CHAPTER

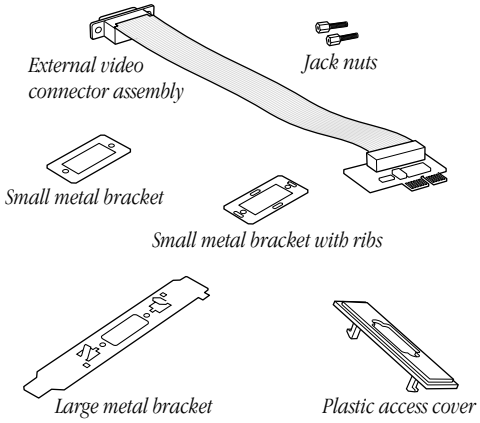
# 1

## Getting Started

When you install the Apple External Video Connector Kit, you add a video connector (sometimes called a *monitor-out port*) to your computer. You can connect a second monitor, the Apple Presentation System, or a liquid crystal display (LCD) panel to the external video connector.

## Do you have what you need?

Check your package to make sure you have the external video connector assembly, large metal bracket, plastic access cover, two small metal brackets, and two jack nuts.




You also need a screwdriver to open your computer.

What you do next depends on what type of computer you have:

- If you have a 5400 series Macintosh computer, such as the Macintosh Performa 5400 or the Power Macintosh 5400, go to Chapter 2.
- If you have a 5200 series or 5300 series Macintosh desktop computer, go to Chapter 3.
- If you have a Macintosh LC 580 computer, go to Chapter 4.

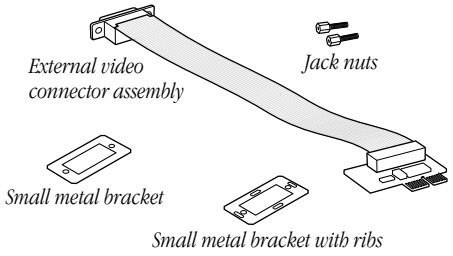
CHAPTER

# 2

# Installing the Apple External Video Connector in a 5400 Series Macintosh Computer

Follow the instructions in this chapter to install the external video connector kit in a 5400 series Macintosh computer.

For this installation, you need the following parts: the video connector assembly, two jacknuts, and two small metal brackets. (One of the brackets has four ribs on it. The other one is plain.)




You won't need other parts in the package. They are for installing the external video connector kit in other computer models.

## Opening the computer

1 If your computer is on, choose Shut Down from the Special menu, or press the Power key on the keyboard.

Keep your computer plugged in to a three-hole grounded outlet to ground the computer and protect it from electrical damage.

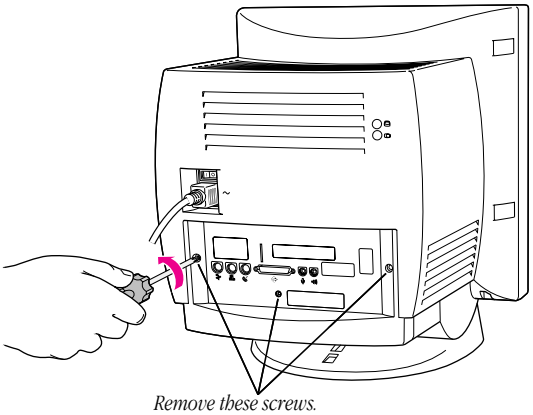
**Important** To avoid generating static electricity that may damage components, do not walk around the room until you have completed the installation of the connector and closed the computer. Additionally, move the logic board as little as possible while it is outside the computer.

2 Turn the computer completely off by pressing the power switch on the back of the computer.

Press the side of the switch marked with the ○ symbol.

3 Unplug the cable that connects your keyboard to the computer.

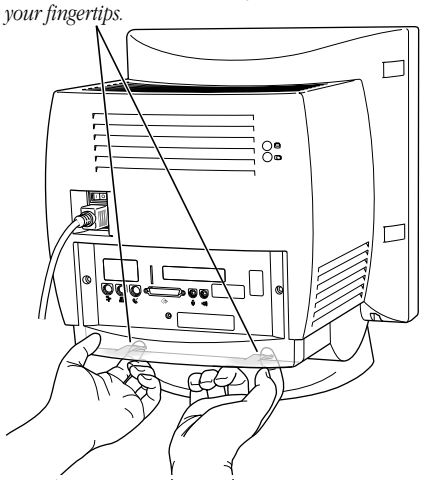
**4** Remove the security screws on the computer's back panel with a screwdriver.



*Remove these screws.*
*(Your computer may have only two screws.)*

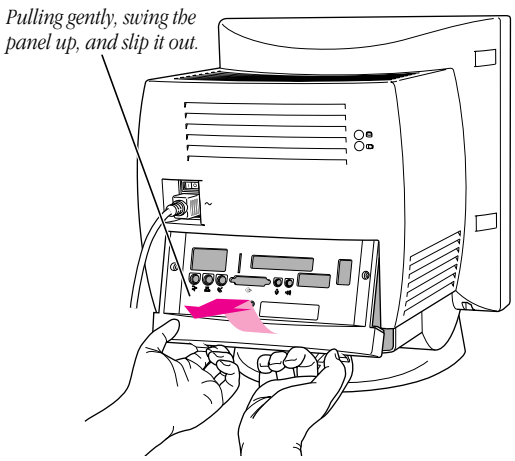
**5** With your fingertips, find the two latches on the underside of the computer's case.

*Locate the two latches on the underside of the computer's case with your fingertips.*



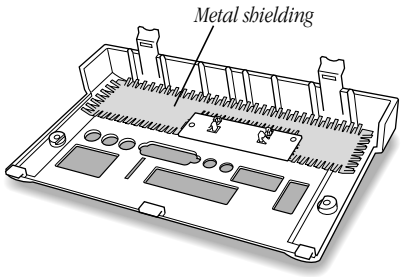
**6** Pull gently on the latches.

**7** Swing the panel up and slip it out.



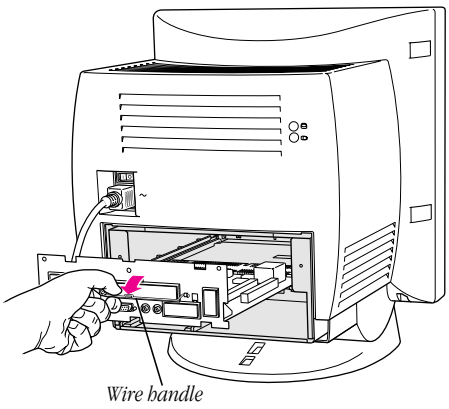

**8** Carefully set the panel aside.

To protect the metal shielding on the inside of the panel, lay down the panel so that the metal shielding faces up.



**9** Swing the wire handle out from its storage position. Then grasp the handle and gently but firmly pull it toward you.

The vertical plate and the logic board to which it's attached slide all the way out of the computer.




**10** Place the logic board on top of a magazine on a stable, clean, flat surface.

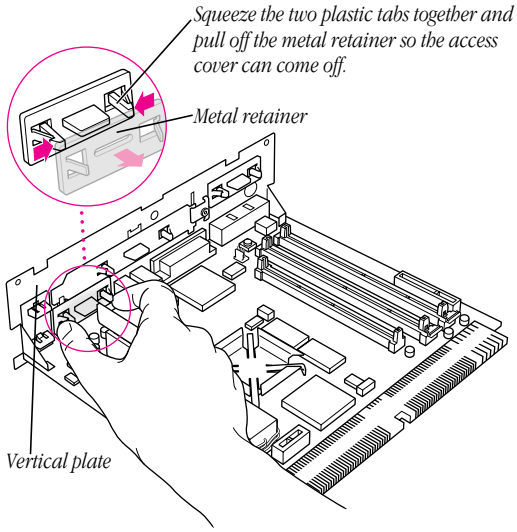
The magazine will protect the bottom of the logic board and prevent it from scratching your working surface.

***Remember:*** Don't walk around the room until you have completed the installation of the connector and closed the computer. Move the logic board as little as possible while it is outside the computer.

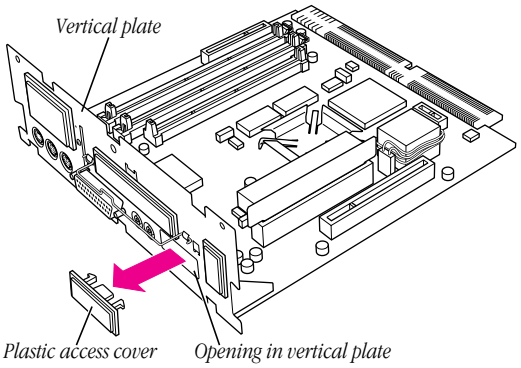
## Removing the access cover

**1** Remove the small plastic access cover and the metal retainer from the vertical plate.

Be sure to remove the correct access cover—the one shown in the illustration below. Squeeze the two plastic tabs together and pull the metal retainer so the access cover comes off.



**2** Push the cover out. Set it aside.



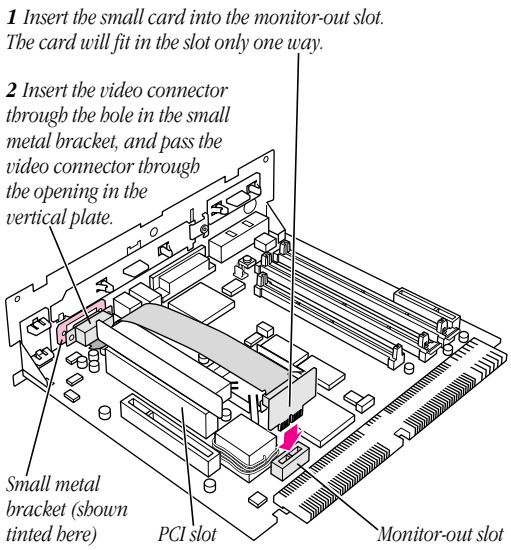

**Note** Be sure to keep the plastic access cover and the metal retainer; don't throw them away. If you ever remove the external video connector, you should replace the access cover and the retainer on your computer.

## Installing the external video connector assembly

**1** Insert the small card at the end of the external video connector assembly into the monitor-out slot on the logic board. The card will fit in the slot only one way.

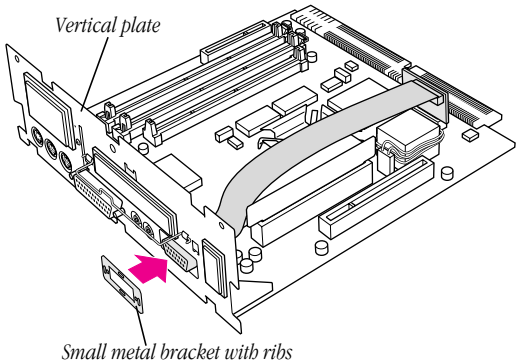
**2** Place the small metal bracket (the one without the ribs) over the port on the other end of the video connector assembly. Then insert the port through the opening on the vertical plate.

If you already have an expansion card installed in the computer's PCI slot, lay the cable over (not under) the expansion card.



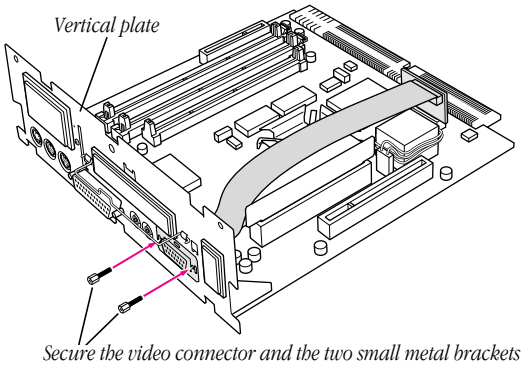
**3** Place the small metal bracket with ribs over the port on the other side of the vertical plate.

Make sure the ribs face inward so that they help align the port in the port opening.



**4** Insert the jack nuts into the small holes on either side of the video connector and tighten them.

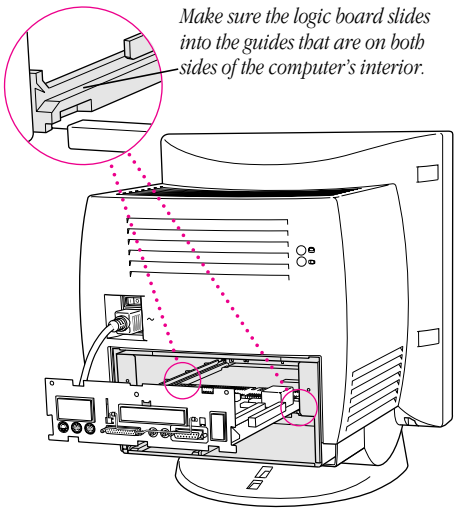
This secures the connector to the vertical plate.




*Secure the video connector and the two small metal brackets by installing the two jack nuts with your fingers. You can tighten them with either a small wrench or nutdriver.*

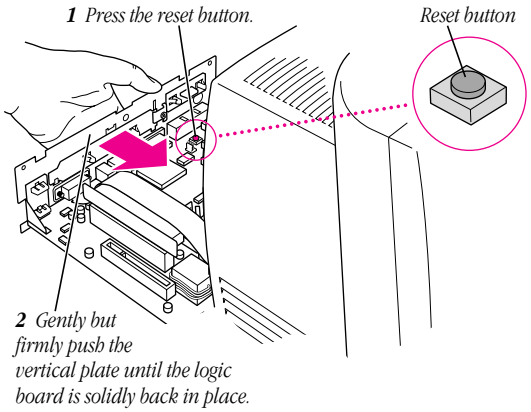
## Closing the computer

**1** Slip the base of the logic board into the guide rails inside the computer's case.

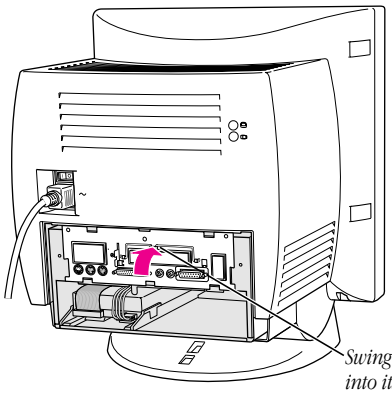


**2** Press the reset button on the logic board and then slide the logic board back into the computer.

**Note** When you press the reset button, some of your computer's software settings will change. You may want to open the control panels for the date and time, keyboard, and mouse to make sure that they are set the way you want them. For more information about working with control panels, see Macintosh Guide, the on-screen help that's available in the Guide (?) menu.



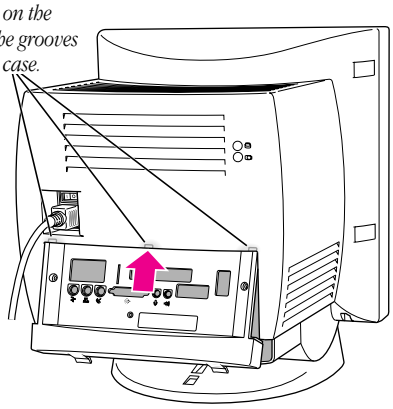
**3** Swing the wire handle back into its storage position.



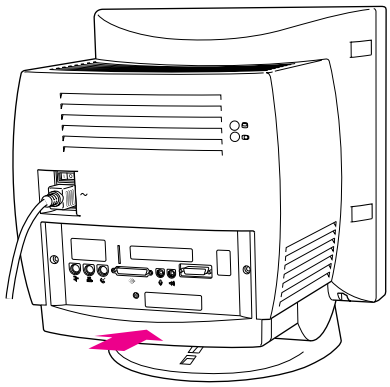
*Swing the handle up, into its storage position.*

**4** Slip the three tabs at the top of the back panel into the grooves in the computer's case.

*Slip the three tabs on the back panel into the grooves in the computer's case.*

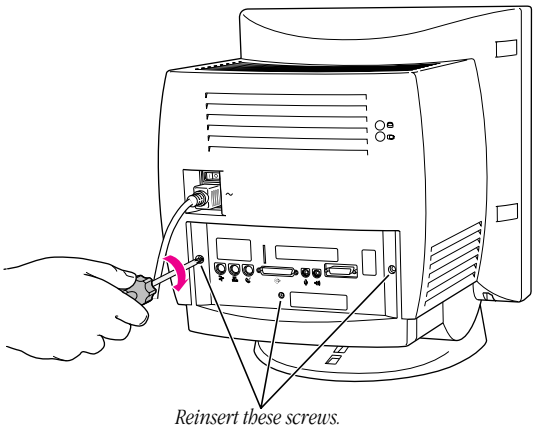


**5** Snap the base of the back panel into place.



*Snap the plastic back panel into place.*

**6** Reinsert the security screws.



*Reinsert these screws.*

7 Reconnect the cables you disconnected at the beginning of this process.

8 Turn on the power switch on the back of the computer.

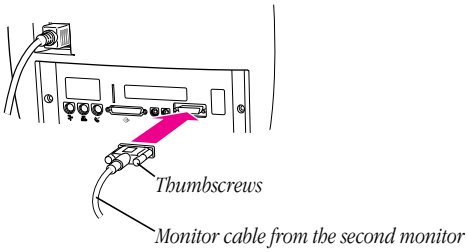
The external video connector is now installed.

*Reminder:* When you turn on your computer, don't forget to open the control panels for the date and time, keyboard, and mouse to make sure that they are set the way you want them. (Pressing the reset button on the logic board changed these settings.) For more information about working with control panels, see Macintosh Guide, the on-screen help that's available in the Guide (?) menu.

## Connecting a second monitor or display to the external video connector

By connecting a second monitor, a liquid crystal display (LCD) panel, or the Apple Presentation System to the external video connector, you can simultaneously display on a second device the images shown on your computer screen. The instructions below are specifically for connecting a second monitor, but step one is basically the same for connecting an LCD panel or the Apple Presentation System. (For further information about connecting an LCD panel, follow the instructions that came with the panel.)

1 Attach the second monitor's monitor cable to the external video connector and tighten the thumbscrews.




2 Plug the monitor into a power source.

3 Turn the monitor on.

On Apple monitors, the power switch is located on either the front or the back of the monitor. See the manual that came with the monitor.

The second monitor is ready to use.

You can turn your computer back on now.

**Warning** Never turn on your computer unless all of its internal and external parts are in place. Operating the computer when it is open or missing parts can be dangerous, and can damage your computer.

CHAPTER

# 3

# Installing the Apple External Video Connector in a 5200 Series or 5300 Series Macintosh Computer

To install the external video connector kit in a 5200 series or 5300 series Macintosh desktop computer, follow the instructions in this chapter.

## Opening the computer

1 If your computer is on, choose Shut Down from the Special menu, or press the Power key on the keyboard.

Keep your computer plugged into a three-hole grounded outlet to ground the computer and protect it from electrical damage.

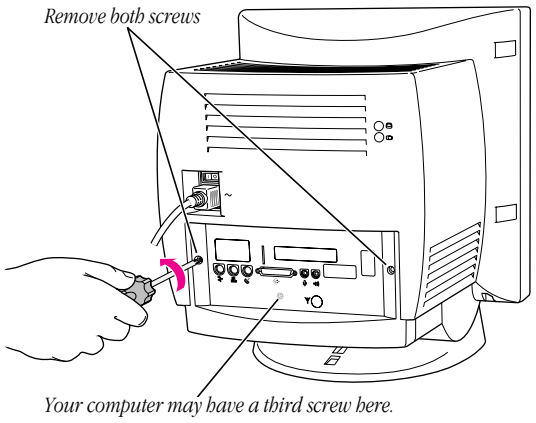
**Important** To avoid generating static electricity that may damage components, do not walk around the room until you have completed the installation of the connector and closed the computer. Additionally, move the logic board as little as possible while it is outside the computer.

2 Turn the computer completely off by pressing the power switch at the back of the computer.

Press the side of the switch marked with the ○ symbol.

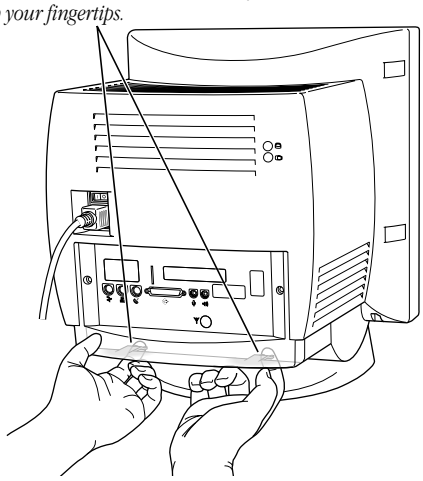
3 Unplug the cable that connects your keyboard to the computer.

4 Remove the security screws on either side of the computer's back panel with a screwdriver.



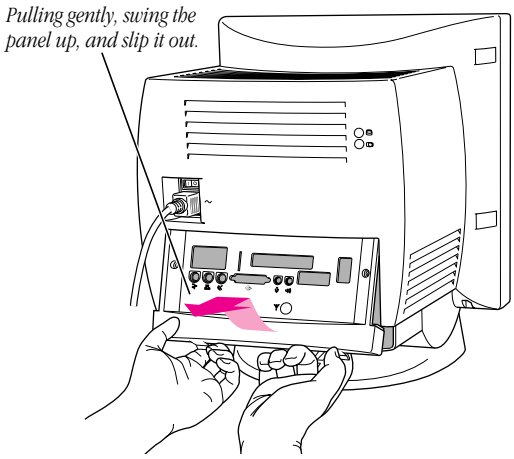
**5** With your fingertips, find the two latches on the underside of the computer's case.

*Locate the two latches on the underside of the computer's case with your fingertips.*



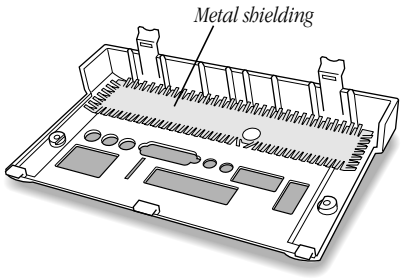
**6** Pull gently on the latches.

**7** Swing the panel up and slip it out. Set the panel aside.



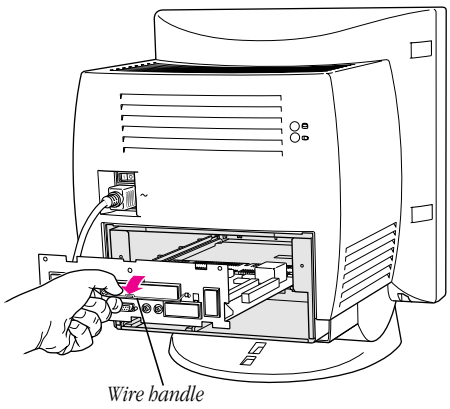

**8** Carefully set the panel aside.

To protect the metal shielding on the inside of the panel, lay down the panel so that the metal shielding faces up.



**9** Swing the wire handle out from its storage position. Then grasp the handle and gently but firmly pull it toward you.

The vertical plate and the logic board to which it's attached slide all the way out of the computer.




**10** Place the logic board on top of a magazine on a stable, clean, flat surface.

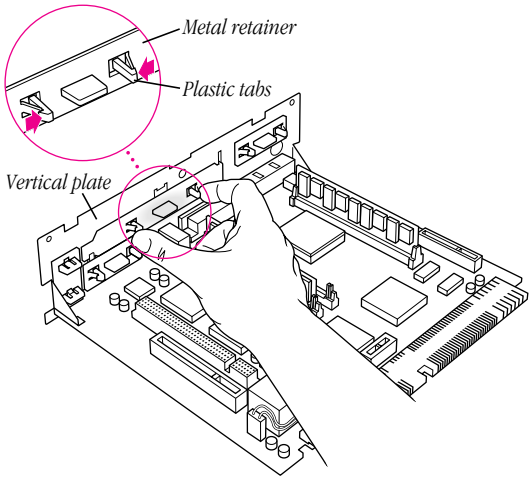
The magazine will protect the bottom of the logic board and prevent it from scratching your working surface.

***Remember:*** Don't walk around the room until you have completed the installation of the connector and closed the computer. Move the logic board as little as possible while it is outside the computer.

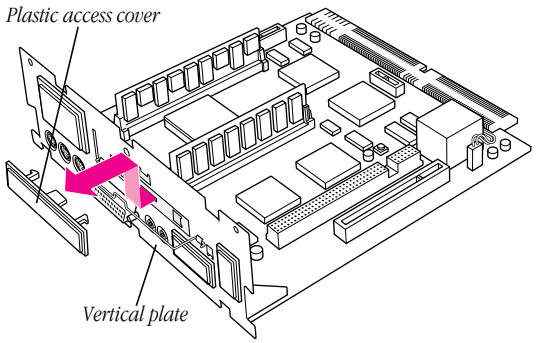
## Installing the metal bracket

**1** Remove the plastic access cover from the vertical plate.

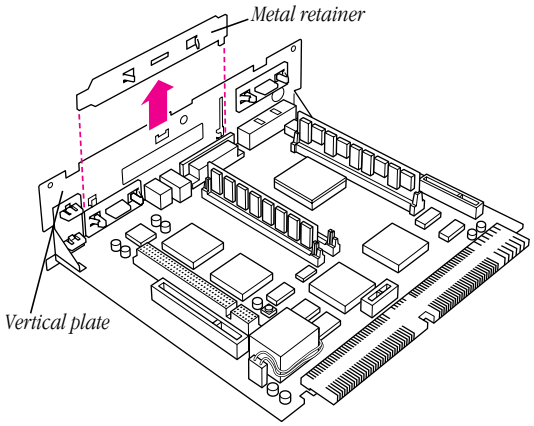
Squeeze the two plastic tabs together and pull the metal retainer so the access cover comes off.



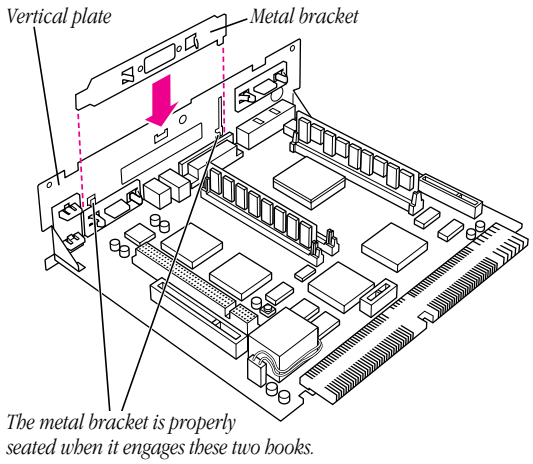
**2** Push the cover out. Set it aside.




**3** Lift the metal retainer up and out. Set it aside.



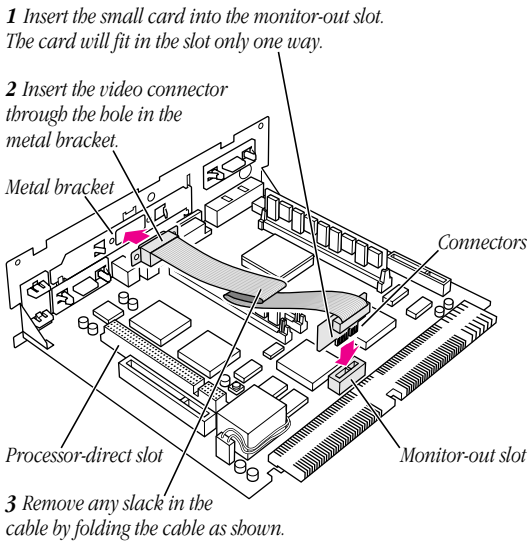
**4** Insert the metal bracket that came with your external video connector kit. Make sure the bottom of the bracket engages the two small hooks on the logic board's vertical plate.



## Installing the external video connector assembly

**1** Insert the small card at the end of the external video connector assembly into the monitor-out slot on the logic board. The card will fit in the slot only one way.

**2** Insert the video connector at the end of the ribbon cable through the opening in the metal bracket.

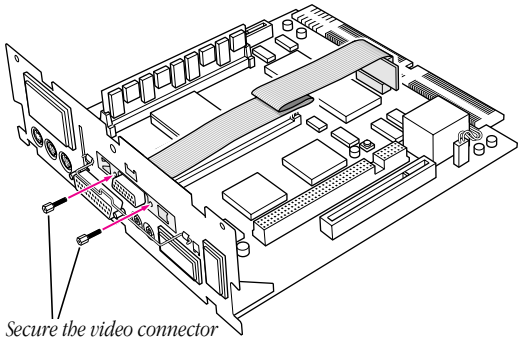



**3** If there is slack in the cable, fold it as shown.

If you already have an expansion card installed in the computer's processor-direct slot, lay the cable over (not under) the expansion card.

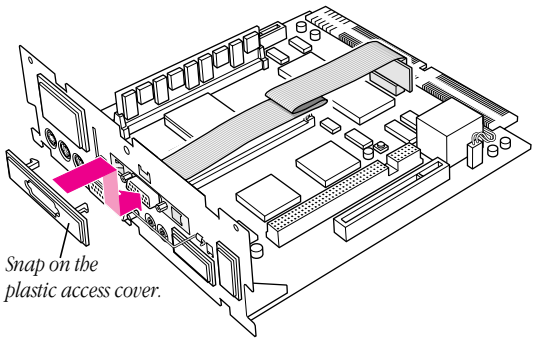
**4** Insert the jack nuts into the small holes on either side of the video connector and tighten them.

This secures the connector to the vertical plate.



*Secure the video connector by installing the two jack nuts with your fingers. You can tighten them with either a small wrench or nutdriver.*

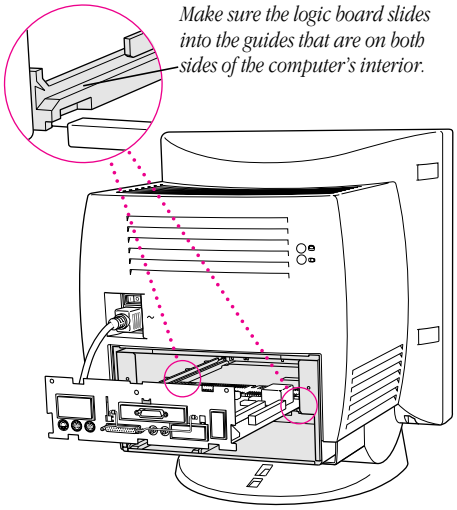
**5** Snap the plastic access cover onto the vertical plate. Make sure the connector protrudes through the opening in the cover.



*Snap on the plastic access cover.*

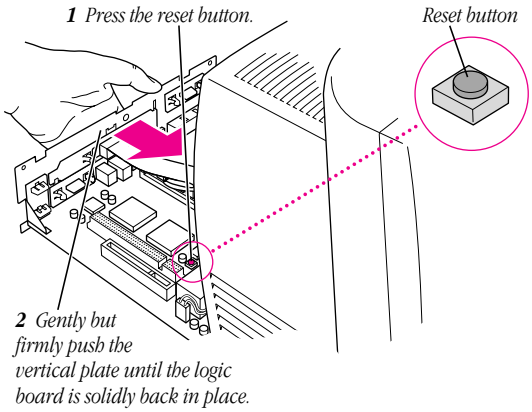
## Closing the computer

**1** Slip the base of the logic board into the guide rails inside the computer's case, and swing the wire handle back into its storage position.

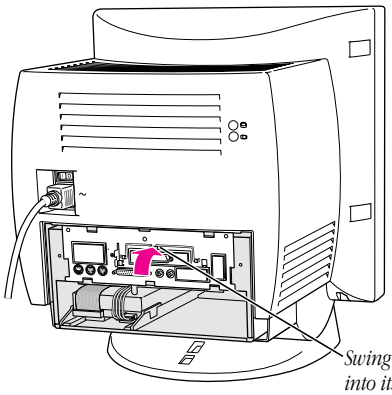


**2** Press the reset button on the logic board and then slide the logic board back into the computer.

**Note** When you press the reset button, some of your computer's software settings will change. You may want to open the control panels for the date and time, keyboard, and mouse to make sure that they are set the way you want them. For more information about working with control panels, see Macintosh Guide, the on-screen help that's available in the Guide (?) menu.



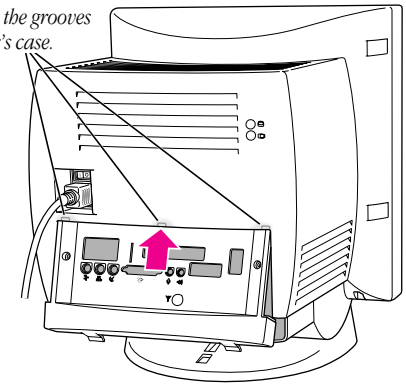
**3** Swing the wire handle back into its storage position.



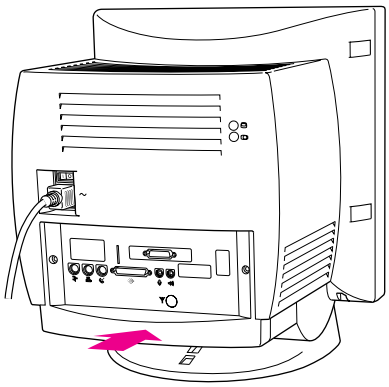
*Swing the handle up, into its storage position.*

**4** Slip the three tabs at the top of the back panel into the grooves in the computer's case.

*Slip the three tabs on the back panel into the grooves in the computer's case.*

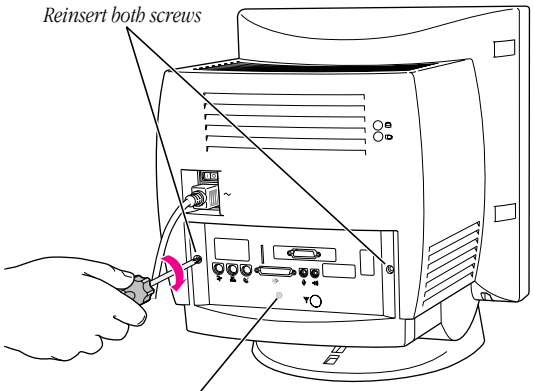


**5** Snap the base of the back panel into place.



*Snap the plastic back panel into place.*

**6** Reinsert the security screws.



7 Reconnect the cables you disconnected at the beginning of this process.

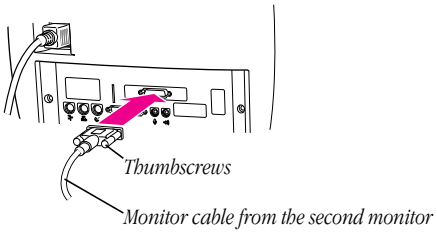
The external video connector is now installed.

*Reminder:* When you turn on your computer, don't forget to open the control panels for the date and time, keyboard, and mouse to make sure that they are set the way you want them. (Pressing the reset button on the logic board changed these settings.) For more information about working with control panels, see Macintosh Guide, the on-screen help that's available in the Guide (?) menu.

## Connecting a second monitor or display to the external video connector

By connecting a second monitor, a liquid crystal display (LCD) panel, or the Apple Presentation System to the external video connector, you can simultaneously display on a second device the images shown on your computer screen. The instructions below are specifically for connecting a second monitor, but step one is basically the same for connecting an LCD panel or the Apple Presentation System. (For further information about connecting an LCD panel, follow the instructions that came with the panel.)

1 Attach the second monitor's monitor cable to the external video connector and tighten the thumbscrews.




2 Plug the monitor into a power source.

3 Turn the monitor on.

On Apple monitors, the power switch is located on either the front or the back of the monitor. See the manual that came with the monitor.

The second monitor is ready to use.

You can turn your computer back on now.

**Warning** Never turn on your computer unless all of its internal and external parts are in place. Operating the computer when it is open or missing parts can be dangerous, and can damage your computer.

CHAPTER

# 4

# Installing the Apple External Video Connector in a 580 Series Macintosh Computer

To install the external video connector kit in a 580 series Macintosh computer, follow the instructions in this chapter.

## Opening the computer

1 If your computer is on, choose Shut Down from the Special menu, or press the Power key on the keyboard.

Keep your computer plugged into a three-hole grounded outlet to ground the computer and protect it from electrical damage.

**Important** To avoid generating static electricity that may damage components, do not walk around the room until you have completed the installation of the connector and closed the computer. Additionally, move the logic board as little as possible while it is outside the computer.

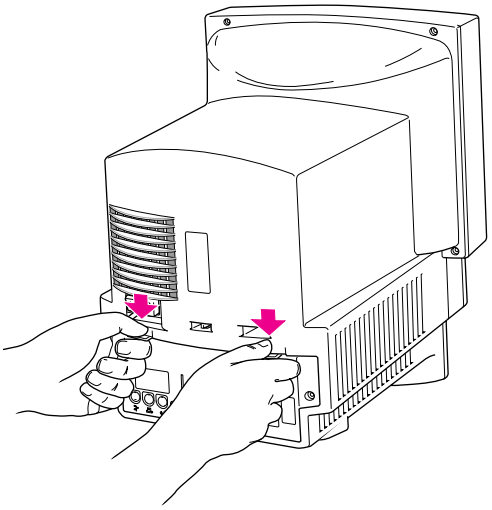
2 Turn the computer completely off by pressing the power switch at the back of the computer.

Press the side of the switch marked with the ○ symbol.

3 Unplug the cable that connects your keyboard to the computer.

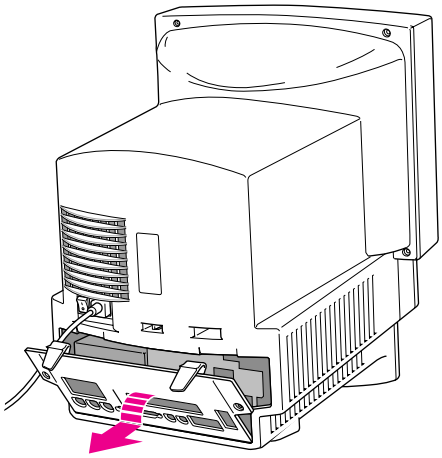
4 If there are security screws on either side of the computer's back panel, remove them with a screwdriver.

5 Place your thumbs on the two plastic tabs on the back panel of the computer.

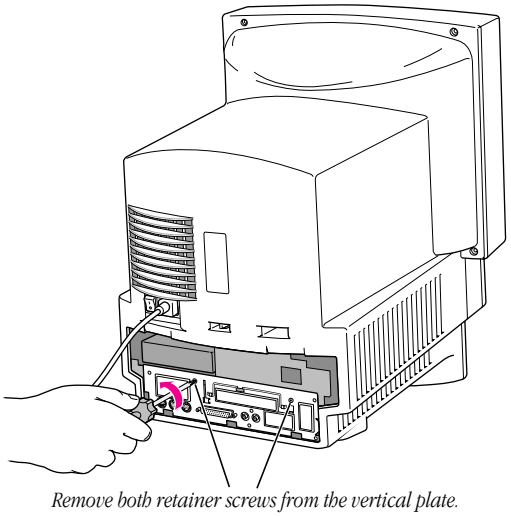


6 Press down on the tabs and pull gently until the back panel opens.

7 Take the back panel off and set it aside.

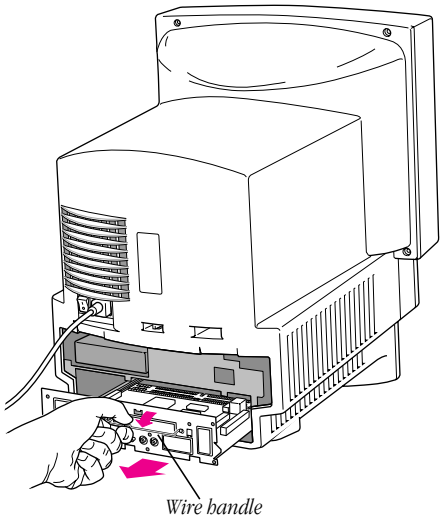


**8** Remove both retainer screws from the vertical plate with a screwdriver.



*Remove both retainer screws from the vertical plate.*

**9** Swing the wire handle down from the vertical plate and gently pull the logic board out of the computer.




**10** Place the logic board on top of a magazine on a stable, clean, flat surface.

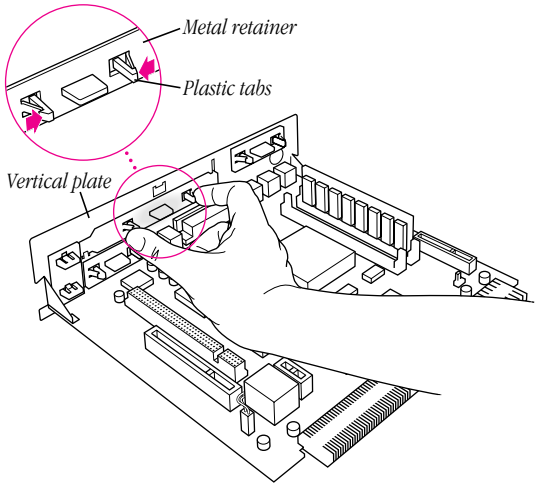
The magazine will protect the bottom of the logic board and prevent it from scratching your working surface.

***Remember:*** Don't walk around the room until you have completed the installation of the connector and closed the computer. Move the logic board as little as possible while it is outside the computer.

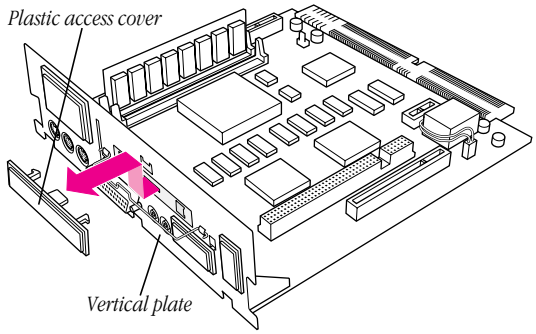
## Installing the metal bracket

**1** Remove the plastic access cover from the vertical plate.

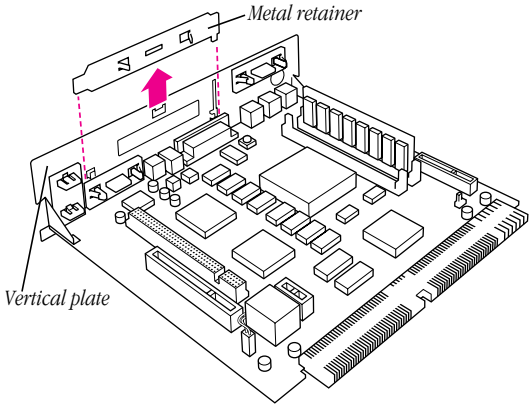
Squeeze the two plastic tabs together and pull the metal retainer so the access cover comes off.



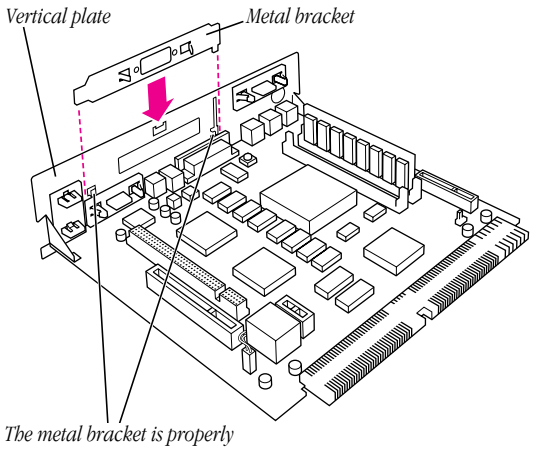
**2** Push the cover out. Set it aside.




**3** Lift the metal retainer up and out. Set it aside.



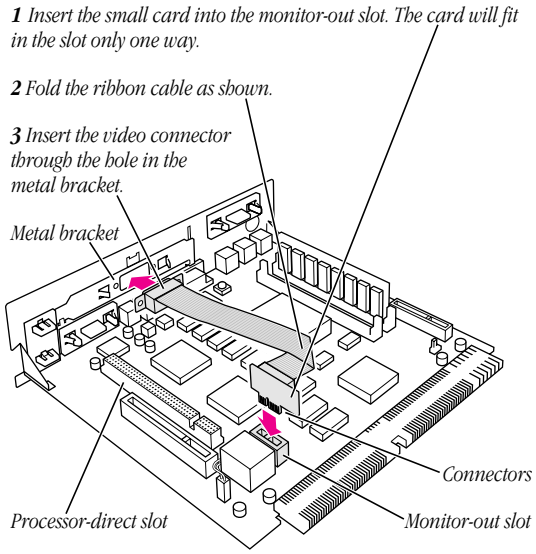
**4** Insert the metal bracket that came with your external video connector kit. Make sure the bottom of the bracket engages the two small hooks on the logic board's vertical plate.



## Installing the external video connector assembly

1 Insert the small card into the monitor-out slot on the logic board. The card will fit in the slot only one way.

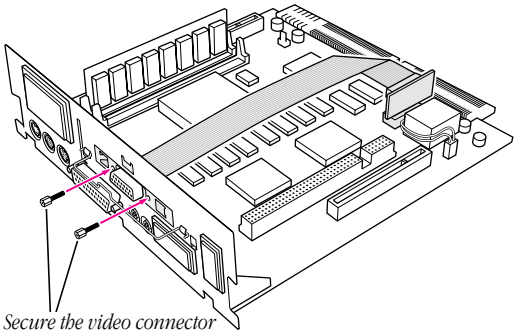
2 Insert the video connector at the end of the ribbon cable through the opening in the metal bracket.




If you already have an expansion card installed in the computer's processor-direct slot, lay the cable over (not under) the expansion card.

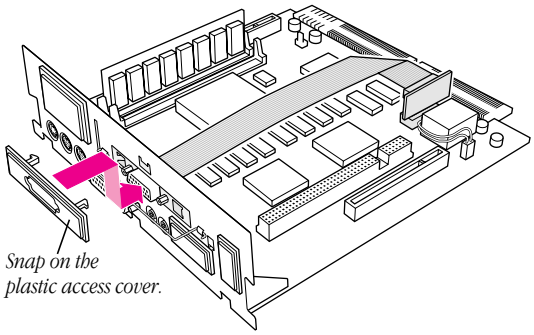
**3** Insert the jack nuts into the small holes on either side of the video connector and tighten them.

This secures the connector to the vertical plate.



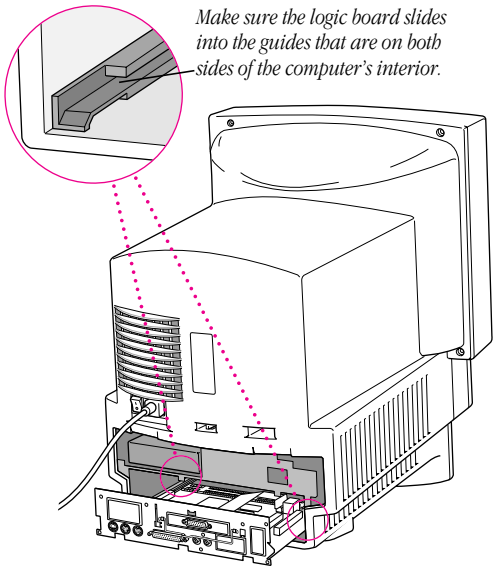
*Secure the video connector by installing the two jack nuts with your fingers. You can tighten them with either a small wrench or nutdriver.*

**4** Snap the plastic access cover onto the vertical plate. Make sure the connector protrudes through the opening in the cover.



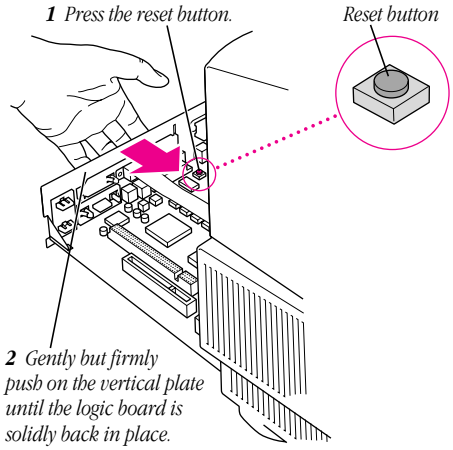
## Closing the computer

**1** Slip the base of the logic board into the guide rails inside the computer's case.

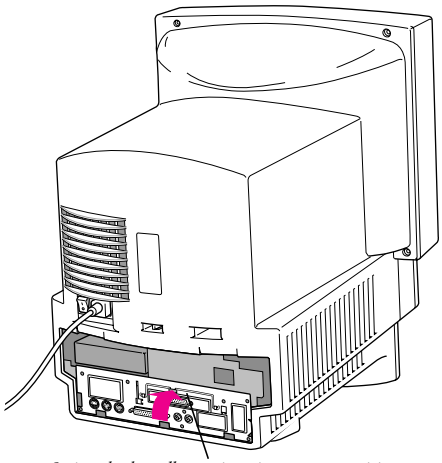


**2** Press the reset button on the logic board and then slide the logic board back into the computer.

**Note** When you press the reset button, some of your computer's software settings will change. You may want to open the control panels for the date and time, keyboard, and mouse to make sure that they are set the way you want them. For more information about working with control panels, see Macintosh Guide, the on-screen help that's available in the Guide (?) menu.

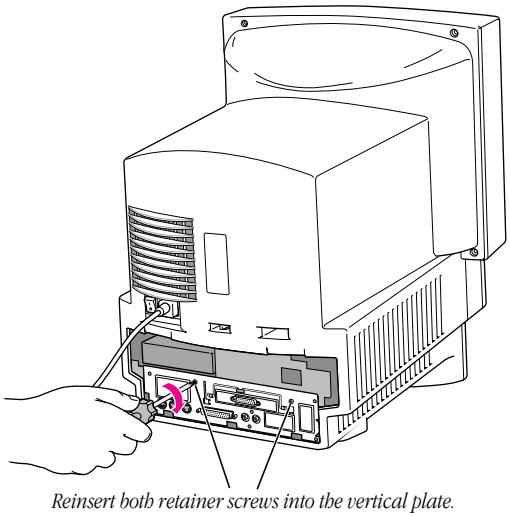


**3** Swing the wire handle back into its storage position.



*Swing the handle up, into its storage position.*

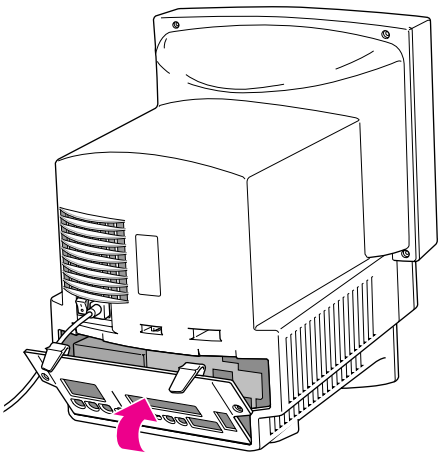
**4** Reinsert the retainer screws into the vertical plate.



*Reinsert both retainer screws into the vertical plate.*

**5** Replace the back panel of the computer.

Slip the back panel over the prongs at the bottom edge of the back of the computer, then push the back panel up and forward until it snaps into place. If the back panel was held on by security screws, reinsert them.



**6** Reconnect the cables you disconnected at the beginning of this process.

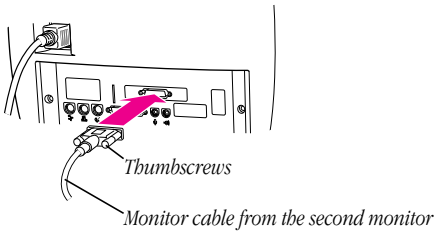
The external video connector is now installed.

***Reminder:*** When you turn on your computer, don't forget to open the control panels for the date and time, keyboard, and mouse to make sure that they are set the way you want them. (Pressing the reset button on the logic board changed these settings.) For more information about working with control panels, see Macintosh Guide, the on-screen help that's available in the Guide (?) menu.

## Connecting a second monitor or display to the external video connector

By connecting a second monitor, a liquid crystal display (LCD) panel, or the Apple Presentation System to the external video connector, you can simultaneously display on a second device the images displayed on your computer screen. The instructions below are specifically for connecting a second monitor, but step one is basically the same for connecting an LCD panel or the Apple Presentation System. (For further information about connecting an LCD panel, follow the instructions that came with the panel.)

**1** Attach the second monitor's monitor cable to the external video connector and tighten the thumbscrews.




**2** Plug the monitor into a power source.

**3** Turn the monitor on.

On Apple monitors, the power switch is located on either the front or the back of the monitor. See the manual that came with the monitor.

The second monitor is ready to use.

You can turn your computer back on now.

**Warning** Never turn on your computer unless all of its internal and external parts are in place. Operating the computer when it is open or missing parts can be dangerous, and can damage your computer.

# Apple External Video Connector

*Installation Manual*

Apple Computer, Inc.

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**The Apple Publishing System**

This Apple manual was written, edited, and produced on a desktop publishing system using Apple Macintosh computers and QuarkXPress. Technical illustrations were drawn in Adobe™ Illustrator; screen shots were created and modified with system software, ExposurePro, and Adobe Photoshop. Final pages were output using PostScript™ technology.

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## Communications regulation information

### FCC statement

This equipment has been tested and found to comply with the limits for a Class B digital device in accordance with the specifications in Part 15 of FCC rules. See instructions if interference to radio or television reception is suspected.

### Radio and television interference

The equipment described in this manual generates, uses, and can radiate radio-frequency energy. If it is not installed and used properly—that is, in strict accordance with Apple's instructions—it may cause interference with radio and television reception.

This equipment has been tested and found to comply with the limits for a Class B digital device in accordance with the specifications in Part 15 of FCC rules. These specifications are designed to provide reasonable protection against such interference in a residential installation. However, there is no guarantee that interference will not occur in a particular installation.

You can determine whether your computer system is causing interference by turning it off. If the interference stops, it was probably caused by the computer or one of the peripheral devices.

If your computer system does cause interference to radio or television reception, try to correct the interference by using one or more of the following measures:

- Turn the television or radio antenna until the interference stops.
- Move the computer to one side or the other of the television or radio.
- Move the computer farther away from the television or radio.
- Plug the computer into an outlet that is on a different circuit from the television or radio. (That is, make certain the computer and the television or radio are on circuits controlled by different circuit breakers or fuses.)

If necessary, consult an Apple-authorized service provider or Apple. See the service and support information that came with your Apple product. Or, consult an experienced radio/television technician for additional suggestions.

**Important** Changes or modifications to this product not authorized by Apple Computer, Inc., could void the FCC Certification and negate your authority to operate the product.

This product was tested for FCC compliance under conditions that included the use of Apple peripheral devices and Apple shielded cables and connectors between system components. It is important that you use Apple peripheral devices and shielded cables and connectors between system components to reduce the possibility of causing interference to radios, television sets, and other electronic devices. You can obtain Apple peripheral devices and the proper shielded cables and connectors through an Apple-authorized dealer. For non-Apple peripheral devices, contact the manufacturer or dealer for assistance.

## DOC statement

***DOC Class B Compliance*** This digital apparatus does not exceed the Class B limits for radio noise emissions from digital apparatus as set out in the interference-causing equipment standard entitled "Digital Apparatus," ICES-003 of the Department of Communications.

***Observation des normes—Classe B*** Cet appareil numérique respecte les limites de bruits radioélectriques applicables aux appareils numériques de Classe B prescrites dans la norme sur le matériel brouilleur : "Appareils Numériques", NMB-003 édictée par le ministre des Communications.

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