

XBOX 360 RAGNAROK MODCHIP INSTALLATION INSTRUCTIONS



List of equipment needed to do the job:

- Ragnarok Modchip, including mod switch and optional USB programming jack
- XBOX 360 controller with a "Matrix 2" circuit board
- Soldering iron and solder
- 30 AWG (American wire gauge) wire or similar
- Wire strippers (capable of stripping and cutting above wire)
- Power drill – be sure to include eye protection
- 9/64" or 5/32" drill bit for mod switch
- 1/4" drill bit for optional USB programming jack
- Hot glue gun, or other type of glue suitable for plastic
- Torx T8 "star" or "tamper-resistant" screwdriver
- Electrical tape
- Xacto knife or sandpaper

Start by removing all seven screws from the back of the controller using the special screwdriver.



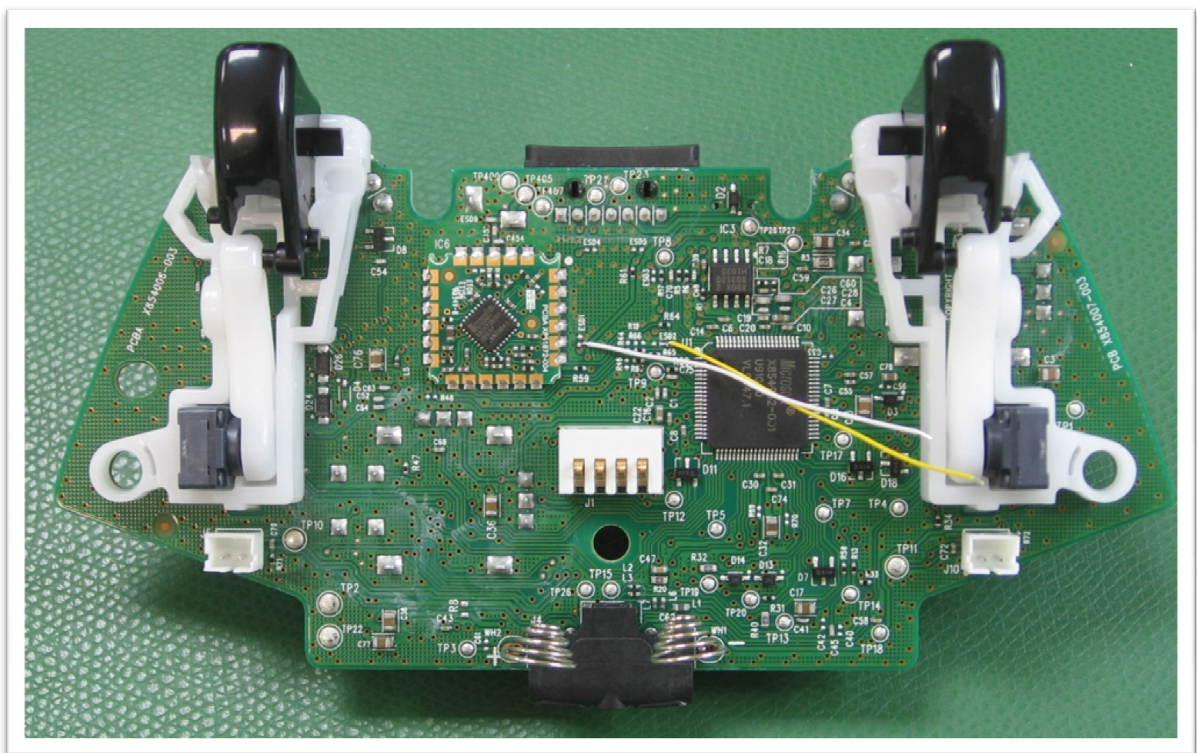
Remove the back cover from the controller, and then remove the circuit board. Keeping the top of the controller down towards the table will help keep the buttons from falling out.



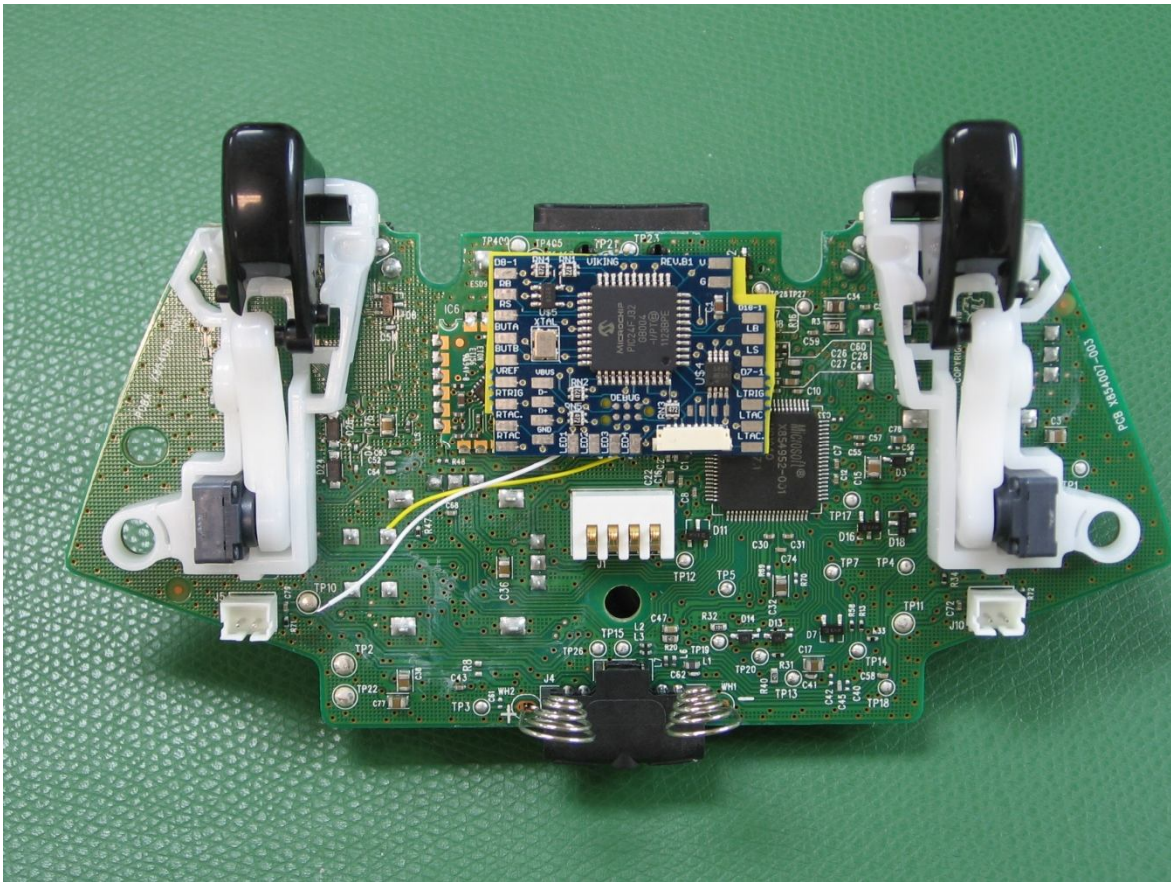
Prepare the modchip by putting tape on the back of the modchip. This will ensure that the modchip does not “short circuit” with the controller’s circuit board. You can also use a small second piece of tape made into a “loop” to help the modchip stick to the circuit board.



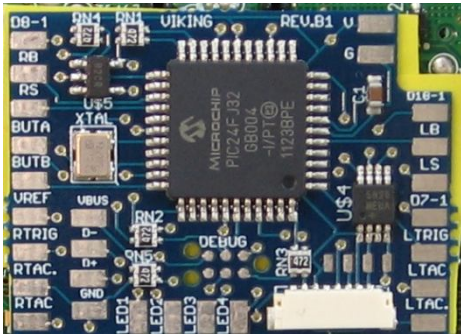
If you choose to use the alternate LED connection points, install the LED wires now (scroll down farther in these instructions to see the detailed connection diagrams)



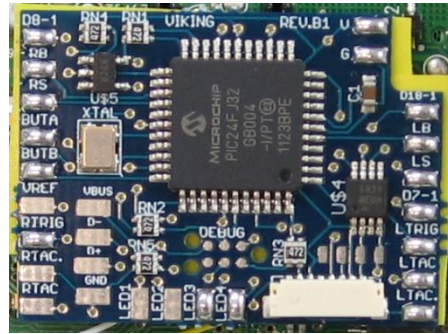
Now stick the modchip to the circuit board in the location shown:



Prepare the modchip by “tinning” the solderpads we will use. You can “tin” a pad by applying a little solder to the pad.

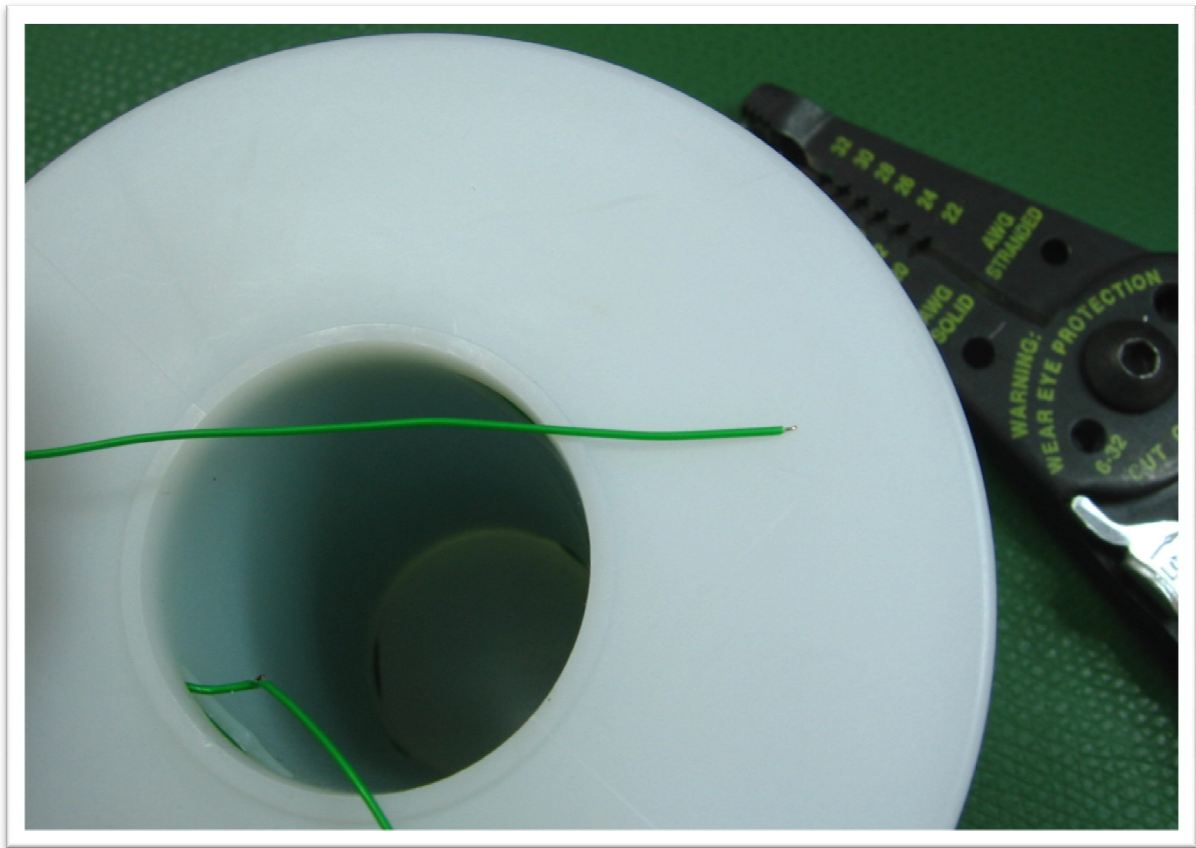


Modchip before tinning



Modchip after tinning

We are now ready to begin installing wires. Use the wire strippers to strip and cut each wire. Only a very small amount of wire needs to be stripped to get the job done, as shown in the photo below:



Following the solder connection diagrams on the next two pages, install a wire from the modchip to each connection point.

Note: you can choose either of the LED3 connection points shown. You do not need to attach to both LED3 connection points.

Note: you can choose either of the LED4 connection points shown. You do not need to attach to both LED4 connection points.

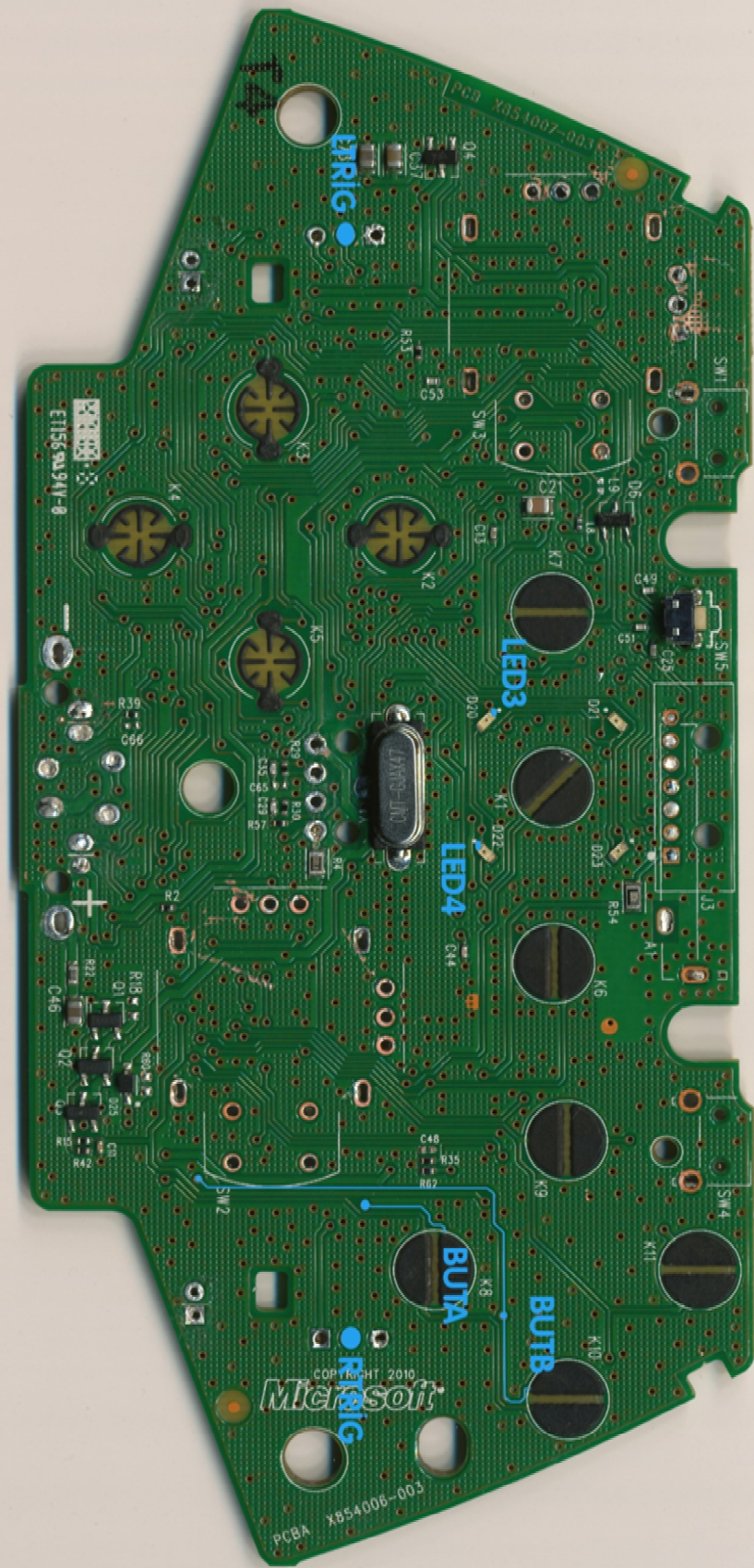
Exposing copper to make a good connection

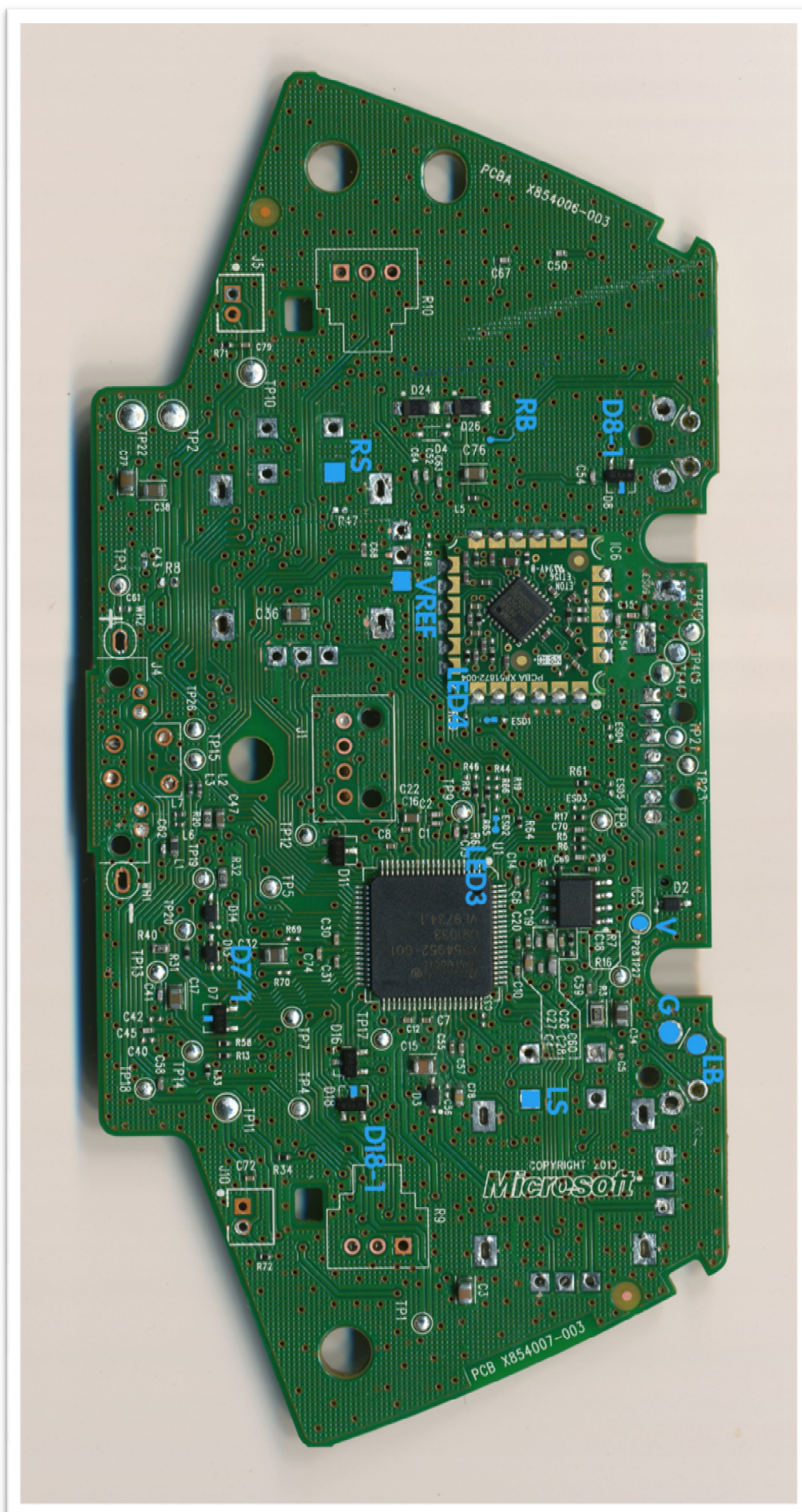
Three of the solder points (BUTA, BUTB and LB) require that the copper of the circuit board be exposed first, in order to make a good solder connection. Use an xacto knife or sandpaper to expose the copper hole or copper trace indicated on the connection diagram. The small holes are sometimes referred to as “via” holes.

For the connections on Button A and Button B, you could also opt to expose copper underneath the black button pad itself, rather than attempting to connect your wires to the small via holes or copper traces. Sandpaper works nicely to expose the copper underneath the black button pads.

The point here is that you can connect the BUTA, BUTB and LB anywhere along the blue lines shown on the following diagram. Just choose the place that you find easiest to solder to.

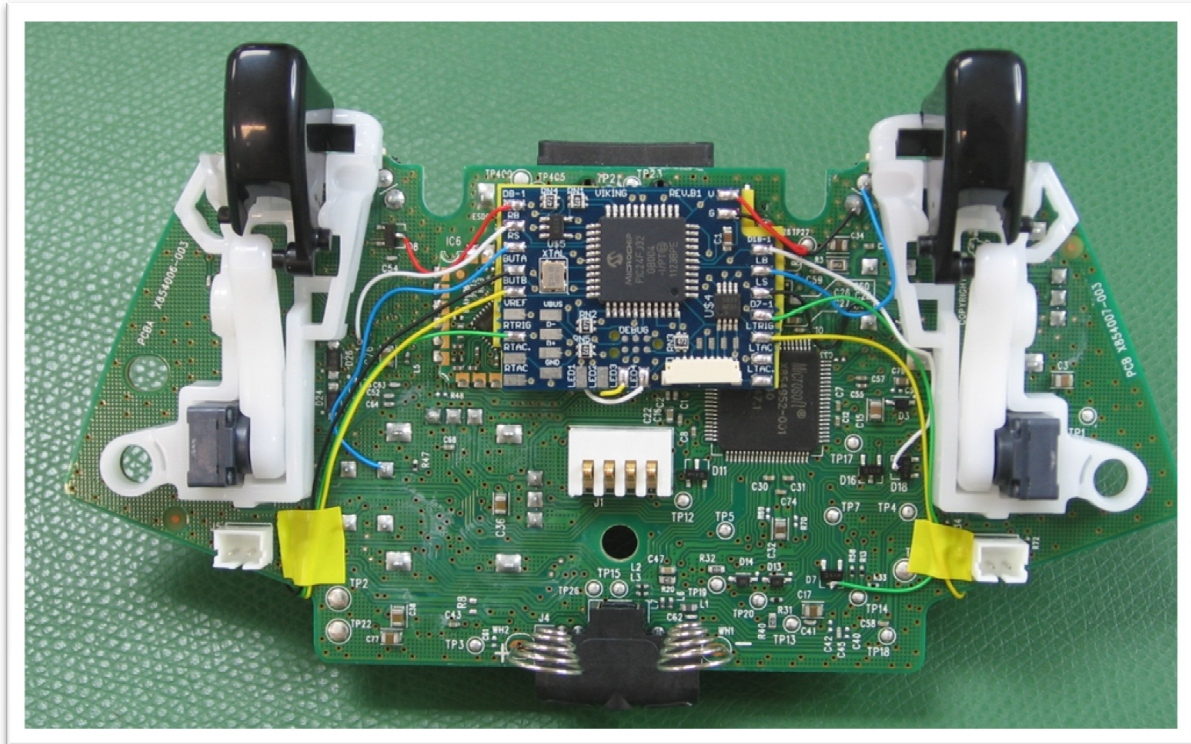
Only the BUTA, BUTB and LB points require this special preparation; the remaining solder points are already exposed and ready to be connected to.



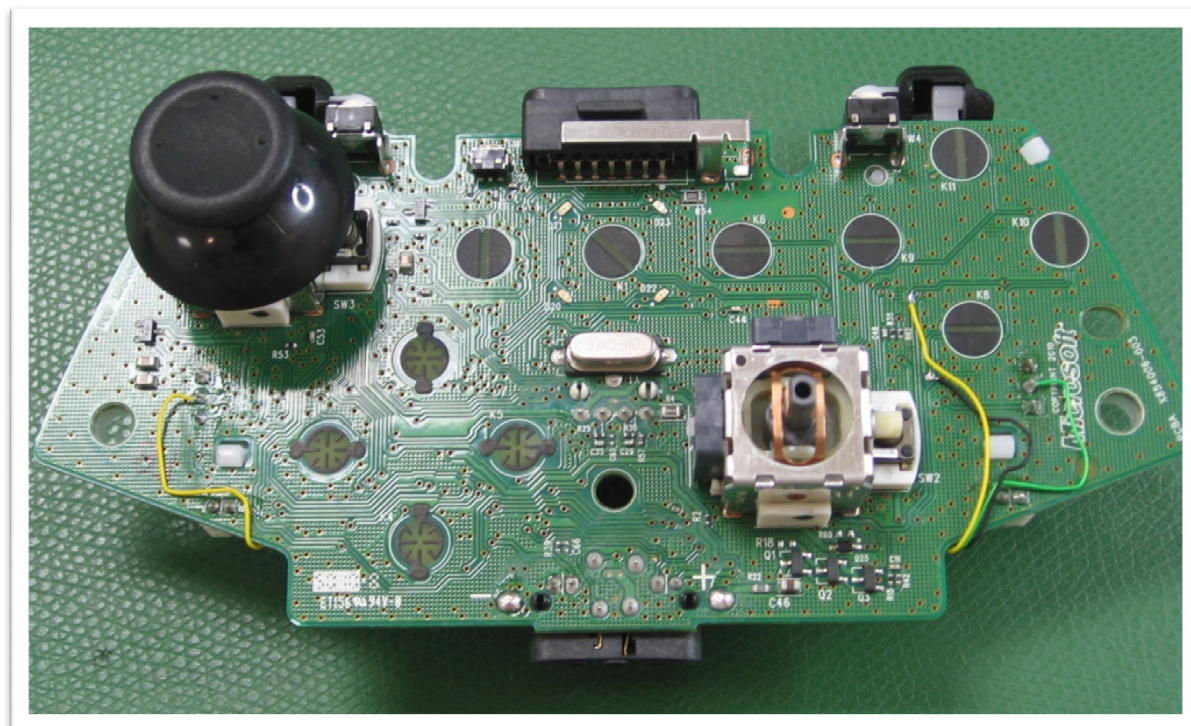


Below is an example of the installation of the wires, before the optional USB jack and mod switch have been added.

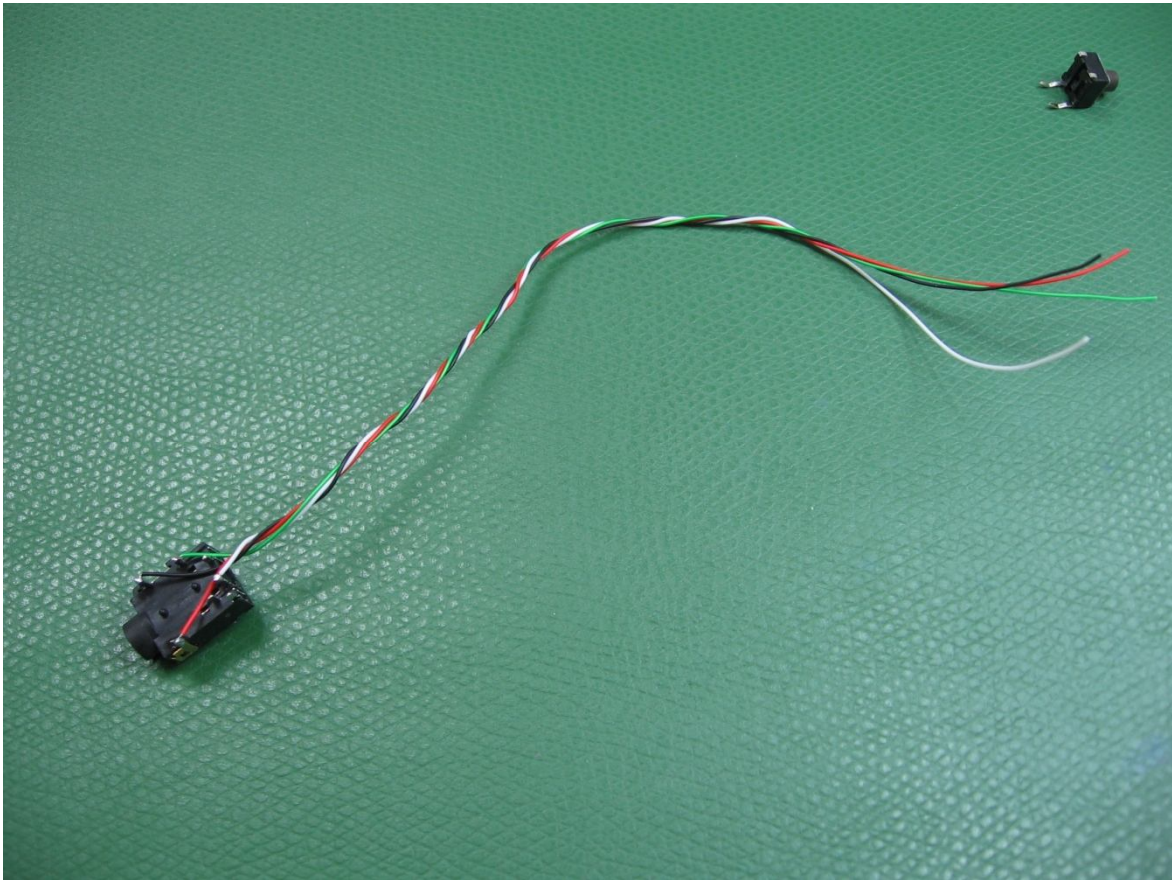
Note that the wires have been carefully routed to avoid obstructions, such as screw holes, screw pegs, and support brackets on the plastic shell. All wires must be free from being pinched by obstructions when the shell is re-assembled later.



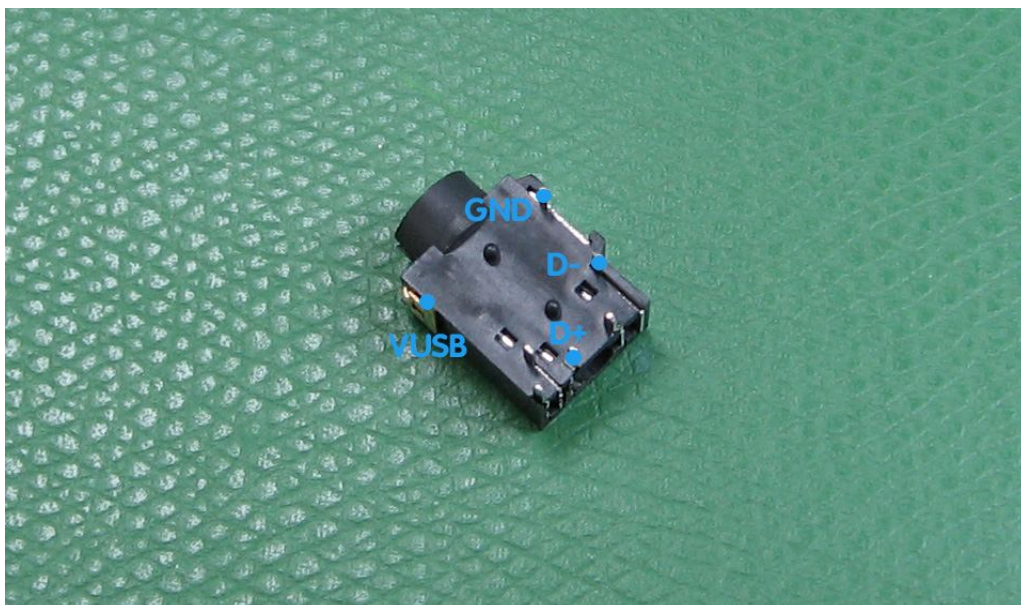
(The VREF wire was forgotten in the photo above, but it must also be installed)



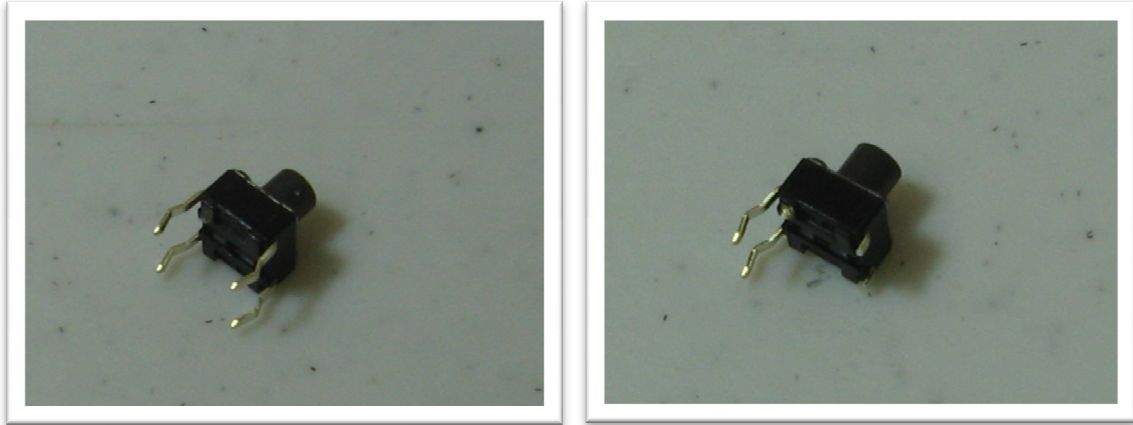
If you will be installing the optional 3.5mm USB programming jack, prepare the jack with a long 4-wire twisted harness as shown. You can create this harness by simply twisting together 4 of the small 30-gauge wires:



The four connections on the optional 3.5mm programming jack are as follows:



Prepare the mod switch for installation. Cut any two legs that are on the SAME SIDE of the switch. Only the two legs are needed. See the example below:



Once the mod switch and optional USB programming jack are ready, it's time to drill a hole in the back plastic shell. Use a standard drill, a 9/64" (or 5/32") drill bit for the mod switch, and a 1/4" drill bit for the USB programming jack.

WARNING: IT'S ALWAYS A GOOD IDEA TO WEAR EYE PROTECTION WHEN USING POWER TOOLS

Two approximate locations for the mod switch and optional 3.5mm USB programming jack are shown in silver pen. "Test fit" each location prior to fully gluing the button and jack into place:



Using hot glue, attach the mod switch to the shell. Hot glue is recommended since it can be removed easily if needed. Other types of epoxy may not be so easy to remove. Push the two silver metal legs downwards to they are nearly flat against the shell as shown. This will ensure the legs of the switch don't short-circuit with any other components.

Test the switch to make sure it is operating to your satisfaction. If it is jamming or getting stuck, remove the hot glue and switch, drill the hole a little larger than 9/64", and then install the switch again.

You may use the same hot glue to attach the optional USB programming jack. It is recommended that you just use a small amount of hot glue to hold the USB programming jack in place, and then try assembling the controller to "Test fit" the USB programming jack. Adjust the position of the USB programming jack as needed to keep from interfering with the position of the rumble motors or the XBOX360 gamepad circuit board.



Once you have the mod switch and optional jack installed, route two long wires from the "LTAC" solder pads on the modchip to each leg of your mod switch. Run four long wires from the VUSB, D+, D- and GND pads to the optional USB programming jack that you assembled in an earlier step.

Re-assemble the shell, making sure that none of the wires from the mod install, rumble motors, optional programming jack or mod switch get "pinched" between the shell. If the wires are routed neatly and carefully, the shell should close just like a stock shell without any gaps in the shell when it is screwed back together.

Sync your XBOX 360 controller to a console, then try activating one of the mods. If a mod activates, your install was probably a success!



Final step: go enjoy your new programmable rapidfire controller!