

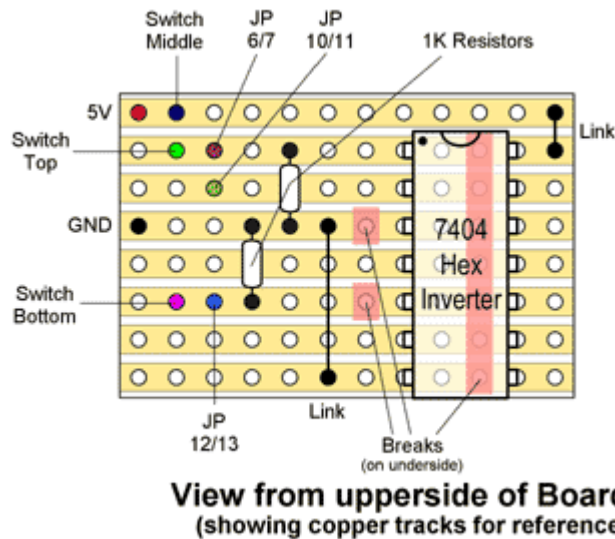
mmmonkey's guide to single switch Saturn Region Mod

<http://www.mmmonkey.co.uk>

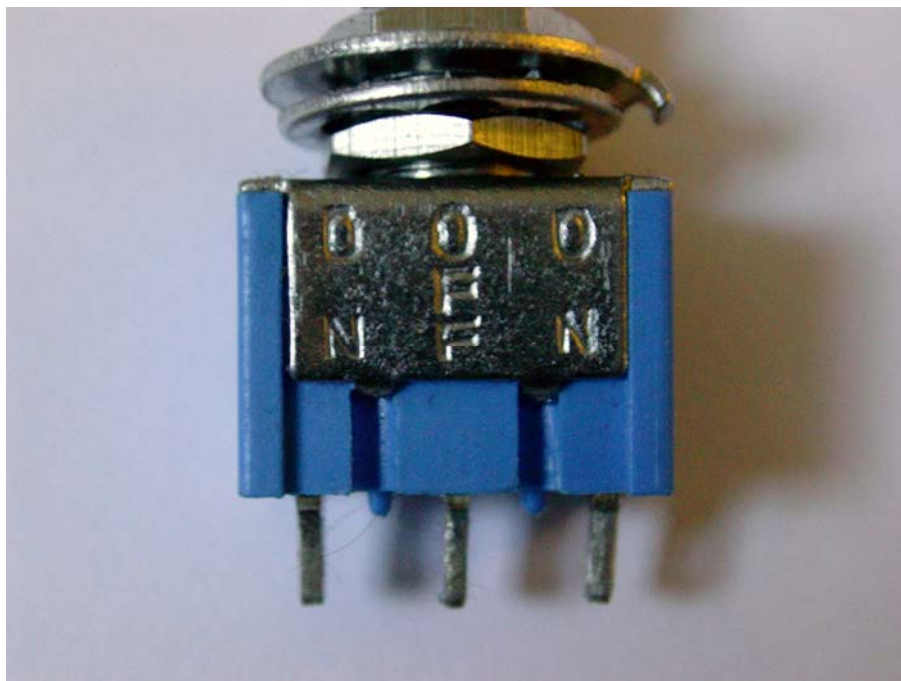
By far the best guide that mmmonkey has seen is [here](#), this mod allows you change from UK/JPN/US mode with just a single switch (most guides use 2 switches for this modification).

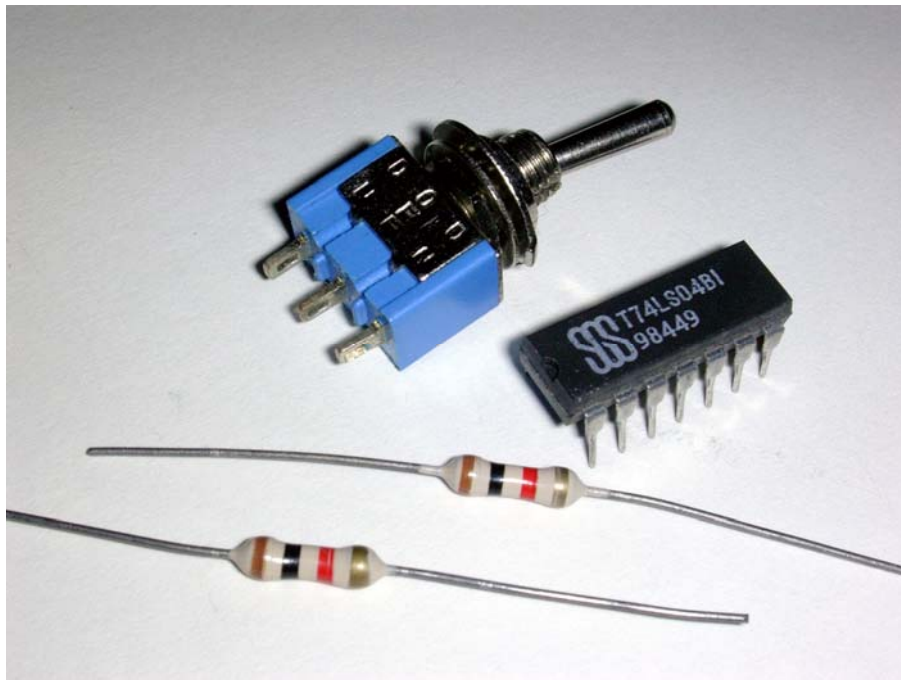
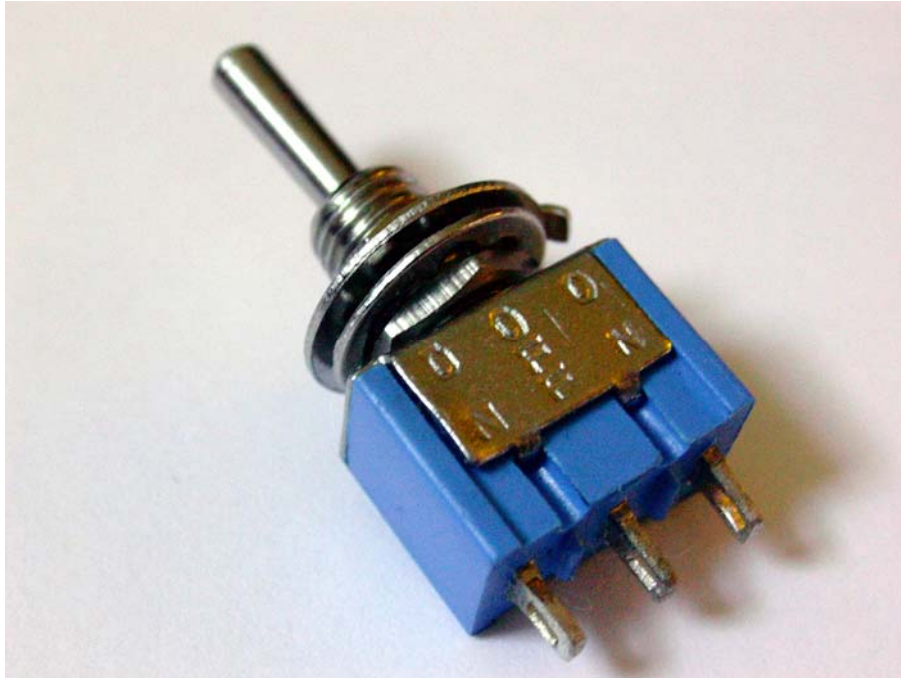
There are many different versions of the Saturn motherboard, so a comprehensive guide would be very difficult.

If you need help constructing the circuit from [Mameworld](#), then here's a diagram of the Strip/Vero board that mmmonkey has designed.

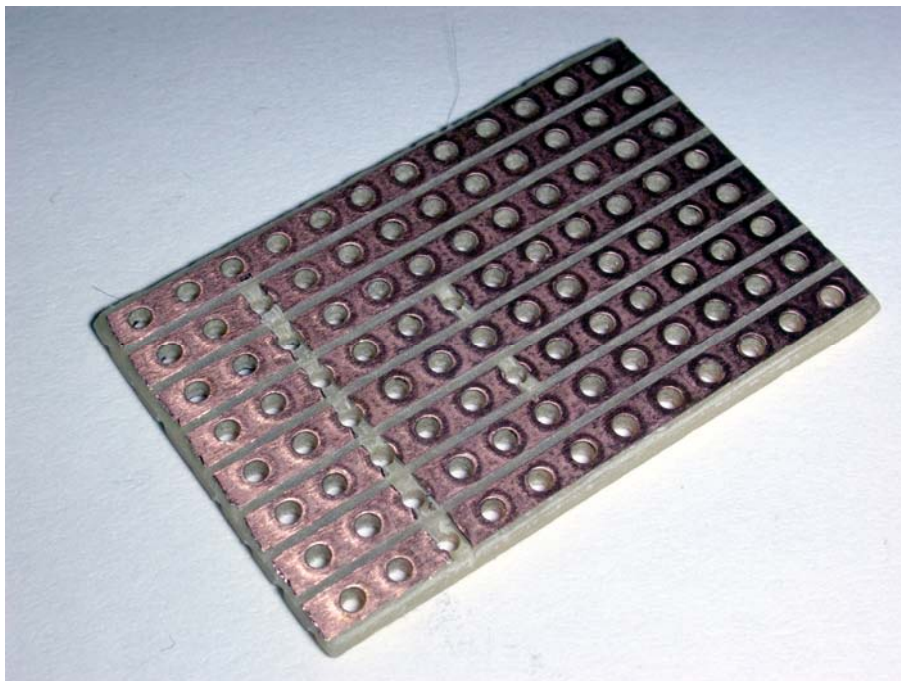
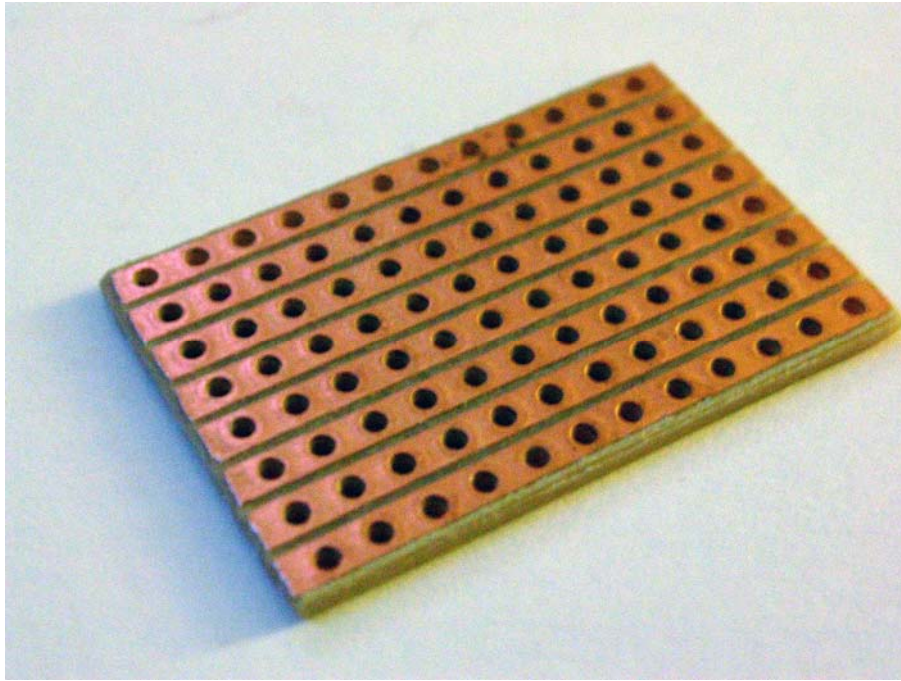


The basic components are a piece of Vero board (8 tracks tall, 12 holes wide), a 7404 Hex Inverter, 2 1K resistors, some wire and a Single Pole/Double Throw Centre Off switch. Mmmonkey used a toggle switch for this, it has 3 contacts and is an On-Off-On switch.

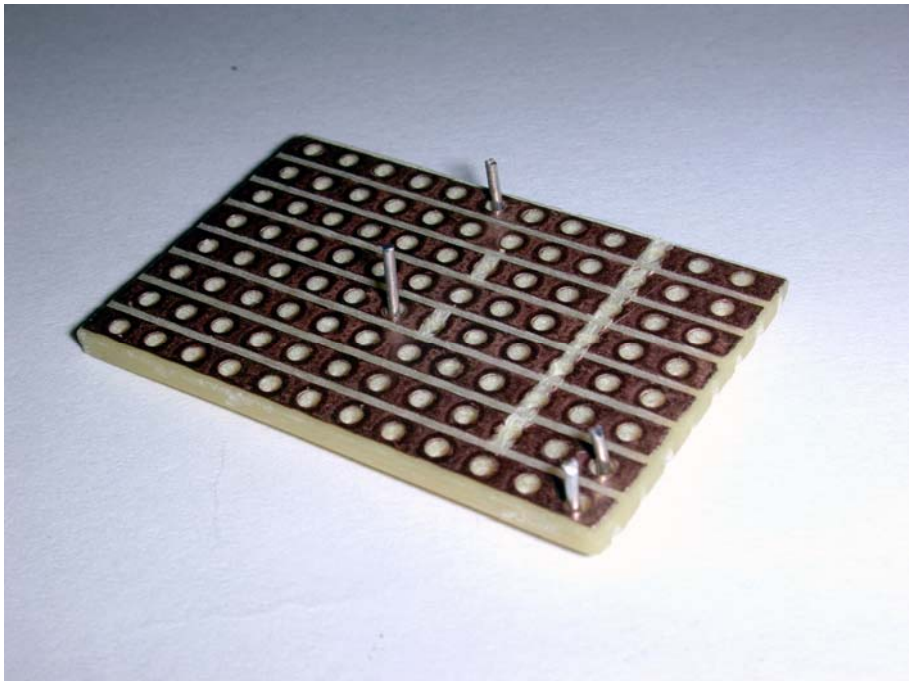
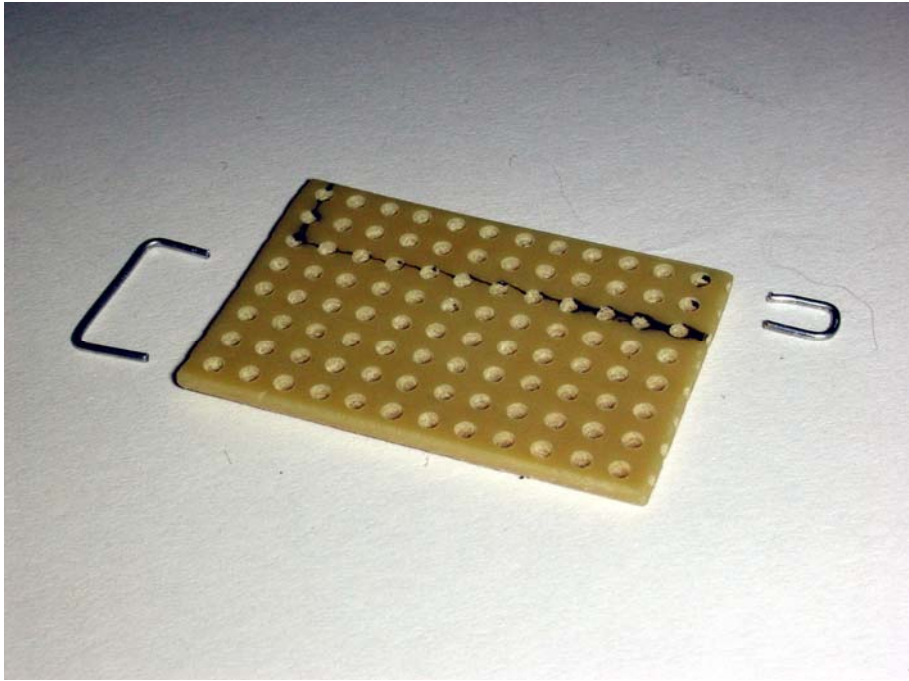


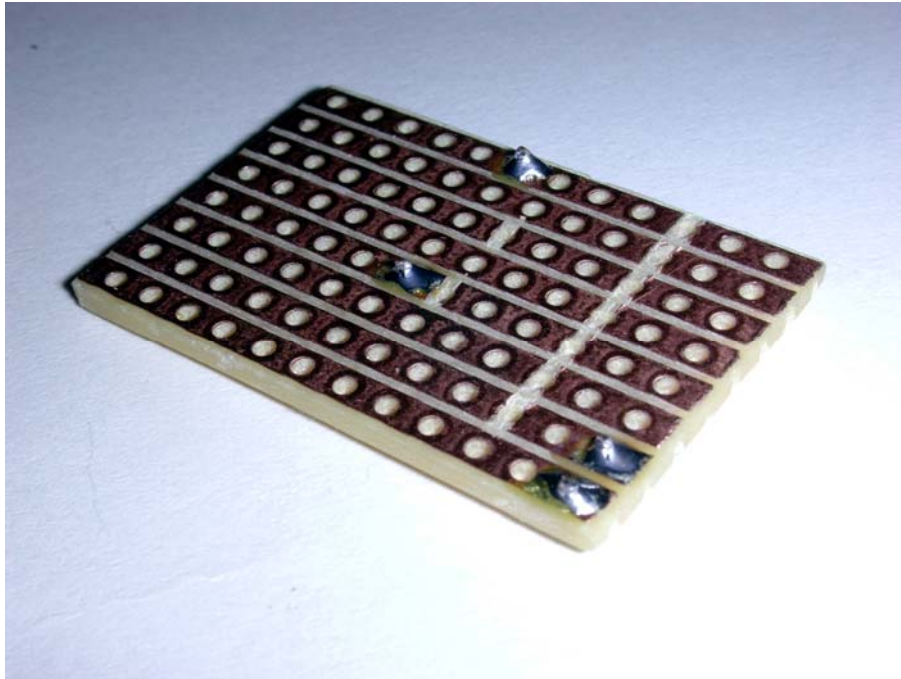


Once you've cut your board to size (8 tracks tall, 12 holes wide), cut along the some of the tracks as shown in the diagram at the top of the page and the following photo. Some people drill the holes to make them bigger so the break the track, mmmmonkey just makes some cuts using a sharp blade, then picks a bit out.

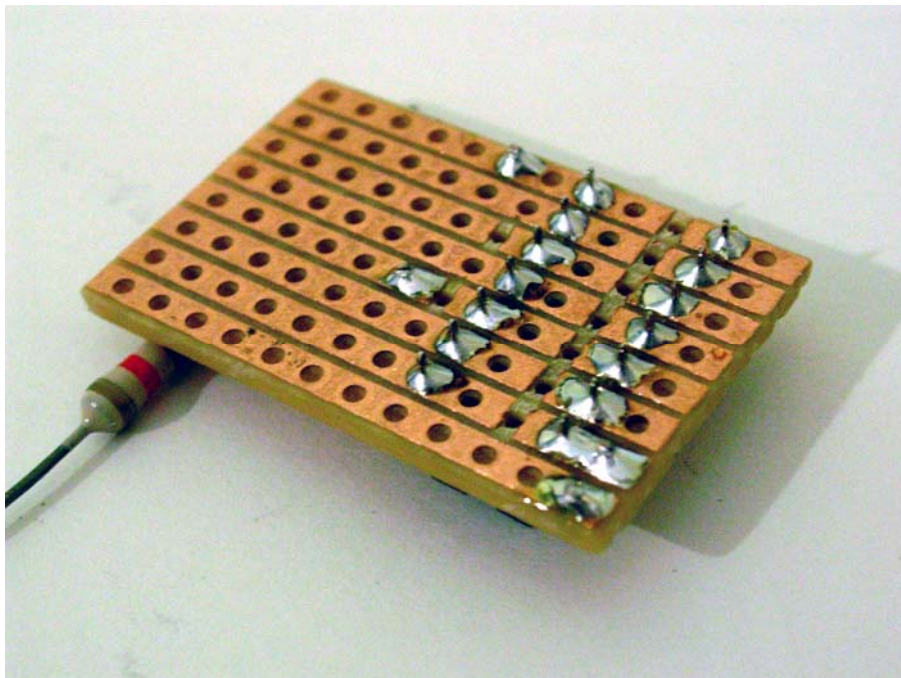


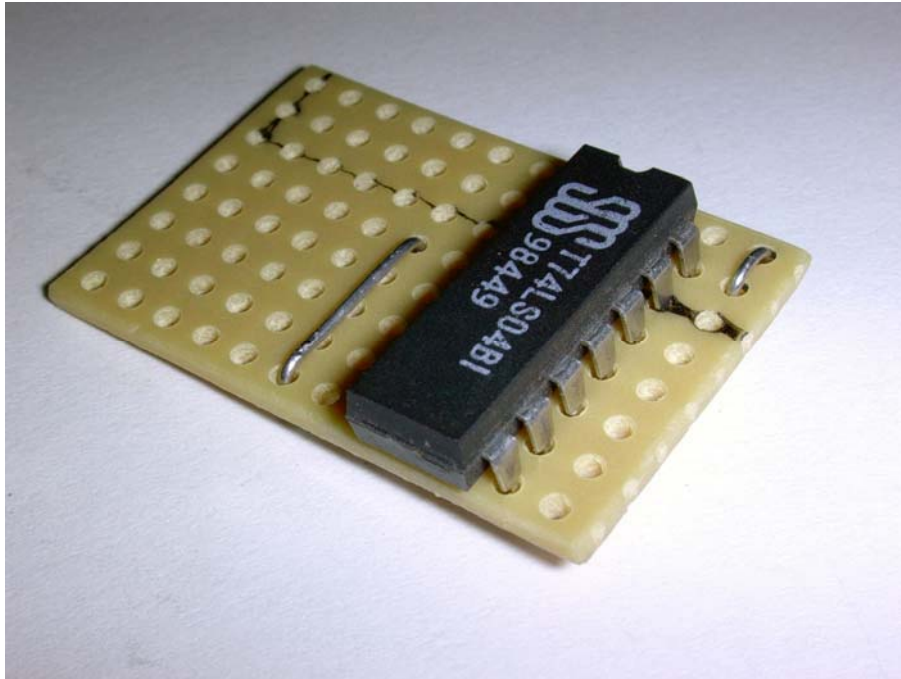
Then prepare some wire ready to join the link points. mmmonkey used some legs from resistors used in another mod, and bent them into shape, then soldered them into place and cut the excess legs off.





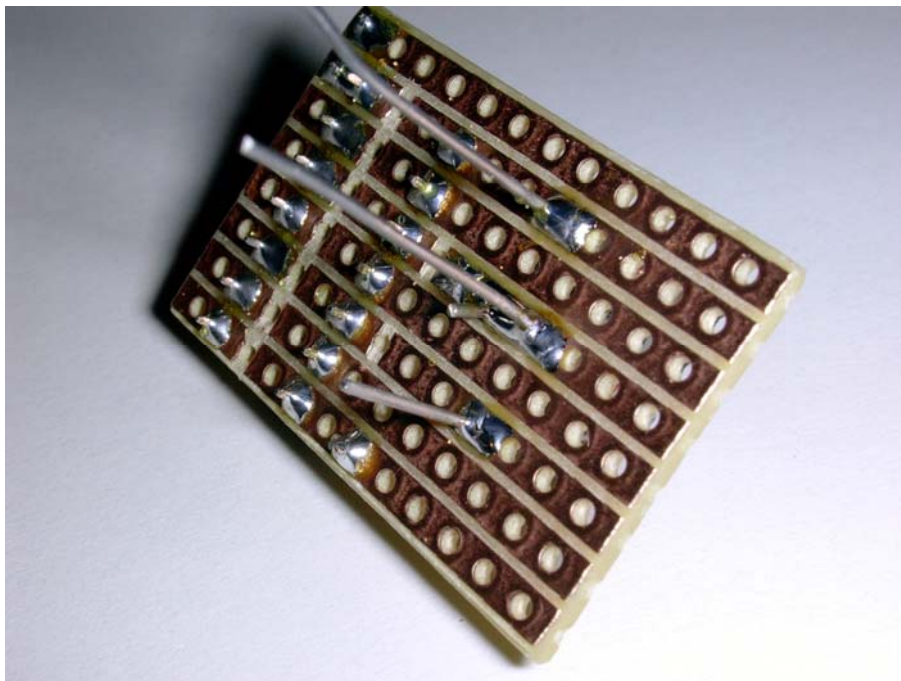
Now it's time to solder the 7404 Hex Inverter into place, make sure you put it in the correct way around, there is usually an indent and/or a dot showing you which end is pin 1 (a dot on the diagram above). mmmmonkey soldered all the legs, this isn't necessary - but it was easier than double checking which legs were necessary. Find something to rest under the Vero Board to make it level whilst it is upside down (like the resistor shown below).



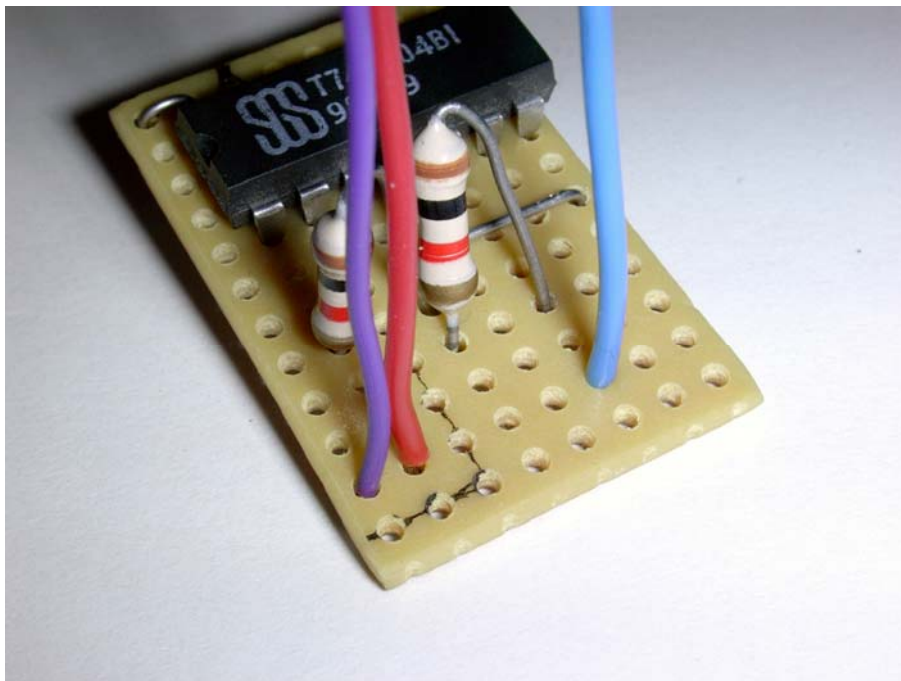
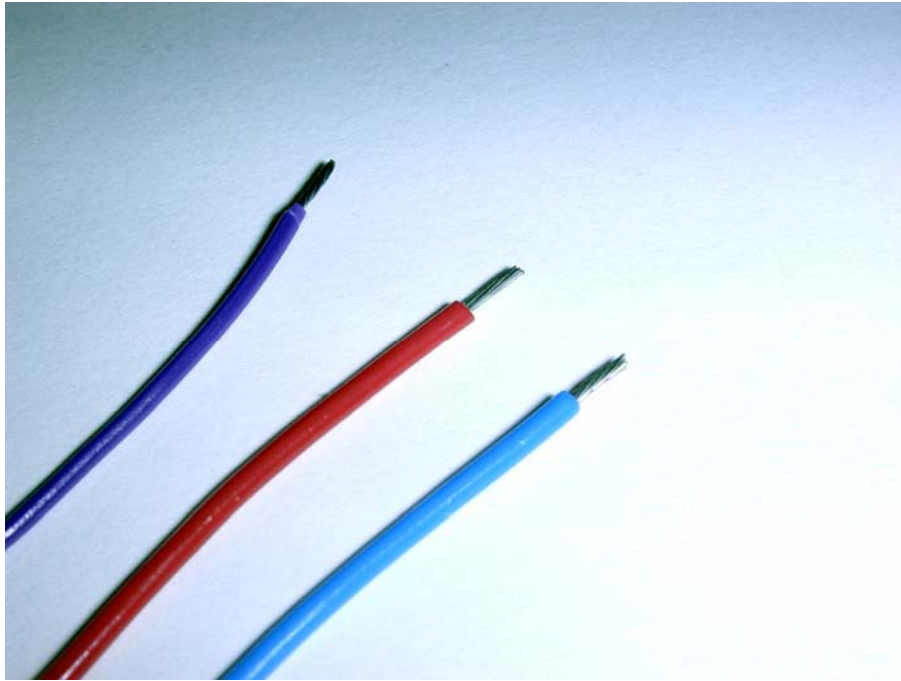


Once the Hex Inverter is complete, double check where the two 1k resistors should go, solder them into place and trim the excess leg off.

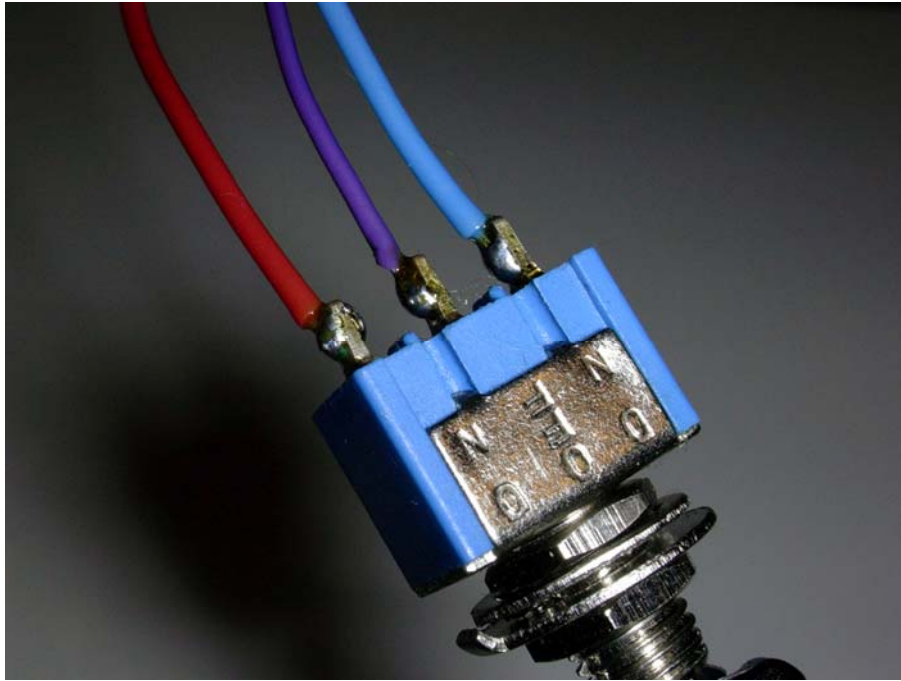




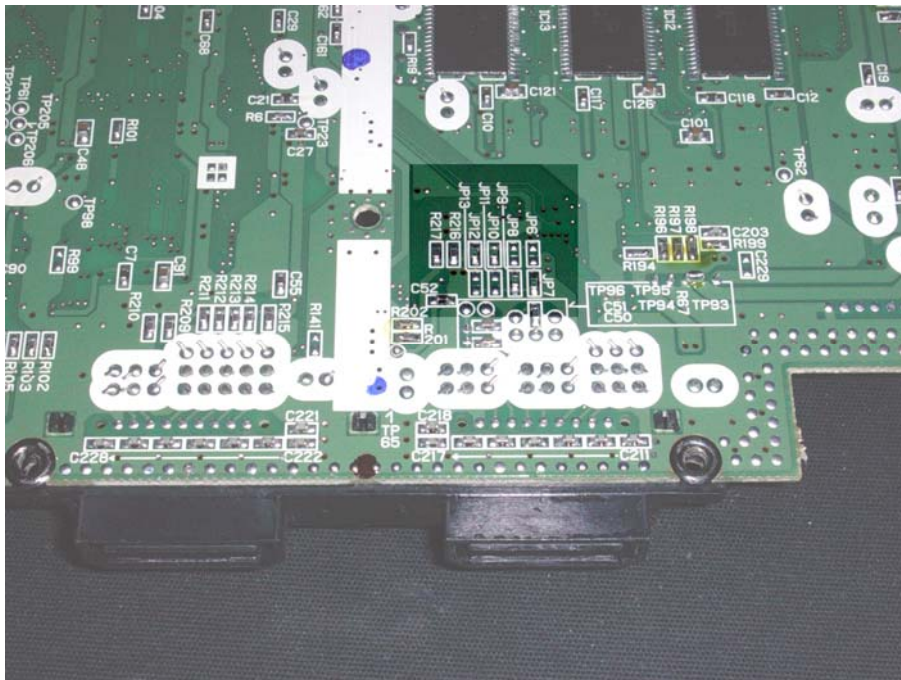
Now it's time to start on the wires, cut 3 pieces of wire, long enough to go from where you are sticking the board to where the switch will be mounted. Strip both ends of each of the wires and melt a small amount of solder onto them. The second column of holes on the circuit board is used for these wires switch, cut 3 pieces of wire (make sure they are long enough), and solder them into place on the board, double checking the diagram.

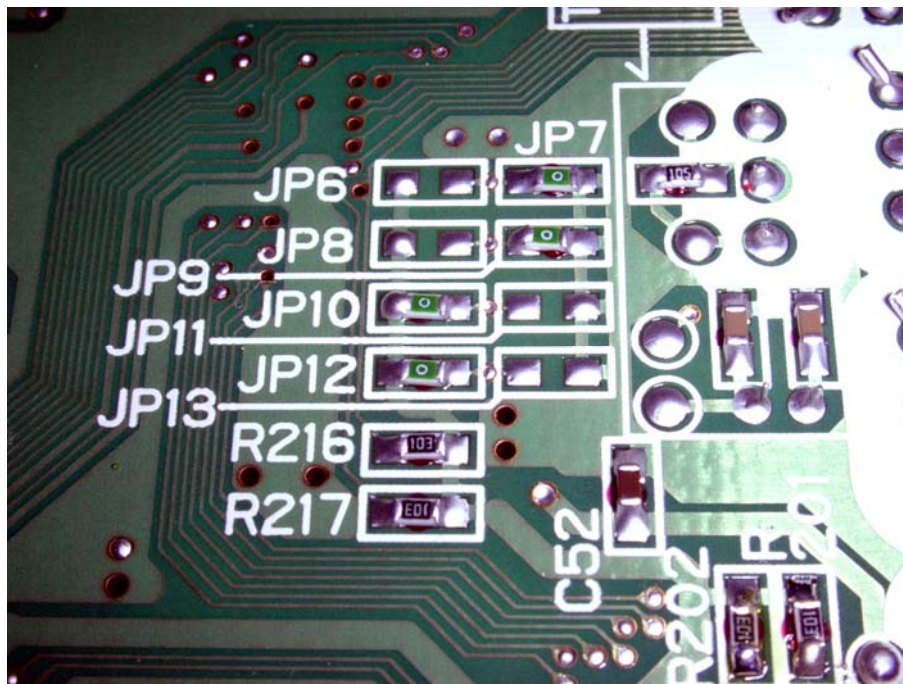


Now, carefully checking the diagram and photo's, solder the other end of the wires onto the switch. Melt a small amount of solder onto each contact, then place the wire on the contact, heat with the soldering iron to join it all together. Be careful, you don't want to heat the contacts up too much as it will melt the plastic, the contact will the move out of place and probably make the switch useless.

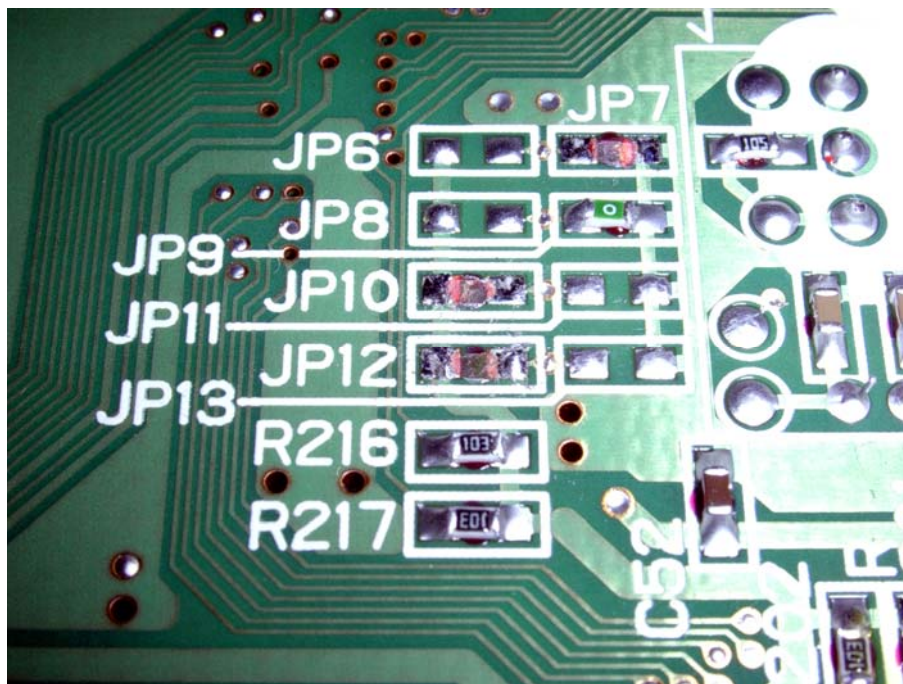


Okay, look on your Saturn motherboard for the region select jumpers. mmmmonkey is performing this mod on a PAL VA9 motherboard, probably the most common. The jumpers are on the underside of the motherboard, near the controller ports, all next to each other. If your motherboard isn't a PAL VA9, then you'll have to hunt around the motherboard to find the correct JP pads, use [Mameworld](http://www.mameworld.com) and [GamesX](http://www.gamesx.com) to help you find them if necessary.

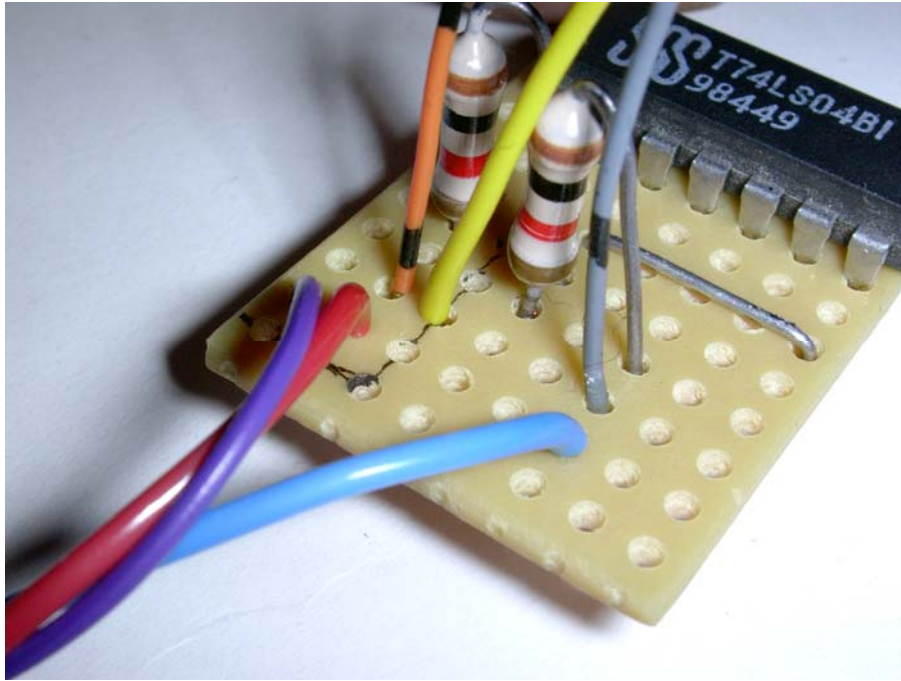




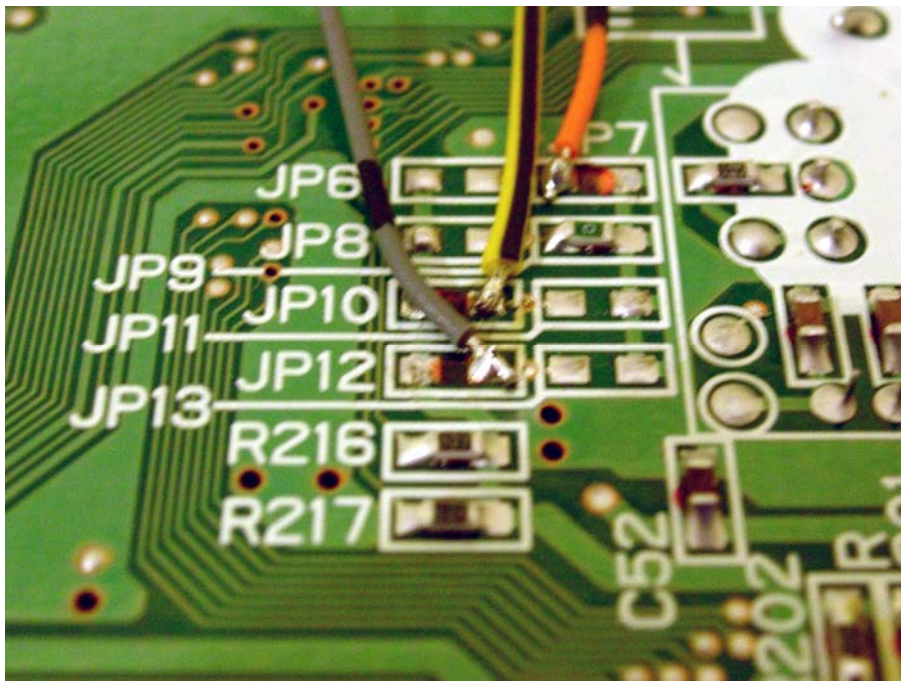
Remove the necessary JP pads, in this case it's JP7, JP10 and JP12. mmmmonkey heated the solder either side of the zero ohm resistors which are linking the pads, then used a de-soldering pump to suck the solder off.

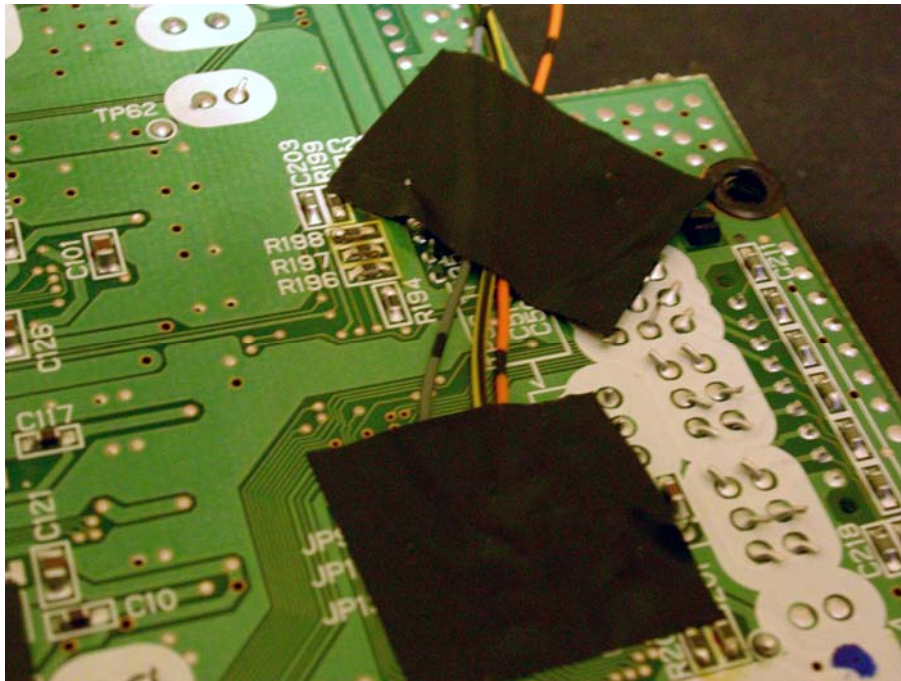


Now that you know where the JP pads are that you are working with, cut and prepare 3 pieces of wire, long enough to go between the pads and the circuit board. When soldering the 3 wires to the board, use the diagram and photo's here to ensure you use the correct holes on the third column of holes.

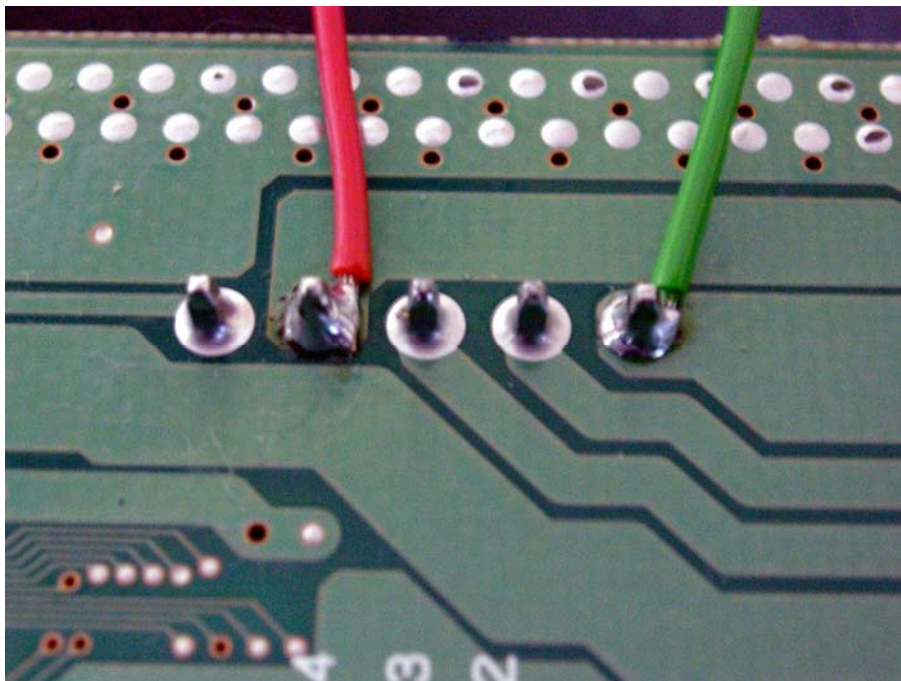


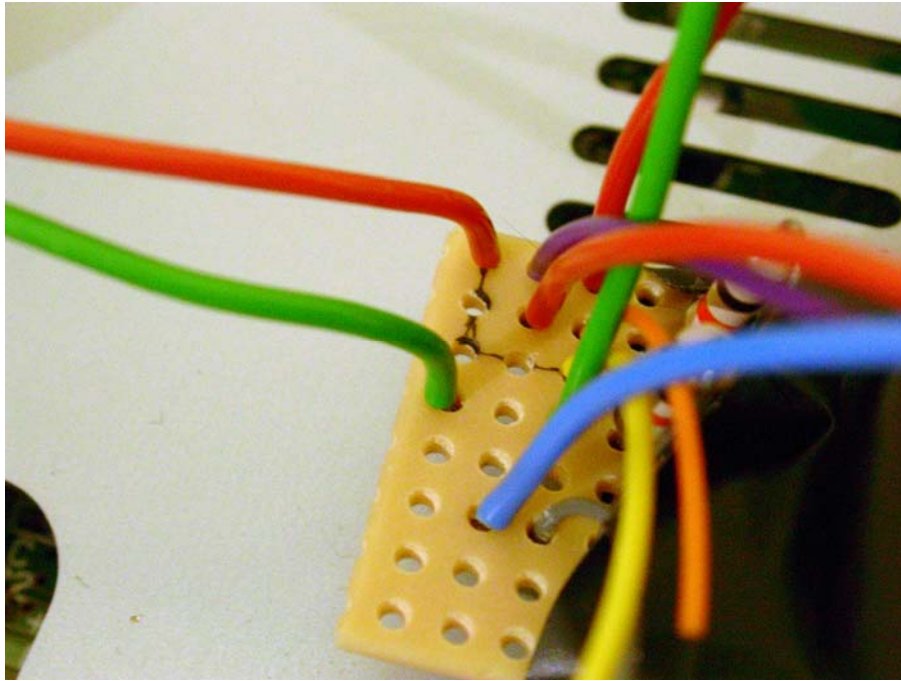
To solder the wires to the Saturn motherboard, you may want to add a small amount of solder to the pads as you may have previously sucked it all off! Again, using the diagram and photo's, make sure the correct wire is linked to the correct pad. Once soldered, add some electrical insulation tape to protect the wires.





Just the power wires left to solder, the power pins are easy to find on the underside of the motherboard, the 5v wire is shown as red, whilst the ground is shown as green. Once you've checked the diagram and photo's solder the wires to the circuit board. Make sure the bottom side of the board is insulated

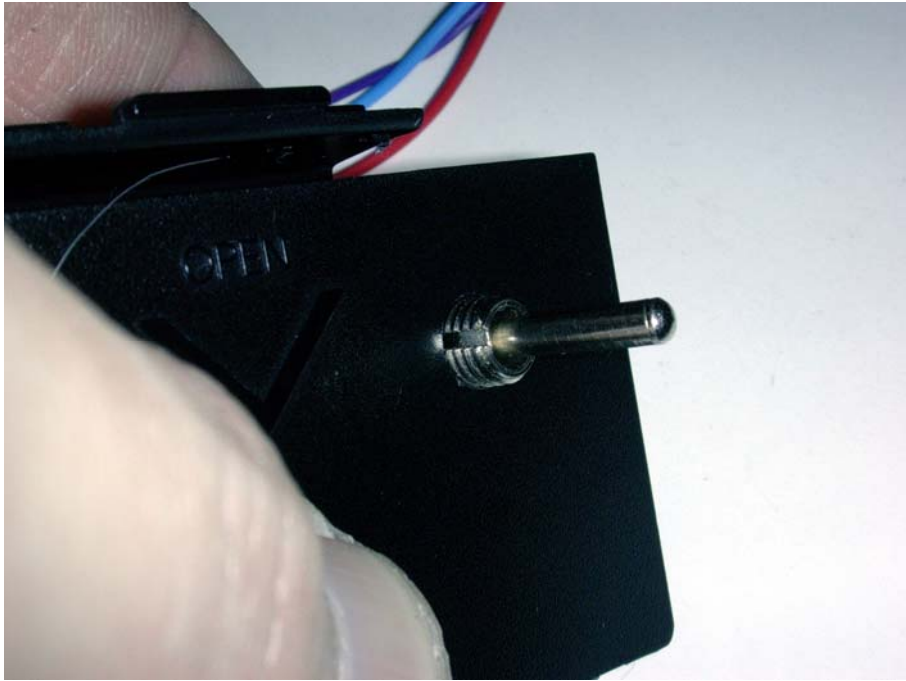


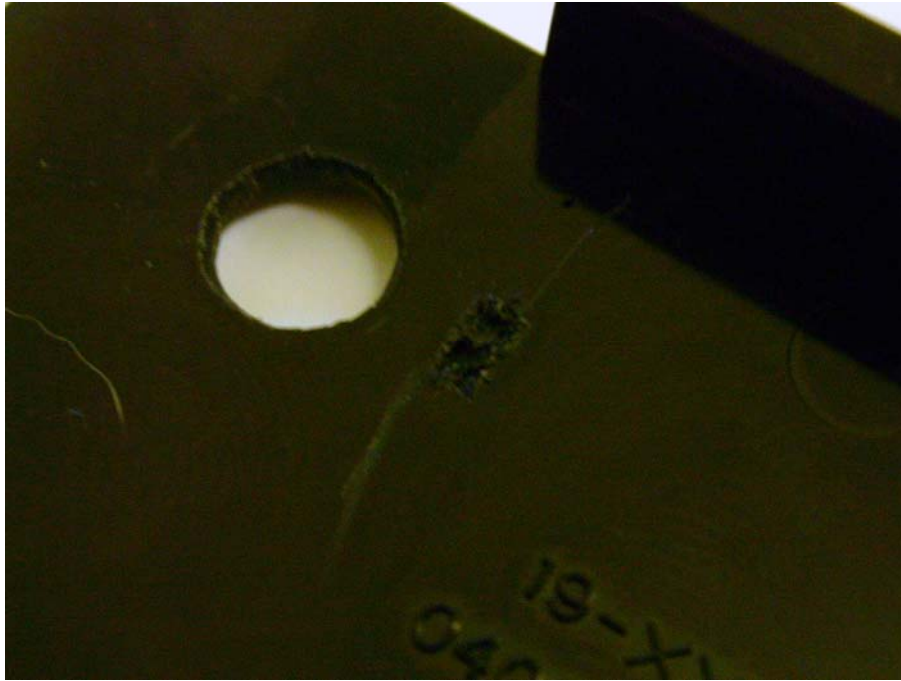


You're nearly finished, you may want to partially re-assemble your console and test it all out before mounting the switch and screwing it all back together.

mmmonkey mounted the switch on the door to the Battery/VCD Card compartment because it was the easiest place., you can either drill a suitable hole, or with a craft knife you can drill a hole through quite thin plastic. Once the hole is the correct size, you could make a second much smaller hole, this is for the tiny metal tooth on the washer that came with the switch, this will stop the switch turning around once mounted.







Notes

You can also use this circuit board for 5v and GND source for other mods such as a 50/60Hz switch or modchip installation. Why would you want a modchip? – well it's the easiest way of playing CDR's in your Saturn.

Summary of Components needed

- 1 x Single Pole/Double Pole Centre Off switch
- 1 x small piece of Vero board/Strip board, cut to 12 holes wide and 8 tracks tall
- 1 x 7404 Hex Inverter
- 2 x 1k Ohm Resistors

Some lengths of small wire (preferably Kynar)

Of course, much of the credit must go Mameworld for their original guide [here](#) and [GamesX](#).

This guide was created by Pete Grimes in April 2005. The original and more can be found on <http://www.mmmonkey.co.uk>

All modifications are carried out at your own risk, mmmonkey cannot be held responsible for any damage that may occur to your console/TV/house/marriage etc, if in any doubt, then contact mmmonkey, get an experienced person to perform the modification for you or join one of the forums on our links page and seek help. Always work safely, make sure you use appropriate anti-static precautions and always read all the way through a guide and fully understand it before you attempt it.