

48K RAM CONVERTER KIT INSTRUCTIONS

**MOSAIC 48K
CONVERTER
KIT** (REQUIRES SOLDERING)

ATARI
16K RAM

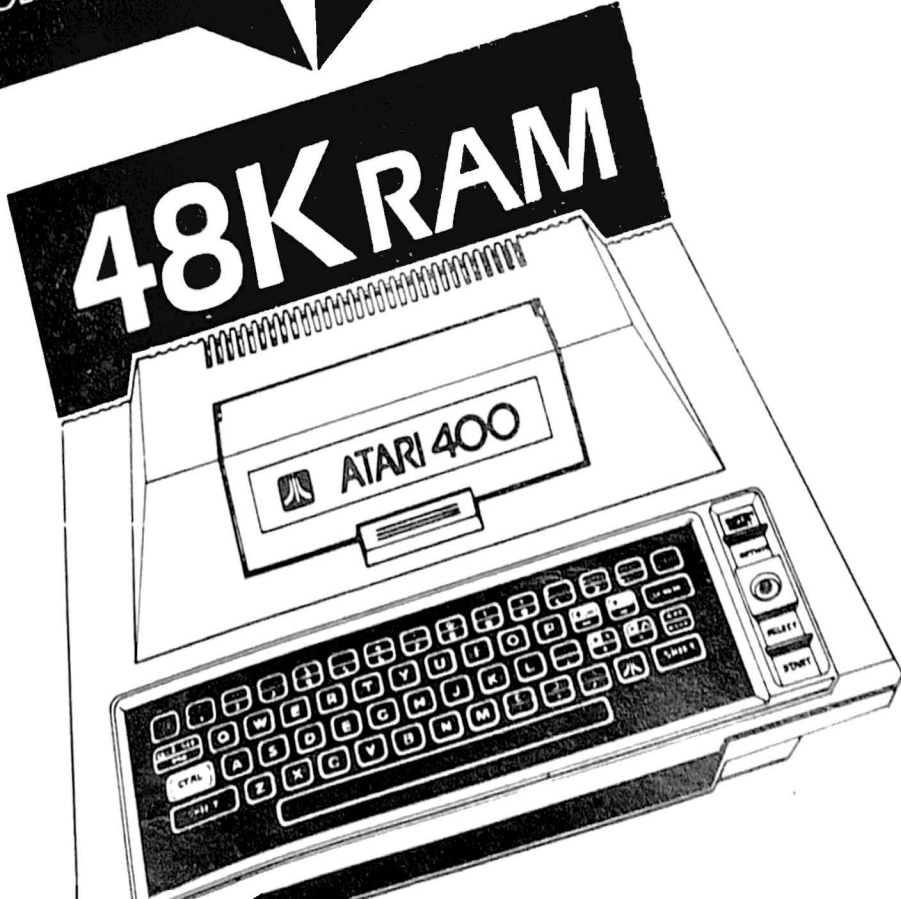


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INTRODUCTION

The Mosaic 48K Converter Kit offers a low-cost memory upgrade alternative to Atari owners who are comfortable doing a little soldering. The kit comes complete with all things necessary to convert an Atari 8K or 16K RAM board into a 48K RAM board - except the soldering iron and solder. It even reduces the power consumption of the board! Thus, it can greatly benefit cost conscious Atari users.

PARTS LIST

ONE small printed circuit board with a four-wire cable and connector. (ROM module).
ONE "L" shaped circuit board with four integrated circuits mounted on it (the converter).
TWO red wires.
ONE black wire.
ONE knife.
EIGHT 64K dynamic RAM chips in black foam.

48K Installation - Introduction

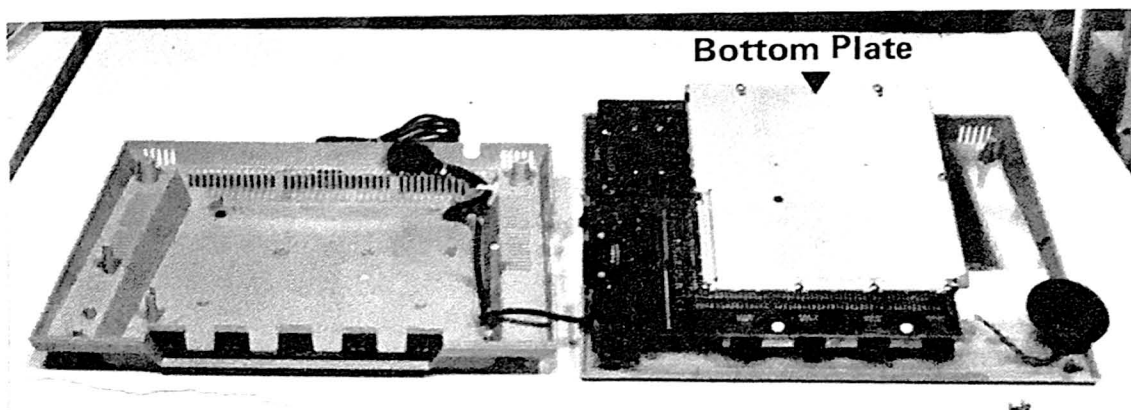
Installation of the 48K Kit into the Atari 400 is accomplished in five basic steps:

1. Disassemble.
2. Modify RAM board.
3. Plug in cables.
4. Plug in board.
5. Reassemble.

The detailed instructions for each of the above steps follows:

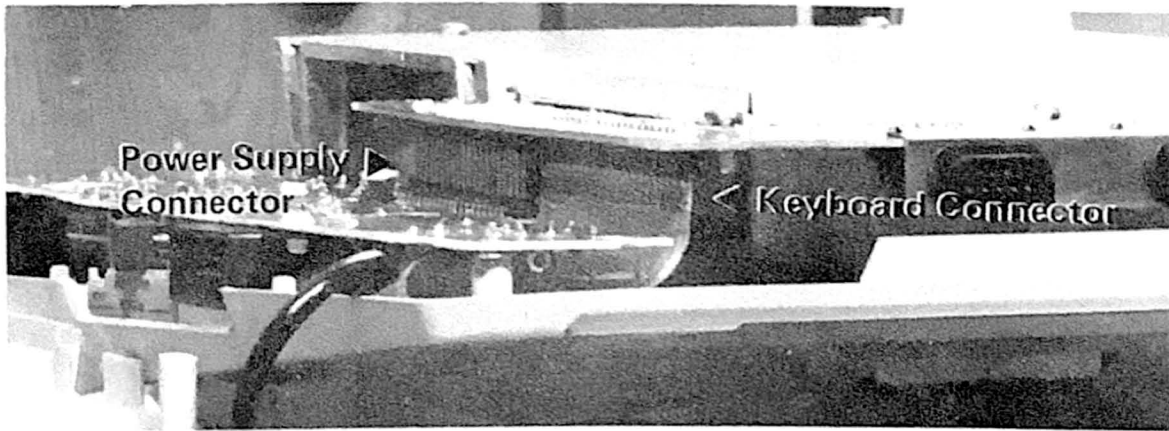
48K Disassembly

1. Unplug all cables and any ROM cartridges from the computer. Close the cartridge door and flip the computer upside down.
2. Remove the four corner screws.
3. Gently lift the bottom case and open to the left as shown in Fig. 1.



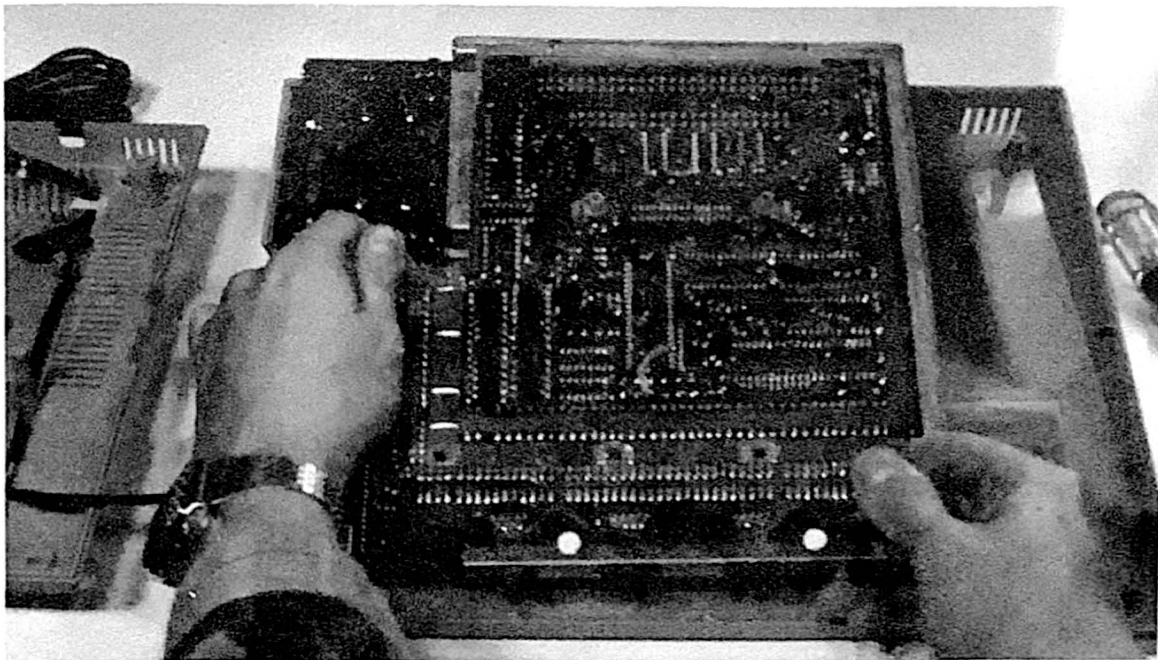
(Fig. 1)

4. Note the placement of the black TV cable for reassembly.
5. Note the placement of the keyboard speaker. Unplug and remove at this time.
6. Remove eight screws that hold the bottom plate on.
7. Remove plate and black paper. Note orientation for reassembly.
8. Note the keyboard connector and the power board connector.



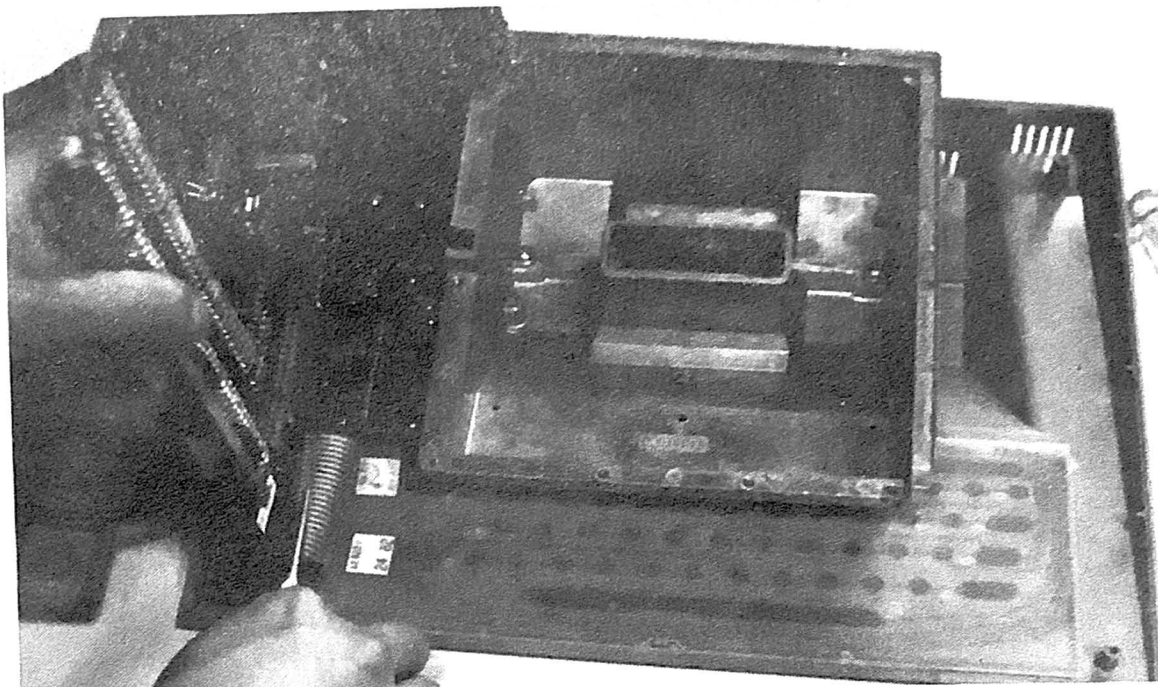
(Fig. 2)

9. Lift the mother board as shown. Apply pressure so as to unplug the power board connector simultaneously.



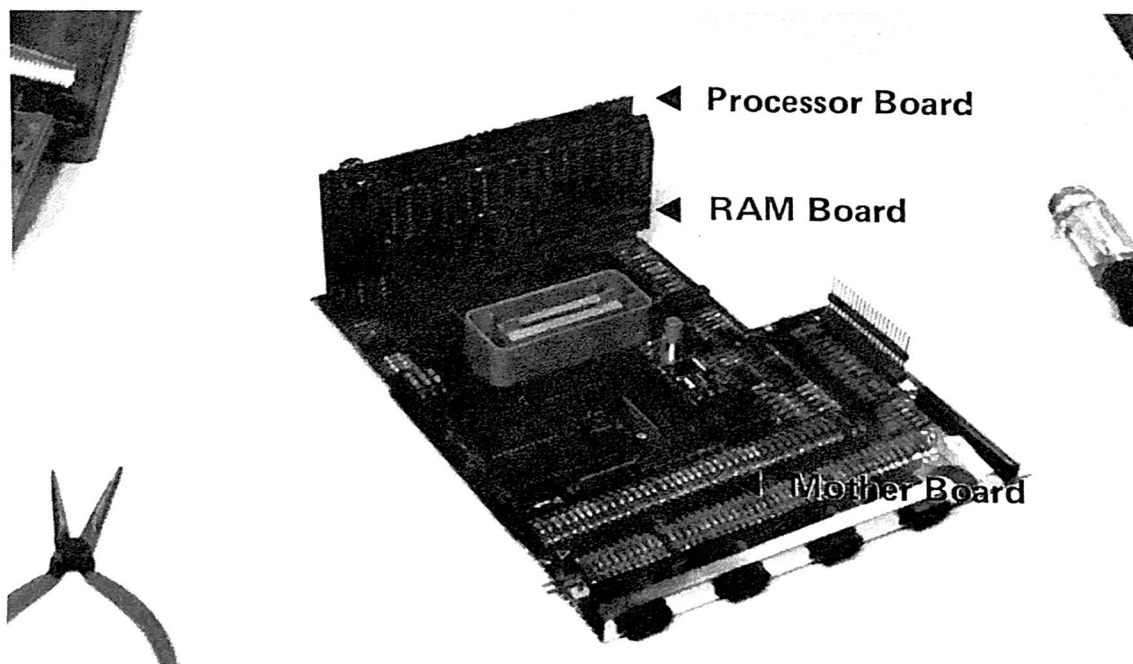
(Fig. 3)

10. Unplug keyboard cable. All pins should unseat simultaneously.



(Fig. 4)

11. Set the mother board down. Note the placement of the processor board and the RAM board.



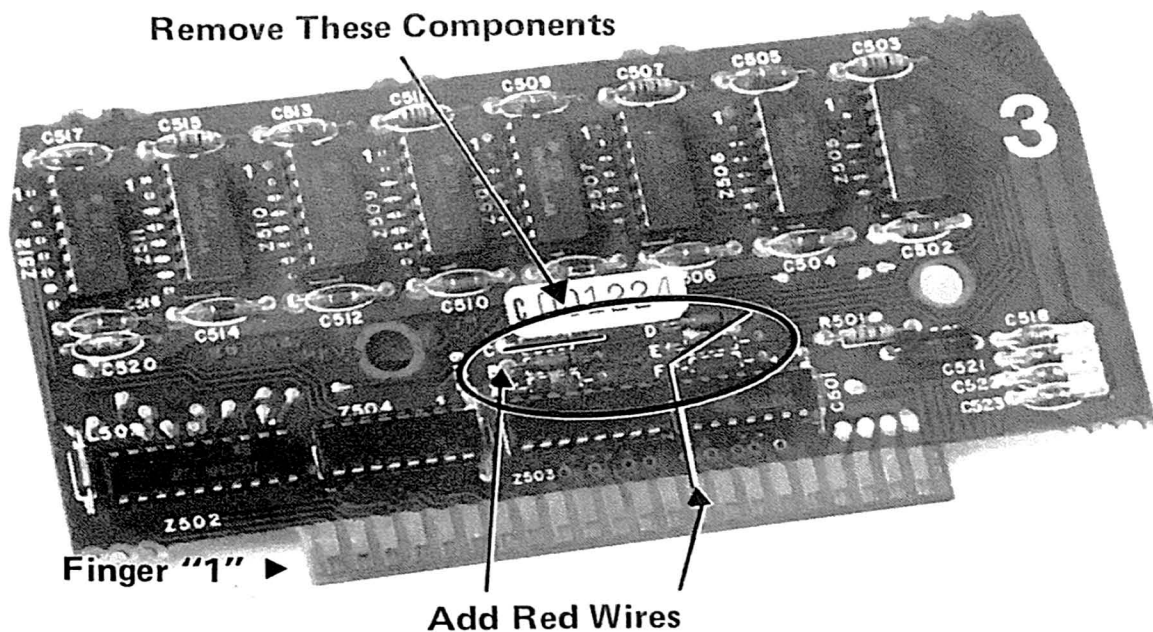
(Fig. 5)

12. Remove both boards. The disassembly is now complete!

NOTE: The chips from your old 16K board may be used in the Mosaic Exander and Adapter products which may be of interest to other Atari owners.

Decide whether you have an 8K or 16K board. If you have a 16K board, skip over the next section.

8K owners should perform the following instructions.

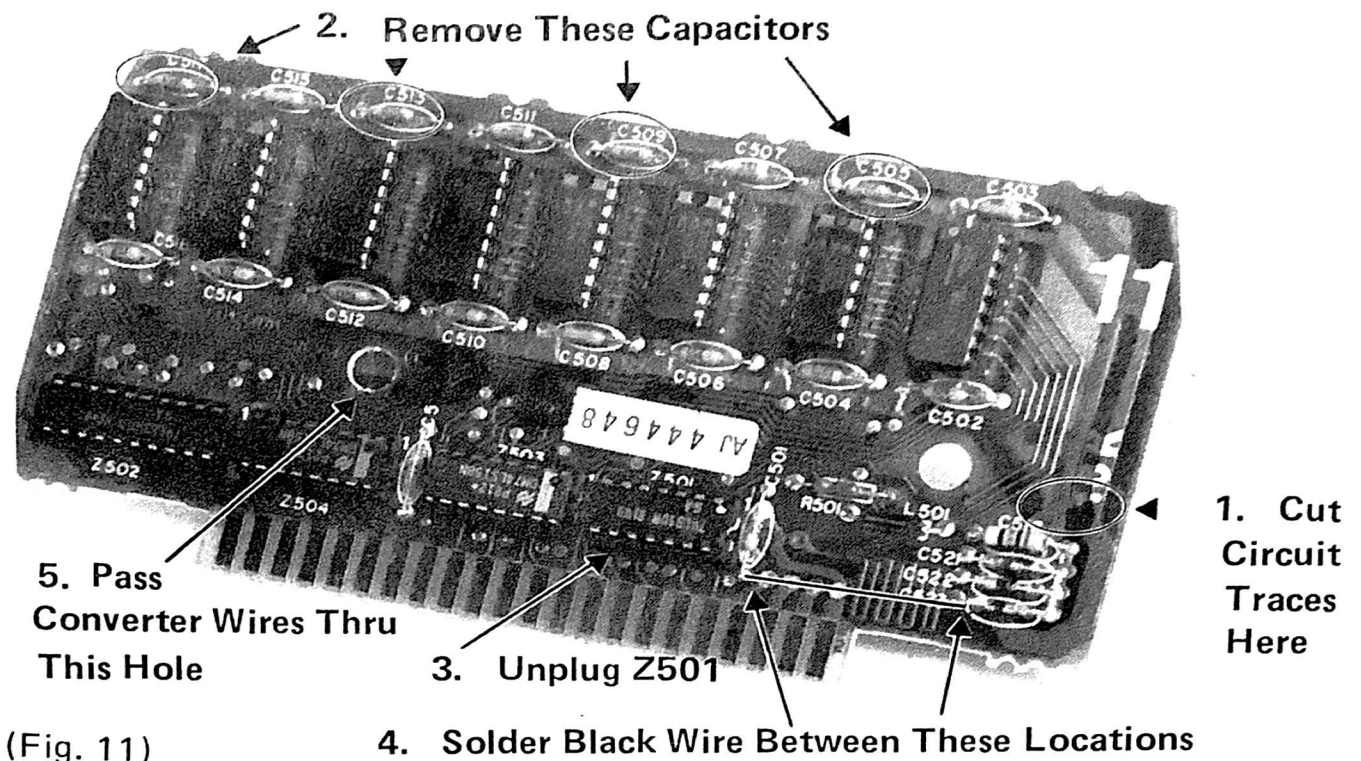


(Fig. 10)

Modifications to 8K RAM Boards ONLY!

Refer to Figure 10 as you follow these instructions.

1. Remove the components (probably resistors) from the area marked A, B, C, D, E, and F.
2. Solder one red wire from the second pad to the right of "D" to the fourteenth card edge finger to the right of the number "1". Use as little solder as possible on the card edge finger. It may be a good idea to use masking tape to keep the solder from "wicking" to the edge of the board.
3. Solder one red wire between the two pads to the right of "C".



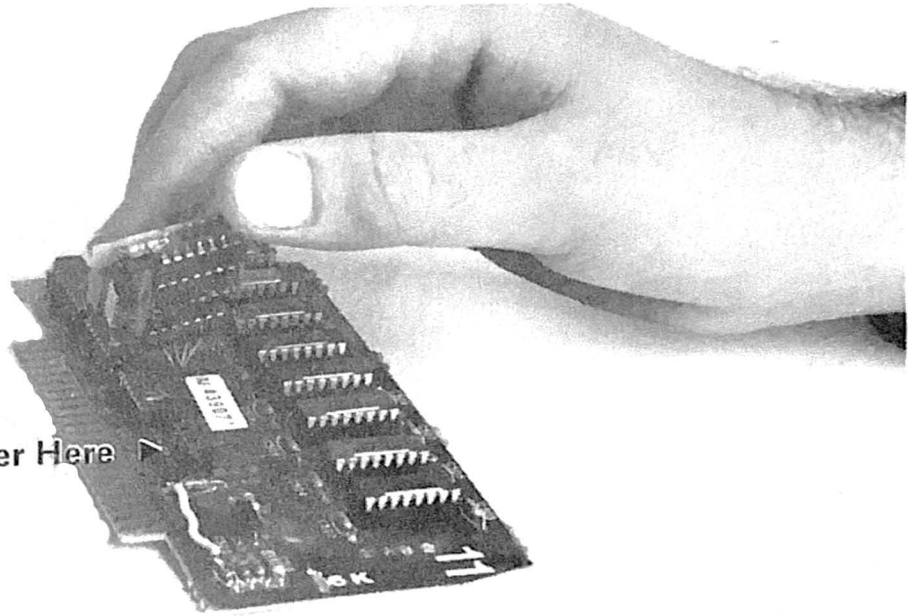
(Fig. 11)

Modifications to Both 8K & 16K RAM Boards (Figure 11)

On the Component Side of the RAM Board.

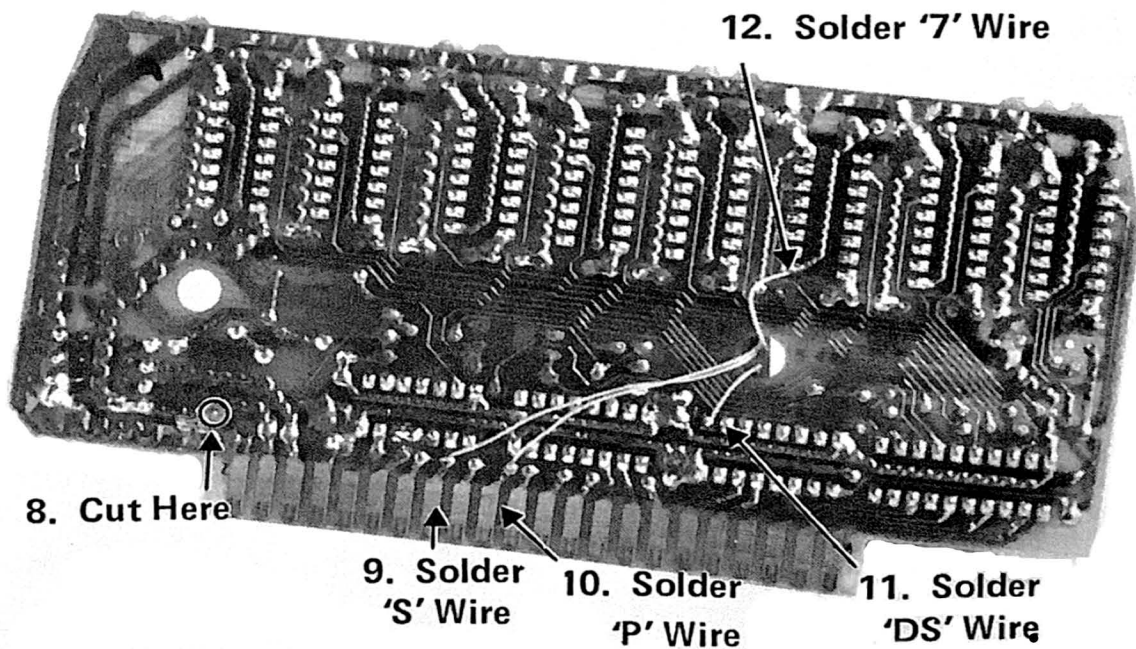
1. While looking at the component side of the memory board with the card edge connector pointed "downward" cut the two extra wide traces furthest to the right. Be sure to cut completely thru the traces.
2. Cut out with a pair of dykes or desolder and disconnect capacitors C505, C509, C513, and C517.
3. Use a flat blade screw driver to unplug the integrated circuit chip located at "Z501" from its socket. Be sure the black IC socket remains in place.
4. Find the one inch black wire in the kit. Solder onto the RAM board between the legs of capacitors C501 and C523 that are closest to each other.
5. Pass the four wires from the Mosaic "convertor" printed circuit board through the large hole in the RAM board located closest to capacitor C512.
6. In the following steps you will be soldering four wires from (the converter board) to (the solder side of the RAM board.) Before plugging in the converter note the markings on the converter near these four wires. (S, P, DS, 7)

7.
Plug Converter Here



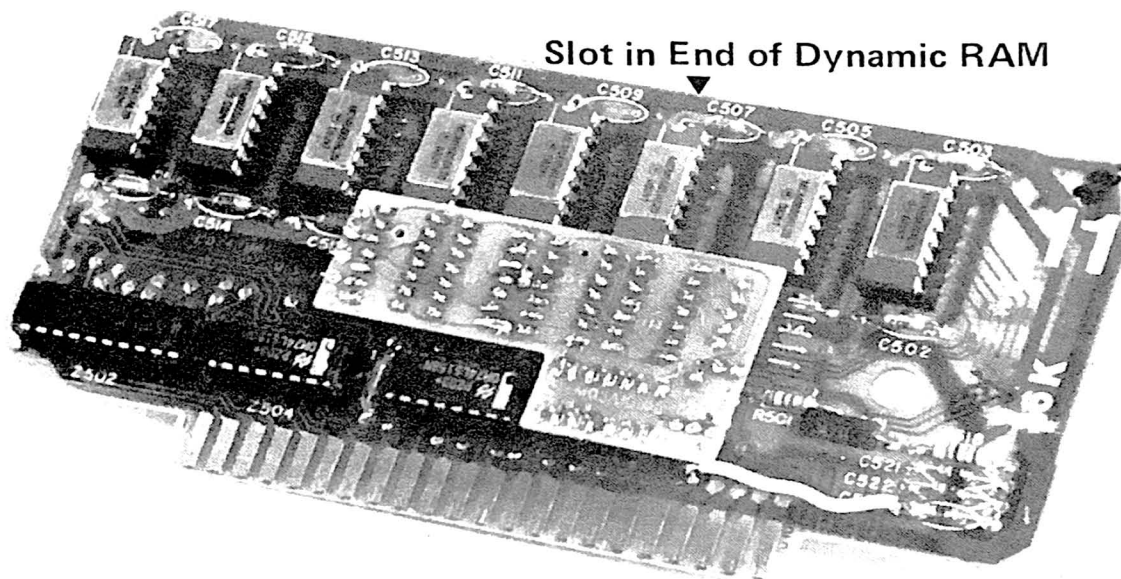
(Fig. 12)

7. Gently press the fourteen pins of the Mosaic "converter" plug into socket Z501 of the RAM board. (See Figure 12.)
8. Look at the solder side of your RAM board. Cut the second trace above the letter "Z" that is on the left side of the card edge.



(Fig. 13)

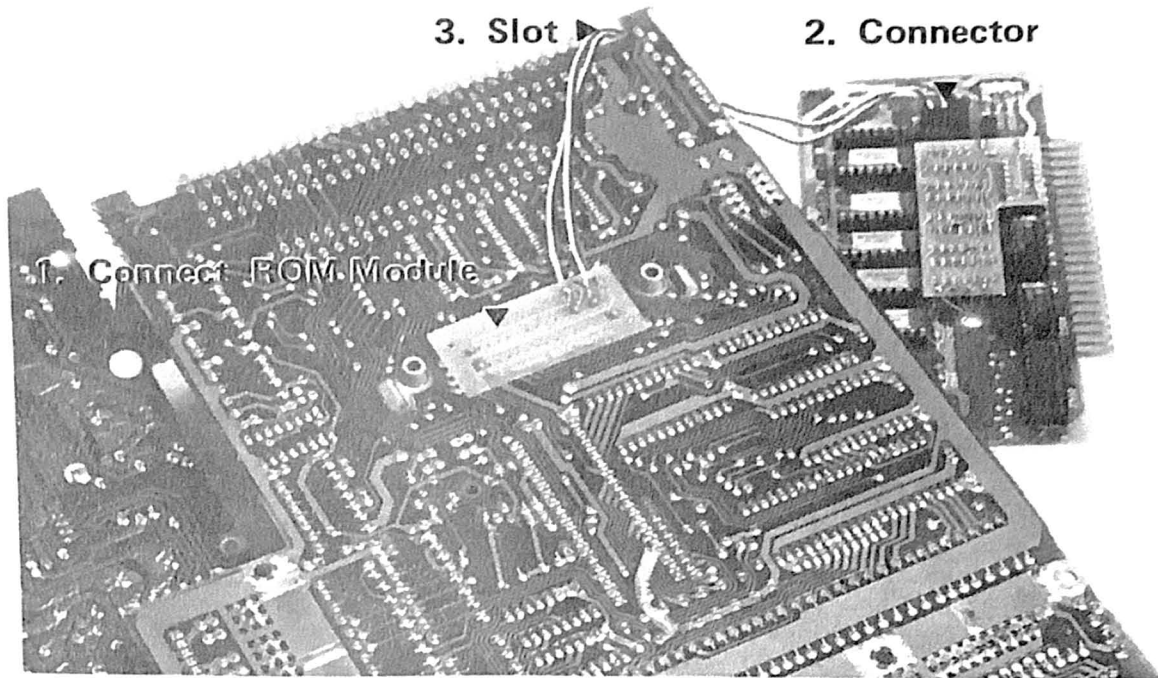
9. Solder (the wire that is marked "S" on the Mosaic converter) to (the hole that connects to the eighth finger to the right of the letter "Z".)
10. Solder (the "P" wire) to (the hole that connects to the tenth "finger.")
11. Solder (the "DS" wire) to (pin # 1 of Z504). (Pin # 1 is marked).
12. Solder (the "7" wire) to (pin # 8 of ~~Z509~~^{Z510}). (Count clockwise from the pin marked "1" when viewing from the other side of the board). The component side of the board should now look like Fig. 14.



(Fig. 14)

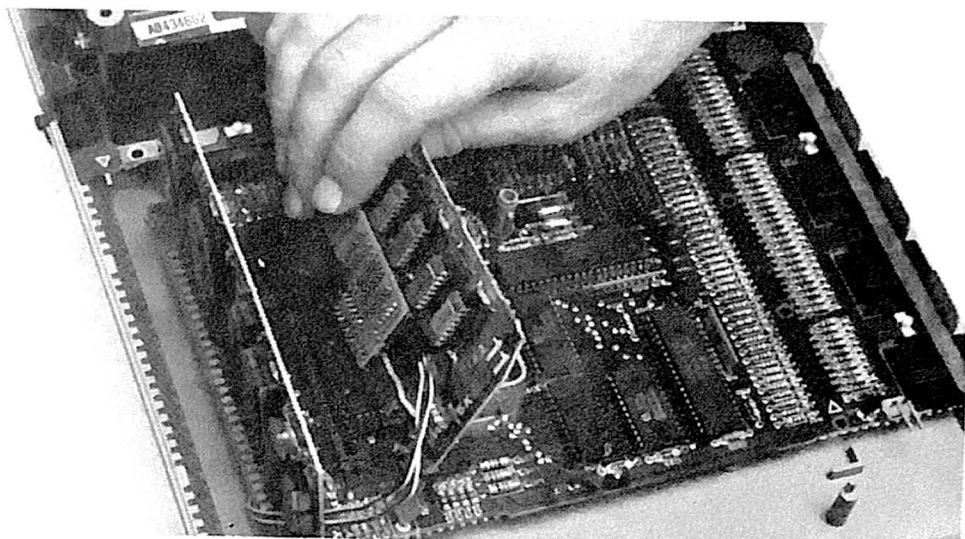
13. Find the eight 64K chips included with the kit. Use a flat-bladed screw driver to remove the eight existing RAM chips at locations Z505, Z506, Z507, Z508, Z509, Z510, Z511, and Z512. Now insert the eight 64K chips into these same sockets. Make sure that the new 64K chips are located in their sockets such that the dot that is closest to one of the corner pins of the dynamic RAMs (or the slot or depression in the end of the dynamic RAMs) is pointed toward the top of the board. This will insure proper orientation of Pin 1. If Pin 1 is not oriented correctly the 64K chips will be damaged. Replacements are \$10 each. Be careful.

Connection of the Motherboard (See Figure 15)



(Fig. 15)

1. On the solder side of the motherboard, press the small ROM module onto the pins of the ROM cartridge connector making sure that the wires point to the back of the computer.
2. Attach (the five pin connector on the end of the four wire cable) to (the Mosaic converter). Note that the connector is keyed for proper orientation.
3. Run the four wire cable through the slot shown above.
4. Replace the RAM board back into its connector making sure that the components face the back of the computer. Wind the four-wire cable under one side of the processor board. See Figure 16.



(Fig. 16)

Reassembly Instructions

Follow all of the steps in the "Disassembly Instructions" in reverse order to reassemble the computer.

Test of Operation

When initially testing the Mosaic 48K Kit, it is important to unhook the Atari Daisy Chain cable. Disk drives and other peripherals may use memory and return invalid results.

After inserting the Atari BASIC cartridge and turning the power on, watch for the BASIC "ready" prompt. If the Ready prompt does not appear within two seconds, or if the screen is black, **immediatly** turn off the computer and refer to the trouble-shooting guide. Refer to the trouble-shooting guide in the event of any unusual occurances now or in the future.

1. Turn the power on.
2. When "ready" prompt appears, type: PRINT FRE(0) (hit return.)
3. The computer should respond with: 37902.

This indicates proper operation of the bottom 40K of memory and the disable circuitry. When BASIC is inserted, the Atari computer automatically disables 8K of RAM starting at the 40K boundry. Since the Operating System uses about 2K, the computer can only see about 38K available for program space.

GUARANTEE

If the Mosaic 48K RAM Kit ever fails to operate properly within four years from the date of purchase, ship it to the factory and Mosaic will either repair or replace it free.

WARRANTY

Return enclosed Guarantee Card to Mosaic within 10 days from date of purchase to qualify for Mosaic's four-year free repair/replacement coverage.

TROUBLE SHOOTING GUIDE

Symptom	Possible Cause	Action
Computer does not turn on (no Power light)	(1) Power pack is not plugged in.	Check AC power plug and power cable to the computer.
	(2) Atari power board socket is not seated properly.	Check to make sure that none of the square pins that connect the power board are bent or misaligned.
	(3) Power interlock connecting rod not installed properly.	Open cartridge door and check that connecting rod is present and operates freely. Adjust the power board position for unobstructed operation.
No Display	(1) RAM board not seated properly or inserted backwards	Check seating and orientation of RAM board by comparing to photos.
	(2) Processor board not seated properly or inserted backwards.	Check seating and orientation of Processor board by comparing to photos. Make sure ROM cable does not obstruct edge connector.
	(3) Cable connectors not seated properly or pins bent.	Check cable and connectors. Inspect connector pins.
	(4) Solder bridge or conductive debris where cable was added.	Check connections. Brush or blow any loose solder from between pins. Desolder if necessary.
	(5) Atari power board socket is not seated properly.	Check to make sure that none of the square pins that connect the power board are bent or misaligned.
Computer comes in "Memo Pad" mode with BASIC cartridge inserted.	—ROM module missing or connected wrong.	Check ROM module. Make sure module is completely seated.
PRINT FRE(0) did not return with value of 37902	(1) Peripherals connected and turned on.	Remove all peripheral devices from computer for initial testing.
	(2) Bad RAM chip.	Return board.
Computer turns on OK, but does not respond to keyboard or responds incorrectly.	Keyboard connector not properly inserted or pins bent.	Check keyboard connector closely for bent pins, broken wires, or misalignment.

Symptom	Possible Cause	Action
Keyboard speaker does not work.	Speaker not plugged into mother board.	Check that speaker connector is plugged into mother board.
Apparent interference with TV	Coax cable not connected properly to power board.	Check that black TV cable is plugged in properly and completely seated in RCA phono connector.
Everything worked fine for a few days and then failed.	Component failure on RAM board.	Return board.

If no cause for improper operation can be found, chances are that a memory chip may be bad. Call our toll free service line for further help. (800) 547-2807

MOSAIC

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