

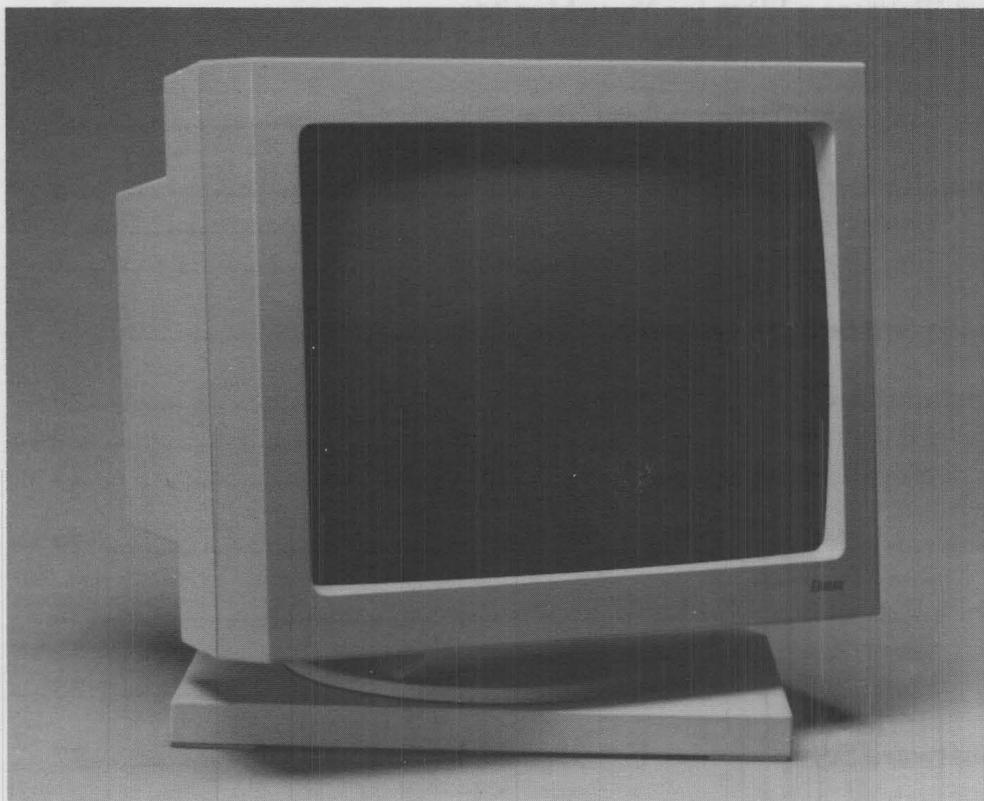
**Two-Page
Monochrome Monitor**
User Guide

Ehman

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TWO PAGE DISPLAY MONITOR USER GUIDE

Ehman Incorporated



Ehman Incorporated
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HELLO!

Thanks for joining our big family — the tens of thousands of people who have purchased our high-quality, economically-priced products.

We started our company in 1985 with a commitment. We promised to build the best peripherals for the Macintosh and make them available at the most affordable prices in the industry.

We located ourselves in a small community in the foothills of the Rocky Mountains, Evanston, Wyoming. This is a place where small town values are important. Our people care and they work hard, and that's why we have been able to make good on our beginning promise.

And there has been reward for that commitment. You, our customers, have made us one of the largest, if not the largest, Macintosh peripheral makers. We've expanded our original product line to include everything from hard disk drives to removable cartridge drives, from keyboards to monitors. Our average annual growth since we were founded has been an amazing 300%.

We hope this User Guide does what we've designed it to do — give you all the information you need to install your new equipment and to get started using it for increased productivity. If you have any questions or problems regarding the use of our equipment, please call our Technical Support Center.

Since there are a lot of you, it isn't easy for us to keep track of everyone. So, please remember to fill out and send in your Warranty Registration Card. It's a way we can stay in touch so we can let you know about new products and software updates.

Thanks again,

Manufacturing Group

HOW TO USE THIS USER GUIDE

Working inside the Macintosh, particularly inside the compact Macs like the SE or SE/30, is a procedure that should not be rushed. Take your time and carefully read through the directions once or twice before beginning the installation of your monitor.

At the risk of sounding a bit preachy, we'll just mention that something like 95% of our technical support calls are solved with information easily found in the manual. It's not that we mind helping. Far from it. But usually these callers come to us after several hours of frustrated teeth gnashing and sometimes after some pretty expensive equipment or data damage. We want to see you up and running in the fastest possible time. That usually means using the manual.

In writing this guide, we've assumed that you already know how to use a Mac. If you are a new Mac user, the Apple Computer manuals supplied with your Mac do a great job of answering the common questions you might have about the basic operation of your computer.

As you look through this User Guide, you'll see that it has been constructed in a very Macintosh-like manner. It has icons! Obviously the entire User Guide is full of tips and critical information, but we've used some graphics to point out particularly helpful information.



This symbol points out a potential damaging problem you'll want to avoid.



This symbol highlights a useful piece of advice or a special tip.



This symbol highlights a list of some kind, usually one that quickly sums up a section of detailed information.

GETTING READY FOR INSTALLATION

Avoid Expensive Static Electricity Damage!

Static electricity presents a danger to the delicate microchips in your Mac. Be especially careful about touching exposed cable connector pins or printed circuit cards. Hold printed circuit cards by the edges.



You can reduce the chance of a stray spark causing damage by safely discharging any static charge you are carrying. After you open the case, ground yourself to the computer by touching the metal frame. In addition, be aware of static electricity that you may generate by shuffling across a rug (especially on a cool, dry day), or petting a cat or dog.

Pack Rat Those Packing Materials

We've enclosed a packing list in the shipping carton. As you unpack, please check to be sure that all of the items on the packing list sheet are in the box. It's a really good idea to keep the original shipping containers and packaging materials for your equipment for future use. If you need to ship the equipment to another location, you must use this packaging to ensure proper protection. Warranties may be voided if you fail to use these specially designed shipping materials.



Prepare a Place for Your Monitor

Your monitor is, by nature, a relatively large piece of equipment and will require some thought about proper placement.

The monitor has such a large display area, and as a result is so heavy, that it is not really intended for the top of your Mac II series Macintosh.

Also, if you are using your monitor with one of the compact Mac models (like a Mac SE or SE/30) you will have the advantage of two screens. Both the original Mac display and the monitor will be active. This means you'll want to decide whether you want the large screen to the left or right of the Mac. You'll be able to work with full views of documents on the big screen and keep tool palettes or desk accessories over on the smaller Mac screen.



For comfort and convenience, you will want to position it to minimize glare and reflections from room lighting and windows, and to prevent neck and eye strain resulting from inconvenient viewing angles. The monitor has a tilt and swivel base built into it for this purpose, but you may need to raise it up to eye level on a support stand. You may also want to add a glare filter.

Quick Monitor Tips

1. Do not put the monitor on a flimsy support surface. It's pretty heavy.
2. Do not place anything heavy, wet or magnetic on the monitor.
3. Do make sure the monitor gets plenty of air circulation for cooling. That means not blocking the ventilation holes in any way.
4. It is not a good idea to operate your monitor in extreme heat, humidity or dust conditions.
5. There are some high voltages inside your monitor, capable of delivering a serious electrical shock. Don't put any metal object inside the ventilation holes. Don't open the monitor unless you are a qualified service technician.
6. Avoid dropping the monitor or giving it any other kind of physical shock.
7. Loose plugs (making contact on some pins but not on others) can damage your equipment. Make sure the power and data cords are securely connected before powering up your monitor. And turn the monitor's power switch off before plugging it in.

AN EASY INSTALLATION ALTERNATIVE

You can let a qualified computer technician install the video card for you. If you are uncomfortable with the process of opening your Mac and working inside it, or don't want to take the time to do it yourself, simply ask a computer repair shop to install your video card for you. They will charge you for an hour or less of labor and we've enclosed with your monitor a valuable certificate worth a rebate against the cost of this installation. For many people, the convenience and peace of mind are well worth the cost.



Video card for the Mac SE

Caution: Be extra careful to avoid touching the power supply area or the picture tube. They retain a high voltage charge even after the power has been turned off. They may also be hot.

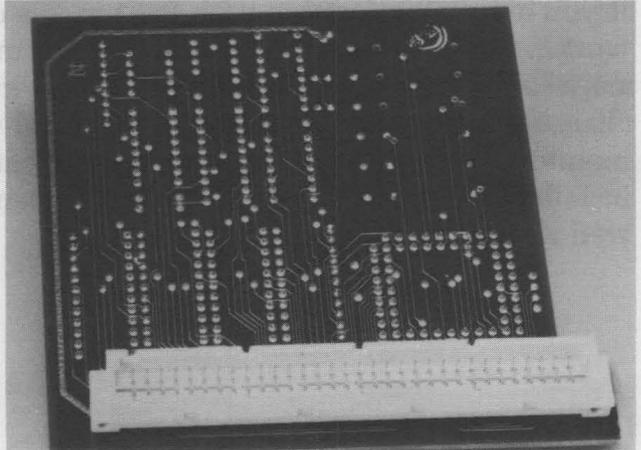
1. Shut Down your system and disconnect everything from the Mac, including the power cord.
2. Open the case.
3. Remove the Mac's main printed circuit card, the mother board.
4. Insert the video card in its slot.
5. Attach the internal video cable.
6. Replace the mother board.
7. Close the case.
8. Attach the external video cable and plug in your monitor.
9. Reconnect the peripheral cables and power cords and power them up, including your newly installed monitor.
10. Restart the Mac.

INSTALLATION FOR THE MAC SE



Overview

1. Prepare a space to work.
2. Read and follow the rules on grounding and static electricity.
3. Shut Down your system and disconnect everything from the Mac, including the power cord.
4. Open the case.



Video card for the Mac SE.

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6. Insert the video card in its slot.
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8. Replace the mother board.
9. Close the case.
10. Attach the external video cable and plug in your monitor.
11. Reconnect the peripheral cables and power cords and power them up, including your newly installed monitor.
12. Restart the Mac.

Step-By-Step Instructions

Prepare a working area.

Prepare a working area and open the tool kit that came with your drive. You will find a hex Allen wrench with a long shaft and a putty knife for opening the case. You will also need a towel or other soft cloth to protect the face of your Mac and your work surface.

Be sure to keep children and pets out of the way while you are working inside your Mac.

Follow the static electricity and grounding rules.

Static electricity presents a danger to the delicate microchips on the video card and in your Mac. You can reduce the chance of a stray spark causing this kind of damage by safely discharging any static charge you are carrying. After you open the case, ground yourself to the computer by touching the metal frame. In addition, be aware of static electricity that you may generate by shuffling across a rug (especially on a cool, dry day) or petting a cat or dog during the installation process.



Shut Down your Mac.

Use the Shut Down command on the Finder's Special Menu and turn the power switch Off. Now turn off all external equipment and disconnect everything from the Mac, including the keyboard, mouse, LocalTalk connector, modem and all external SCSI devices. Finally, disconnect the power cord from the back of the Mac.

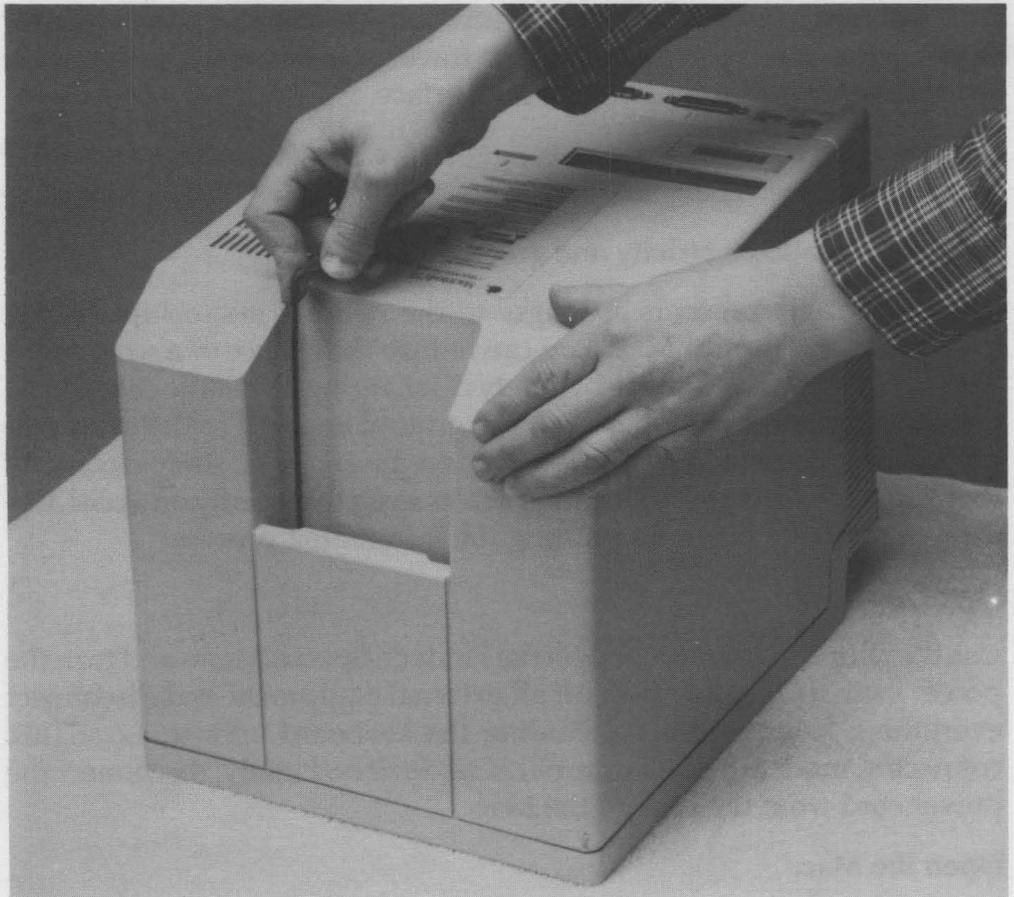
Open the Mac.

Caution: Disconnecting the power cord avoids the danger of electrical shock from the power line. However, the picture tube (CRT) retains a high voltage charge even with the power disconnected. It can take hours for this high voltage charge to dissipate from the picture tube. Since this stored power can cause serious injury to you, avoid touching the CRT or any of its external parts while installing your internal hard disk drive.



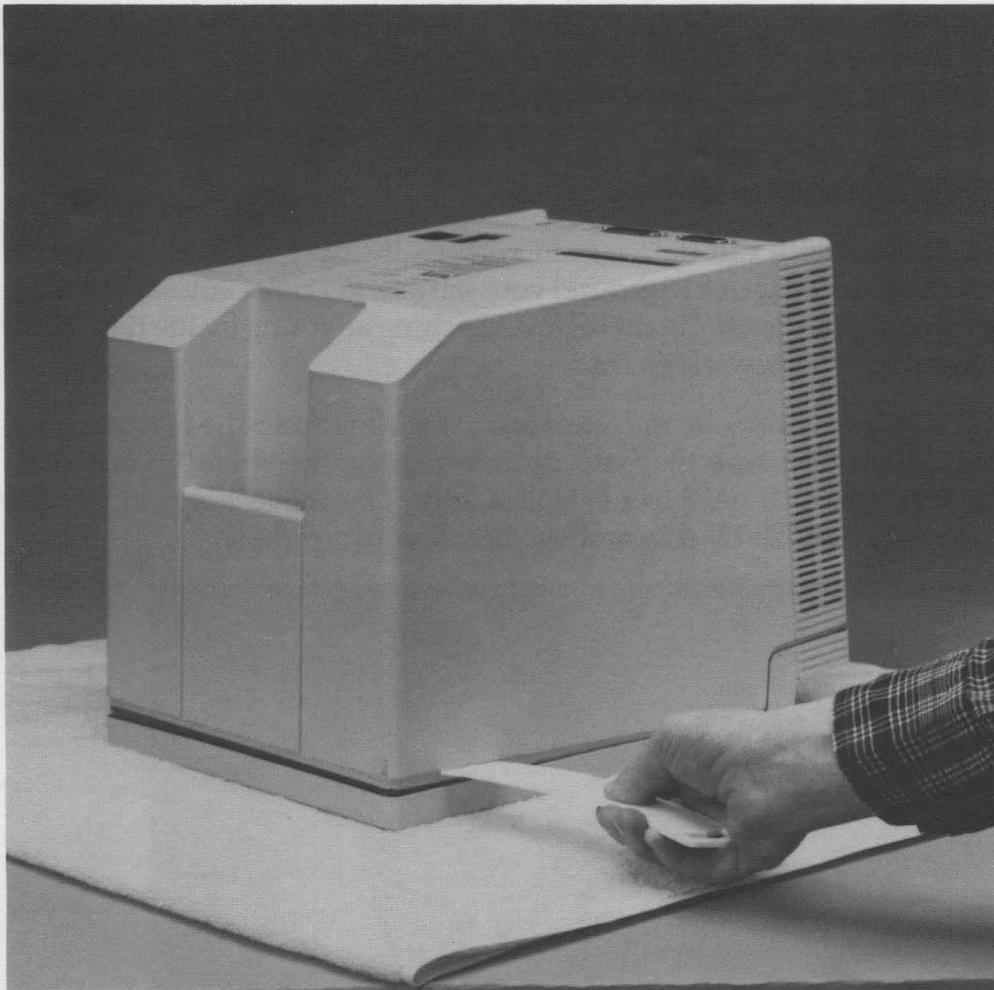
Place the Mac face down, using a towel to protect the screen.

To open the case, you will need to remove four Torx screws with the hex Allen wrench. Two of them are deeply recessed in the handle (that's why you need a wrench with a long shaft). The other two are on the back, on the left and right sides of the connector panel.



Removing the Torx screws on the SE and SE/30.

Use the putty knife to pry the case apart. Insert the tool into the crack just behind the screen, near the front of the case. You will encounter considerable friction, so work around the entire crack bit by bit until the two halves separate easily. Do not force the case apart, but use caution and patience.



Gently prying open the case of the SE and SE/30.

Caution: Avoid touching the picture tube while working inside the Mac. It may still be quite hot, and you may not only burn yourself but also damage other parts of the Mac if you move your hand away by reflex response to the heat. Also, as we've said just above, the picture tube can hold a dangerous high voltage charge for hours after the machine is turned off.



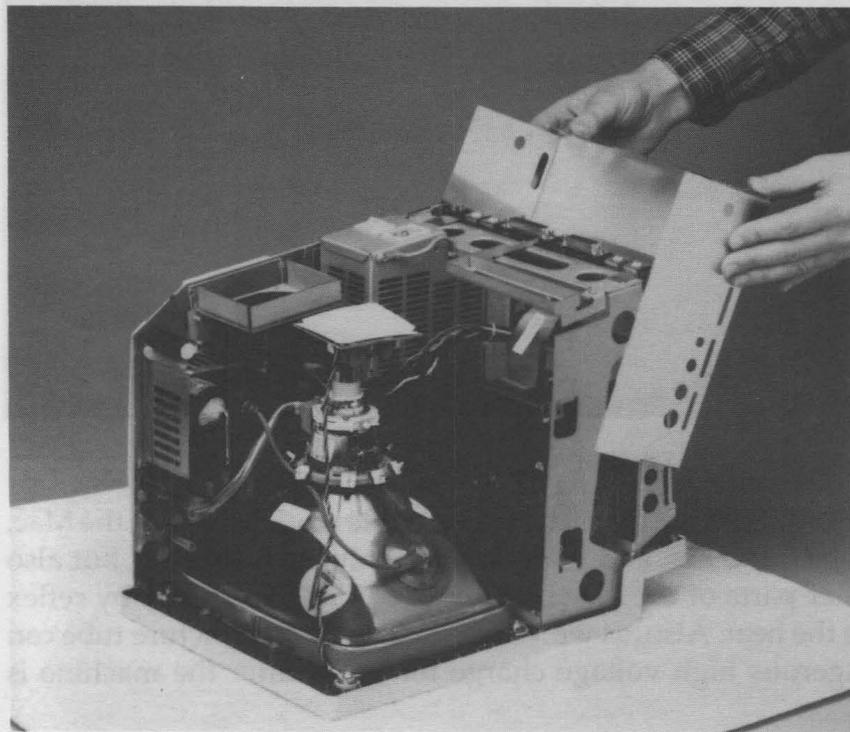


Caution: Avoid touching any of the power supply components located on the board that stands up vertically (when the Mac is in its normal operating position). They also may retain a high voltage charge that can cause serious electrical shock, even several hours after shut down.

Ground yourself to the Mac.

Static electricity can damage microchips inside your Mac, so simply touch the metal frame to ground yourself and get rid of any static charge you've accumulated. Do this before touching anything inside the Mac or touching your new video card.

Then carefully remove the aluminum shielding from the bottom of the logic board. Be sure that you do not damage the shield in any way, because you will need to reinstall it later. The shield helps to prevent interference with TV sets, radios and other computers.



Removing the aluminum shielding in the SE and SE/30.

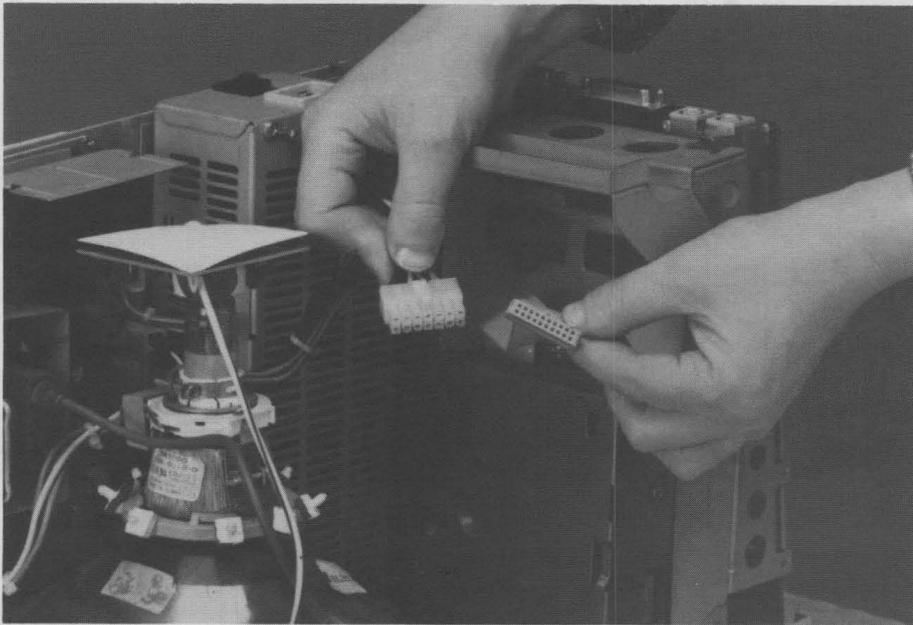
Open a window for the video cable.

Remove the plastic cover for the slot on the back of the Mac case to allow access for the video cable. We'll be mounting a connector on a bracket inside the Mac and this hole in the back of the case will match up to it.

Remove the mother board.

This is the large green circuit board located at the bottom of the Mac. The mother board slides in and out of the metal frame. One edge holds all the connectors you normally see on the back of the Mac (connectors for keyboard, external drives, printer, modem, etc.).

First, you must disconnect any cables from the mother board, remembering where they connected.

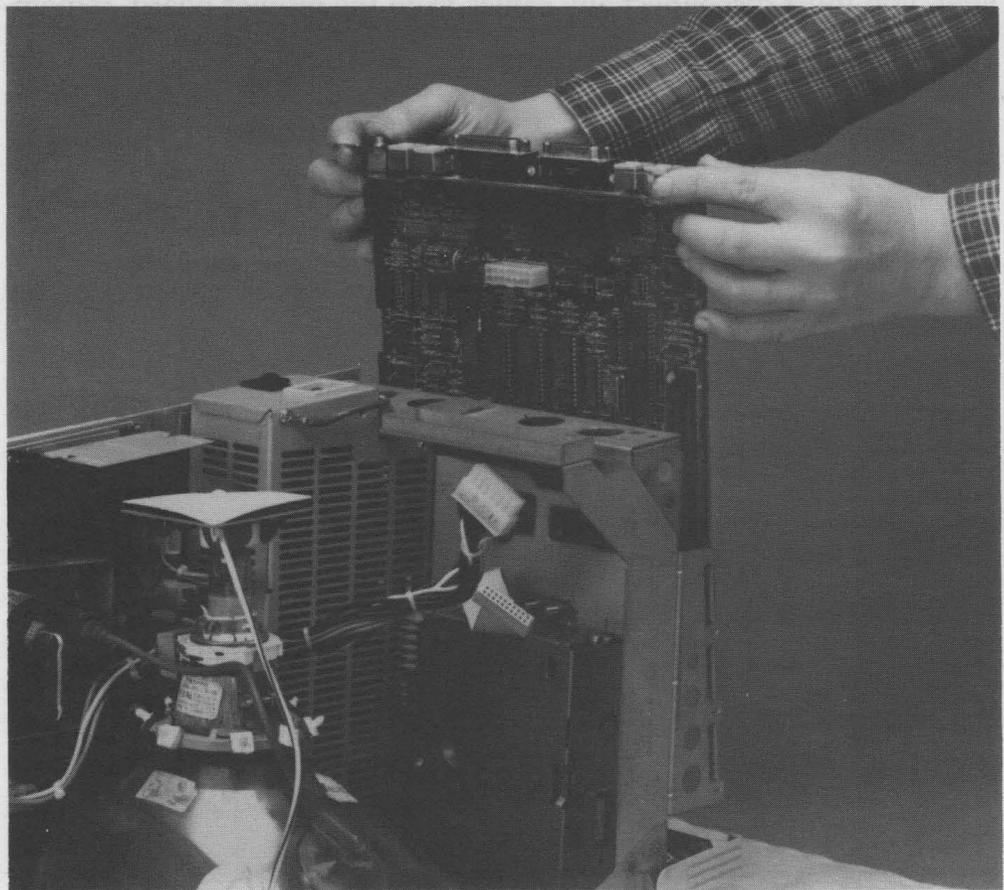


Removing cables from the mother board.

There will be cables to any internal floppy or hard disk drive(s), flat ribbon-like cables. Pull them straight up from their sockets, using gentle but firm pressure.

There is also a power cable that needs to be disconnected, in order to clear the way for removal of the mother board. The power cable will have a white rectangular plug. Hold the cable by that plug and pull it straight up from the socket.

Orient yourself so you are facing the bottom of the Mac. Notice that the left hand side of the frame holding the mother board is a solid rail, and the right hand rail has notches in it.



Removing the mother board.

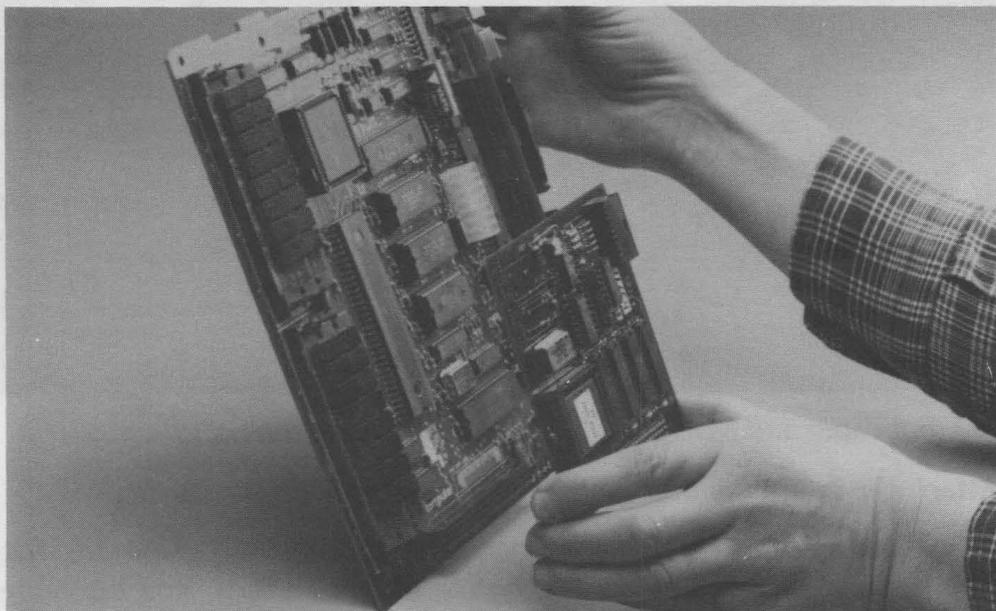
Now, gently slide the mother board up about an inch until ear-like tabs on the mother board are lined up with the notches in the right rail. When the "ears" on the mother board are visible in the openings of the bracket, gently pull the right side toward you from the bracket (the left side will act like a door hinge).

You will discover one more cable (the speaker cable) connected to the mother board. You now have room to reach in and disconnect it. Remove the mother board completely from its bracket and place it on a flat surface.

Install the video card — Macintosh SE

Take the video card out of its anti-static wrapper. Always hold the card by the edges, and avoid touching the connector on the bottom of the card or any of the electrical parts on the card.

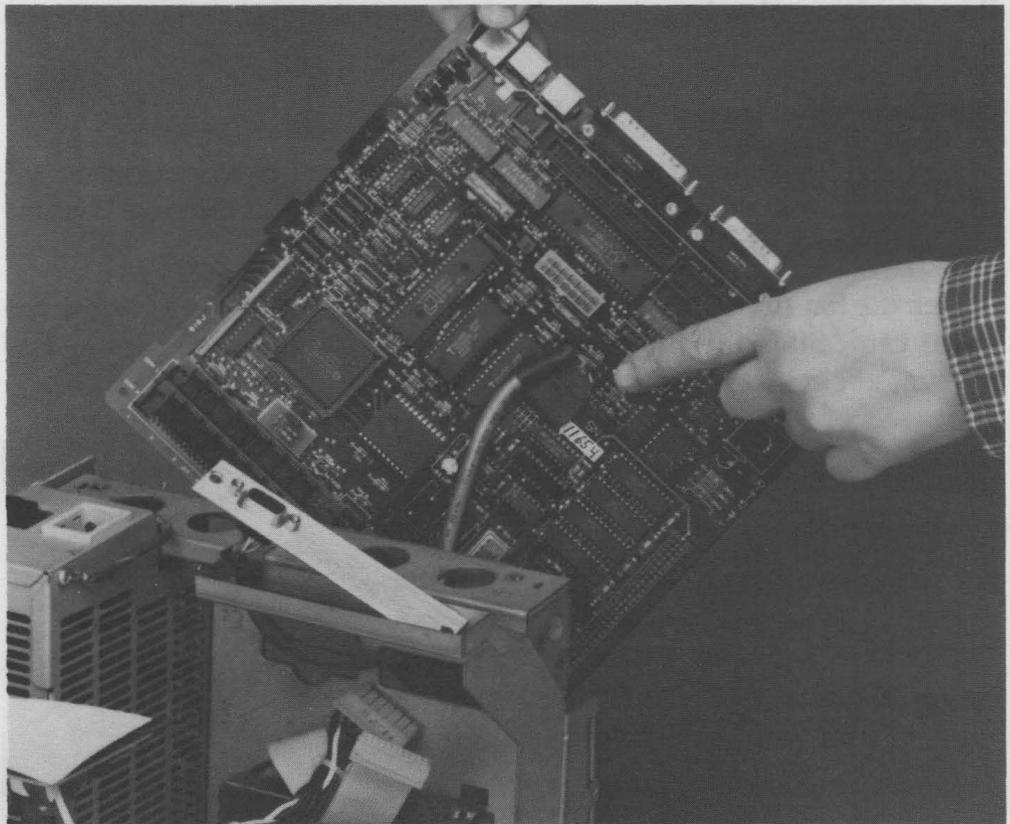
Attach the flat ribbon cable, the video cable, to the matching pins on the video card. Stick the provided foam spacer on the large rectangular integrated circuit chip on the mother board.



Relative position of Mac SE video card and mother board.

The video card for the Mac SE should be oriented parallel to the mother board, where it will mate with the provided connector, just like the in picture.

Mate the connectors on the video card and the mother board. Holding it by the top edge, press the video card down gently but firmly until the card is seated in its slot. If you feel undue resistance, gently pull the card back out and try again.



Internal cable and Mac SE video card with mother board.

Attach the internal video cable to the connector on the card.

Before reinstalling the mother board, route the video cable, the flat ribbon cable you've already attached to the video card. Run the cable through the uppermost opening on the Mac's metal frame, the frame

with the rails that holds the mother board. The opening you are looking for is located at what would normally be the back of the Mac.

Replace the mother board.

Basically, you will reverse the process of removing it. Place it into the bracket and reconnect the speaker cable. Slide the mother board into position in its bracket and reconnect the data and power cables for the internal disk drive(s).

Tip: The internal video cable is rather stiff, and may come out of the connector on the video card as you work. After replacing the mother board, and before you close up your Mac, double check the internal video cable to make sure that it is firmly seated into its connector on the video card.



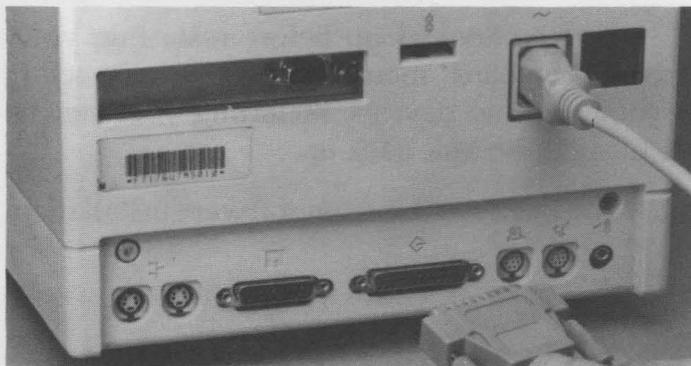
Prepare to close up the Mac.

Replace the aluminum shield on the bottom of the logic board, being careful not to rip or puncture the shield. Make sure that all wires and cables are completely inside the metal frame.

Close up the Mac case.

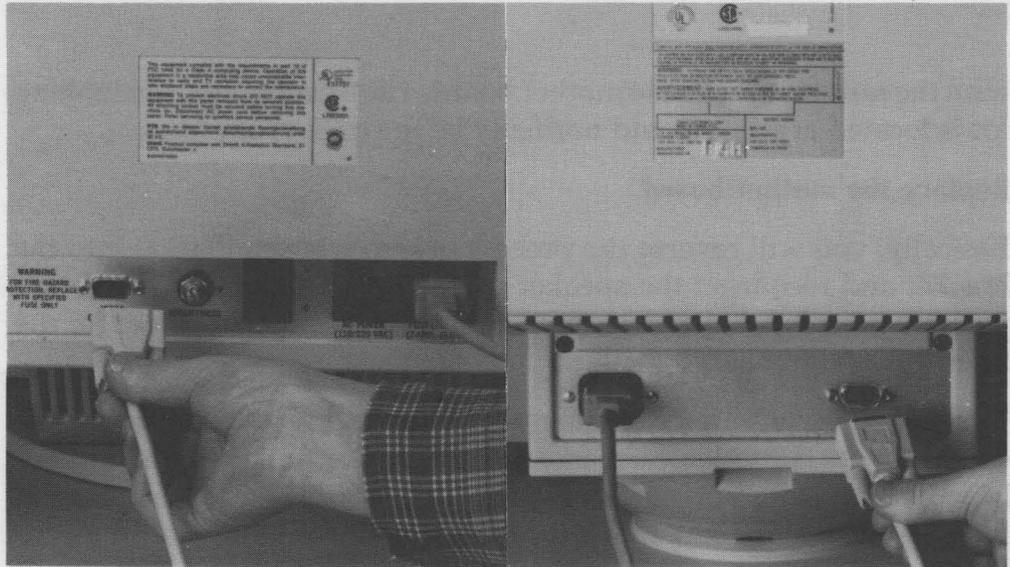
Slide the two halves back together. Again, you will encounter considerable friction, and will need to be cautious and patient as you gently work the two halves back into mating position. Replace the four Torx screws.

Attach the external video cable to the Mac.



As you can see in the picture, the external cable connects to the newly installed connector on the back of the Mac.

External cable connections to the Mac SE & SE/30.



Attaching the external cable to the monitor.

Attach the other end of the cable to the mating connector on the back panel of the monitor. Also, connect the monitor's power cord (both to the receptacle on the back of the monitor and to an electrical outlet).

Reconnect your other peripherals and restart the computer.



Always use a surge protector for all your computer equipment. They are inexpensive, available at most hardware and computer shops, and through mail order companies. They help to prevent damage to your equipment resulting from surges and momentary spikes in the power lines.

All external equipment should be hooked up before restarting your Mac, including hard drives, keyboard, mouse, LocalTalk connector, modem, etc. Power up your external devices, including your newly installed monitor, before turning the Mac back on.

Restart your Mac. Then go to the next section — on software installation for your particular Mac.

SOFTWARE SETUP — MAC SE

You actually have two functioning screens, the original one on your Mac, plus your new large screen monitor. When you have the monitor up and running, try moving the mouse and you will see the cursor move from one screen to the other.

We've included with your monitor some software that allows you to tell your Mac where to place the picture information on these two monitors. Depending on what you decided as you were installing the hardware, you'll need to tell the Mac that your large screen monitor is on the left or the right of your Mac. And that's what this software installation procedure is all about.

One significant advantage of having both screens active is that you can use the Mac screen to display tool palettes from desktop publishing and graphics programs, and keep the entire large screen unit free for documents. Or, you can use the Mac screen to display all the files and folders you have open or out on the desktop while you do your main work on the large screen. Also, you can keep a few Desk Accessories open on the Mac screen (if you have sufficient memory), so that they are conveniently at hand for instant use.

The use and display of over sized views of any given file is dependent on the software you are using. Some Mac applications do not allow you to take full advantage of a large screen monitor.

Insert the floppy disk that came with your monitor into your Mac.

Double click on the disk icon and look for the icon shown here. You may need to use the Finder View menu to select the Icon view so you can see the icon.



Two Page Display

Two Page Display software icon.

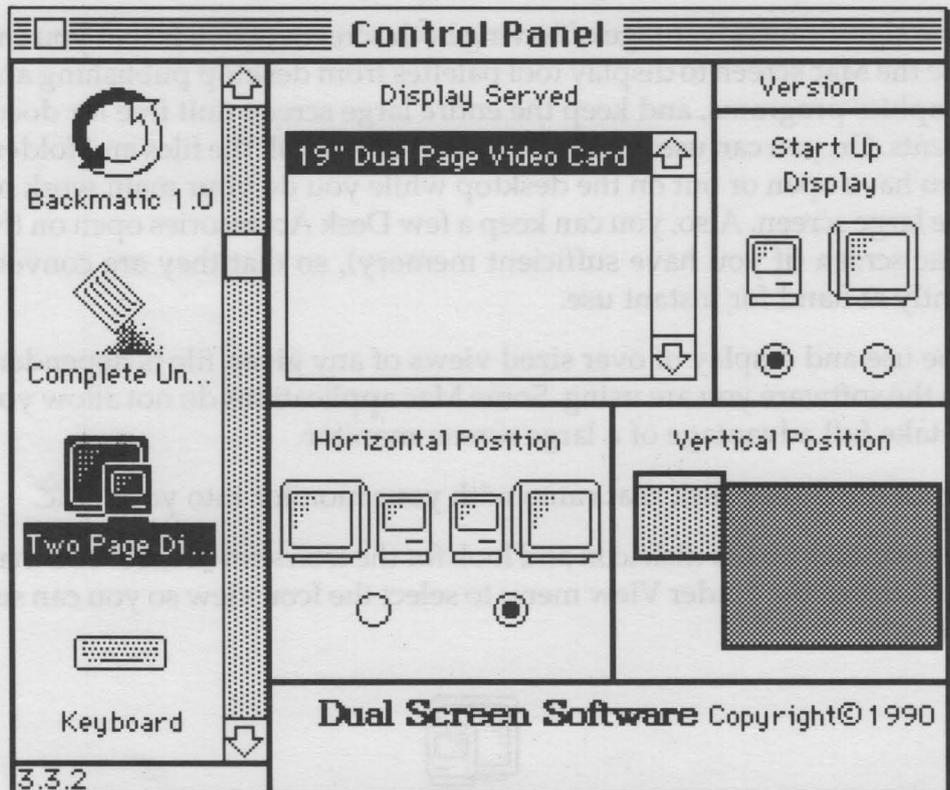


This little program is what you use to tell your Mac how to communicate with your new video card and monitor..

The program is loaded automatically when your Mac goes through its startup routine and finds it in the System folder.

Click on the Two Page Display software icon and drag it into the System folder on your startup disk. Generally this will be a hard drive, although you may be booting your Mac from a floppy. The important thing is to copy the monitor file from the master disk onto your System folder.

Now pull down the Finder's Apple menu and select the Control Panel.



Two Page Display CDEV dialog screen for the Mac SE.

Just click on the Two Page Display icon. You may need to use the scroll bars in the Control Panel to find it.

You will be looking at a Control Panel dialog box that lets you make a number of choices about your Mac's relationship to its two monitors.

We'll start in the upper left hand corner of the dialog box. Your display should already be selected in the Displays Served scroll box. The software automatically searches for your video card and displays the information in this selection dialog.

Now move to the right and choose which monitor will be the startup display. Most people will want to choose the large screen monitor, using the radio buttons below the Mac and large monitor icons.

Next, depending on your preference, click on the radio button below one of the two monitor setups in the lower left hand corner of the dialog box. You can have your large screen monitor on the left of your Mac or on the right.

And finally, use the Vertical Position portion of the dialog box, in the lower right hand corner, to adjust the relative vertical positions of the monitors. Click on the little monitor icon and raise it up or down as you prefer. Most people just line up the tops of the two screens.

Some users have problems with "losing" the cursor. It's easy to cross over to your extra screen without realizing it. To help prevent this problem you can set the two screens so they only touch at the corners. With this arrangement it will be almost impossible to accidentally cross to the other screen. With the corner touch setup, you'll need to specifically aim for the narrow cross-over point in the corner in order to move the cursor between the two screens.

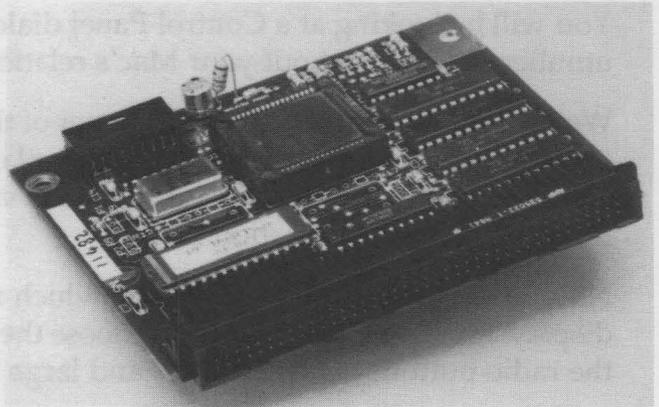


Close the Control Panel, restart your Mac, and you are all done!

INSTALLATION FOR THE SE/30

Overview

1. Prepare a space to work.
2. Read and follow the rules on grounding and static electricity.
3. Shut Down your system and disconnect everything from the Mac, including the power cord.
4. Open the case.



Video card for the Mac SE/30.

Caution: Be extra careful to avoid touching the power supply area or the picture tube. They retain a high voltage charge even after the power has been turned off. They may also be hot.

5. Insert the video card in its slot.
6. Attach the internal video cable.
7. Close the case.
8. Attach the external video cable and plug in your monitor.
9. Reconnect the peripherals and power cords and power them up, including your newly installed monitor.
10. Restart the Mac.

Step-By-Step Instructions

Prepare a working area.

Prepare a working area and open the tool kit that came with your drive. You will find a hex Allen wrench with a long shaft and a putty knife for opening the case. You will also need a towel or other soft cloth to protect the face of your Mac and your work surface.

Be sure to keep children and pets out of the way while you are working inside your Mac.

Follow the static electricity and grounding rules.

Static electricity presents a danger to the delicate microchips on the video card and in your Mac. You can reduce the chance of a stray spark causing this kind of damage by safely discharging any static charge you are carrying. After you open the case, ground yourself to the computer by touching the metal frame. In addition, be aware of static electricity that you may generate by shuffling across a rug (especially on a cool, dry day) or petting a cat or dog during the installation process.



Shut Down your Mac.

Use the Shut Down command on the Finder's Special Menu and turn the power switch Off. Now turn off all external equipment and disconnect everything from the Mac, including the keyboard, mouse, LocalTalk connector, modem and all external SCSI devices. Finally, disconnect the power cord from the back of the Mac.

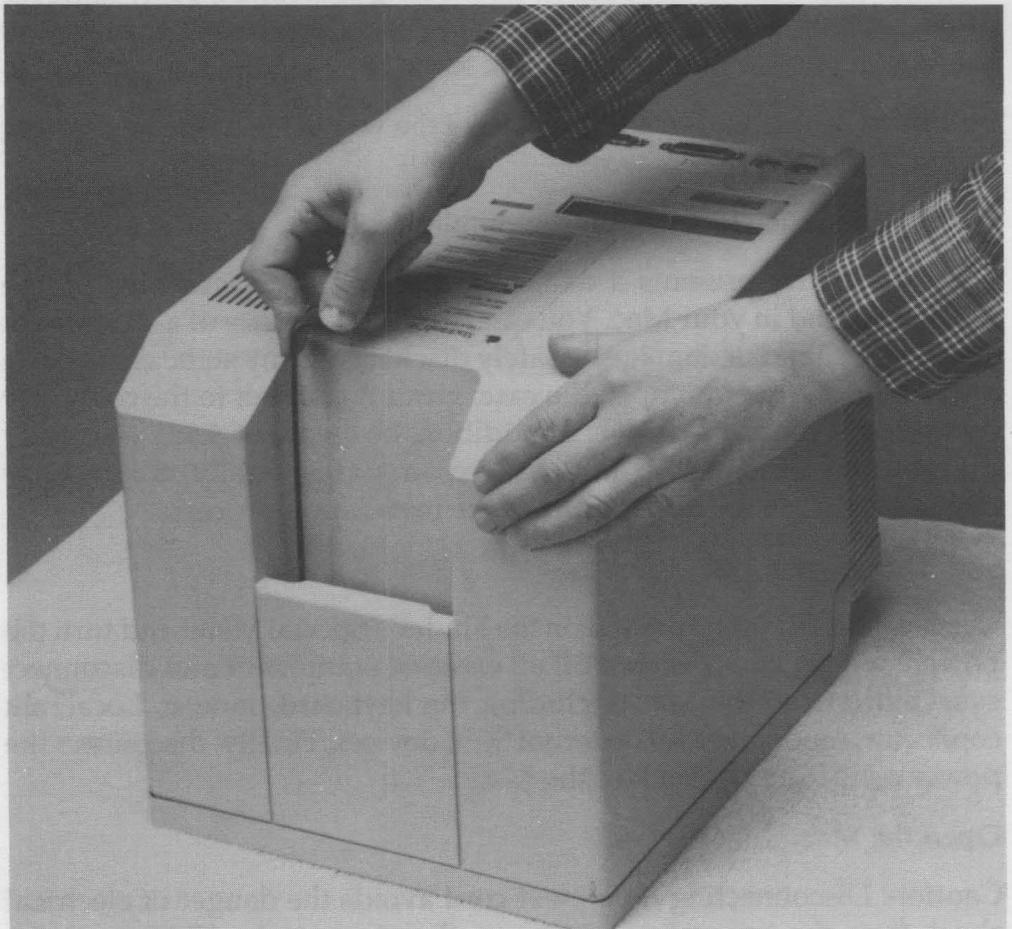
Open the Mac.

Caution: Disconnecting the power cord avoids the danger of electrical shock from the power line. However, the picture tube (CRT) retains a high voltage charge even with the power disconnected. It can take hours for this high voltage charge to dissipate from the picture tube. Since this stored power can cause serious injury to you, avoid touching the CRT or any of its external parts while installing your internal hard disk drive.



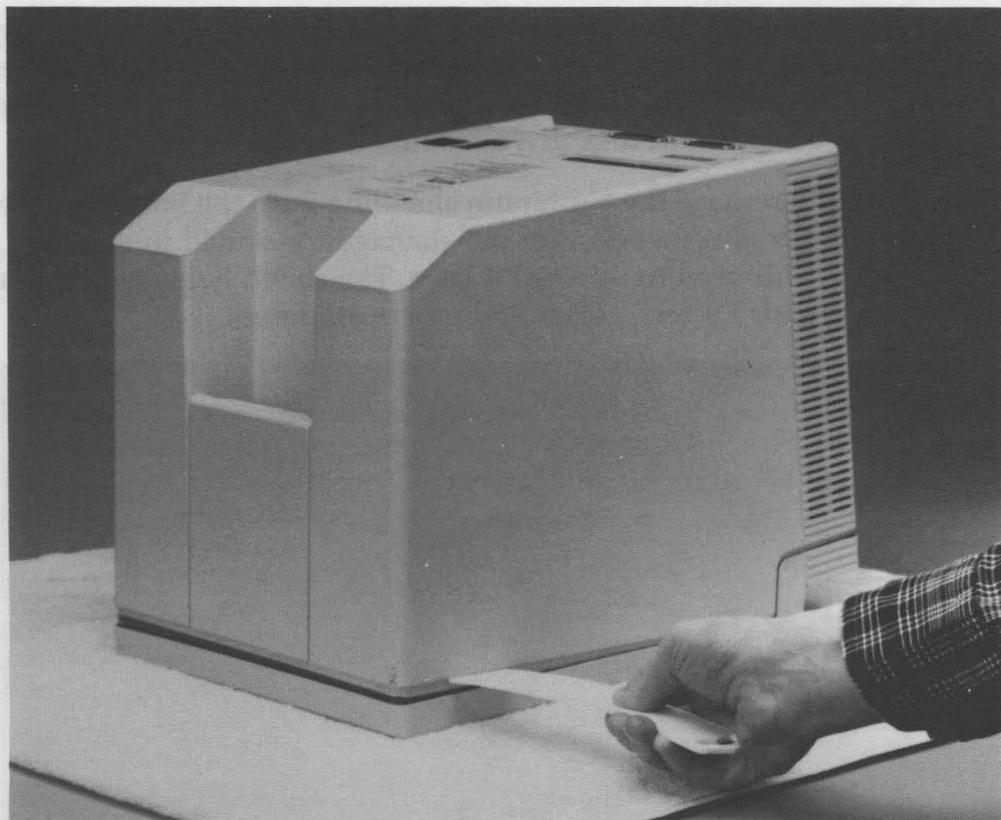
Place the Mac face down, using a towel to protect the screen.

To open the case, you will need to remove four Torx screws with the hex Allen wrench. Two of them are deeply recessed in the handle (that's why you need a wrench with a long shaft). The other two are on the back, on the left and right sides of the connector panel.



Removing the Torx screws on the SE and SE/30.

Use the putty knife to pry the case apart. Insert the tool into the crack just behind the screen, near the front of the case. You will encounter considerable friction, so work around the entire crack bit by bit until the two halves separate easily. Do not force the case apart, but use caution and patience.



Gently prying open the case of the SE and SE/30.

Caution: Avoid touching the picture tube while working inside the Mac. It may still be quite hot, and you may not only burn yourself but also damage other parts of the Mac if you move your hand away by reflex response to the heat. Also, as we've said just above, the picture tube can hold a dangerous high voltage charge for hours after the machine is turned off.



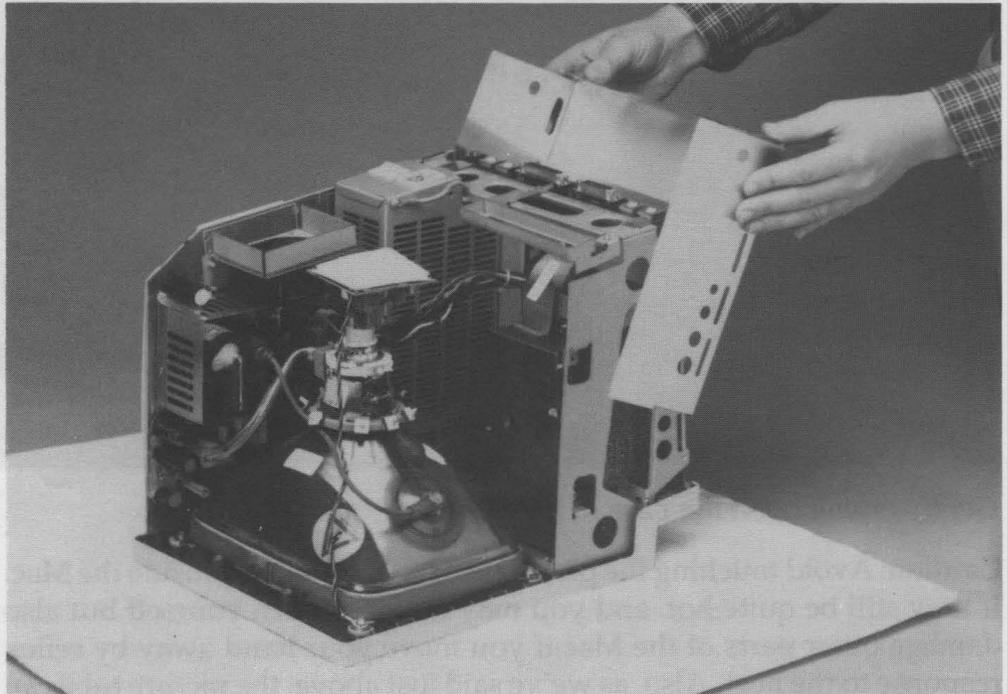
Caution: Avoid touching any of the power supply components located on the board that stands up vertically (when the Mac is in its normal operating position). They also may retain a high voltage charge that can cause serious electrical shock, even several hours after shut down.



Ground yourself to the Mac.

Static electricity can damage microchips inside your Mac, so simply touch the metal frame to ground yourself and get rid of any static charge you've accumulated. Do this before touching anything inside the Mac or touching your new hard disk drive.

Then carefully remove the aluminum shielding from the bottom of the logic board. Be sure that you do not damage the shield in any way, because you will need to reinstall it later. The shield helps to prevent interference with TV sets, radios and other computers.



Removing the aluminum shielding in the SE and SE/30.

Open a window for the video cable.

Remove the plastic cover for the slot on the back of the Mac case to allow access for the video cable. We'll be mounting a connector on a bracket inside the Mac and this hole in the back of the case will match up to it.

Install the video card — Macintosh SE/30

If you are an experienced Macintosh technician, you will notice that the Mac SE and the Mac SE/30 are slightly different at this point in the installation process. For the Mac SE, one must remove the motherboard to install the video card. For the Mac SE/30, the video card mounts perpendicular to the mother board, which would make it impossible to slide the mother board in and out of its tray.

Take the video card out of its anti-static wrapper. Always hold the card by the edges, and avoid touching the connector on the bottom of the card or any of the electrical parts on the card.

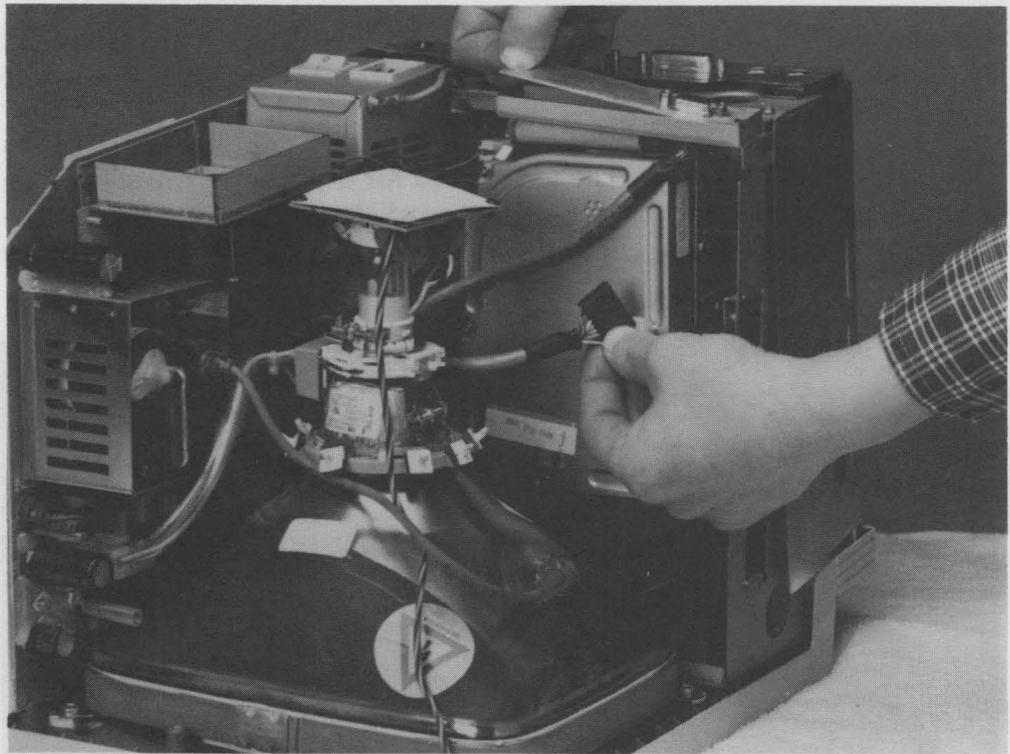
Have a look at the picture. The video card for the Mac SE/30 should be oriented perpendicular to the mother board. The card will fit inside the computer's metal frame down into the provided slot on the mother board.



Position of Mac SE/30 video card and mother board.

The connector should be squared up to the slot, and the cable from the card facing the rear of the mother board, the one with all the connectors for Macintosh external devices. Holding it by the top edge, press the card down gently but firmly until the card is seated in its slot. If you feel undue resistance, gently pull the card back out and try again.

Attach the internal video cable to the connector on the card.



Installation of Mac SE/30 internal video cable.

If necessary, hold the card with one hand while attaching the cable with your other hand. Press the cable connector into place gently but firmly.

Then, secure the other end of the cable (with the external video cable connector and mounting bracket) into the slot on the back cover of your Mac. Fasten it down with the two screws provided.

Prepare to close up the Mac.

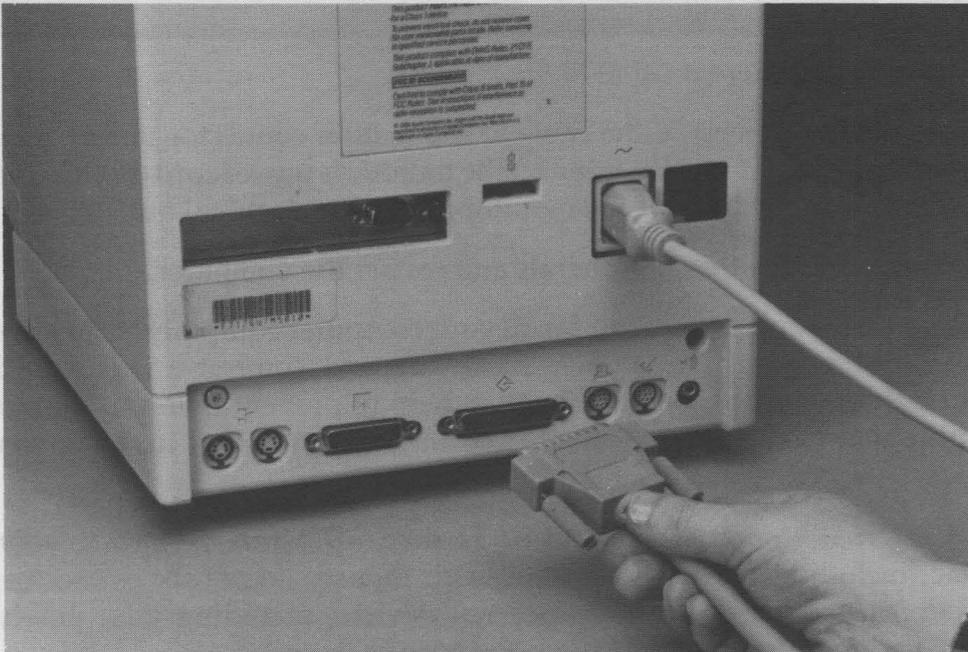
Replace the aluminum shield on the bottom of the logic board, being careful not to rip or puncture the shield. Make sure that all wires and cables are completely inside the metal frame.

Close up the Mac case.

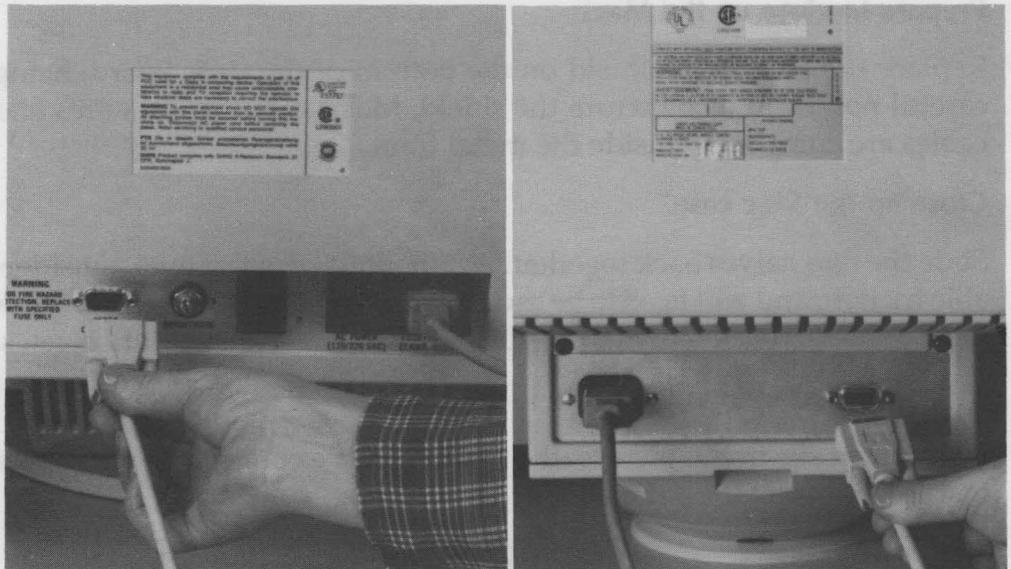
Slide the two halves back together. Again, you will encounter considerable friction, and will need to be cautious and patient as you gently work the two halves back into mating position. Replace the four Torx screws.

Attach the external video cable to the Mac.

As you can see in the picture, the external cable connects to the newly installed connector on the back of the Mac.



External cable connections to the Mac SE & SE/30.



Attaching the external cable to the monitor.

Attach the other end of the cable to the mating connector on the back panel of the monitor. Also, connect the monitor's power cord (both to the receptacle on the back of the monitor and to an electrical outlet).

Reconnect your other peripherals and restart the computer.



Always use a surge protector for all your computer equipment. They are inexpensive, available at most hardware and computer shops, and through mail order companies. They help to prevent damage to your equipment resulting from surges and momentary spikes in the power lines.

All external equipment should be hooked up before restarting your Mac, including hard drives, keyboard, mouse, LocalTalk connector, modem, etc. Power up your external devices, including your newly installed monitor, before turning the Mac back on.

Restart your Mac. Then go to the next section — on software installation for your particular Mac.

SOFTWARE SETUP — SE/30

You actually have two functioning screens, the original one on your Mac, plus your new large screen monitor. When you have the monitor up and running, try moving the mouse and you will see the cursor move from one screen to the other.

Built into your Macintosh System software is the ability to tune the relationship between your new large screen monitor and the small Mac monitor. Depending on what you decided as you were installing the hardware, you'll need to tell the Mac that your large screen monitor is on the left or the right of your Mac. And that's what this software installation procedure is all about — using the control panel to make these adjustments.

One significant advantage of having both screens active is that you can use the Mac screen to display tool palettes from desktop publishing and graphics programs, and keep the entire large screen unit free for documents. Or, you can use the Mac screen to display all the files and folders you have open or out on the desktop while you do your main work on the large screen. Also, you can keep a few Desk Accessories open on the Mac screen (if you have sufficient memory), so that they are conveniently at hand for instant use.



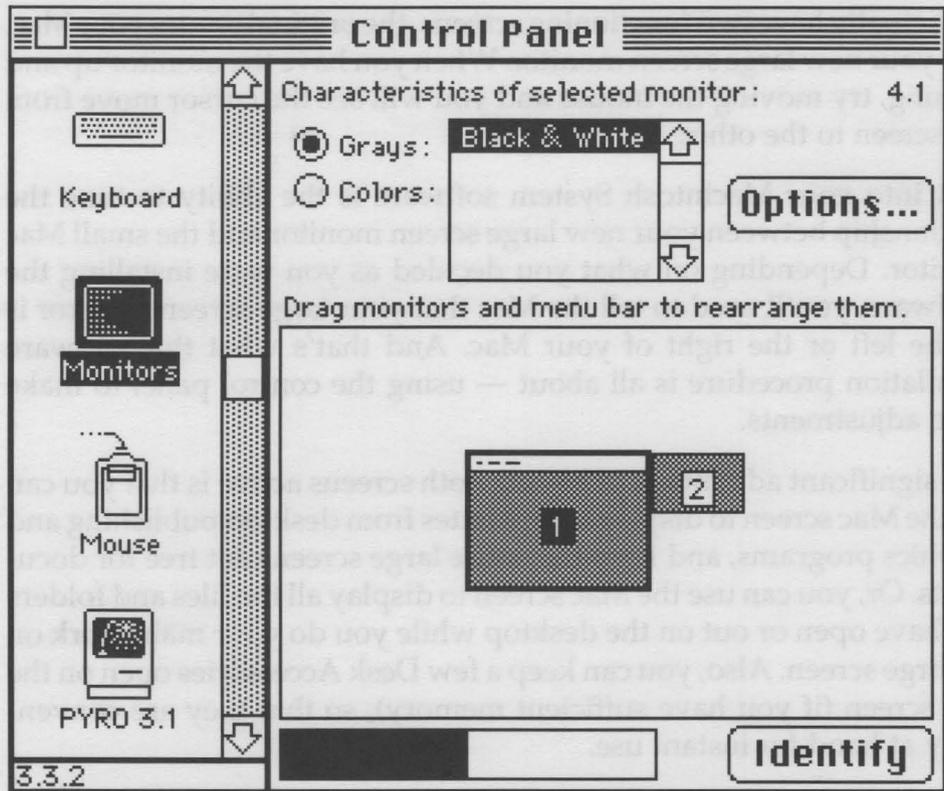
The use and display of over sized views of any given file is dependent on the software you are using. Some Mac applications do not allow you to take full advantage of a large screen monitor.



Pull down the Finder's Apple menu and select the Control Panel.

Now click on the Monitors icon. You may need to use the scroll bars in the Control Panel to find the Monitors icon.

You will be looking at a Control Panel dialog box that lets you make a number of choices about your Mac's relationship to its two monitors.



Monitors CDEV screen for the Mac SE/30.

First, check that the Grays button is on, not the Colors button. The Black & White option should be highlighted in the scroll box.

Now move down to the part of the dialog box that reads “Drag monitors and menu bar to rearrange them.”

Use the mouse to click and drag the monitors into your preferred position. You can have the large monitor on the left or the right of the Mac screen.

You can also use these screen icons to set the monitors to your desired relative vertical position. Most people line up the tops of the two screens but you can experiment to your heart’s content until you find just the right arrangement for you. The area where the two screens touch is like a boundary line, and determines the points where the cursor can cross back and forth between the two monitors.

Some users have problems with "losing" the cursor. It's easy to cross over to your extra screen without realizing it. To help prevent this problem you can set the two screens so they only meet at the corners. With this arrangement it will be almost impossible to accidentally cross to the other screen. With the corner touch setup, in order to move the cursor between the two screens, you'll need to specifically aim for the narrow cross over point in the corner.



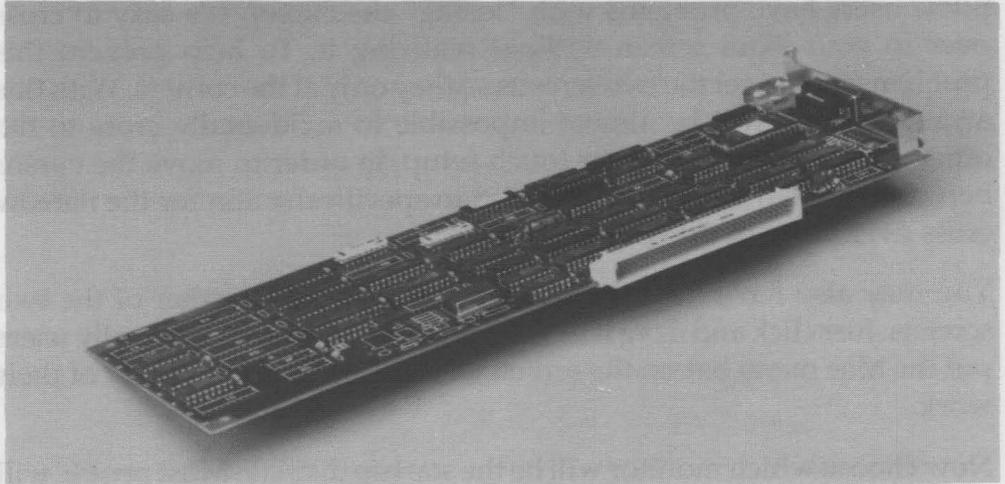
You may also have the Mac menu bar displayed on either of the two screens. Just click and drag it to your preferred location. Generally users put the Mac menu bar on the screen where they do the majority of their work.

Now choose which monitor will be the startup display. Most people will want to choose the large screen monitor. Notice the numbered squares in the center of each monitor icon. One of the numbered squares will be dark and the other light. The dark one, in inverse video, is the monitor that has been selected as the startup display. To make your choice, click on the numbered square in the center of the monitor icons.

Just for fun, click on the Identify button. Large copies of the numbered squares will pop up on their respective monitors.

Close the Control Panel, restart your Mac, and you are all done!

INSTALLATION FOR ALL MAC II SERIES



Video card for the Mac II series.

Overview

1. Prepare a space to work.
2. Read and follow the rules on grounding and static electricity.
3. Shut Down the Mac.
4. Disconnect all external devices.
5. Open the case.
6. Insert the video card.
7. Connect the cables.
11. Close the case.
12. Reconnect all the external devices, including your newly installed monitor.
13. Restart the Mac.

Step-By-Step Instructions

Prepare a working area.

Clear a working area, and you will need a Phillips screwdriver. Be sure to keep children and pets out of the way while you are working inside your Mac.

Follow the static electricity and grounding rules.

Static electricity presents a danger to the delicate microchips on the video card and in your Mac. You can reduce the chance of a stray spark causing this kind of damage by safely discharging any static charge you are carrying. After you open the case, ground yourself to the computer by touching the metal frame. In addition, be aware of static electricity that you may generate by shuffling across a rug (especially on a cool, dry day) or petting a cat or dog during the installation process.



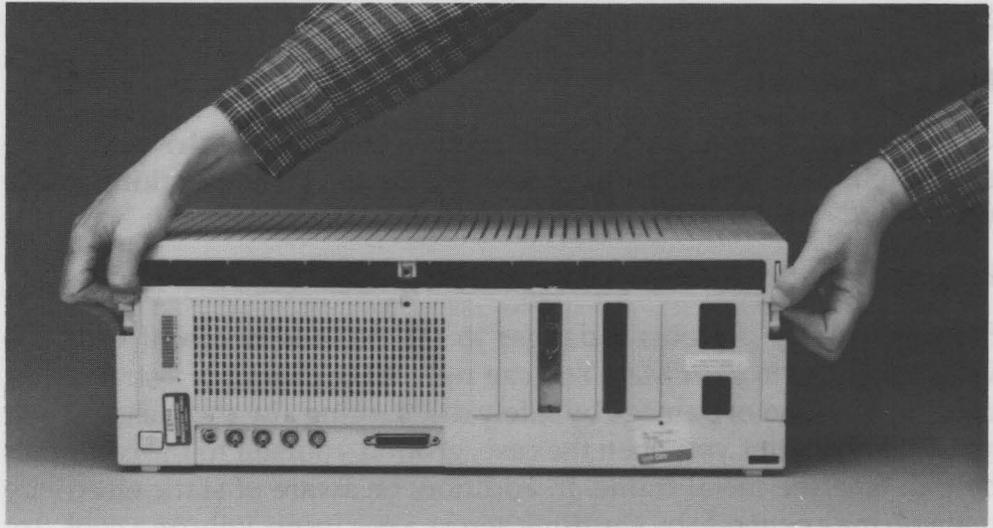
Before opening the case, be sure that you understand the special grounding precautions that apply to the Mac II series. If you are not sure, please refer to your Mac owner's manual. The main point is to set the power switch on the back of the Mac to the Off Position, but leave the computer plugged in (to complete the three-wire grounding path).

Shut Down your Mac.

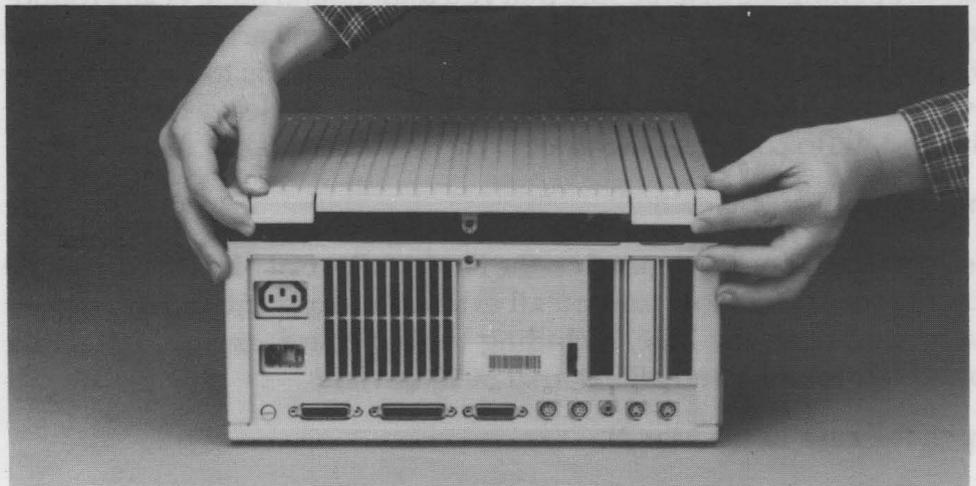
Use the Shut Down command on the Finder's Special Menu and turn the power switch Off. Now turn off all external equipment and disconnect everything from the Mac, including the keyboard, mouse, LocalTalk connector, modem and all external SCSI devices.

Open the case of the Mac II.

Use a Phillips head screwdriver to remove the screw which holds the cover in place. It is located in the top center of the rear panel of the Mac. Press the latches or lift the tabs to release the cover, and set it aside.



Lifting the lid of the Mac II.



Lifting the lid of the Mac IIc.

Select a slot for the card

Any of the slots will be fine. They are ranged along the left rear quadrant of the inside of the Mac, as you face the front of the machine.

If you have other video cards installed, but without monitors attached, you may need to remove them if display problems develop.



Open a window for the cable connections.

Remove the plastic cover on the back of the Mac case for the selected slot.

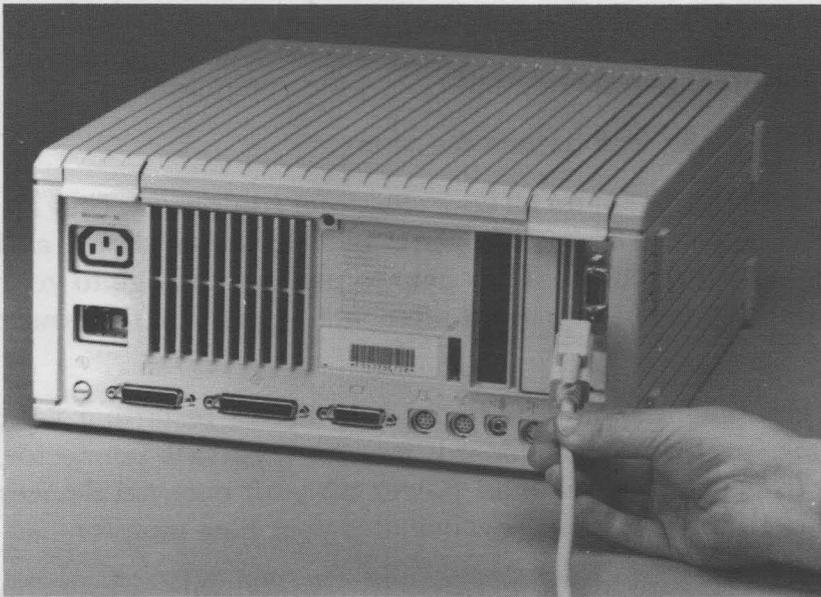
Install the Video Card.

Take the video card out of its static-proof wrapper. Always hold the card by the edges, and avoid touching the connector on the bottom of the card or any of the electrical parts on the card.

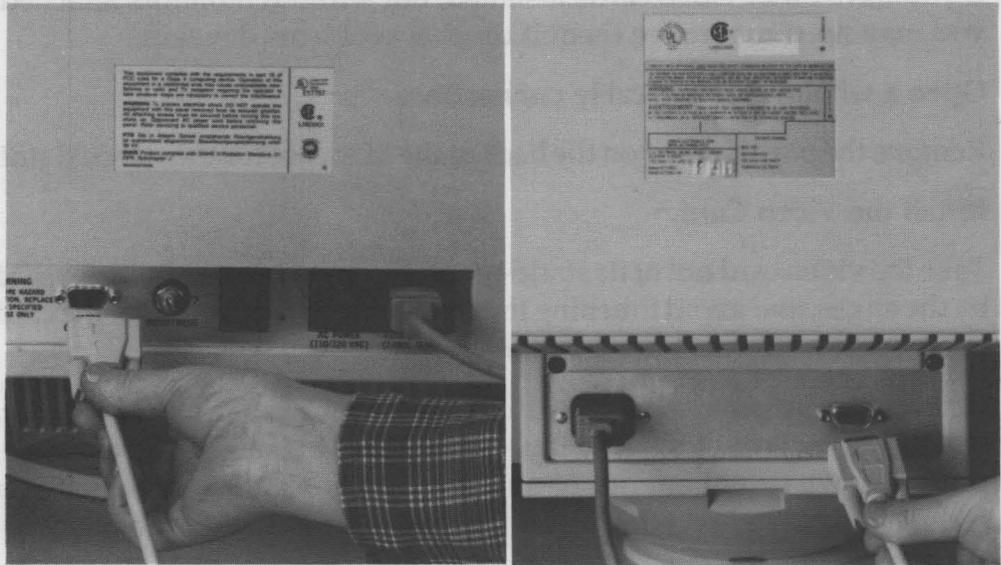
Orient the card over the slot, with its connector squarely over the slot, and the cable connector facing the rear. Holding the card by the top edge, press it down gently but firmly until the card is seated in its slot. If you feel undue resistance, gently pull the card back out and try again.

Attach the external video cable to the Mac.

As you can see in the picture, the external cable connects to the newly installed connector on the back of the Mac.



External cable connections to the Mac II series.



Attaching the external cable to the monitor.

Attach the other end of the cable to the mating connector on the back panel of the monitor. Also, connect the monitor's power cord (both to the receptacle on the back of the monitor and to an electrical outlet).

Reconnect your other peripherals and restart the computer.

Close the lid of the Mac and tighten the screw.



Always use a surge protector for all your computer equipment. They are inexpensive, available at most hardware and computer shops, and through mail order companies. They help to prevent damage to your equipment resulting from surges and momentary spikes in the power lines.

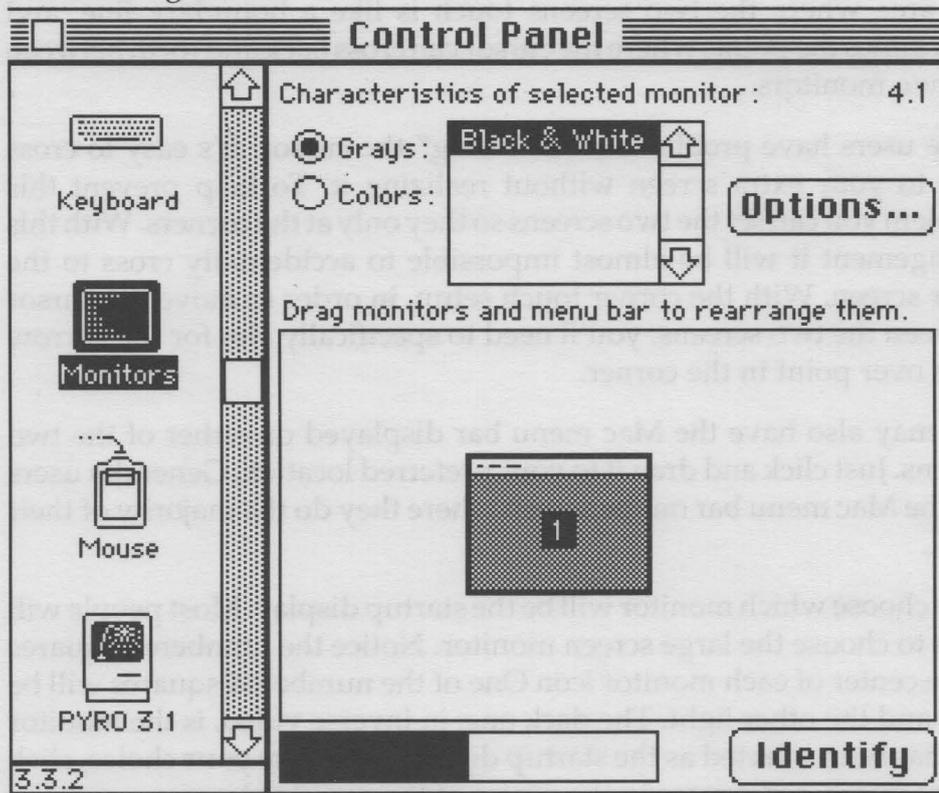
All external equipment should be hooked up before restarting your Mac, including hard drives, keyboard, mouse, LocalTalk connector, modem, etc. In general, you should power up your external devices before turning the Mac back on. This includes your new monitor.

Restart your Mac. Then go to the next section — on software installation for your particular Mac.

SOFTWARE SETUP — MAC II SERIES

Built into your Macintosh System software is the ability to tune the relationship between your new large screen monitor and your Mac. And that's what this software installation procedure is all about — using the control panel to make these adjustments. This will be particularly useful if you have two monitors attached to your Mac.

Pull down the Finder's Apple menu and select the Control Panel. Now click on the Monitors icon. You may need to use the scroll bars in the Control Panel to find the Monitors icon. You will be looking at a Control Panel dialog box.



Monitor CDEV screen for the Mac II series.

Check that the Grays button is on, not the Colors button. The Black & White option should be highlighted in the scroll box.

If you have only one monitor, close the control panel. Congratulations! You're done!

If you have two monitors, don't close the Control Panel because we need to keep going. Look down at the part of the dialog box that reads "Drag monitors and menu bar to rearrange them."

If you have two monitors, use the mouse to click and drag the monitors into your preferred position. You can arrange the monitors from right to left and vertically.

Most people line up the tops of their two screens but you can experiment to your heart's content until you find just the right arrangement for you. The area where the two screens touch is like a boundary line, and determines the points where the cursor can cross back and forth between the two monitors.



Some users have problems with "losing" the cursor. It's easy to cross over to your extra screen without realizing it. To help prevent this problem you can set the two screens so they only meet at the corners. With this arrangement it will be almost impossible to accidentally cross to the other screen. With the corner touch setup, in order to move the cursor between the two screens, you'll need to specifically aim for the narrow cross over point in the corner.

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Just for fun, click on the Identify button. Large copies of the numbered squares will pop up on their respective monitors.

Close the Control Panel, restart your Mac, and you are all done!



OPERATING AND CARE

There's an external control for adjusting brightness. It works the same as the brightness control on a normal television receiver, and you may adjust it to suit your taste and viewing conditions. Avoid turning the brightness up to maximum unless you need to compensate for extremely bright viewing conditions. As with any video monitor, this will decrease the useful life of your picture tube.

To clean the screen, use a soft, lint-free cloth and ordinary window cleaner fluid. Spray the cleaning solution onto the cloth, rather than onto the screen, to prevent excess fluid from dripping inside the monitor.

To clean the outside cabinet, use the same approach. Do not use harsh cleaning compounds or any materials that might scratch the cabinet.

General Safety Precautions

This product is equipped with a 3-wire power cord and plug for the user's safety. Use this power cord in conjunction with a properly grounded electrical outlet to avoid electrical shock.

Opening the Mac and working inside it can lead to serious problems if you make mistakes in the procedure. Just as repairing an automobile engine poses dangers to you and the engine, so does opening the Mac. Be aware of the problems, work slowly, and be patient.

The instructions in this manual are provided solely as a convenience to our customers who wish to install equipment described herein themselves. By opening the case, you are taking full responsibility for your actions. We are not responsible for any damage to your computer, nor for any injury to you, which may occur while installing the equipment.

In particular, we want to caution you regarding two dangers that you will encounter while working inside your Mac.

First, if you have a Mac with an internal monitor (such as the Mac SE or SE/30), you must avoid touching the CRT (picture tube) and its external parts. The CRT retains a high voltage electrical charge even with the power off, and it can cause serious injury to you if you touch it.

Secondly, for all Macs, and computers in general, always keep children and pets away while working inside your Mac. Also, opening the case of the Mac Plus, SE or SE/30 will void the Apple Computer, Inc. warranty. Static electricity is a potential danger to the delicate microchips. A discharge of static electricity, even when it involves such low voltage that you cannot feel it, can damage the circuitry. Follow the grounding procedures described herein to avoid damaging the chips. Despite these dangers and precautions, installing your equipment is not difficult, but you must exercise some caution.

General Safety Precautions

This product is equipped with a 3-wire power cord and plug for the user's safety. Use this power cord in conjunction with a properly grounded electrical outlet to avoid electrical shock.

Opening the Mac and working inside it can lead to serious problems if you make mistakes in the procedure, just as repairing an automobile engine poses dangers to you and the engine, so does opening the Mac. Be aware of the problems, work slowly, and be patient.

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FCC Statement

Changes or modifications not expressly approved by the party responsible for compliance with the FCC's rules (the FCC "Grantee") could void the user's authority to operate this equipment.

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates and uses and can radiate radio frequency energy and if not installed and used in accordance with the instruction manual may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

If necessary, the user should consult the dealer or experienced radio/television technician for additional suggestions. The user may find the following booklet prepared by the Federal Communications Commission helpful: "How To Identify and Resolve Radio-TV Interference Problems." This booklet is available from the U.S. Government Printing Office, Washington, DC 20402, Stock No. 004-000-00345-4.

"It is necessary to use shielded interconnect cables to insure compliance with FCC Class A limits for radio frequency emissions."

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Warranty

The "Warranty" covers a period of one year from the date of shipment. The Company warrants, to the original purchaser, that the product purchased shall be free from manufacturing defects.

This warranty is only applicable to the original purchaser who purchased this product from the Company or a duly authorized dealer. The warranty is void if the product is sold or transferred by the purchaser to a third party or if the product has been subjected to improper or abnormal use, or if the product is altered or modified in any way not described or specified in this User's Manual. If a defect is found during the warranty period, the product must be returned to the Company, or an authorized Company "Service Center." A copy of the original invoice or other proof of purchase must be included with the returned product. Purchaser's sole and exclusive remedy in the event of a defect is limited to the correction of the defect by adjustment, repair, replacement or complete refund at the Company's election and sole expense. The Company shall have no obligation to repair or replace expendable items.

Any statements made by the Company or its employees, including but not limited to the statements regarding capacity, suitability for use or performance of the product, shall not be deemed a warranty or representation by the Company for any purpose, nor give rise to any liability or obligation of the Company. Even though the Company has tested the product described in this manual and reviewed the manual's contents, neither the Company nor its software suppliers make any warranty or representation, either express or implied, with respect to this manual or to the software described in this manual, its quality, performance, merchantability, or fitness for any particular purpose.

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All return product shipments must be packaged in their original container. Failure to comply will void any and or all warranties. The Company will pay return freight and the purchaser will pay freight to the Company.

For products out of warranty, repair service is available according to a preset price list, which is available upon request.

