Installation tutorial for Hott-Mods Xbox 360 Rapid fire Microchip for Wireless controllers

• tip: For information on proper soldering visit http://www.curiousinventor.com/guides/How_To_Solder

This tutorial is to aid you in the installation of a Hott-Mods rapid fire MOD. This tutorial covers the installation of our new 8-pin Microchip. This installation must be done exactly as shown in this tutorial or your chip may not work correctly.

This installation requires soldering several wires to extremely small confined spaces. I do not advise attempting this installation if you are a beginner at soldering. I recommend reading through all of the instructions and understand them before beginning your Installation.

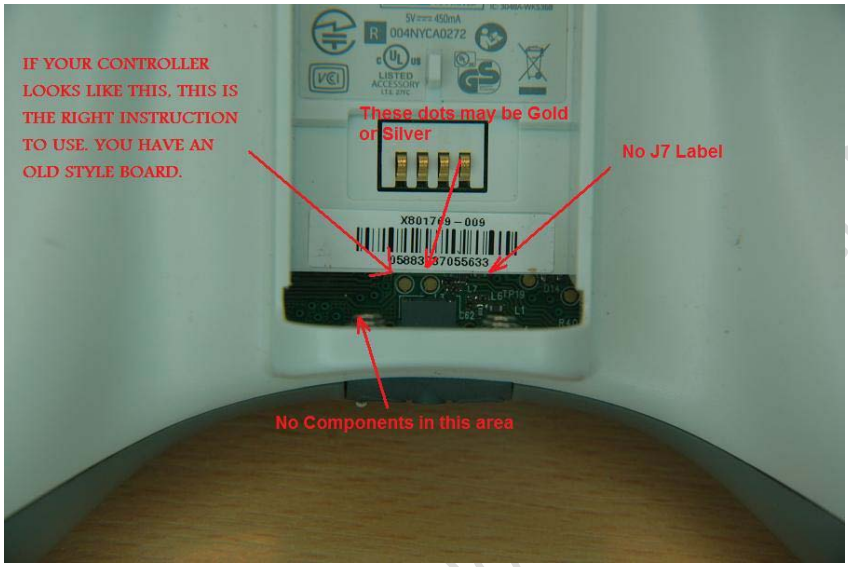
WARNING: Please proceed with this installation at your own risk. I will not be held responsible for any damage to yourself, your controller, your Xbox 360 console or any other equipment. This tutorial requires opening your controller which will void the warranty of your controller.

Tools needed:

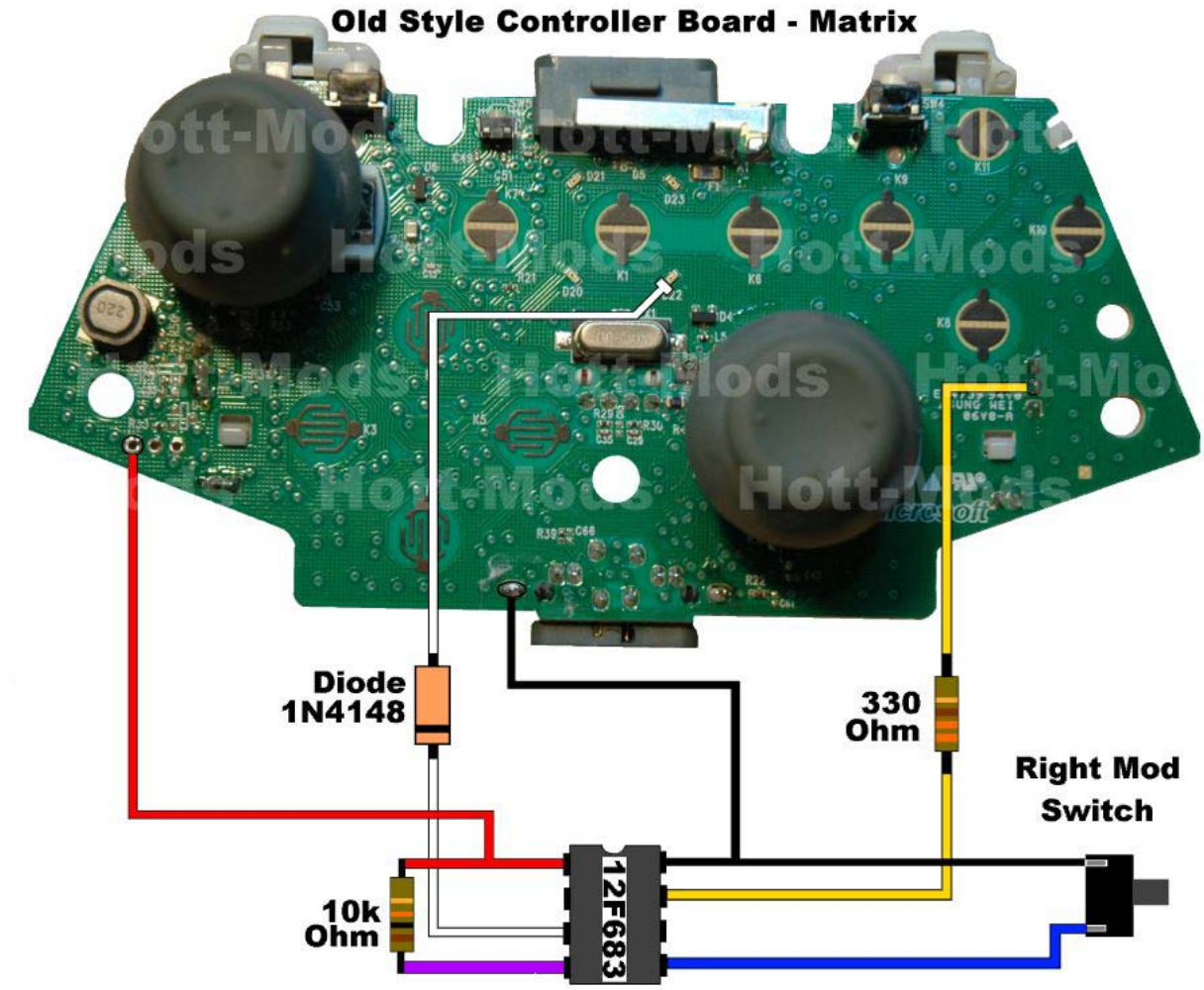
• Torx T8 Security/tamper proof driver (for all wireless controllers)
• Soldering iron (A cheap 15w/30w from radio shack is about $10)
• Solder (rosin core solder from radio shack is about $4)
• Wire strippers (that can strip 30ga wire, a 30ga wire-wrap tool from radio shack includes a 30ga stripper $8)
• Wire cutters
• Hot glue gun
• 3/16 drill bit
• Needle nose pliers
• Small pocket knife or razor blade (optional but helpful)

• tip: You'll be asked to strip wire insulation off, exposing bare wire, and solder in the steps ahead. Exposing bare wire beyond solder connections could cause a short if the bare wire touches something it shouldn't. Make sure to keep exposed wires that have had insulation removed as close to the solder connection as possible … minimizing the chance of a short.

IF YOU YOUR CONTROLLER LOOKS LIKE THIS, YOU ARE USING THE CORRECT INSTRUCTIONS. YOU HAVE AN OLD STYLE BOARD.



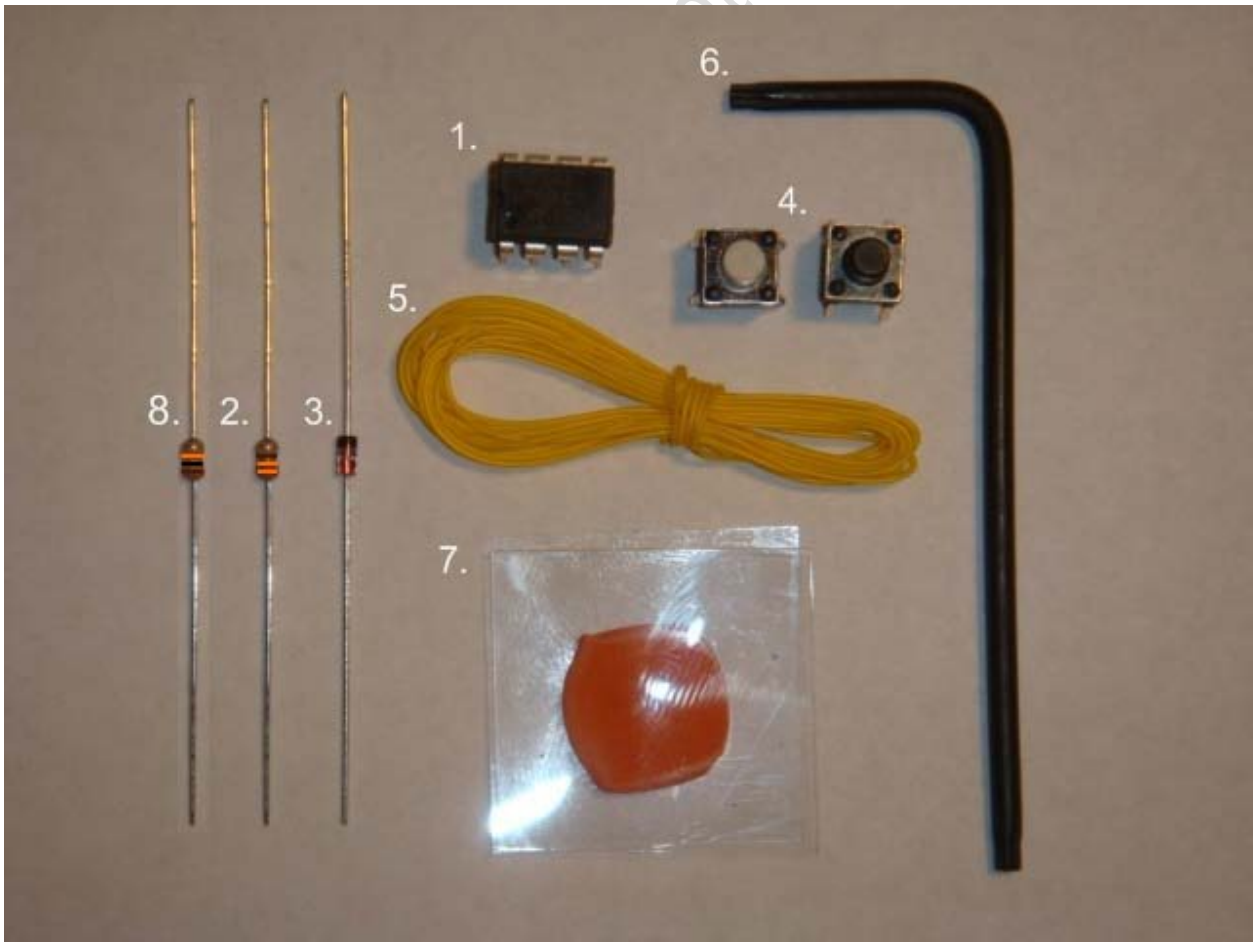
IF YOUR BOARD LOOKS LIKE THE ONE BELOW, DO NOT CONTINUE … YOU'RE USING THE WRONG INSTRUCTIONS, YOU HAVE A NEW STYLE BOARD SO USE THE (STD RT – NEW Style.pdf) INSTRUCTIONS


Old Style Controller Board - Matrix
Diode
1N4148
330
Ohm
Right Mod
Switch
10k
Ohm
12F683

Step 1: First start by looking at the kit contents.

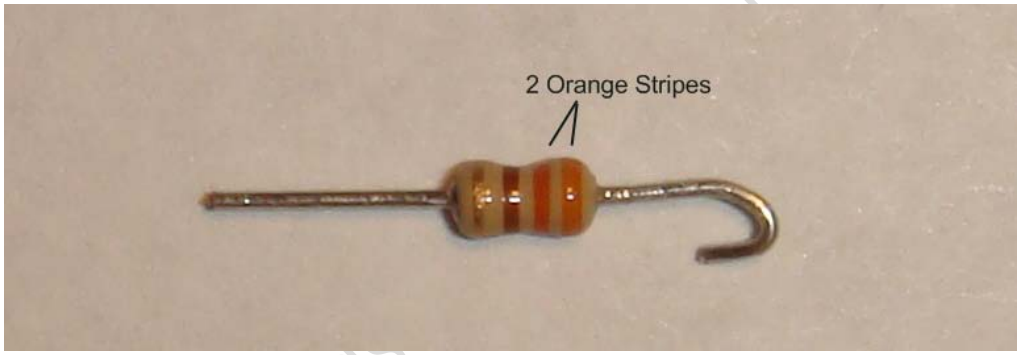
- You should have the following items in your kit (per kit)

1. (1) 8 pin PIC microcontroller
2. (1) 330 Ohm resistor (orange, orange, brown, gold strips)
3. (1) Diode
4. (2) Pushbutton Mod Switches
5. (1) 30 gage Wire coil
6. (1) T8 Tamperproof Torx L-Key
7. (1) Wire Tack
8. (1) 10k Ohm resistor (brown, black, orange, gold strips)

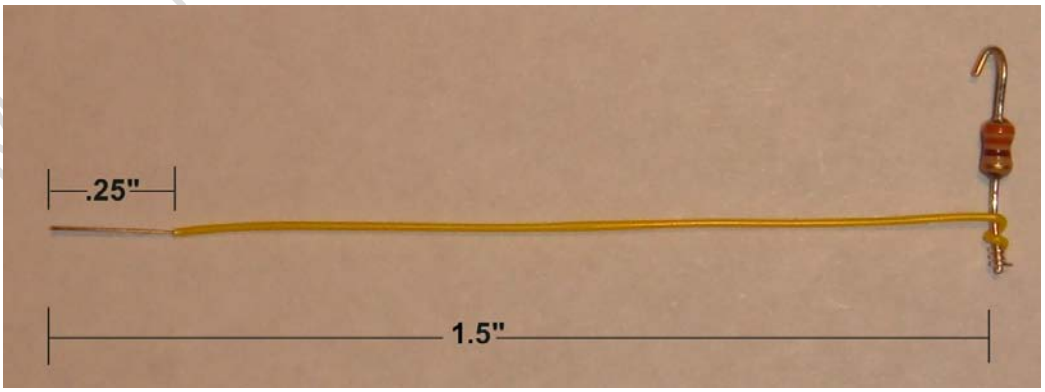


Step 2: Preparing the 330 Ohm resistor

- First cut one piece of wire 1.5” long.
- Strip 0.5” of insulation off each side of the wire.
- Next take the 330 Ohm resistor and cut both sides of the resistors down to a lead length of just over 0.25” and curl a loop on one end as shown below.

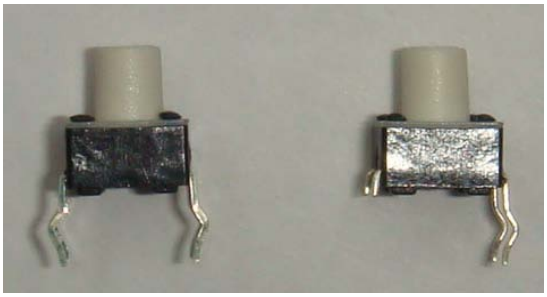


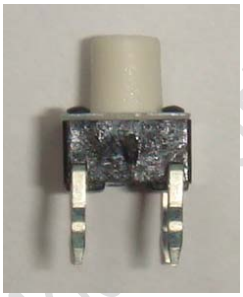
- Now take the 1.5” lead and wire-wrap the resistors on the opposite side of the curl and apply solder to the wire warp for a permanent connection as shown below.



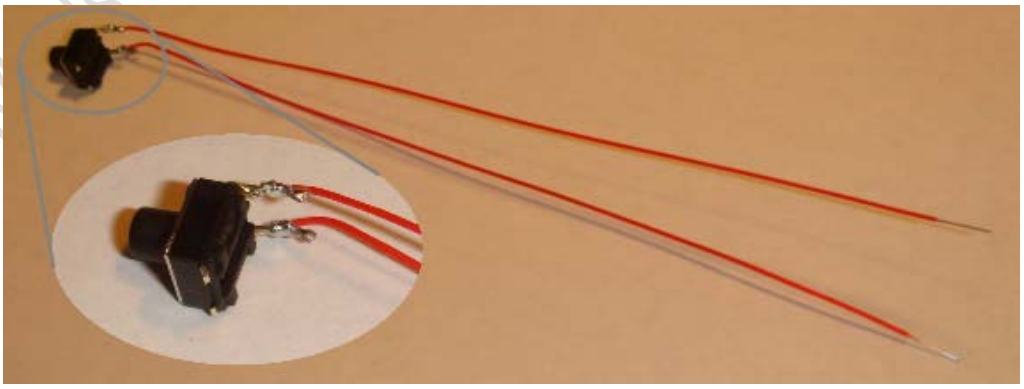
Step 3: Next we'll prepare the mod switch

CAREFULLY cut the two leads off the mod button as shown (*you may have black and white buttons included; choose which color you want based on your controller color*). You can cut the leads off of either side but the remaining leads MUST be on the same side of the switch as shown in the second picture to the right below.



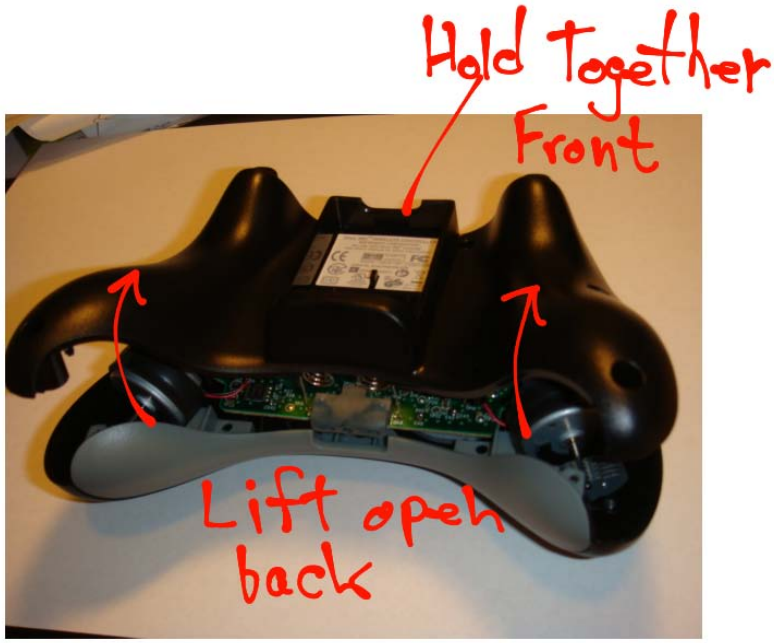


- Next, cut two lengths of wire about 5.5" long.
- Take one wire in hand and Strip about 0.5"of insulation off each end of the wire.
- Repeat this to the -other mod switch wire.
- Next, take each of the mod switch wires and wire-wrap each of them to one of the two uncut switch lead legs and apply solder. See Below.



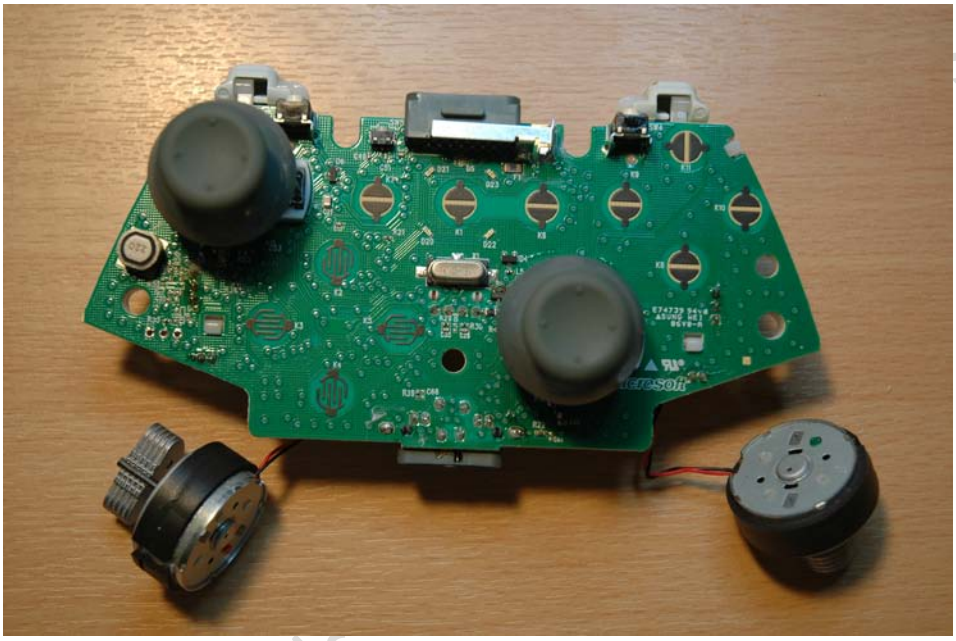
Step 4: Open your controller

- Remove the 7 screws indicated below. One is behind the small white label in the center.
- The wireless controller requires a T8 Torx security driver. This is a star shaped tip with a hole in the middle of it. Depending on the auction you won, you may have this driver included in your kit.



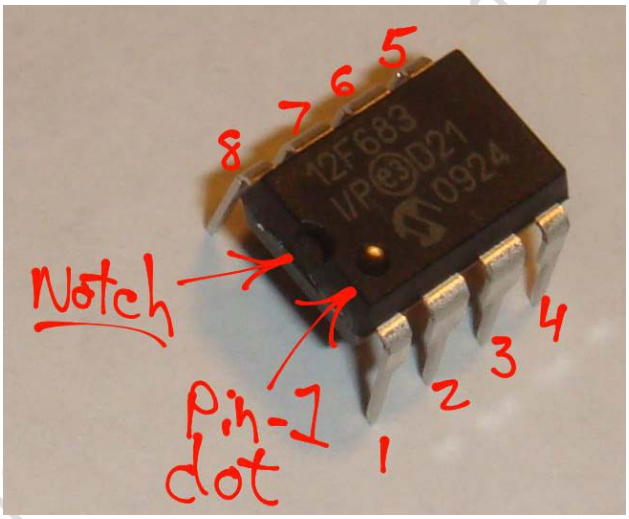
Step 5: Remove the circuit board

- Next, remove the circuit board and place in an open area to work on it facing this way.

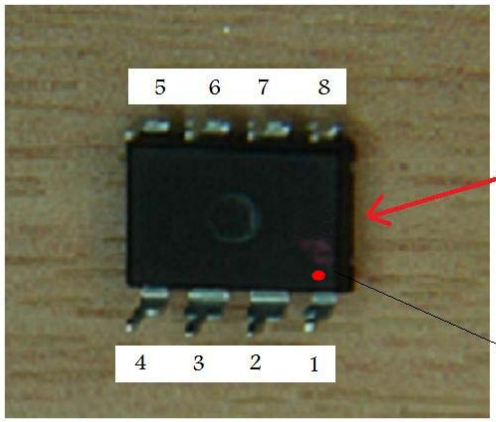


Step 6: We will start by taking the microcontroller chip and putting it on its back on the controller board. Before you flip it over though, note the location of the notch that is on the top of the chip and the pin numbers. THIS IS IMPORTANT ! Put and ink spot under the chip next to pin-1 to mark it for reference later. DO NOT mix up pin #s when connecting wires … it will not work if you do!!!

PRINT THIS PAGE OUT FOR REFERANCE



Chip Is Flipped Upside Down

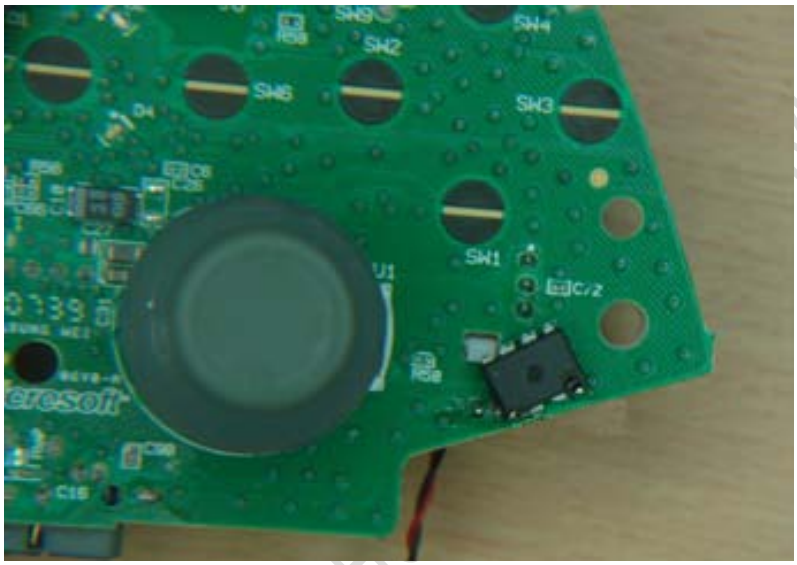


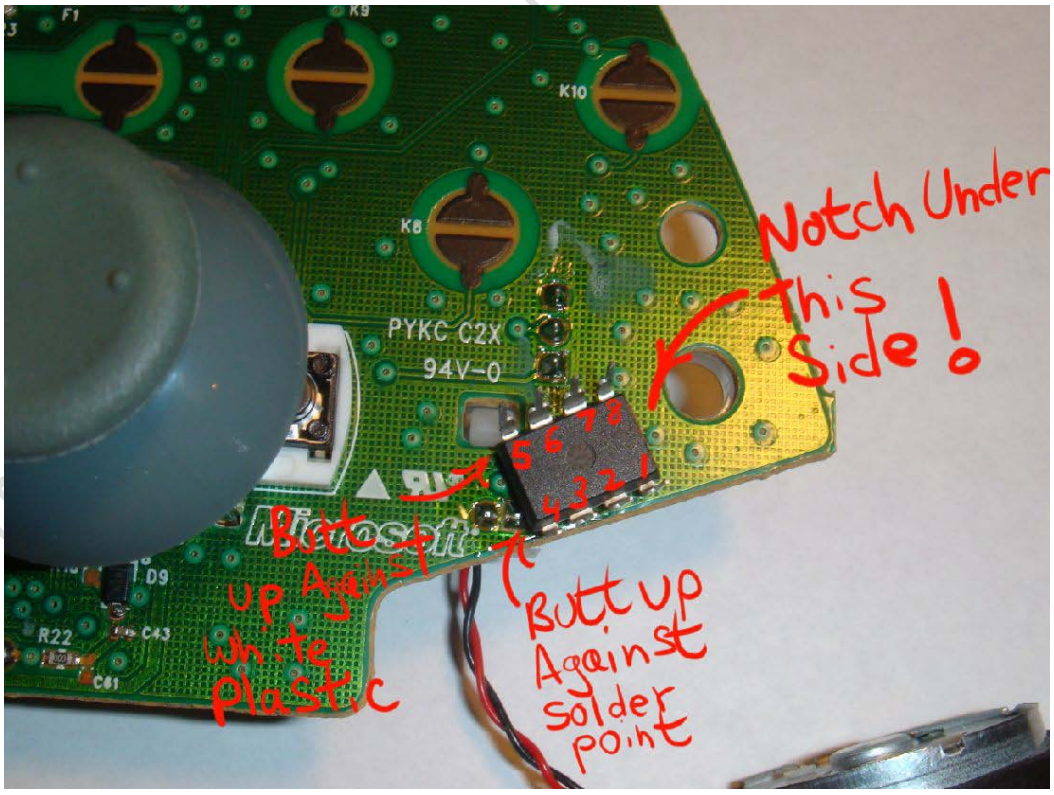
NOTCH
on Bottom

make a mark with
ink to help you
remember pin-1

Step 7: Mount the Chip for wiring the mod

- First note the location where the mod chip will be mounted. Notice that the chip is butted up against the white plastic board mount.



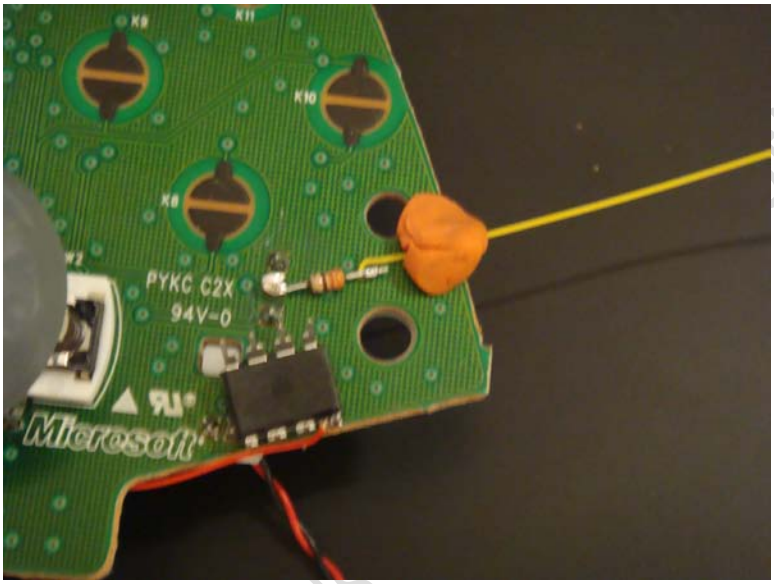


Step 8: Connect the Positive Power Connection

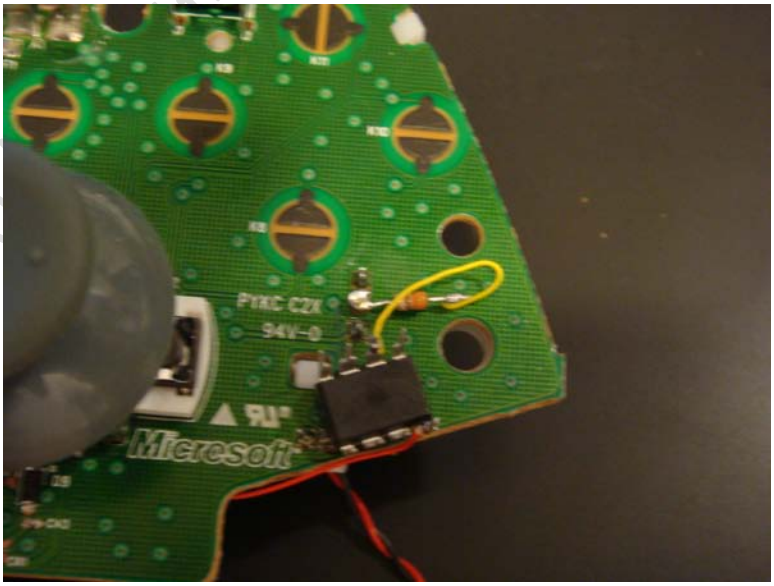
- Next cut a wire 6” long and strip one side .5” and wire-warp and connect it to pin-1 of the chip and solder it.
- Next strip 1/8” off the other end and route it as shown (*goes around other side of board*) applying hot glue dabs to hold the wire in place.
- Next use the wire tack to hold the wire in place as shown on the far right panel and solder the wire to the exact position displayed. Remove wire tack when done soldering.

Step 9: Connect the Right Trigger resistor lead

- Next, take the wire with the 330 ohm resistor from step 2 and use the wire tack to position the resistor loop side to the right trigger as shown. Solder in place and remove the wire tack when done soldering.

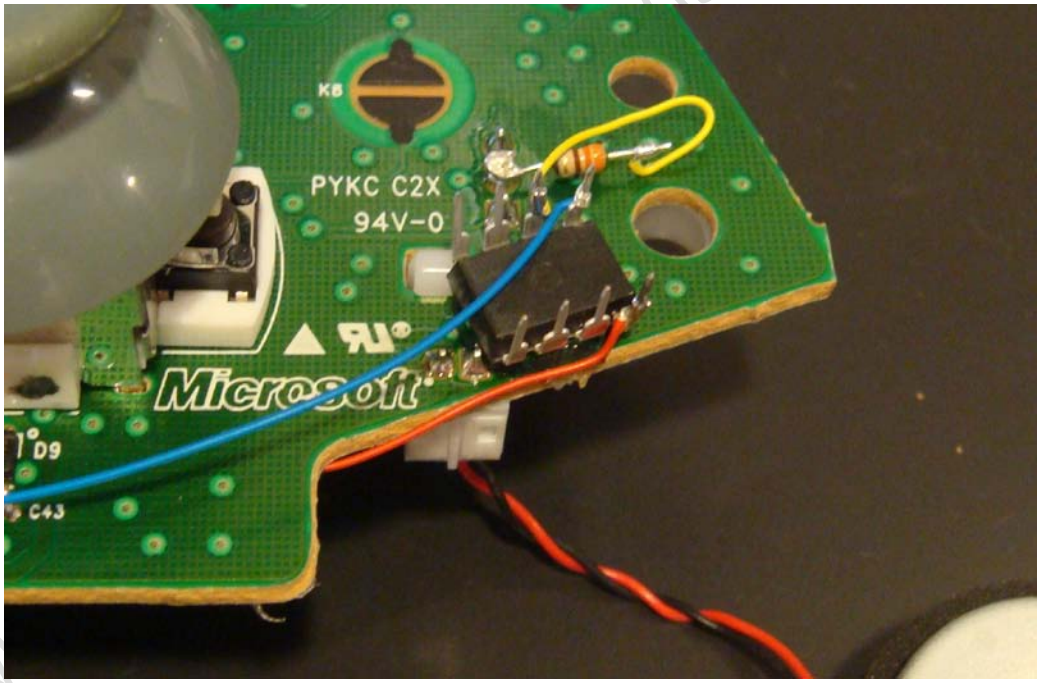


- Next, connect the wire to Pin-7 on the chip and solder in place.



Step 10: Connect GND connection to the chip

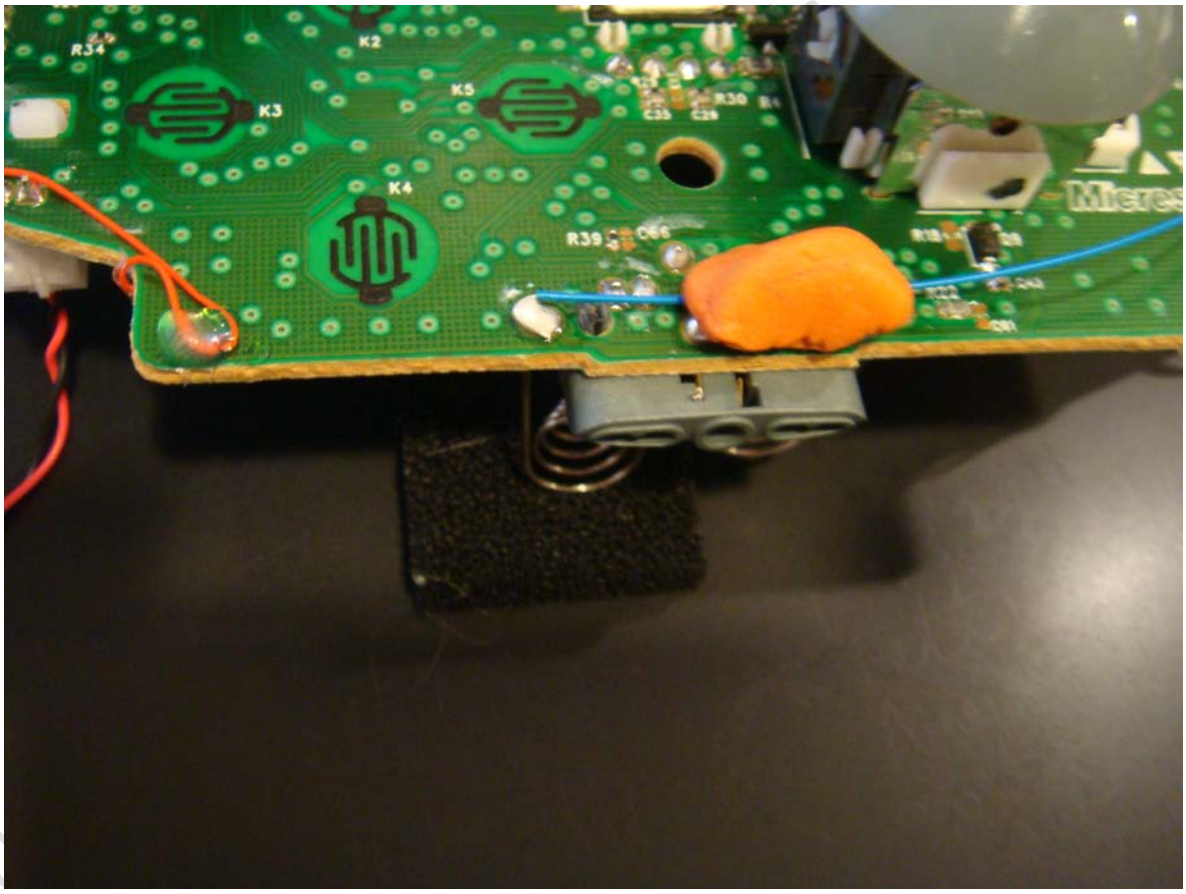
- First cut one piece of wire 3.5” long.
- Strip 0.5” of insulation off one side of the wire and strip 0.25” of insulation off the other side.
- Next take the 0.5” stripped side and wire wrap it to pin-8 and DO HOT solder it yet (*another connection needs to be added in the next step*).



Step 11: Connect GND connection to the chip (cont.)

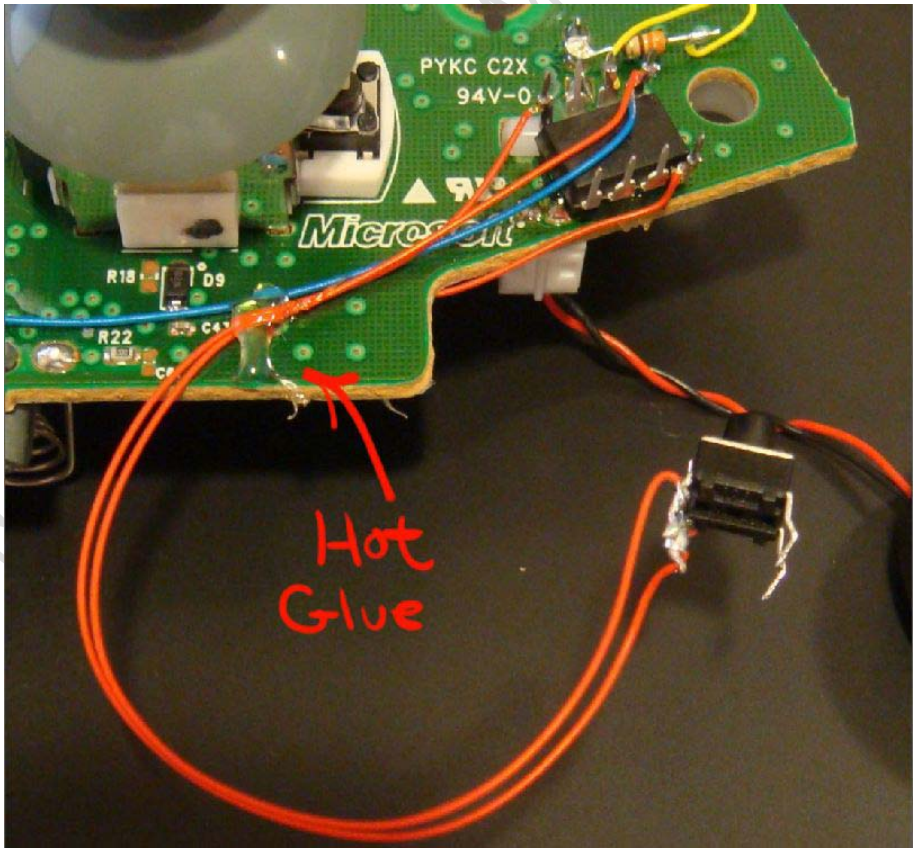
- Next take the foam pad that the chip was shipped on in your kit bag and place it under the ground spring battery clip as shown below (IMPORTANT), this will prevent the spring clip from falling out once the solder is liquefied during the soldering process.

- Next, take the 0.25” stripped side and wire tack in place and solder to the point shown below on the controller board. Remove the wire tack when done soldering.



Step 12: Connect the Right Mod Button

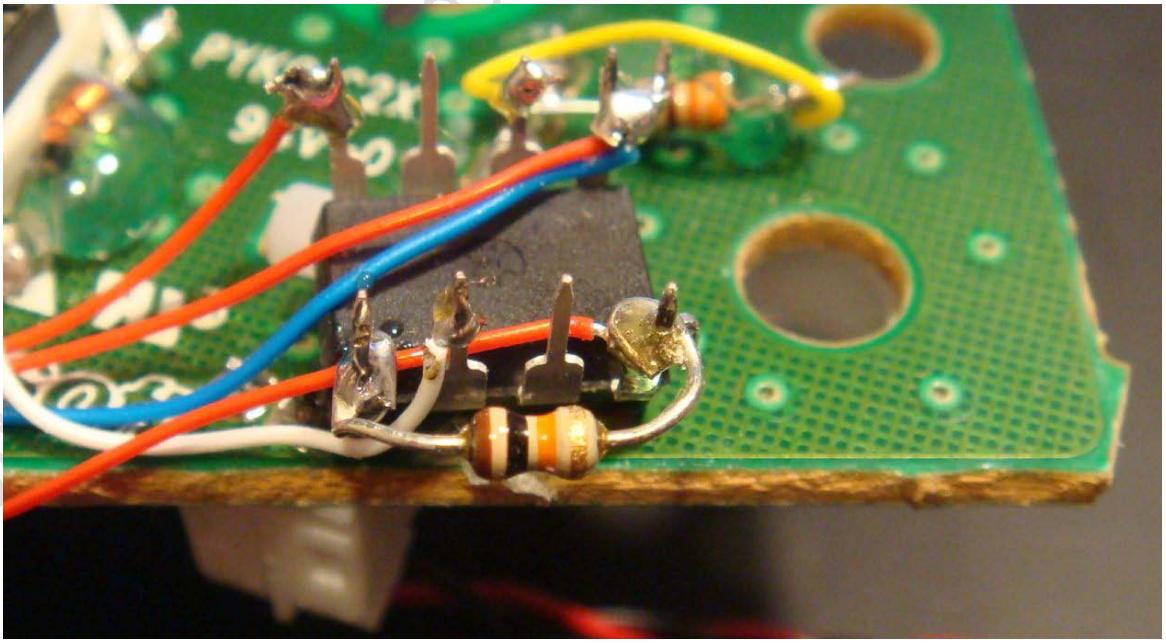
- Next pick up the other Right Mod button that you made in step 3.
- Wire Wrap one of the two switch wires to Pin-8 and wire wrap the other lead to Pin-5. *(The switch wires are universal and either wire can be connected to either Pin-5 or Pin-8, as long as the other wire goes to the other pin it does not matter which switch wire goes where.)* Solder both Pin-5 and the two wires now connected to Pin-8.
- Move the Right Mod button to left and route the wire as diagrammed and apply a dab of hot glue to hold in place.



Step 13: Now we'll prepare the (1) 10k Ohm resistor

- First cut the two leads of the 10K Ohm resistor to .25".
- Next curl both ends.
- Then bend the leads a little under 90 degrees as illustrated in the picture below.

- Now, connect the 10k Ohm resistor between pin-1 and pin-4 of the chip. Make sure that the resistor does not touch any of the other pins around them … only the ones they are attached to.
- Solder Pin-1 and Pin-4 connections for this resistor.



Step Opt-1: Optional Ring of Light Indicator

- Skip to Step 14 if you do not want the LED Feature
- The Opt-# Steps are optional and requires some skill to solder a connection to the controller's ring of lights LEDs. These are very small parts and require some soldering skill to get right … and we will not be held responsible for any damage to the controller LED. You will work with the 4th quadrant LED which is not used that often … so you may want to read further to see if you want to try.
- The LED will turn ON/OFF to indicate if the rapid fire mod is ON or OFF and it will blink to indicate which mode the rapid fire mode is currently in (*there are four speeds programmed into the chip that are chosen by pressing and holding the Right Mod Button for 3 seconds*).

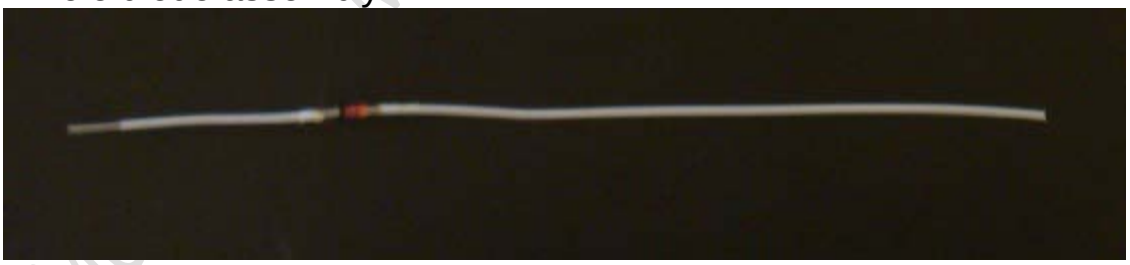
Mod OFF

Mod ON

Step Opt-2: Diode Assembly

- First cut one piece of wire 1” long.
- Strip 0.25” of insulation off each side of the wire.
- Next, cut one piece of wire 2.5” long.
- Strip 0.25” of insulation off each side of the wire.
- Next take the diode and cut both sides down to a lead length of just over 0.25”.
- Wrap one side of the 1” wire to the **stripped side** of the diode (*important to make sure it’s the stripped side*) and solder this connection.
- Wrap one side of the 2.5” wire to the **NON-stripped** side of the diode (*important to make sure it’s NOT the stripped side*) and solder this connection.
- Your diode should look like this …

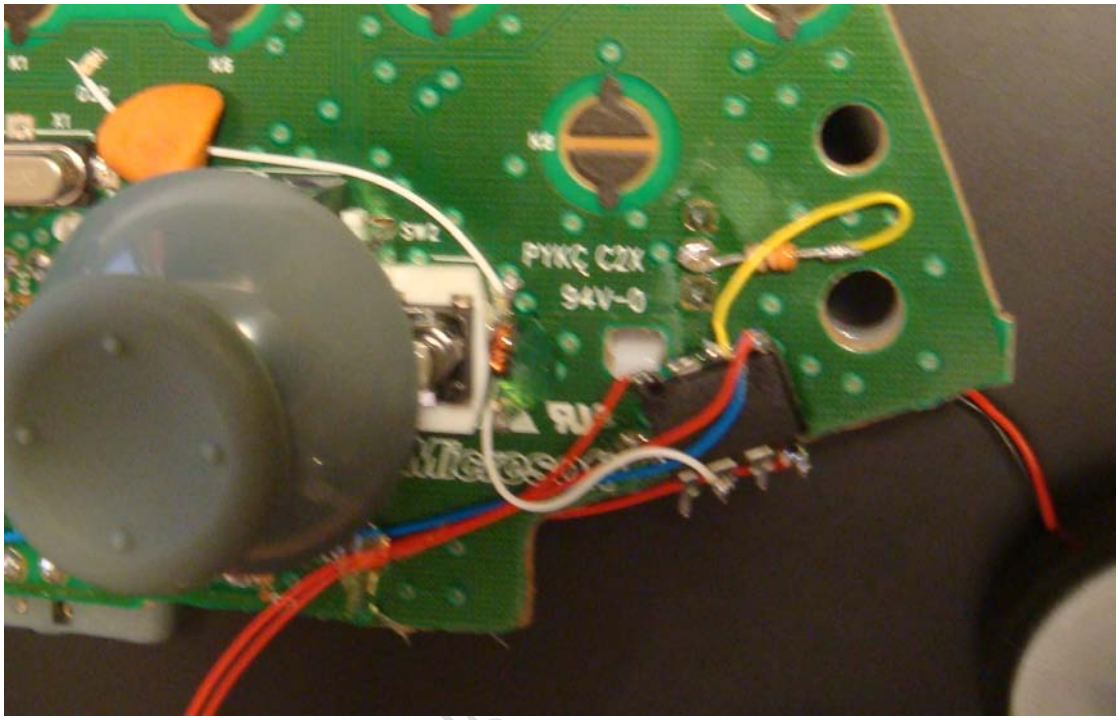
Whole diode assembly



1” Long Wire Connection

Step Opt-3: Diode Connections

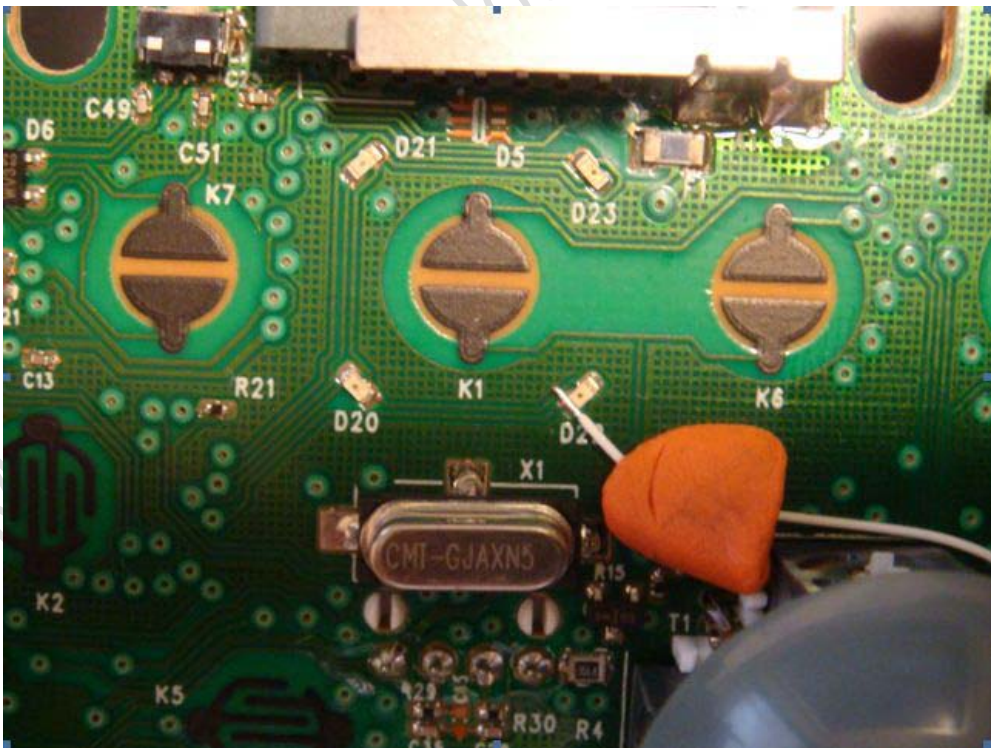
- Connect the 1” wire side of the diode to Pin-3 of the chip.



- Apply hot glue to the diode to hole it in place as shown above.

Step Opt-4: Diode Connections

- Read this page in full prior to soldering
- Next, snip the expose wire on the other side of the diode assemble to a short lead length to solder to the Ring of Lights LED on the controller (*the metal wire without the insulation … you stripped 0.5" but that's too long*).
- Apply wire tack to hold the wire in place as shown below and solder the wire to the LED. DO NOT sit on this connection for long with the soldering iron. Apply the iron, then apply the solder and get this done in less than 3 seconds in order to avoid damaging the LED.
- Remove the wire tack and apply hot glue in the area where the wire tack is shown below to secure the wire.

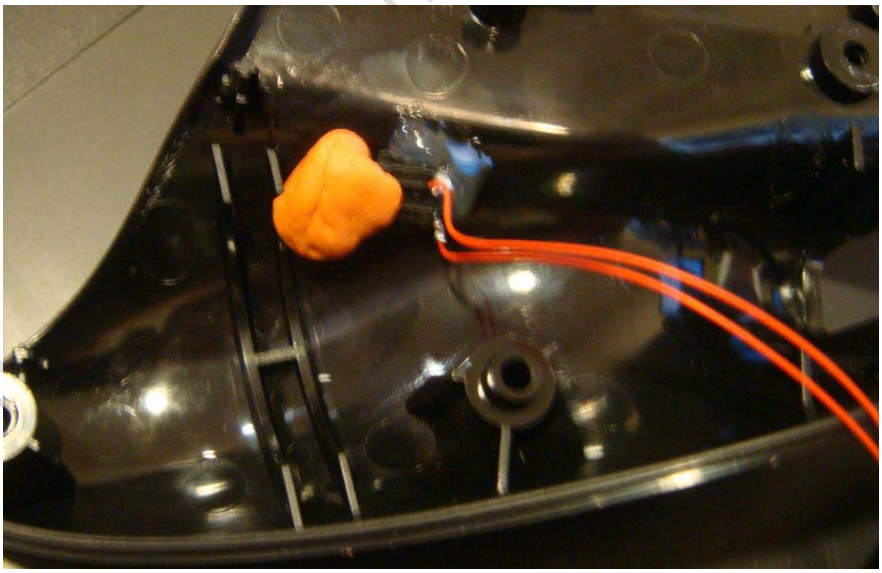


Step 14: Drill Hole for Mod Button

- Read this entire page BEFORE drilling !!
- Have a professional drill a hole in controller base unit in the **EXACT** location shown with a 3/16” drill. If you are out of alignment, you risk having the switch shorting against the rumble motor which will cause the ring of light to circle over and over and your controller will not work.
- Drill the hole on the RIGHT SIDE of the controller just to the right of the oval on the bottom controller plastic as shown. You should hold the plastic base in your hand as if you’re playing a game to make sure and identify which side ends up on the right hand side. You’ll click the button with your right hand!
- Make sure the professional follows the manufactures safety guide if using a power tool. See picture below (zoom in to view). Notice the oval right next to the drill hole this is your key alignment mark, so mark your dot with a pen relative to this.

Step 15: Glue Mod Button in controller

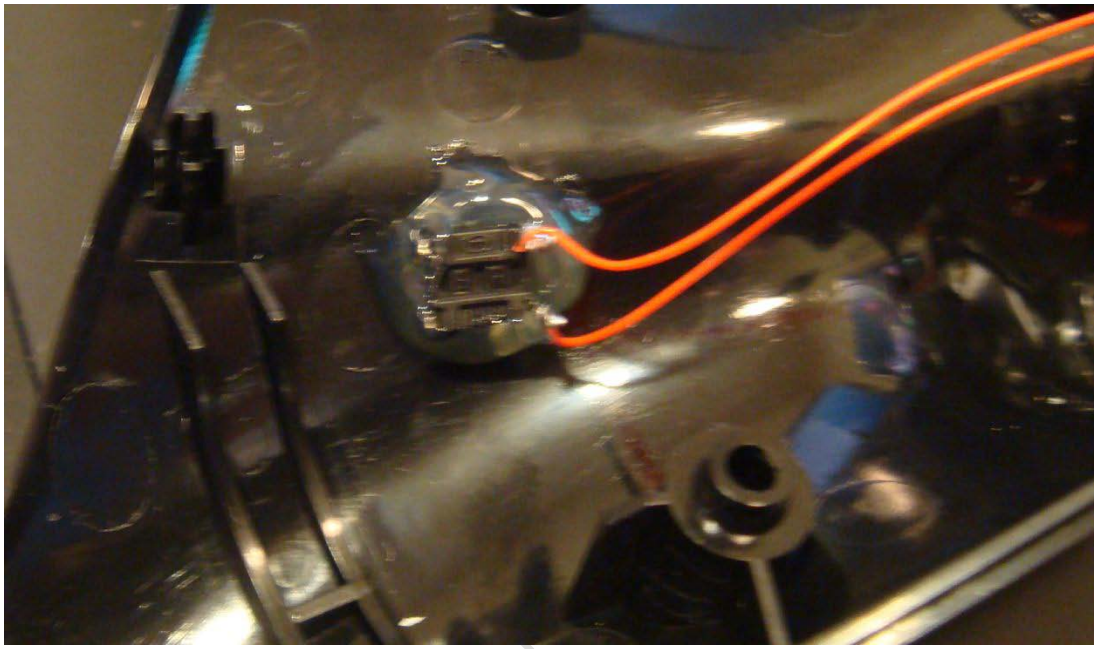
- Read whole page prior to gluing.
- Apply the wire tack to one side on the mod button switch to hold it in place as shown.
- Apply Hot Glue to two other sides to permanently hold the switch in place.
- Make sure that NO hot glue goes under a side of the switch, making contact with the switch plunger and preventing it from clicking ON/OFF.
- Make sure that the switch is centered in the hole after applying the glue so that the switch plunger doesn't rub against the plastic controller hole wall, preventing it from clicking ON/OFF. Turn the controller over to inspect that it is centered as the hot glue is drying.



- Allow the Hot Glue to harden before moving to the next steps

Step 16: Glue Mod Button in controller (cont.)

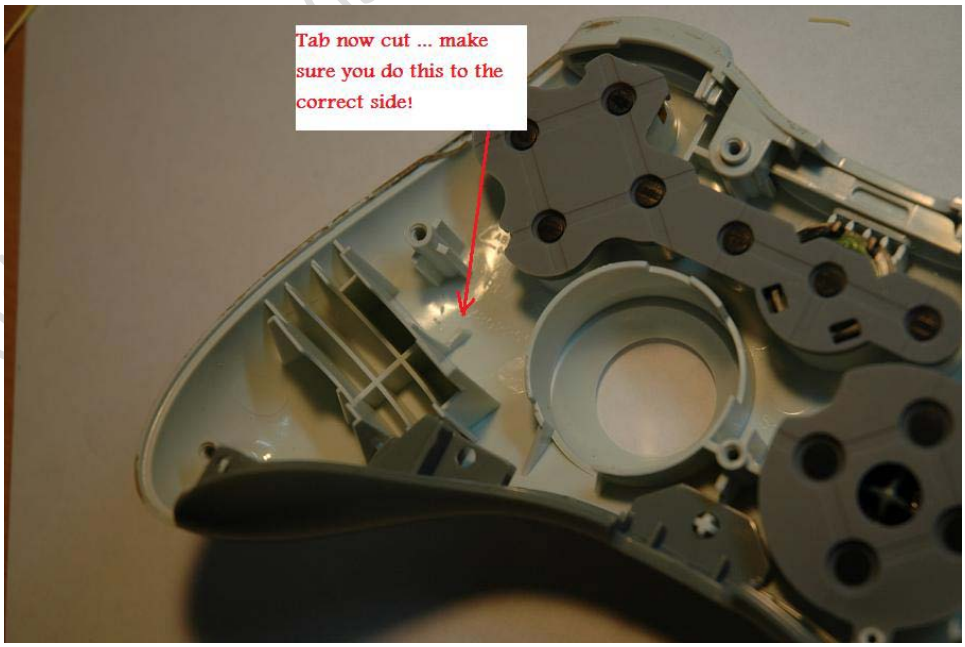
- Remove the wire tack and apply Hot Glue to the remaining sides of the mod switch as shown below.



- Allow the Hot Glue to harden before moving to the next steps

Step 17: Remove some plastic from top cover

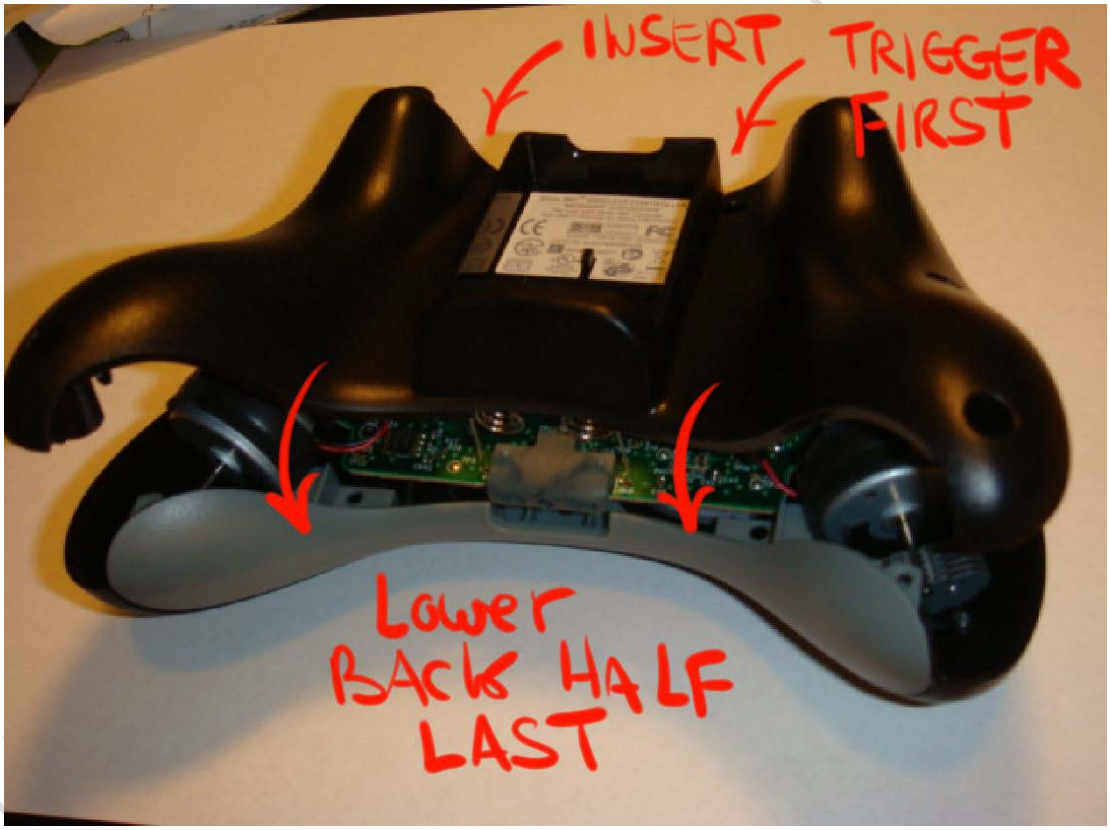
- Next have a professional cut the tab off the top cover to make room for the chip assembly once the cover is closed. See the picture below.



- Almost there

Step 18: Close up unit.

- Place the circuit board back in the top controller plastic shell.
- Make sure that no parts or wires are running over any of the ¼" mounting holes (so the wires don't get pinched by screws.
- Now take the Bottom controller plastic shell and place the trigger side together first … then close the back side of the shell down. Basically the opposite of how you opened it.



- Screw controller back together.
- Play

Operation:

1. SEE OUR WEB SITE TROUBLESHOOTING GUIDE IF YOU HAVE PROBLEMS! www.Hott-Mods.com
2. When you power the controller up … it will always power in mode-1
3. A Single Quick Click (like a mouse click) to the mod button below the controller to toggle rapid fire on and off.
4. When rapid fire is on: pull the normal trigger which will now rapid fire.
5. When rapid fire is off: pull the normal trigger which will now fire normally, just as when you first bought it.
6. Press and hold the mod button for about 3 seconds. The light will blink a number of times that represents the mode it rolls into. One blink for mode-1, two blinks for mode-2, ect. Once you get to mode-8, it will roll back to mode-1 … so the sequence is 1, 2, 3, 4, 5, 6, 7, 8, 1, 2, 3, 4, 5, 6, 7, 8, 1, 2 …
7. To quickly jump to Mode-1 or Mode-4 use *Hott-Mods Smart Button Technology.* A Quick Double Click (like a mouse click) to the mod button below the controller to jump to mode-1 from any other mode. The LED will blink once to let you know you're in mode-1. A Quick Triple Click (like a mouse click) to the mod button below the controller to jump to mode-4 from any other mode. The LED will blink four times to let you know you're in mode-4. This helps you get to you mode faster than having to go through the entire 8 modes to get to where you want to go. For example, to get to mode-5 … just triple click to get to mode-4 (the LED will blink 4 times), then press and hold once for 3 seconds to increment to mode-5 (the LED will blink 5 times).