

QUICKSILVER 128TM

Fast

IEEE

Interface



Skyles Electric Works

QUICKSILVER 128 TABLE OF CONTENTS

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Introduction

Congratulations on purchasing QUICKSILVER 128, the fastest IEEE cartridge for the Commodore C-128 computer. QUICKSILVER 128 will greatly increase the speed of loading and saving programs and files from the Commodore 2031, 2040, 4040, 8050, 8250, SFD1001, and MSD SD1, SD2, disk drives, and the Commodore 128 computer.

QUICKSILVER 128 consists of an IEEE interface cartridge that plugs into the C-128 cartridge port, and a QUICKSILVER Internal ROM that plugs into a socket inside the Commodore 128.

The QUICKSILVER 128 internal ROM replaces an operating system ROM that came with your Commodore 128. The QUICKSILVER Internal ROM uses "ROM space" that was left empty by the original C-128 operating ROM. As a result The QUICKSILVER Internal ROM is almost completely invisible to the Commodore 128. If you find a program that requires the original operating ROM, you may purchase from SKYLES ELECTRIC WORKS a QUICKSILVER ROM/Operating ROM Switch Assembly. Send \$19.95 cash or check to:

SKYLES ELECTRIC WORKS
231-E South Whisman Rd.
Mountain View, CA 94041

The QS ROM/Opr. ROM Switch Assembly requires cutting the inner metal shield of the Commodore 128. It is not recommended that the QS ROM/Opr. ROM Switch Assembly be installed until after the 90 day warranty has expired.

QUICKSILVER 128 contains IEEE Flash! 64, an IEEE interface for the C-64 mode of the Commodore 128, Commodore 64, or SX-64 computer. Instructions for turning on IEEE Flash! 64 when using the C-128 in the C-64 mode are given on page 4.

The QUICKSILVER 128 cartridge may be installed in the Commodore 64 and used in the IEEE Flash! 64 mode. Instructions for installation in the C-64 begin on page 19.

WHAT QUICKSILVER 128 WILL NOT DO

QUICKSILVER 128 will not, repeat, not fix or improve the loading of a marginal or non-functioning disk drive. QUICKSILVER 128 will not speed up a program load or file transfer that involves lots of blinking of the red error light on the IEEE disk drive. If you are having trouble (lots of error light blinking) with just one or two disks, and the rest work okay, replace your faulty disks. If you are having trouble loading all your diskettes, your disk drive usually needs cleaning, lubricating, aligning, or electronic repair. See your dealer for the appropriate fix before you attempt to install QUICKSILVER128. If you do not have a local dealer capable of these repairs, contact Commodore, MSD, or Skyles Electric Works.

Skyles Electric Works warrants the QUICKSILVER 128 Cartridge parts and labor for 3 months from date of purchase. Please take a moment now to fill out and return the postpaid warranty card.

Installation instructions start on page 7. They are at the end of the manual because they are used only once and then hopefully forgotten. Please turn to page 7 and start enjoying your QUICKSILVER 128.

ENJOY

Symbology

We have adopted the following symbology for all the commands used in this manual.

First you should note that all the keys on the Commodore 64 and Commodore 128 have upper case letters on their top surface. We refer to all the keys therefore with upper case (capital) letters. If we wish you to strike a series of keys in sequence, like normal typing, we present the sequence as follows:

If you should type "load" we show LOAD without any quotes or brackets.

Spaces between typing letters are for clarity only. SYS 65526 is exactly the same as SYS65526 to the Commodore 128.

If you should strike a function key such as "run/stop", we show <RUN/STOP>, with brackets. We have abbreviated "return" to <RET>.

If you should strike two function keys together, we show <SHIFT><RUN/STOP>

If you should strike two function keys one after the other, we show <C=>, <CTRL>. We use both a comma and a space between keys.

Preface

The QUICKSILVER 128 cartridge contains 4 selection switches and a momentary reset switch. The description of these switches begins on the next page.

Cartridge Mounted Switches

Located at the right rear of the QUICKSILVER Cartridge, when it is plugged into the C-128, is a bank of 4 DIP switches. Switch number 1 is located farthest from the computer and switch number 4 is located closest to the computer. The on (or select) position is to the right as viewed from the computer keyboard.

Selection Switch Number 1

Switch number 1 located farthest from the computer is the main on-off switch for the IEEE-FLASH! addition to QUICKSILVER 128 cartridge. IEEE-FLASH! 64 is the IEEE interface for the Commodore 64 or C-64 mode of the Commodore 128.

When in the Commodore 128 modes of operation this switch should be toward the left. When this switch is to the right the IEEE FLASH! 64 addition is on or selected. Prior to going to the C-64 mode of the Commodore 128, switch #1 should be place to the right. When this switch is toward the left the IEEE FLASH! 64 addition is off or deselected.

Selection Switch Number 2

When switch number 2 is to the right, all program or keyboard references to device #8, are routed through QUICKSILVER 128/IEEE Flash! to the attached IEEE bus. When switch number 2 is to the left all keyboard or program references to device #8 are routed to the original C-128/64 serial bus.

Selection Switch Number 3

When switch number 3 is to the right, all program or keyboard references to devices #9 and #10, are routed through QUICKSILVER 128 to the attached IEEE bus. When switch number 3 is to the left all keyboard or program references to devices #9 and #10 are routed through the original C-128 serial bus.

Selection Switch Number 4

When switch number 4, located nearest the computer, is to the right, all programs or keyboard references to device #4 are routed through QUICKSILVER 128 to the attached IEEE bus. When switch number 4 is to the left, all keyboard or program references to device #4 are routed to the original C-64/128 serial bus.

Cartridge Reset Switch

For user convenience a momentary reset switch is mounted on the left rear of the QUICKSILVER cartridge.

Command SYS 64738 <RET>

Typing 'SYS 64738' and striking the 'RETURN' key will reset the C-64 computer and the C-128 computer in the C-64 mode.

Command LOAD "PROGRAM NAME <RET>

In the, C-64 mode (IEEE Flash! 64) of the Commodore 128, this command replaces the longer command: LOAD "PROGRAM NAME",8 <RET>. This will load the program with the name "program name" from the device #8 disk drive. This disk drive may be either on the IEEE bus or the C-64 serial bus.

You may in any of the load commands substitute an asterisk (*) in place of any or all of the program name. Any combinations of letters are substituted for the asterisk. For example:

LOAD "PR* <RET>

Will load the first program on the diskette from the following names: "prime number", "prone", "premier", "program name", "promotion" etc...

IEEE-SERIAL Bus Assignment

Device Number	Function
0	Keyboard, automatically
1	Datasette, automatically
2	RS-232, automatically
3	Screen, automatically
4	Switch #4, IEEE-SERIAL
5	SERIAL, automatically
6	SERIAL, automatically
7	IEEE, automatically
8	Switch #2, IEEE-SERIAL
9,10	Switch #3, IEEE-SERIAL
11	SERIAL, automatically
12-15	IEEE, automatically

Installation of your QUICKSILVER 128 will take about 20 minutes. The following installation instructions are detailed and lengthy. Hopefully every question and concern that might come up is answered. For most Commodore 64's anybody familiar with the use of a Phillips screwdriver can easily install the QUICKSILVER 128.

If you are concerned about "getting your fingers into" your Commodore 128 Computer, please have your local dealer install the QUICKSILVER 128. If your Computer is under its original 90 day Commodore warranty remember that if you carefully follow the installation instructions you can always return the Computer to its original condition without Commodore or the local dealer being upset. We don't recommend that you wait 90 days before you take advantage of the QUICKSILVER's fantastic IEEE loading speeds.

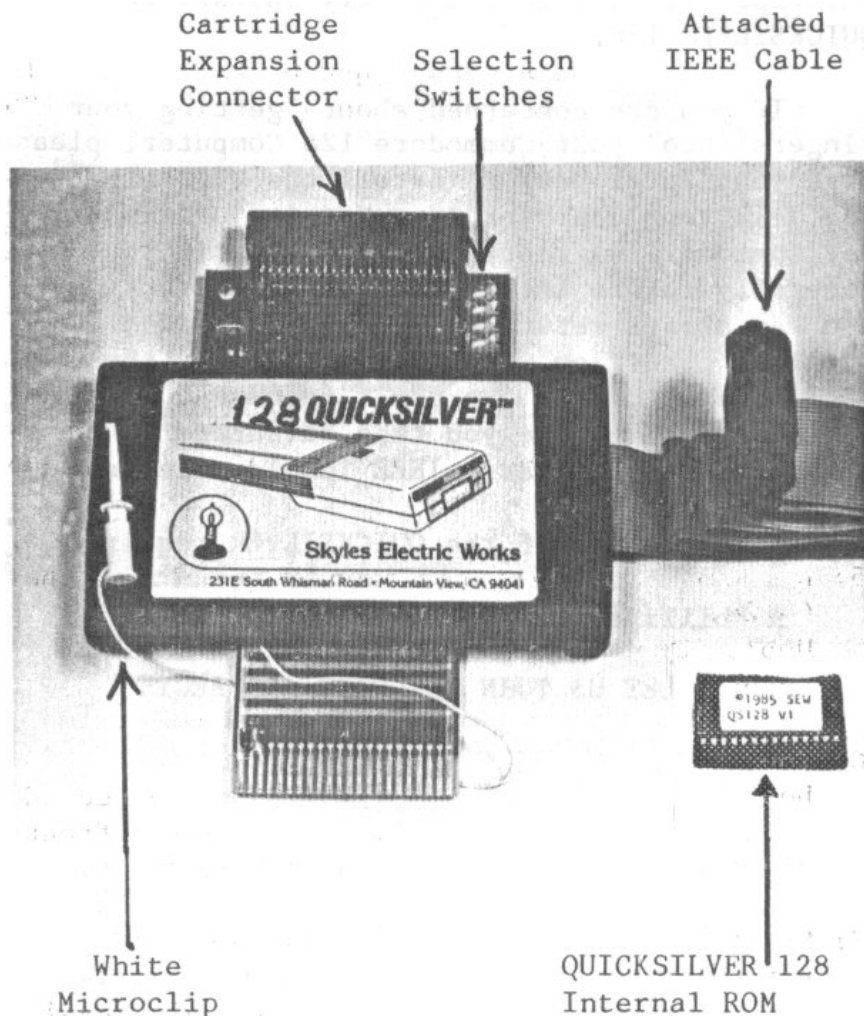
Installation of the QUICKSILVER requires:

A Phillips (Crosshead) screwdriver

LET US TURN THE PAGE AND BEGIN

Part Identification

Like a Tango, it takes two parts for QUICKSILVER 128.



QUICKSILVER 128

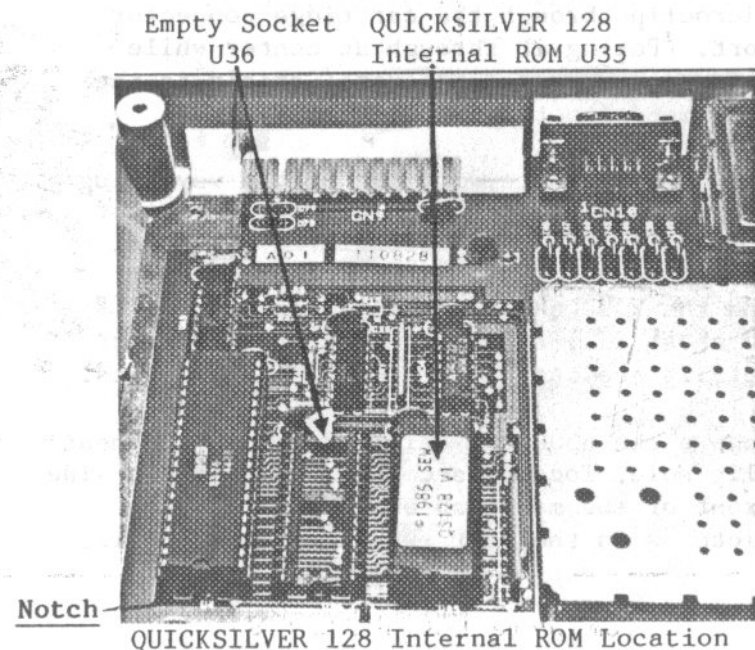
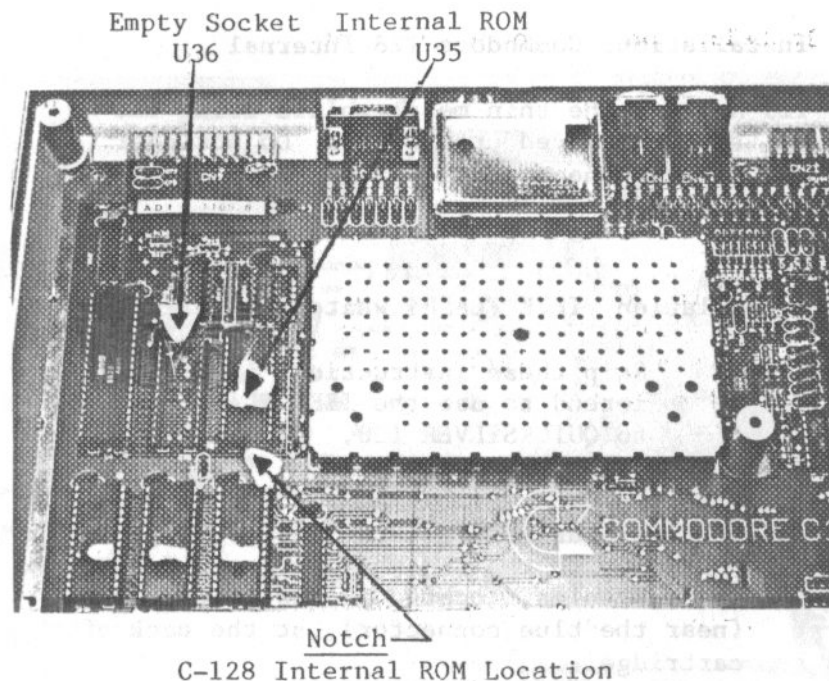
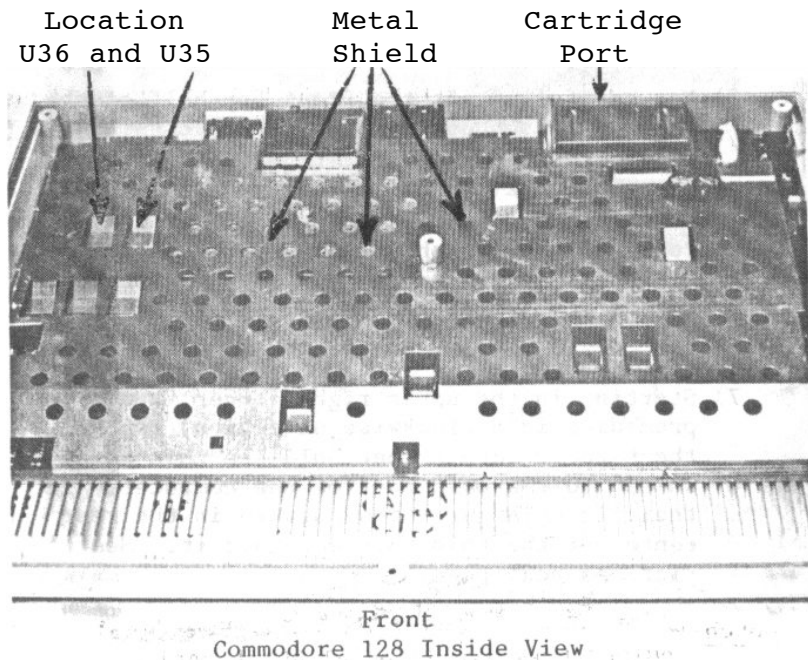
Installation, Commodore 128 Internal

We will first install QUICKSILVER 128 Internal ROM into the Commodore 128.

- 1) Unplug all cables, cartridges, and peripheral assemblies from your Commodore 128.
- 2) Place the Commodore 128 upside down on a well-lighted surface. The front edge of the C-128 should be toward you.
- 3) Using the Phillips screwdriver remove the 3 screws located in wells along the front bottom of the C-128. Continuing to use the screwdriver remove the 2 screws in the wells in the rear corners of the C-128 and the screw in the well in the center of the C-128.
- 4) Holding the C128 together at the sides place it right side up.
- 5) Now carefully lift the front top half of the C-128. This should unsnap the catches. Unplug the two connectors and set the top cover about 2 inches to the left.
- 6) Your C-128 has a thin metal cover and heatshield and a ground wire strap connected to the front right corner. Remove the front right hand screw holding grounding strap.
- 7) Starting in the upper right corner, and proceeding in a clockwise direction, remove the 6 to 10 screws that hold the thin metal shield to the main part of the computer. If there is a larger screw located in the rear center of the thin shield remove it. See pictures next page.

Installation, Commodore 128 Internal

- 8) Carefully lift the metal shield off the main electronics board.
Note: Some metal shields are soldered down around the periphery. If this is the case, unsolder the shield.
- 9) Locate and remove the C-128 Internal ROM plugged into the socket at location U35. See next page for picture of location. Note that there is an empty socket adjacent at location U36.
- 10) Plug the QUICKSILVER 128 Internal ROM into socket U35. The small notch on the ROM must be toward the front of the computer. See picture next page for location and orientation of this ROM.



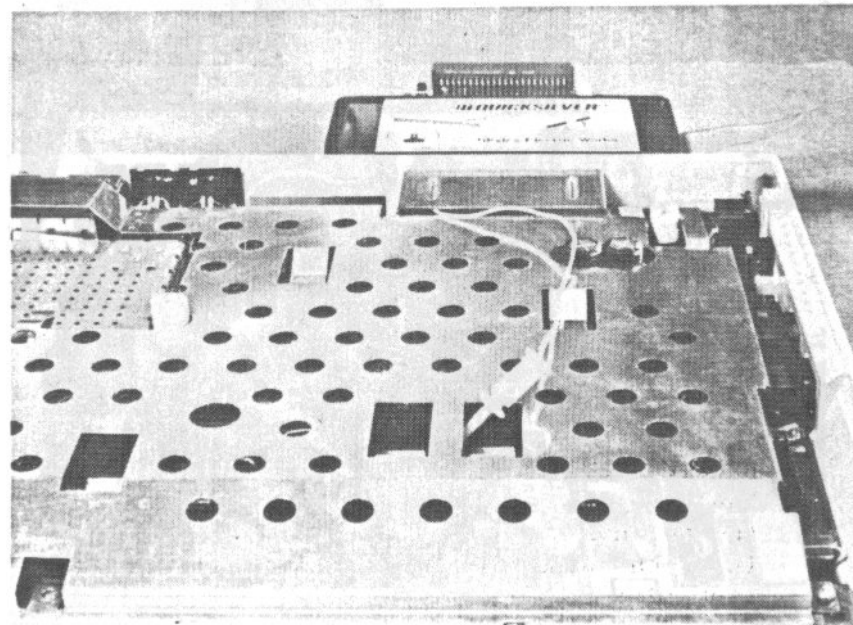
Installation, Commodore 128 Internal

- 11) Replace the thin metal shield using the screws removed previously. Do not over tighten the screws.

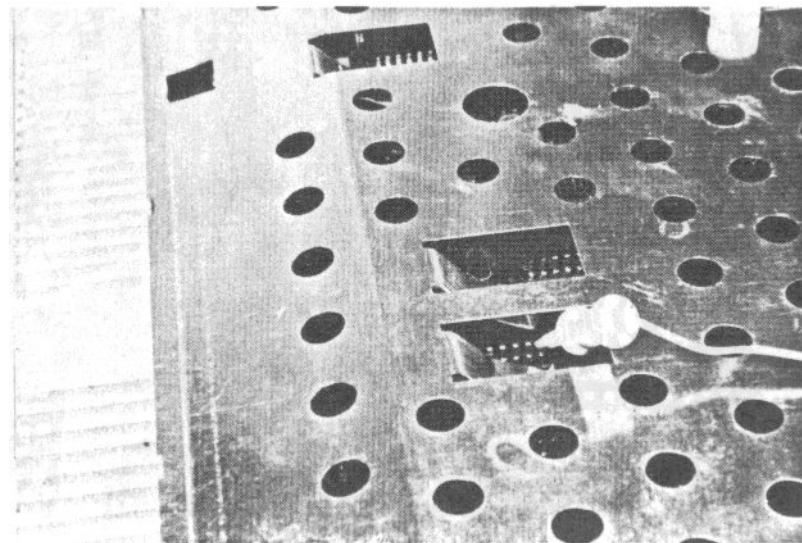
Installation IEEE FLASH! white microclip

Skip these instructions if you do not intend to use the IEEE FLASH! 64 option to QUICKSILVER 128. Please proceed to page 13

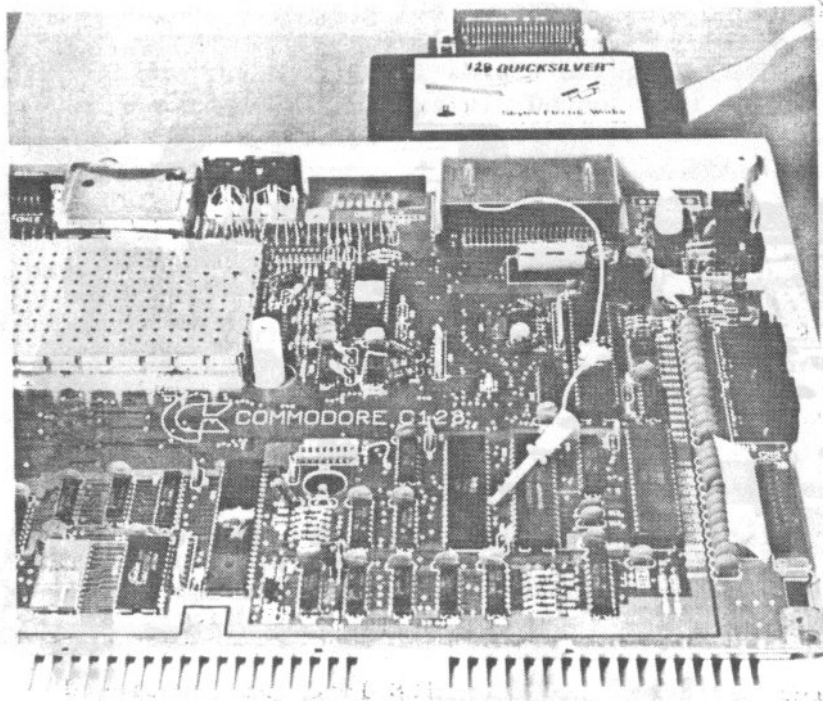
- A) Holding your QUICKSILVER 128 cartridge in one hand plug in the two white support feet, into the two holes, located in the green board (near the blue connector), at the back of the cartridge.
- B) From behind your computer, poke the white microclip through the cartridge connector port. Poking it through at center while deforming downward the metal shield is the recommended method.
- C) Pulling the white wire out of the way, plug QUICKSILVER 128 into the cartridge port of your computer. The QUICKSILVER 128 label should be up, the IEEE cable to the right, and the blue cartridge extension connector furthest away from the computer. For more details see the pictures on the next pages.
- D) Locate the 8502 CPU chip underneath the heat clip hole, located second from the right side front of the metal shield. Refer to the pictures on the next two pages for details.



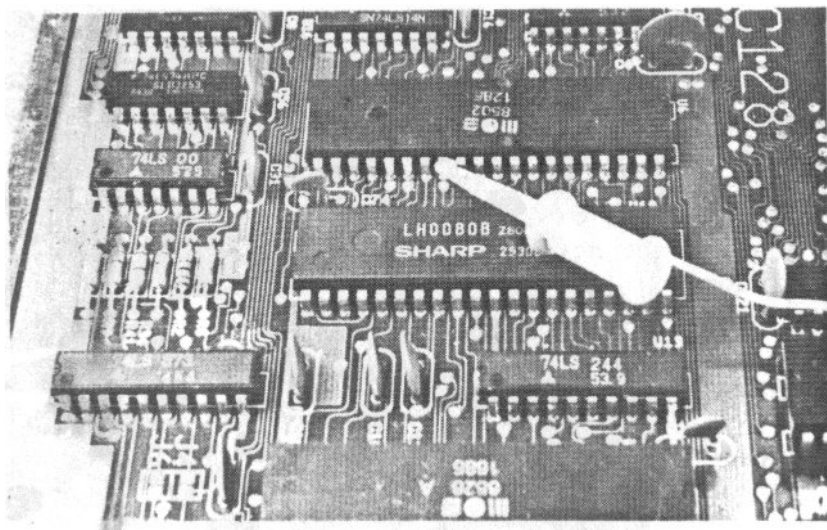
Overview QUICKSILVER Installation



Details Pin 29 of the 8502



Overview QUICKSILVER Installation



Details Pin 29 of the 8502

Installation, IEEE FLASH! 64 Option

E) Locate pin 29 of the 8502. Pin 29 is the ninth pin from the front of the C-128 on the right side of the 8502 CPU chip. Pin 29 is the twelfth pin from the rear on the right side of the 8502 CPU chip. Please refer to the pictures on the previous page for more details.

F) Entering through the right hand heatclip hole and squeezing the white microclip, hook the hook under pin 29 of the 8502 CPU chip. Check that you have clip onto pin 29 of the 8502 CPU.

This completes the special instructions for the IEEE FLASH! 64 Options.

Installation, Commodore 128 Internal continued

- 12) Place the top cover on top of the C-128 and reconnect the Keyboard cable, power light cable and the ground strap. Check that both sides are lined up.
- 13) Turn over your C-128 (carefully supporting the QUICKSILVER cartridge if installed) and replace the 6 cover screws. Do not over tighten the screws.

QUICKSILVER 128 INSTALLATION

Installation, QUICKSILVER 128 Cartridge

- 14) Holding your QUICKSILVER 128 cartridge in one hand plug in the two white support feet, into the two holes, located in the green board (near the blue connector), at the back of the cartridge.
- 15) Turn your computer right side up and return it to its normal operating location. Reconnect all cables and peripherals.
- 16) Place the four switches, in the red DIP switch bank at right rear of the QUICKSILVER 128 Cartridge, to the left.
- 17) Plug the QUICKSILVER 128 Cartridge into the Cartridge Port located at the right rear of the Commodore 128.
- 18) Connect the 6-foot IEEE cable to your IEEE device or devices. If you have two IEEE devices the QUICKSILVER IEEE cable should be the last to be connected.
- 19) Turn on your C-128, disk drives, monitor or TV set, and any other peripherals.
- 20) Test your system by operating it. Everything should still work the same as before you began the installation of QUICKSILVER 128. If you do not observe normal operation of your system, recheck the installation of QUICKSILVER 128.
- 21) Push the RESET button located at the left rear of the QUICKSILVER 128 cartridge. Observe that the computer resets and the QUICKSILVER 128 message appears momentarily before the standard C-128 turn on message.

QUICKSILVER 128
(C)1986 ROB CHANG

QUICKSILVER 128 INSTALLATION

Testing, QUICKSILVER 128

- 22) Now switch to the right:
Switch #2 if you have an IEEE disk drive set as device #8.
Switch #3 if you have an IEEE disk drive set as device #9 or #10.
Switch #4 if you have an IEEE printer set as device #4.
If you have two IEEE devices switch only one QUICKSILVER 128 selection switch to the right at this time.
- 23) Now test your IEEE device. Use standard BASIC 2.0 or 4.0 commands. Remember all IEEE devices connected to the IEEE bus need to be turned on, whether or not they are selected by the QUICKSILVER 128 selection switches.
- 24) Now deselect your first IEEE device and select your second IEEE device. Test your second IEEE device.
- 25) If you have trouble with one of the tests described above, carefully recheck the installation instructions starting at step 1.
- 26) If you are still having trouble, Notify your local dealer for test and/or possible replacement of the QUICKSILVER 128. Every QUICKSILVER 128 is tested before leaving the factory, but mistakes can happen.
- 27) In case of trouble you may also contact:

SKYLES ELECTRIC WORKS
231-E South Whisman Road
Mountain View, CA 94041
1-415-965 1735

between the hours of 1 and 6 PM Pacific Coast time.

Testing IEEE FLASH! 64 Option

23) Switch to the right the #1 Selection switch.
Switch #1 is located nearest the blue connector and farthest from the computer.

24) Type: GO 64 <RET>
Y <RET>

25) Observe QUICKSILVER 64 turn on message.

*** COMMODORE 64 QUICKSILVER ***
(C)1985 BRYCE NESBITT 38911 BYTES FREE

or IEEE FLASH! turn on message.

IEEE FLASH! 64 (C) 1986 R CHANG
64K RAM SYSTEM 38911 BASIC BYTES FREE

22) Now switch to the right:
Switch #2 if you have an IEEE disk drive set as device #8.
Switch #3 if you have an IEEE disk drive set as device #9 or #10.
Switch #4 if you have an IEEE printer set as device #4.
If you have two IEEE devices switch only one QUICKSILVER 128 selection switch to the right at this time.

23) Now test your IEEE device. Use standard BASIC 2.0. Remember all IEEE devices connected to the IEEE bus need to be turned on, whether or not they are selected by the QUICKSILVER 128 selection switches.

24) Now deselect your first IEEE device and select your second IEEE device. Test your second IEEE device.

25) If you have trouble with, one of the tests described above, carefully recheck the installation instructions starting at step 1.

Installation, Commodore 64

We will install the white microclip into the Commodore 64.

- 1) Unplug all cables, cartridges, and peripheral assemblies from your Commodore 64.
- 2) Place the Commodore 64 upside down on a well-lighted surface. The front edge of the C-64 should be toward you.
- 3) Using the Phillips screwdriver remove the 3 screws located in wells along the front bottom of the C-64.
- 4) Holding the C-64 together at the front place it right side up.
- 5) Now carefully lift the front top half of the C-64. This should unsnap the back catches. Set the top half of the C-64 about 3 inches forward.
- 6) If your Computer has the metalized cardboard inner cover untape it and open the cardboard. If your computer has a thin metal cover and heatshield, remove the five screws mounting screws. Place the heatshield upside down on a newspaper.
- 7) Holding your QUICKSILVER 128 cartridge in one hand plug in the two white support feet, into the two holes, located in the green board (near the blue connector), at the back of the cartridge.
- 8) From behind your computer, poke the white microclip through the cartridge connector port. Poking it through at either side of the port is easiest.

C-64 Microclip INSTALLATION

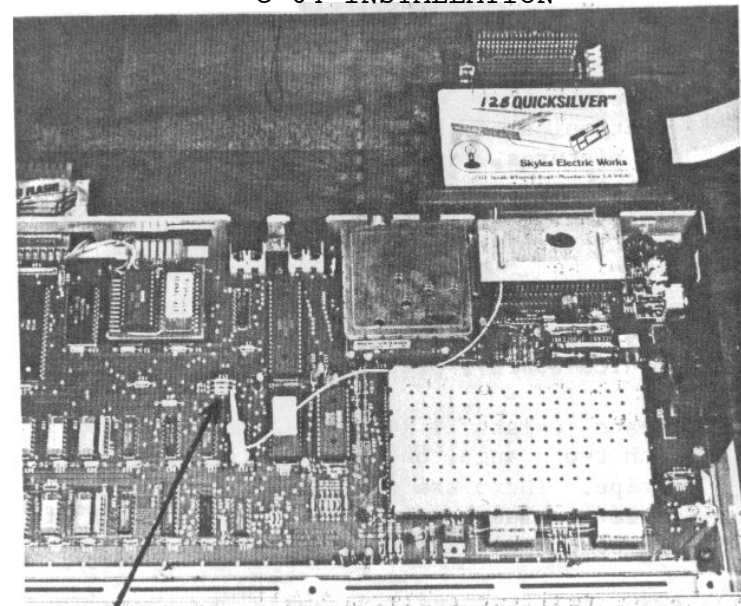
- 9) Pulling "the white wire out of the way, plug QUICKSILVER 128 into the cartridge port of your computer. The QUICKSILVER 128 label should be up, the IEEE cable to the right, and the blue cartridge extension connector furthest away from the computer. For more details see the pictures on the next pages.
- 10) There are three different styles of electronics boards inside the C-64. Using the pictures, on the next five pages, locate your style of electronic board.

Style 1: Oldest C-64s, Assembly # 326298 (number small), pictures next page.

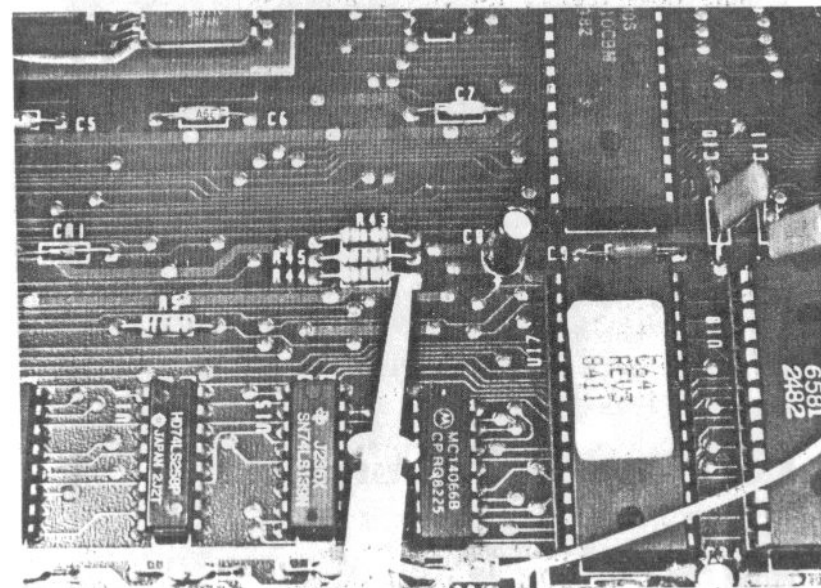
- 11) Locate resistor # R44, a small tan cylinder with two orange, one red, and one gold stripe. There are three identical resistors labeled (reading from the rear of the computer), R43, R45, and R44.
- 12) Squeezing the white microclip, hook the hook under the wire lead coming out of the right side of resistor R44. See next page for details.
- 13) Check and reconnect if necessary the Keyboard cable and the power light cable connectors. Your C-64 should appear as shown in the accompanying pictures on the next page. Now is the time to check carefully the installation to this point.
- 14) Retape the metalized cardboard if required and replace, backside first, the top of your computer onto the bottom half of the housing. Check that both sides are lined up. If not, readjust the top.

Go to page 18.

C-64 INSTALLATION



R44 QUICKSILVER 128 and Assy. #326298



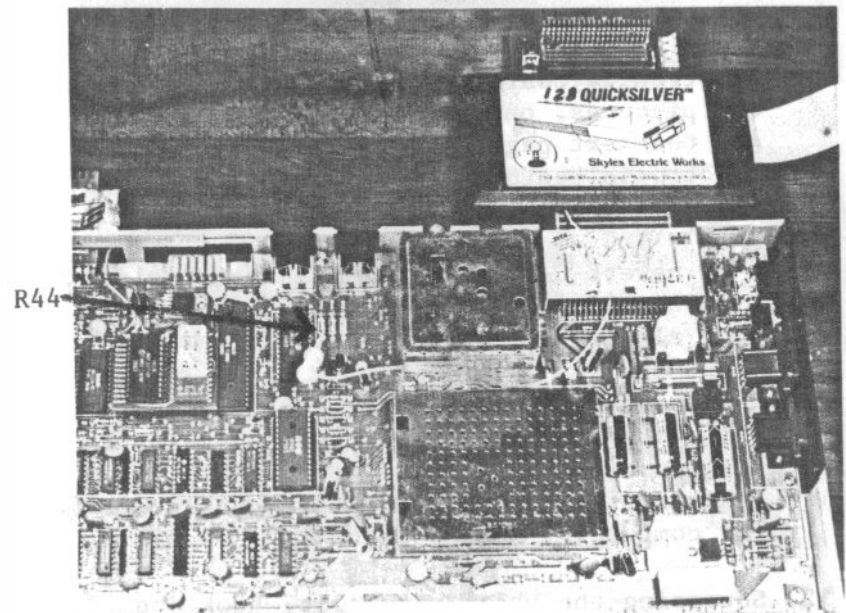
Details R44 and Microclip, Assy. #326298

- 10) There are three different styles of electronics boards inside the C-64. Using the pictures, on the previous page and the next three pages, locate your style of electronics board.

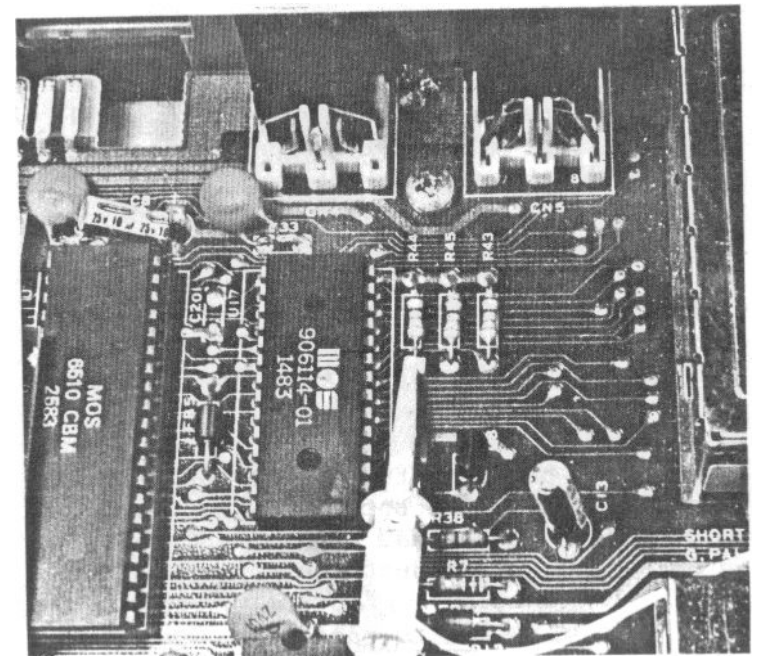
Style 2: newer C-64s, most common style, Assembly #250407 (number in white, front of electronics board), pictures next page.

- 11) Locate resistor # R44, small tan cylinder with two orange, one red, and one gold stripe. There are three identical resistors labeled (reading from the left of the computer) R44, R45, and R43.
- 12) Squeezing the white microclip, hook the hook under the wire lead coming out of the front side of resistor R44. See next page for details.
- 13) Check and reconnect if necessary the Keyboard cable and the power light cable connectors. Your C-64 should appear as shown in the accompanying pictures on the next page. Now is the time to check carefully the installation to this point.
- 14) Retape the metalized cardboard and replace, backside first, the top of your computer onto the bottom half of the housing. Check that both sides are lined up. If not, readjust the top.

Go to page 18.



QUICKSILVER 128 and Assy. #250407



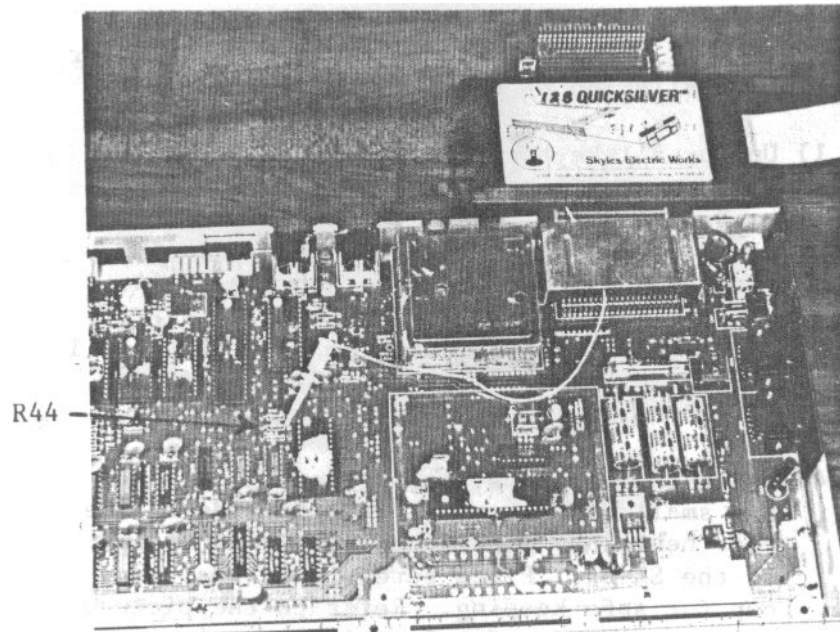
Details R44 and Microclip, Assy. #250407

- 10) There are three different styles of electronics boards inside the C-64. Using the pictures, on the previous three pages and the next page, locate your style of electronic board

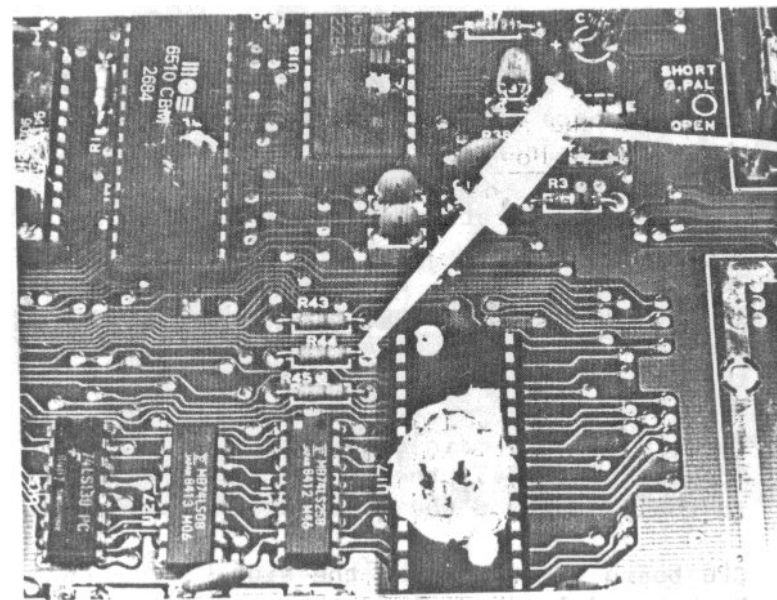
Style 3: newest C-64s, sheet metal heat shield cover, Assembly # 250425, number in white, front of electronics board, pictures next page.

- 11) Locate resistor # R44, small tan cylinder with two orange, one red, and one gold stripe. There are three identical resistors labeled (reading from the rear of the computer), R43, R44, and R45.
- 12) Squeezing the white microclip, hook the hook under the wire lead coming out of the right side of resistor R44. See next page for details.
- 13) Check and reconnect if necessary the Keyboard cable and the power light cable connectors. Your C-64 should appear as shown in the accompanying pictures on the next page. Now is the time to check carefully the installation to this point.
- 14) Replace the sheetmetal heatsink cover and install the five screws. Do not over tighten the screws. Do not leave out any screws.
- 15) Replace, backside first, the top of your computer onto the bottom half of the housing. Check that both sides are lined up. If not, readjust the top.

Go to page 18.



QUICKSILVER 128 and Assy. #250425



Details R44 and Microclip, Assy. #250425

SX-64 Microclip INSTALLATION

We will first prepare the SX-64 Computer for the installation of the white microclip.

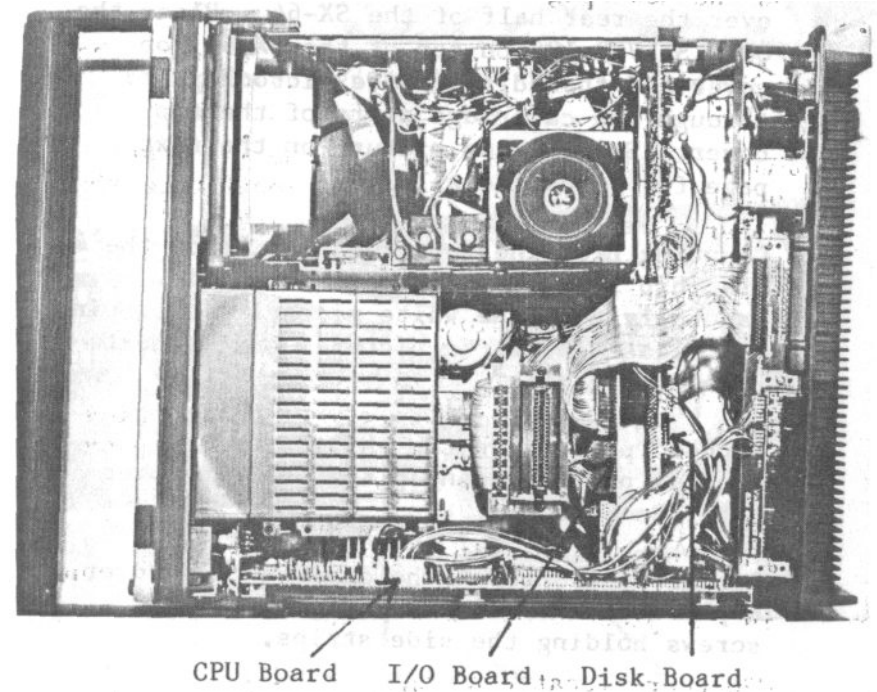
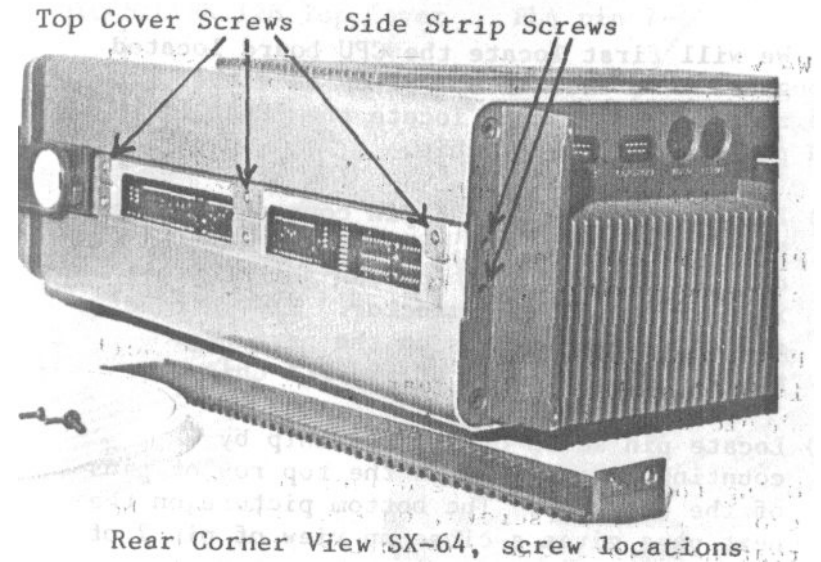
- 1) Unplug all keyboards, cables, cartridges, and peripheral assemblies from your SX-64.
- 2) Place the carrying handle in the normal carrying position, in front of the SX-64.
- 3) Place the SX-64 right side up on a clean well-lighted surface. The rear of the computer should be facing you.
- 4) Using the Phillips screwdriver remove the two small black screws, on each side of the rear heatsink, that fasten the side strips of the SX-64. Place screws in a small dry cup for safekeeping. Refer to the picture on the next page for location.
- 5) Slide the side strips toward the rear of the SX-64 and remove them to a safe spot.
- 6) Unscrew the 8 screws holding the top cover of the SX-64. Two screws are located on the upper corners of the rear heatsink, and three screws are located along each side of the computer. See the picture on the next page for the location of screws.
- 7) Remove all children, and any adults that like to poke their fingers into electronics boards from the immediate area. Now remove the top cover of the SX-64 to a safe place.
- 8) There are three main electronics boards inside the SX-64. Their locations are shown in the picture on the next page.

CPU board located along the side.

Disk board located along the rear.

I/O board located in front of Disk board.

SX-64 Microclip INSTALLATION



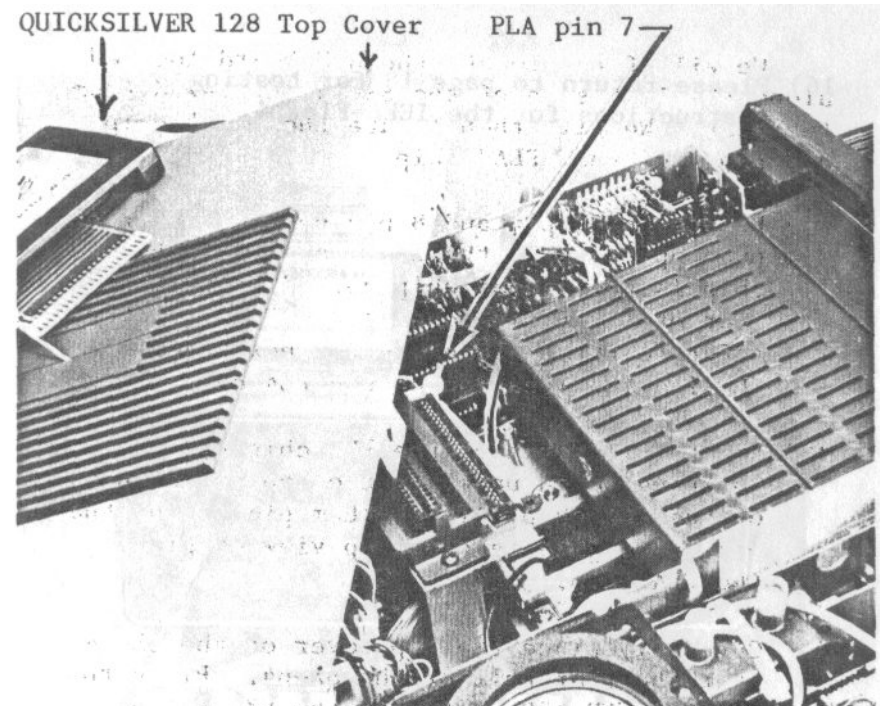
Top View SX-64, Electronic board locations

SX-64 Microclip INSTALLATION

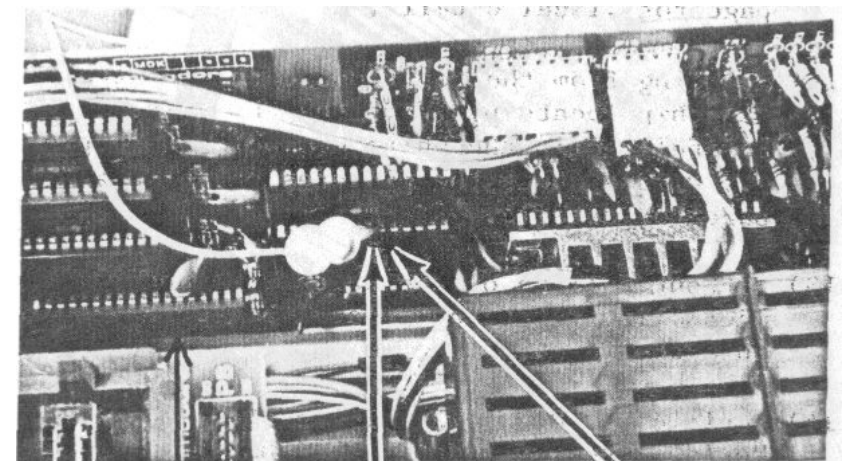
We will first locate the CPU board located along the left side of the SX-64 as viewed from the rear. We will then locate the "PLA" chip and pin 7 of the "PLA" chip.

- 9) Locate the 6 pin and 8 pin connectors from the top front of the CPU board. The PLA chip is the second chip down just to the rear of the 8-pin connector. Please refer to the pictures on the next page showing the location of the PLA chip.
- 10) Locate pin seven of the PLA chip by counting seven back, on the top row of pins of the PLA chip. The bottom picture on the next page gives a close up view of pin 7 of the PLA chip.
- 11) Carefully place the top cover of the SX-64 over the rear half of the SX-64. Place the QUICKSILVER 128 on top of the SX-64 top cover and thread the white microclip through the cartridge doors of the top cover. See the top picture on the next page for visual details.
- 12) Counting from the top front corner of the PLA chip locate pin 7 of the PLA chip. Carefully clip the white microclip onto pin 7. Please check the pictures on the next page for details.
- 13) Without pulling on the white wire and microclip, rotate and place the top cover onto the SX-64.
- 14) Replace the 8 screws holding the top cover. Replace the two side strips and the 4 screws holding the side strips.
- 15) Return SX-64 to it's normal operating location and plug in the IEEE-Flash!. Please see page 24 for more pictures.

SX-64 Microclip INSTALLATION



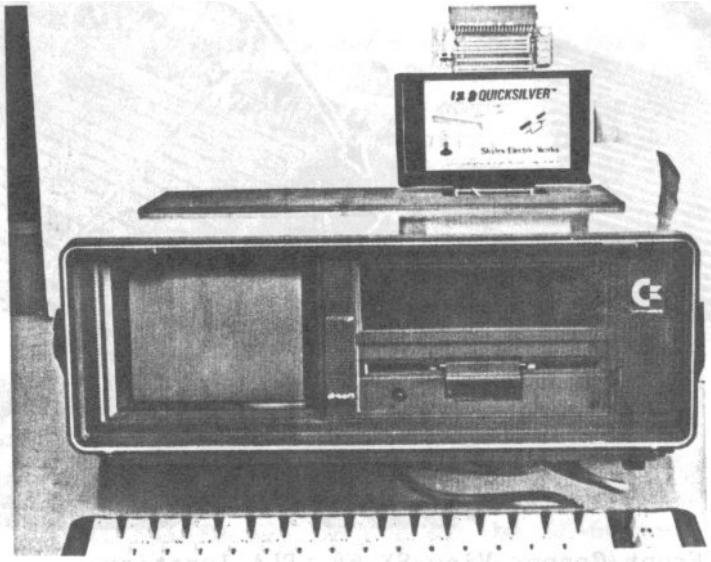
Front Corner View SX-64, PLA location



CPU Board PLA Pin 7, Microclip
SX-64, CPU board, PLA pin 7 locations

SX-64 Microclip INSTALLATION

- 16) Please return to page 18 for testing instructions for the IEEE-Flash!.



QUICKSILVER 128 Installed in SX-64



Detail QUICKSILVER 128 SX-64