

Nintendo 64 Power Supply Capacitor Replacement Kit

Thank you for your purchase of a Nintendo 64 power supply capacitor replacement kit from Nintendo Repair Hut. We appreciate your patronage and look forward to serving you again in the future. If you have any questions please don't hesitate to contact us at Starwander@Comcast.net. This guide is intended to help you through the steps involved in installing your capacitor replacement kit.

Items Needed to Start

- Nintendo 64 capacitor replacement kit
- 4.5mm security screw kit
- Soldering iron
- Soldering braid or solder sucker
- Solder
- Wire cutters
- Safety goggle
- Gas respiratory or fume hood

Personal Protective Equipment

During the process of removing the capacitor from the power adapter and installing the replacement ones you will be vaporizing the solder and other materials on the circuit board. This will release toxic fumes into the air that will be inhaled if you are not using respiratory protection. We recommend that you use at the very least a gas respiratory to protect yourself and goggles to protect your eyes. The best solution is to use a fume hood if you have access to one.

High Voltage Capacitors

The Nintendo 64 power adapter features some high voltage capacitors, the highest being 200V. You need to discharge the capacitor before removing it. The best way to accomplish this is to touch a voltmeter to the two leads of the capacitor and wait for it to slowly dissipate its store electrical charge. Do not risk getting yourself electrocuted.

Soldering Skills Needed

This repair requires extensive soldering skills and should not be attempted by a novice. You are more likely to damage the system if you don't have the proper skills. We recommend that if you are not completely comfortable with your soldering skills you return this repair kit for a full refund at this time.

Patience

This repair requires roughly one and a half to two hours of intensive work. If you start to get tired we recommend that you stop and come back to the work at a difference time. Attention to detail is an absolute must during this repair.

Capacitor Index

This is an index of the capacitors that are found in the Nintendo 64 power adapter. Capacitors are labeled by a C prefix before the number on the board.

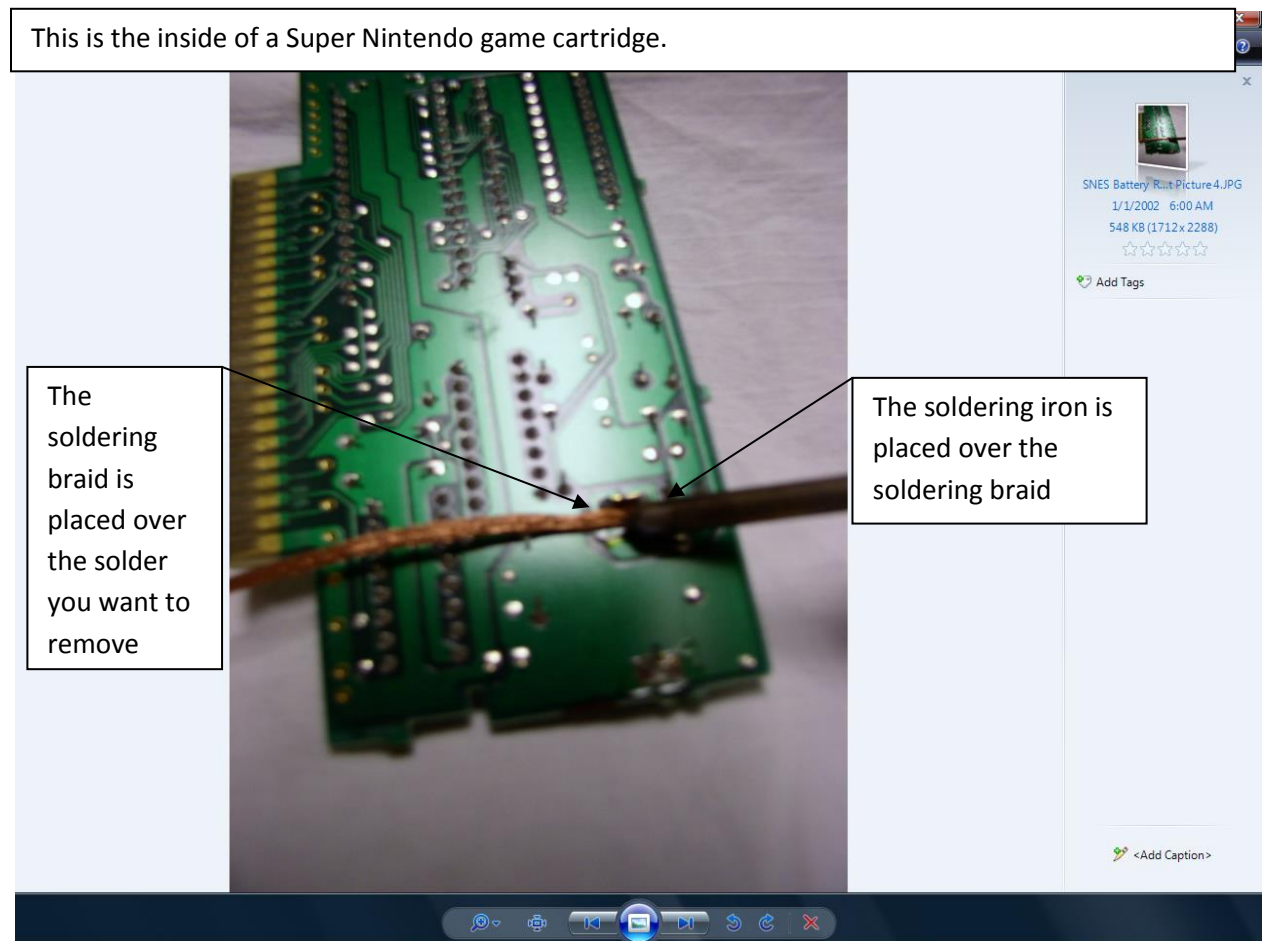
Mother Board Part Number	Capacitor Value	Mounting Style
C2	100uf 200V	Radial
C4	56uf 35V	Radial
C12	330uf 25V	Radial
C16	1800uf 10V	Radial
C17	270uf 10V	Radial
C20	47uf 35V	Radial

Soldering Techniques:

In order to solder and unsolder correctly you will need a soldering iron, solder and soldering braid or solder sucker. Once you have these items it is safe to proceed forward. For the duration of this project it is not recommended that you use a cold heat or any other instantaneous heating soldering gun, since these soldering devices use an electrical current to melt the solder. Passing a strong electrical current through your games or systems is not recommended and as such should be avoided. We recommend that you use a typical soldering gun, the type that you have to plug in and wait to heat up. In addition it is recommended that you set your soldering iron to 30watts for the duration of this project if possible.

Unsoldering:

Correctly unsoldering a joint is rather easy once you get the hang of it. In order to unsolder a joint place soldering braid over the solder you wish to remove and then place the soldering iron over the soldering braid. The soldering iron will heat the braid and in turn the solder will liquefy, which will be sucked up by the braid. Please see the picture below.



Picture Introduction: Proper usage of solder braid

Although it might take a little while to completely remove all of the solder, patience and persistence will pay off in this case. Every 10-15 seconds remove the soldering braid and check to see if the solder have been fully removed. As soldering braid is takes up solder periodically cut off these used sections as

needed. If you do not have soldering braid and instead have a solder sucker you can melt the solder with the soldering iron and then rapidly suck the solder up with the solder sucker.

Soldering:

Now that the solder has been removed you can now remove the object that the solder was holding in place and you are now ready to solder something new into place. During this project it is not safe to use excessive soldering material as bridging between joints is very easy due to their close proximity to each other.

The two most important things to keep in mind are:

- 1) Never allow patches of solder to overlap or touch, doing so creates a short, thereby rendering the circuit inoperable.
- 2) Make sure to use enough solder to securely attach whatever it is you are soldering, do not be afraid to test the joint out.

Keeping these items in mind lets continue with our demonstration. To apply the solder take it and place it over the soldering joint and then lightly place the soldering iron over the solder. This is just like unsoldering, although this time you are soldering and not unsoldering. This part is a little tricky when you first start and is hard to describe with words alone. It is recommended that you test out melting solder first to get an idea of how it behaves.

One ideal exercise you might want to try is to attempt to solder together two pieces of wire. Take two pieces of wire, strip the ends, twist the ends together and then practice applying solder over this twisted joint. During the course of this project if you run into trouble remember you can always back track and remove the solder and try again, using the soldering braid. Soldering braid and solder are very cheap and as such are worth playing around with to get comfortable with before you go ahead and try to solder in a replacement battery. Now that we have covered the basics of soldering and unsoldering, let's get started with the replacement of those capacitors.

Step One:

To start please turn over the power supply and locate the two 4.5mm security screws holding the casing together seen in picture one below.



Picture One: Back side of Nintendo 64 power supply

Once you have located them please unscrew the screws and remove the back casing. As you attempt to remove the casings, the back casing snaps off relatively easily; however the top casing doesn't. It seems as if it is still screwed in someplace; however this isn't true. There are two small foam sticky pads that are glued to the top of the mother board and cement it to the inside of the top of the casing. If you pull really hard you will be able to pull off the top casing. Once the casings have been removed then proceed to step two.

Step Two:

Now that the casing has been removed your power supply mother board should look something like picture two below.



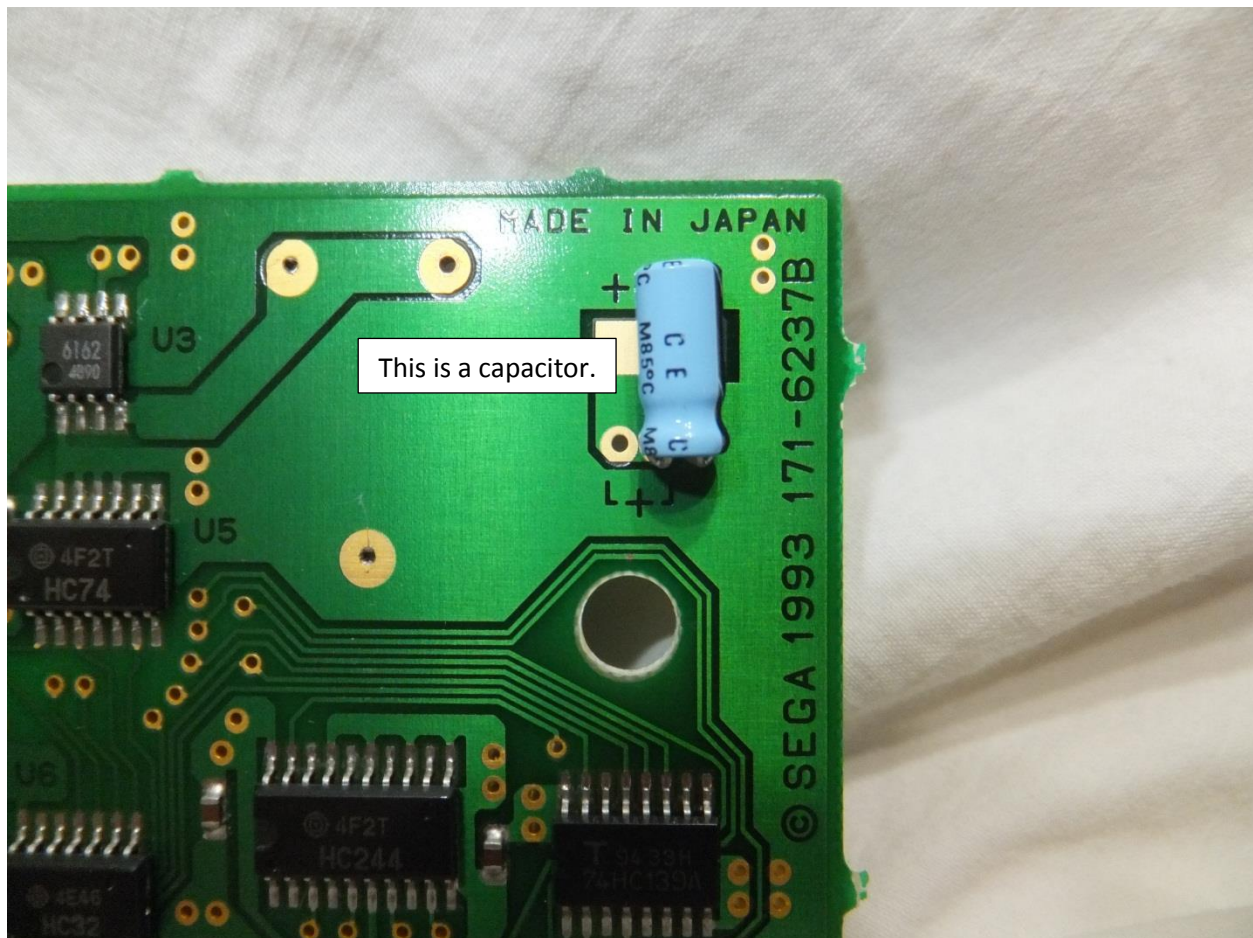
Picture Two: Nintendo 64 power supply mother board

Once the board has been accessed you are ready to start replacing the capacitors; however before you can begin you need to know some important tidbits about capacitors. Please continue onwards.

An Introduction to Capacitors

Before we jump into the capacitor replacement it's important to understand the basics first. A capacitor is used to store electrical energy. It has two listed measurements microfarads (μF) and voltage (V). You will notice when you look at your replacements capacitor it has the microfarads and voltage listed on it. It is important that you replace each capacitor with the same ratings as the original for optimal performance.

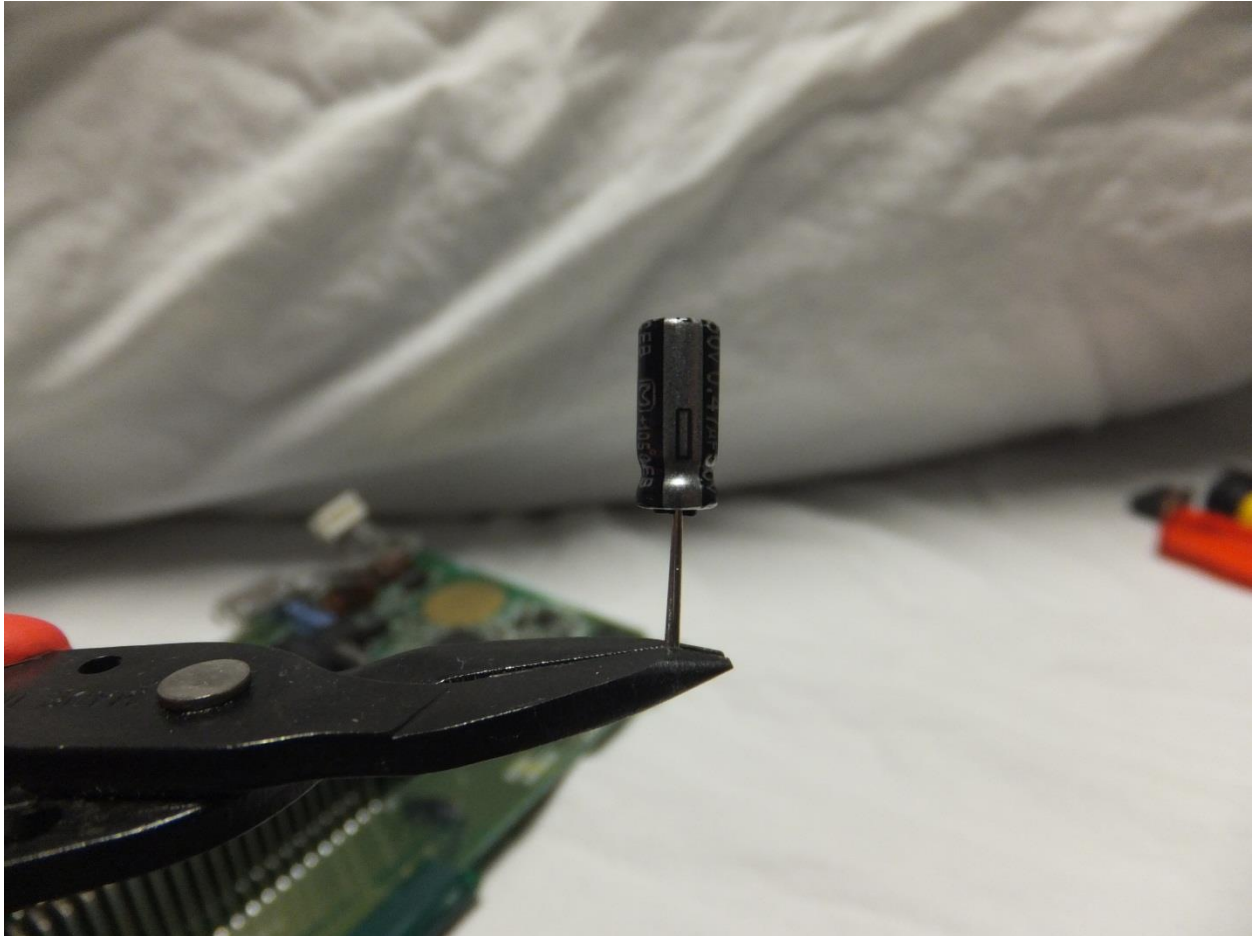
Next you will notice that the capacitor has two leads. One is the positive lead and one is the negative lead. It is very important to make sure that you don't get these backwards. The positive terminal should be soldered to the positive terminal on the circuit board and the negative terminal to the negative terminal on the circuit board. You will need to mark which lead goes to what hole on the mother board, which is discussed on the next page.



Picture Three: Sample capacitor

An Introduction to Capacitors Continued

Most capacitors do not have the positive and negative terminals marked with symbols, but instead the negative terminal is defined by the terminal that originates from the part of the capacitor that has a strip running down it. This strip can vary in color.

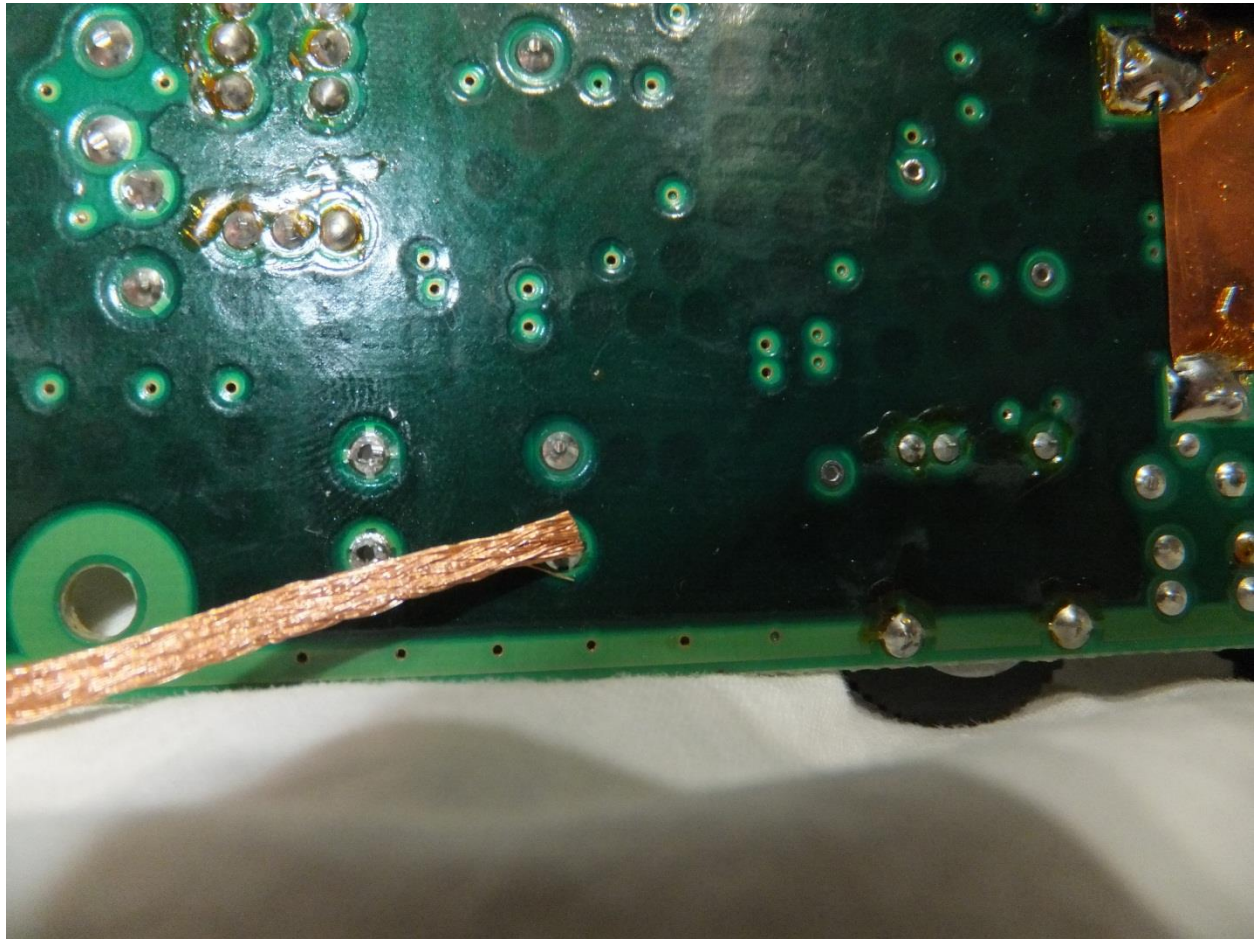


Picture Four Replacement capacitors

In this case the strip is silver in color. Please don't be fooled as the strip can be different colors. Just remember that the strip always denotes the negative terminal of the capacitor. Now that you have a general understanding of what capacitors are and how to properly identify their microfarad and voltage rating it is time to start replacing them.

Step Four

Unsolder the capacitor of interest. We recommend the following strategy.



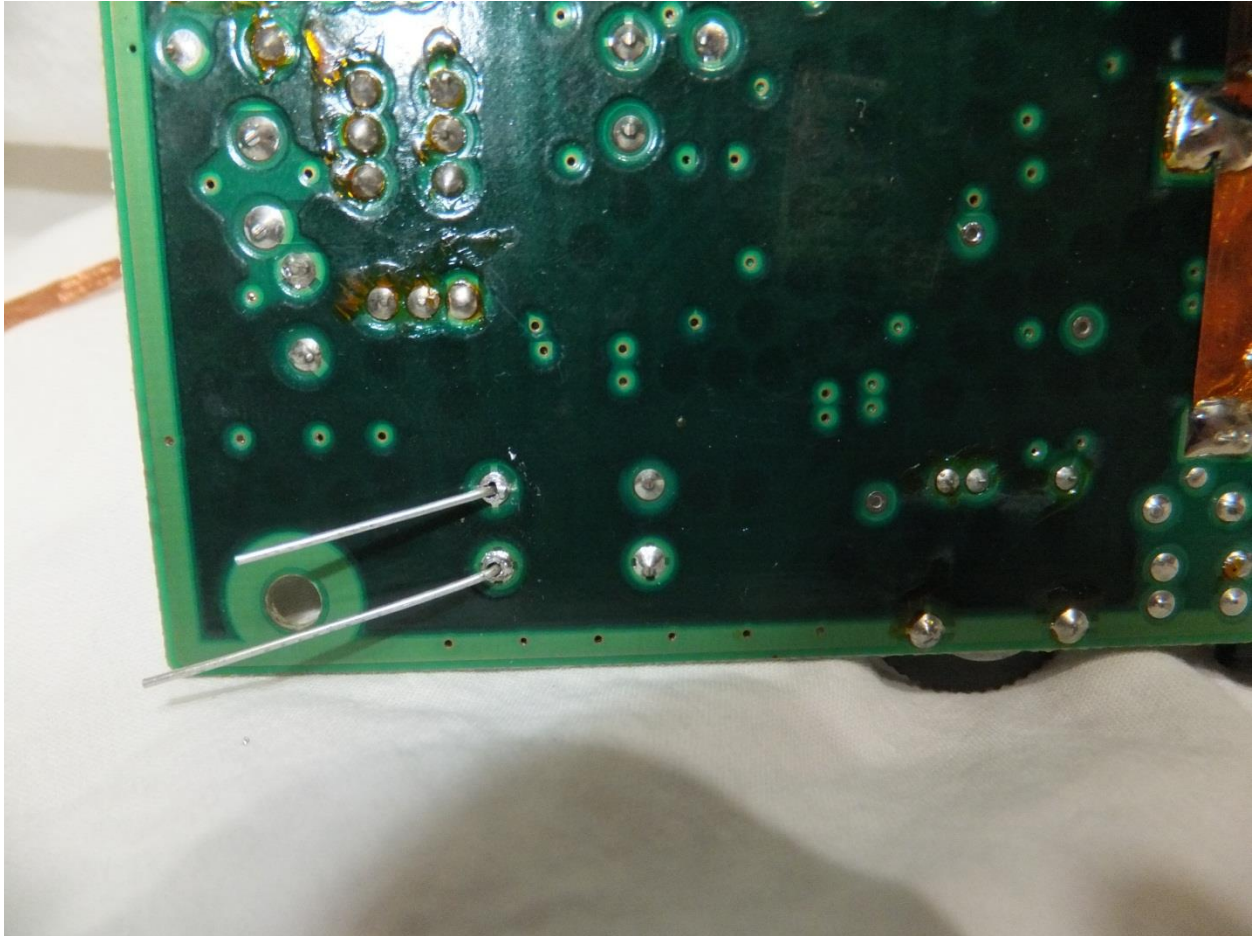
Picture Six: Proper usage of soldering braid

Place the soldering braid over the solder joint and then heat the joint with your soldering iron. The braid will suck up the solder and free the lead. You can also apply a small amount of traction on the lead by grasping the lead from the other side with a set of needle nose pliers and pulling if needed.

Once the leads are unsoldered please proceed to the next step.

Step Five

Next you need to solder the replacement capacitor into place. Remember negative to negative and positive to positive. We recommend the following strategy.



Picture Seven: Lead soldering

Insert the leads and then bend them at a ninety degree angle. Then cut the leads down to the desired length. Finally solder the leads into place.

Please continue replacing the capacitors as needed. Here are some very important points not to forget.

- 1) Make sure you do not bridge any terminals
- 2) Make sure the leads of the capacitors don't touch each other.
- 3) Don't be afraid to bend the capacitors leads.

Troubleshooting Section

We are sorry to hear that you ran into complications from your repair. Unfortunately this particular repair is difficult to troubleshoot due to the complexity of the repair job, although here are some general guidelines.

- 1) Make sure that the terminals of each capacitor are firmly soldered in place.
- 2) Make sure that none of the terminals are bridge with solder
- 3) Make sure that none of the leads of the capacitors touch each other.
- 4) Make sure that the fuse is functional or replace it.
- 5) Make sure the power cable is not cut or damaged or replace it.