

MaraThon 030

**Processor Upgrade
for the Macintosh SE**

Installation Information

Dove recommends that either an experienced technician or an authorized Apple dealer perform the installation of a MaraThon product. If the product is installed by an inexperienced individual, it may void your warranty with Apple. Please read the MaraThon warranty card for details.

MaraThon®030 Upgrade for the SE

Installing MaraThon 030 Upgrade in the Macintosh SE

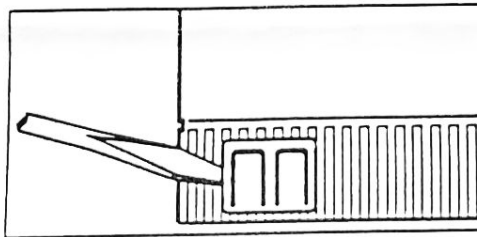
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Removing the Attachments

1. Unplug the main power cord from the wall outlet and the back of the Macintosh case.
2. Unplug any peripheral devices from the ports at the rear of the Macintosh. The external disk drive, modem, printer, mouse, keyboard, etc. must be removed.
3. Remove the RESET/INTERRUPT switch from the lower left corner by prying it out of the mounting slot with a screwdriver. (You may not have one of these switches installed on your machine.)



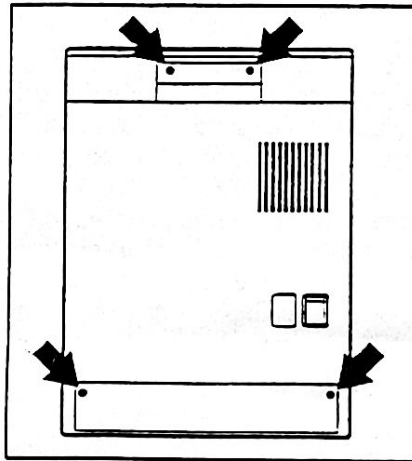
Removing the RESET/INTERRUPT switch.



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Removing the Case Screws

Locate each of the four TORX screws as indicated in the illustration below.



Locating the TORX screws.

1. With a T-shaped driver, remove the two TORX screws adjacent to the mouse and modem ports on the lower rear of the case. Turn the driver counterclockwise.
2. Remove the two TORX screws recessed in the carrying handle.

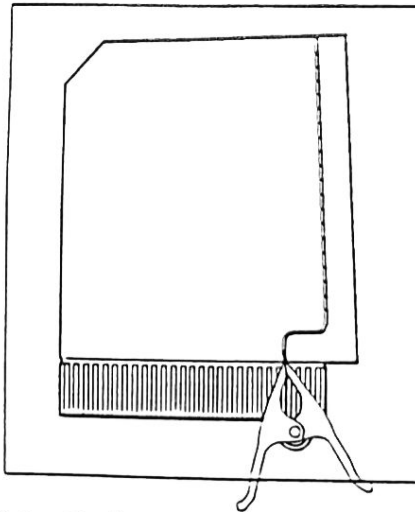


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Opening the Case

Take the V-shaped tool and insert the jaws into the groove that extends around the top and sides of the case as shown in the illustration.

1. Beginning at the bottom of the case, seat the jaws of the V-shaped tool into the groove around the front of the machine. Make sure the jaws are completely seated in the groove. Take care not to score the case.
2. Squeeze the handles together to spread the jaws apart. The pressure you apply can be gradually increased until you see the front begin to separate from the back. Continue the spreading procedure up the side of the case. STOP when you have a 1/4 inch gap.



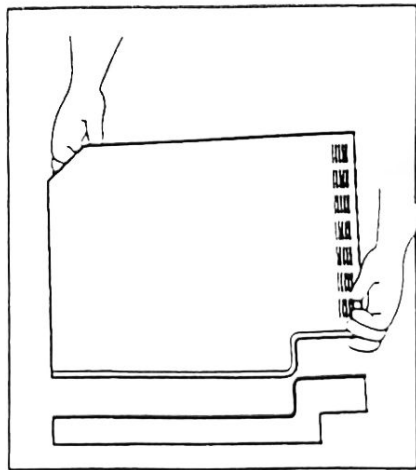
Separating the case cover from the computer.



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Opening the Case (cont.)

3. Position the jaws of the V-shaped clamp in the groove on the opposite side of the Macintosh case and repeat the procedure described on the previous page. Again STOP when the gap is 1/4 inch.
4. Carefully turn the Macintosh so the front is facing down on a soft surface. Now you can lift the back of the case away from the front of the Macintosh. If it does not lift away easily, repeat the case separating procedure using the V-shaped tool.
5. Carefully lift the back cover off completely and place it in a safe place where it will not fall onto the exposed CRT.



Lifting the case cover away from the computer.



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Opening the Case (cont.)

Inside the case may be an aluminum RF foil shield about 9 inches long and folded lengthwise. If it is not inside the case cover, it is on the end of the processor board. Lay this piece aside.



Grounding Procedures Before Removing the Processor Board

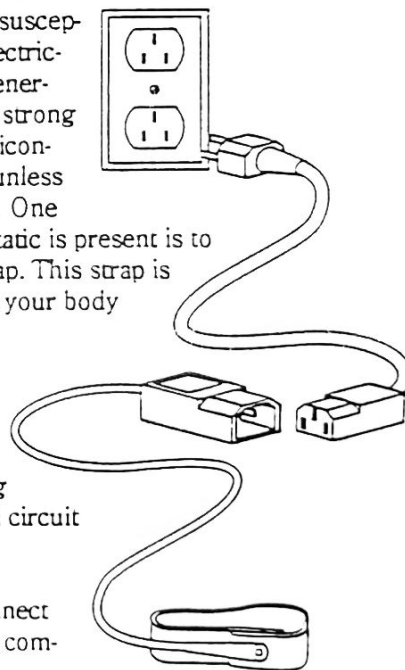
Important!

The semiconductor devices used in the Macintosh are extremely susceptible to damage from static electricity. Static electricity can be generated anywhere, and there is a strong possibility of damaging a semiconductor within the Macintosh unless proper precautions are taken. One method for insuring that no static is present is to wear an anti-static ground strap. This strap is designed to ground any static your body might generate.

The anti-static ground wrist strap in the optional Dove tool kit will prevent semiconductor damage while handling the MaraThon and Macintosh circuit boards.

Using the Velcro fastener, connect the plastic static ground strap comfortably around your wrist.

Plug the end of the anti-static ground strap into the line cord for your Macintosh. Plug the line cord into a grounded three prong outlet. The only metal in the plug is the D ground, and the ground is attached to the wrist band through a 1 million ohm resistor. There is no possibility of receiving a shock.



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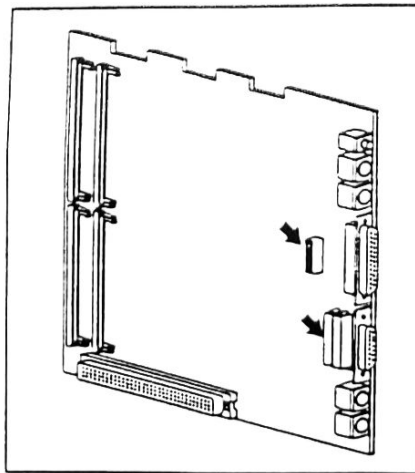
Removing the Processor Board

The Macintosh processor board is located on the bottom side of the machine. The board is mounted in slots which allow it to slide in and out when the connectors are removed.

The Macintosh should now be rotated to its normal position with the screen perpendicular to the work surface.

There are four connectors attached to the Macintosh board: the main power cable connector, two internal disk drive connectors, and a speaker wire. All of these connectors must be unplugged as you remove the processor board.

1. Remove the power connector by grasping the plastic connector surrounding the wire bundle, pressing the



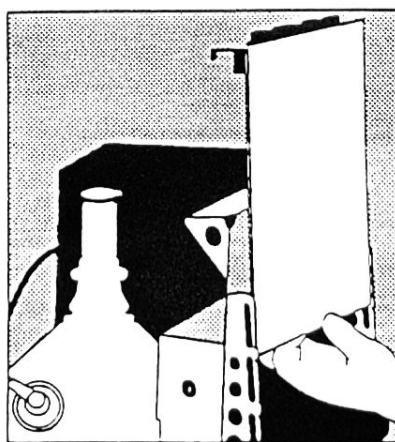
Locating the main power and internal disk drive connectors.



Removing the Processor Board (cont.)

locking device to unlock it, and gently pulling it away from the socket on the processor board.

2. Remove the internal floppy and/or hard drive connectors by grasping the ribbon cable assembly and gently pulling them out of the sockets on the processor board.
3. Place the connectors out of the path of the processor board by bending them toward the internal disk drive.
4. Rotate the computer to the screen-down position and remove the processor board by grasping the two corners and sliding it up and out from the frame. After the mother board is lifted out of the frame, disconnect the speaker wire.



Removing the processor board from the chassis frame.

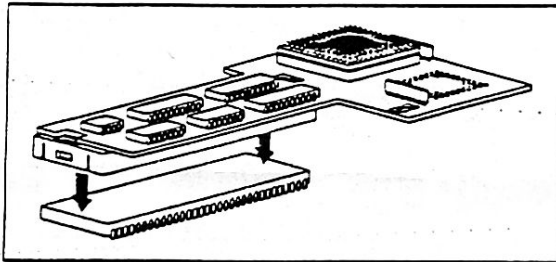


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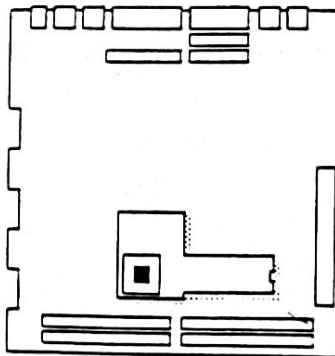
Installing the 030 Upgrade

The installation of your MaraThon 030 upgrade is simple. The MaraThon board fits over the existing processor. The processor is a long, black rectangular chip located near the center of the processor board behind the SIMM sockets. The Motorola logo and "68000" are printed on the top of the chip.

1. Position the MaraThon board over the CPU.



Proper orientation of the board is *critical*. Refer to the illustration below for proper orientation.

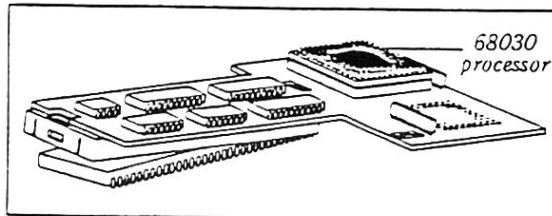


Proper orientation of the 030 board on the Macintosh SE processor board.

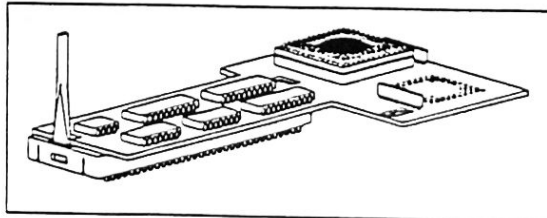
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Installing the 030 Upgrade (cont.)

2. Fasten the end of the clear plastic Killy clip closest to the 68030 processor under the CPU chip.



3. Press the Killy clip down over the CPU chip.
4. There is a small hole on the opposite end of the Killy clip. Insert a small flat screwdriver in the hole and carefully pry the lip of the Killy clip out so that the clip will fit over the CPU chip.



5. Press the board firmly into place until it is fully seated and flush with the processor board.

Once the MaraThon board is fully seated, inspect it to be certain no pins were bent.



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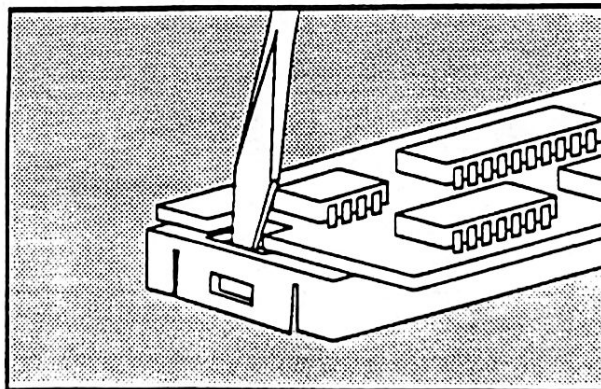
Removing the 030 Upgrade

Repeated insertion and removal of the MaraThon 030 Upgrade will loosen the "grip" of the Killy clip on the bottom of the board. Contact is better and the MaraThon 030 performs best if the fit is tight. Therefore, Dove recommends only one installation.

However, if you find it necessary to remove the board, follow this procedure.

You need two small flat-head screwdrivers

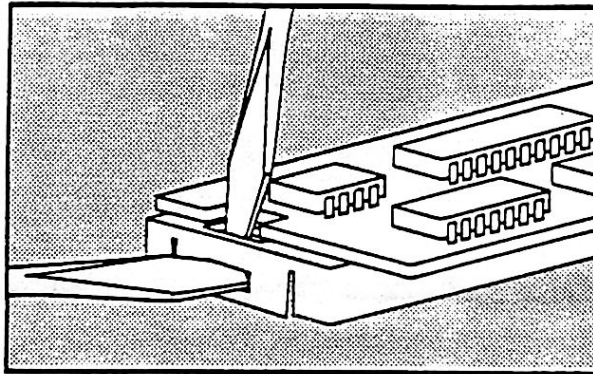
1. There is a hole on the end of the Killy clip. Insert one of the small screwdrivers in the hole and push the lip of the Killy clip out.



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Removing the 030 Upgrade (cont.)

2. Slip the other small screwdriver into the hole on the end of the Killy clip and pry the 030 board up to remove it from the CPU chip.



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Replacing the Processor Board

1. Turn the Macintosh onto its face. Carefully insert the main board back into the chassis guide channels.
2. Plug the main power and speaker connectors back into the receptacles on the processor board. Push the assembly down completely.
3. Plug the internal disk drive connectors into the sockets on the processor board. Position the ribbon cable and connectors, guide the connectors with your forefinger, and gently push them into the sockets. Do not force it.

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Replacing the Macintosh Case

1. Replace the L-shaped aluminum RF shield over the access ports on the rear of the processor board.
2. Position the rear case on the back of the computer and carefully slide it down. Take care to guide the side tabs into the slots in the screen bezel.
3. With both hands, push the case back down squarely over the computer until it is fully seated. The groove around the front of the machine should be about 1/8" wide all the way around.
4. Replace the four case screws and the RESET/ INTERRUPT switch.
5. Reconnect the keyboard and any other external devices.



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Verifying Proper Hardware Installation

Once you have installed the 030, you should boot your Macintosh from your normal start-up device to insure that the hardware is installed properly.

If the Macintosh does not start as it normally would it probably indicates a problem with the installation of the 030. Reopen the Macintosh case and inspect the installation.

Is the board oriented properly? Do you see any bent pins? Is the board seated firmly over the processor?

If you are unable to detect a problem from a visual inspection or need help with the installation, don't hesitate to call Dove Computer Corporation's Product Support Group at (800) 622-7627, or in NC, (919) 763-7918.

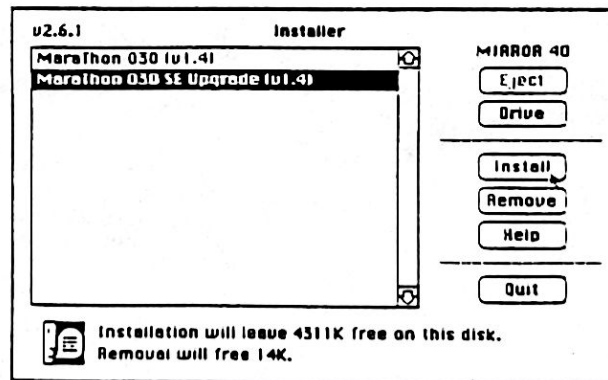
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Installing the 030 Resources

The 030 Upgrade includes software resources that allow the Macintosh to recognize the 030 board. You install the resources into the Macintosh operating system by installing the MaraThon software into the Macintosh's active System Folder. The MaraThon installer disk contains everything necessary to do this.

To install the 030 resources, follow these simple instructions:

1. After you have installed the 030 upgrade, boot your system using the MaraThon disk.
2. The Installer application runs and a script selection screen appears which lists the resources you can install.



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Installing the 030 Resources (cont.)

3. Select the MaraThon 030 SE Upgrade.
4. Select the appropriate drive where you want to install the resources, using the Eject and Drive buttons. The dialogue box at the bottom of the screen will note how much space is available on the disk you have chosen. (Note: You cannot install the 030 resources on the current startup disk or the MaraThon disk.)
5. Click Install. The program will install the resources and post a message in the dialogue box indicating that installation was successful.
6. Click Quit when you are finished. If you keep more than one startup disk for your system, remember to install the 030 resources on all of them.

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Removing the 030 Resources

The 030 Installer program allows you to remove as well as install the resources onto disks. If you ever need to remove the resources from your system, follow these steps:

1. Select the MaraThon 030 SE Upgrade on the Installer script selection screen.
2. Select the appropriate drive from which you want to remove the resources, using the Eject and Drive buttons. The dialogue box at the bottom of the screen will note how much memory the 030 resources will free.
3. Click Remove. The program will remove the resources and post a message in the dialogue box indicating that removal was successful.
4. Click Quit when you are finished.

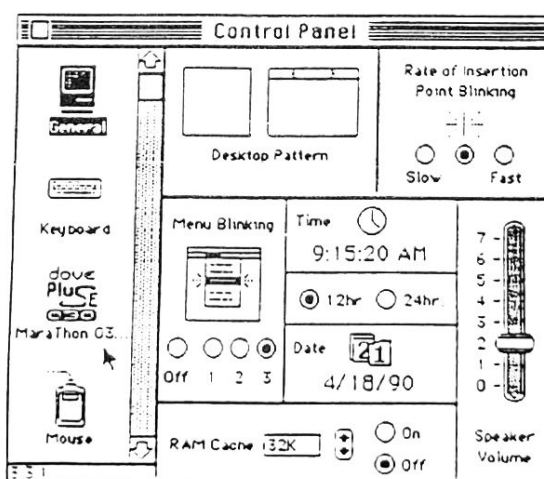


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Verifying Proper Software Installation

Once you have installed the resources, shut down and restart your Macintosh to insure that the software is installed properly.

Pull down the Apple menu and open the Control Panel. The 030 icon should appear on the left side, as illustrated below.

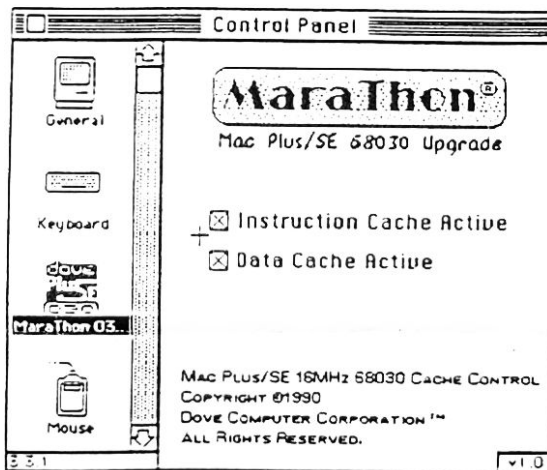


If the icon does not appear, reinstall the resources and reboot your system. If the software installation fails again or you need help with the installation, don't hesitate to call Dove Computer Corporation's Product Support Group at (800) 622-7627, or in NC, (919) 763-7918.

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MaraThon 030 Control Panel

The MaraThon 030 caches should be set to "active" in the Control Panel after the initial software installation.



As you use your 030 from day to day, you will find that it works with almost no effort on your part. Occasionally, you will need to access the 030 through the Control Panel. It is in the Control Panel that you can turn the 030 data and instruction caches on and off.

Each time you start up your Macintosh the MaraThon INIT program runs. It keeps the instruction and data cache settings as they were last set.



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Formatting Disks

You must turn the instruction cache off before you format floppy disks. Follow these steps:

1. Open the Control Panel under the Apple menu.
2. Double-click on the MaraThon 030 icon.
3. Turn off the instruction cache with the cursor.
4. Format the floppy disk(s) as you normally would.
5. Return to the Control Panel and turn the instruction cache on again.

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Troubleshooting

<i>Problem</i>	<i>Solution</i>
I am part of a LocalTalk network and cannot "see" the network.	If you change the state of either the data or instruction cache (particularly the instruction cache) it may affect the timing of certain input/output operations. Restart your Macintosh to restore proper timing between the 68030 and the rest of the system.

