www.cbmstuff.com

SX-64 Ultra Reset

Assembly, Installation, & Usage Manual

Firmware v1.0

Manual v1.2

Release Date: July 31, 2013
Last Revision: April 13, 2014

DUE TO FREQUENT CHANGES IN THIS MANUAL, PLEASE DO NOT POST, UPLOAD, OR OTHERWISE PROVIDE THIS INFORMATION VIA ANY MEANS!

Introduction

Thank you for purchasing the SX-64 Ultra Reset! This is device will let you to reset your SX-64, change drive numbers, and even switch ROMs using the drive reset switch located inside of the flip-out door that hides the volume and monitor controls. Please read through this **entire** manual **before** you attempt the assembly, installation, and usage of this product.

Installation Requirements

The assembly and installation of the SX-64 Ultra Reset is not difficult. However, if after reading through this manual you believe that you cannot perform the assembly or installation, please seek someone who can assist you. This manual should provide ample information and clarity to assemble, install, and use this product. You will need a small soldering iron and solder.

Warranty Information

This product carries a limited lifetime warranty. Units subject to improper installation, misuse, abuse, or modifications will not be covered under this warranty. We may at our discretion either repair or replace the unit covered under warranty. The customer will pay all freight charges to and from our facility. cbmstuff.com must be contacted to obtain a return authorization. Any product returned without authorization will be returned without repair or replacement.

Liability

By using this product, you agree to hold cbmstuff.com and Jim Drew free from any type of liability either directly or indirectly while using this product.

Legal Information

The ‘look and feel’ and functionality of this product are protected by U.S. copyright laws. Various terminology and feature names are protected under U.S. trademark laws.

SECTION 1 – ASSEMBLY

(Skip to Section 2 if you purchased the assembled/tested version)

Step 1 – Inventory and identify the components

Remove the components from your kit. Refer to Figure 1. You should have received the following (shown from top to bottom):

1 – Circuit board
2 – 2N7000 MOSFETs
1 – 47K ohm resistor
1 - .1uf capacitor
1 – Pre-programmed PIC12F629 IC

If you are missing any of these parts, please contact us immediately.

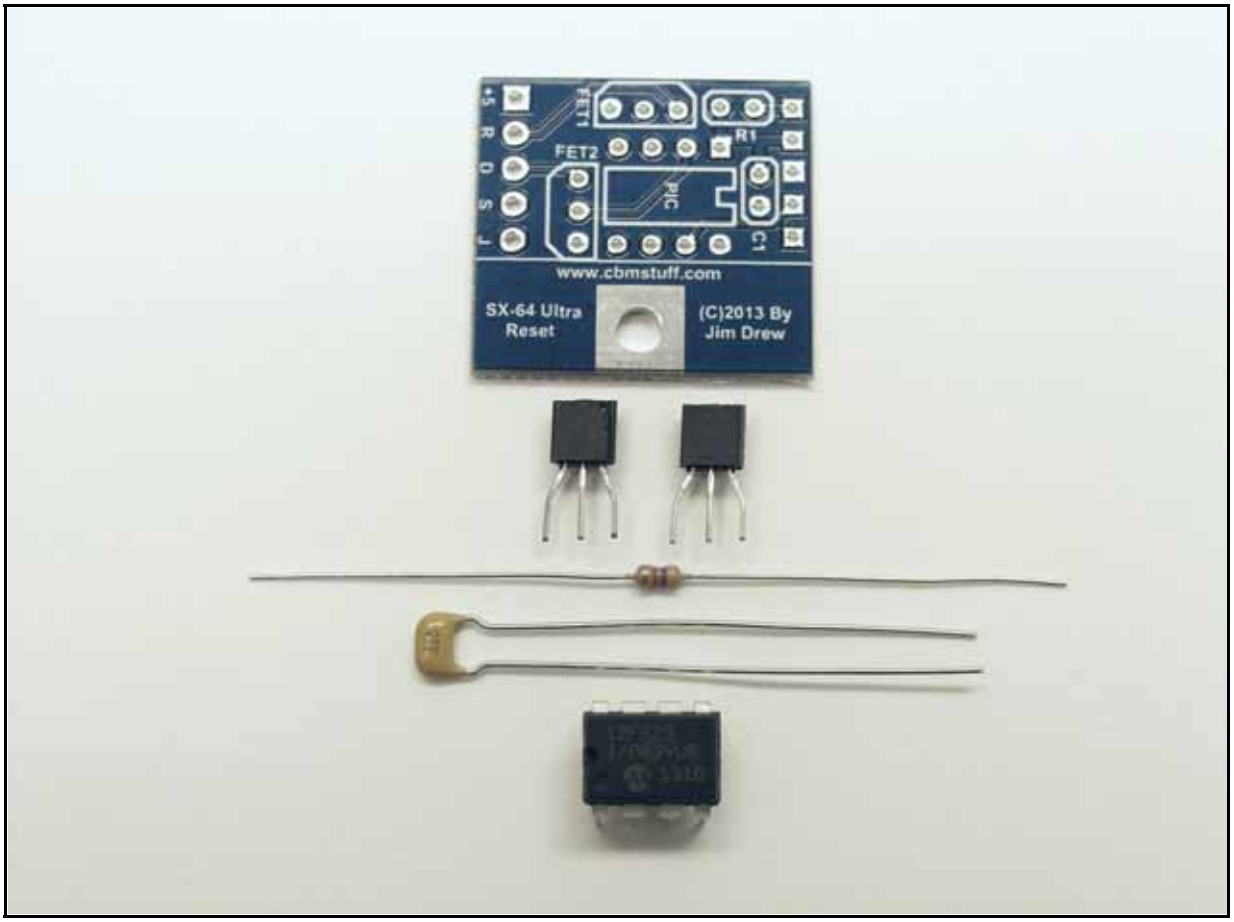

Figure 1 – Included components

Step 2 – Installing and soldering the PIC12F629 IC

Position the PIC12F629 IC over the circuit board as shown in Figure 2.

Note the location of the notch (the half-moon shaped indent located at one end of the chip). There is a matching 'notch' pattern shown on the circuit board for the part labeled as “PIC”.

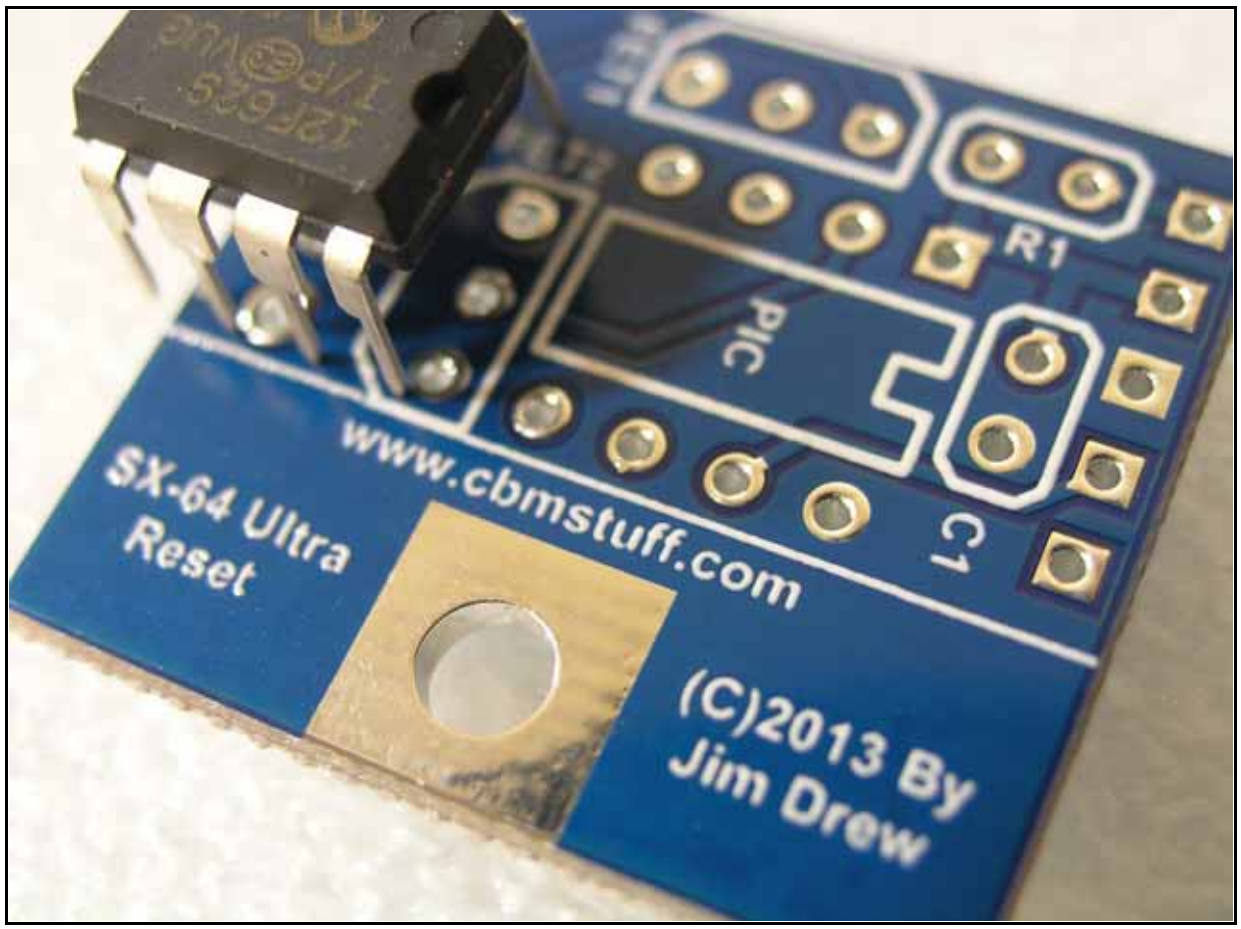

Figure 2 – Orienting the PIC12F629 IC

Now, keeping the same orientation, insert the 8 pins of the PIC12F629 IC into the holes in the circuit board.

If the pins are difficult to get in on both sides, you can slightly bend the pins inwards.

Seat the PIC12F629 IC fully flush with the circuit board as shown in figure 3.

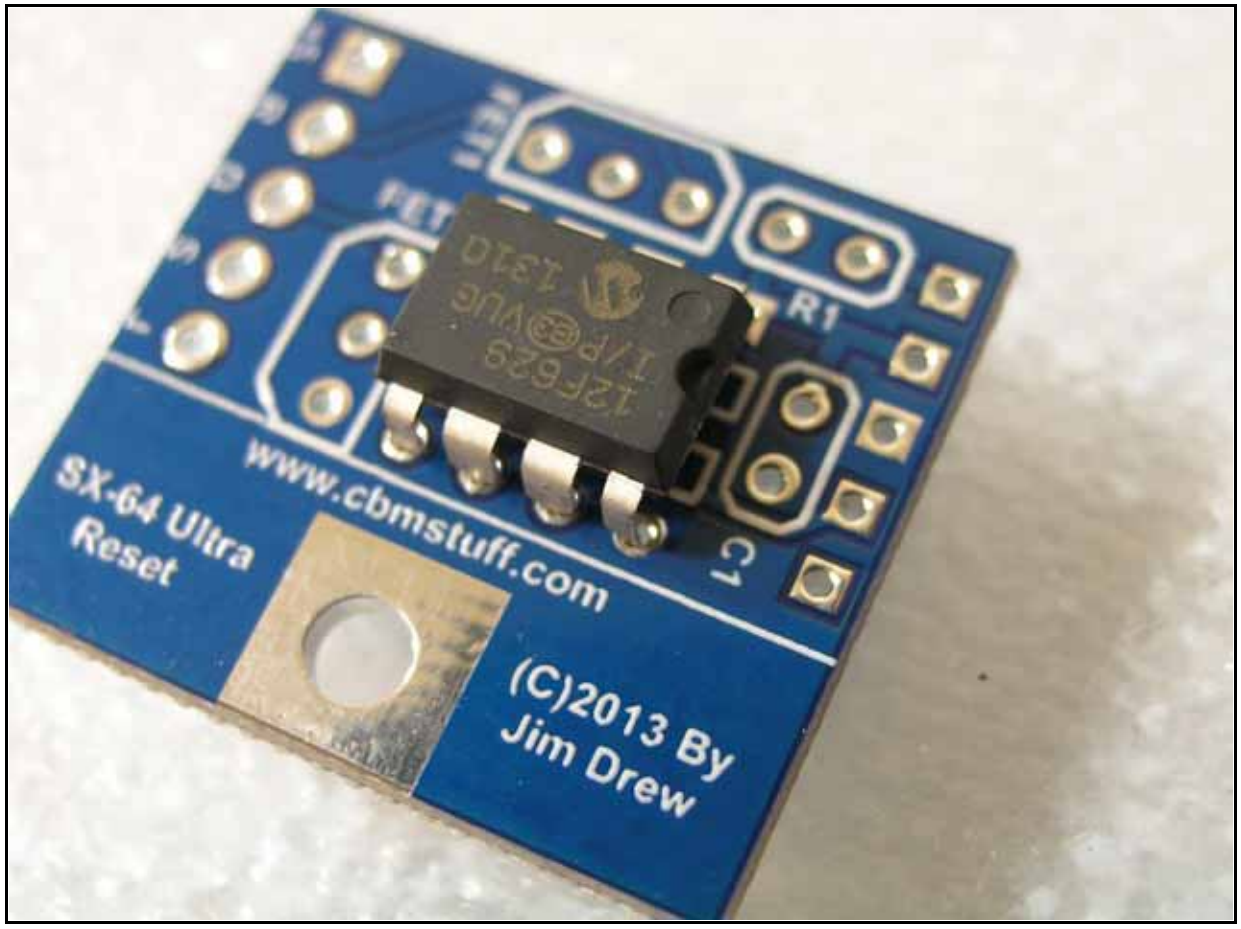

Figure 3 – PIC12F629 in the circuit board

Turn the circuit board over and solder the 8 pins as shown in figure 4.

You can clip the pins flush with the solder joint if you like, but it is not necessary.

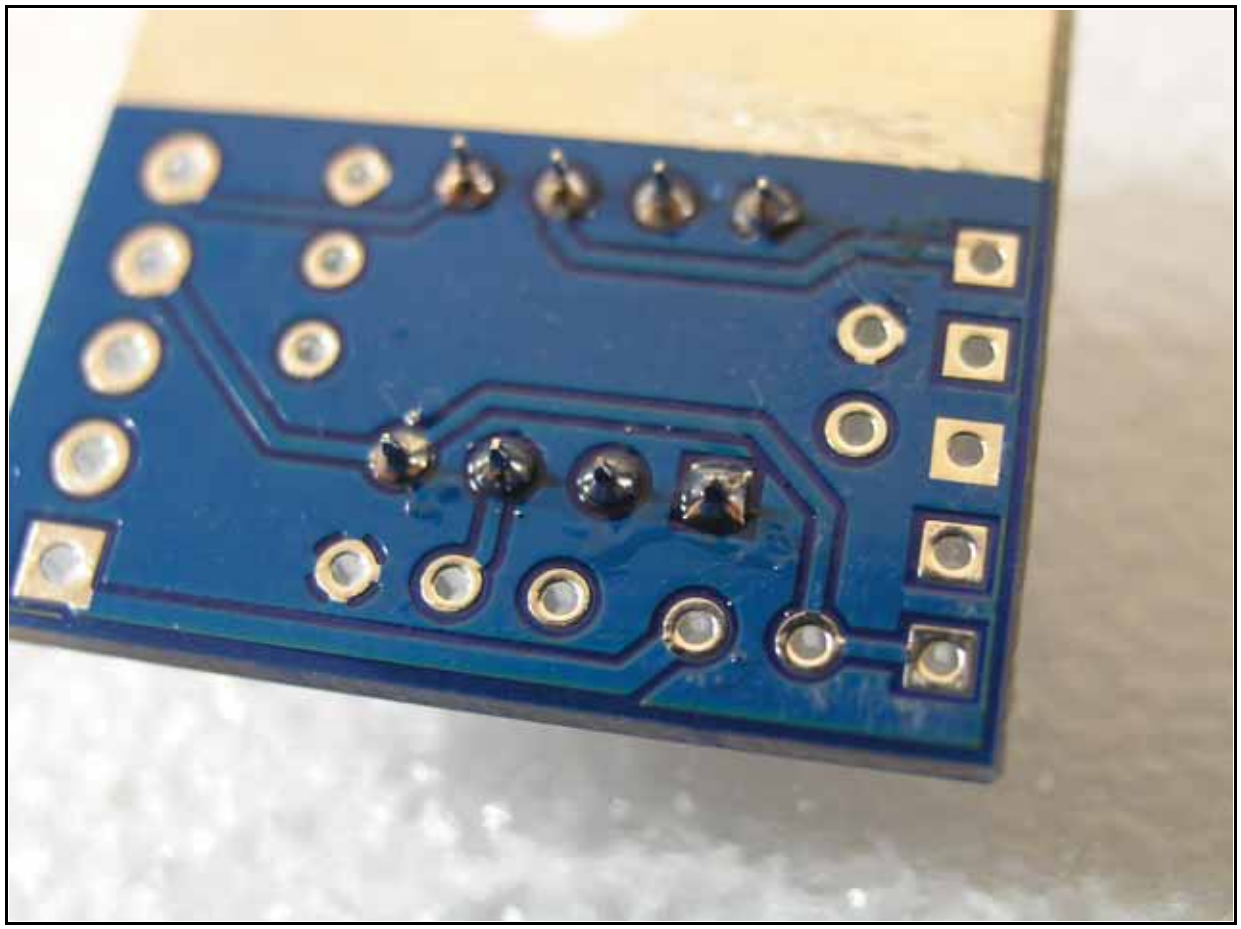

Figure 4 – PIC12F629 soldered in place

Step 3 – Installing the capacitor

The capacitor has no orientation requirement. Insert the two leads from the capacitor into the the two holes in the circuit board next to the label “C1”. Press the capacitor flush with the circuit board as shown in Figure 5.

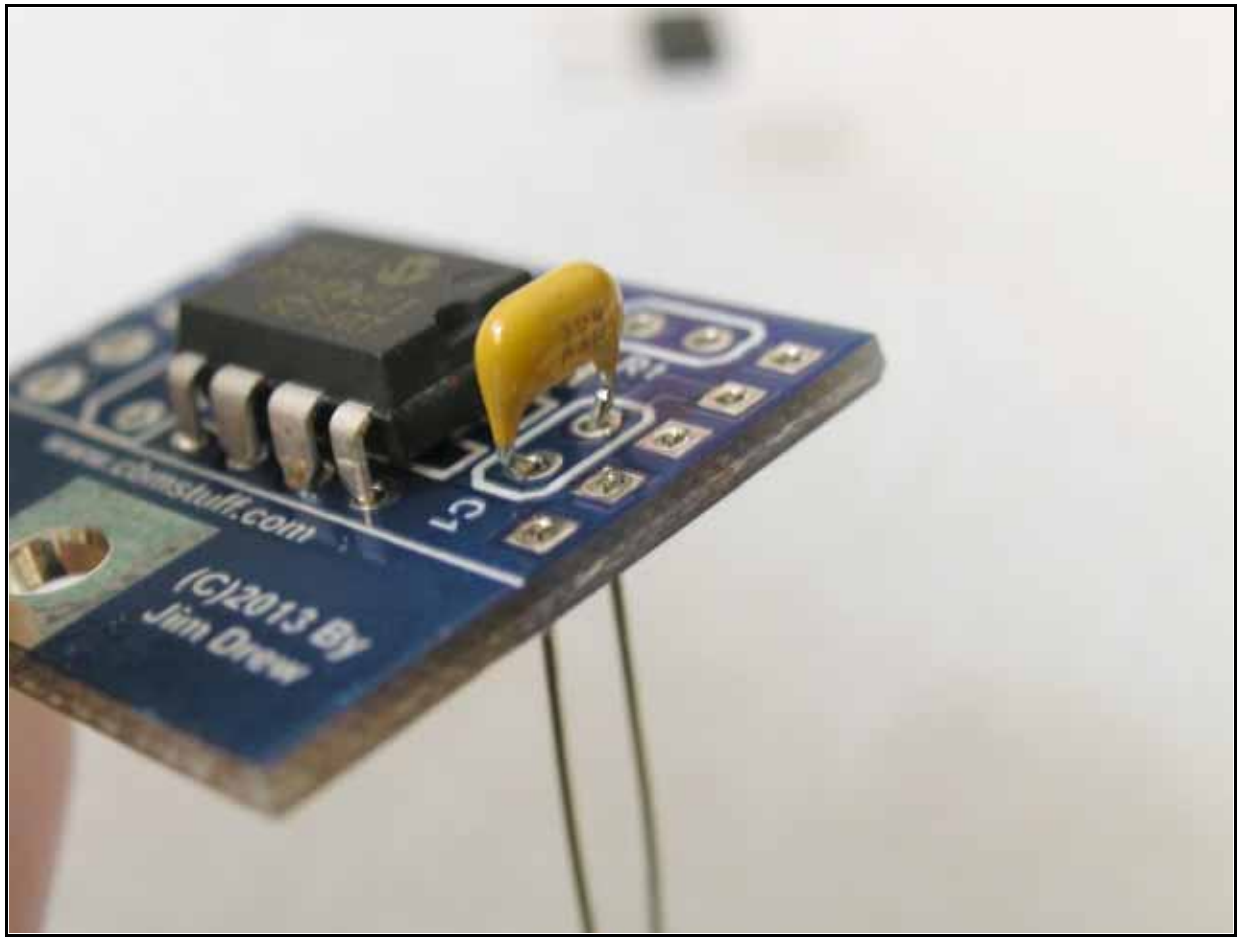

Figure 5 – Capacitor inserted into the circuit board

Turn the circuit board over and solder the two capacitor leads. Sometimes it helps to cut the leads shorter before soldering, making it easier for a soldering iron tip to reach the circuit board pads. Do not cut the leads shorter than 1/8" above the board, just to make sure the leads are not cut too short! Once the leads have been soldered, clip leads flush with the solder joint as shown in Figure 6.

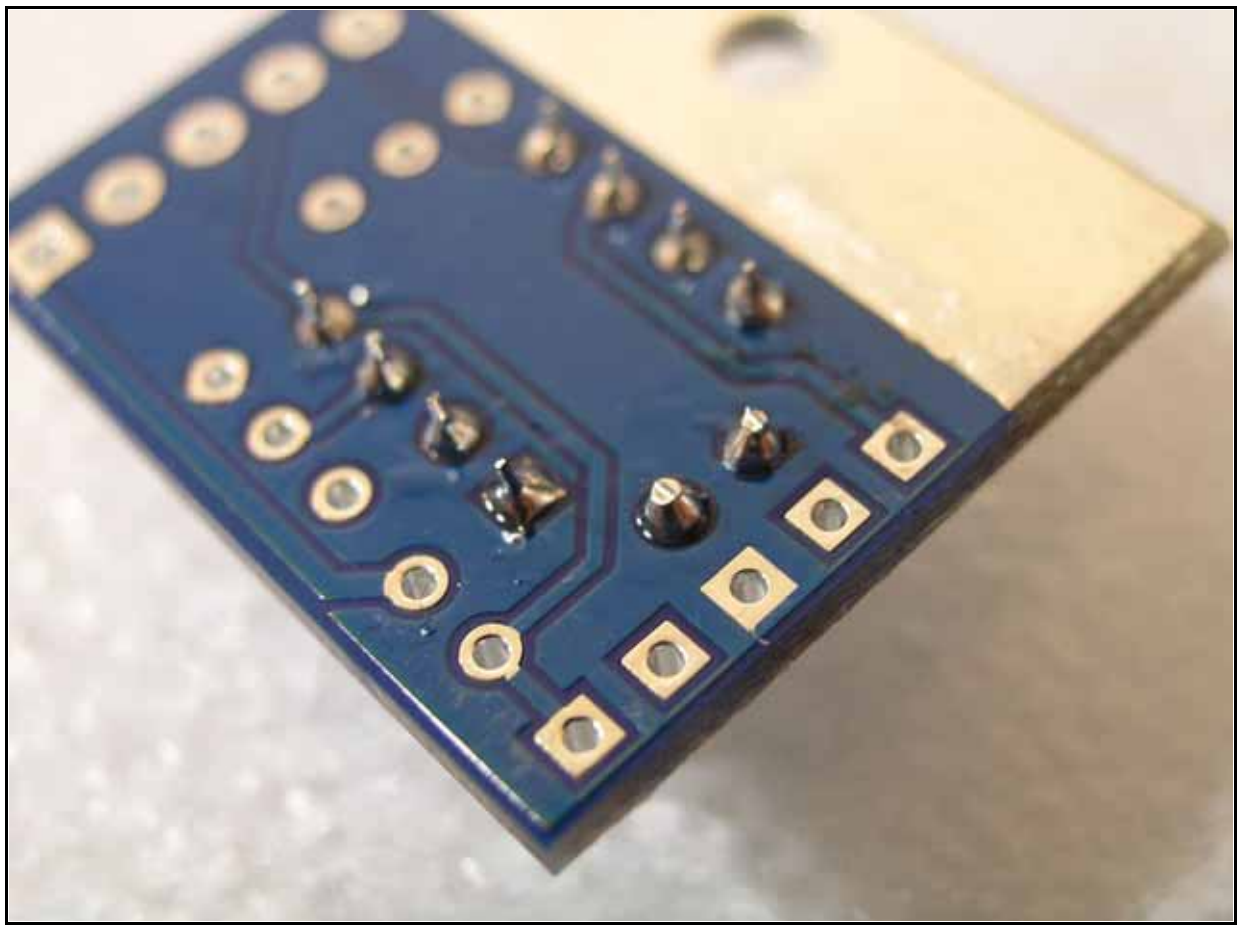

Figure 6 – Capacitor soldered and leads cut flush

Step 4 – Installing the resistor

You must bend one end of the resistor leads to match Figure 7. This is necessary to fit the resistor in the circuit board.

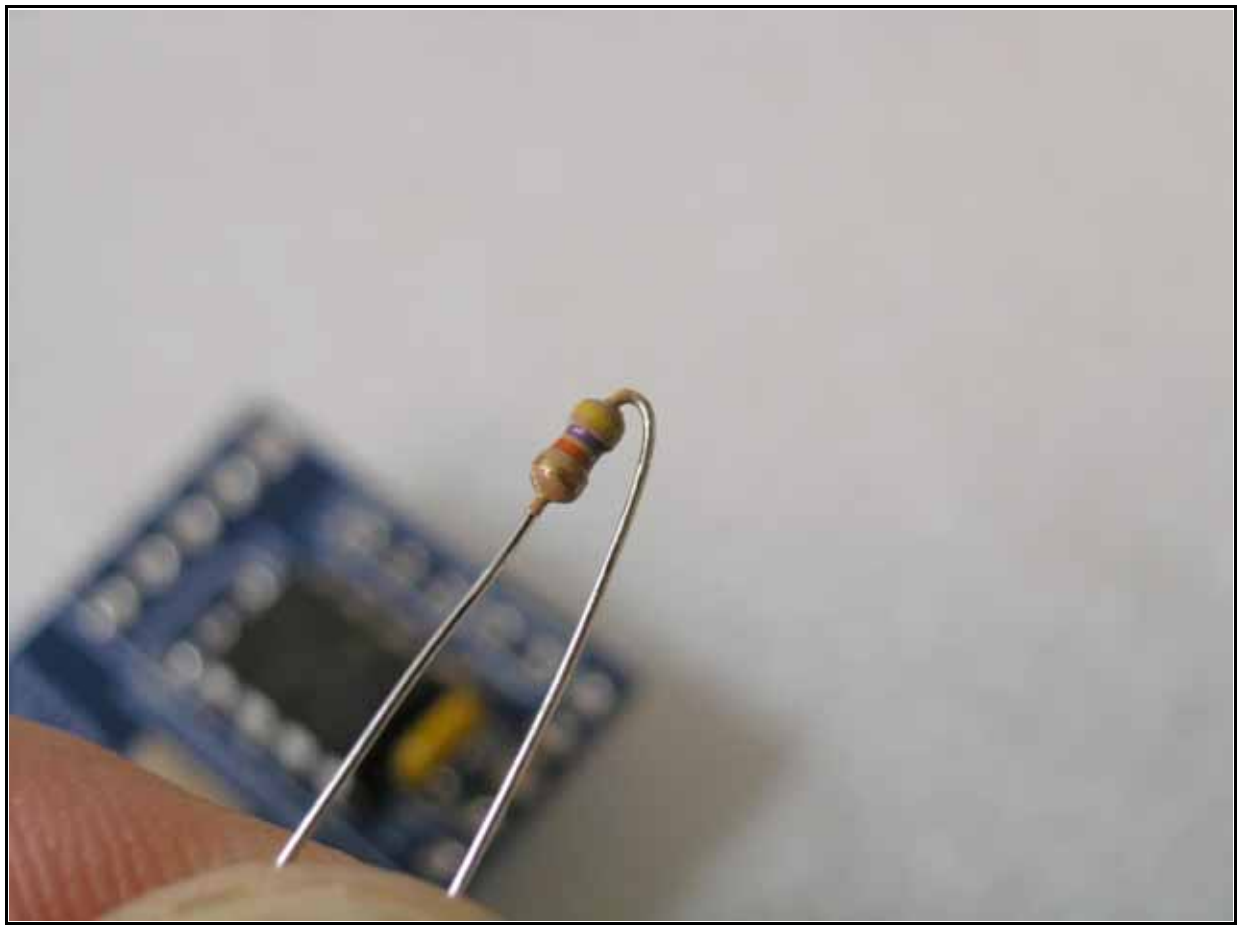

Figure 7 – Bending the resistor lead

Insert the two leads from the resistor into the the two holes in the circuit board next to the label “R1”. Refer to Figure 8 for the orientation of the resistor. Seat the resistor fully flush with the board.

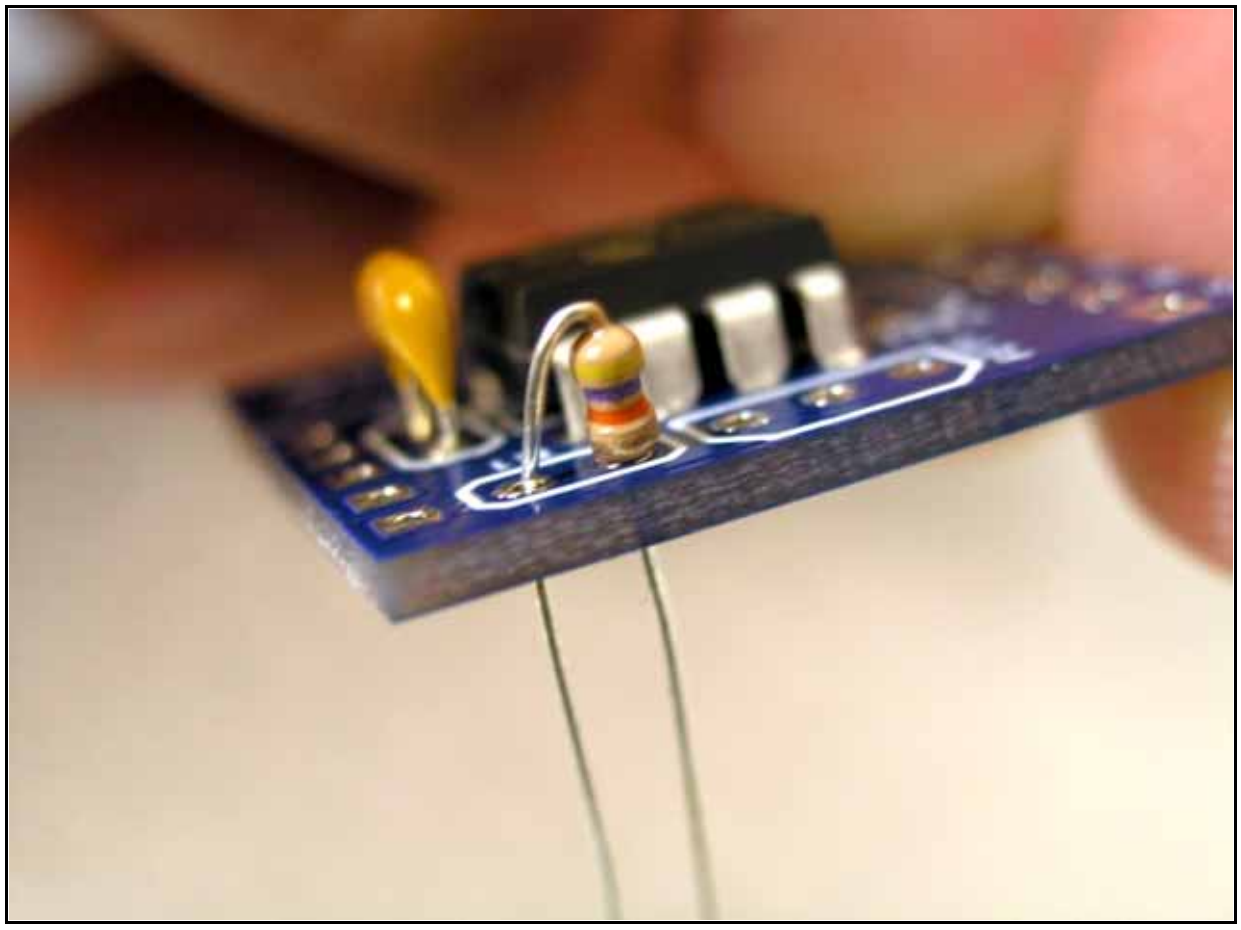

Figure 8 – Resistor inserted into the circuit board

Turn the circuit board over and solder the two resistor leads. Again, clipping the leads short before soldering will make soldering at bit easier.

Clip the leads flush with the solder joint as shown in Figure 9.

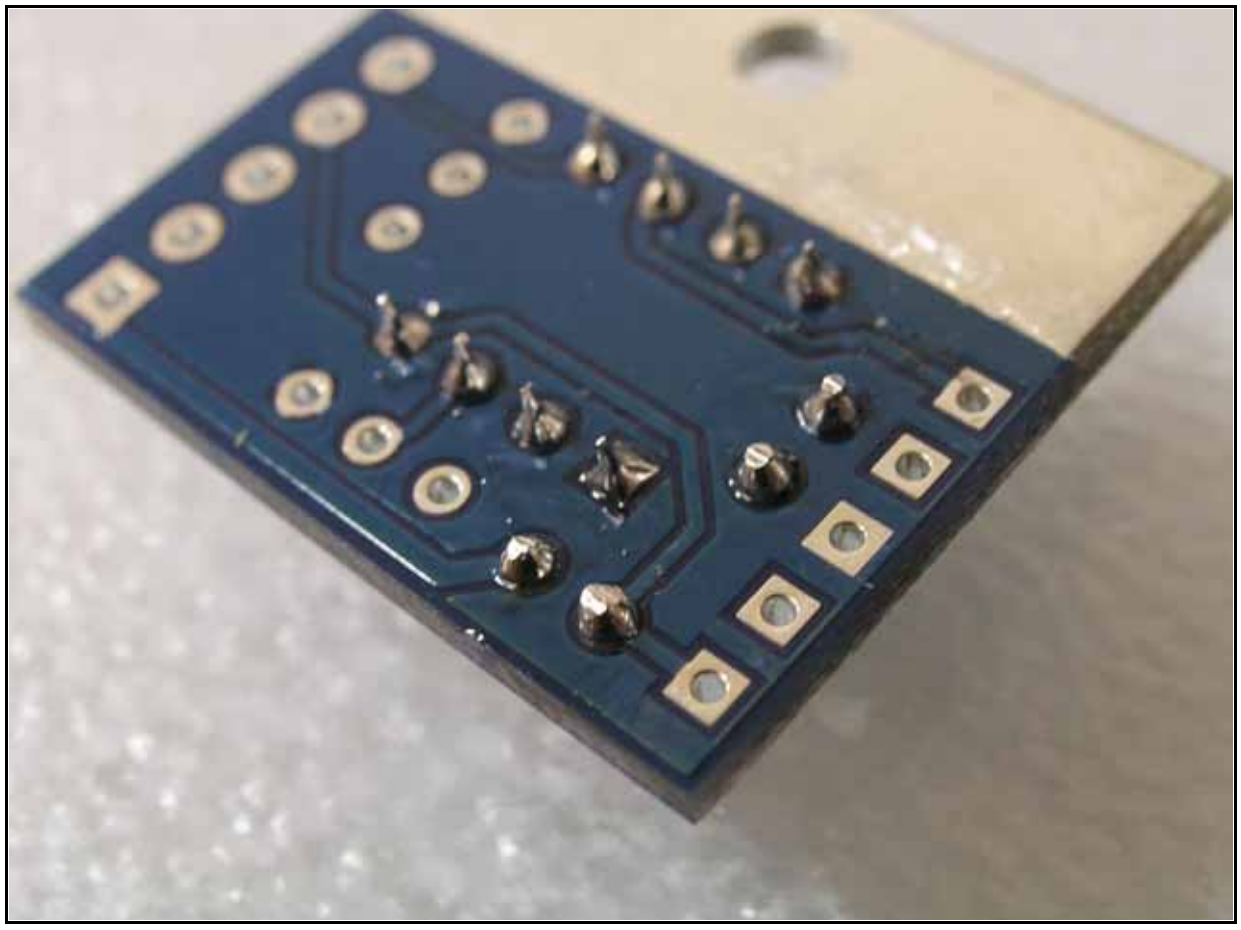

Figure 9 – Resistor soldered and leads cut flush

Step 5 – Installing the MOSFETs

There are two MOSFETs that will be installed. The three leads on these MOSFETs have already been trimmed for you.

Locate the labels “FET1” and “FET2” on the circuit board. These are the locations where the MOSFETs will be installed. Notice that these components have a particular shape, having a flat face and round body. It is critical that you position the flat face of the MOSFET so it is oriented towards the center of the circuit board. See figure 10 for details (*note: The PIC12F629 IC is not shown in Figure 10 to make the orientation easier to see*).

Insert both MOSFETs into the circuit board.

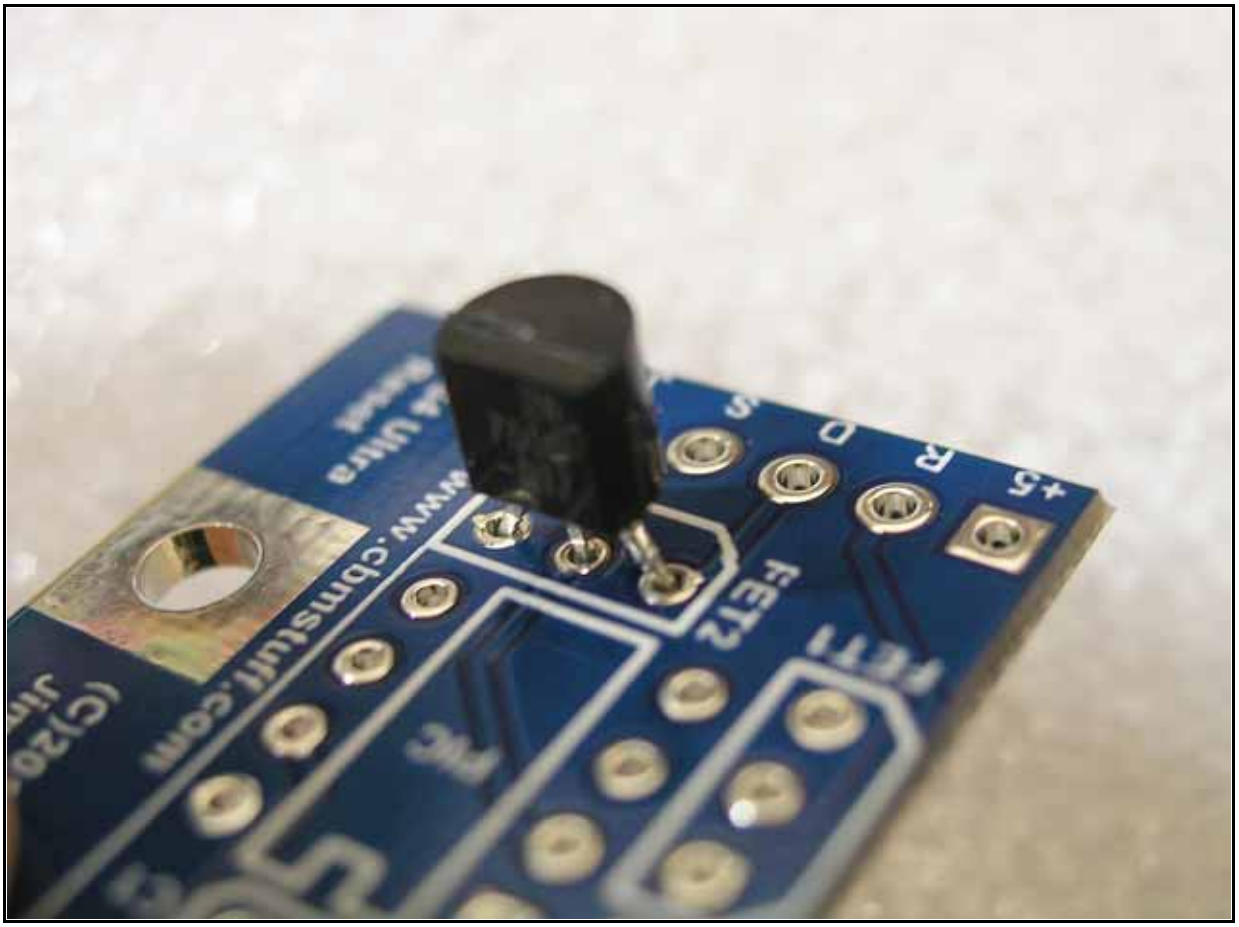

Figure 10 – Position MOSFETs so the flat part is facing “PIC”

Turn the circuit board over and solder just the center lead on each of the MOSFETs. See Figure 11. Once this is done, you can adjust the angle of the MOSFET to make a neat assembly.

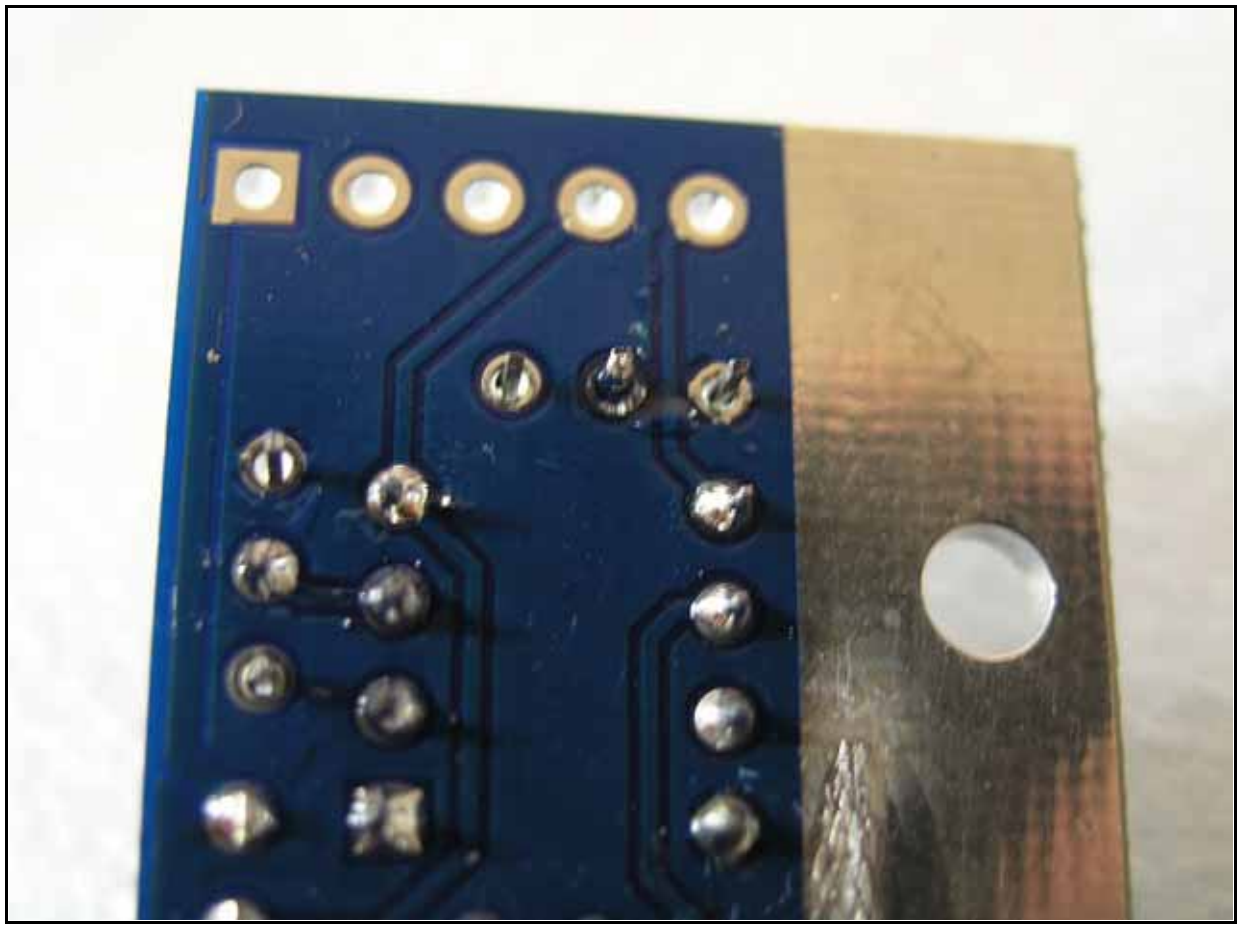

Figure 11 – Solder just the center lead of each MOSFET

Now, solder the remaining two leads for each MOSFET and trim the leads flush to the solder joint, as shown in Figure 12.

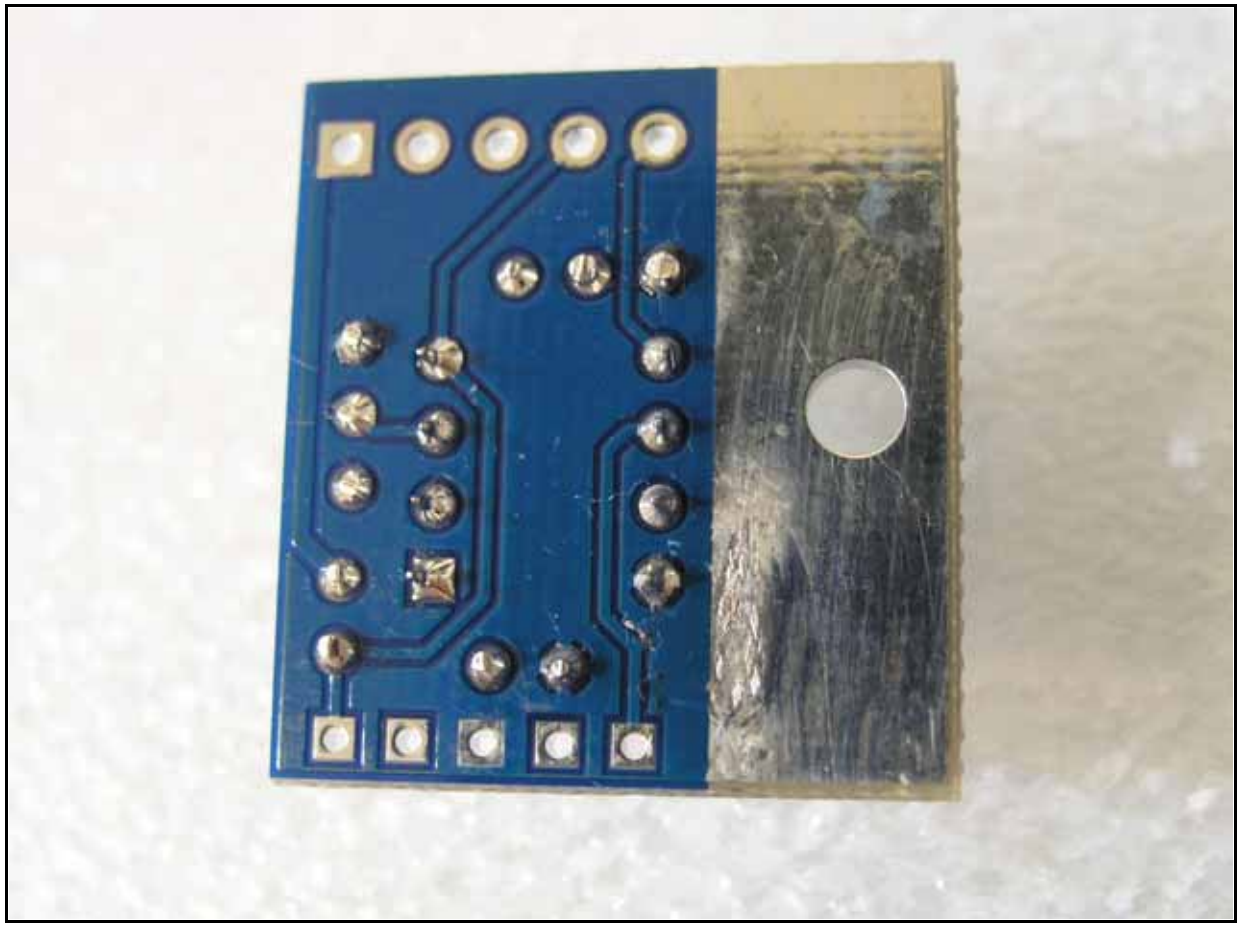

Figure 12 – MOSFETs soldered and leads clipped flush

Step 6 – Installing the wires

There are 5 wires, each with its own function. Only some wires are mandatory. Other wires are only required for certain features. Below is a wiring chart. See Figure 13 for hole locations for each of these wires.

Name	Location in SX-64	Required?	Wire Color
+5v	+5 volt power source	Yes	Red
R	Reset on IEC bus	Yes	Blue
D	Drive select pad	No	Gray
S	Reset plug	Yes	Yellow
J	ROM select (JiffyDOS)	No	Green

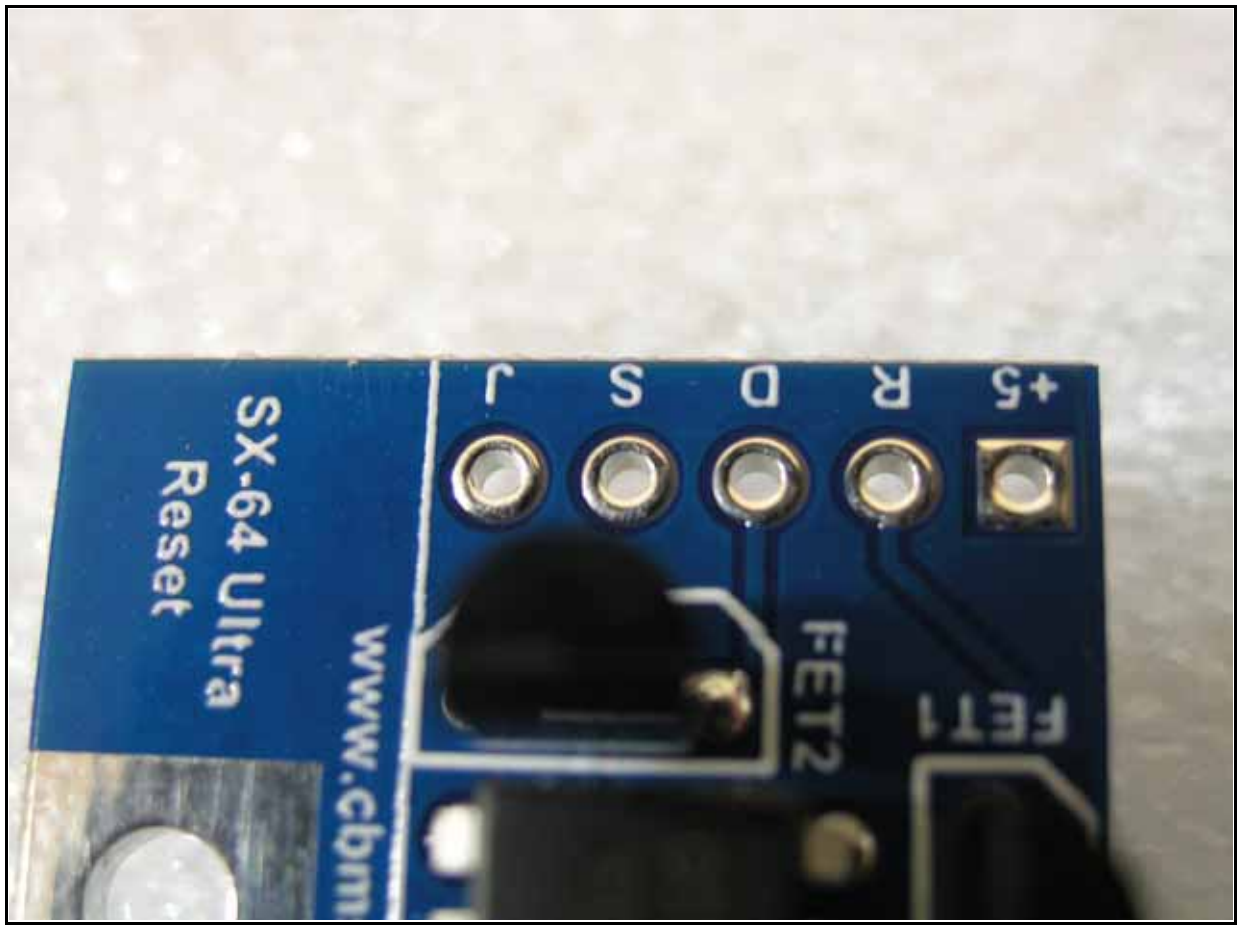

Figure 13 – Wiring hole assignment

If you do not want to use the drive select or ROM select features, then only 3 wires will need to be used to control the SX-64 Ultra Reset.

Each wire is a different color and a different length. Note that each wire is already pre-stripped. Simply pull on the end of the wire and the insulation will come off. Using the chart above, tin each wire and insert it into the proper hole and solder it in place. Once completed, clip any excess wire flush with the solder joint.

Refer to Figure 14 to see what the final assembly looks like.

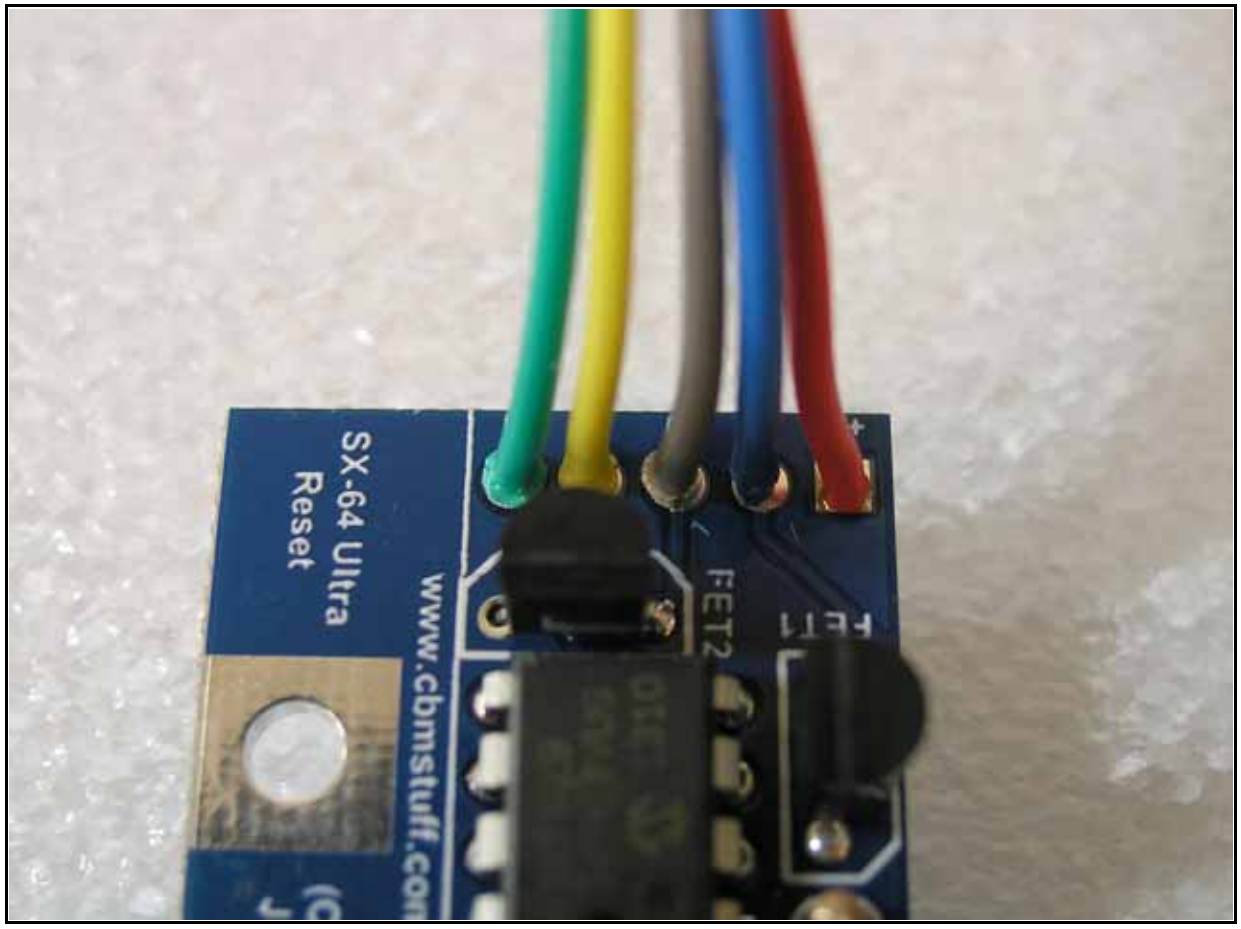

Figure 14 – SX-64 Ultra Reset complete

SECTION 2 – INSTALLATION IN THE SX-64

Step 1 – Removing the back screws

Unplug your SX-64 and move it to an area with open space by your soldering station. You will need a Phillips screw driver and soldering iron to perform the installation.

Turn the SX-64 so that you are viewing it from the rear. Locate the top most screws on each side of the SX-64. Remove these screws and set them aside. Remove the two smaller screws located in the middle of each side. Set these screws aside. You should now only have two screws remaining, the bottom screw on each side. Do not remove these screws. See figures 15 and 16 for details on the screw locations.

Figure 15 – SX-64 Screw locations

Figure 16 – Necessary screws removed

Now, remove both side panels by sliding them out of the rear of the SX-64. These should slide out easily. If they don't, make sure you have removed the two screws that hold each panel in place. See Figure 17 for details.

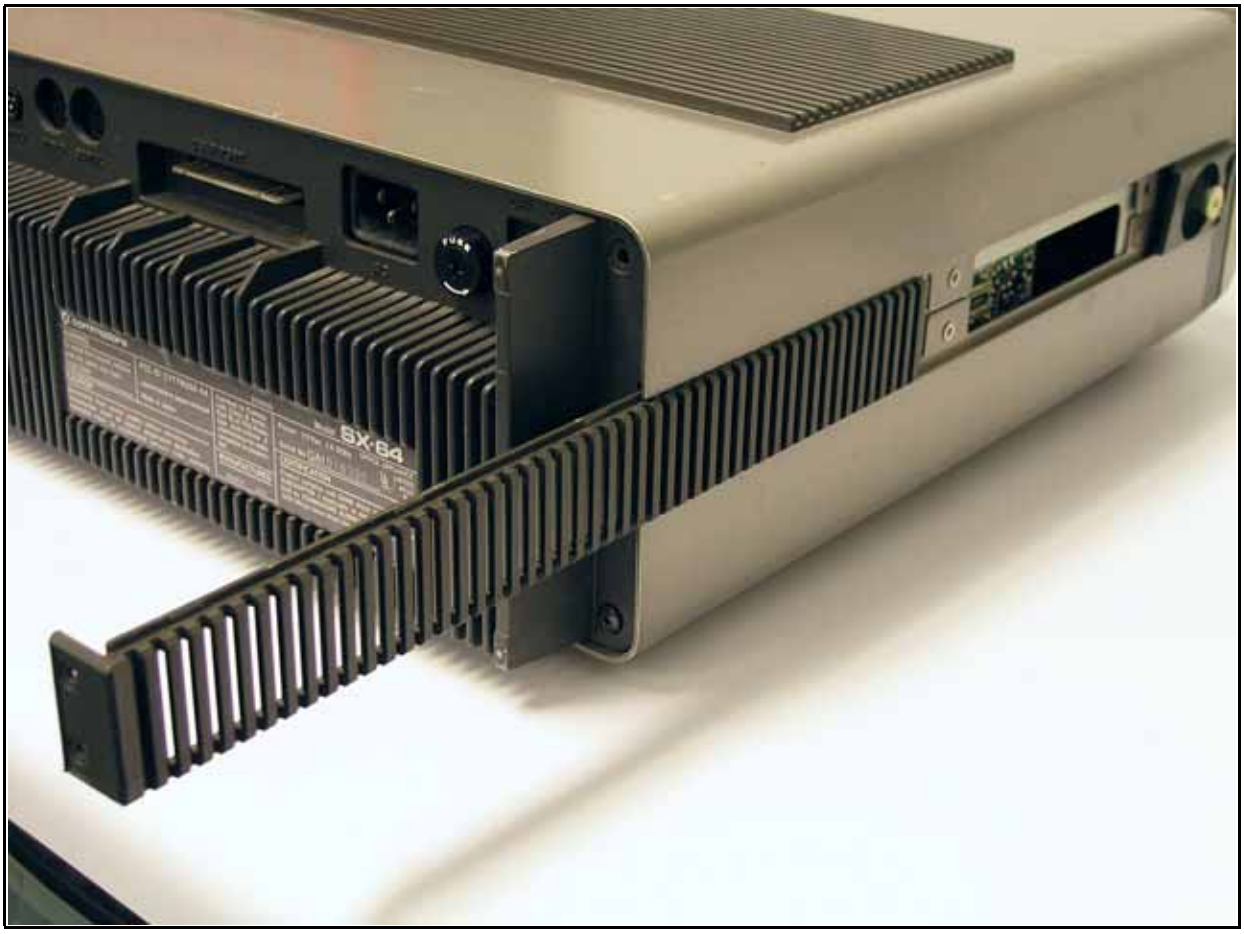

Figure 17 – Removing the side panels

Step 2 – Removing the side screws

Looking at the side of the SX-64, you will find 3 small screws. Remove all three screws for each side and set them aside. You should now be able to lift the top of the SX-64 off. Set the top aside. See Figures 18 and 19 for details.

Figure 18 – Location of side screws – remove only top screws!

Figure 19 – Top removed

Step 3 – Mounting the SX-64 Ultra Reset board

The SX-64 Ultra Reset board is mounted using one of the expansion port screws. Remove the screw that holds right side of the expansion port board. Place that screw through the hole in the SX-64 Ultra Reset board and then place it over the original screw hole and tighten the screw. Refer to Figures 20 through 22 for details.

Figure 20 – Inside view

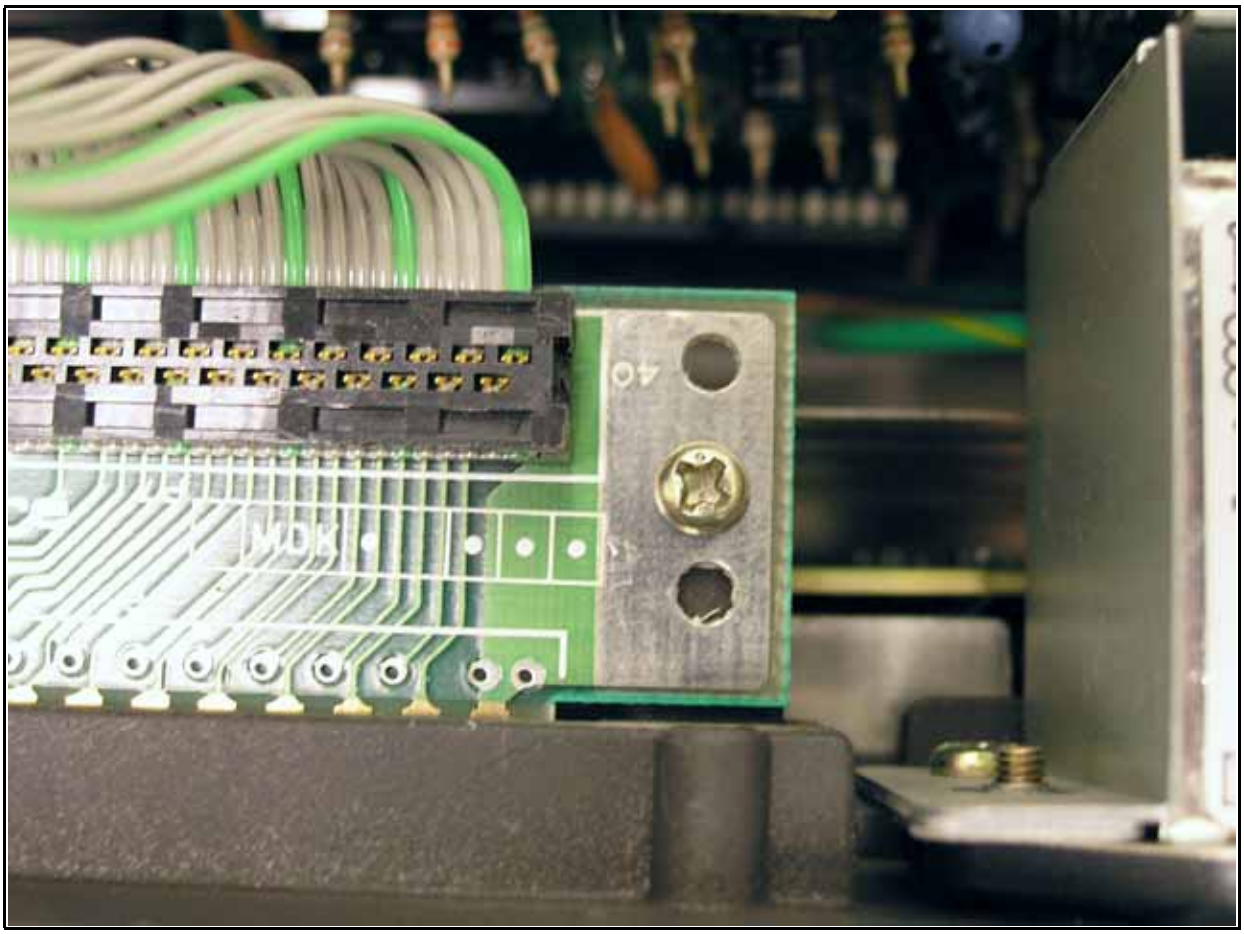

Figure 21 – Locate screw on right side of expansion port board

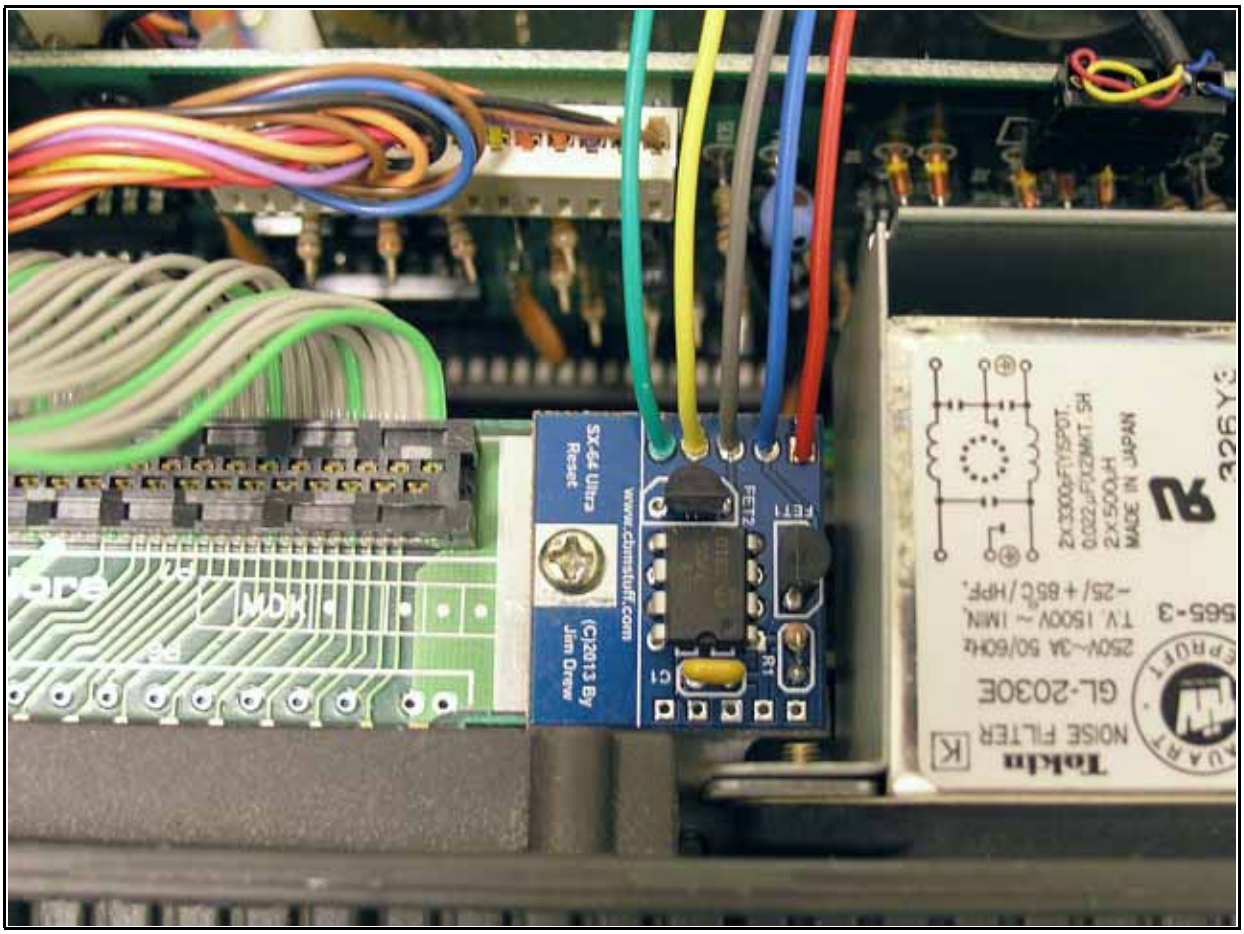

Figure 22 – SX-64 Ultra Reset board mounted using original screw

Step 4 – Soldering the power (red) wire

Power for the SX-64 Ultra Reset board comes from the expansion port. Refer to Figure 23 and locate the two possible power connection points. They will be side by side, and either of these points can be used.

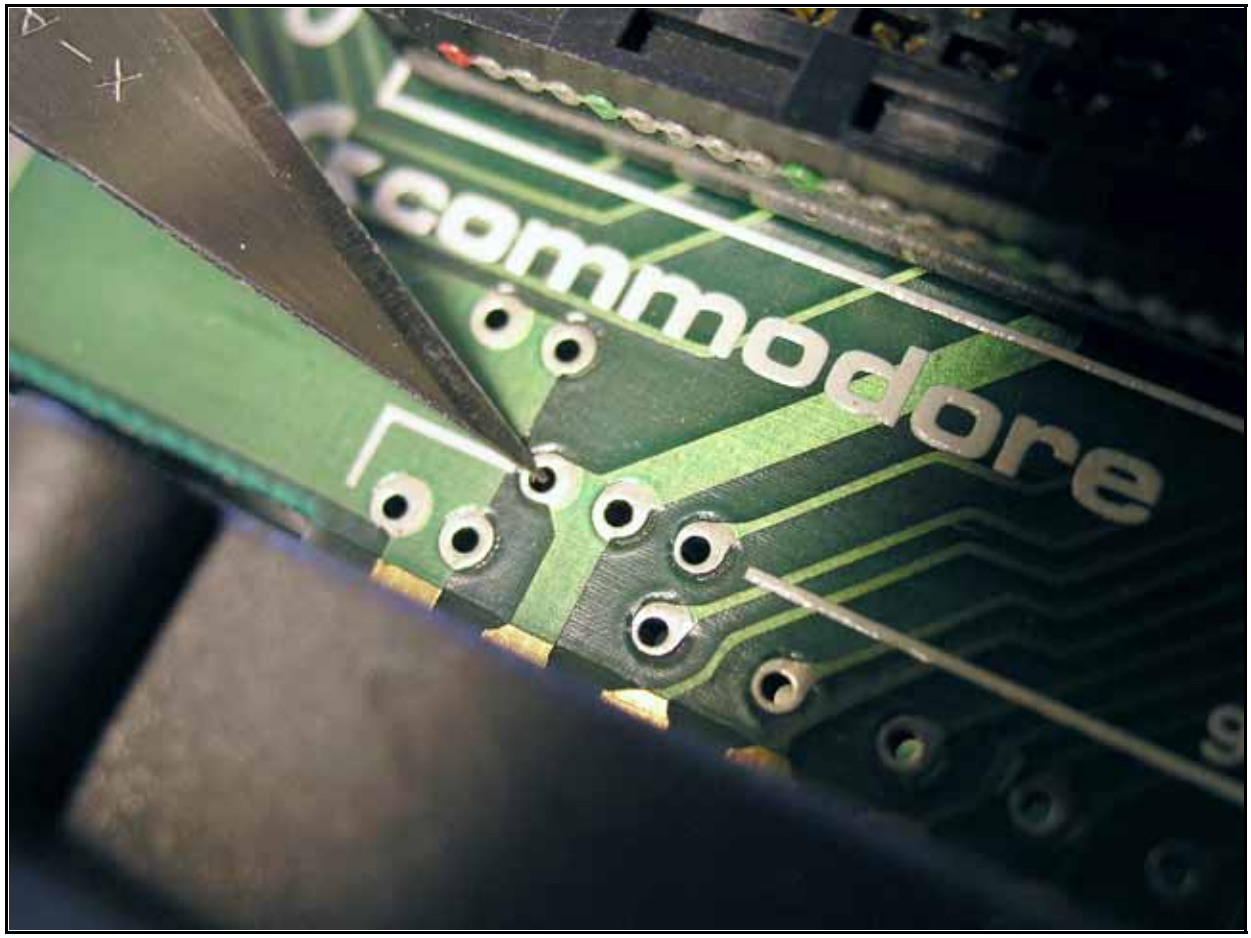

Figure 23 – Locate power connection points

Route the red wire so it is over the expansion board and solder the end to either of the two connection points as show in Figure 24.

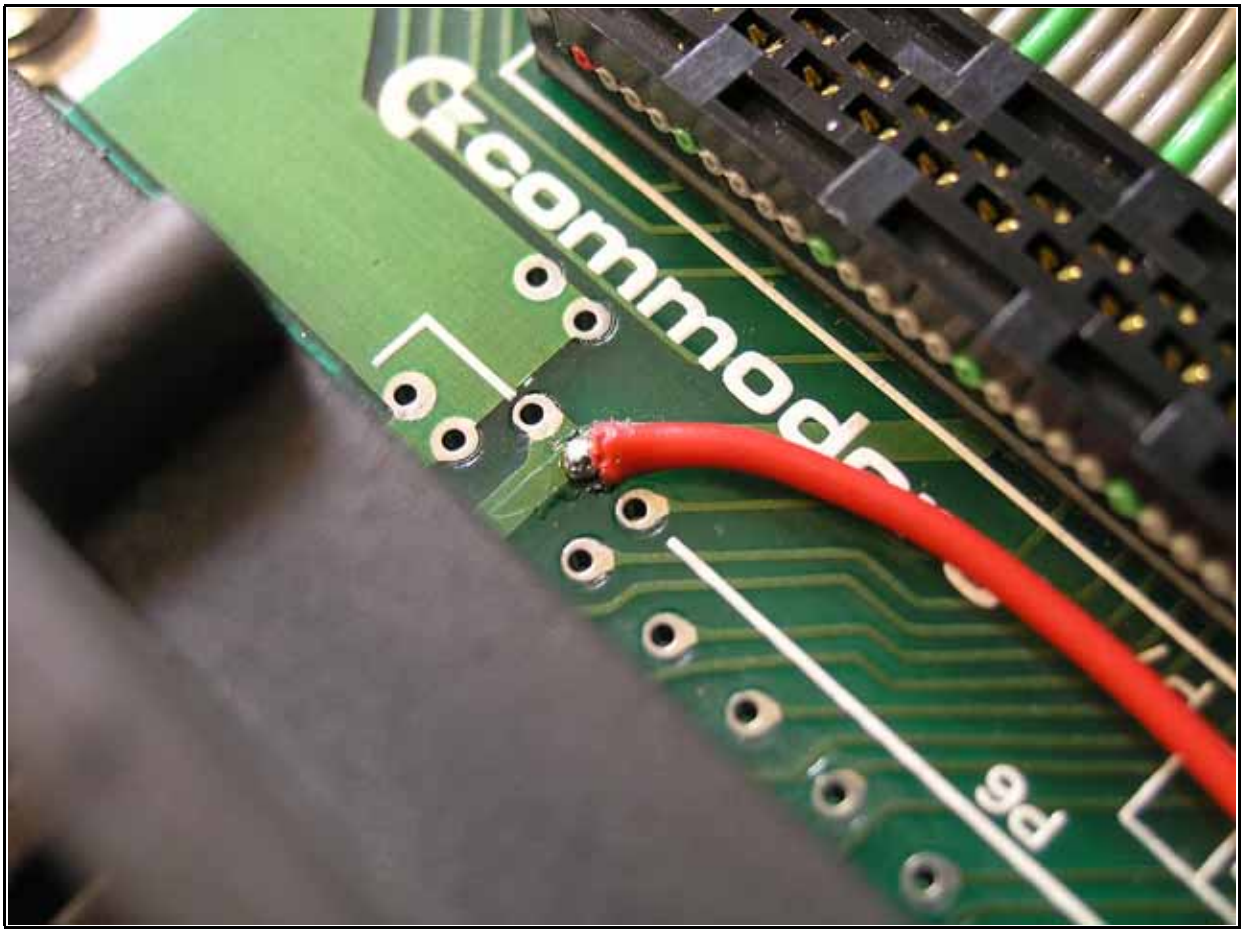

Figure 24 – Solder power wire to either connection point

Step 5 – Removing the plugs

To make the installation of the drive number change (gray wire) and reset switch (yellow wire) input connections, the two plugs (P22 and P19) must be removed. See Figures 25 and 26 for details.

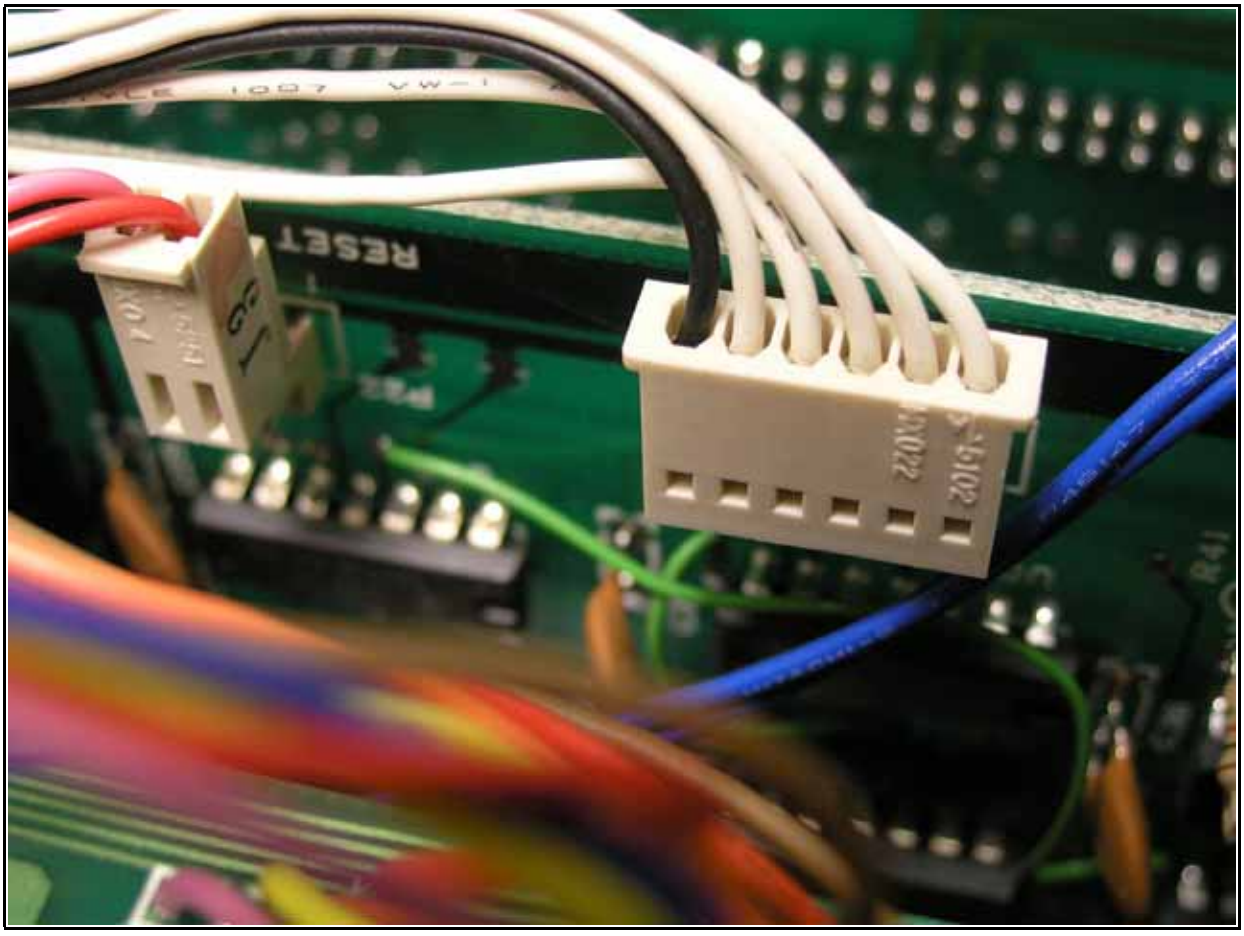

Figure 25 – Locate and remove these two plugs

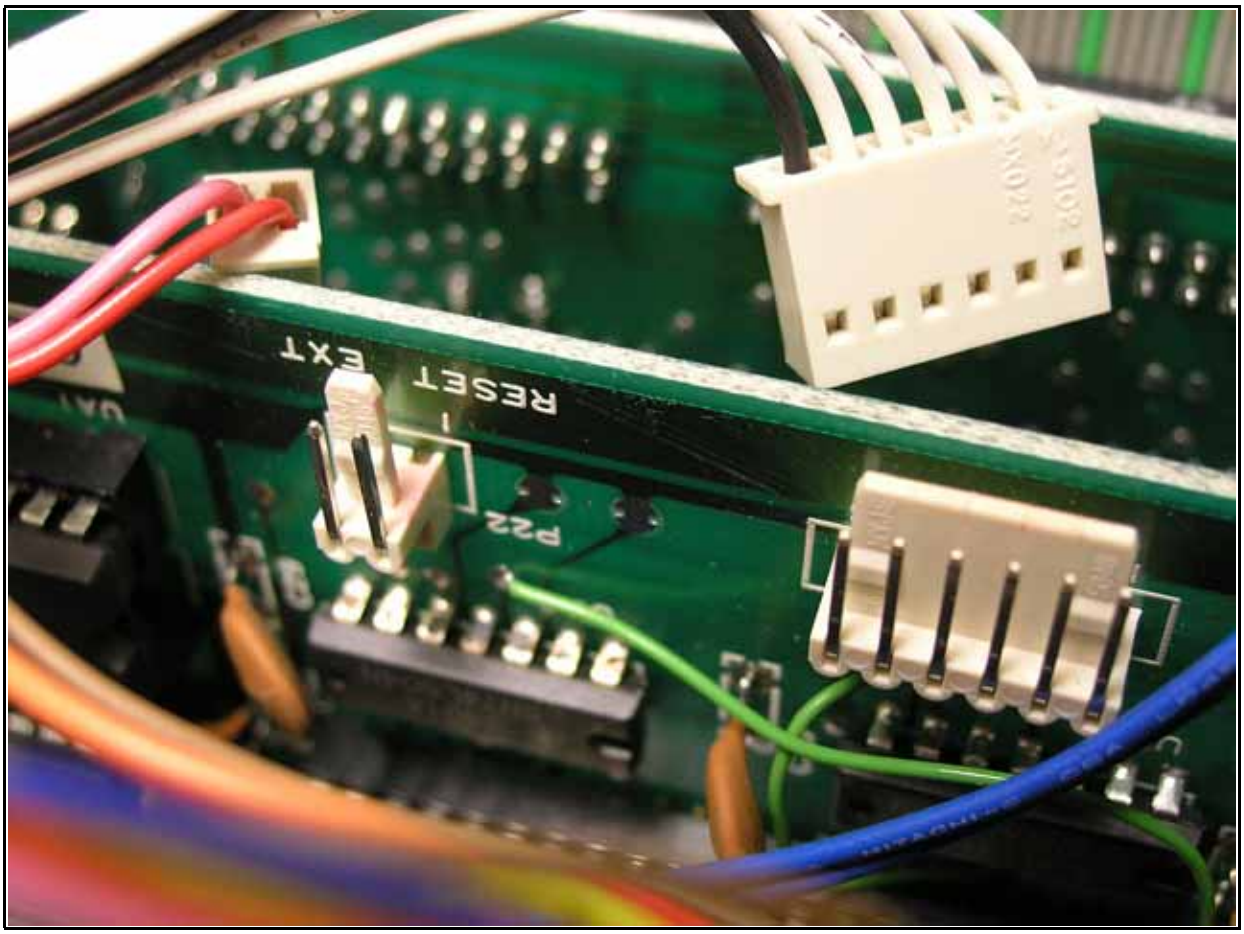

Figure 26 – Plugs removed and push out of the way

Step 6 – Soldering the reset line

Route the remaining wires behind and under the ribbon cable connector. This will make a cleaner installation. Locate the center pin on the IEC port connector. It is the largest metal pin. Tin the pin between the circuit board and where it enters the black plastic housing. Solder the blue wire to pin. See Figures 27 and 28 for details.

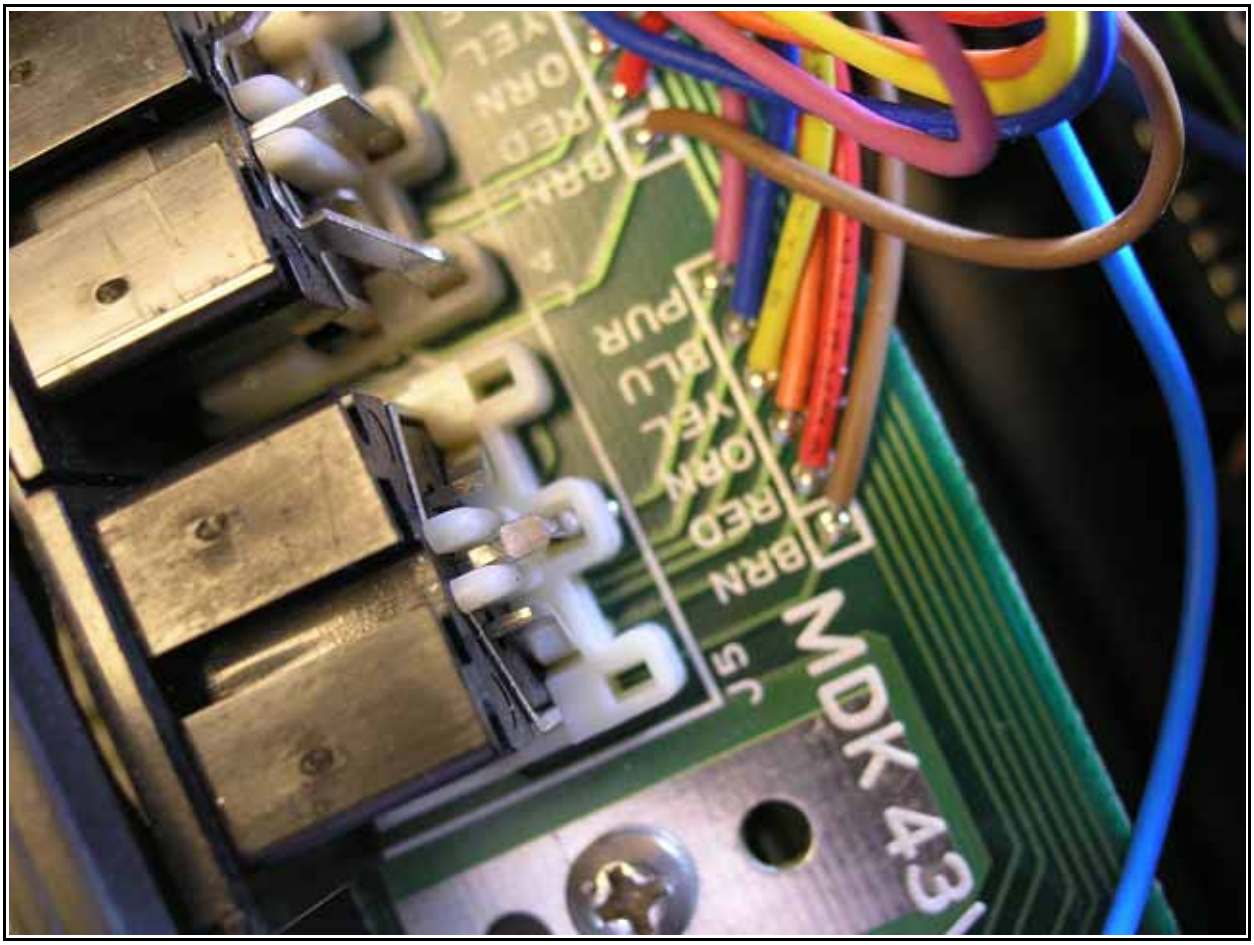

Figure 27 – Reset is the center pin of the IEC connector

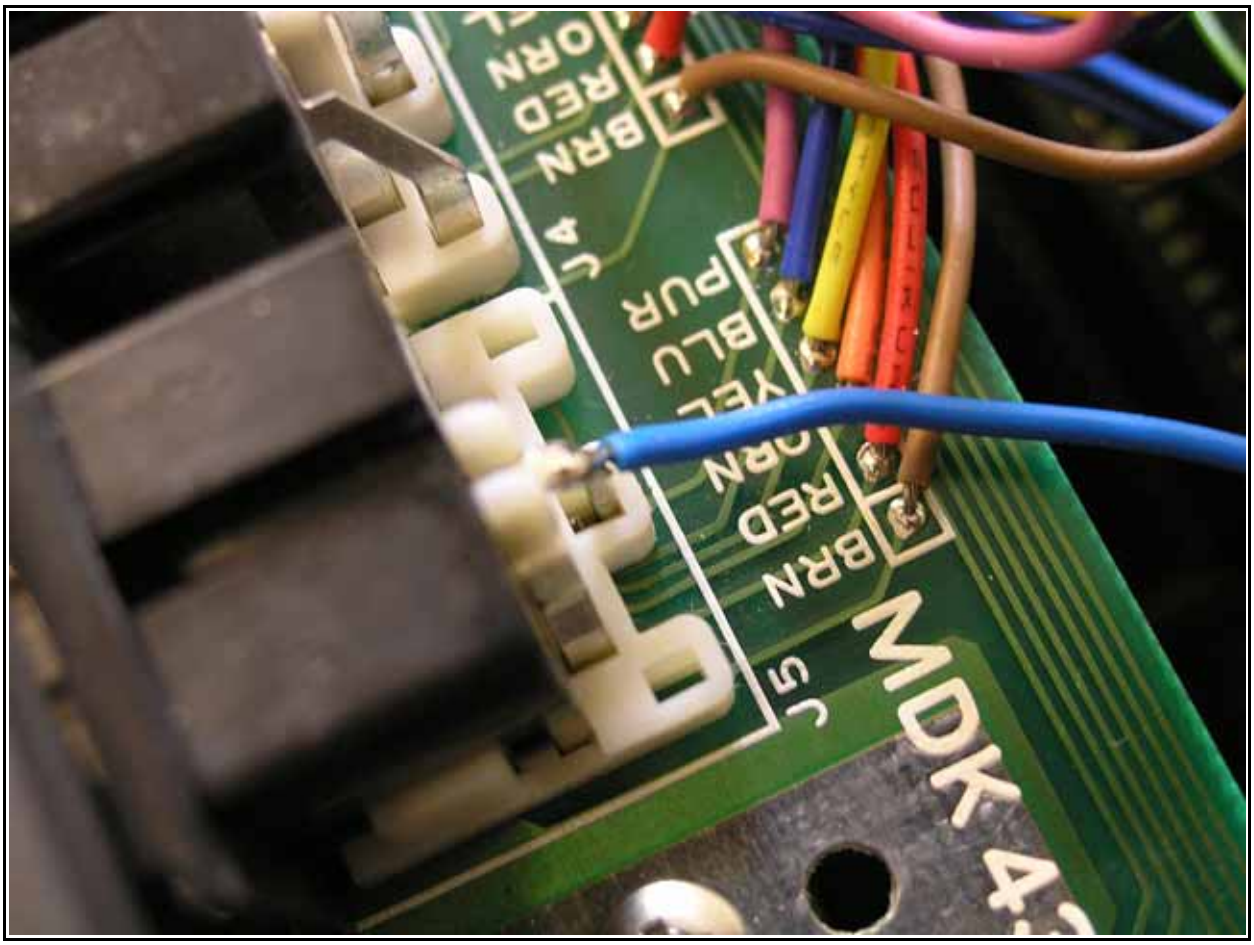

Figure 28 – Blue wire is soldered to the center pin

Step 7 – Cutting the drive 8 / 9 jumper pad

If you want the ability to change the drive number it is necessary to cut the trace between the right most jumper pad. Use a light shining behind the circuit board to illuminate the jumper pad. Use an X-acto hobby knife to cut the bridge between the two halves. Refer to Figures 29-31 for details.

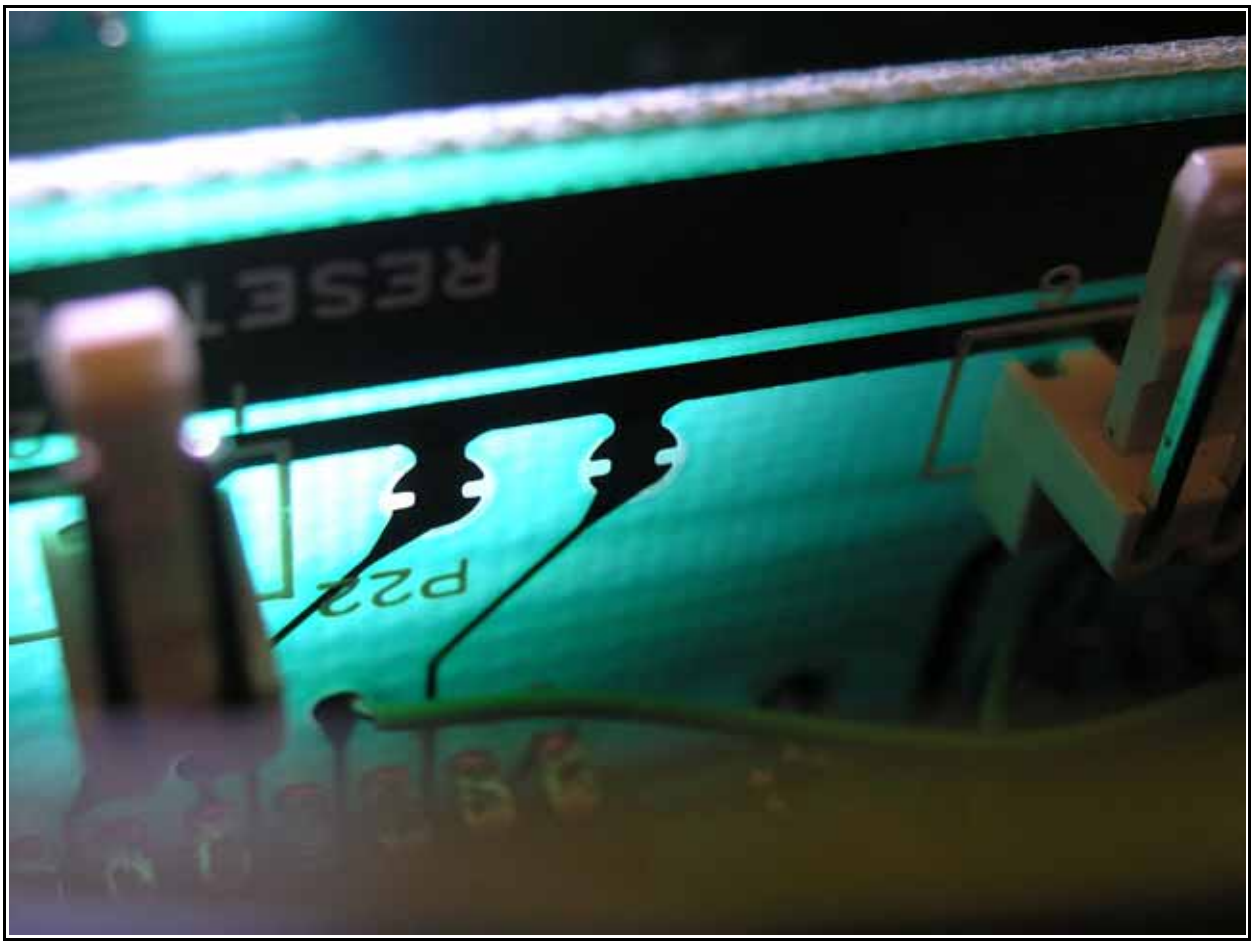

Figure 29 – Back-light makes it easy to see the pads

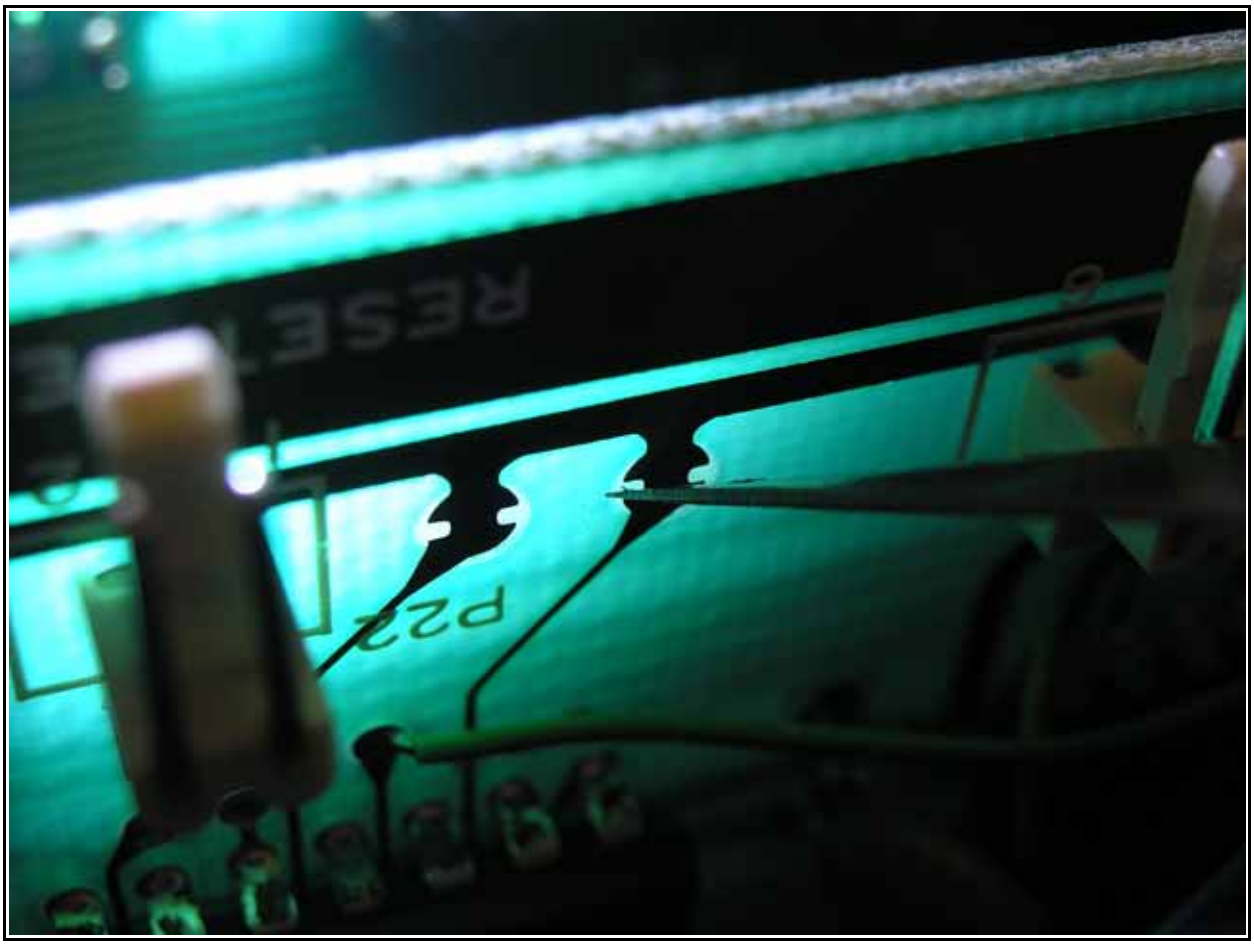

Figure 30 – Positioning the blade of the knife

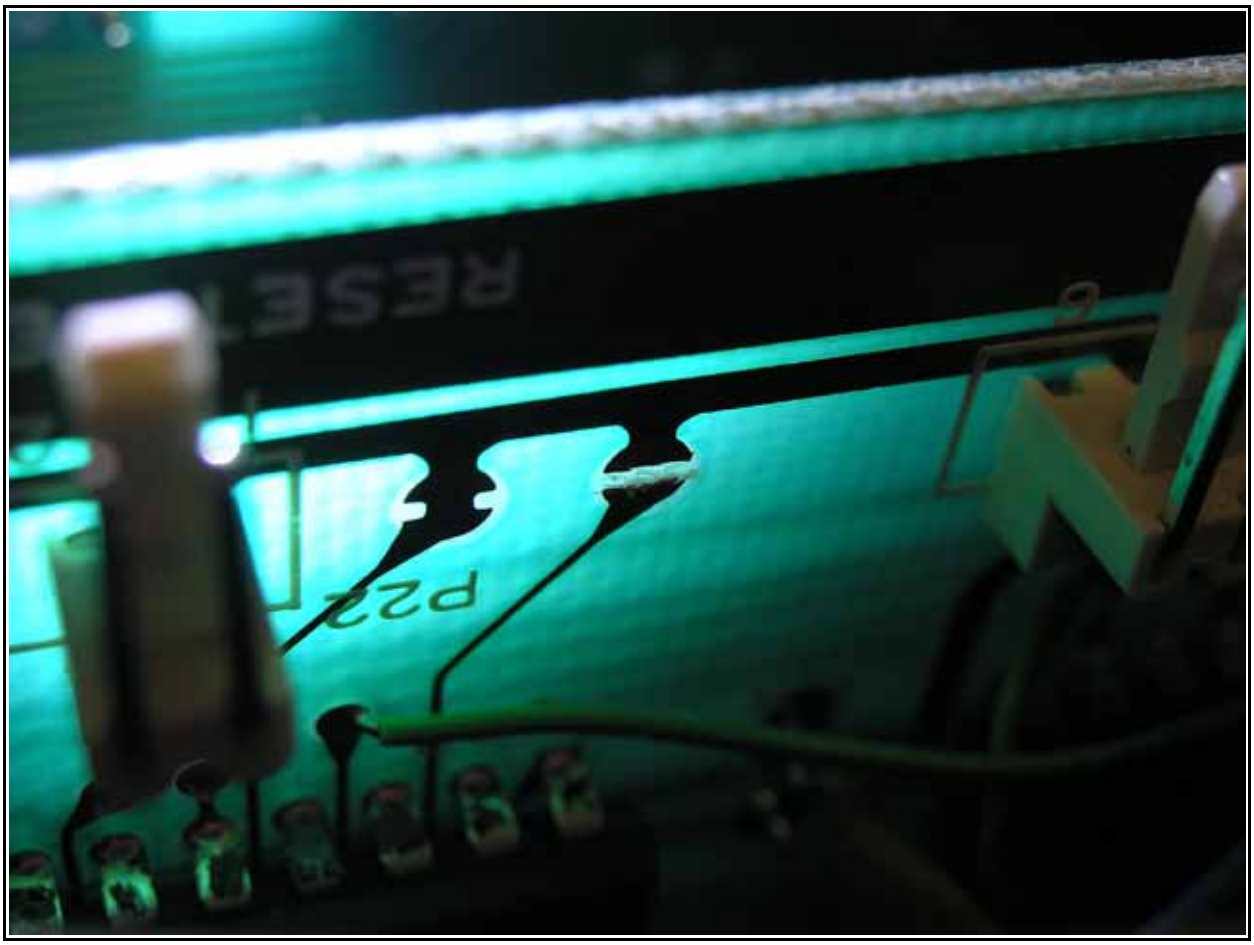

Figure 31 – Pad after being cut apart with knife

You should now tin both halves of the pad with solder. This will make it easy to make a solder bridge across the halves should you decide to remove your SX-64 Ultra Reset board and return the SX-64 to its original condition.

Now, solder the gray wire to the bottom half of the pad. Make sure that you do not bridge the pad by accident. No harm will result if you do bridge the pad (you had to cut the bridge), but the drive number will not change! So, the space between the halves must be open for the drive selection to work. Refer to Figure 32 for details.

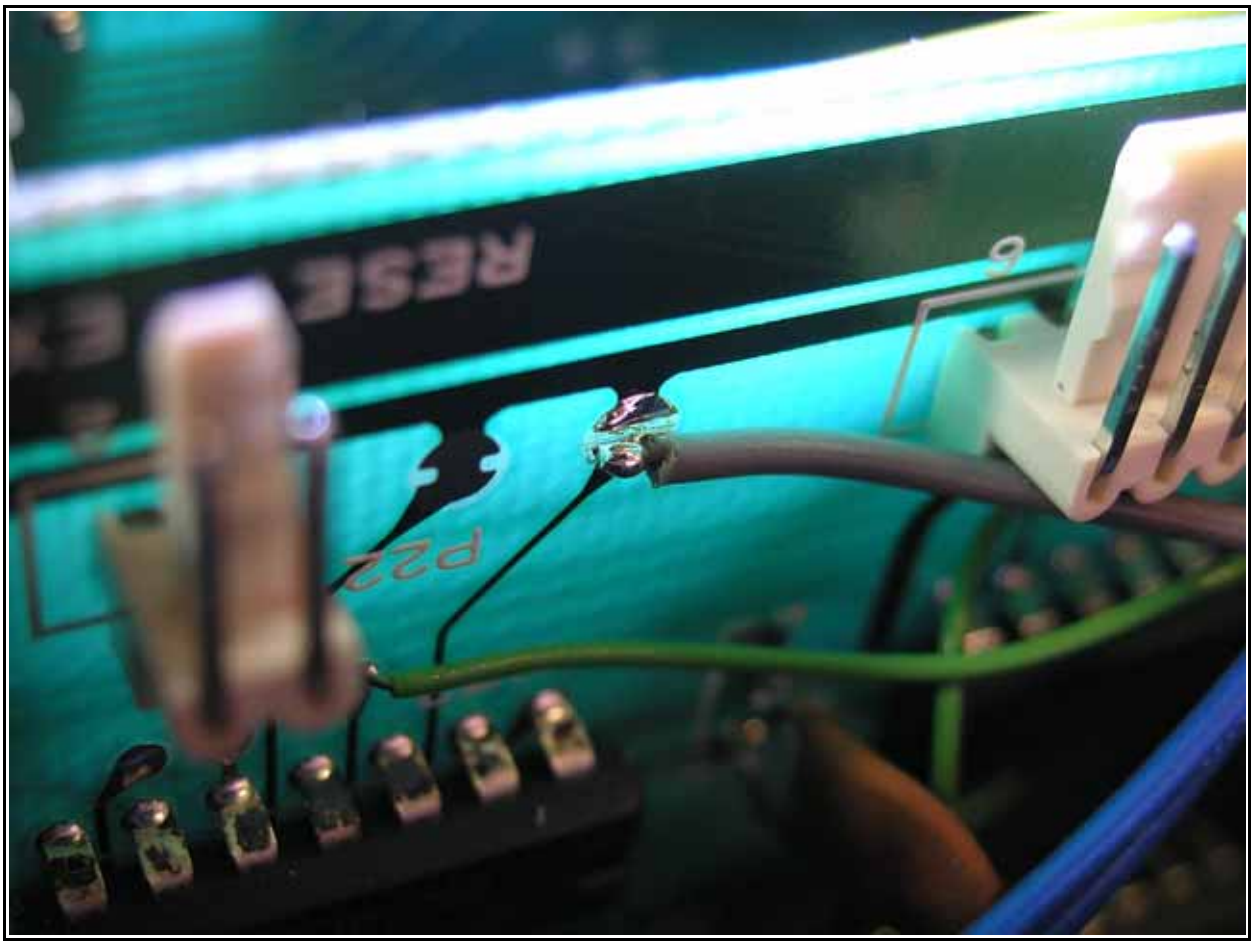

Figure 32 – Solder gray wire to bottom pad

Step 8 – Adding the reset switch wire

The yellow wire needs to be stripped and tinned about 1/4" long. Locate the two pin plug (plugged into P22) and insert the stripped end partially into the right most hole. Now, place the plug back onto the original two pin connector and sit it flush. Refer to Figures 33 and 34 for details.

NOTE: Some revisions of the SX-64 have the two pin connector lines reversed! If you find your computer is constantly rebooting after installing the SX-64 Ultra Reset, remove the yellow wire and place it into the opposite (left most) hole.

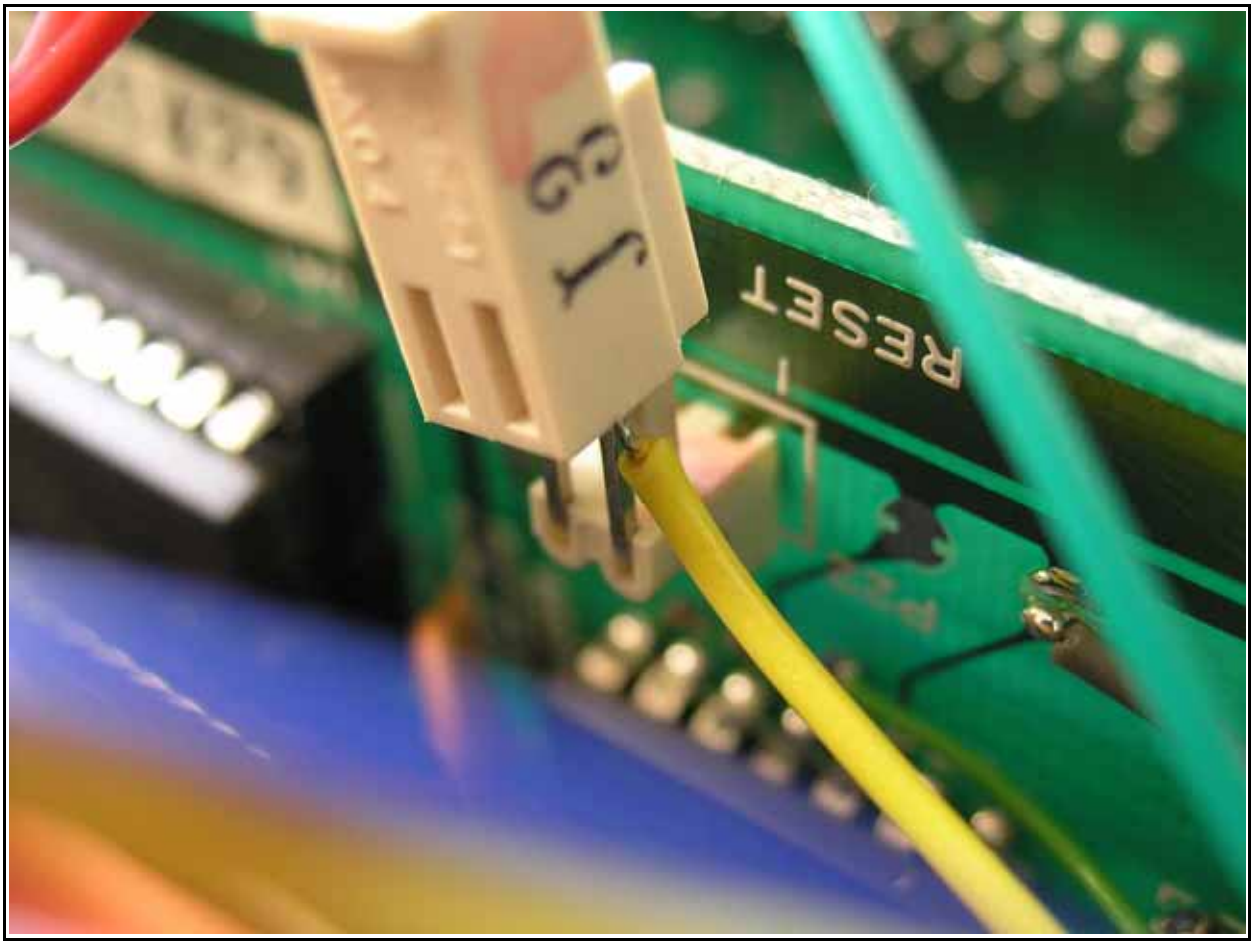

Figure 33 – Place stripped wire in right hole of connector

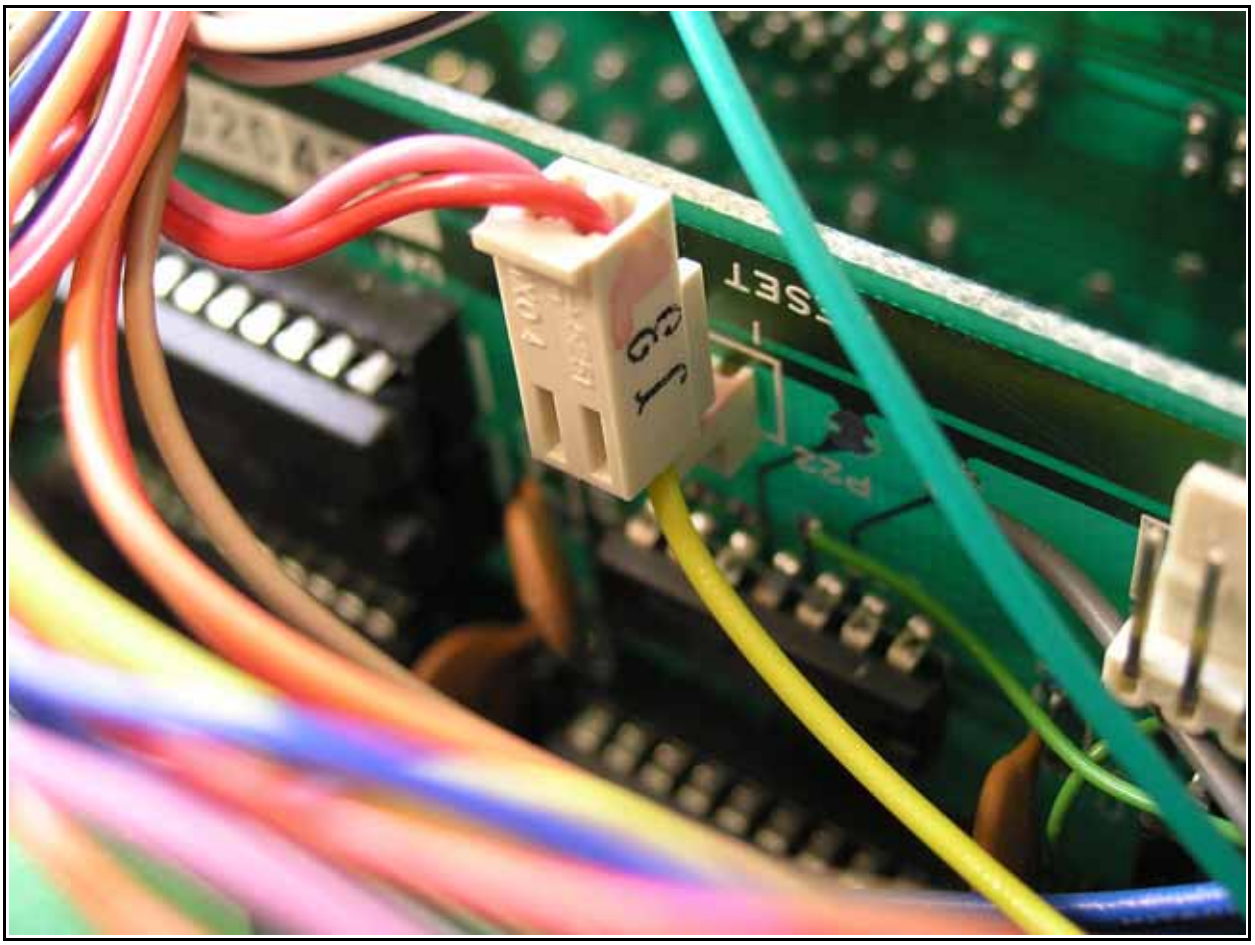

Figure 34 – Connector pushed flush

Step 9 – Adding a ROM select wire

The SX-64 Ultra Reset can drive ROM select lines high or low. Because there are so many different variations of ROM types, just remember that you do not need a ground connection. So, if you are converting a JiffyDOS setup, you will remove the switch wires (one connects to ground, and the other connects to the ROM enable line) and solder the green wire to the ROM enable line. See Figures 35 and 36 for recommended wire routing.

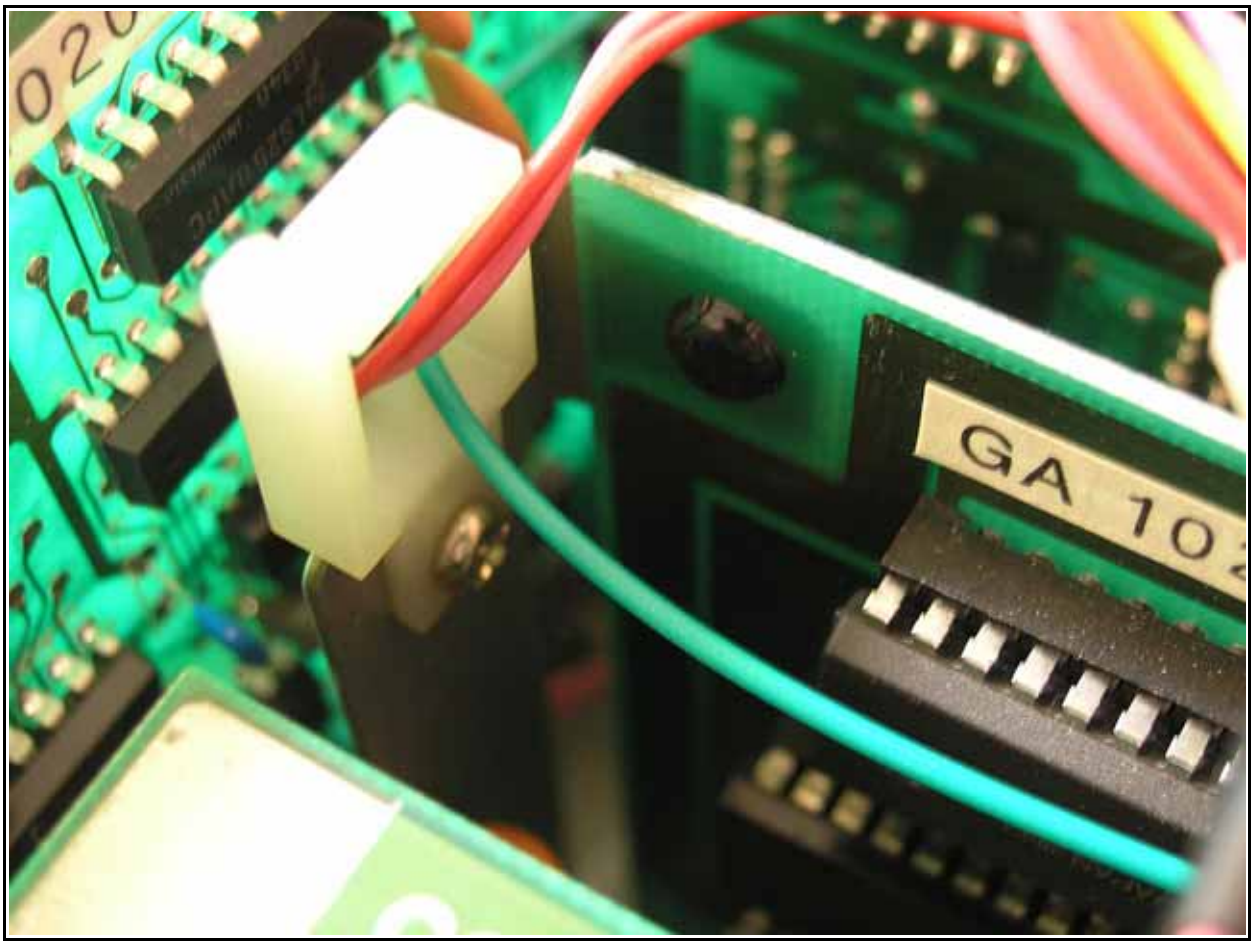

Figure 35 – Route green wire through wire loom to the left side

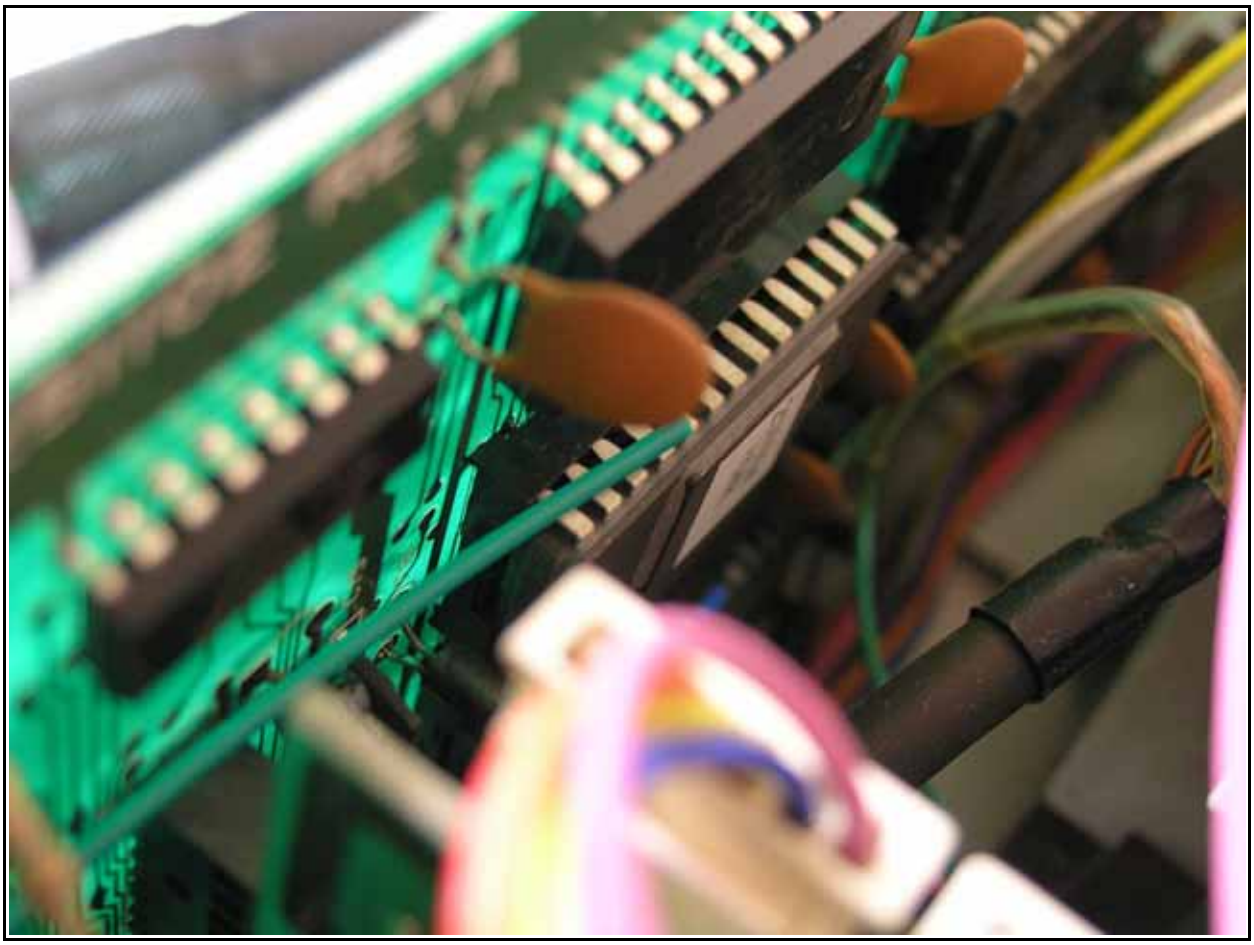

Figure 36 – Route green wire right to daughter board or ROM

Step 10 – Quick test and re-assembly

Plug the remaining connector (P19) back into its location.

While the SX-64 is apart, it should be tested to make sure it powers up before re-assembly. Carefully plug the power cord into your SX-64 and turn it on. If the computer does not power up like normal, immediately turn off the power and check to see if you have unplugged anything by mistake.

If the computer reboots constantly (every 8 seconds or so), the yellow wire needs to be moved to the other position on the two pin connector.

If the computer powers up ok, then turn it off and then disconnect the power cord. Re-assemble the computer by reversing the dis-assembly process; first putting the lid on, then screwing in the side screws, sliding in the side panels, and finally screwing in the main screws.

SECTION 3 – USAGE

Using the features of the SX-64 Ultra Reset board is really simple! You can reset the drive, reset the computer, change drive numbers, and swap ROMs, all by holding down the normal 'reset' button (located in the flip-out door that hides the volume control and monitor adjustments) for different lengths of time. The duration of button invoking features is as follows:

- Reset drive – press and release reset button momentarily (no more than 2 seconds)

- Reset computer – press and hold reset for 2-4 seconds, then release button.

- Change drive number – press and hold reset button for 5-7 seconds, then release button.

- Change ROMs – press and hold reset until the computer resets (about 8 seconds).

Once you have experimented a few times, you will have get the hang of it.

Changes you make to the ROM select and drive number are permanent until you change it again, meaning that the settings survive power offs. You can always set the drive number or change ROMs using the process described above, but the SX-64 Ultra Reset remembers all settings forever.