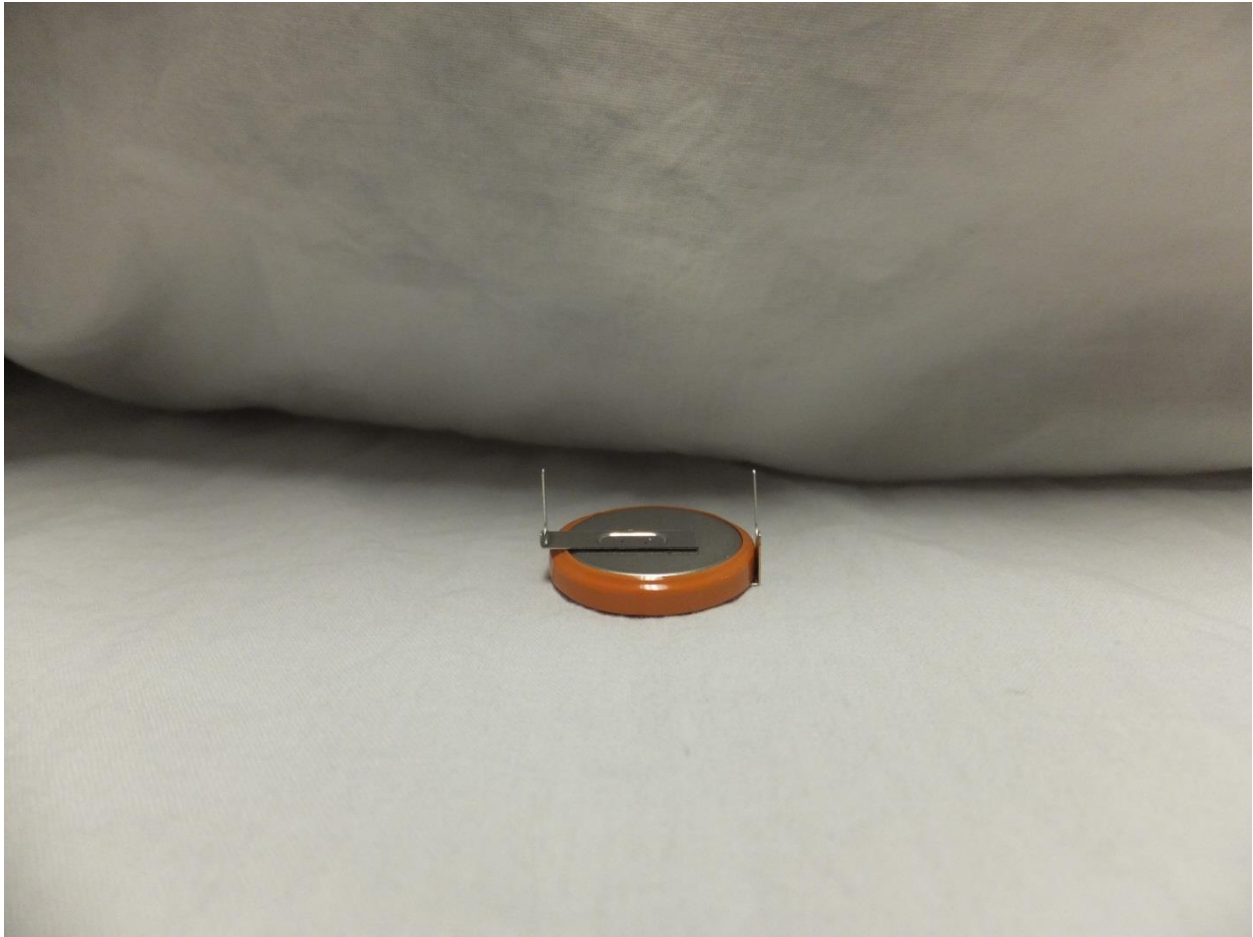


CR2032 with Tabs Installation Guide

Thank you for your purchase of a CR2032 coin cells battery with tabs from Mortoff Games. We know that you have a choice amongst online game stores and we appreciate your business. If at any time you have questions please don't hesitate to contact us at customerservice@MortoffGames.com. This guide will take you through the steps of installing your replacement battery.

Things you will need:

- 1) CR2032 coin cell battery with tabs



Picture One: CR2032 coin cell battery with tabs

- 2) Soldering iron
- 3) Soldering braid
- 4) Solder
- 5) Clean work area and twenty minutes of free time

Getting started:

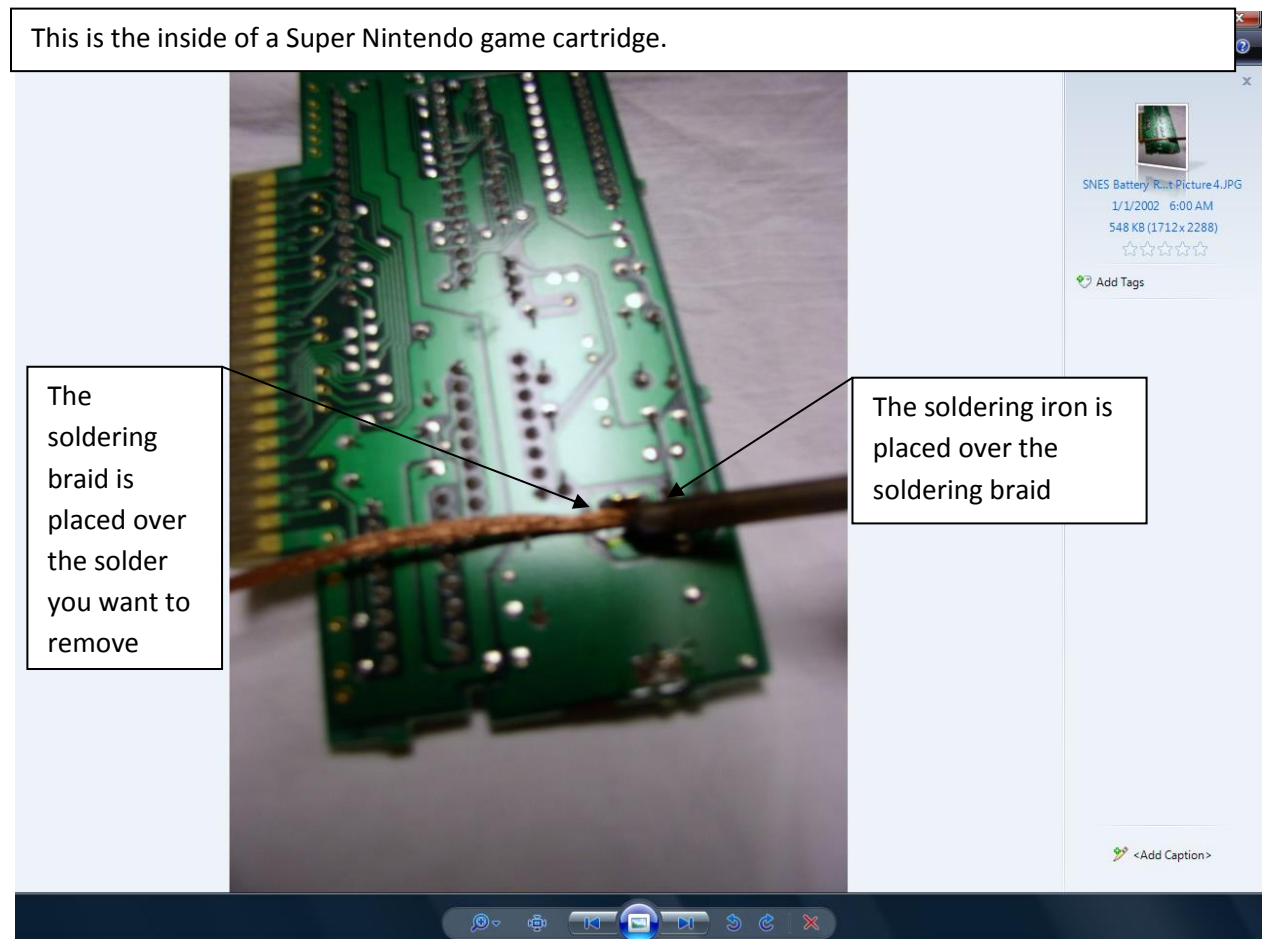
If you have a fair amount of soldering knowledge it is safe to skip ahead to step 1, otherwise it is recommend that you read the following how to solder guide, which will discuss the soldering techniques you will need to successfully replace your save game battery.

Soldering Techniques:

In order to solder and unsolder correctly you will need a soldering iron, solder and soldering braid. Once you have these items it is safe to proceed forward. For the duration of this project it is not recommend that you use a cold heat or any other instantaneous heating soldering gun, since these devices use an electrical current to melt the solder. Passing a strong electrical current through your games 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.

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 picture one



Picture Two: Soldering braid usage

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. Take note to notice that the solder is accumulating on the soldering braid as it is being sucked up. As it is sucked up you should periodically keep cutting off the used portion of the soldering braid and use fresh braid as needed. Once you have successfully removed the braid you will want to clean the area off with a little rubbing alcohol to ensure the area is clean.

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. For the purposes of this project it is safe to use a generous amount of solder, though this is not always the case with most soldering projects. 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. This part of the project is pretty easy once you get used to doing it. All you have to do is take your solder 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 that save game battery.

Step 1:

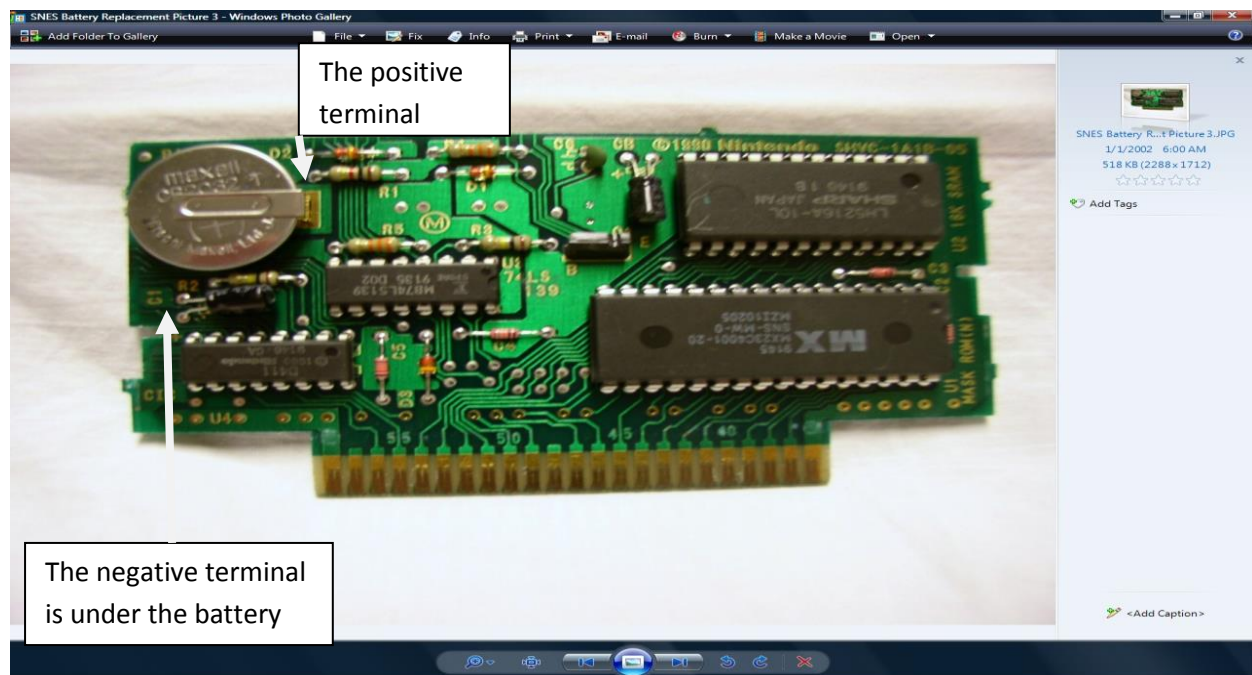
Firstly you will need to remove the two 3.8mm Nutsetter security screw bit on the front of the cartridge, see picture three



Picture Three: Front of SNES Game

Step 2:

Now that the cartridge is open it is time to remove the circuit board from the housing. Next you will want to examine the circuit board and to mark the positive and negative terminals. Find the positive terminal by simply tracing the metal prong on top of the battery (picture 3) and following it to where it is soldered to the circuit board. This is always the positive terminal and by default the other terminal is negative.



Picture Four: Front of circuit board

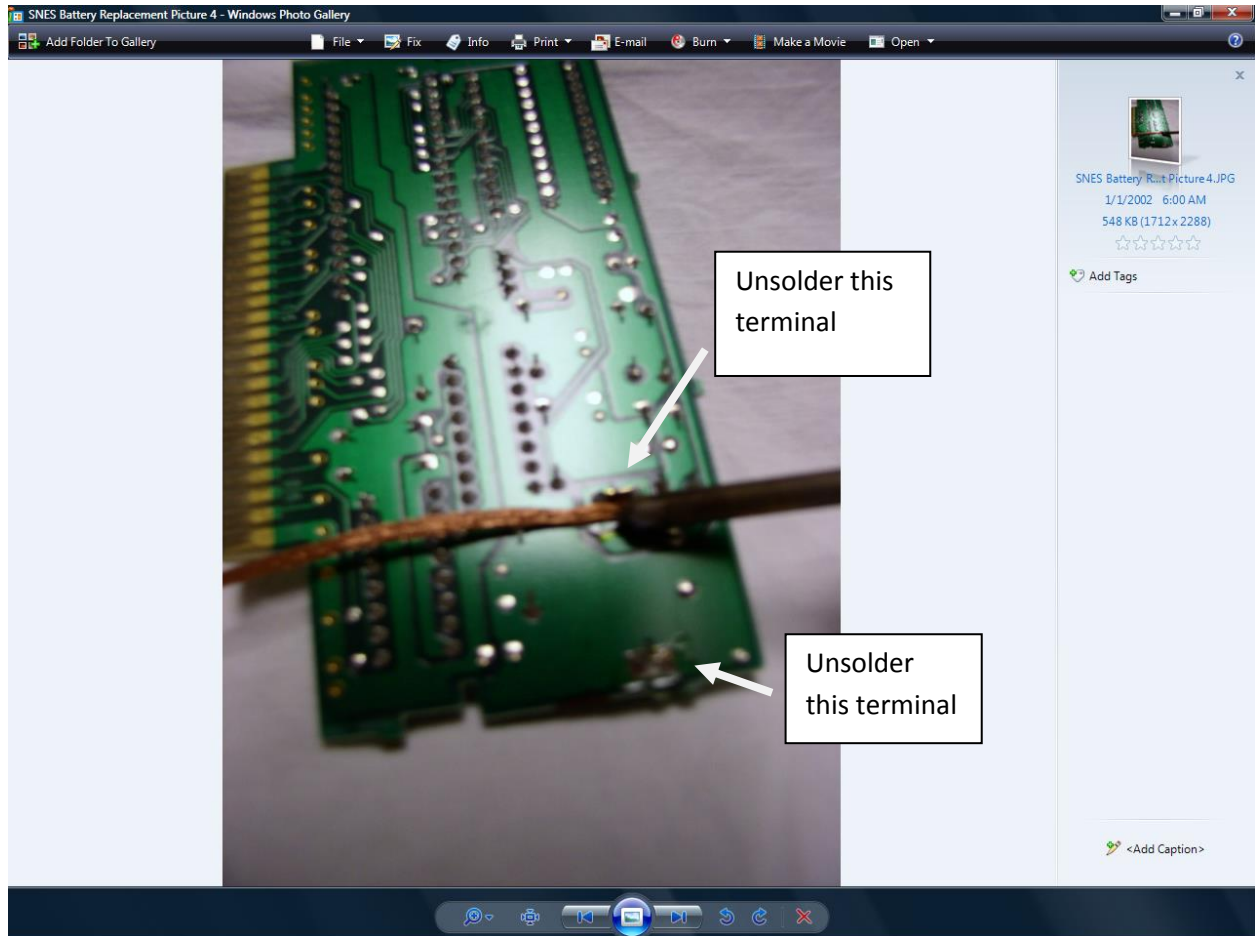


Picture Five: Back of circuit board

The positive and negative terminals of a typical SNES circuit board are shown in pictures four and five, although the location of the terminals may be different. I recommend that you mark both terminals with a plus and minus sign in order to make sure you know, which terminal is which.

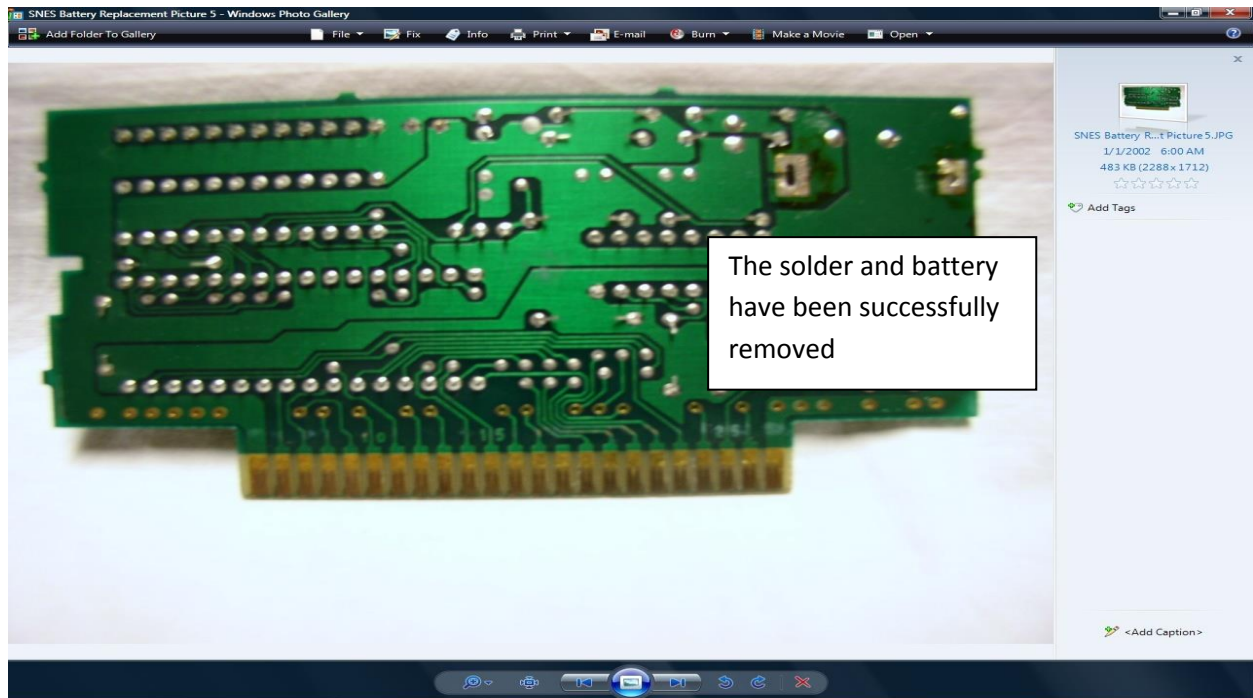
Step 3:

Now that you have the terminals marked all you have to do is remove the old battery. Using the techniques described in the soldering guide above unsolder the two contacts that are holding the old battery in place. Please see picture six.



Picture Six: Unsoldering the old battery

Once you have removed the solder and the battery your terminal should look as clean as those seen in picture seven



Picture Seven: Back of circuit board with old battery removed.

Step Four:

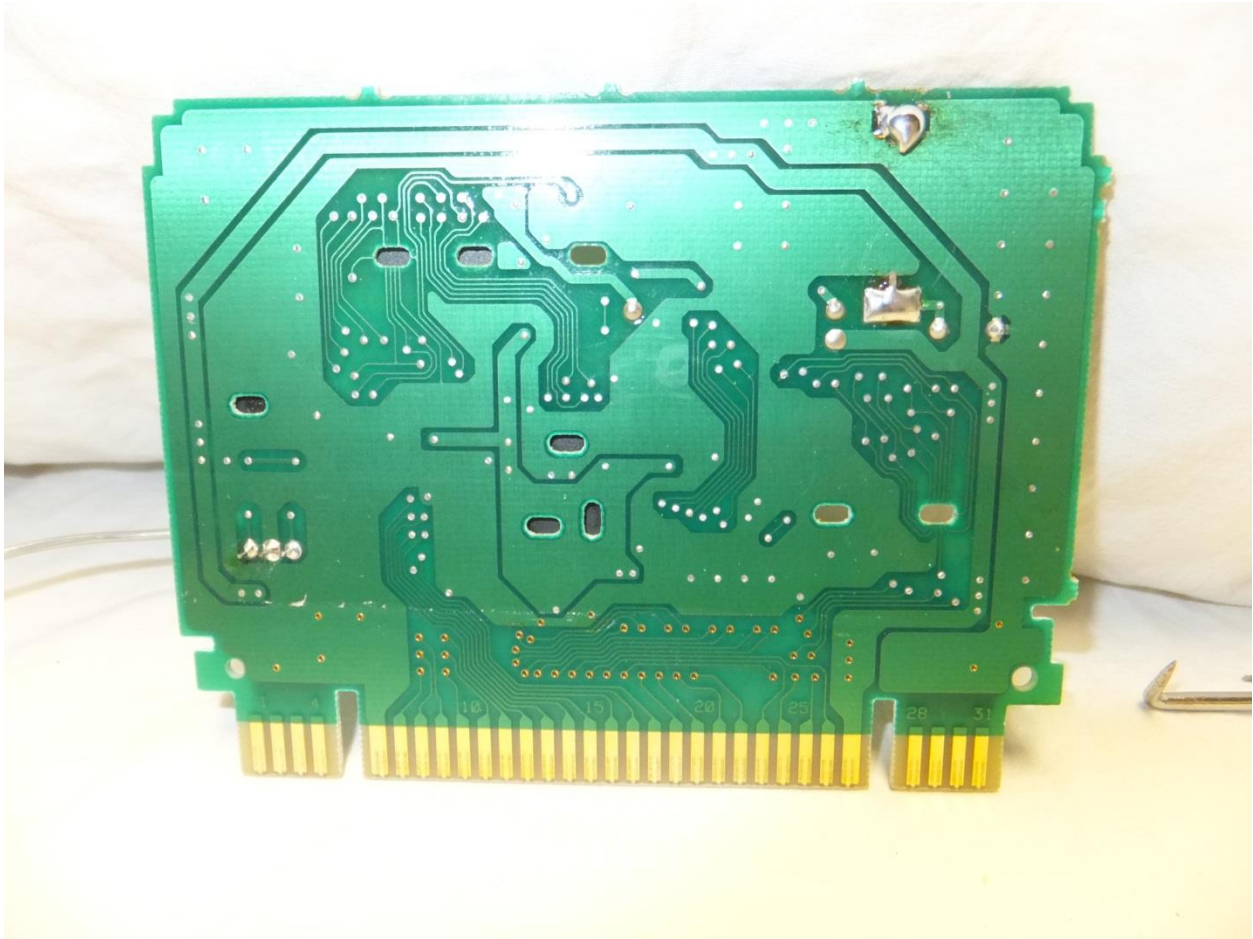
Now take your replacement battery and insert the prongs through the holes on the mother board; making sure to match the positive side with the positive side and the negative side with the negative side. This is very important. Once you have accomplished this simply bend the prongs so the battery is attached to the board as seen in picture eight.



Picture Eight: Prongs of new battery bent and attaching the battery to the circuit board.

Step Five:

Once the battery is attached solder on the prongs with solder using the techniques discussed earlier. Your circuit board should look something like picture nine when this is accomplished.



Picture Nine: New battery firmly soldered in place.

Now that the batteries' terminals are soldered on you are now finished. Reassemble the game and you are ready to play. If you experience an issues after this project is performed please see our troubleshooting section below.

Troubleshooting Section

Please choose the problem that is most similar to the one you are experiencing. If you cannot find your problem listed or if you have any questions please contact us at customerservice@MortoffGames.com.

- 1) My save games are being erased
 - a. This is a sign that the battery is not working correctly. Open your game and ensure that it is soldered firmly onto the board. If it is make sure that you soldered the positive terminal of the battery to the correct location. If you unsure of which is the positive terminal check another game as a reference.
- 2) My game no longer works
 - a. This problem is typically only caused by the usage of an instantaneously heating or cold heat soldering gun. Most likely the game has been permanently damaged and needs to be replaced.