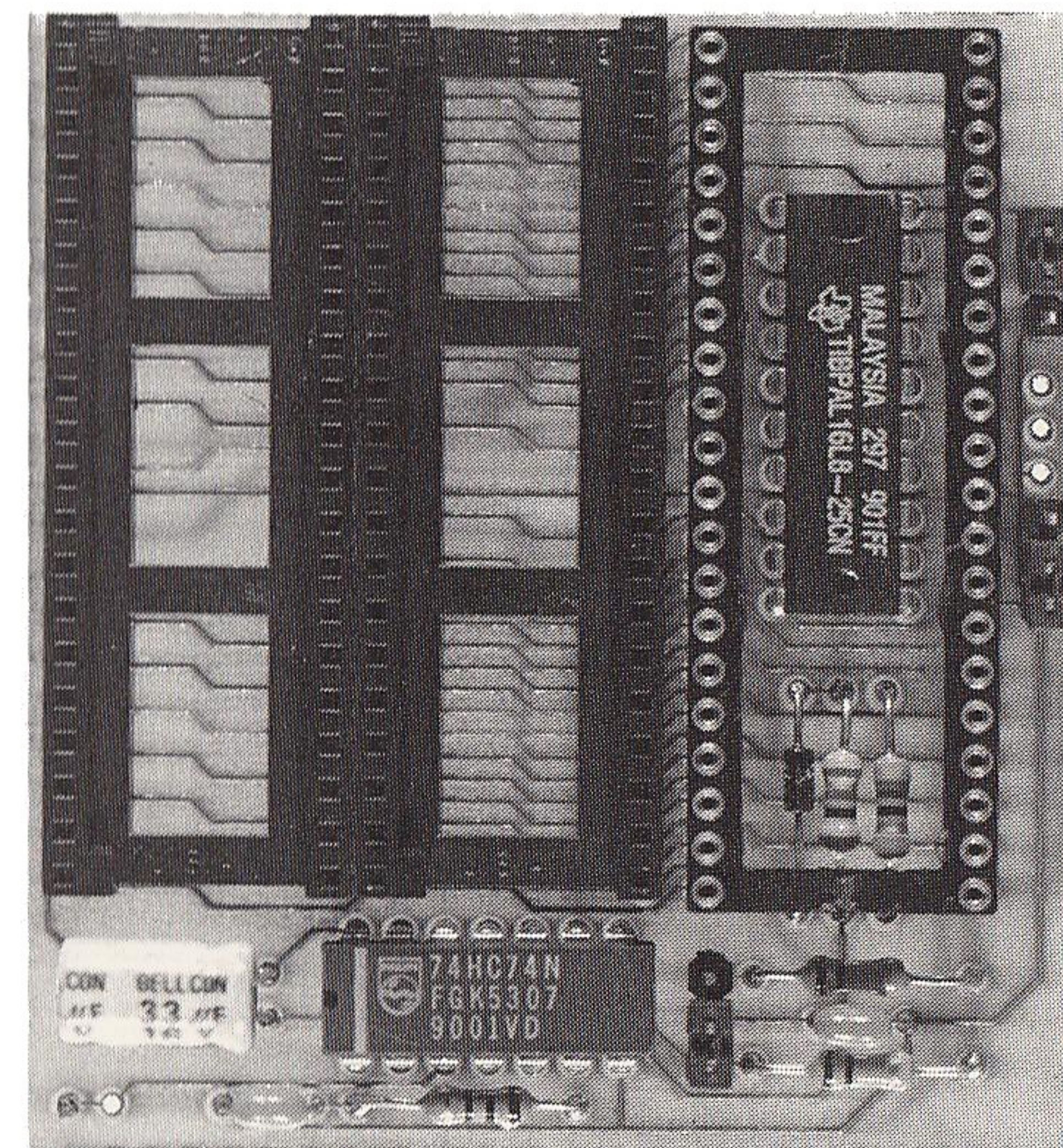


MultiStart IITM Kickstart Rom Expansion Board for the Amiga[®] 2000 and Amiga[®] 500



Installation and User's Guide

by
DKB Software

DKB Software
50240 W. Pontiac Tr.
Wixom, MI 48393
Sales (313) 960-8750
Fax (313) 960-8752

COPYRIGHT

This manual is the Copyright © of DKB Software, Inc.
All Rights Reserved. This document may not, in whole or in part, be copied, photocopied, reproduced, translated, or reduced to any electronic medium or machine readable form, without prior consent, in writing, of DKB Software, Inc.

MegAChip 2000, MultiStart II, BattDisk, SecureKey, KwikStart, KwikStart II, Insider, and Insider II are trademarks of DKB Software.
Amiga is a registered trademark of Commodore-Amiga, Inc.
AmigaDos, Kickstart, and Workbench are trademarks of Commodore-Amiga, Inc.

Table of Contents

1. Introduction	1
2. Configuring the MultiStart II™	2
Selecting the power up mode	2
Setting for the A500 or A2000	2
3. Installation in the A2000	3
Disassembling your Amiga®	3
Removing the Kickstart™ Rom	4
Installing the MultiStart II™	5
Reassembling your Amiga® 2000	6
4. Installation in the A500	7
Disassembling your Amiga®	7
Removing the Kickstart™ Rom	7
Installing the MultiStart II™	8
Reassembling your Amiga® 500	9
5. Operation of the MultiStart II™	10
6. Troubleshooting	11
7. Using Two Operating Systems	12

1. Introduction.

Congratulations on the purchase of your new MultiStart II™ ROM expansion board for the Amiga® 2000 and 500 by DKB Software. The MultiStart II™ will allow you to stay compatible with your older software when new Kickstart™ ROM versions are released.

MultiStart II™ is an add on board that puts multiple Amiga® KickStart™ ROMs in the A500 and A2000.

This latest version of the MultiStart II™ provides you with the ability to install Kickstart™ V2.0 as well as V1.3 and V1.2 in your Amiga® 2000 and 500.

This is the easiest way for Amiga® owners to upgrade to 2.0 and still stay compatible with software that will only work under 1.3.

The MultiStart II™ is also fully compatible with the MegAChip 2000™.

Your MultiStart II™ Board can be powered up in the operating system of your choice! By selecting a jumper on the MultiStart II™ Board you can power up under the ROM of your choice and then switch to an alternate operating system by just rebooting your computer and holding the keys down for 5 to 6 seconds. When you do a quick reboot (also known as a warm boot) the Amiga® will stay in whatever operating system it was last in. When you do a reboot and hold those keys for more than 5 seconds the MultiStart II™ will sense this change and toggle in the other operating system. Thereafter a quick reset will remain in the current operating system. Do a long reset and MultiStart II™ will switch again.

The MultiStart II™ is compatible with all Amiga® A2000 computers and with all Amiga® A500 computers that have a revision 5 or lower motherboard.

DKB Software
50240 W. Pontiac Tr.
Wixom, MI 48393
Sales (313) 960-8750
Fax (313) 960-8752

2. Configuring the MultiStart II™.

Installing The Kickstart ROM

Step 1:

You need to install Kickstart™ ROM(s) in the 40 pin socket(s) on the MultiStart II™ board with the notch in the ROM in the same direction as the notch in the socket. The ROM that you want to boot up with should be placed in the center socket with the keyboard selectable ROM placed in the socket on the right of the board. Remember to select the correct alternate ROM socket in the following steps, the one you have placed the ROM in.

(See Figure 1 on page 10)

Note:

If you are installing the MultiStart II™ in the A500 with Kickstart™ V2.0 the 2.0 (or above) ROM MUST be in the center socket for proper operation. If your 2.0 Rom has a jumper wire on it this wire must be removed prior to installation in the MultiStart II™ in all Amiga computers.

Setting The Operating Mode Jumpers

By selecting jumpers on the MultiStart II™ Board you can power up under one ROM and select one of two other ROMs to be able to switch between with the keyboard.

Setting The MultiStart II for the A500 or A2000

Step 1:

You need to set the MultiStart II™ for the computer that you are installing it in. Locate the three position jumper on the MultiStart II™ board that is on the right side of the board. The default setting is for the A2000. If you are installing the MultiStart II™ in the A2000 this jumper should be set on the bottom two pins of the three pin connector. If you are installing the MultiStart II™ in the A500 the jumper should be set on the upper two pins of this jumper. (See Figure 1 on page 10) Note: If installing in an A2000 rev 3.x you need to set the MultiStart II™ for the A500.

Selecting The Boot ROM and the Keyboard Selectable ROM

Step 2:

Locate the three position jumper on the MultiStart II™ board that is on the bottom center of the board. It is set for a default of booting up with the center ROM, the lower position. If you wish to boot up with the alternate ROM you can install the jumper on the upper two pins.

(See Figure 1 on page 10)

Step 3:

The two position jumper that is located on the right side of the MultiStart II™ allows you to select which of the two outside ROM sockets will be the keyboard selectable ROM.

With the jumper left open the alternate ROM socket will be on the right of the board. With the jumper shorted the alternate ROM socket will be on the left of the board.

Step 4:

You can optionally install a switch on the two pin header connector on the right side of the board if you have three ROMs installed. This will allow you to switch between the two alternate ROMs to use with the keyboard.

3. Installation in the Amiga® 2000.

Disassembling Your Amiga

Warning:

Unplug the Amiga® 2000 before removing the cover or attempting to install the MultiStart II™. Installing the MultiStart II™ with the power on could cause possible injury to yourself and damage the equipment. DKB Software will not be responsible for any damages caused by improper installation of the MultiStart II™. Such improper installation will void the warranties on both the MultiStart II™ and the Amiga® 2000.

Step 1:

Remove the mouse and keyboard cables from the front of the Amiga®, the power cord, and any peripherals connected to the rear. Carefully note the position and orientation of all connectors to simplify reassembly later.

Step 2:

Remove the five screws holding the top cover on the Amiga® 2000. There is one screw at the top center of the rear panel, and two screws on either side at the bottom.

Step 3:

Turn the Amiga® so that the front is facing you. With one hand on either side of the machine, slide the cover toward you and lift upward. Do not force the cover if it seems to stick. Check that no wires are caught on the metal tab at the rear center of the cover.

Step 4:

If you have an accelerator card installed in the CPU slot, you should remove this prior to the next step.

Step 5:

Next you will need to remove the power supply and disk drive bracket. There are three screws at the front of the bracket and four at the back of the computer that need to be removed. Now you need to disconnect any power cables that may be going from the power supply to peripherals, such as hard drives, and the main power connector that goes to the mother board. You do not need to remove the power cables to the disk drives.

You will also need to remove the data ribbon cable from the disk drive(s) at the mother board connector. This connector is at the back of the computer just to the left of the power supply.

If you have a Bridgeboard installed in your computer, you will also need to remove the ribbon cable from the back of that disk drive. Also, if you have a hard drive mounted to the disk drive bracket you will need to remove the data cable(s) to this drive.

3. Installation in the Amiga® 2000.

Removing the Kickstart ROM Chip

Step 6:

Pick up the bracket at the center and lift the front up then remove the entire assembly. Set this aside until you are ready to reassemble the computer.

Step 7:

Now you have to remove the Kickstart™ ROM chip that is in your computer. This chip is located to the right of the 68000 chip on the mother board. The ROM is labeled on the top of the chip as 315093-0(1 or 2 etc.).

Using a small flat blade screwdriver gently pry up slightly on one end of the ROM chip. (Be sure you are prying between the socket and the chip and not prying the socket!) Now do the same to the other end and slightly pry up. Using this back and forth motion to lift the chip from its socket. Be careful not to bend or break any pins off, take your time. (see figure 2).

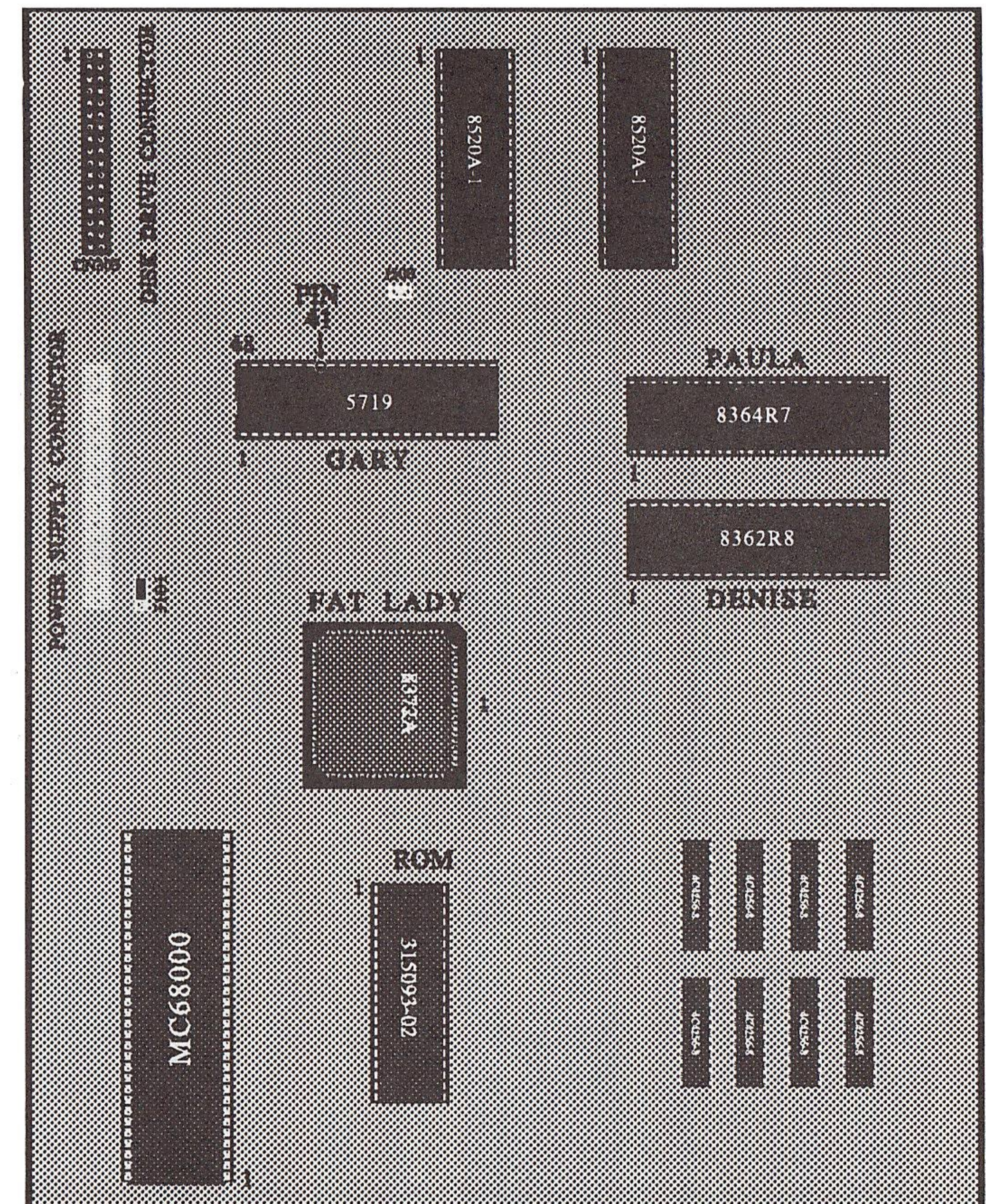


Figure 2.

3. Installation in the Amiga® 2000.

Installing The MultiStart II™

Step 8:

Now you need to install this ROM chip in the socket that you selected previously when configuring your MultiStart II™. Make sure that you install the chip with the notch in the same direction as the notch in the socket.

Note:

Pin ten of the extension socket on the Multistart II™ is missing. This pin is intentionally removed for proper operation of the MultiStart II™.

Step 9:

You can now align the pins on the MultiStart II™ with the ROM socket on the motherboard. Make sure that the notches in the ROM chips are pointing toward the back of your computer. Now make sure that you have all of the pins aligned with the holes in the socket and gently push the board down. When you are sure that the board is seated correctly you can push the board down firmly to seat it all the way into the socket. (See Figure 3)

Attaching The Clip

Step 10:

There is a Black Clip that needs to be attached. This clip is a spring action type. Hold it in your hand like you would a hypodermic needle or syringe, pushing in on the flat end with your thumb will expose a small metal clip at the small end. when you release the pressure with your thumb the clip will recede back into the clip body.

This clip needs to be attached to pin 41 of the Gary chip. Pin one on a chip is the pin to the left of the notch at the top of the chip. To count the pins you start at pin one and count in a counter clockwise direction from pin one around the chip.

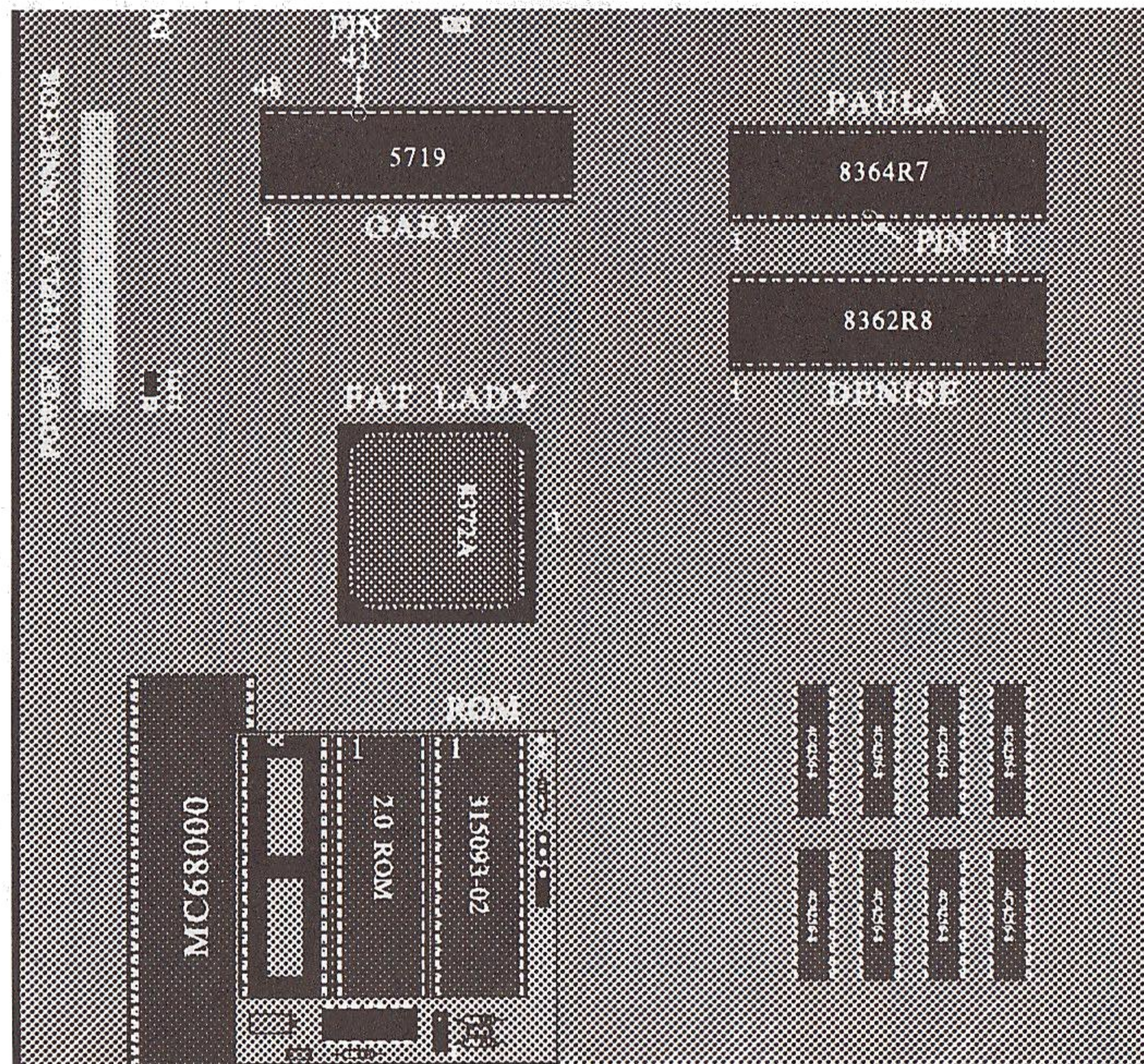


Figure 3.

3. Installation in the Amiga® 2000.

Reassembling your Amiga®

Step 13:

Check over your work!

Is the notch in the ROMs pointing towards the rear of the computer?

Are all of the chips that you installed in the correct orientation?

Are all of the pins on the chips in the socket correctly?

Do you have the clip from the MultiStart II™ attached to the right pin?

Is the MultiStart II™ firmly in its socket with all the pins in correctly?

Step 14:

Now you can begin to reassemble your Amiga® 2000. First, while holding the bracket assembly in one hand, you should reattach the ribbon cable(s) from the disk drive(s) to the mother board because these usually are under the bracket assembly. Now you can set the bracket assembly down in place. Now you should install the power supply cable to the mother board and the power cables to any peripherals that you have disconnected.

Step 15:

Now you should install the two or three screws in the front of the bracket and the four screws in the back of the power supply. Next replace the cover, install the five screws and connect the keyboard, mouse, power and peripheral cables.

Step 16:

Now turn your Amiga® on. Your system should boot up with the ROM that you selected. Now reboot your computer and hold the keys down for 5 to 6 seconds. Your computer should now come up with the alternate ROM that you have installed in the MultiStart II™.

4. Installation in the Amiga® 500.

Warning:

Unplug the Amiga® 500 before removing the cover or attempting to install the MultiStart II™. Installing the MultiStart II™ with the power on could cause possible damage the equipment. DKB Software will not be responsible for any damages caused by improper installation of the MultiStart II™. Such improper installation will void the warranties on both the MultiStart II™ and the Amiga® 500.

Step 1:

Remove the mouse, the power cord, and any peripherals connected to the rear or side of your computer. Carefully note the position and orientation of all connectors to simplify reassembly later.

Step 2:

Turn your computer upside down and remove the six Torx(T10) screws from the bottom housing.

Step 3:

Turn your computer right side up while holding the case together. The top cover snaps into the bottom cover at the center of each side of the computer, so remove the top by applying a slight pressure inward on the bottom cover, and an outward pressure on the top cover on each side of the computer. You can set the top cover aside.

Step 4:

Now you can remove the keyboard. First you need to remove keyboard connector from the motherboard that goes through the RF shield and the ground strap that is attached to the disk drive. Now you can lift up the keyboard and set it aside for now. Note the orientation of the keyboard cable for reassembly.

Step 5:

To remove the RF shield there are four Torx screws that need to be removed, two in the front and two on the left side by the expansion connector. There are four small tabs that are folded down on the top of the RF shield that need to be bent straight up. You can use a small flat blade screwdriver to bend up the tabs.

Removing the Kickstart™ ROM Chip

Step 6:

Now you have to remove the Kickstart™ ROM chip that is in your computer. This chip is located to the right of the 68000 chip on the motherboard. The ROM is labeled on the top of the chip as 315093-0x(1 or 2 etc.).

Using a small flat blade screwdriver gently pry up slightly on one end of the ROM chip. (Be sure you are prying between the socket and the chip and not prying the socket!) Now do the same to the other end and slightly pry up. Using this back and forth motion to lift the chip from its socket. Be careful not to bend or break any pins off, take your time. (See figure 4).

4. Installation in the Amiga® 500.

Installing The MultiStart II™

Step 7:

Now you need to install this ROM chip in the socket that you selected previously when configuring your MultiStart II™. Make sure that you install the chip with the notch in the same direction as the notch in the socket.

Note :

Pin ten of the extension socket on the Multistart II™ is missing. This pin is intentionally removed for proper operation of the MultiStart II™.

Step 8:

You can now align the pins on the MultiStart II™ with the ROM socket on the motherboard. Make sure that the notches in the ROM chips are pointing toward the back of your computer. Now make sure that you have all of the pins aligned with the holes in the socket and gently push the board down. When you are sure that the board is seated correctly you can push the board down firmly to seat it all the way into the socket. (See figure 5 on page 11)

Attaching The Clip

Step 9:

There is a Black Clip that needs to be attached. This clip is a spring action type. Hold it in your hand like you would a hypodermic needle or syringe, pushing in on the flat end with your thumb will expose a small metal clip at the small end. when you release the pressure with your thumb the clip will recede back into the clip body.

This clip needs to be attached to pin 11 of the Paula chip or pin 41 of the Gary chip. Pin one on a chip is the pin to the left of the notch at the top of the chip. To count the pins you start at pin one and count in a counter clockwise direction from pin one around the chip. (See figure 4 below)

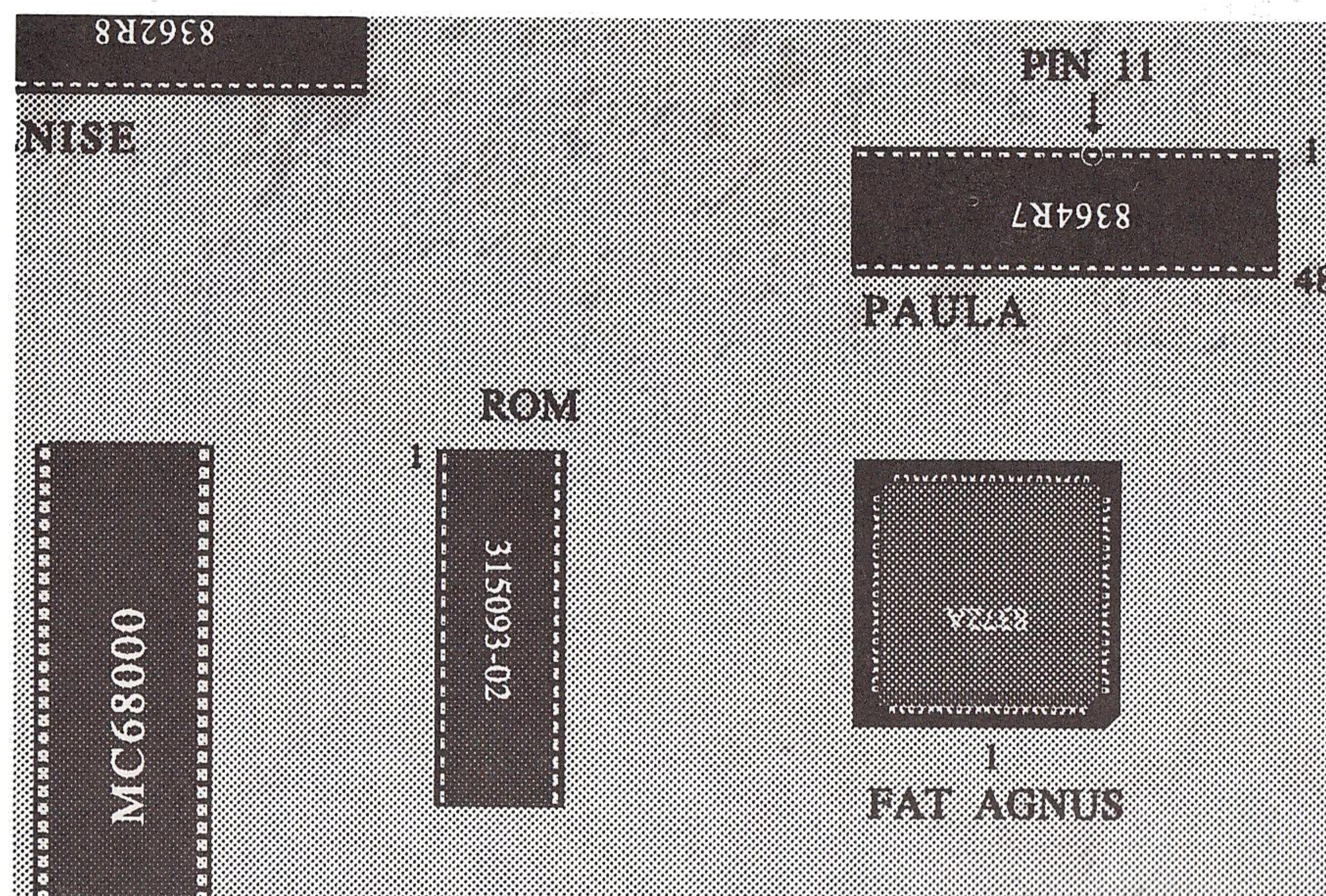


Figure 4.

4. Installation in the Amiga® 500.

Reassembling Your Amiga®

Step 11:

Check over your work!

- Is the notch in the ROMs pointing towards the rear of the computer?
- Are all of the chips that you installed in the correct orientation?
- Are all of the pins on the chips in the socket correctly?
- Do you have the clip from the MultiStart II™ attached to the right pin?
- Is the MultiStart II™ firmly in its socket with all the pins in correctly?

Step 12:

Now you can begin to reassemble your Amiga®. Reinstall the RF shield into your computer with the four Torx screws and fold over the small metal tabs. Don't forget to install the small grounding shield over the expansion port.

Step 13:

Now slide the keyboard back into place and hook up the ground strap at the disk drive and the keyboard cable to the motherboard. The black wire on the cable should be on your left.

Step 14:

Next place the top cover on your computer, be careful to align the power and drive lights in the holes in the cover. Hold the case together and turn the Amiga® over and reinstall the six Torx screws in the bottom case.

Step 15:

Now you can set your system back up. Connect your power and monitor cables and any other peripherals to your computer.

Step 16:

Now turn your Amiga® on. Your system should boot up with the ROM that you selected. Now reboot your computer and hold the keys down for 5 to 6 seconds. Your computer should now come up with the alternate ROM that you have installed in the MultiStart II™.

5. Operation.

Switching Between The ROMs

MultiStart II's™ operating system is a toggle action type. You can toggle back and forth between the two ROMs that you selected.

To switch between the Boot Rom and alternate ROM you reset the computer with the control, Amiga® and Amiga® keys and hold the keys down for at least five seconds. This will tell the MultiStart II™ to switch the operating systems.

To reboot the computer and stay in the operating mode that you are currently in you just reset the Amiga® as you would normally by holding the keys down for only a second or two.

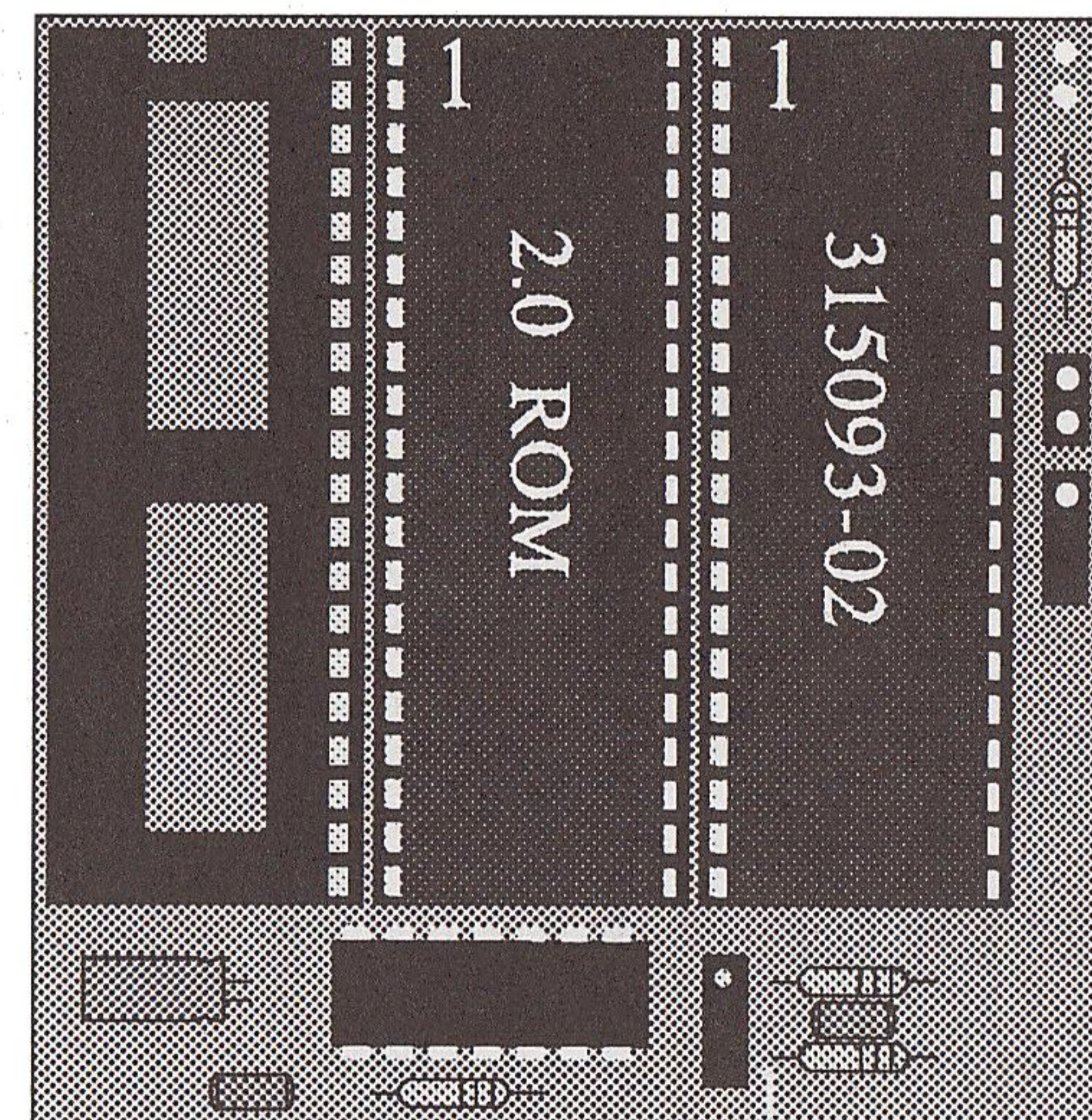
When you do a reboot and hold those keys for more than 5 seconds the circuits on the MultiStart II™ will sense this change and toggle in the other operating system.

There after a quick reset will remain in that current operating system. A long reset and the MultiStart II™ will switch again.

This makes MultiStart II™ extremely easy to use.

Using The V1.2 Kickstart with Autoconfig Devices

If you plan to use Kickstart V1.2 in your MultiStart II you must remember that if you have any devices in or attached to your Amiga your system will not boot up unless you remove or dissable these devices. Kickstart V1.2 will not work with any device that tries to autoconfigure.



This three pin jumper is set on the lower two pins for use with the A2000. This is set on the upper two pins for the A500.

Figure 1.

This Three pin jumper is set on the lower two pins to use the center socket on bootup.

6. Troubleshooting.

If your computer doesn't boot up, turn off the power and recheck all your work.

Check that the power cables to the mother board and any peripherals are attached properly.

Make sure that the MultiStart II™ is seated properly in the socket.

Check that the microclip is on the correct pin and not touching any other pins.

Make sure that you followed the correct steps for changing the jumpers on the MultiStart II™ board.

Make sure that you installed the new ROM chips in the MultiStart II™ with the correct orientation.

If your Amiga® boots up to a grey screen and won't go any further you might have the alternate ROM jumper set wrong, try rebooting your computer with a long reset (5 to 6 seconds) to select the other ROM. If this works then you know that a jumper is set wrong.

If your disk drive comes on when you power up and your system won't boot there is a very good possibility that the data cable for the disk drive is not in the right position (backward?).

We are available for any technical help if you should need it.

If you experience any problems need help during your installation call us at 313-960-8750 and we'll try to determine what the problem is and a solution for it.

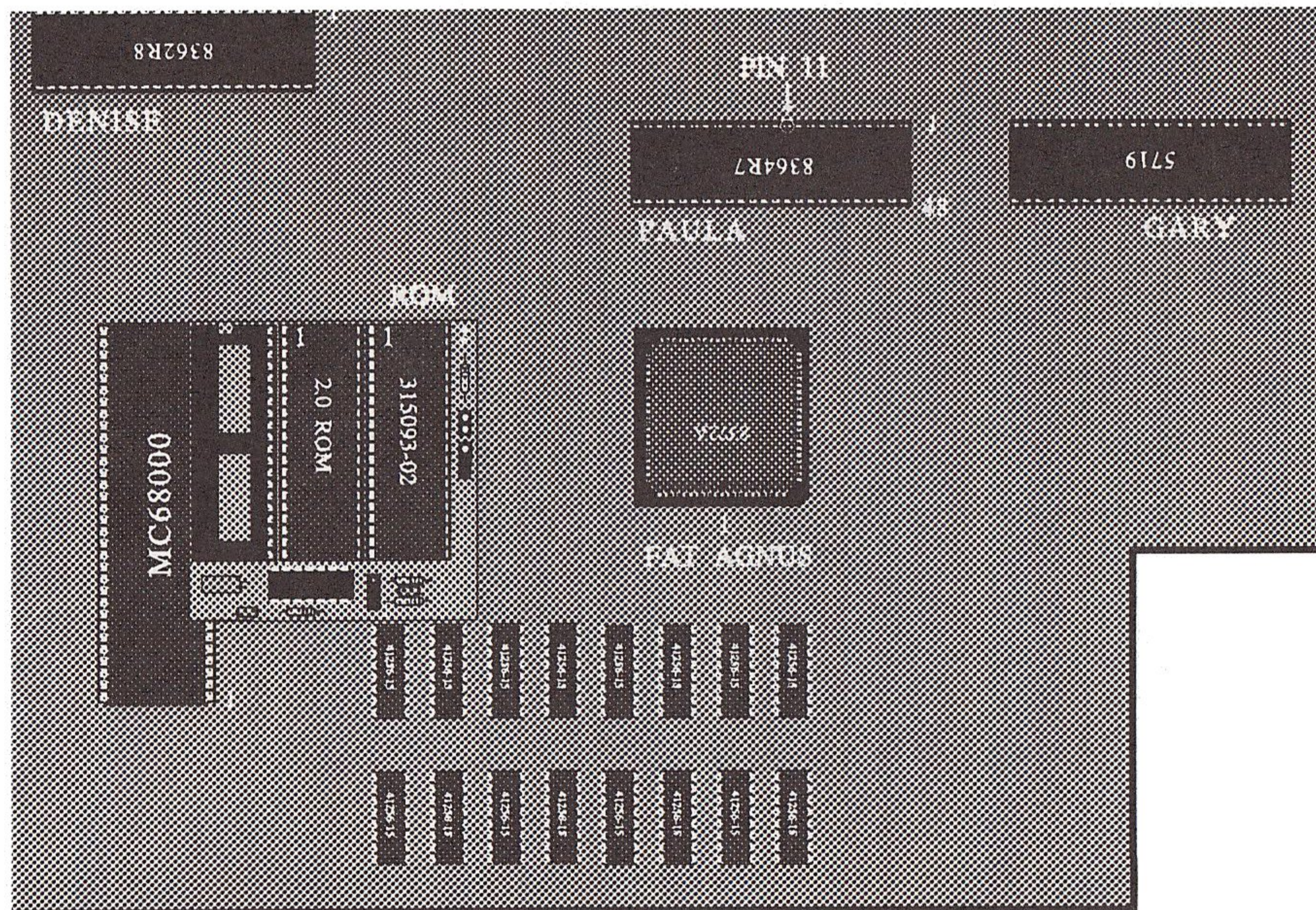


Figure 5.

7. Using Two Operating Systems.

Sample Startup Sequence for Harddrives

This describes a way for MultiStart II™ owners to set up their harddisk system so that they can choose to boot into either Workbench2.0 or Workbench1.3. This example assumes that your primary operating system is Workbench 2.0.

First you will need to make a directory on your harddrive named WorkBench1.3 and copy the WorkBench 1.3 and Extras 1.3 disks to this directory.

Second you will need to rename your Workbench 2.0 startup-sequence to startup-sequence2.0.

If you have modified your 1.3 Startup-sequence you may have to add two lines at the top of your 1.3 startup-sequence if you get an error K directive not set.

```
first line .bra {  
second line .ket }
```

Now you will need to use your favorite ASCII editor to enter in the following script and save it in your boot partition s: directory as **startup-sequence**.

You need to supply the path for the 1.3 commands as shown in the script because the 2.0 commands do not work under Workbench 1.3. (DH0: is generic)

Replace DH0: in the script with the name of your boot partition.

```
dh0:Workbench1.3/c/Version >NIL: graphics.library 37  
dh0:Workbench1.3/c/IF NOT WARN  
;WE ARE IN KICKSTART V2.0  
execute s:startup-sequence2.0  
endcli  
ELSE  
;WE ARE IN KICKSTART V1.3  
dh0:Workbench1.3/c/assign c: DH0:Workbench1.3/c  
assign sys: dh0:Workbench1.3  
assign s: sys:s  
assign l: sys:l  
assign fonts: sys:fonts  
assign devs: sys:devs  
assign libs: sys:libs  
execute s:startup-sequence  
endcli  
ENDIF
```

NOTE -

Partition mounting under 2.0 requires that you provide a modified mountlist. This mountlist should be saved as devs:mountlist2.0 on your boot partition and used in your Startup-Sequence2.0. In the modified mountlist, the FileSystem lines for your FFS partitions must be deleted or commented out C-style like this:
/* FileSystem = l:FastFileSystem */

AND the DosType for all FFS and old-FS entries must be correct:

DosType = 0x444F5301 (for FFS)

or DosType = 0x444F5300 (for old-FS)

You may also need to copy the V1.3 l:FastFileSystem to the 2.0 l: directory.

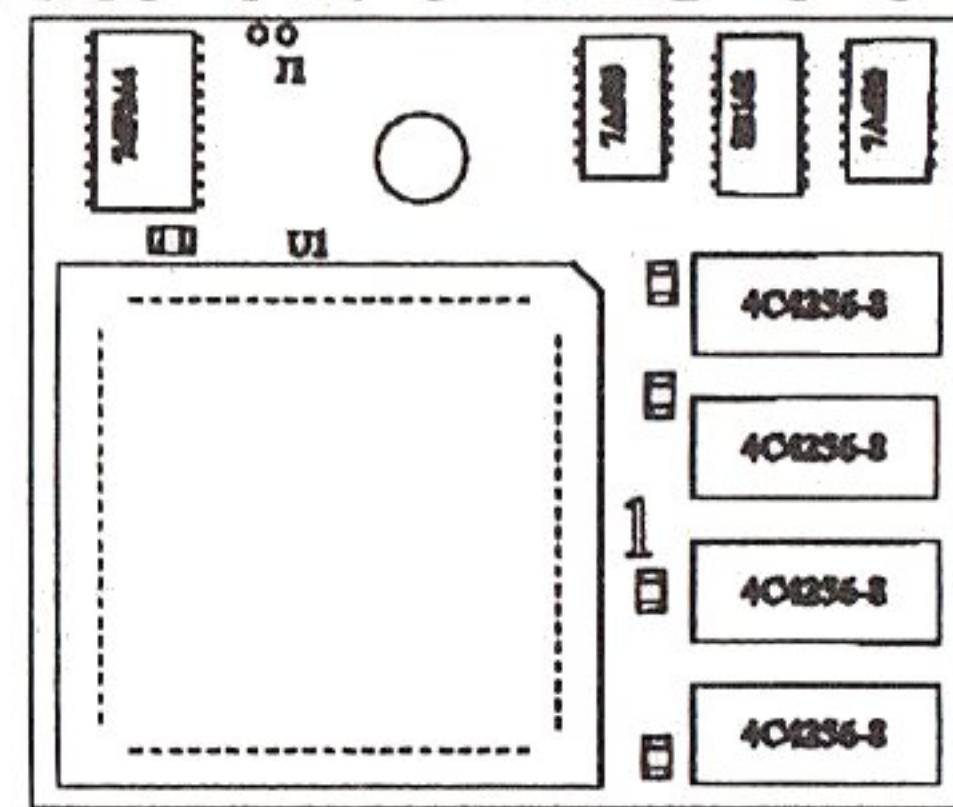
Products By DKB Software

Increase
Your
Graphics
Abilities

MegAChip 2000/500™ NEW

2 Megabytes of Chip Ram for the Amiga A2000 and the A500

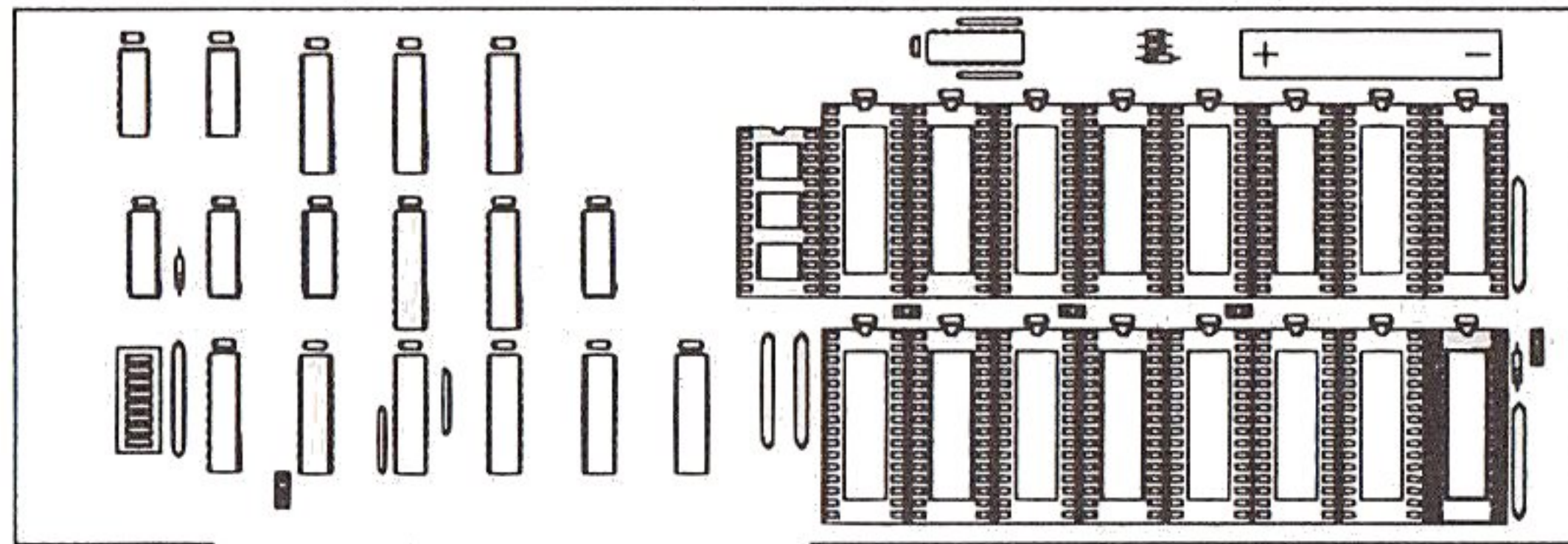
If you use your Amiga® for *Desktop Video, 3D Rendering & Animation, Multimedia or Desktop Publishing* - Then you need the MegAChip 2000™. Doubles the amount of memory accessible to the custom chips. Uses the 2 Megabyte Agnus that's in the Amiga® A3000. Greatly enhances Graphics capabilities. Fully compatible with Workbench 1.2, 1.3, 2.0, and the ECS Denise chip. Fully compatible with the Video Toaster and other genlocks and framebuffers. Fully compatible with GVP's and Commodore's 68030 accelerators. *Why upgrade to 1Meg of Chip Ram when you can have 2Meg of Chip Ram like the A3000?*



Retail Price \$ 299.95
w/Memory w/o 2Meg Agnus
Now Available for the
Amiga® A500.

The BattDisk™ Battery Backed Static RamDisk

Super fast Static Ram Disk for the A2000 & A3000. Operates as a silicon hard disk. The BattDisk™ will survive a warm boot or power down. Anything that you have saved on your BattDisk™ will still be there when you power up. Can be used to autoboot your system. Allows you to have up to a 2Meg RamDisk without using any of your Fast Ram. Easily expandable in 64K or 256K increments to 2 Meg. Excellent for working with Multimedia or Video Graphics where you need fast access to files. Data transfer rates up to 2.7 Meg per second. Also can be hardware or software write protected. Programmers - Keep your source code in a fast, guru safe, Static Ram.



Retail Price \$ 269.95 w/ØK

SecureKey™ System Security for Your Amiga® A2000 and A3000

Do you need to keep your system safe from unauthorized use? Want to make sure that no one can delete your files from your harddrive or steal your work? Then you need the SecureKey, a hardware security device that you have one security code for. The SecureKey will not allow access to your computer without the right security code, period. You can't boot off of a floppy or bypass it in any manner. This means that if your system has files such as animations, documents, presentations, C-code, or any type of confidential information you can be assured that your harddrive is safe from those that may otherwise unknowingly destroy your information.

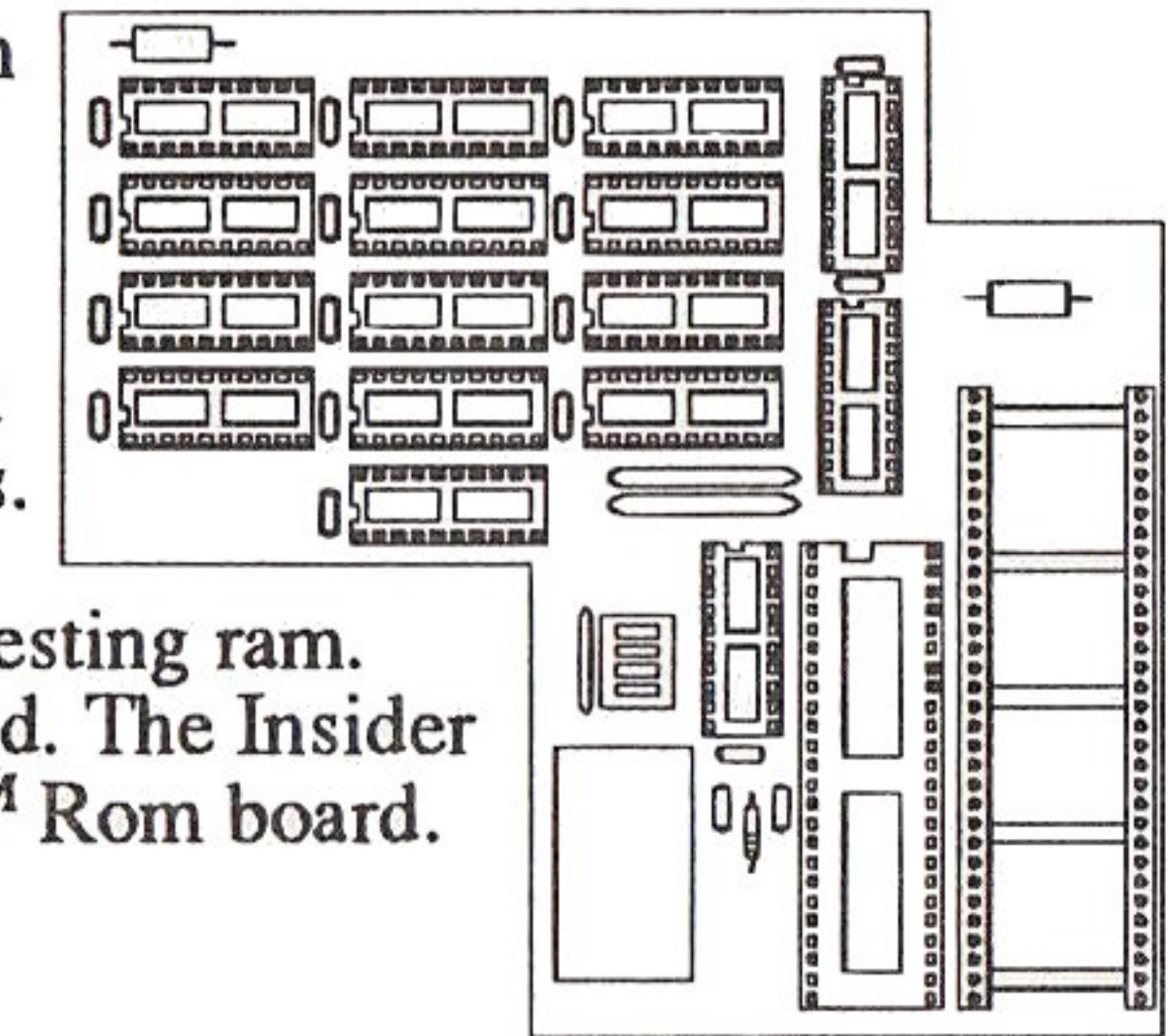
Contact your local dealer or call for more information.

All Products come with a
Full One Year Warranty.

Products By DKB Software

Insider II 1.5 Meg in the A1000

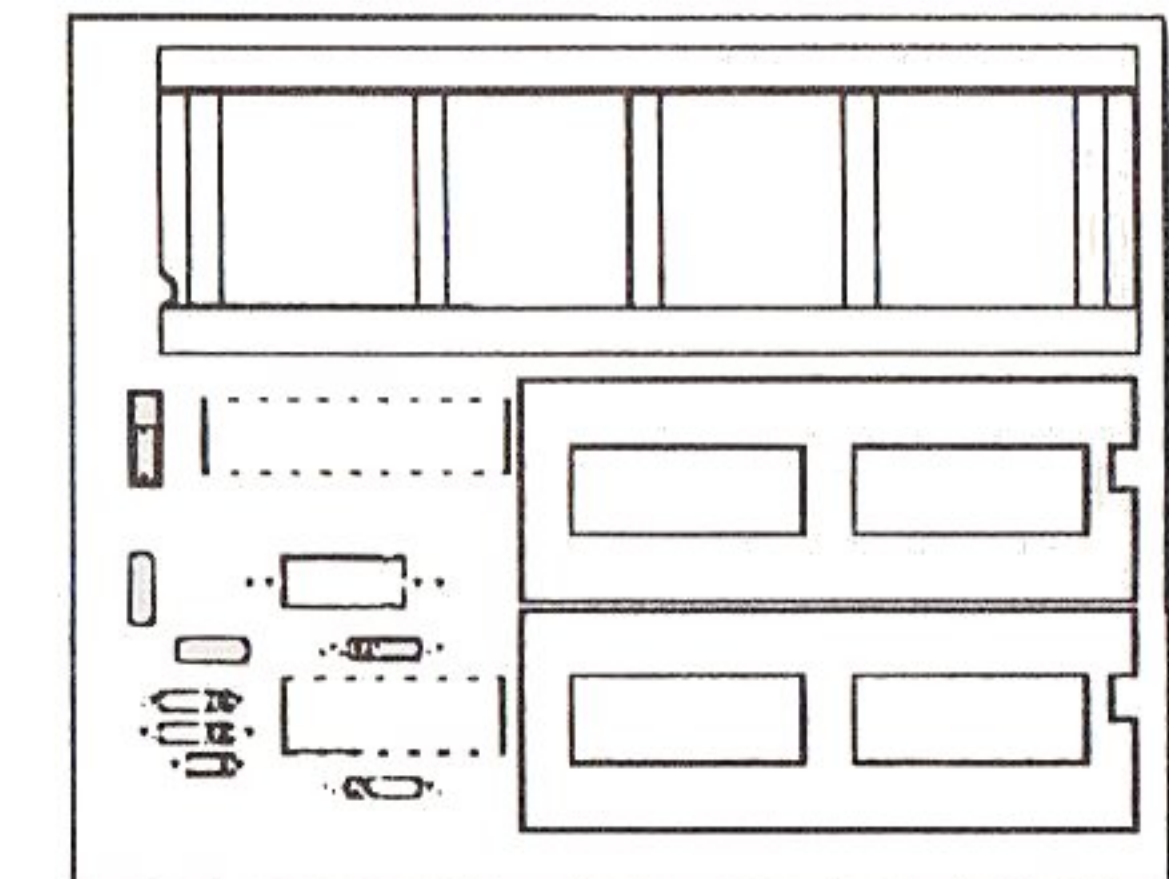
From the maker of the first internal Ram board for the Amiga 1000, the original Insider™ by DKB Software. Allows A1000 owners to add up to 1.5 Meg of Fast Ram internally. User expandable in 512K increments using 256K x 4 Drams. Includes battery backed clock calendar. Comes with software for the clock and testing ram. Simple installation, no soldering required. The Insider II™ is compatible with the KwikStart™ Rom board.



Retail Price \$ 199.95 w/ØK

KwikStart II for the A1000 Install Kickstart V2.0 and V1.3 Roms In Your Amiga 1000

Allows A1000 owners to install V1.3 and V2.0 Kickstart™ Roms and switch between them. Upgrade to the latest operating system and still be compatible with software that requires Kickstart™ V1.3. You are still able to use Kickstart™ from disk if needed. The best way to upgrade to System 2.0 for the Amiga A1000.



Retail Price \$ 99.95 w/o Roms

A1000 Keyboard Adaptor

Allows Amiga 1000 owners to upgrade to the Amiga 2000 keyboard. Simply plug adaptor into the keyboard connector in the back of the A1000 and you can install the Amiga 2000 keyboard.

Retail Price \$ 19.95

Contact your local dealer or call for more information.

All Products come with a
Full One Year Warranty.

NOTES

WARRANTY

For a period of One Year from the date of purchase to the original purchaser, DKB Software warrants that the equipment shall remain free of manufacturing defects.

The Equipment, when possible, is tested in all its normal operating modes prior to delivery or shipment.

If a defect should occur during the first year, the unit must be returned to DKB Software along with a sales receipt for repair.

The purchaser's sole and exclusive remedy in the event of a defect is limited to the correction of the defect by adjustment, repair, or replacement at DKB Software's discretion and expense.

DKB Software shall have no responsibility for shipping expenses to or from the repair station.

This warranty is voided if the equipment has been altered or modified, or if the equipment is subjected to improper or abnormal use.

We are not responsible for any damage caused by or derived from the installation of this hardware product.

Except as specifically provided in this warranty there are no other warranties, express or implied, including, but not limited to, any implied warranties or merchantability or fitness for a particular purpose. In no event shall DKB Software be liable for loss of profits or benefits, indirect, special, consequential or other similar damages arising out of any breach of this warranty or otherwise.

DKB Software
50240 W. Pontiac Tr.
Wixom, MI 48393
Sales (313) 960-8750
Fax (313) 960-8752