VARIABLE SPEED OVERDRIVE

User Manual

Newer™
TECHNOLOGY

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Version 2.0

Important Information

Although you may perform the installation yourself, installation of a Variable Speed Overdrive is safest when left to qualified, Apple Authorized, service technicians. They are equipped to handle the installation in a static-free environment and possess an intimate knowledge of your computer.

If you have questions please feel free to call Newer Technology Technical Support at 800-678-3726 or 316-685-4904 between the hours of 8:30am to 5:30pm Central Standard Time. You may also fax your questions to Newer Technology at 316-685-9368, or AppleLink at NEWER.TECH 24 hours a day for reply during business hours.

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General Information

Variable Speed Overdrive for the Quadra 700

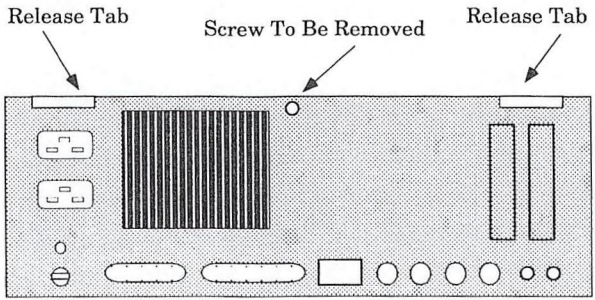
Before proceeding with the installation, make sure your VSO kit is complete. You should have:

1. One Variable Speed Overdrive (VSO) board
2. One two-wire cable with a connector on and a clip on the end of each wire
3. Software diskette
4. One heat sink/fan assembly
5. Warranty card
6. Disposable anti-static wrist strap

Installation

1. As with any hardware installation, IT IS IMPORTANT TO BACK UP ANY CRITICAL FILES BEFORE OPENING YOUR COMPUTER.
2. Remove the power cord and the monitor power cord from the rear of the Quadra 700.
3. Next, remove all peripheral device cables such as those used by the keyboard, mouse, external hard drives, etc.
4. Lay the computer on its right side. Remove the screw near the top center on the back of the case.

5. Turn the computer around so that you view it from the front. Reach around to the back of the case and locate the release tabs with your fingers. Simultaneously grasp both tabs and gently pull what is now the top of the computer case upward and toward you.



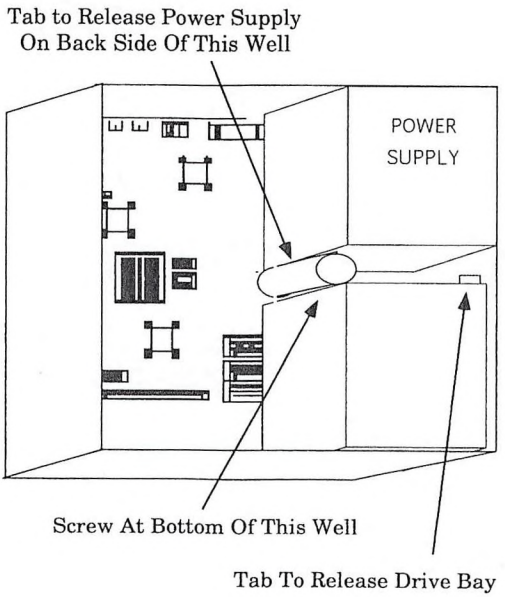
BACK VIEW

6. The drawing below shows the location of the drive bay and the power supply. To remove the drive bay you must first remove the power supply. At the rear of the drive bay is a circular plastic well approximately 1-inch in diameter. At the bottom of the well is a medium sized Philips screw which must be removed.

7. To remove the power supply, depress the tab located at the base of the circular well and against the front of the power supply. This tab should be pressed towards the front of the computer while simultaneously lifting

up on the power supply. It should lift directly up and out of your computer without forcing it.

8. The drive bay contains the hard disk drive and the floppy drive. It is a single piece of molded plastic held in place by a Philips head screw already removed (see drawing on previous page). At the top right-hand side on the front of the drive bay is a small wire with a yellow LED on the end of it. The LED is inserted into a



clear plastic housing attached to the inside front of the computer. Remove this LED from the housing and then the drive bay can be removed.

9. At the top right rear corner of the drive bay is a plastic latch which holds the drive bay in place against the side of the computer (refer to drawing on previous page). Grasp the drive bay, pull the latch slightly away from the side of the computer, and firmly pull the bay towards the rear of the computer. You may have to rock it slightly.

10. Once it has pulled away from the front of the computer by about an inch, you can stand it up on its rear side. It is not necessary to completely remove the drive bay.

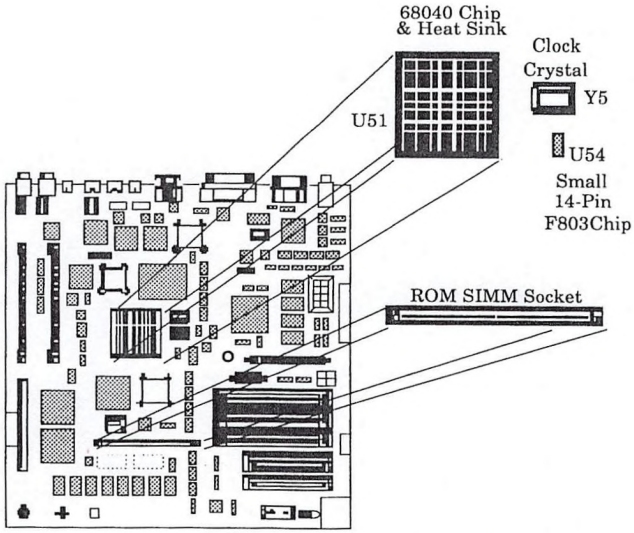
11. The diagram opposite on the next page shows the area of the motherboard where VSO will be installed.

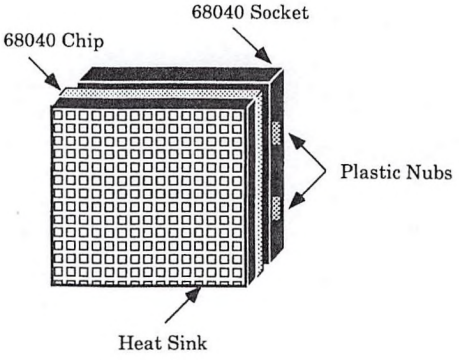
12. The heat sink on the CPU chip is held by a shiny metal retaining clip. The drawing on the next page shows the plastic nubs onto which the clip snaps. To remove the clip, bring the blade of a small screwdriver in from the side between the clip and the body of the chip. Gently twist the screwdriver blade, which will cause the clip to pop off the small plastic nub on the socket.

13. Repeat this procedure on the adjacent clip and remove the heat sink. On some Quadras, the heat sink may be held in place with a small dab of heat conducting silicone "goo" between the heat sink and the processor chip. If this is the case, gently twist the heat sink while

pulling on it. Once the heat sink is removed, leave any remaining silicone on the processor chip. Be careful when working in the area of the processor that you do not get any of the silicone on yourself or clothing.

Make sure the screwdriver tip remains away from the pins on the underside of the CPU chip.


68040 Chip
& Heat Sink
Clock
Crystal
Y5
U51
U54
Small
14-Pin
F803Chip
ROM SIMM Socket


68040 Socket
68040 Chip
Plastic Nubs
Heat Sink

1. The heat sink that comes with your VSO kit has a cooling fan which keeps the CPU chip cooler at accelerated speeds than when running at stock speeds. This heat sink has the same mounting clip as your stock heat sink. The side of the heat sink with the wires should be turned towards the power supply/drive bay of your computer. Attach one side of the mounting clip and then push the other side down until it clicks into place on the small plastic nubs sticking out from the side of the CPU socket.

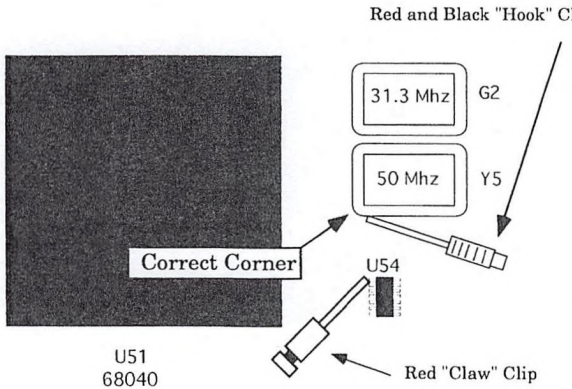
2. Attach the heat sink fan power cable to the motherboard. The power cable coming from the fan assembly has two plugs. Unplug the hard drive power cable from the motherboard by squeezing the small latch on one side of the power plug and pulling upwards, away from the motherboard. Next, plug the heat sink fan power cable into the connector on the motherboard. Plug the hard drive cable into the remaining plug coming from the fan assembly.

3. The drawing on the next page shows the area of the motherboard in which the VSO will be installed. Familiarize yourself with the positions of the various parts before proceeding.

4. Attach the red and black "hook" clip to the leg of the clock oscillator module (Y5) which is closest to the small Motorola F803 chip (U54) and also closest to the 68040 (U51). Fully distend the metal hook while simultaneously sliding it under the corner of the oscillator module. When you feel it bump the leg

under the oscillator you should slowly let the metal slide back into the plastic shank until you feel it firmly hook the leg. Give it a gentle tug. If it comes free, repeat the process until it firmly hooks in place. The metal part of the clip may short against the metal oscillator case. THIS IS NOT A PROBLEM.

5. Attach the red "claw" clip to the rear left leg of the small Motorola F803 chip (U54) which is located near the clock oscillator module and the CPU. It is the leg which is closest to the 50MHz clock oscillator module (Y5) and closest to the CPU (U51). It is easiest to attacl this clip by coming down at the chip leg at a 45° angle from the motherboard.



5. Insert the VSO into the ROM SIMM socket on the motherboard at about a 45° angle. The VSO sits in the ROM socket with its components facing the rear of the computer. Slowly rotate the VSO upright in the ROM SIMM socket. When it is perpendicular to the motherboard the metal retaining latches on each end of the VSO should click into place.

   NOTE: The VSO has a pass-through socket for use in the event that Apple Computer releases a ROM SIMM upgrade for the Quadra 700. A ROM SIMM will fit in this pass-through socket.

7. *It is extremely important that the translucent connector with two wires, be plugged into the white connector on the VSO.* Make sure that the tabs on each connector mate with each other properly (refer to drawing next page).

8. Move the drive bay back down into its original position and re-attach the yellow LED. Re-install the power supply and insert the screw at the bottom of the plastic well. Replace the case side and insert the screw in the back of the computer.

9. Continue to the section, "Software Configuration" on page 36.

Quadra 900, Quadra 950

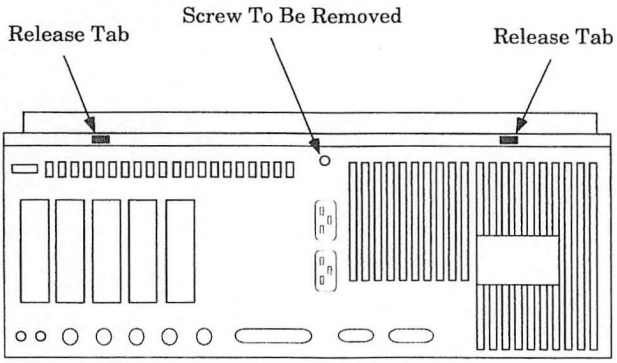
Before proceeding with the installation, make sure your VSO kit is complete. You should have:

1. One Variable Speed Overdrive (VSO) board
2. One two-wire cable with a connector on one end and a clip on the end of each wire
3. Software diskette
4. Heat sink/fan assembly
5. Warranty card
6. Disposable anti-static wrist strap

Installation

1. As with any hardware installation, IT IS IMPORTANT TO BACK UP ANY CRITICAL FILES BEFORE OPENING YOUR COMPUTER.
2. Remove the AC power cord and the monitor power cord from the rear of your Quadra. Remove all peripheral device cables such as the keyboard, mouse, external hard drives, Ethernet, etc.
3. Remove the single screw on the back before opening the case.

4. Lay the computer over on its left side. Depress the two thumb catches on the rear edge of the computer and remove the right side, now the top, of the case. You should be able to see the interior of the computer.



BACK VIEW

5. The drawing on the next page shows the location of the screws which hold the drive bay and the power supply in place and are numbered 1 through 5. The location on the motherboard of the floppy, disk drive, and power connectors are also shown.

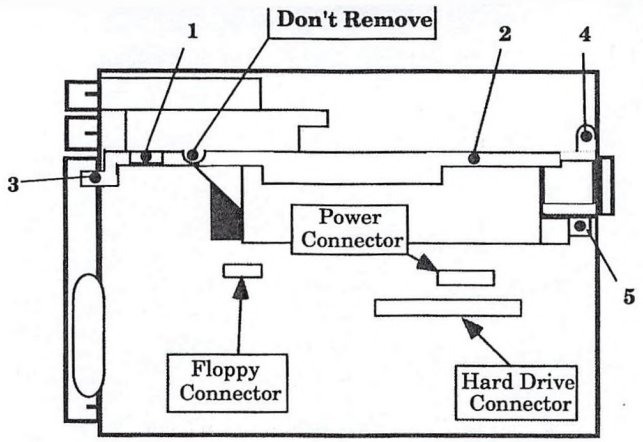
6. Remove the screws labeled 1 and 2. Remove the floppy cable from its motherboard connector. Remove the hard disk cable from its motherboard connector. Disconnect the power supply from its motherboard connector.

7. Remove the hard disk power supply cables which run from the back of the hard drives to small plug-in jacks on the side of the power supply. Undo the cables at the power supply.

8. Slide the entire drive bay assembly backward, approximately 1- to 2-inches, along the top of the power supply, at which point it may be lifted out of the computer and set aside.

9. On the front inside panel of the computer you see the two plastic tabs which hold the large plastic front panel (speaker assembly) in place. Gently pop them out so that the plastic front panel can lean away from the computer by about an inch. The small drive bay panel next to the speaker panel is held in place by a small plastic tab on each side. Depress the tab on the open side of the computer and gently allow the piece to lean out from the front of the computer. Screw #3 is now exposed (refer to the drawing).

10. Remove the screws labeled 3, 4 and 5 from the power supply. Grasp the power supply by the plastic tie-wrap handles and lift it straight up out of the computer. You should now have a clear view of the entire motherboard.

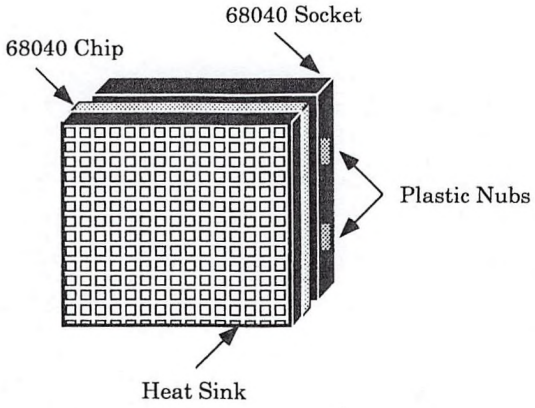


1. The exploded diagram below shows the area of the motherboard in which the VSO will be installed.

2. The heat sink on the CPU chip is held by a bright metal retaining clip. The drawing on the next page shows the plastic nubs used by the clip. To remove the clip, bring the blade of a small screwdriver in from the side between the clip and the body of the chip. Gently twist the screwdriver blade, which will pry the clip outward and cause the clip to pop up and off the small plastic nubs on the socket. Make sure the screwdriver tip remains away from the pins on the underside of the CPU chip.

3. Repeat this procedure on the adjacent clip and remove

the heat sink. On some production runs of the Quadra the heat sink may be held in place with a small dab of heat conducting silicone "goo" between the heat sink and the processor chip. If this is the case, gently twist the heat sink while pulling on it. Once the heat sink is removed, leave any remaining silicone on the chip. Do not get any of the silicone on yourself or clothing.



1. The heat sink that comes with your VSO kit has a cooling fan mounted on it which keeps the CPU cooler at accelerated speeds than when running at its stock speed. The side of the heat sink with the wires should be turned towards the base of your computer. Attach one side of the mounting clip and then push the other side down until it clicks into place on the small plastic

nubs sticking out from the side of the CPU socket.

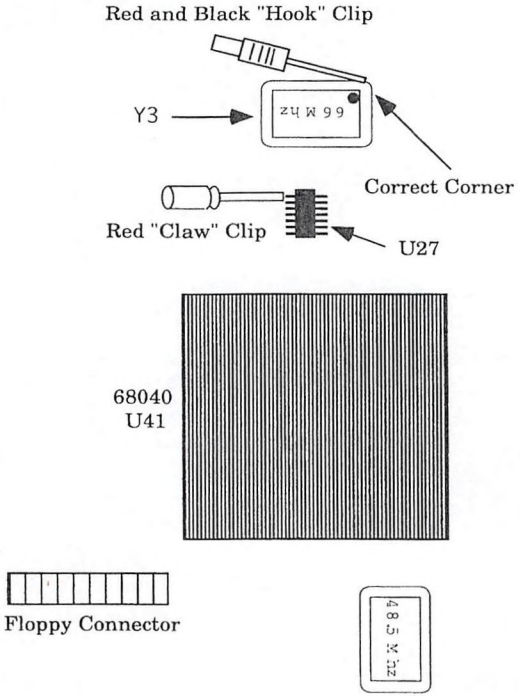
2. During the re-assembly of your drive bay and power supply later on, you will need to plug in the power connector from the heat sink fan. The fan power connector will plug into one of the four-pronged plug-ins on the power supply. The VSO cable provides you with another power plug-in, in case you already have four internal hard drives.

1. The drawing on the next page shows the area of the motherboard in which the VSO will be installed. Familiarize yourself with the position of the 68040 (U41), the 50 or 66 MHz clock oscillator module (Y3) and the small Motorola F803 chip (U27).

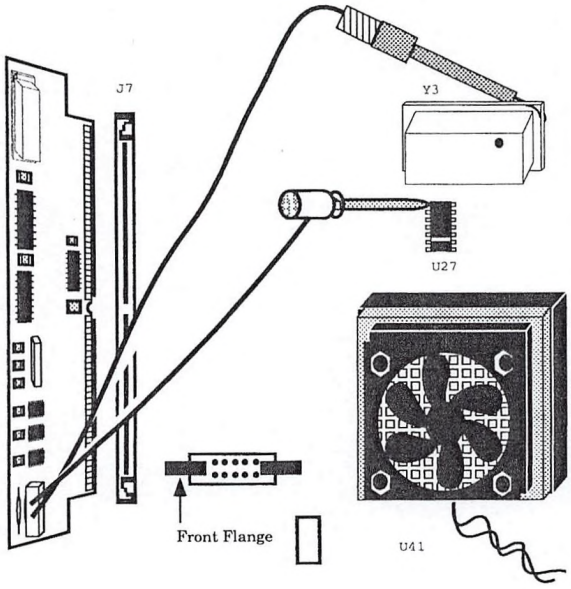
2. Attach the red and black "hook" clip to the leg of the clock oscillator module that is farthest from the CPU (U41) and closest to the back of the computer (refer to drawing on next page). Fully extend the metal hook while sliding it under the corner of the oscillator module. When you feel it bump the leg under the chip, slowly let the clip slide back into the plastic shank until you feel it firmly hook the chip leg. Give it a gentle tug. If it comes free, repeat the process until it hooks firmly into place. The metal part of the clip may short against the clock case without creating a problem.

3. Attach the red "claw" clip to the leg of the small Motorola F803 chip (U27) which is closest to the front of the computer and closest to the clock oscillator

module (Y3). It is usually easiest to attach this clip by coming down at the chip leg at a 45° angle from the motherboard.

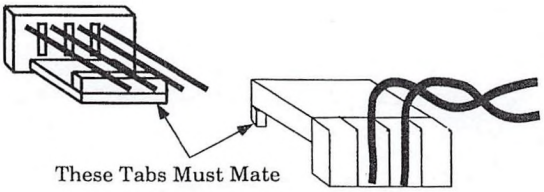


1. Insert the VSO into the ROM SIMM socket at about a 45° angle. The VSO sits in the ROM SIMM socket with the components facing the rear of the computer. In order to get it into the ROM socket it may be necessary to remove the front locking flange from the floppy connector on the motherboard. Slowly rotate the VSO upright in the ROM SIMM socket. When it is perpendicular to the motherboard, the metal retaining latches should lock around the edges of the VSO.



NOTE: The VSO has a pass-through socket for use in the event that Apple Computer releases a ROM SIMM upgrade.

2. It is EXTREMELY IMPORTANT that the translucent connector with two wires be plugged into the white connector on the VSO correctly. Make sure that the tabs on each connector mate properly (refer to drawing below). The wires need to run straight down the body of the VSO, (near the left side where they plug on) along the motherboard directly in front of the ROM SIMM socket, then towards their respective clips.



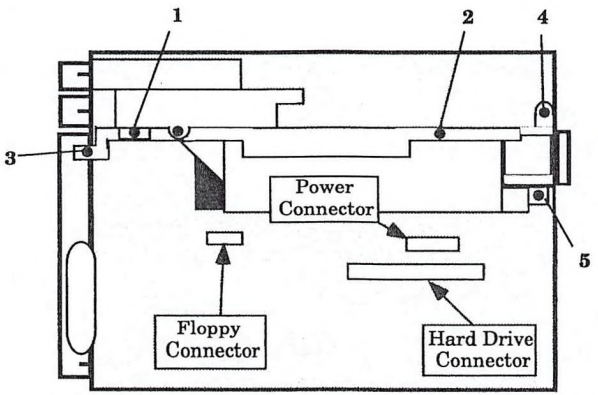
1. Place the power supply back into the computer and insert screws 3, 4 and 5 (see drawing on next page).

2. Plug the heat sink fan cable into one of the four power sockets on the underside of the power supply. An additional power socket is attached to this cable so that users with four internal hard drives will be able to plug

all of them into the power supply directly.

3. Place the drive bay back onto the top of the power supply and slide it forward until it is snug against the front of the computer. Insert screws 1 and 2 which hold it to the power supply (refer to drawing on next page).

4. Re-attach the floppy, hard drive and power supply cables to their motherboard connectors. Plug the hard disk power cable back into one of the power sockets on the power supply. Finish re-assembling the computer then refer to the section, "Software Configuration" on page 00.



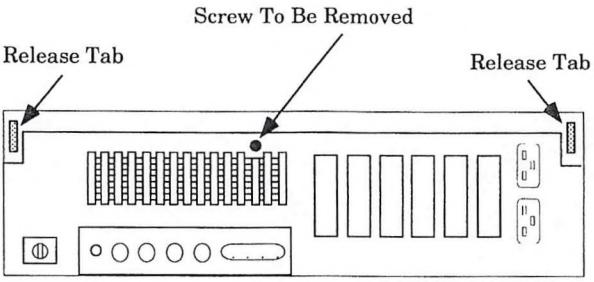
VSO For The Mac IIfx

Before proceeding with the installation, make sure your VSO kit is complete. You should have:

1. One Variable Speed Overdrive (VSO) board
2. One two-wire cable with a connector on one end and a clip on the end of each wire
3. Software diskette
4. Three heat sinks
5. Warranty card
6. Disposable anti-static wrist strap

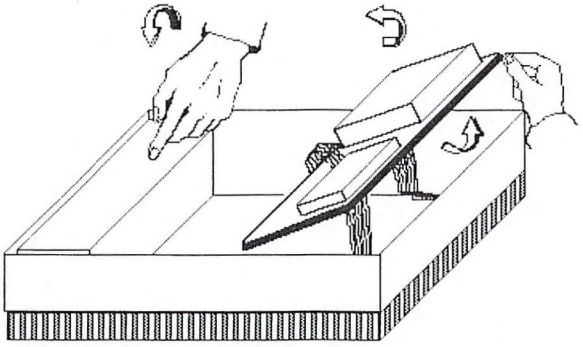
Installation

1. As with any hardware installation, IT IS IMPORTANT TO BACK UP ANY CRITICAL FILES BEFORE OPENING YOUR COMPUTER.
2. Remove the power cord and the monitor power cord from the rear of the case. Remove all peripheral device cables such as those used by the keyboard, mouse, external hard drives, etc.
4. Remove one screw near the top center on the back of the case. Remove the top of the case by depressing the two release tabs on the rear edge case near the left and right sides.



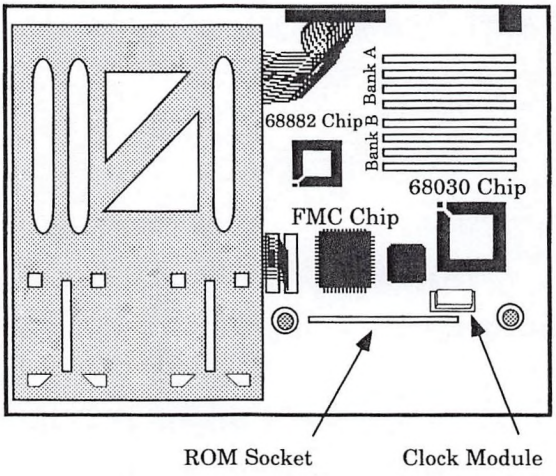
BACK VIEW

1. The drive platform is a single piece of metal which holds the hard disk drive and the floppy drive. Remove the four Phillips head screws which are located at the four corners of the drive platform. Leave the hard drive



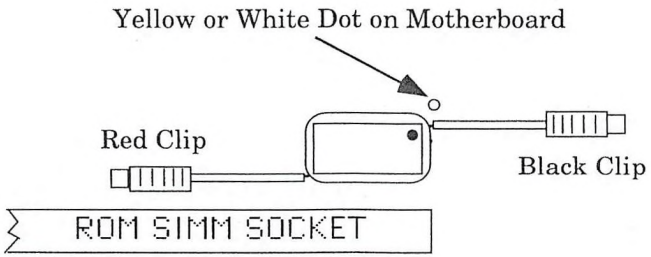
and the floppy drive anchored and all cables attached, grasp the drive bay, and flip it over, setting it upside down on top of the power supply (refer to drawing below). The motherboard should be largely exposed.

The ROM SIMM may be removed by pushing the metal retaining clips at each end of the socket away from the edge of the ROM SIMM while simultaneously pushing the top edge of the SIMM towards the rear of the computer. The SIMM panel will rotate about 30° down towards the motherboard, where it may be removed from the ROM SIMM socket.



1. The VSO accelerator is connected to the motherboard clock chip by two clips which attach to two of the four legs of the CPU clock oscillator module. The clock oscillator module is a small silver box located in front of the right hand corner of the ROM SIMM socket (refer to drawing on previous page).

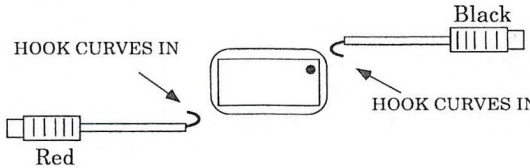
2. There are four legs in each corner underneath the clock oscillator module. The BLACK clip should be attached to the leg next to the yellow or white dot on the motherboard. Make sure you attach the black clip. Fully extend the metal hook while sliding it under the corner of the oscillator module. When you feel it bump the leg under the clock, slowly let the clip slide back into the plastic shank until you feel it firmly hook the leg. Give it a gentle tug and if it comes free, repeat the process until it hooks firmly into place. The metal part of the clip MAY short against the clock case. THIS IS NOT A PROBLEM ON THE BLACK CLIP ONLY. The drawing on the next page shows the proper method of hooking onto the leg.



3. The red clip attaches to the leg that is diagonally across the oscillator module from the black clip. MAKE SURE THE RED CLIP DOES NOT SHORT AGAINST THE CLOCK CASE.

   ATTACHING THE CLIPS TO THE WRONG LEGS MAY RESULT IN DAMAGE TO YOUR COMPUTER!

   The drawing below illustrates the technique of attaching the clips onto the chip legs. In the first picture, the clips are attached correctly. Note that the clips curve in toward the center of the oscillator.

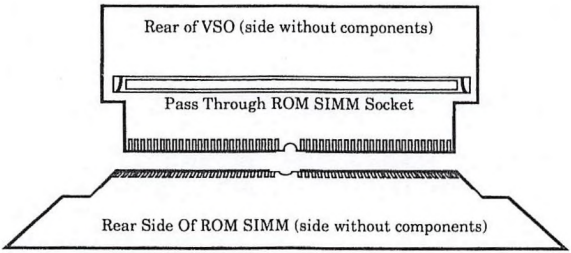


CORRECT

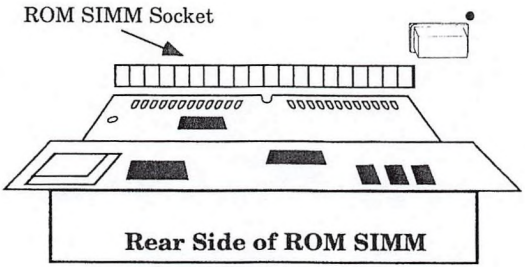
The drawing below shows an incorrect method of attaching clips. There is a small plastic nub on the bottom of the oscillator which does not allow the clip to make contact with the leg from this position.

INCORRECT

1. Install the ROM SIMM removed from the socket on the motherboard, into the pass-through socket on the VSO accelerator.

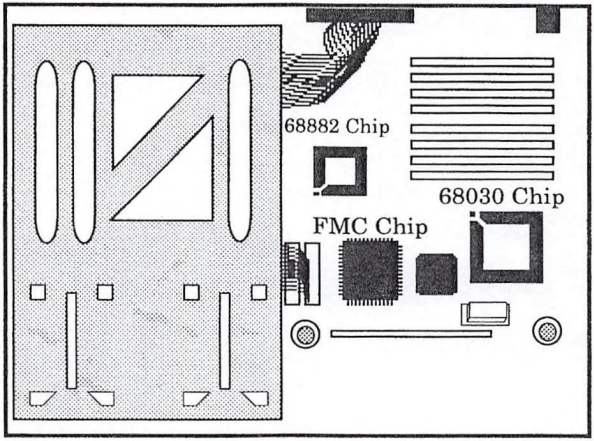


2. Insert the VSO into the ROM socket at about a 45° angle. The component side of the VSO board faces the back of the computer. Slowly rotate the VSO upright in the socket. When it is perpendicular to the motherboard, the metal retaining latches should click into place.



1. The bottom of each heat sink has a peel-off paper strip. This strip covers a thermally conductive adhesive. Remove the strip and press the heat sink down on the top of the CPU chip (see drawing below).

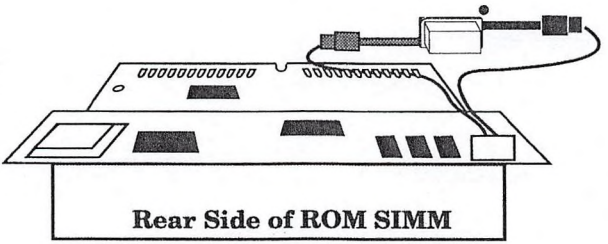
2. The second heat sink should be attached to the 68882 co-processor chip. The third heat sink should be attached to the FMC (Fast Memory Controller) chip.

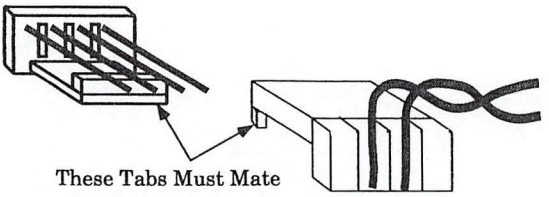


1. The cable assembly which originates at two clips and terminates in a two-pronged plug must be correctly routed to the VSO. The drawing on the next page details this routing. The wires should run straight down the body of the VSO (near the left side where they attach), along the motherboard directly in front of

the ROM socket. Then they branch out towards their respective clips.

2. It is EXTREMELY IMPORTANT that you plug the translucent connector with two wires into the white connector on the VSO. Make sure that the tabs on each connector mate with each other properly.





1. Return the drive platform to its proper position above the memory section on your motherboard. Startup the Mac. If it boots to a "Happy Mac Face", choose Shut-down from the Special menu. If you don't get the "Happy Mac Face" go to the "Troubleshooting" section of this manual, page 44.

3. Re-install the screws that hold the drive platform in place. Replace the case top and re-attach all external cables. Refer to the section, "Software Configuration" on page 36.

VSO For The Mac IIsi

Before proceeding with the installation, make sure your VSO kit is complete. You should have:

1. One Variable Speed Overdrive board
2. One two-wire cable with a connector on one end and a clip on the end of each wire
3. Software diskette
4. One heat sink
5. Warranty card
6. Disposable anti-static wrist strap

Remember that due to motherboard timing constraints, the computer will automatically slow down to stock speed when a floppy is inserted into the drive. The computer's speed remains slowed until the floppy is ejected.

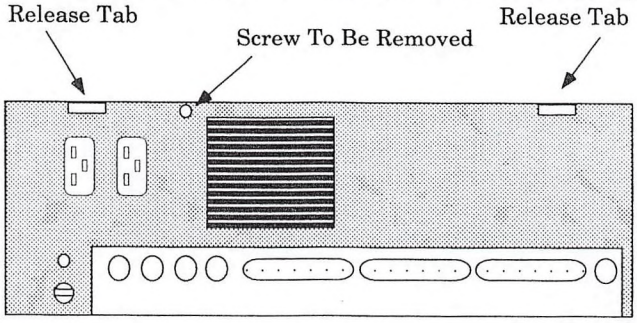
Installation

1. As with any hardware installation, IT IS IMPORTANT TO BACK UP ANY CRITICAL FILES BEFORE OPENING YOUR COMPUTER.
2. Remove the power cord and the monitor power cord from the rear of the case. Remove all other cables such as those used by the keyboard, mouse, external hard drives, etc.

4. Open the case by removing the single screw near the top center on the back of the case. Once the screw is removed, turn the computer around so that you view it from the front. BEFORE PROCEEDING MAKE SURE THERE IS NOT A DISKETTE IN THE DISK DRIVE. Reach around to the back of the case and locate the release tabs with your fingers (refer to the drawing below).

6. Simultaneously grasp both tabs and gently pull the top of the computer case upward and toward you (the top, sides and front are all one unit).

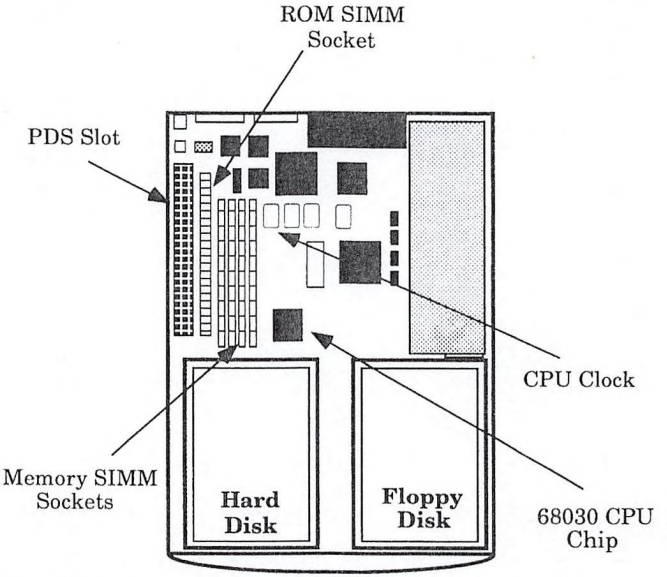
7. You should be able to see the motherboard. There may



BACK VIEW

be a card installed in the PDS slot that should be removed before proceeding with the VSO installation.

The ROM SIMM may be removed by pushing the metal retaining clips at each end of the socket away from the edge of the SIMM while pushing the top edge of the SIMM towards the right side of the computer. The SIMM panel will rotate about 30° down, where it may be removed from



the socket. It may be necessary to remove the DRAM memory SIMMs, if any are installed, to allow enough room to work.

1. Install the ROM SIMM, which you removed into the pass-through socket on the VSO accelerator.

2. Insert the VSO into the ROM socket at about a 45° angle. The side of the VSO with the ROM SIMM installed will face the left side of the computer. Slowly rotate the VSO upright in the socket. When it is perpendicular to the motherboard the metal retaining latches should click into place.

1. The heat sink included with the VSO kit has a peel-off paper strip. The peel-off strip covers a thermally conductive adhesive.

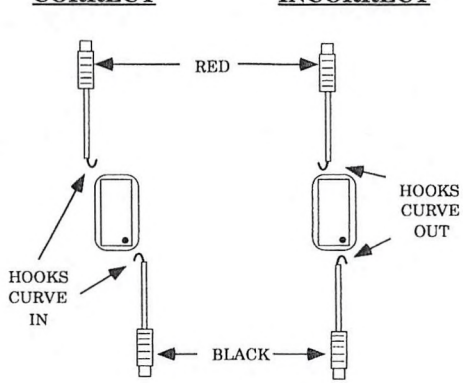
2. Locate the CPU chip (refer to drawing on previous page). Remove the peel-off strip from the bottom of the heat sink and press it onto the top of the CPU chip. The heat sink will extend slightly past the edge of the chip on all sides.

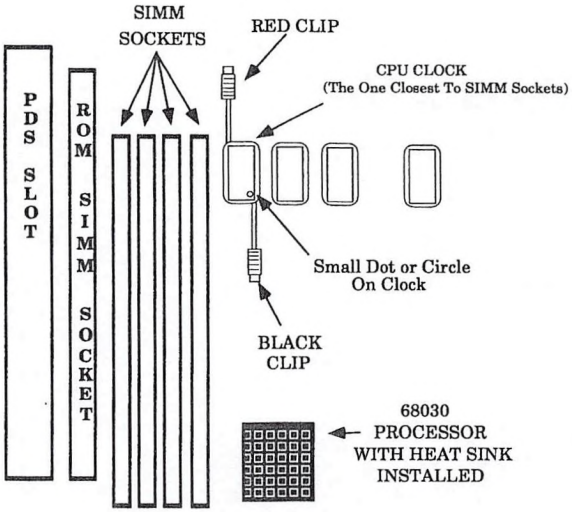
1. Four oscillators are in a row on the motherboard look like small silver boxes. The CPU clock is the silver box closest to the SIMM sockets.

2. There is a leg in each corner underneath the clock oscillator chip. Attach the BLACK clip to the leg farthest from the SIMM sockets. Fully extend the metal hook while sliding it under the corner of the oscillator module. When you feel it bump the leg under the clock, slowly let the metal slide back into the plastic shank until you feel it firmly hook the leg. Give it a tug and if it comes free, repeat the process until it hooks

firmly. The metal part of the clip MAY short against the clock case. THIS IS NOT A PROBLEM ON THE BLACK CLIP ONLY. The proper method of hooking the legs is shown on the next page. In the first picture, the clips are put on correctly. Note that the clips curve in toward the center of the oscillator. The second drawing shows an incorrect method of attaching the clips. There is a small nub on the bottom of the crystal which prevents the clips from making solid contact with the legs from this position.

3. The red clip attaches to the leg that is diagonally across the oscillator module from the black clip. MAKE SURE THE RED CLIP DOES NOT SHORT AGAINST THE CLOCK CASE.





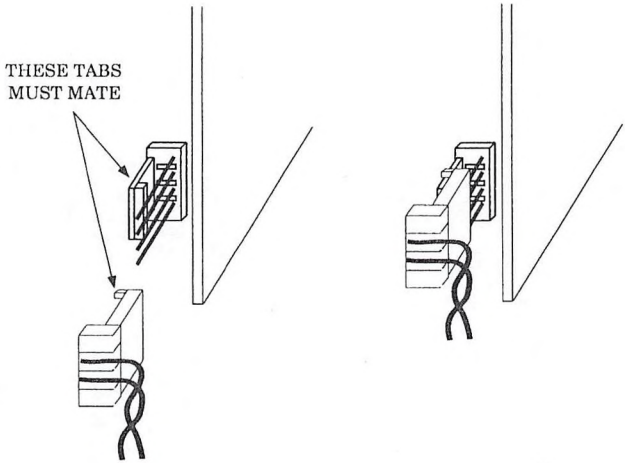
ATTACHING THE CLIPS TO THE WRONG LEGS MAY RESULT IN DAMAGE TO THE COMPUTER.

1. The cable assembly originates with two clips and terminates in a two-pronged plug and must be correctly routed to the VSO. The wires should follow straight down the body of the VSO near the plug, then along the motherboard towards their respective clips.

2. It is EXTREMELY IMPORTANT that you correctly connect the translucent connector with two wires into

the white connector on the VSO. Make sure the connector tabs mate with each other properly (see drawing on next page).

3. Re-install any PDS card or memory SIMMs you may



have removed during the installation. Re-assemble your computer and continue to the section, "Software Configuration" on page 36.

Software Configuration

Place the diskette supplied with VSO into the disk drive. There are several folders on the diskette with software for the Quadra 700, 900, 950, Macintosh IIfx, and Macintosh IIsi. Open the appropriate folder for your computer, then open the System Folder on the hard disk. Drag the VSO Control Panel into the Extensions Folder (yes, **put the VSO Control Panel into the Extensions folder**). Open the Extensions folder, highlight the VSO Control Panel file, and select Make Alias under the File menu. Drag the alias of the VSO file into the Control Panels folder. Drag the Pref File off the floppy and into the Preferences folder (do not drag the Pref File into the System Folder) — place the Prefs File directly into the Preferences folder.

Using the Software

After you have installed the software on your hard disk, Restart the computer. It is important that on this initial restart and any boot-ups after a Shutdown, **the computer will double boot. *This is normal.***

This occurs whenever you perform a cold boot. It will boot in the normally until it reaches the VSO INIT, when it reboots. Once the VSO INIT is launched, subsequent Restarts will not cause a double boot.

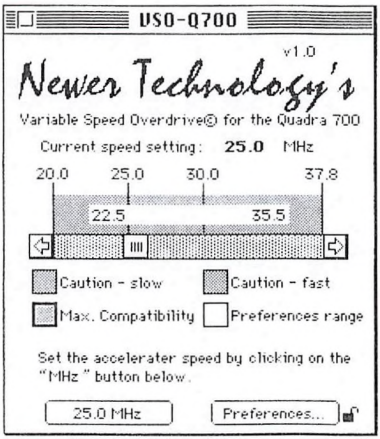
If you do not Restart after the initial installation of the VSO software, you see the dialog box shown on page 42, which states that no changes will occur until the computer is

restarted.

Open the Control Panel and double click the VSO icon. The VSO Control Panel allows you to set the speed of the CPU. The slider-bar is adjusted by clicking and dragging on the thumbnail or by using the arrows on either end. When using the arrows, the speed will change in 0.1 MHz increments. If you click on the slide area between the thumbnail and the arrows, the slider will move in 1 MHz increments.

As you adjust the slider-bar, the new speed can be seen in the button at the bottom left corner of the Control Panel. WHEN YOU REACH THE DESIRED SPEED, CLICK THIS BUTTON.

You MUST click the button to change the speed. When the MHz button is clicked, the Current Speed Setting line above the slider-bar will change to reflect the new speed the computer is running.



TECHNICAL NOTE: TimeDBRA is not reset when the speed is changed with VSO. TimeDBRA is a value which is stored in memory at boot time and is based on the speed of the computer at the time it booted. Some rare applications may base timing critical operations on this value. If you experience difficulty with a particular application after having changed speed with VSO, pick Restart from the Special Menu at the desktop. This will cause the computer to reboot at your newly selected speed and reset the TimeDBRA value.

If you click the Preferences button in the lower right hand corner of the Control Panel, several options appear (see graphic on previous page). Changing these settings is optional.

Speed Settings

This section allows you to choose the slowest and the fastest speed you want your computer to run at. The default settings (guaranteed operational range) are already programmed into this Control Panel. You can change those values in the Minimum and Maximum speed boxes. This will set the selectable area displayed in the Control Panel.

Due to the large number of variables such as RAM speed, brand of RAM, NuBus cards, and others, the process of choosing a Maximum speed requires a small amount of trial and error. Newer Technology provides guidelines for guaranteed performance. It is also possible to set the speed

higher and many of our customers find that their Macs will reliably run well beyond this safe zone. You should take the time to find the fastest setting possible for your Mac to get the most value out of the VSO accelerator. A system lock-up is the most common sign that you have chosen a speed setting too fast. If a lock-up occurs, restart your Mac while holding the [D] key. This will reset the VSO to the stock speed. Once the Mac has restarted at stock speed, open the VSO Control Panel and select a slower speed.

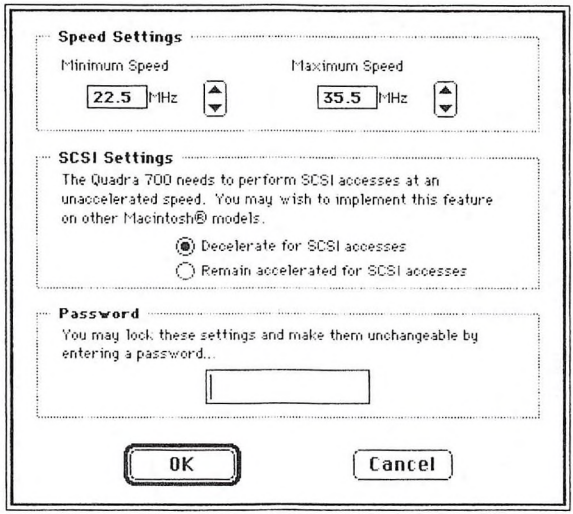
SCSI Settings

These settings are provided to maintain maximum compatibility with all hard disk drives. The settings for various computers are:

Quadra 700	Decelerate
Quadra 900	Remain Accelerated
Quadra 950	Remain Accelerated
Macintosh IIfx	Remain Accelerated
Macintosh IIsi	Remain Accelerated

The "Decelerate for SCSI accesses" is used to maintain proper timing for drives which are used with the Quadra 700. When this button is selected, it causes the computer to automatically slow down to 25MHz whenever a SCSI Read or SCSI Write operation occurs. This is transparent to the user and is done because of hardware constraints in the Quadra 700. The SCSI chip and CPU share a common clock

crystal. When the CPU is accelerated, the SCSI chip is also accelerated. By slowing down on SCSI Reads & Writes, proper SCSI timing is maintained.



Password

You may password protect the settings you have just made. Simply type in a password and then click the "OK" button or press Return. You will are asked to verify your password.

If the verification is okay, the main Control Panel screen appears with a small lock icon in the lower right hand corner. In order to get back to the preferences screen, you will have to enter your password. Please make every effort to remember your password. If you do forget it, the easiest solution is to throw away the "VSO Prefs" file in the Preferences folder and replace it with a copy of the original file from your VSO diskette.

Keyboard Disablers

If you wish to boot your computer without the VSO INIT, hold down the [**O**] key while booting. This will bypass the VSO INIT at startup.

IMPORTANT: Failure to load the INIT will **not** disable the VSO on a warm boot (a boot from Restart). VSO will continue running at whatever speed it was last set to if this was a warm boot. This keyboard disabler is useful if you have a piece of software that conflicts with the VSO INIT for some reason.

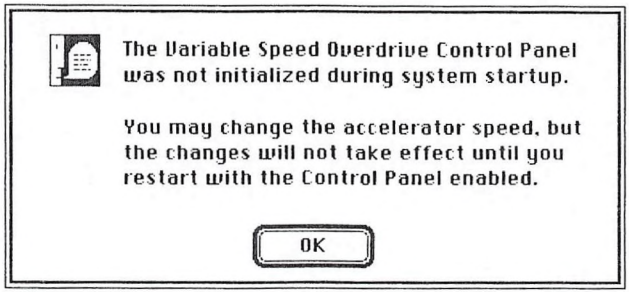
If you open the VSO Control Panel after booting without the VSO INIT loaded, the dialog box below appears, which reminds you that changes will occur after the computer is restarted.

To reset the VSO to stock speed, hold down the [**D**] key while booting. This keyboard disabler is useful if your computer has locked up because you selected a speed

setting which was too high. Once the computer reboots at the stock speed, you may go to the Control Panel and select a slower speed.

Testing VSO

1. The shareware program Speedometer™ has been included with VSO. Please study the READ ME file in the Speedometer folder.



2. Adjust your Monitor setting to 256 or less colors. This is done because Speedometer does not fully function in 24-bit color mode. In 24-bit color mode the tests will run correctly, but the on-screen "speedometer" display will not operate.

3. Set VSO to your computer's normal speed to perform the first set of tests as a stock speed benchmark.

4. Copy the Speedometer folder from the floppy disk onto

your hard drive. Open the Speedometer folder on your hard drive and launch Speedometer. You will need to click two different "OK" buttons before you are actually into the application. In the menu bar under the Test menu select the first option — Performance Rating...

5. You will be asked which disk to use for the hard drive portion of Speedometer's performance rating. It will automatically default to the drive with the Speedometer folder. Click the OK button and the test will begin. When the tests are completed, four test scores will be displayed: CPU, Graphics, Disk, and Math. The CPU score is the most meaningful. However, in the Quadras, the other scores will usually show improvements as well. Make a note of that score before you quit Speedometer. Please note that the CPU score is simply a relative number and is NOT the actual speed in megahertz.

6. Quit Speedometer and change your VSO settings to a higher speed from the Control Panel. Rerun the Speedometer tests at the higher speed. Compare the results of this test against the results from the previous test. The CPU score should be higher. If it is not, read the Troubleshooting section of this manual.

Troubleshooting

1. If you do not get a double boot, you have an INIT conflict which can be resolved by renaming (adding letters) to INITs to alter their normal alphabetic loading order.

2. If VSO doesn't change speeds make sure the clips are connected properly. Also, be sure to click on the MHz button at the bottom of the Control Panel screen.

3. On the IIfx, if Apple's A/ROSE extension is loaded, the speed of the IIfx will be about 20% slower than running without A/ROSE loaded.

4. Make sure the microphone isn't plugged into the speaker jack or the speaker won't work.

5. When using some of the earlier versions of the Foreign File Access extension, that extension must load before the VSO INIT. This can be accomplished by adding characters to the INIT names to alter their alphabetic loading sequence.

6. The NOW Utilities startup manager sees the VSO's double boot as a crashing extension. You must turn off the "disable crashing extensions" option in the NOW Utilities startup manager preferences.

7. The VSO is incompatible with the Daystar cache card.

8. If your machine crashes frequently, slow down the VSO by 1 MHz and Restart.

9. If your computer won't re-boot, hold down the [D] key while booting. This will reset the VSO to stock speed. If your computer boots, you should set the VSO to a speed somewhat slower than the speed which caused the problem.

10. If you still have problems, call Newer Technology's Technical Support Department at 1-800-678-3726 or (316) 685-4904 between 8:30am and 5:30pm CST, Monday through Friday. If you need help after these hours, you may reach us through fax at (316) 685-9368 or AppleLink at NEWER.TECH for response during the next business day.

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NOTES

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