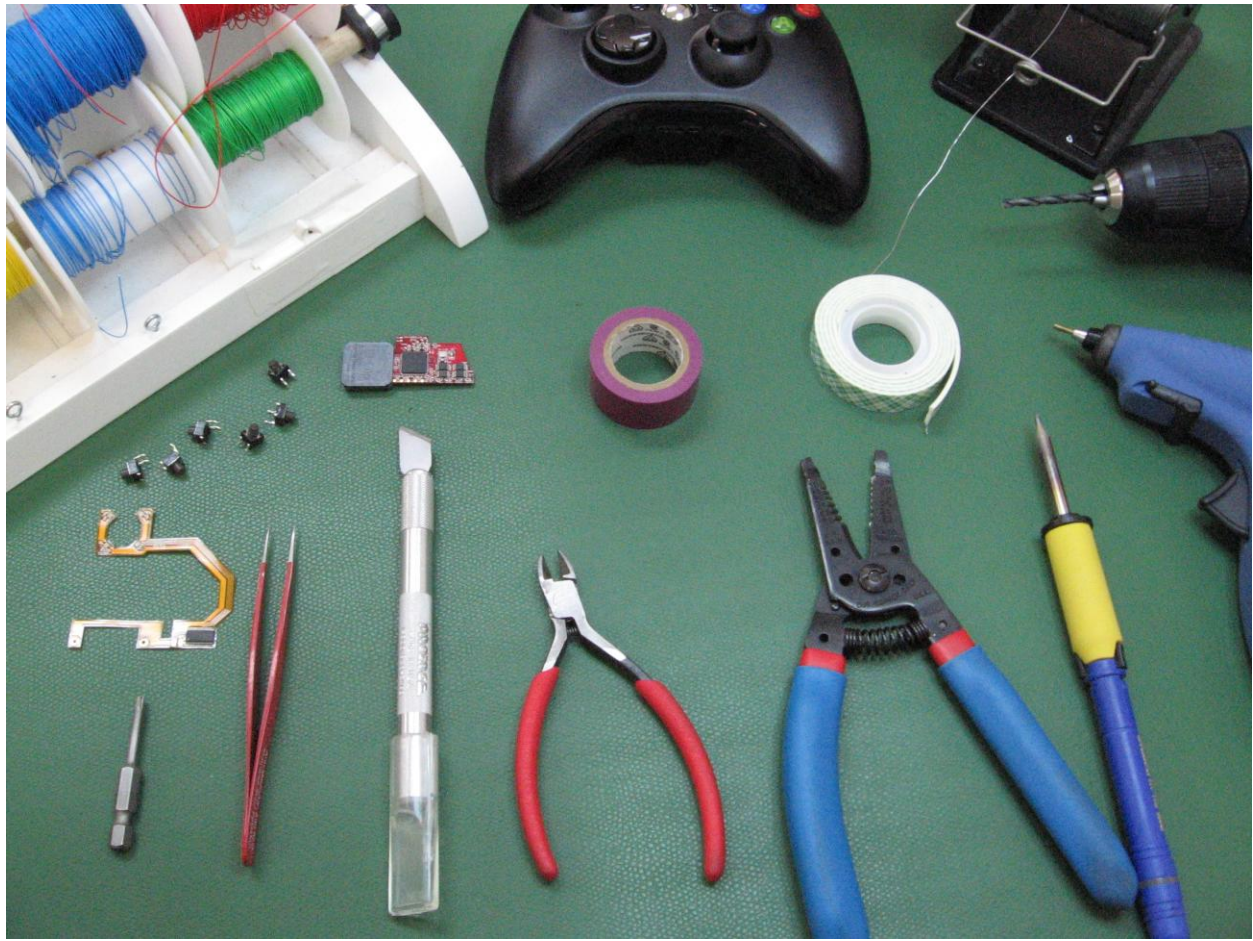


MACRO MODCHIP FOR XBOX360 CG2 – INSTALLATION INSTRUCTIONS

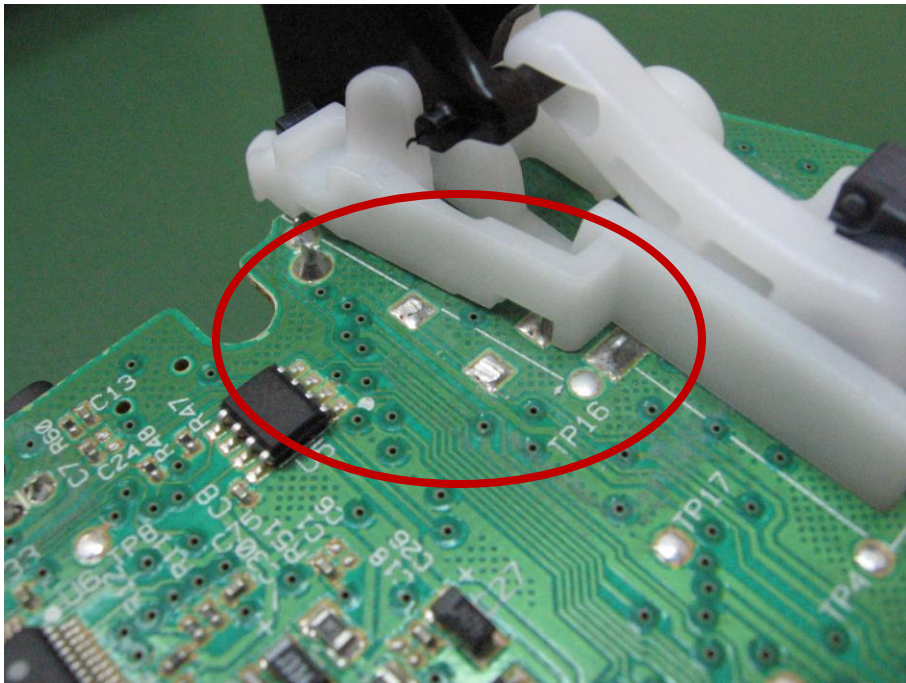
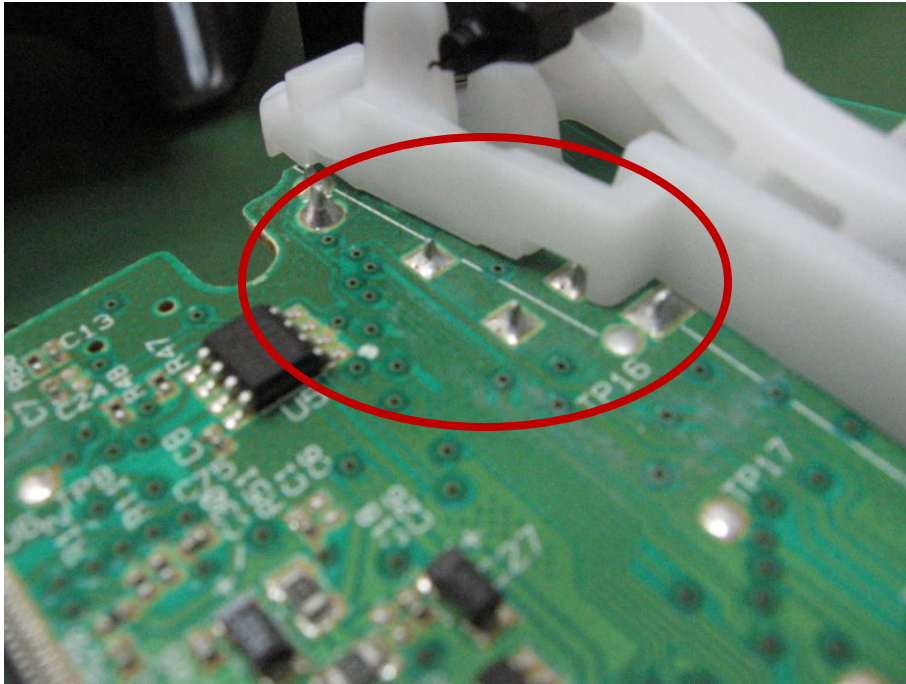


List of tools and materials needed:

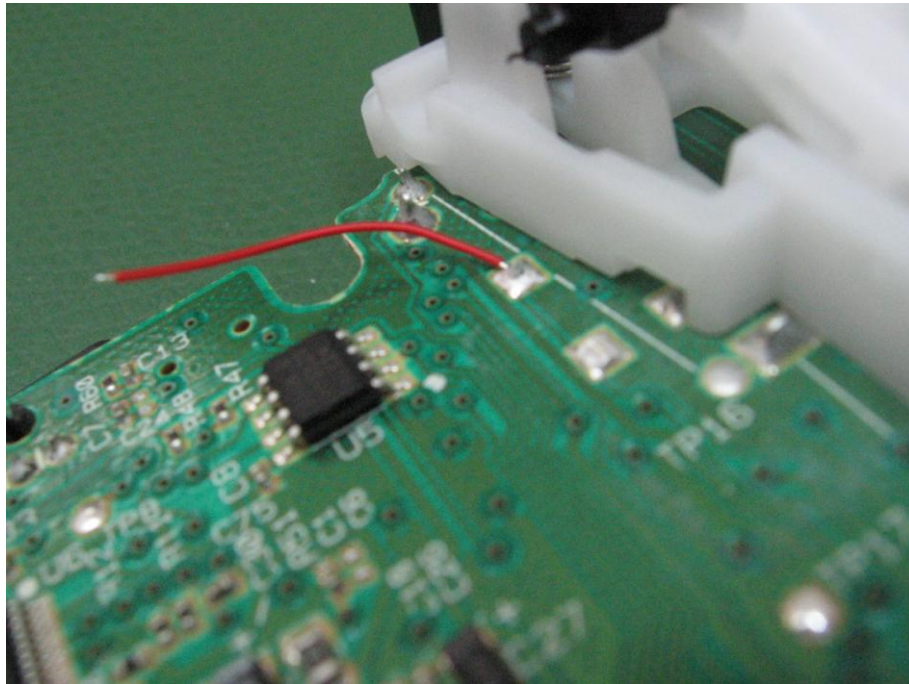
- Modchip, flexible LED add-on board, 6 tac switches
- Microsoft wireless CG2 controller
- Soldering iron and thin solder
- Drill with 9/64" or 5/32" drill bit for mod switches
- Tamper-resistant Torx T8 screwdriver
- Hot glue gun
- Electrical tape, double-sided foamy sticky tape
- Wire snippers, wire strippers
- Xacto knife
- Tweezers
- 30 AWG (American Wire Gauge) insulated wire

CIRCUIT BOARD PREPARATION

Some circuit board preparation should be done before installing the modchip. Open up the controller and remove the controller's circuit board. Locate the two through-hole solder joints shown in the photo below, and trim them down:

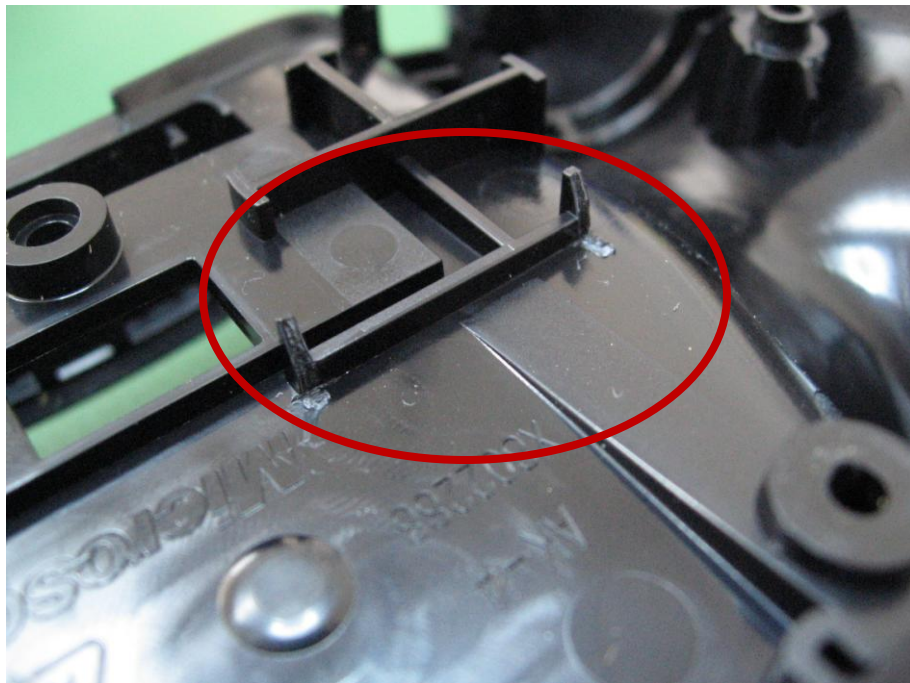
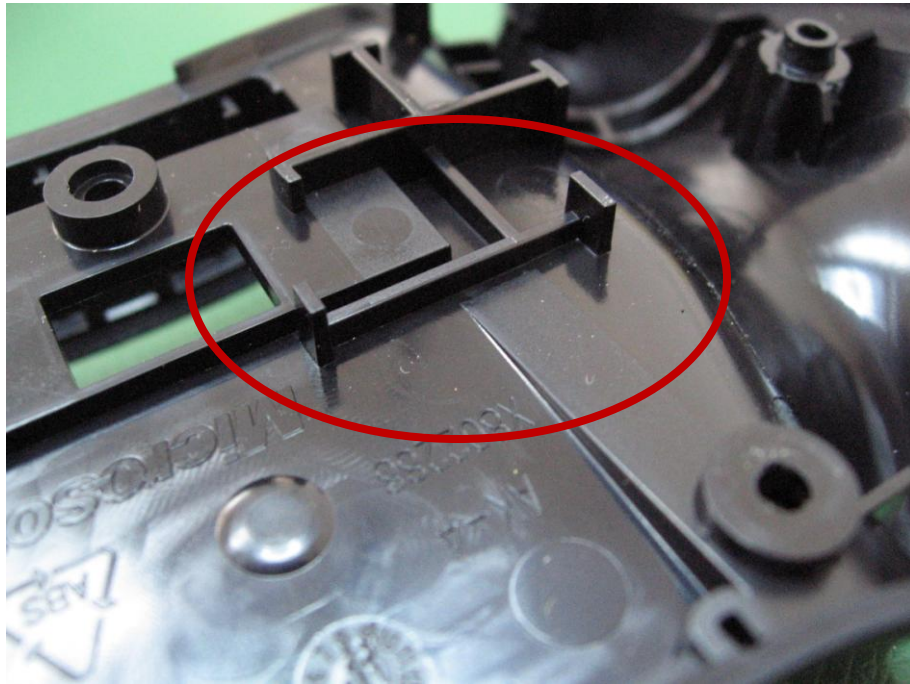


Install a short wire jumper as shown, leave the other end disconnected for now:

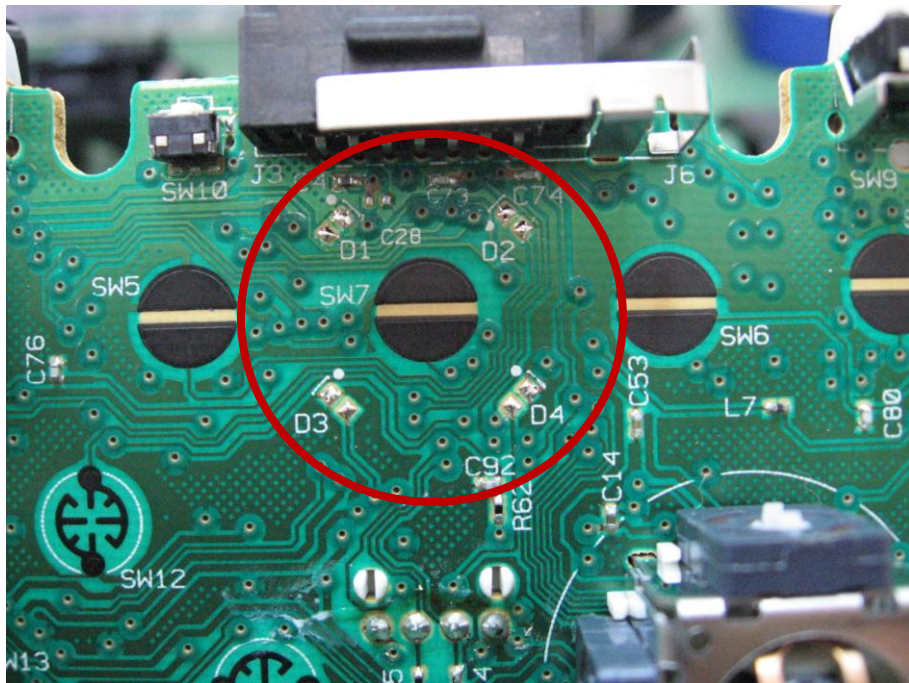


(scroll down to next page)

VERY IMPORTANT STEP: Completely trim the little tabs on the back plastic shell as shown:

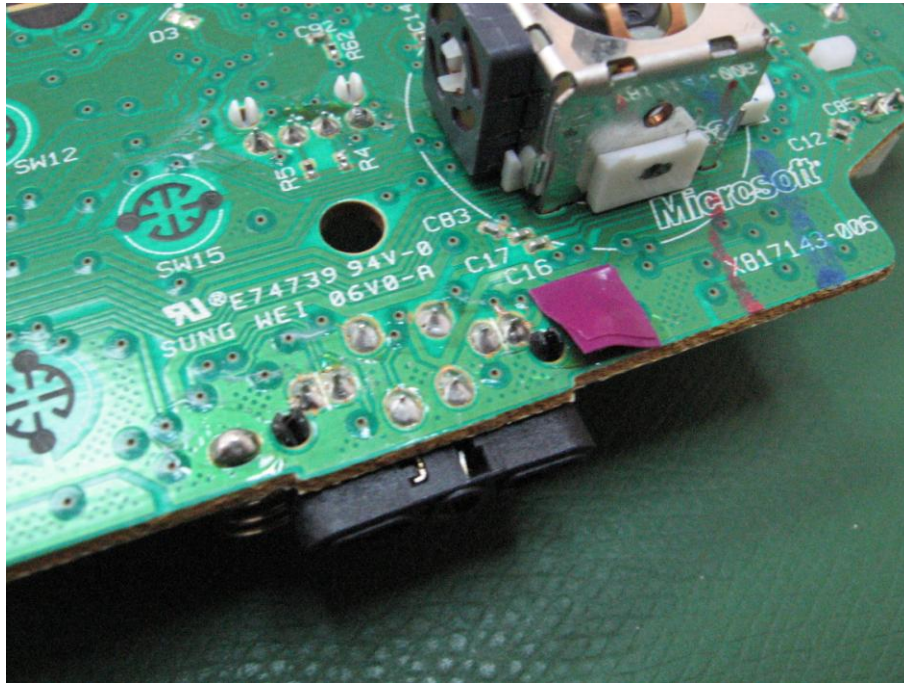


Remove all four “ring of light” LED’s from the circuit board:

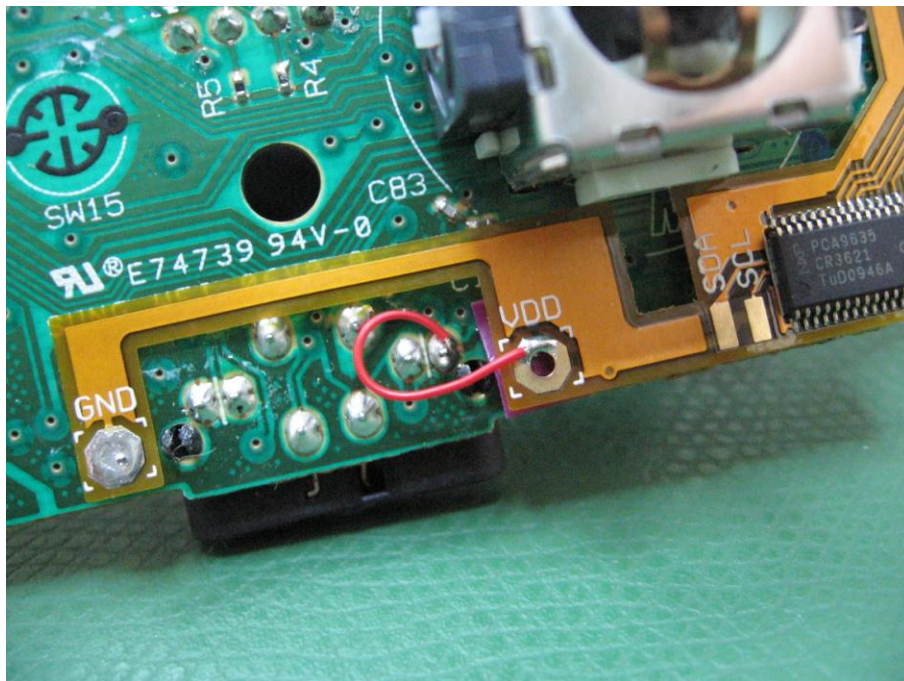


Note: The following two steps are only required for the old revision of flexible add-on board.

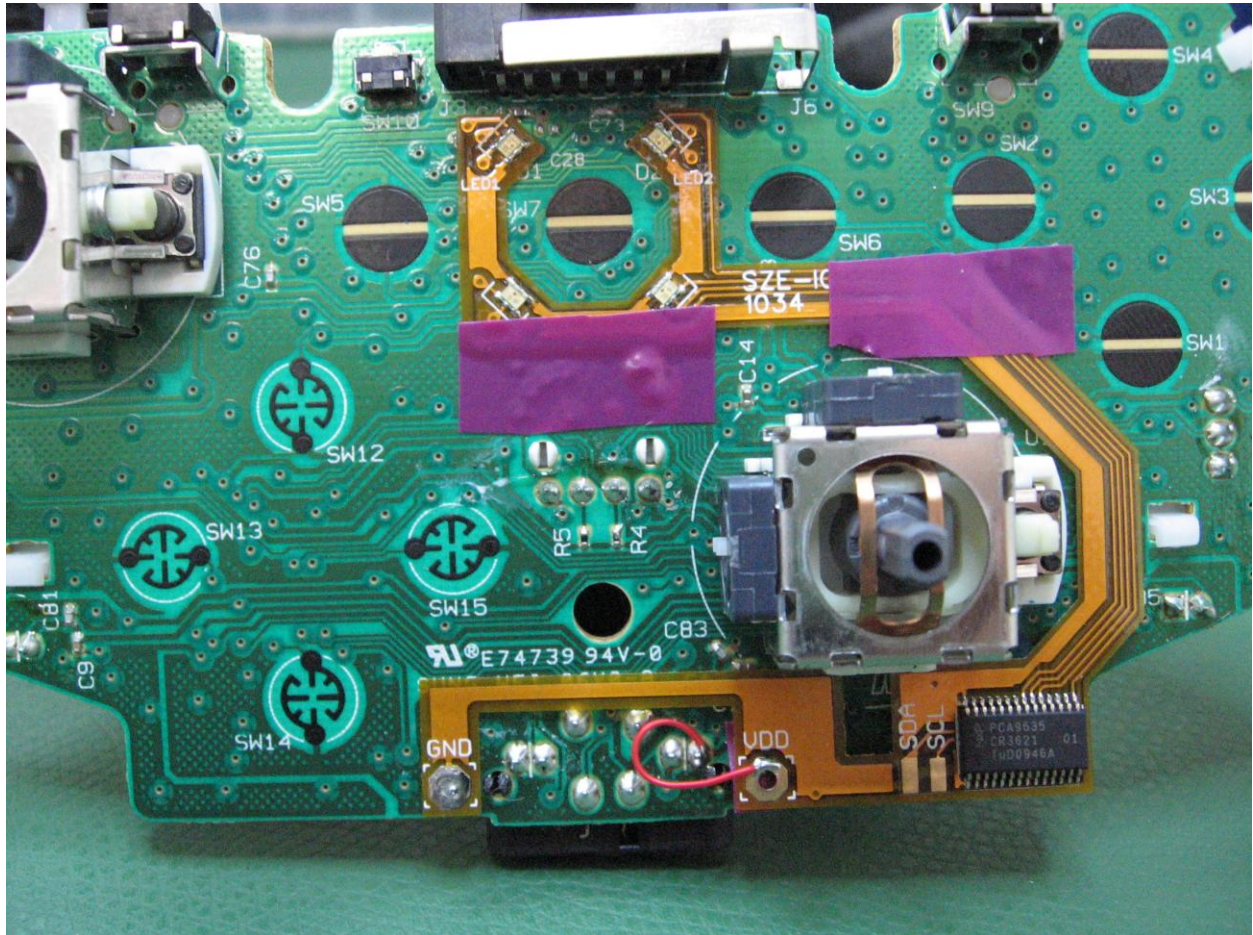
Install a small patch of electrical tape over the “battery +” solder point:



Install a small wire jumper from power on the CG2 circuit board to the flexible add-on board:

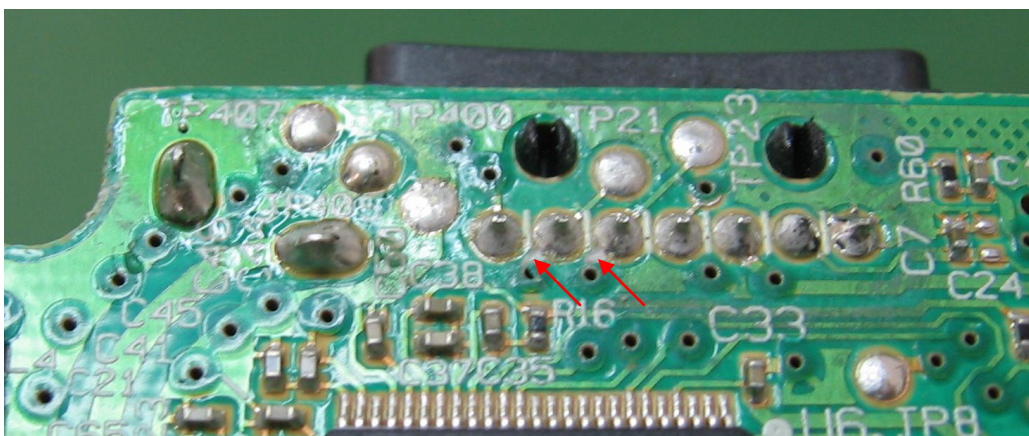
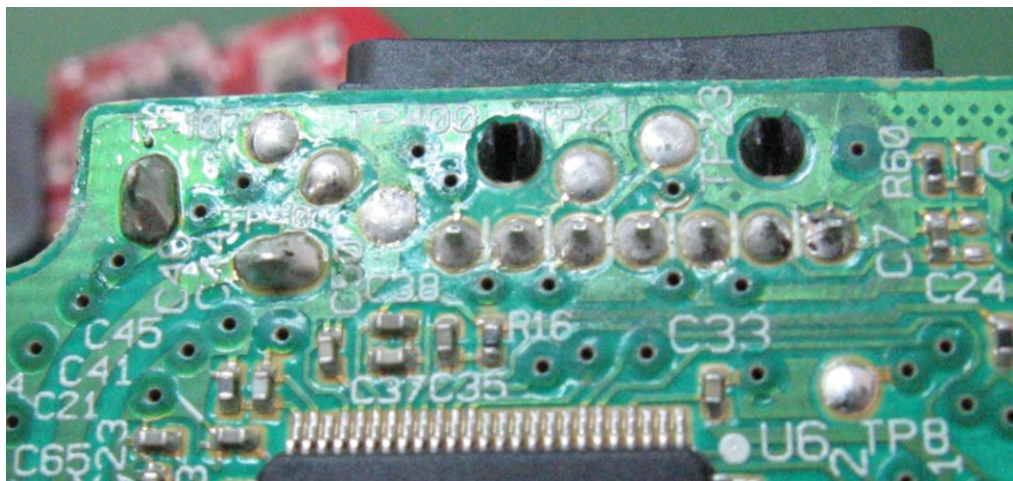
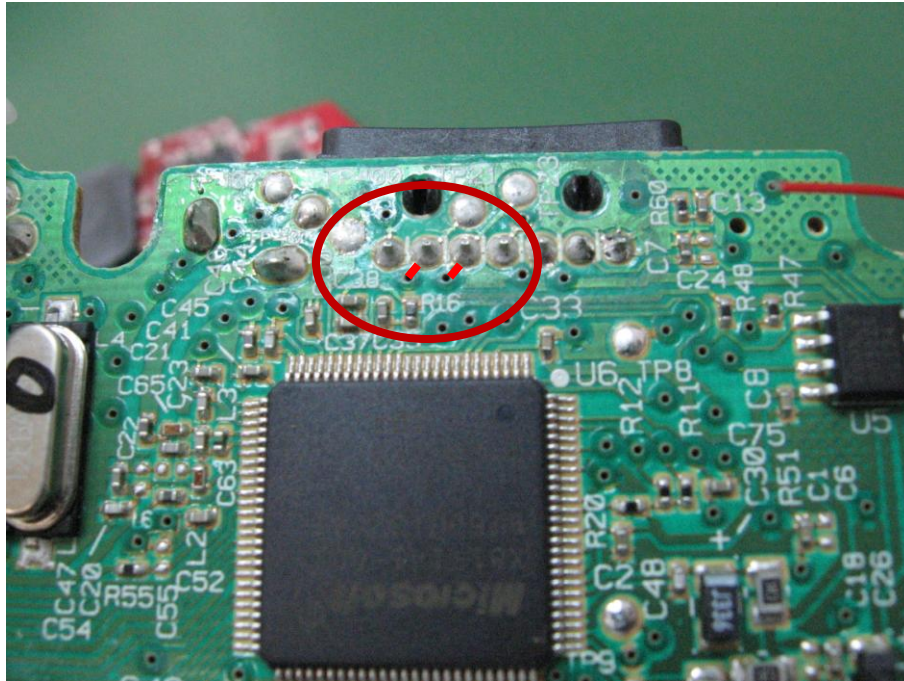


Solder the flexible add-on board at the GND and VDD solder points. Then use electrical tape to secure the add-on board in place. Notice how the add-on board's four LED's should lay over top of the location of the old LED's that were removed.



(scroll down to next page)

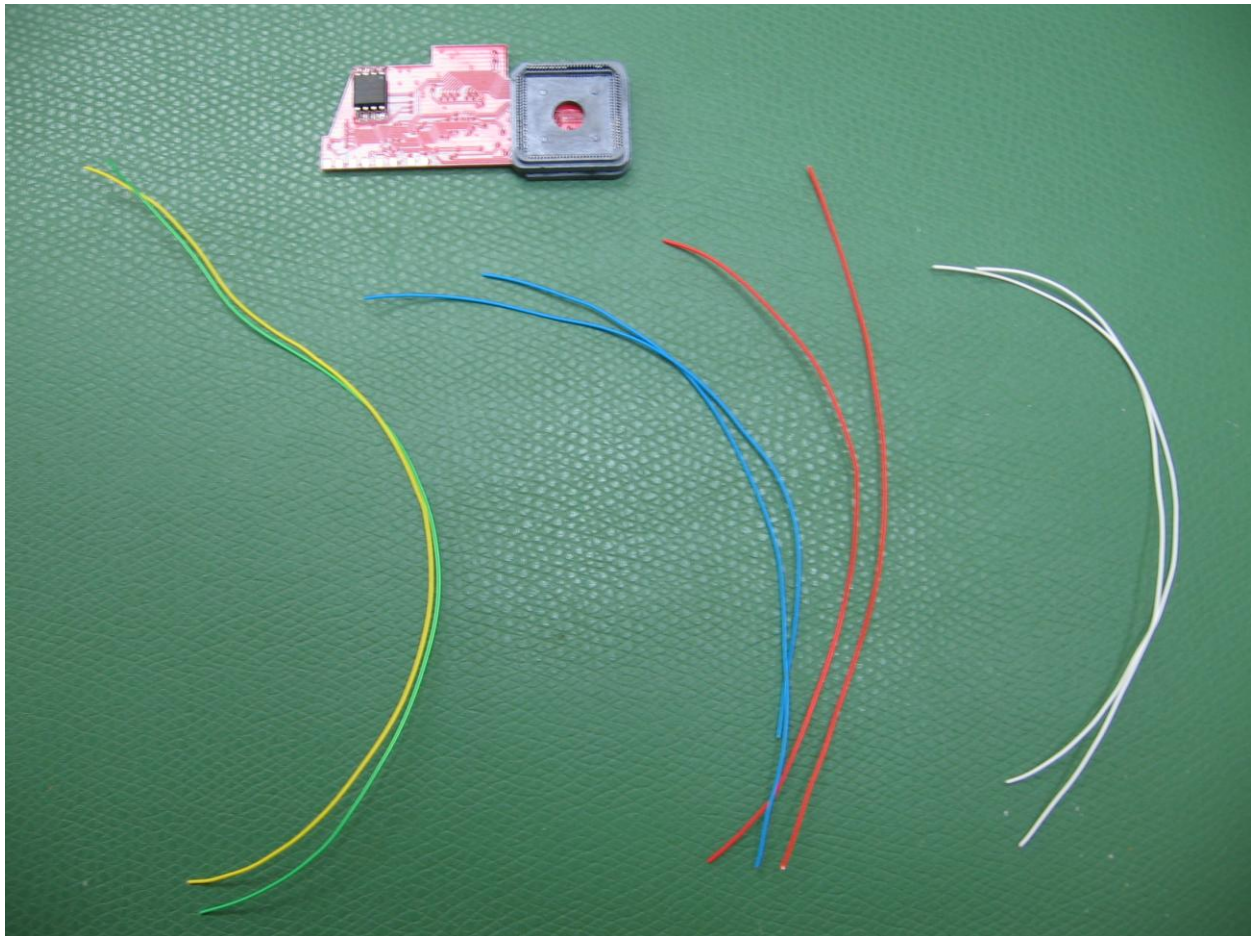
Use an Xacto knife to remove/cut the two traces indicated in the photo:



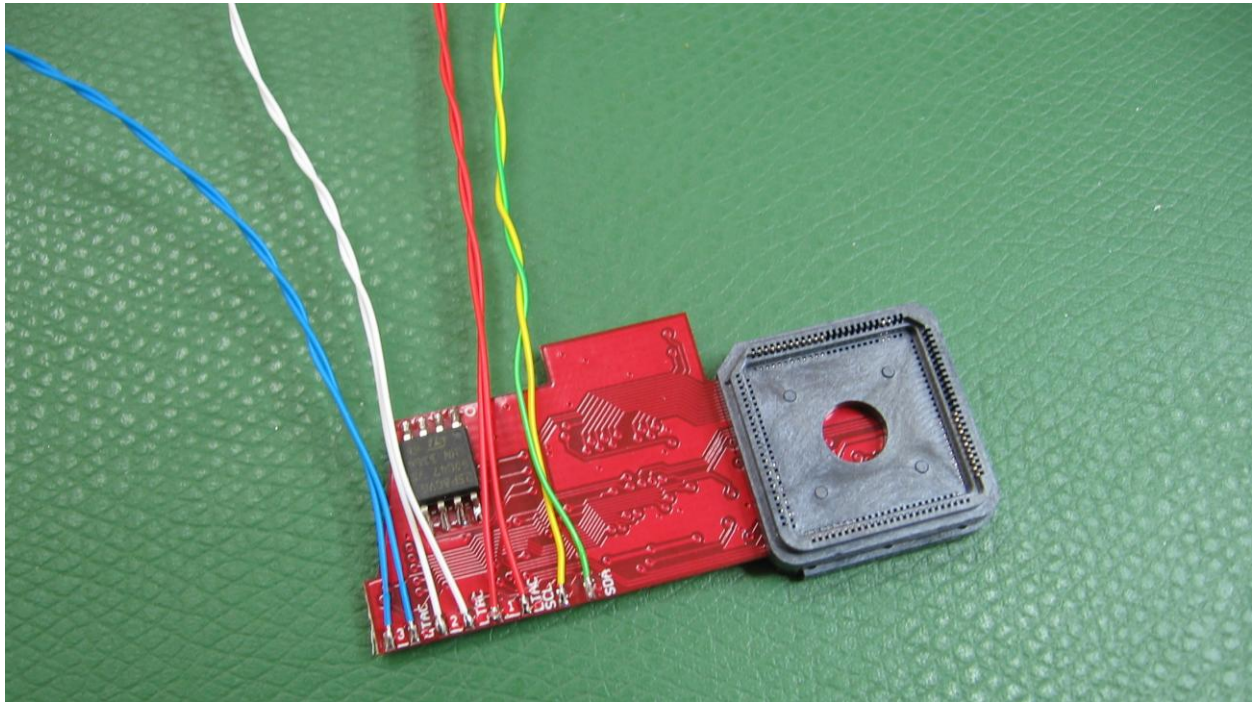
MODCHIP PREPARATION

CG2 circuit board preparation is now complete. Next, prepare the modchip for installation. Cut 8 lengths of wire:

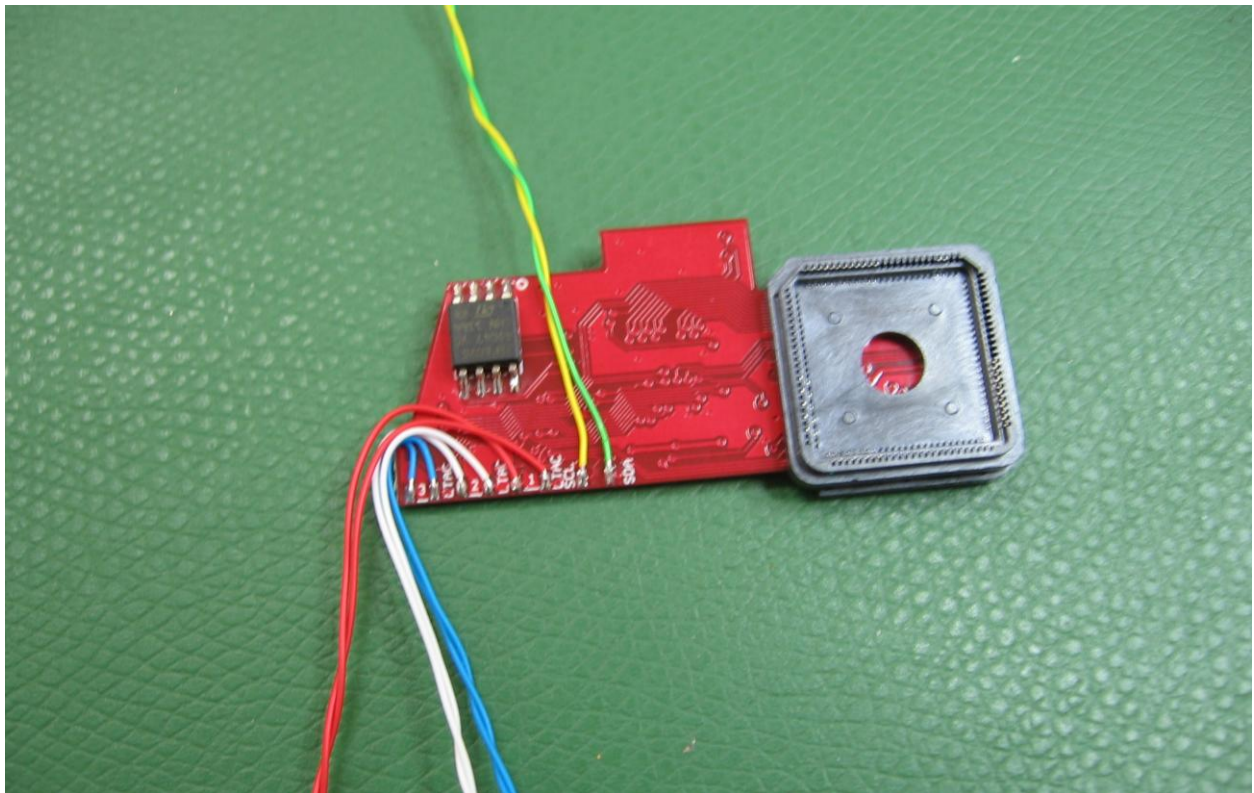
- Two red wires of equal length for LEFT TAC SWITCH #1, labeled 1 on the modchip
- Two white wires of equal length for LEFT TAC SWITCH #2, labeled 2 on the modchip
- Two blue wires of equal length for LEFT TAC SWITCH #3 (LTAC 3), labeled 3 on the modchip
- Yellow and green wire of equal length to connect the flexible add-on board, labeled SDA and SCL on the modchip



Twist and then solder the wire pairs to the modchip as **shown**:



It is important to route and bend the red, white, and blue wires as shown. The wires must be installed this way or else they will be pinched by the plastic controller shell.



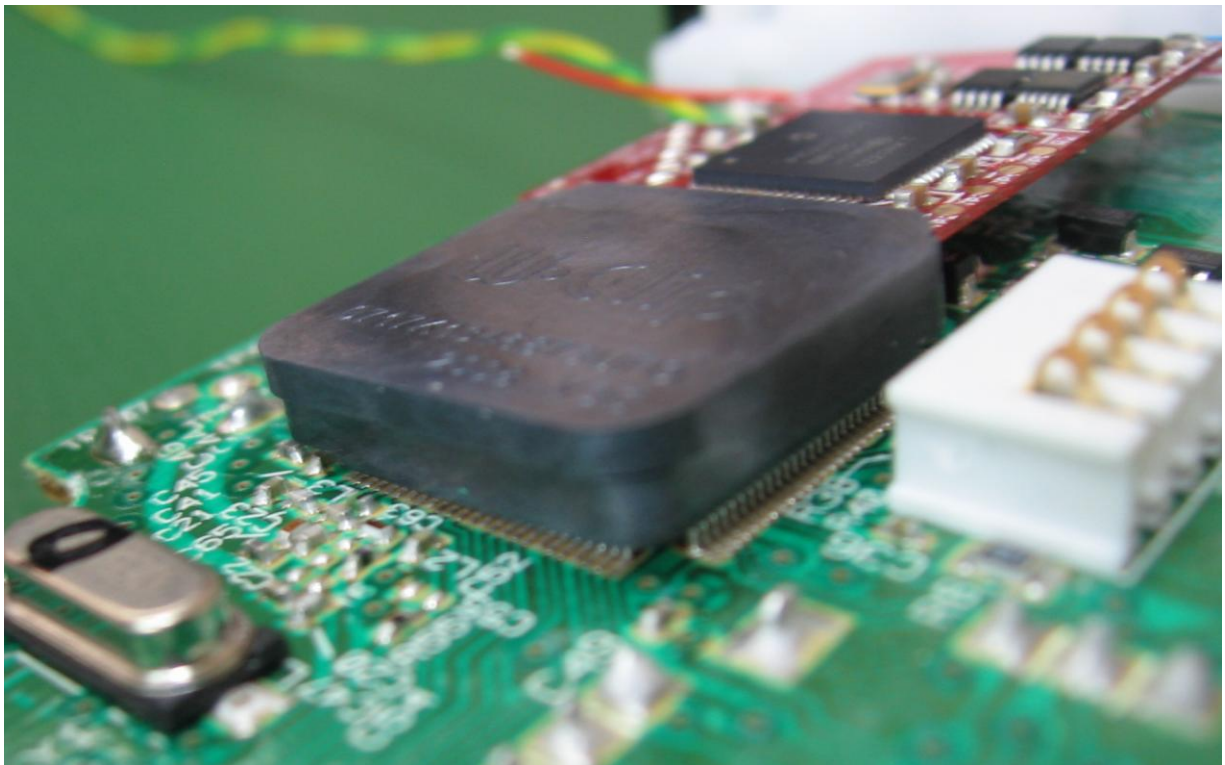
MODCHIP INSTALLATION

The CG2 circuit board and the modchip have been prepared. We are now ready to install the solderless modchip clip onto the CG2 circuit board.

THIS STEP OF THE INSTALLATION IS ABSOLUTELY CRITICAL, AND REQUIRES PATIENCE. FAILURE TO USE FINESSE TO INSTALL THE CLIP COULD RESULT IN DAMAGE TO THE PINS OF THE CPU OR THE CLIP.

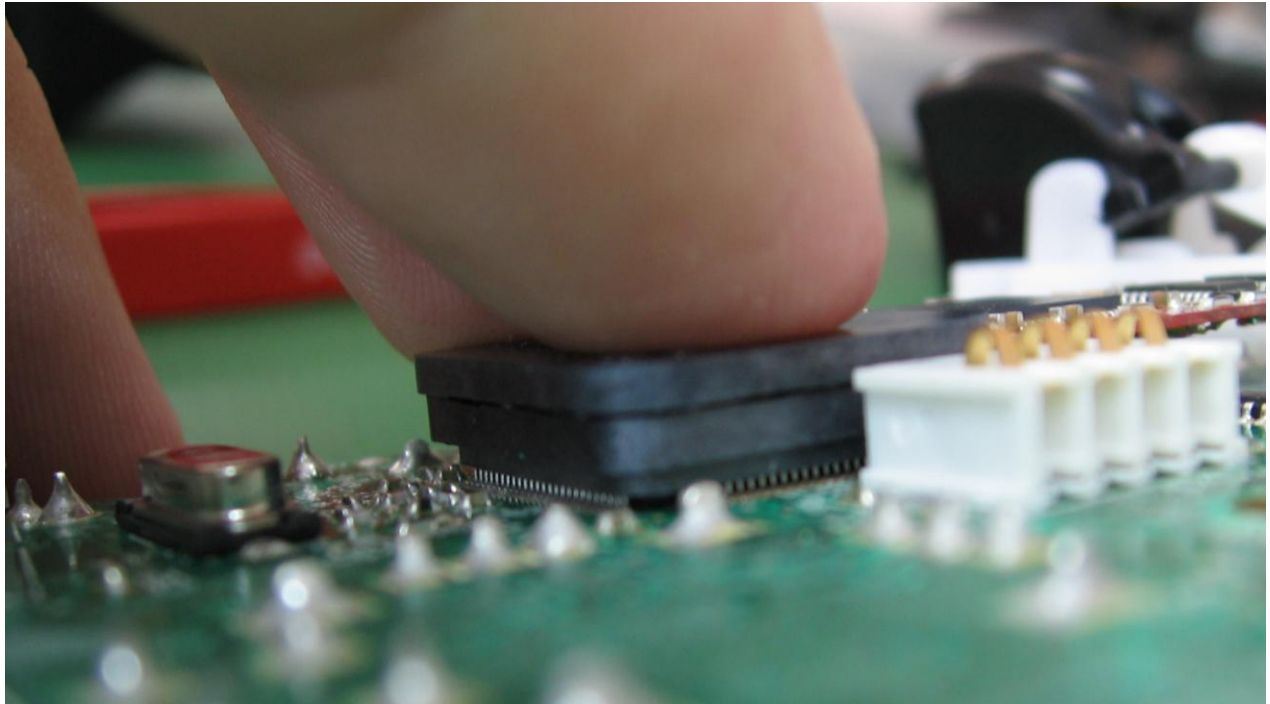
Gently lay the modchip's clip onto the CPU of the CG2 circuit board. Without applying pressure, gently move the clip around on the CPU until the clip is covering about $\frac{1}{2}$ of the pins of the CPU on ALL FOUR SIDES.

Note the picture below shows INCORRECTLY POSITIONED CLIP. Notice how the modchip does not evenly cover $\frac{1}{2}$ of the pins on all four sides:

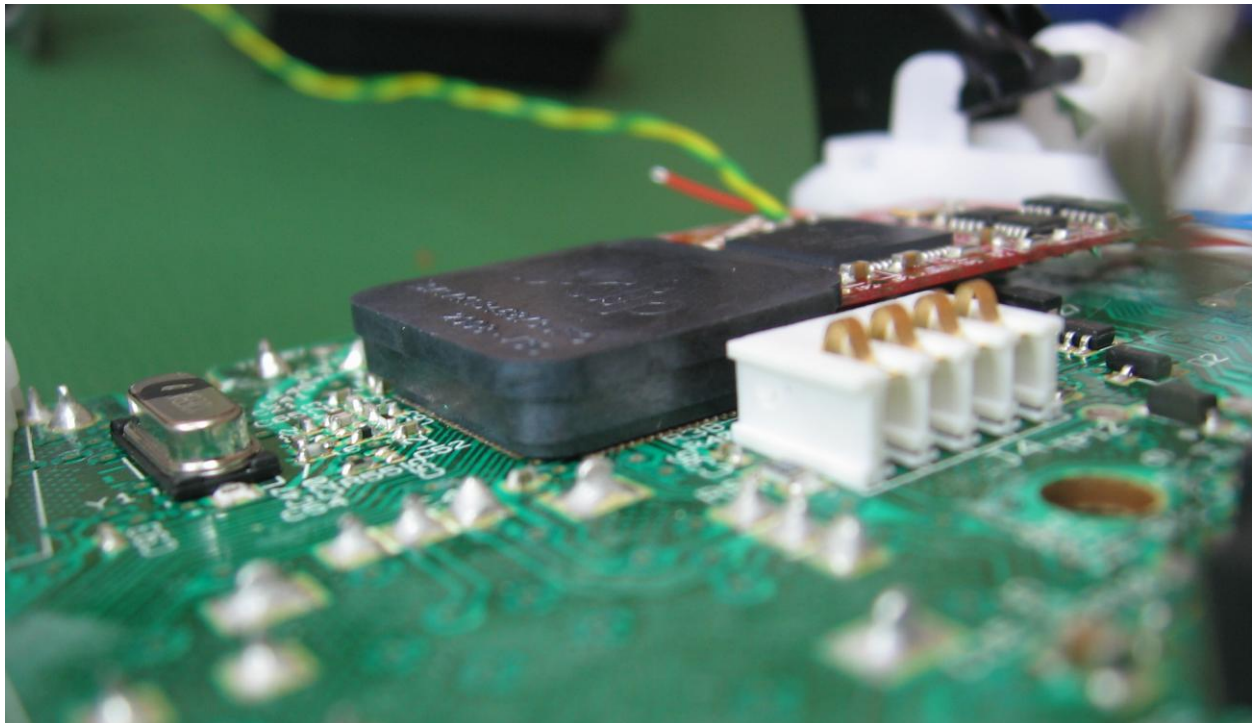


(scroll down to next page)

In the photo below, the clip is evenly covering $\frac{1}{2}$ of the CPU pins on all four sides:

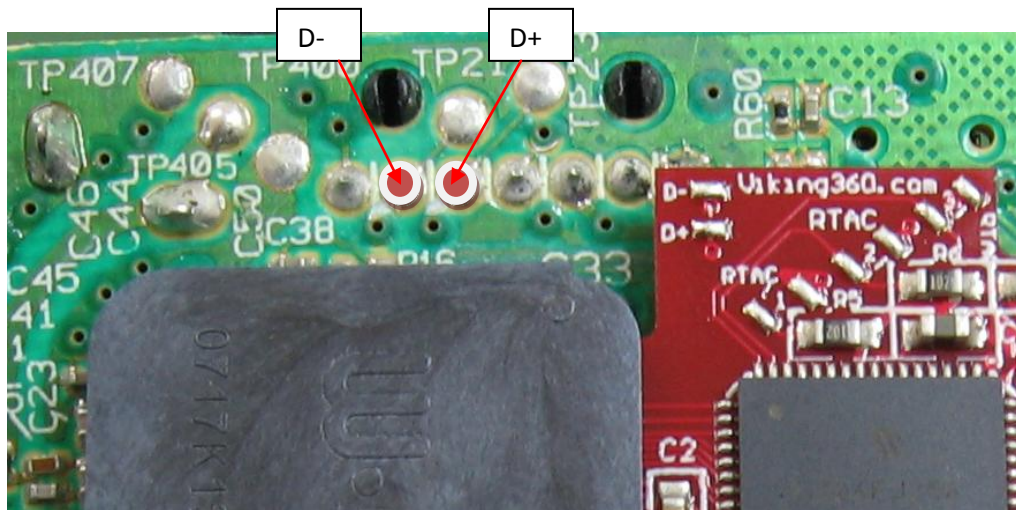


Check, check, and check again that the clip is evenly covering the CPU pins on all four side. Then when ready, push down evenly on the cap of the clip to seat it fully over the CPU:

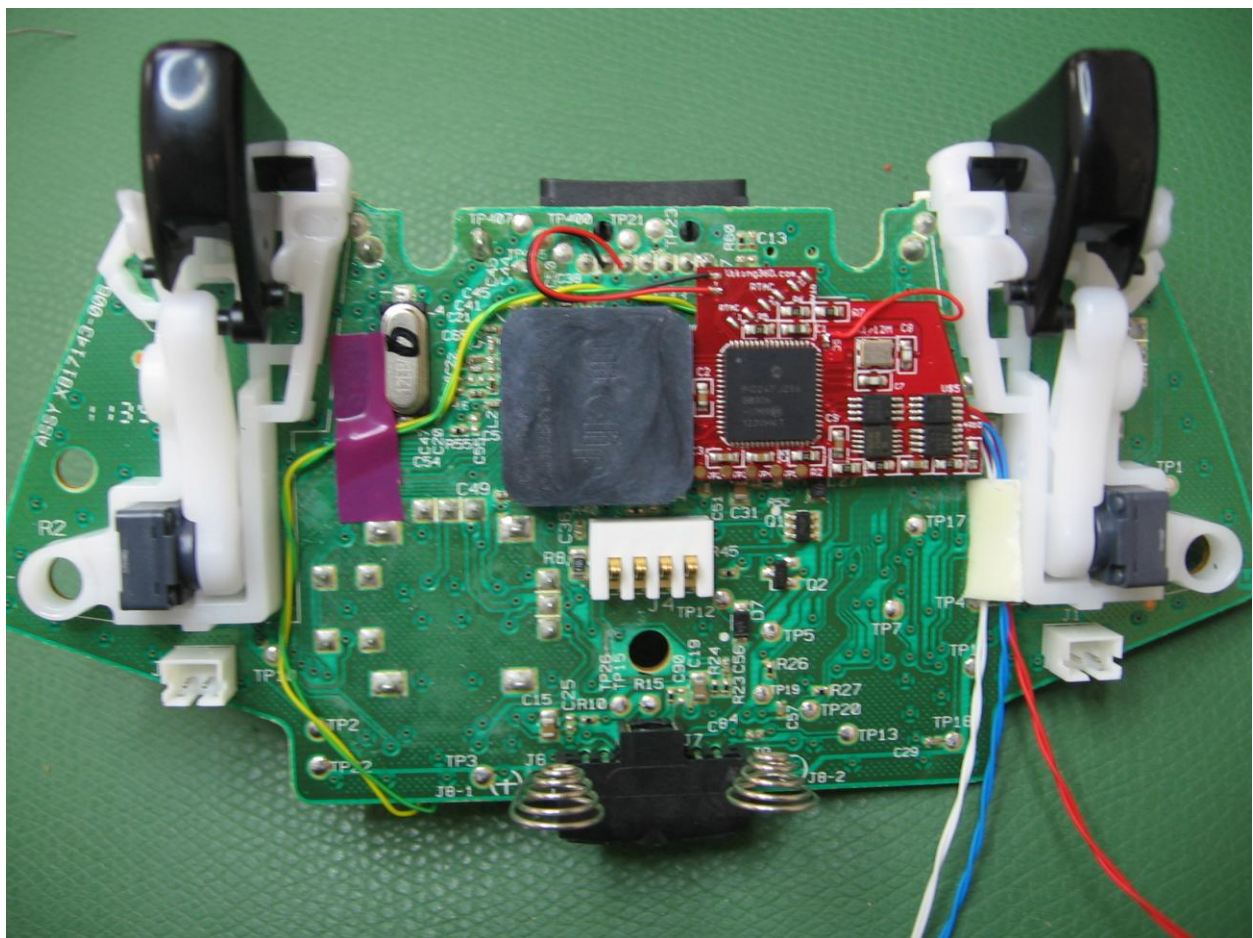


This image shows a close-up of a red printed circuit board (PCB) assembly mounted on a green base board. The red PCB features a central black integrated circuit (IC) labeled "GB101" with "H1/MR" and "1220HK1" markings. Other components on the red PCB include resistors (R7, R2, R45), capacitors (C8, C9, C31), and a small black component labeled "Q1". A red wire is connected to the assembly. The green base board has various components labeled, including "R60", "C13", "R7", "C8", "C9", "R2", "R45", "C31", "Q1", "R52", "TP1", and "TP17". A white plastic component is visible on the right side of the image.

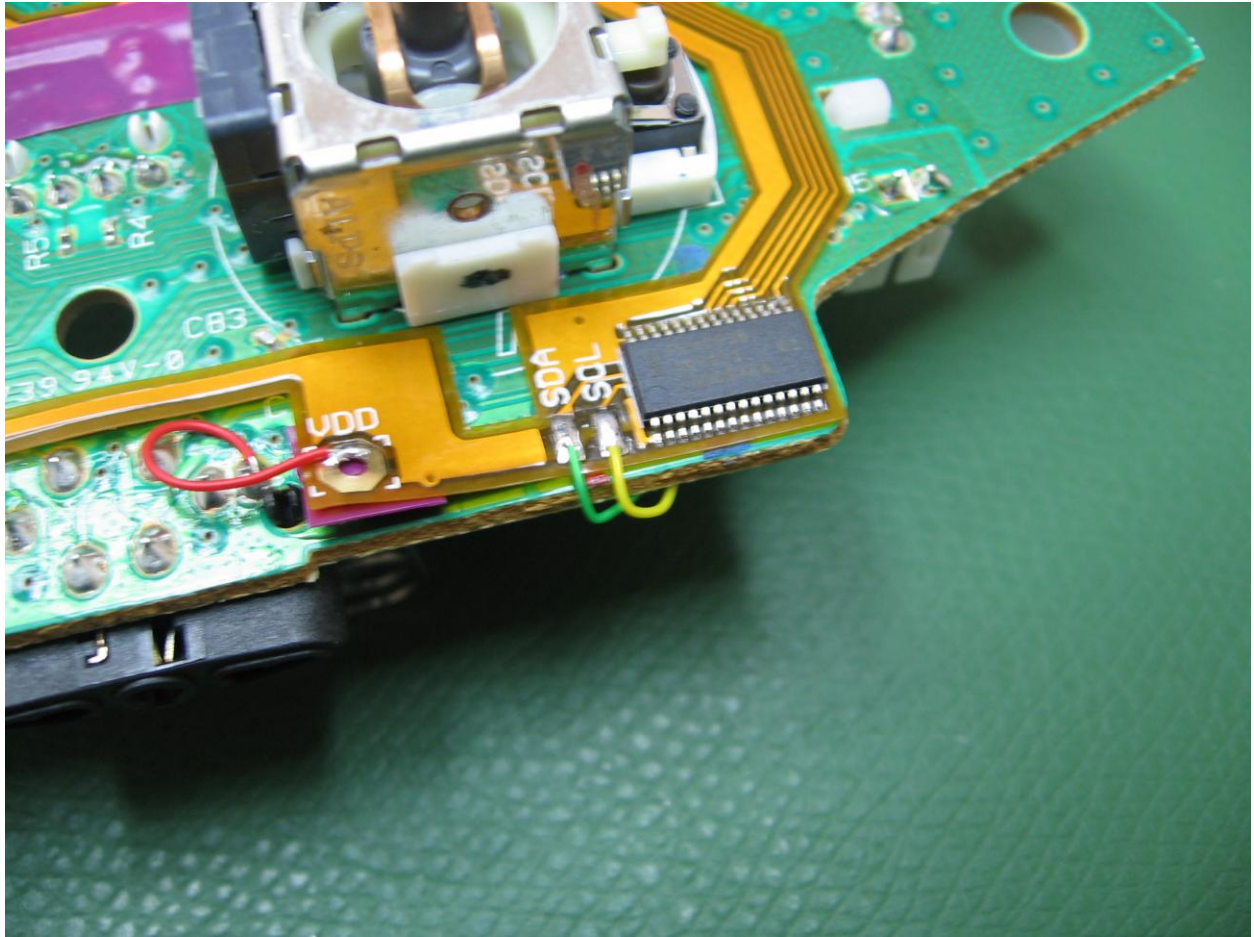
Connect jumpers from the D+ and D- pads on the modchip to the solder joints indicated in the photo:



Add a white piece of sticky-foam, or a piece of electrical tape, to secure the red, white, and blue pairs of wires up against the side of the trigger's plastic:

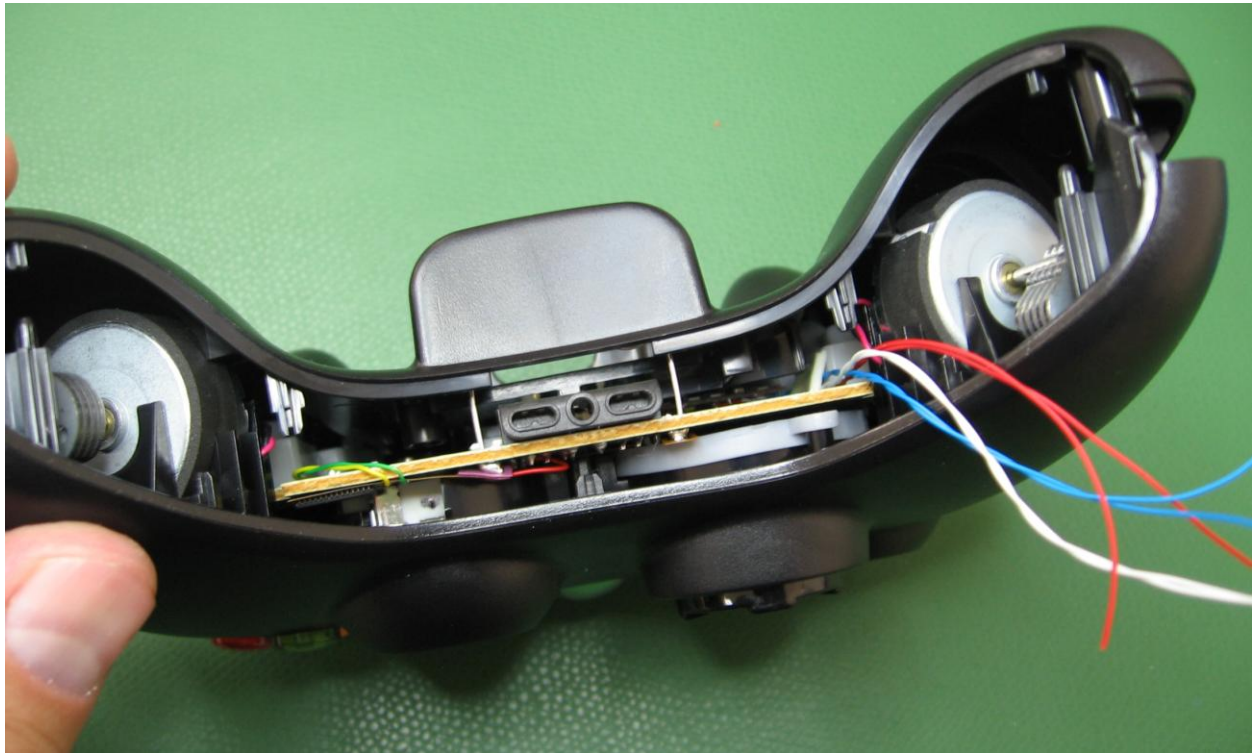


Connect the green and yellow wires from the modchip to the flexible add-on board. Connect the green wire to SDA, and the yellow wire to SCL:

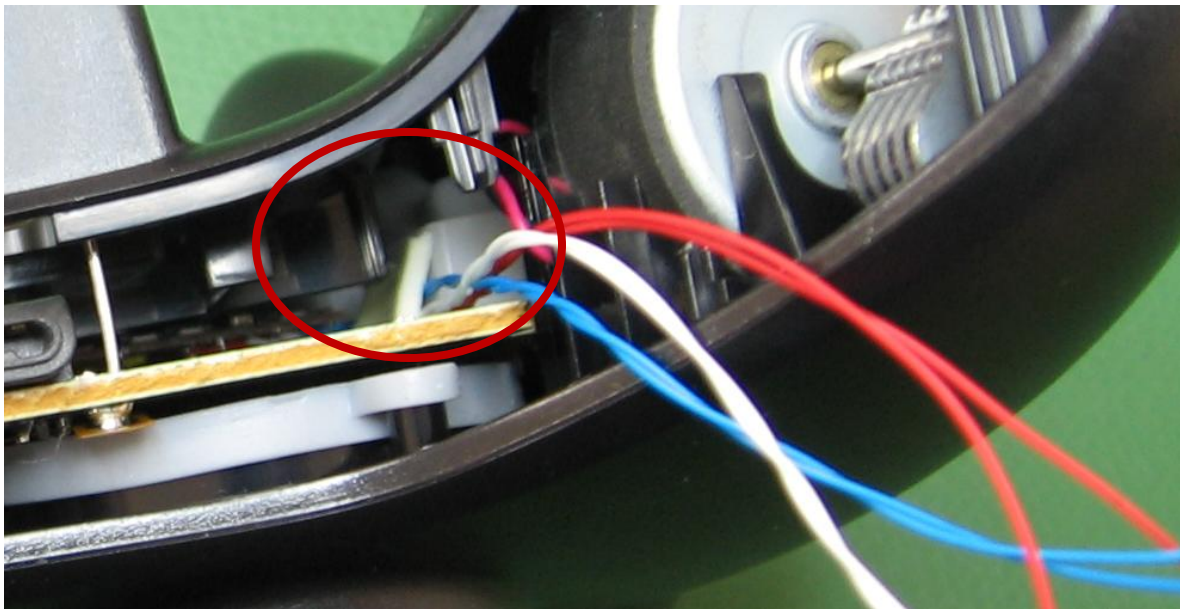


(scroll down to next page)

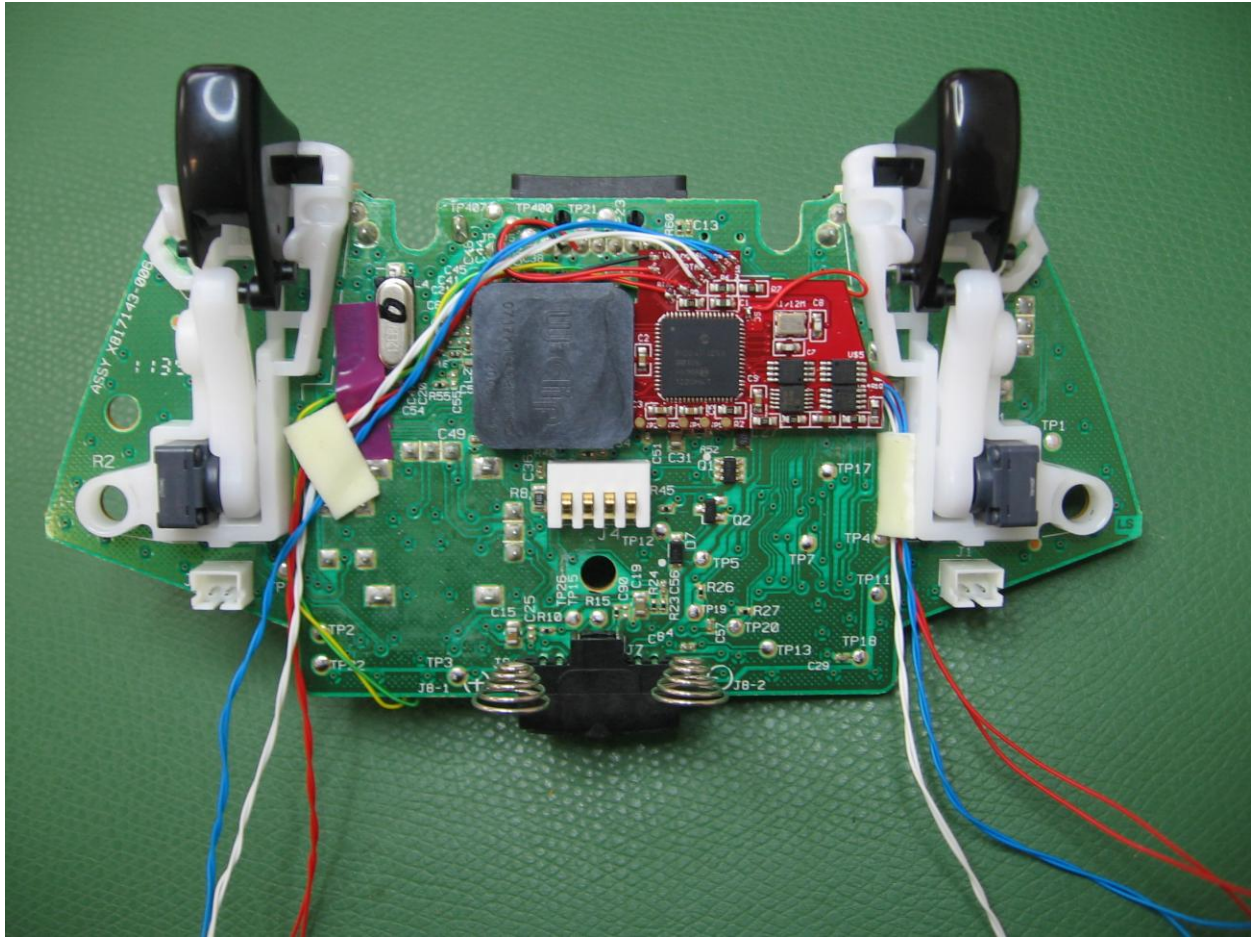
It is now possible to power up the controller and test everything except the 6 extra mod switches. Remove the bottom trim piece to the red, white and blue wire pairs don't get damaged, then close up the shell.



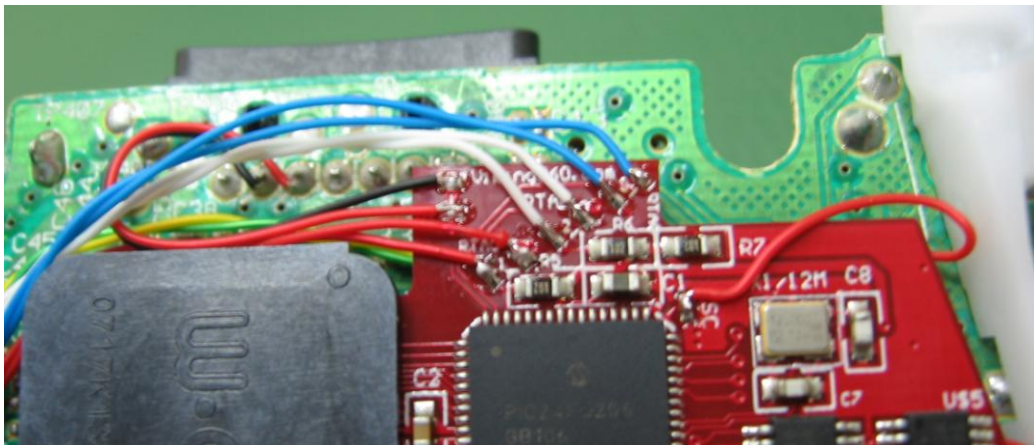
Notice how the foam tape helps prevent the wires from being damaged by the shell



Once the button test has passed, open up the controller and install wire pairs for the right tac switches 1, 2 and 3:



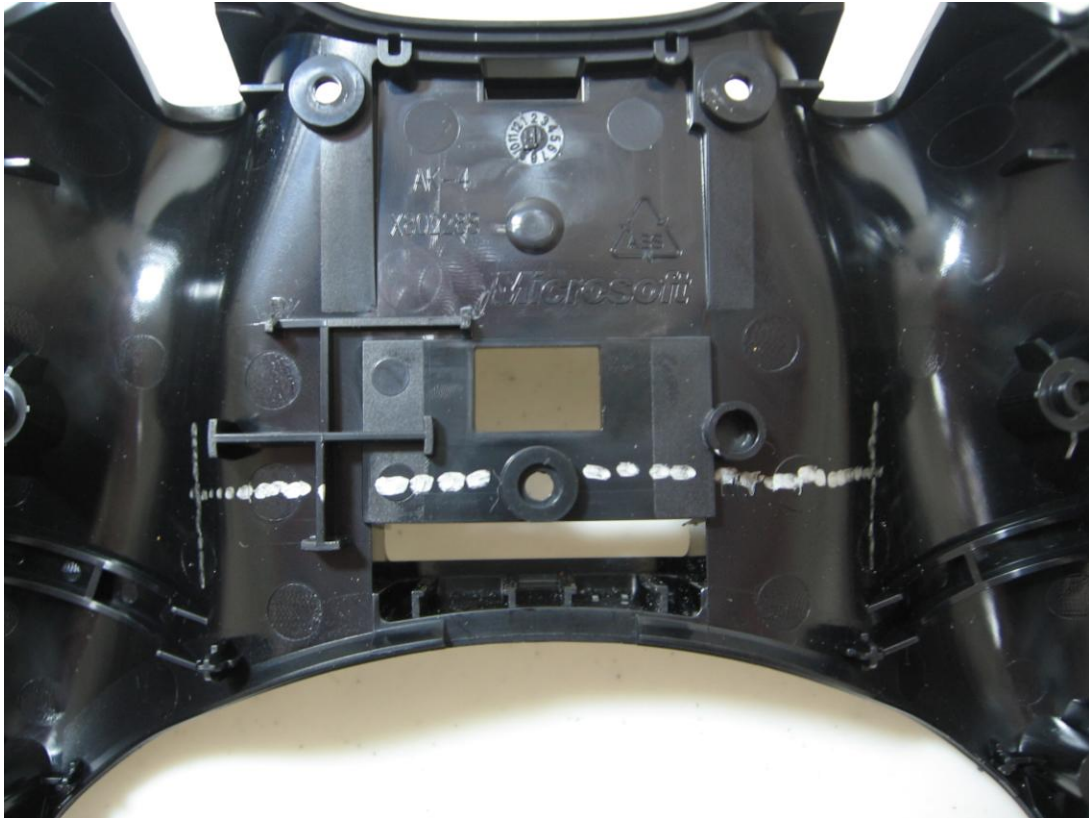
It is recommended that the tac switch wires “fan out” away from the modchip before they are twisted:

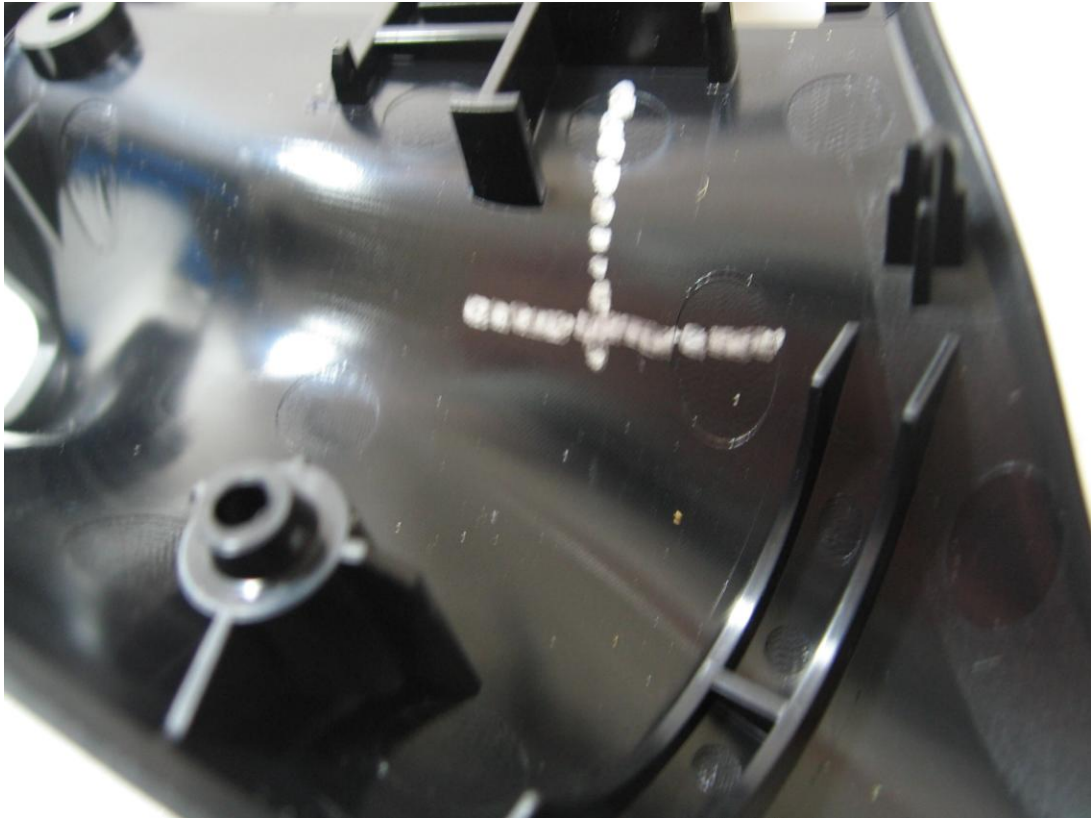


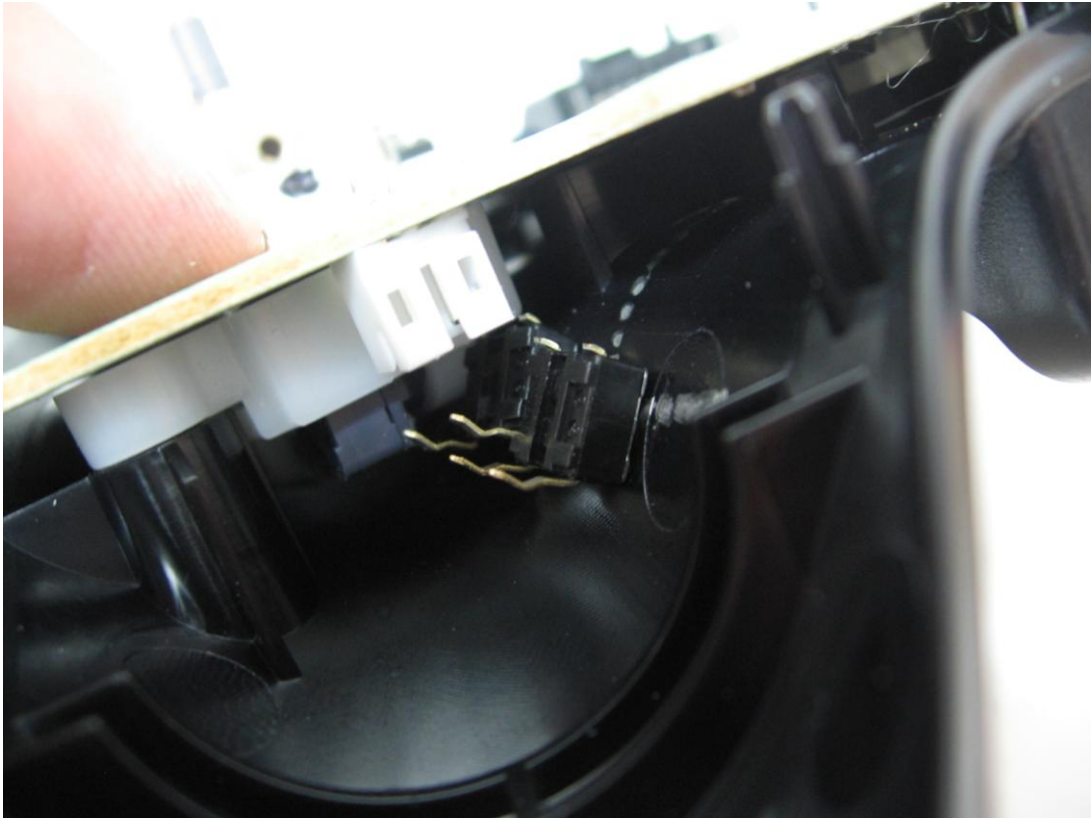
SHELL PREPARATION

The best tac switch hole locations are found through trial-and-error. Below are some photos of one possible way of locating and installing the tac switches:







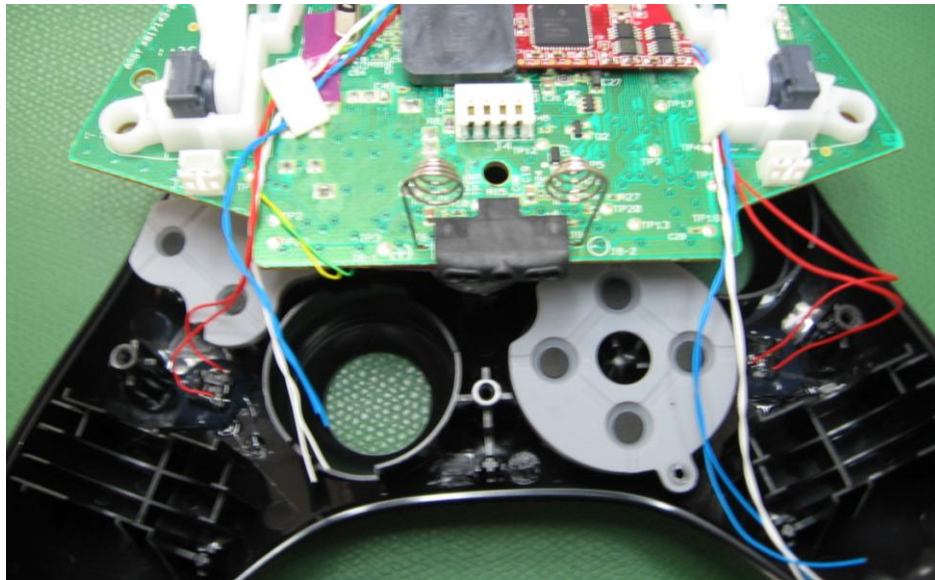


(scroll down to next page)

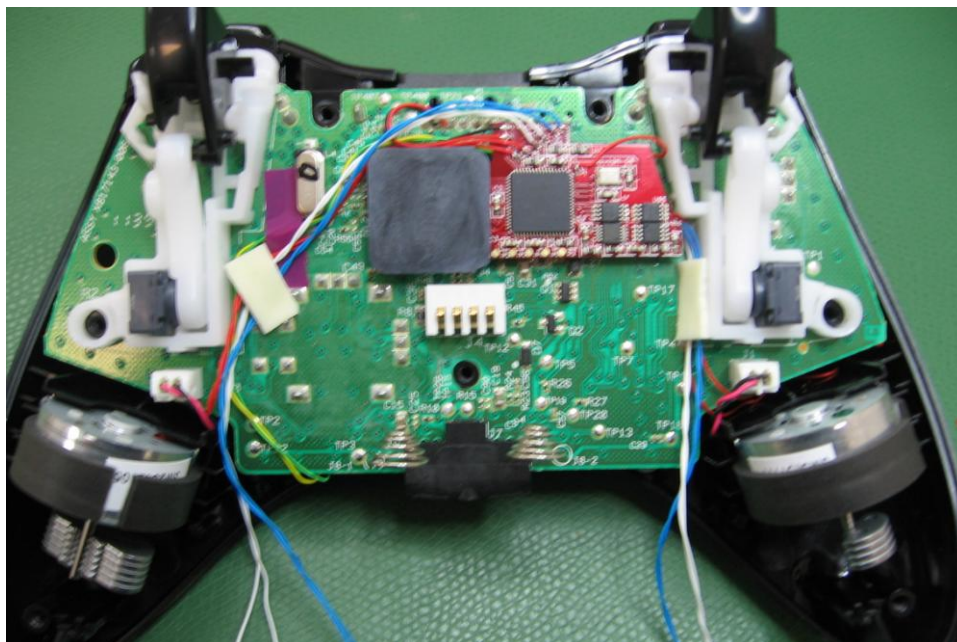
FINAL INSTALLATION

Connect all of the tac switch wire pairs to the appropriate tac switch:

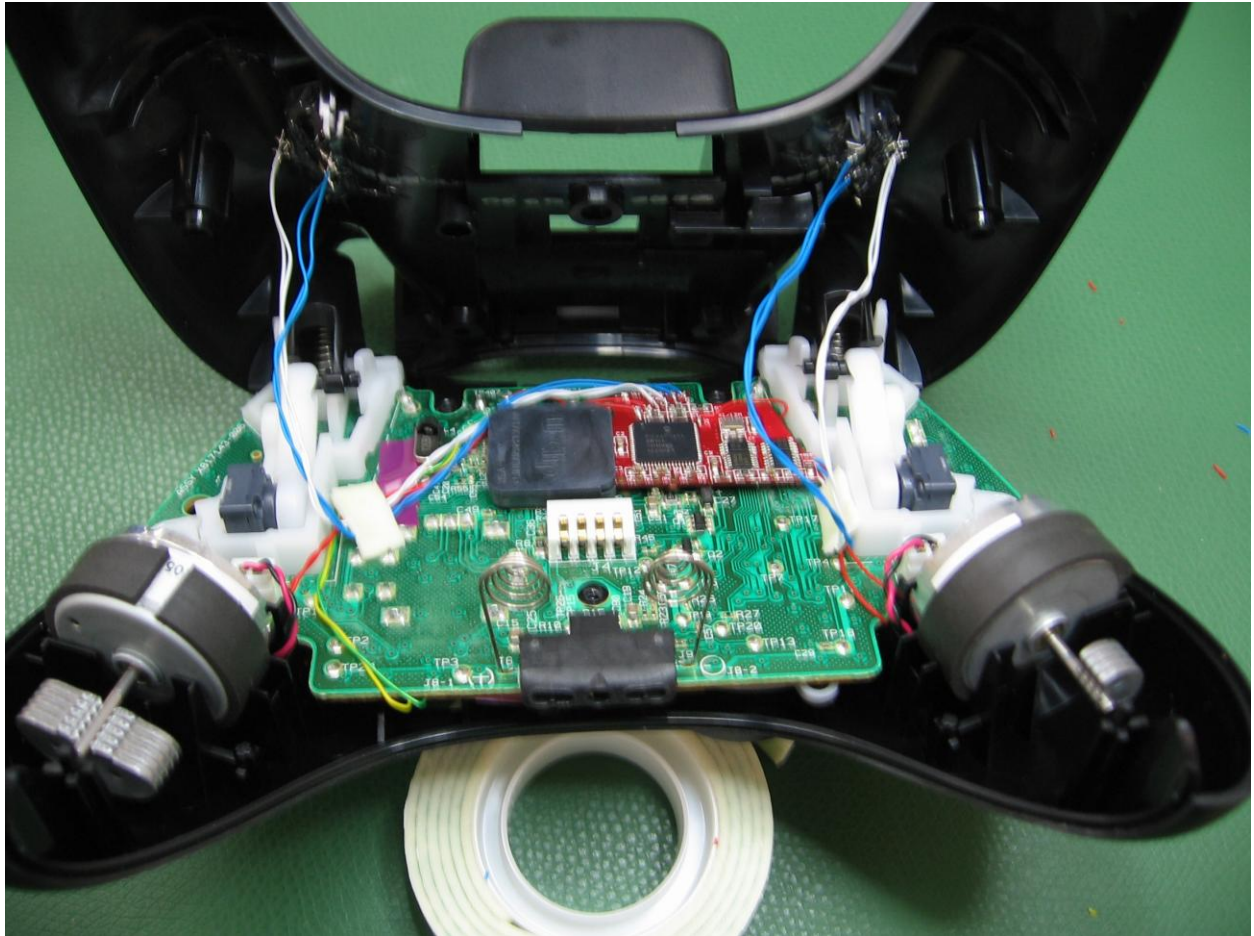
- Tac switch 1 – red pair – connects to switches on top of shell
- Tac switch 2 – white pair – connects to switch closest to play-and-charge port
- Tac switch 3 – blue pair – connects to switch closest to microphone port



Once the red wires are installed, put the circuit board into the top-half of the shell and tuck the red wires away:



Connect the remaining tac switch wires to the appropriate tac switches:



Carefully close the shell, using tweezers to move and route the wires so that they will not be pinched or squeezed when the shell is screwed together.

(scroll down to next page)

We use a small DeWalt drill with low torque setting to insert screws. This drill helps prevents “overscrewing” which results in stripping of the plastic screw holes. When the plastic screw hole is stripped, the screw does not properly hold the shell together:



(scroll down to next page)



The controller is pre-loaded with LED test and button test code. Power up the controller to run the LED and button tests. Once the tests have successfully passed, use a Windows PC to program the modchip with production firmware and a default macro set. Refer to the programming instructions for more information. Once the unit is tested and programmed, it's ready for shipment to the customer.

THE END