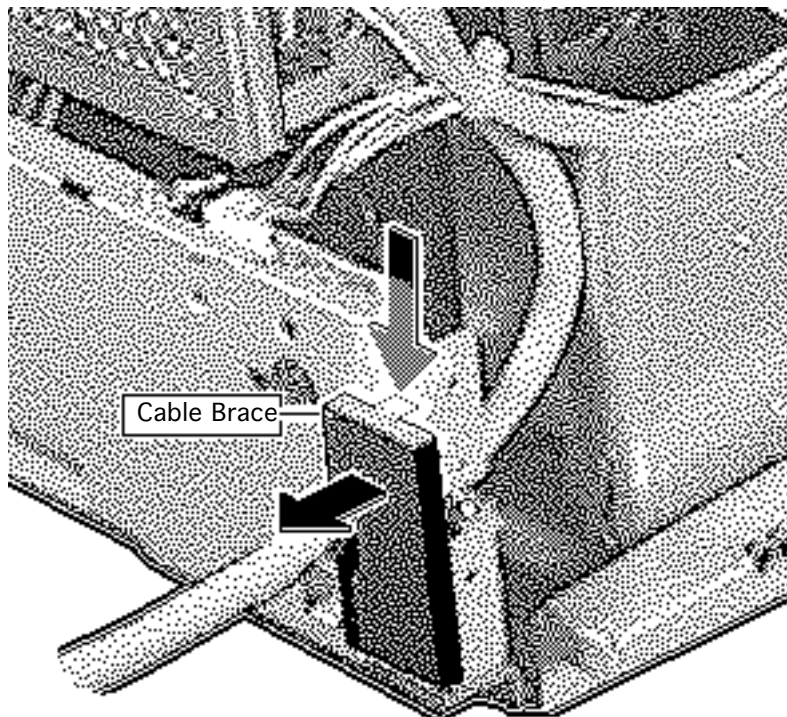




- 1 **Caution:** When removing the video cable from the CRT/video board, be careful to avoid excessive pressure on the neck of the CRT.

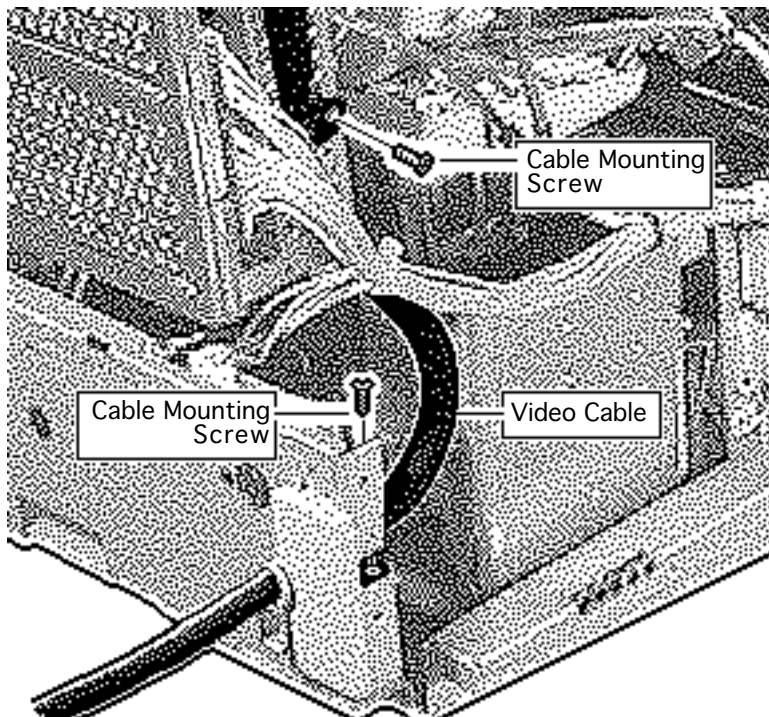
Disconnect the 9-wire video cable from the CRT/video board (CN307).





- 2 Press down on the plastic latch and push the top of the cable brace out of the chassis.





- 3 Remove the two cable mounting screws.
- 4 Remove the video cable.





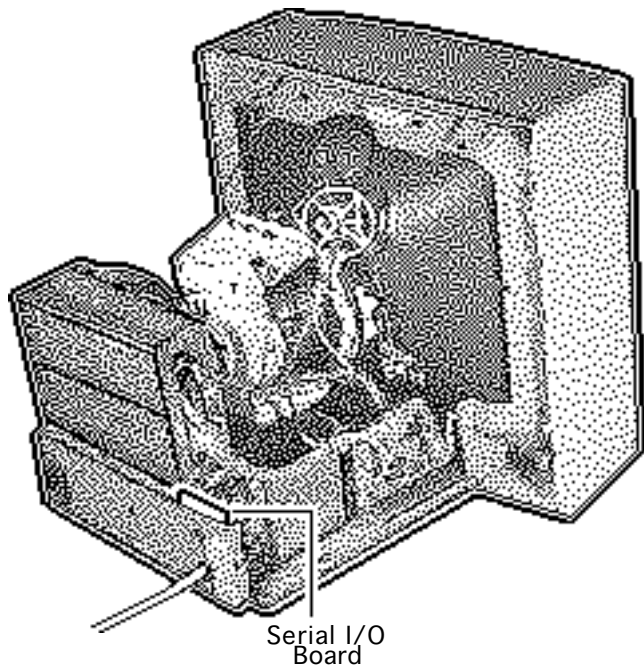
## Serial I/O Board

Before you begin,

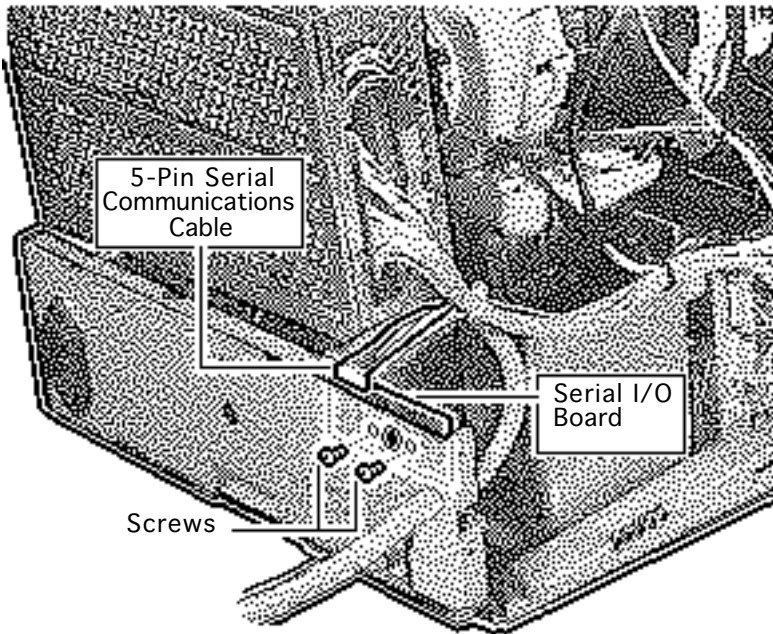
- Remove the monitor stand
- Remove the rear cover
- Discharge the CRT
- Remove the EMI shield

**⚠ Warning:** This product contains high voltage and a high-vacuum picture tube. To prevent serious injury, review CRT safety in Bulletins/Safety.

**⚠ Warning:** Never use a grounding wriststrap until after discharging the CRT.







- 1 Disconnect the 5-pin serial communications cable from the serial I/O board.
- 2 Remove the two screws securing the serial I/O board to the rear panel.
- 3 Lift out the serial I/O board.





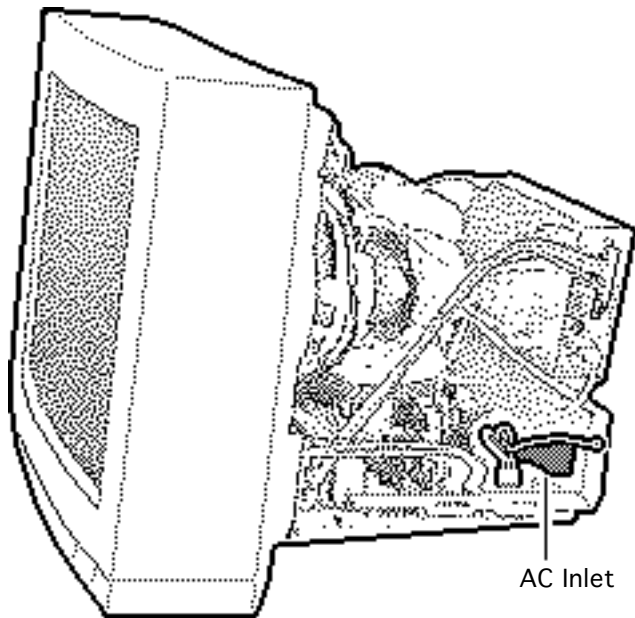
## AC Inlet

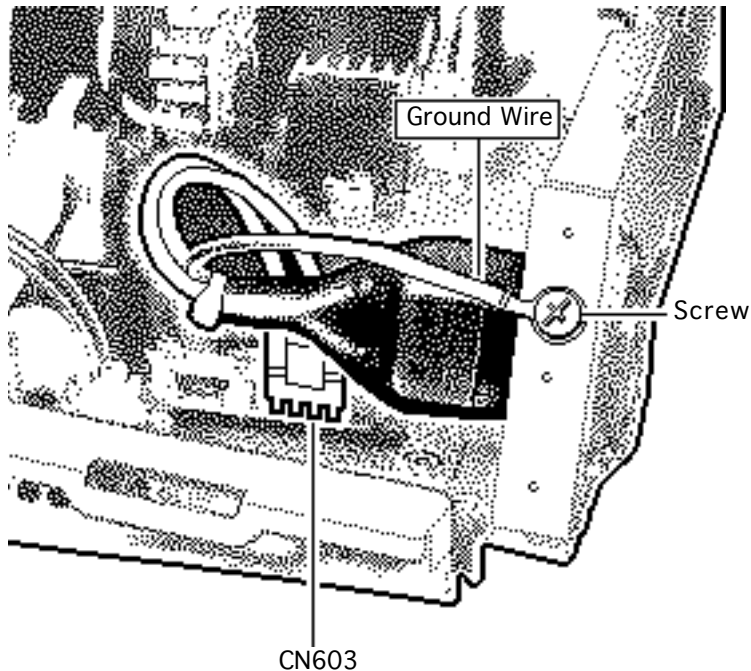
Before you begin,

- Remove the monitor stand
- Remove the rear cover
- Discharge the CRT
- Remove the EMI shield

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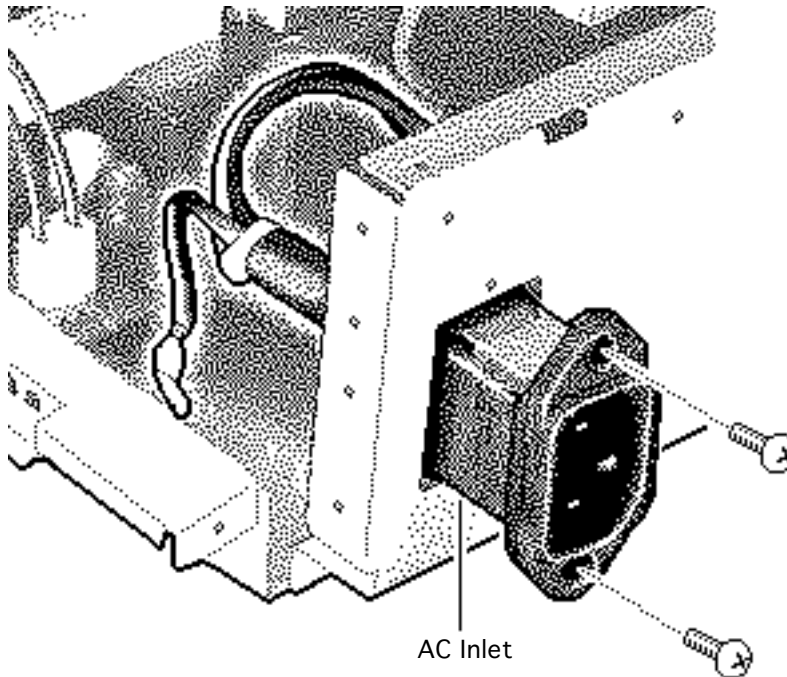
**⚠ Warning:** Never use a grounding wriststrap until after discharging the CRT.





- 1 Remove the screw (with captive lockwasher) and the inlet assembly ground wire from the chassis.
- 2 Disconnect the 2-wire power inlet cable from connector CN603 on the main deflection board.





- 3 Remove the two screws securing the AC inlet assembly to the chassis.
- 4 Pull the inlet assembly through the hole in the chassis.

**Replacement Note:**

When replacing the AC inlet assembly, insert the power inlet cable and ground wire through the chassis mounting hole before inserting the circuit card end of the AC inlet assembly.



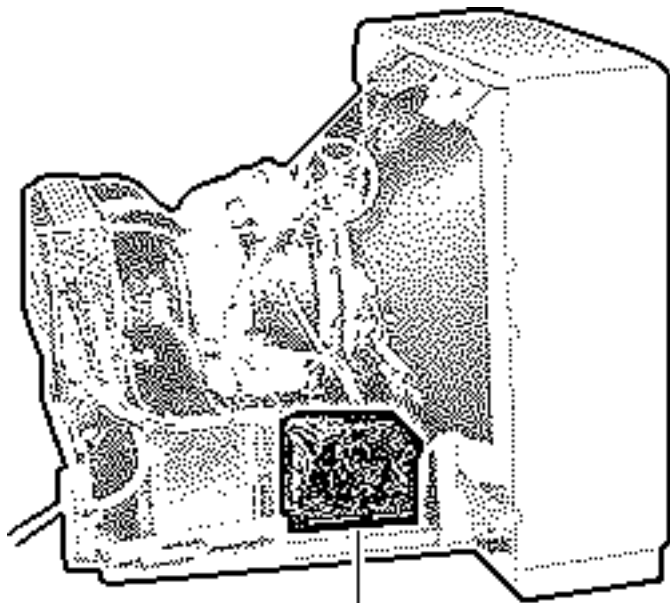


## Microprocessor Board

Before you begin,

- Save EEPROM settings
- Remove the monitor stand
- Remove the rear cover
- Discharge the CRT
- Remove the EMI shield

**Important:** Before you replace the microprocessor board, save the EEPROM settings. See Troubleshooting for instructions.



Microprocessor Board

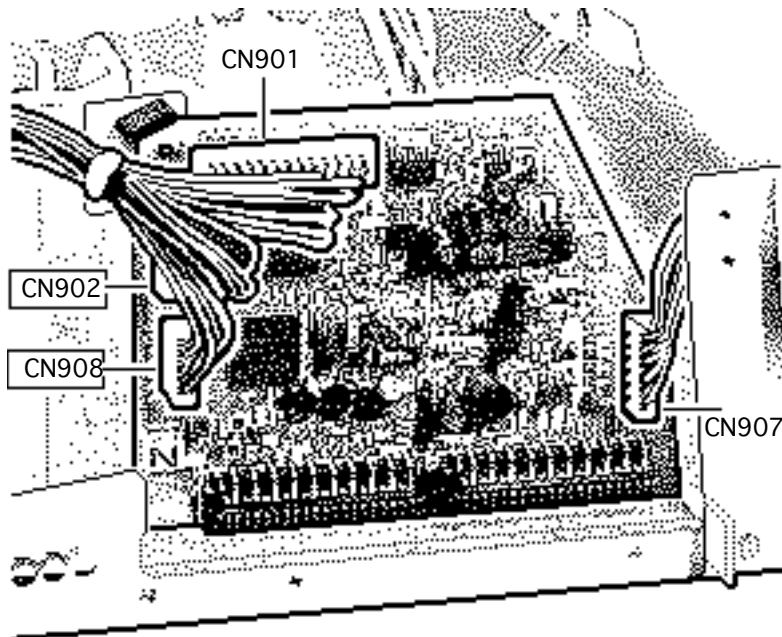




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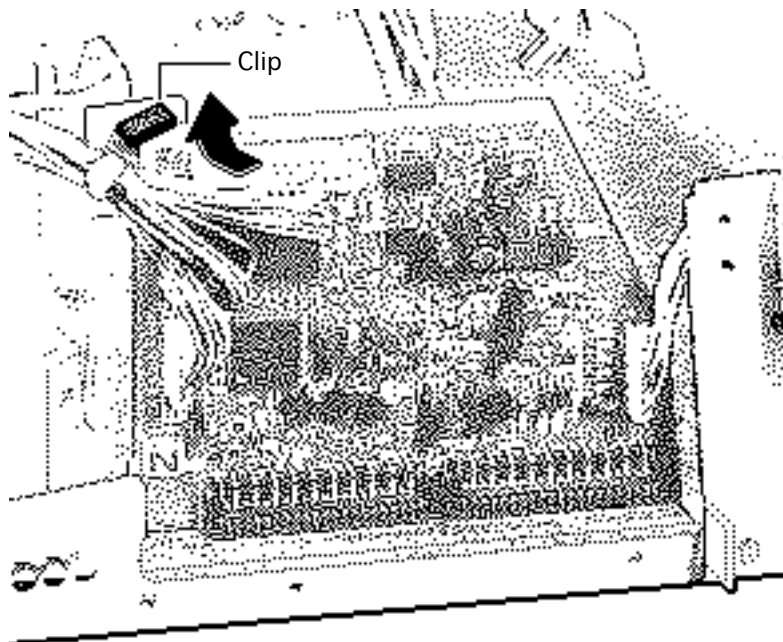
**Important:** Make sure you save the EEPROM settings before replacing the microprocessor board.

- 1 Disconnect these cables from the microprocessor board:
  - 13-wire cable (CN901)
  - 8-wire cable (CN902)
  - 5-wire cable (CN908)
  - 6-wire cable (CN907)

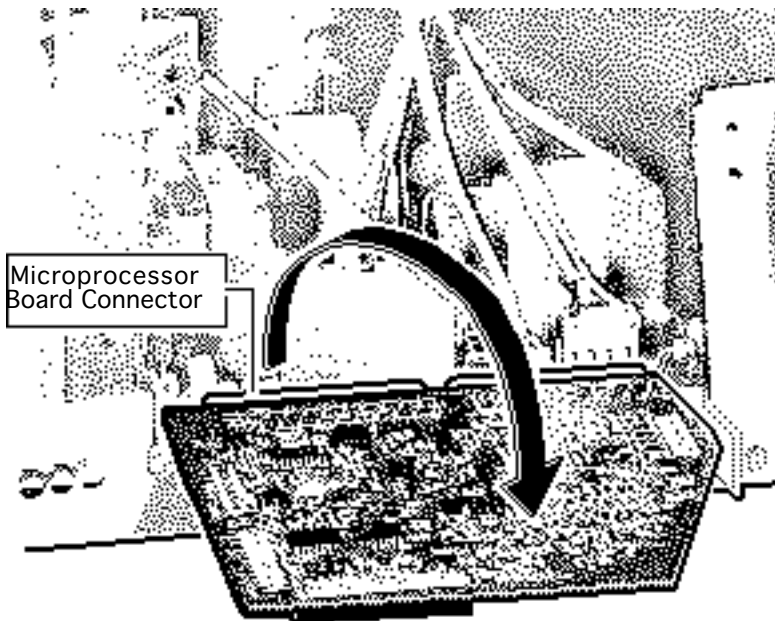




- 2 Release the plastic clip at the top of the microprocessor board.







- 3 Pivot the microprocessor board so it lies flat.
- 4 Pull the microprocessor board out from its mating connector and remove the board.



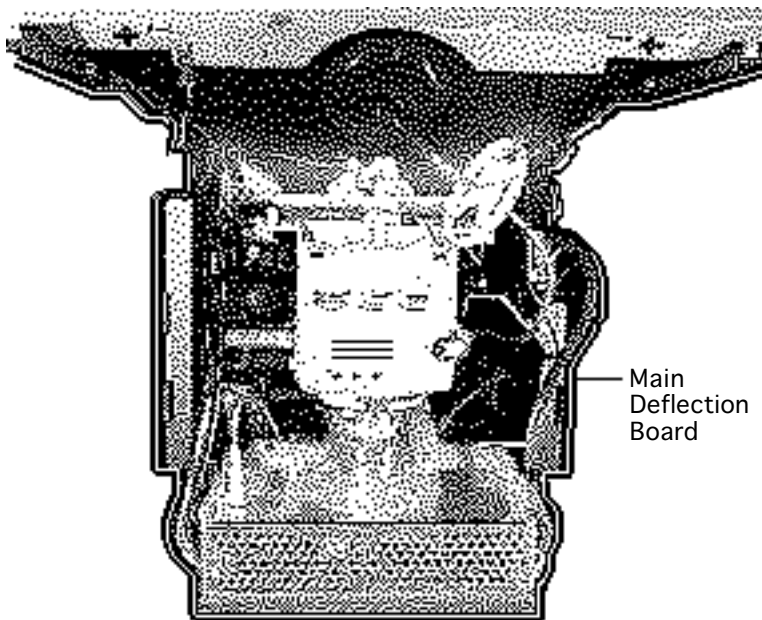


## Main Deflection Board

Before you begin,

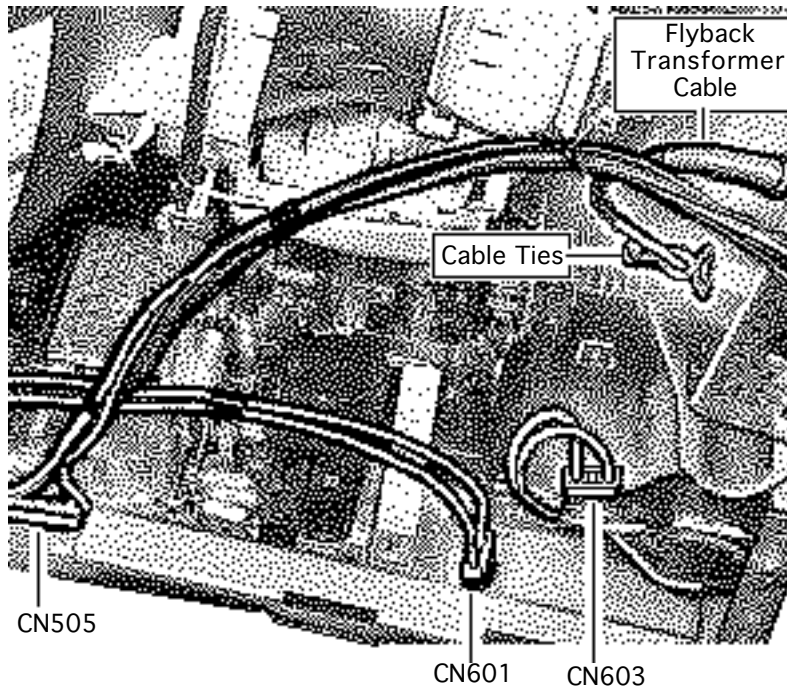
- Remove the monitor stand
- Remove the rear cover
- Discharge the CRT
- Disconnect the anode cap
- Remove the EMI shield
- Remove the microprocessor board

**Important:** If replacing the microprocessor board as well as the main deflection board, save the EEPROM settings before replacement.



Main  
Deflection  
Board



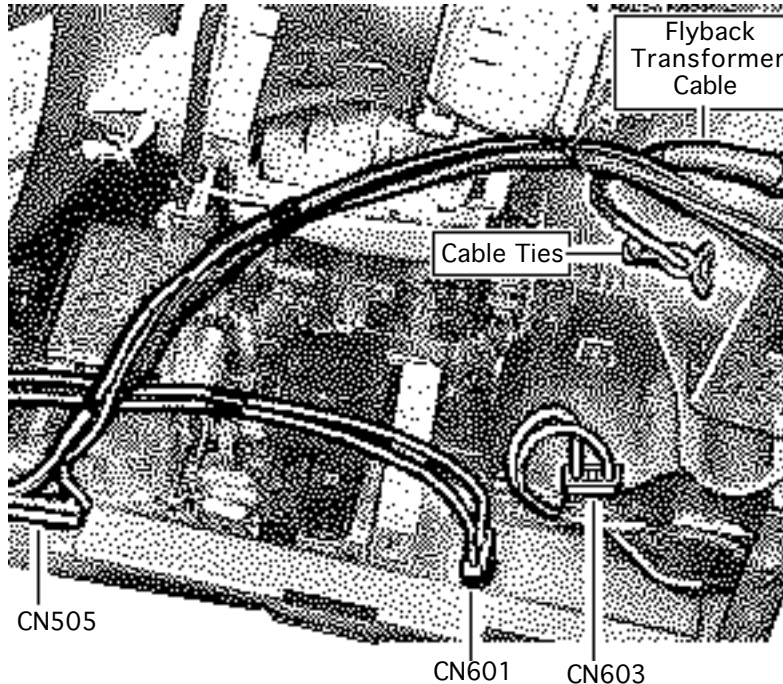


**⚠ Warning:** This product contains high voltage and a high-vacuum picture tube. To prevent serious injury, review CRT safety in Bulletins/Safety.

**⚠ Warning:** Never use a grounding wriststrap until after discharging the CRT.

- 1 Disconnect these cables from the main deflection board:
  - CN603
  - CN601
  - CN505



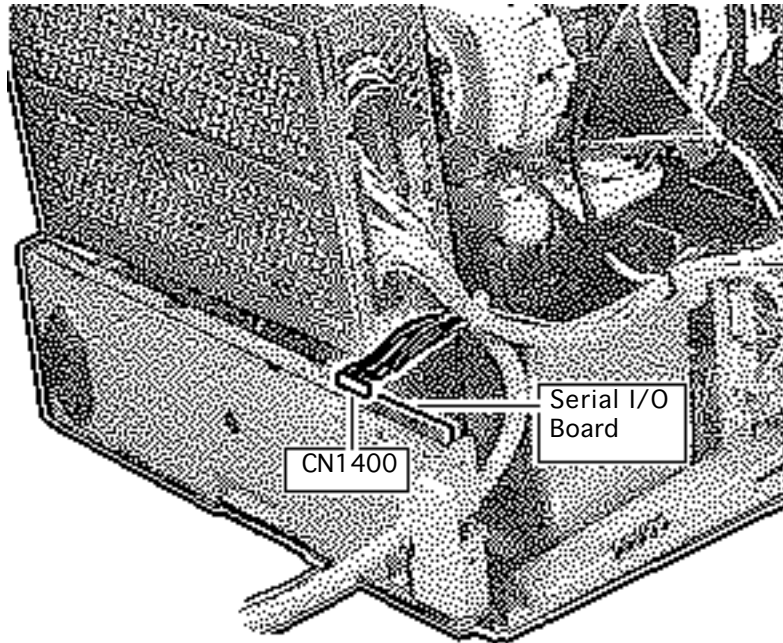


- 2 **Caution:** When removing the flyback transformer cable from the CRT/video board, avoid pressure on the neck of the CRT.

Disconnect the flyback transformer cable from the CRT/video board.

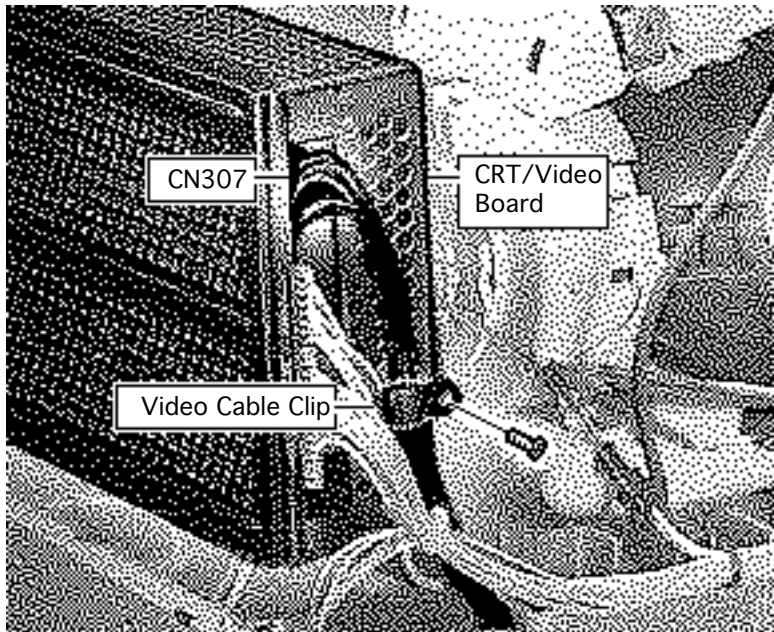
- 3 Remove the flyback transformer cable from the cable ties on the CRT/video board shield.





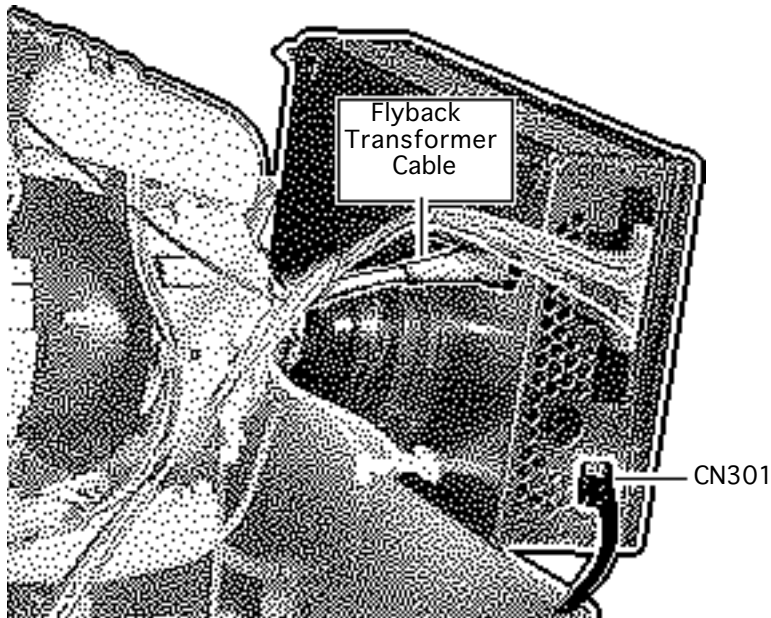
- 4 Disconnect connector CN1400 from the serial I/O board.





- 5 Disconnect the 9-wire video cable (CN307) from the CRT/video board.
- 6 Remove the screw securing the video cable clip to the CRT/video board shield.

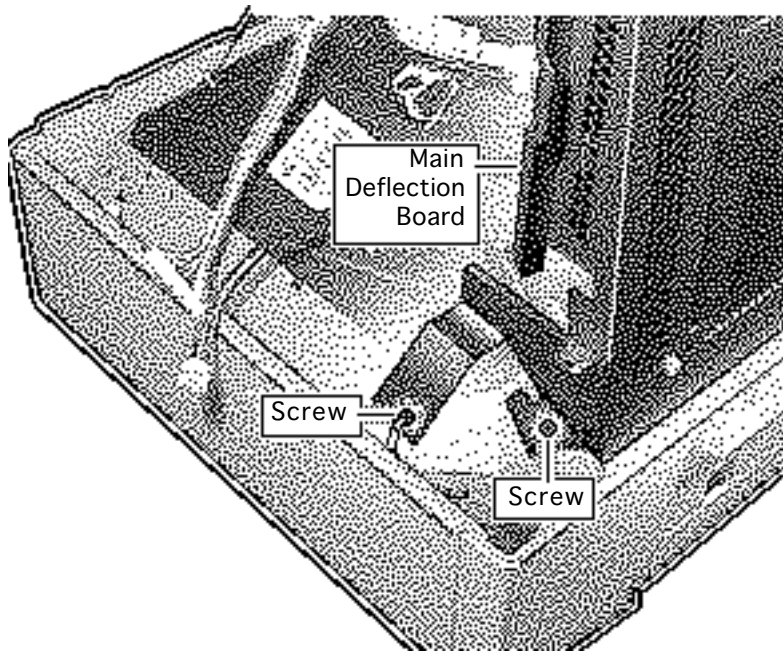




- 7 **Caution:** When removing the ground cable from the CRT/video board, avoid excessive pressure on the neck of the CRT.

Disconnect the 1-wire ground cable (CN301) from the CRT/video board.





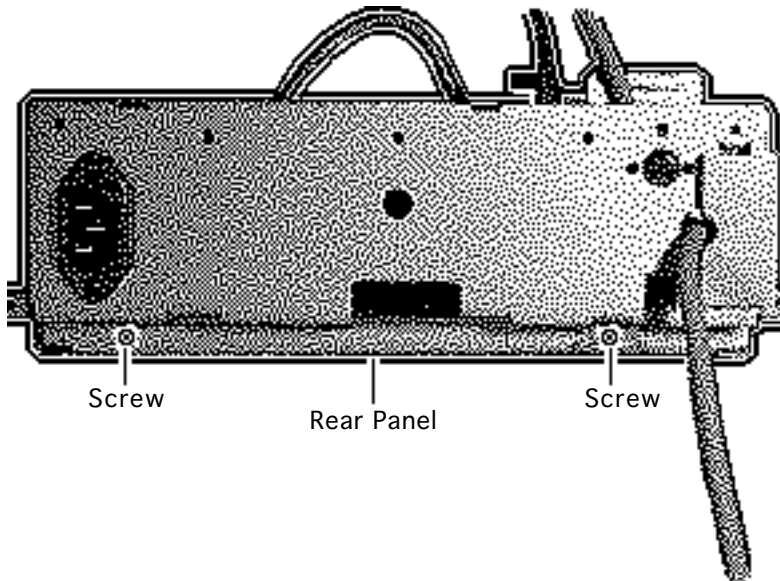
- 8 With the monitor face-down on a protective pad, remove the four screws securing the main deflection board to the housing.

**Note:** Only two screws are shown. The other two screws are on the right side of the main deflection board.

- 9 Lift out the main deflection board.







- 10 Remove the two screws securing the rear panel to the bottom chassis.
- 11 Remove the rear panel.



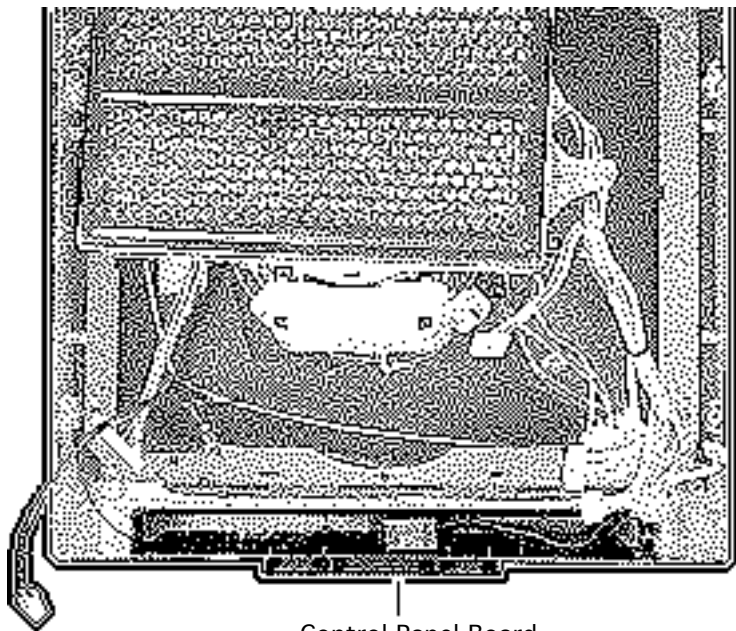


## Control Panel Board

Before you begin,

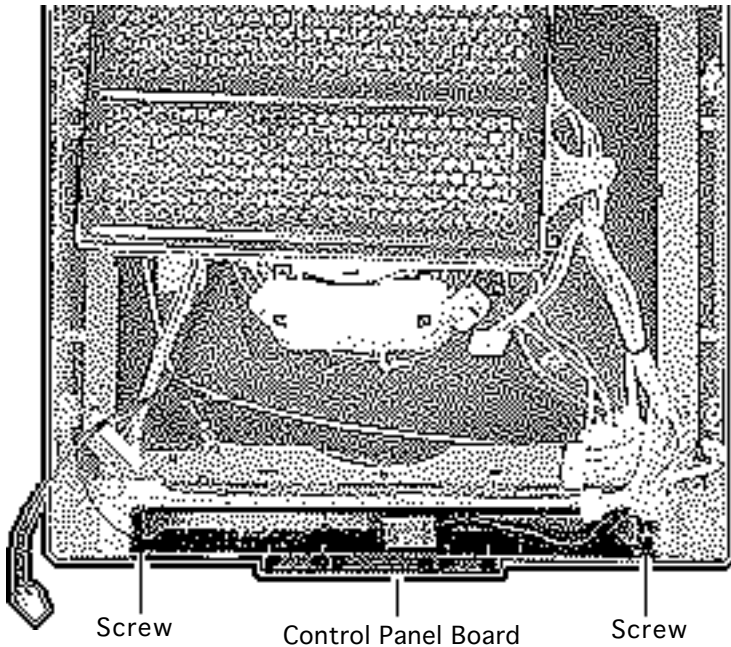
- Remove the monitor stand
- Remove the rear cover
- Discharge the CRT
- Disconnect the anode cap
- Remove the EMI shield
- Remove the main deflection board

**⚠ Warning:** This product contains high voltage and a high-vacuum picture tube. To prevent serious injury, review CRT safety in Bulletins/Safety.



Control Panel Board

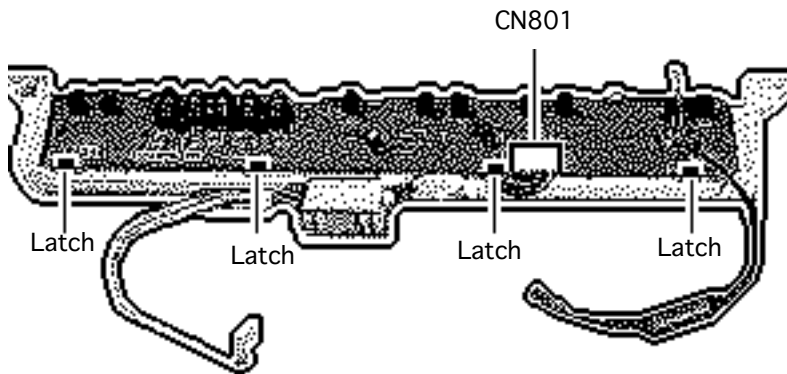




**⚠ Warning:** Never use a grounding wriststrap until after discharging the CRT.

- 1 Remove the two screws securing the control panel board support to the front bezel.
- 2 Lift out the control panel board and support.





- 3 Disconnect the control panel cable from the control panel board (CN801).
- 4 Simultaneously, release each of the four plastic latches at the rear of the control panel board and lift the board.





## Adjustments

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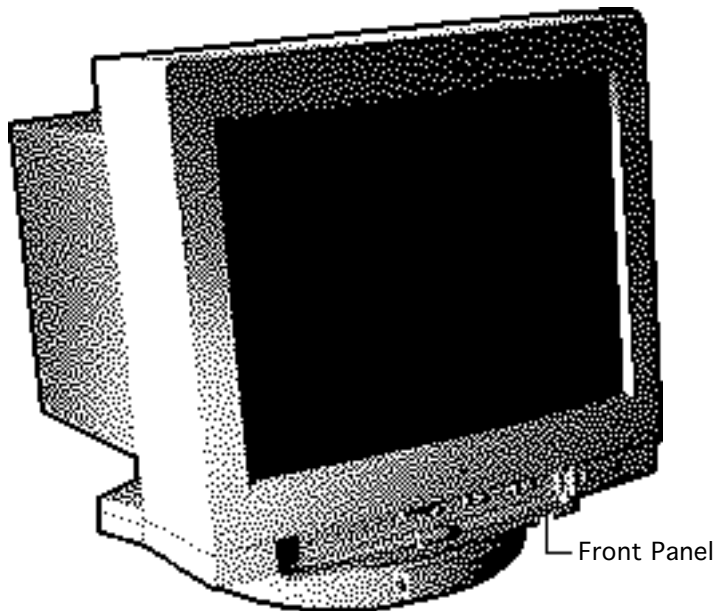
Apple Multiple Scan 17 Display





## Brightness and Contrast

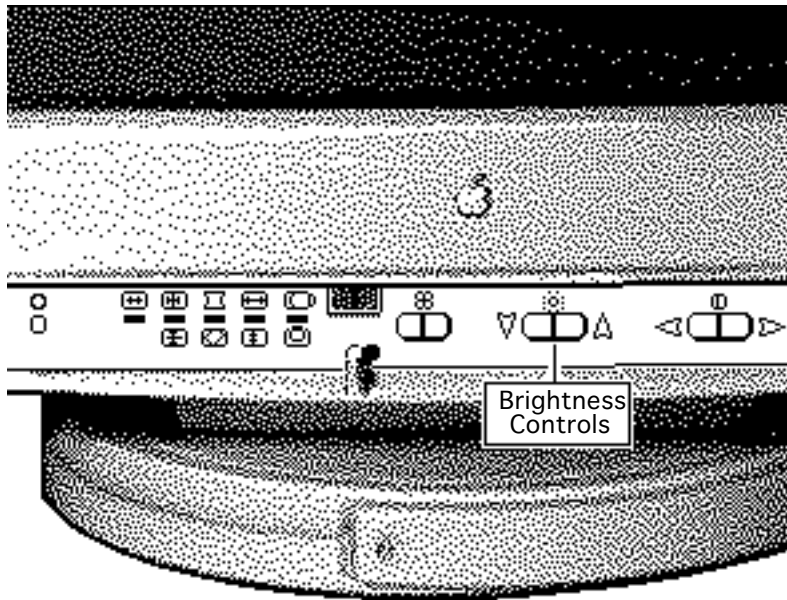
No preliminary steps are required before you begin this procedure.





## Brightness

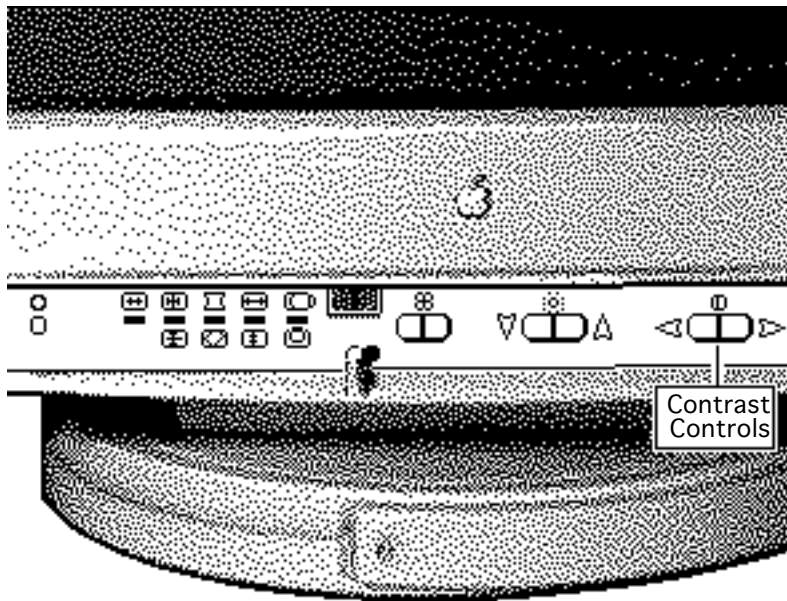
- 1 Press the up button to increase the brightness.
- 2 Press the down button to decrease the brightness.





## Contrast

- 1 Press the left button to decrease the contrast.
- 2 Press the right button to increase the contrast.

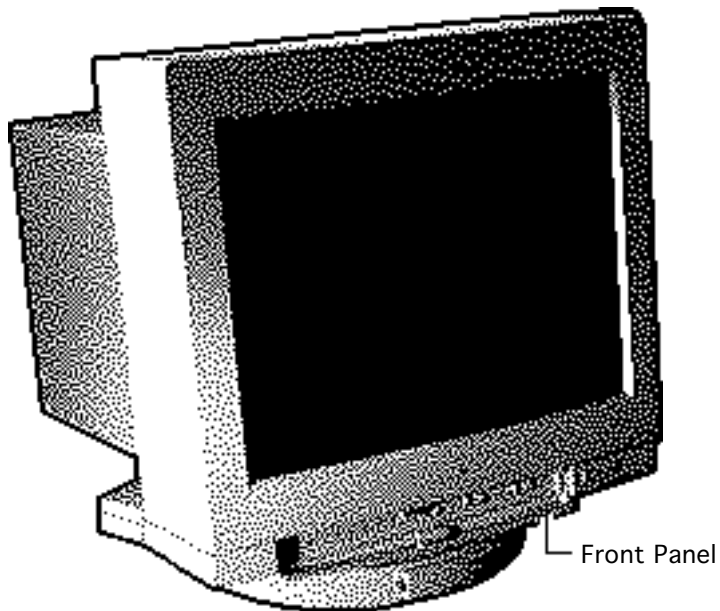


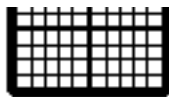




## Geometry

No preliminary steps are required before you begin this procedure.

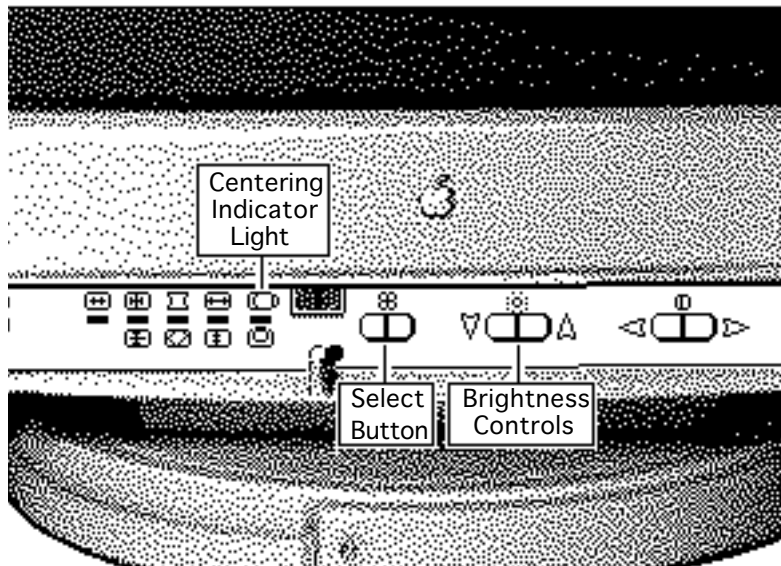




Crosshatch

## Vertical Center

- 1 Press the select button to turn on the centering indicator light.
- 2 Press the up or down button on the brightness controls to move the center of the picture up or down.

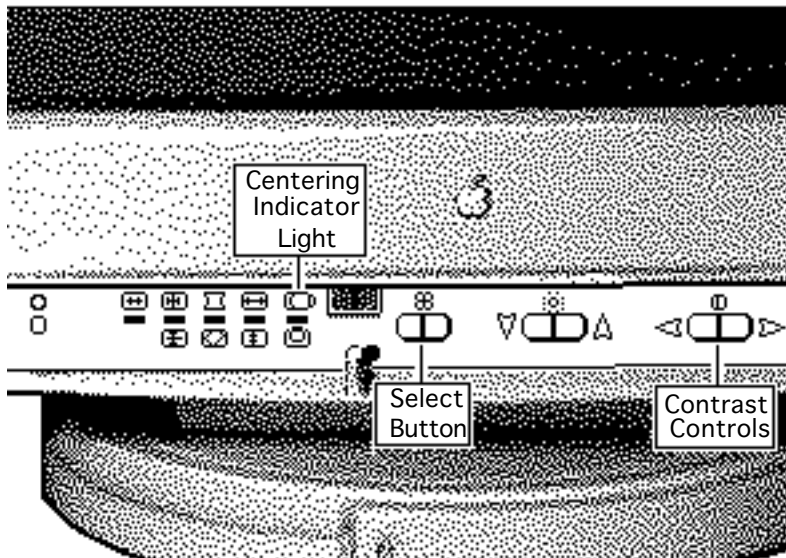


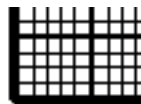


Crosshatch

## Horizontal Center

- 1 Press the select button to turn on the centering indicator light.
- 2 Press the left or right button on the contrast controls to move the center of the picture left or right.

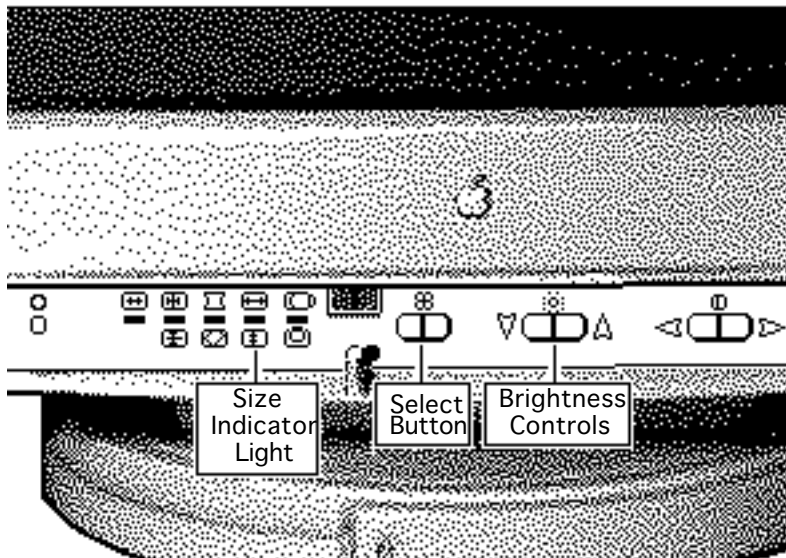




Crosshatch

## Vertical Size

- 1 Press the select button repeatedly until the size indicator light goes on.
- 2 Press the up or down button on the brightness controls to increase or decrease the size of the picture.

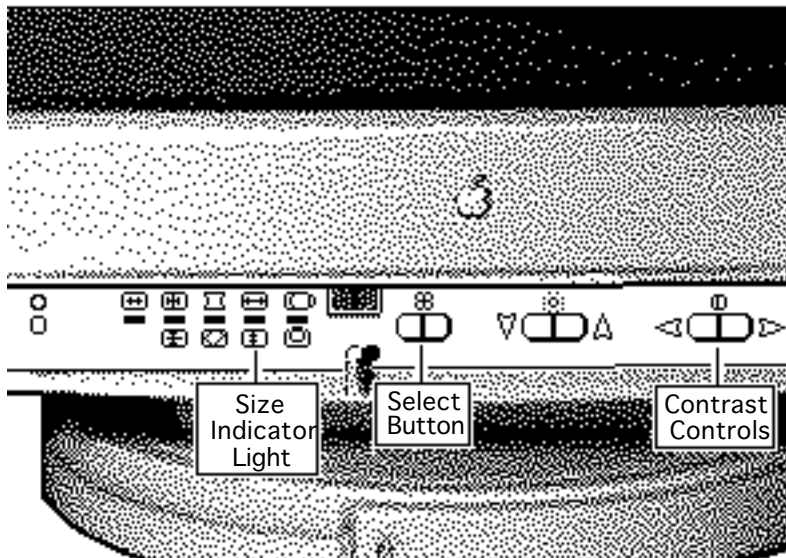


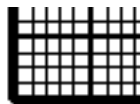


Crosshatch

## Horizontal Size

- 1 Press the select button repeatedly until the size indicator light goes on.
- 2 Press the left or right button on the contrast controls to decrease or increase the size of the picture.

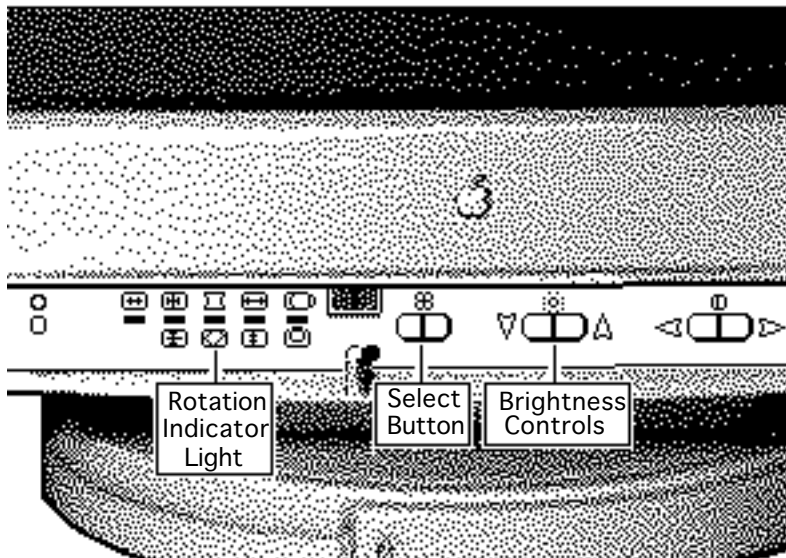


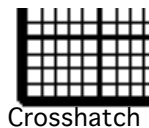


Crosshatch

## Rotation

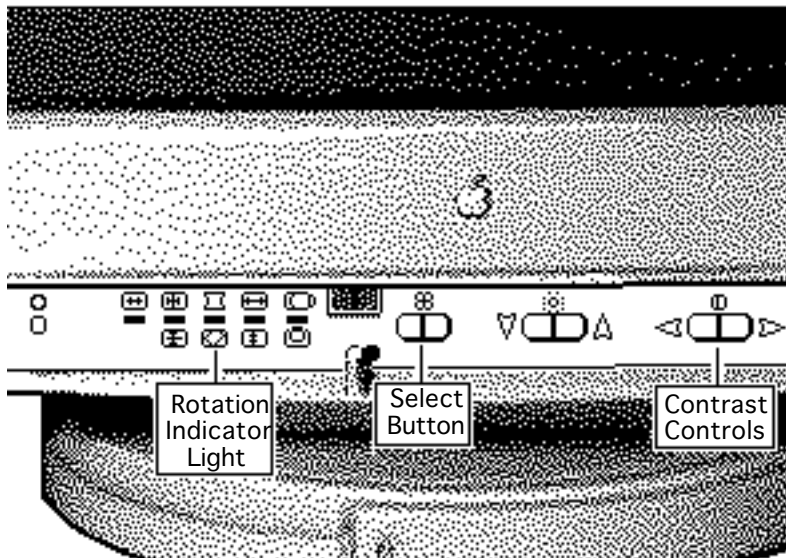
- 1 Press the select button repeatedly until the rotation indicator light goes on.
- 2 Press the up button on the brightness controls to tilt the picture clockwise.
- 3 Press the down button on the brightness controls to tilt the picture counterclockwise.





## Shape

- 1 Press the select button repeatedly until the rotation indicator light goes on.
- 2 Press the left button on the contrast controls to bring in the sides of the picture.
- 3 Press the right button on the contrast controls to expand the sides of the picture.

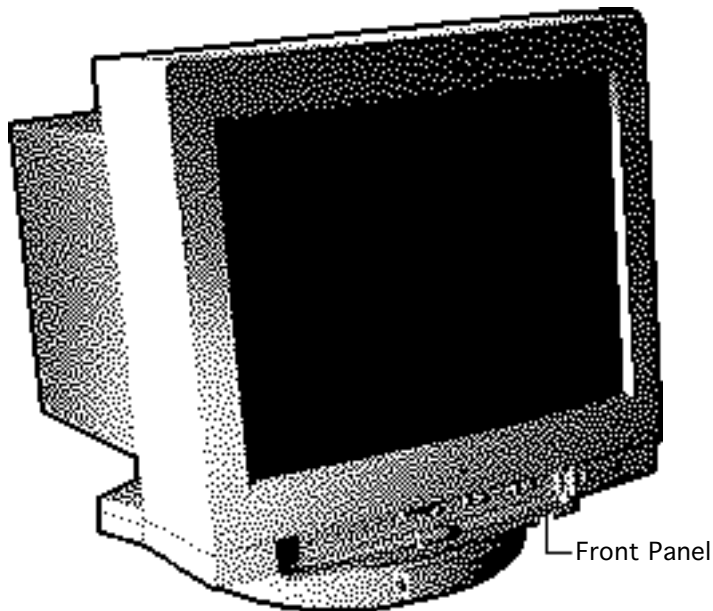




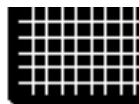
## Convergence

No preliminary steps are required before you begin this procedure.

**Note:** When the convergence is set properly, the picture is crisp and clear.



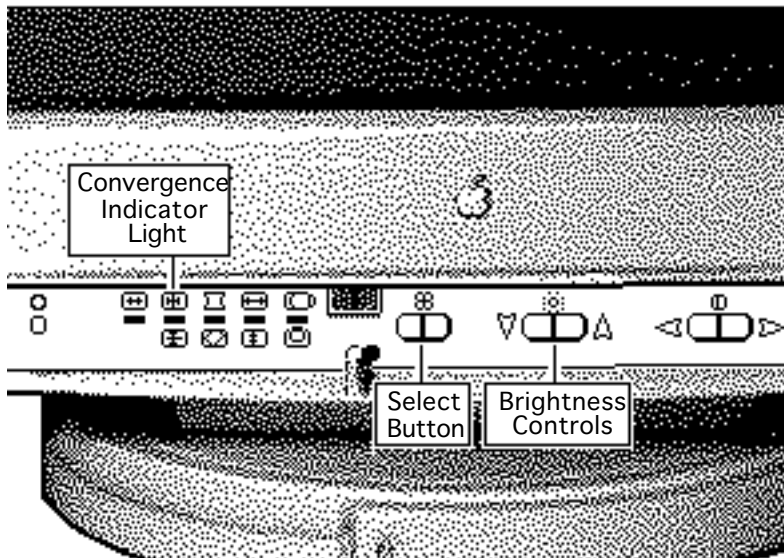


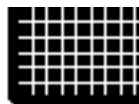


Crosshatch

## Vertical Convergence

- 1 Press the select button repeatedly until the convergence indicator light goes on.
- 2 Press the up button on the brightness controls to move the red signal up and the blue signal down.
- 3 Press the down button on the brightness controls to move the red signal down and the blue signal up.

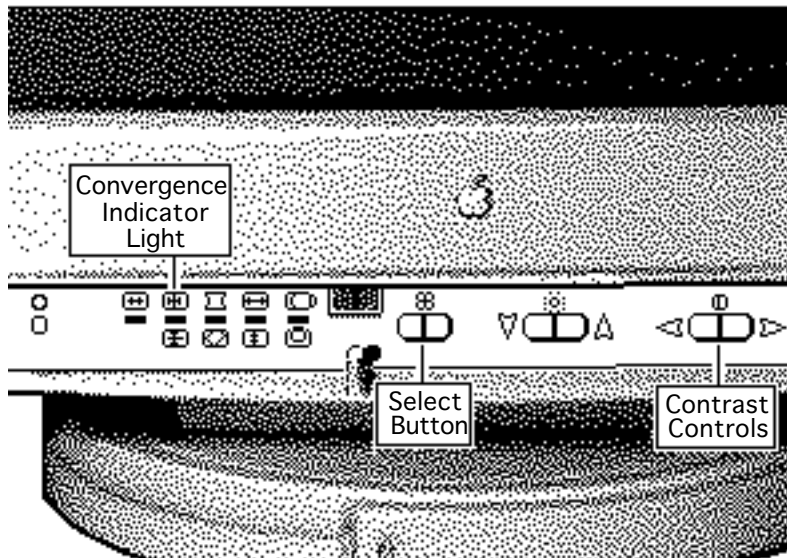




Crosshatch

## Horizontal Convergence

- 1 Press the select button repeatedly until the convergence indicator light goes on.
- 2 Press the left button on the contrast controls to move the red signal to the left and the blue signal to the right.
- 3 Press the right button on the contrast controls to move the red signal to the right and the blue signal to the left.



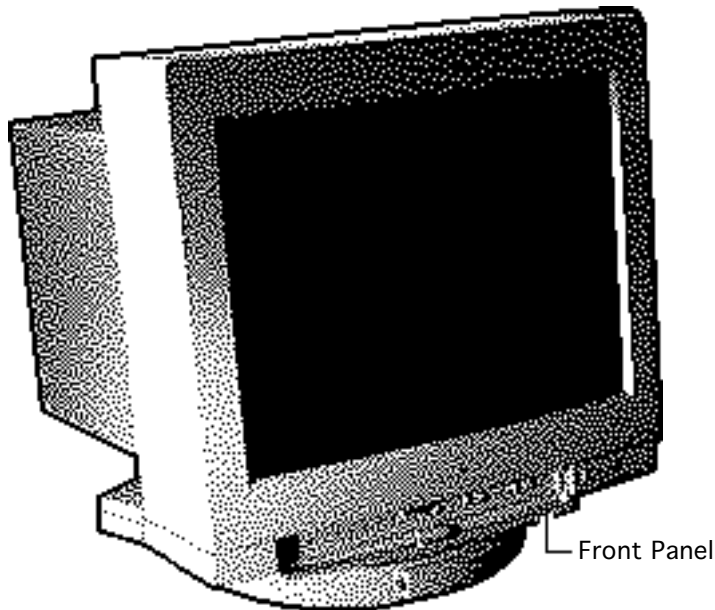


## Color Temperature

No preliminary steps are required before you begin this procedure.

Color temperature refers to the intensity of the red/green/blue signals sent to the monitor. The color temperature settings are

- 9300 K: white appears bluish (default)
- 6500 K: white appears page white
- 5000 K: white appears reddish





Color temperature can be changed to accommodate preference or application specifications.

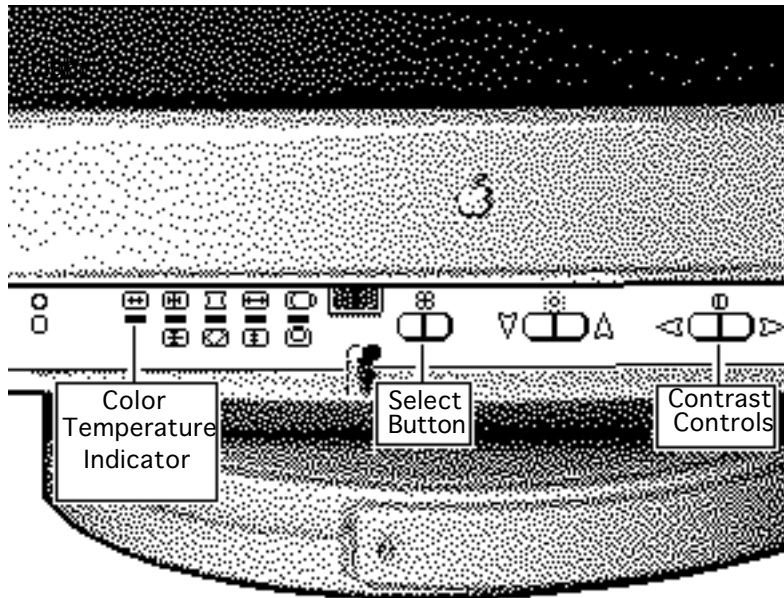


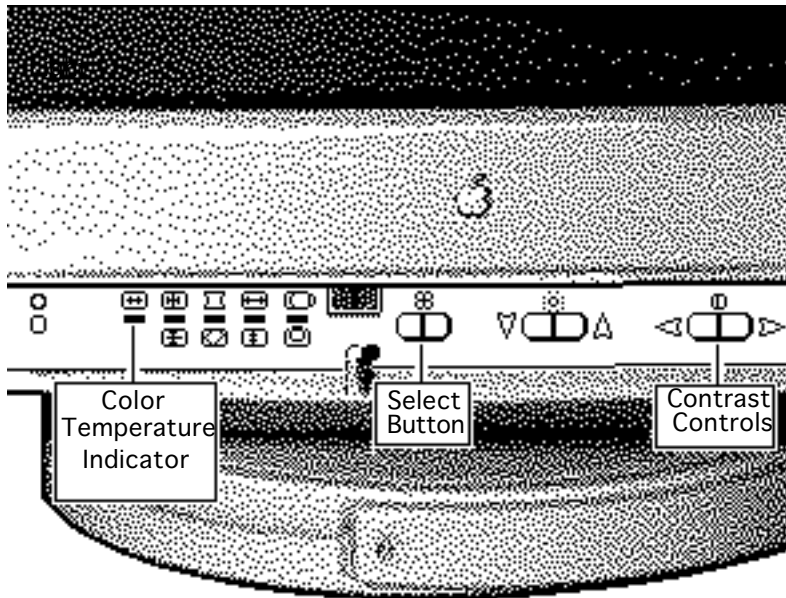


- 1 Press the select button repeatedly until the color temperature indicator light goes on.

**Note:** The indicator may or may not blink, depending on the color temperature selected:

- A steady light indicates 9300 K
- A slow blinking light indicates 6500 K
- A fast blinking light indicates 5000 K





- 2 Press the left button on the contrast controls to decrease the color temperature.
- 3 Press the right button on the contrast controls to increase the color temperature.

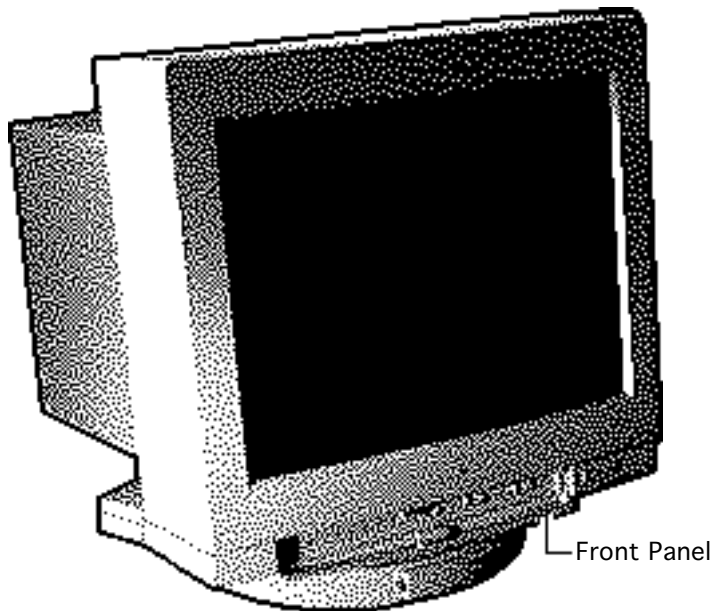




## Factory Settings

No preliminary steps are required before you begin this procedure.

**Important:** The controls for the monitor are set at the factory. To fine-tune and adjust the picture, use the front panel controls. The monitor will use your settings each time the computer is turned on. Use the recall function to return to factory settings.

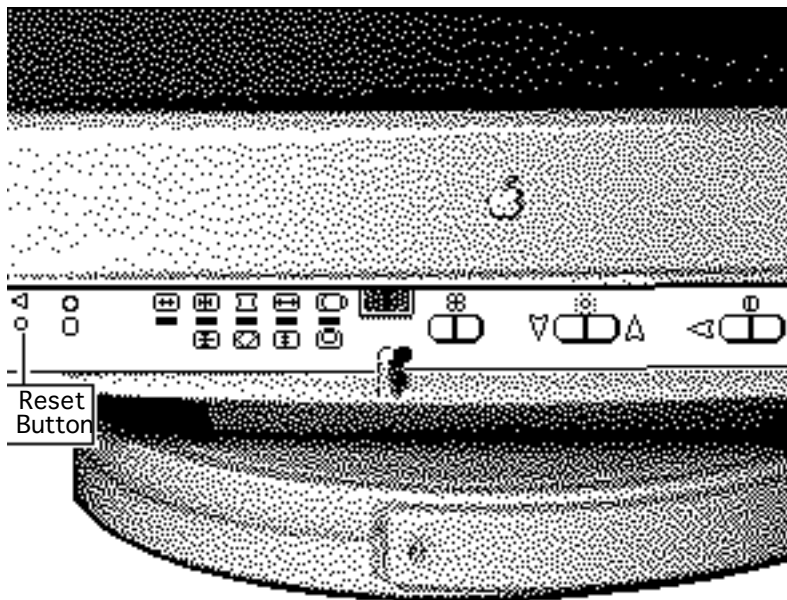




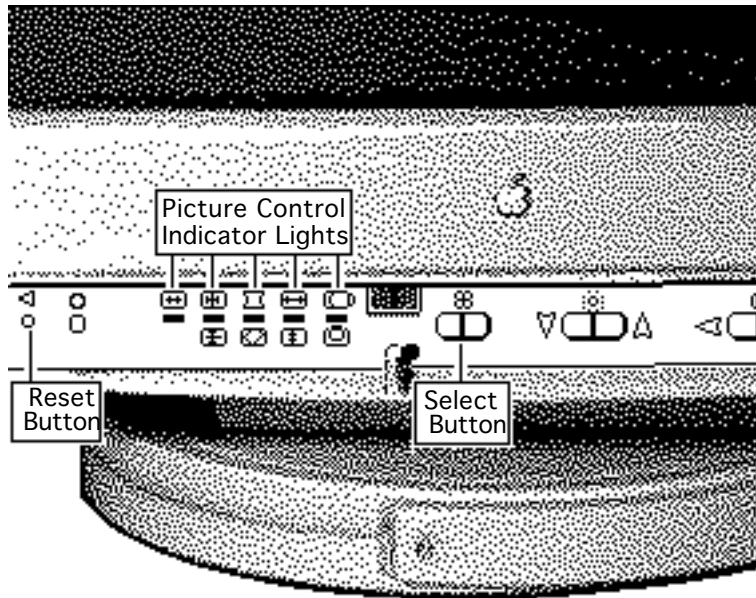
## Recall

**Note:** You can reset brightness and contrast to their factory levels; however, you cannot reset one or the other. You must reset both controls.

Use a straightened paper clip to push in the reset button.







## Reset a Specific Control

- 1 Press the select button repeatedly until the indicator light of the picture control you want to reset (vertical or horizontal center, convergence, or color temperature) goes on.
- 2 Use a straightened paper clip to push in the reset button.

The selected picture control is reset to its original level.

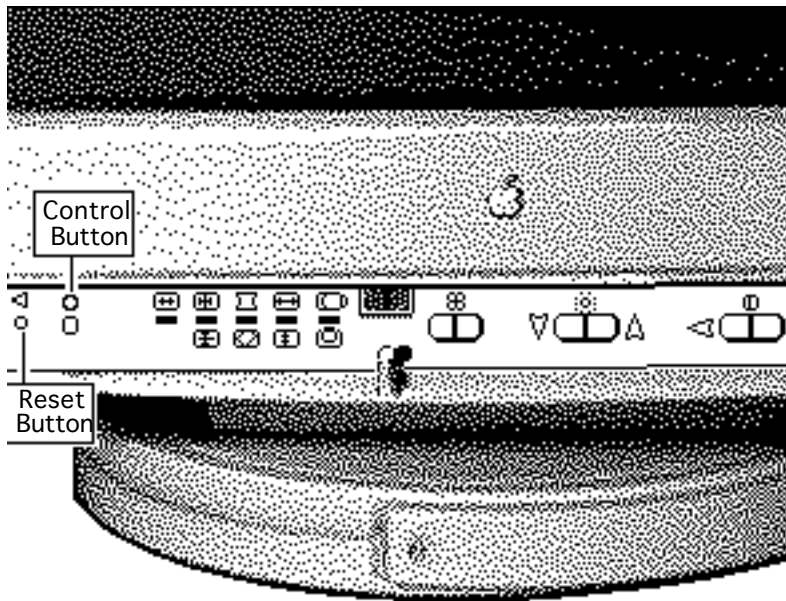




## Reset All Controls

While holding down the control button, push in the reset button with a straightened paper clip.

All picture controls are reset to their factory levels.





Exploded View

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Apple Multiple Scan 17 Display



