# XBOX360

## Legacy Modchip

## Thor's Hammer

## Installation Instructions

# Tools needed

- XBOX360 Controller with CG2 Circuit board
- Viking360 Legacy modchip
- Soldering Iron and solder
- 30 AWG wire (American wire gauge) or similar
- Wire strippers (capable of stripping above wire)
- Electrical tape
- Torx T-8 Security Screwdriver
- Hobby knife
- Solder Flux
- Cotton Swabs
- Isopropyl alcohol

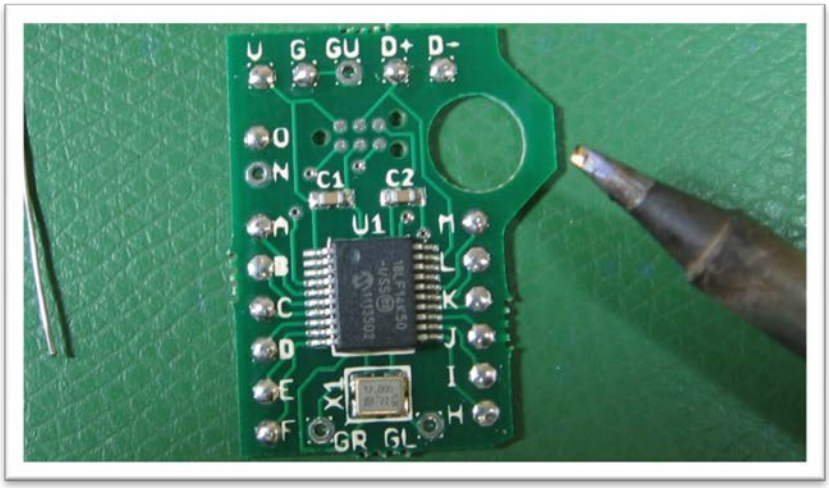
# Remove the screws and cover

Once the 7 screws are removed, remove the back cover from the controller. Set the screws and screwdriver aside for later.

# Prepare the modchip

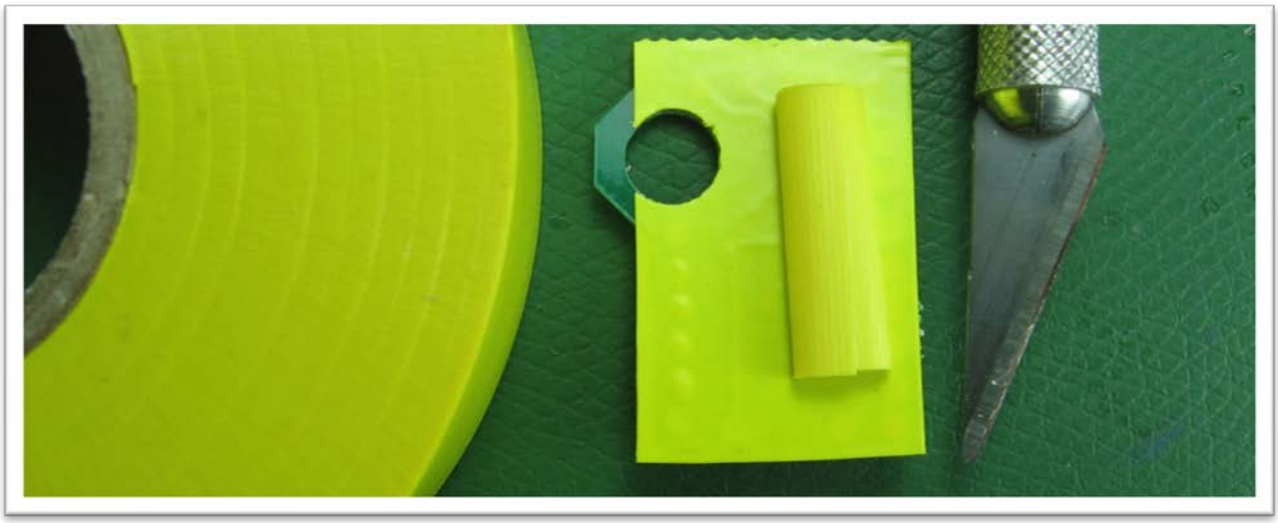
Prepare the modchip by "tinning" the solder pads we will use. You can "tin" a pad by applying a little solder. We will tin these pads: V, G, D+, D-, O, A, B, C, D, E, F, H, I, J, K, L and M.


Modchip before tinning



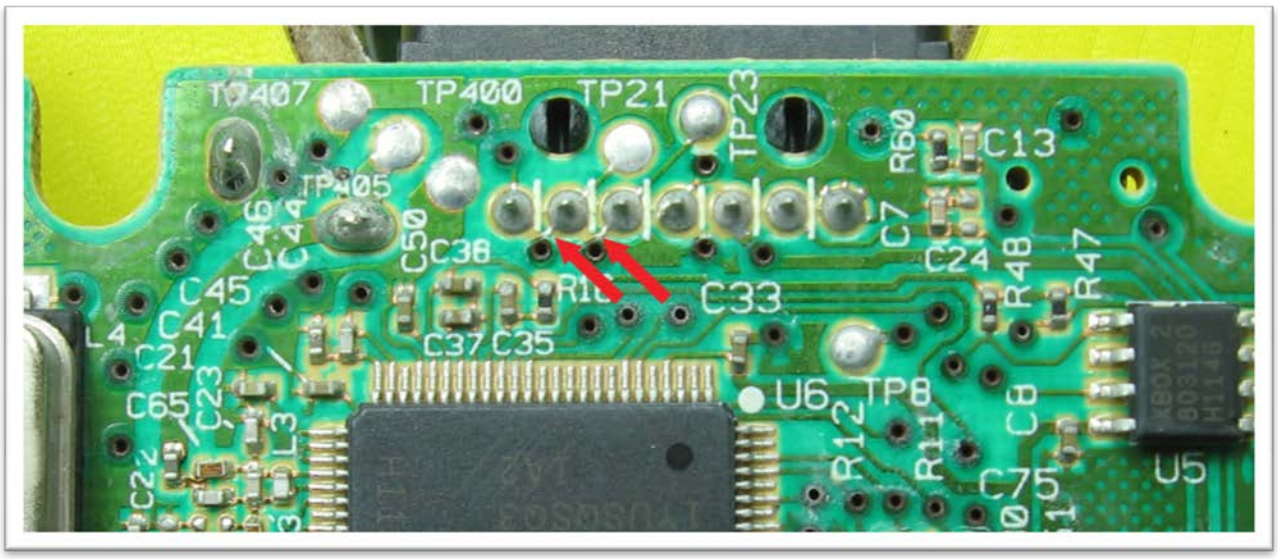

Modchip after tinning

Finish preparing the modchip by putting a piece of 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 second small piece of tape made into a "loop" to help hold the modchip in place on the circuit board. You can use a hobby knife to remove the tape covering the large hole in the modchip.

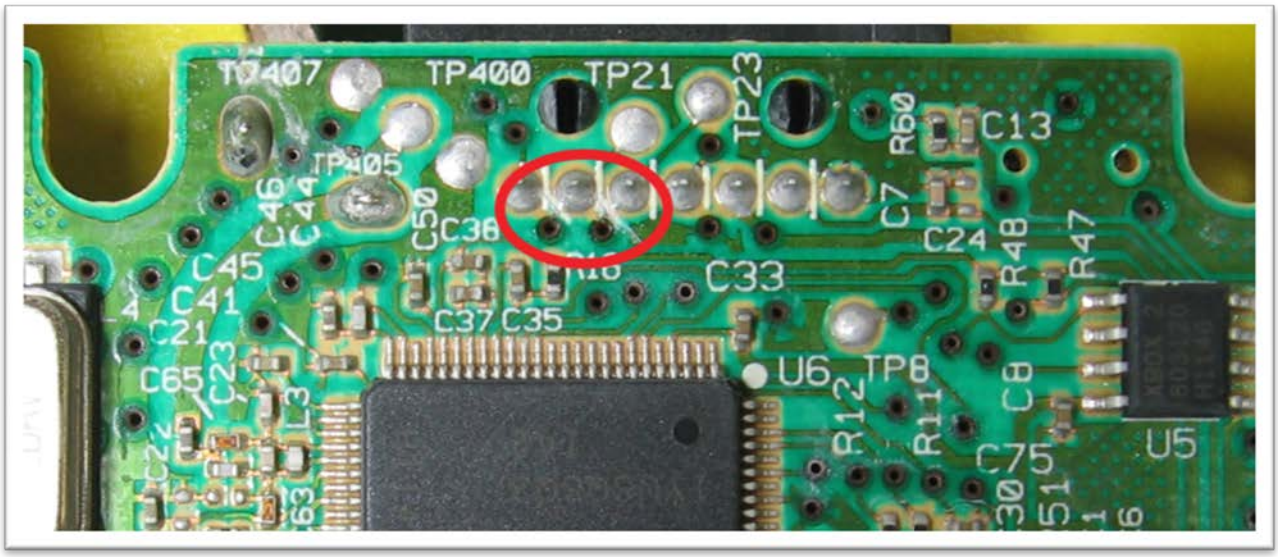


# Prepare the circuit board

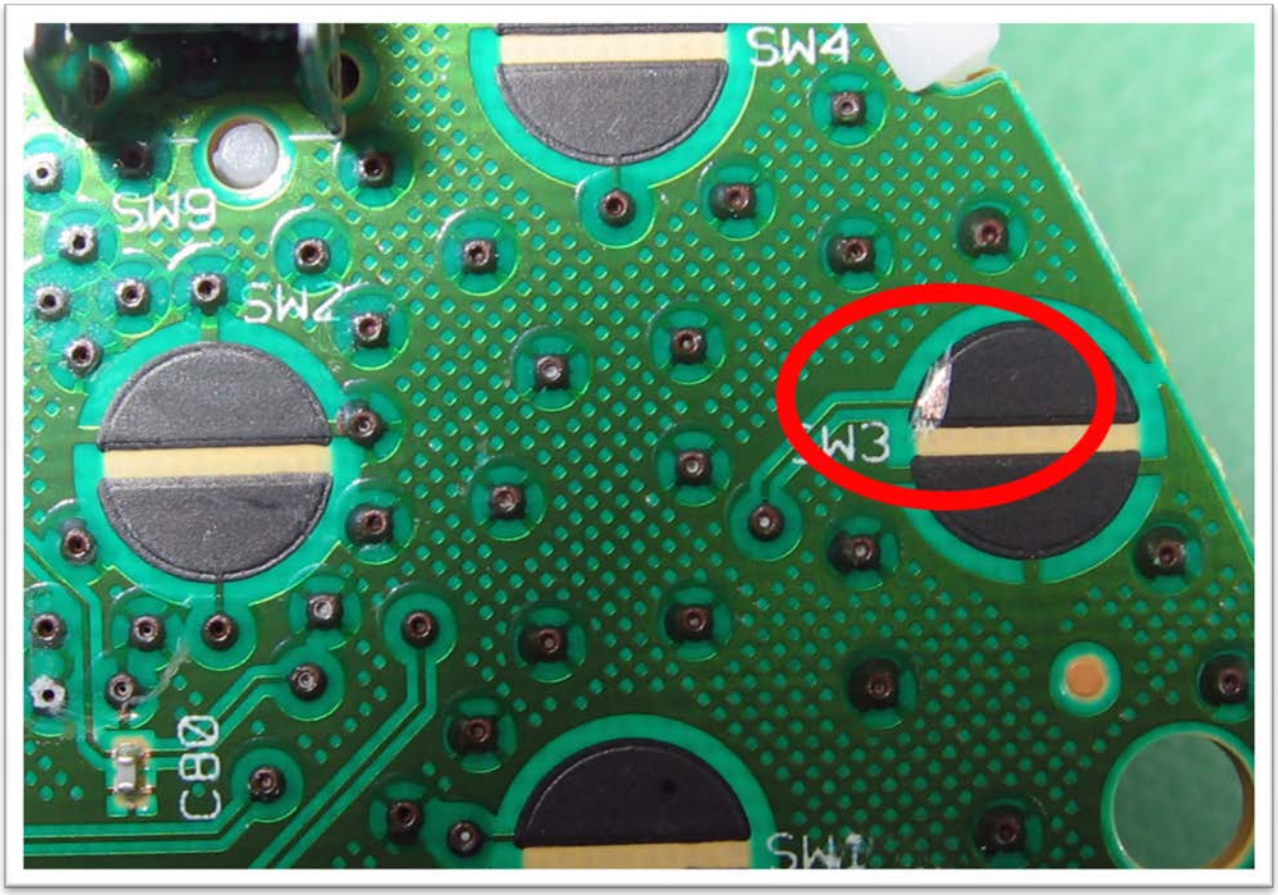
Traces for the D+ and D- connections need to be severed from the PNC port so the modchip can talk to the computer via USB. Cut the traces marked below:



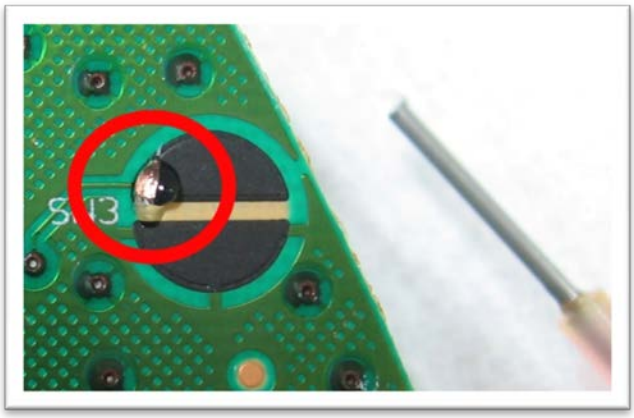

After cutting the traces the circuit board should look like this:

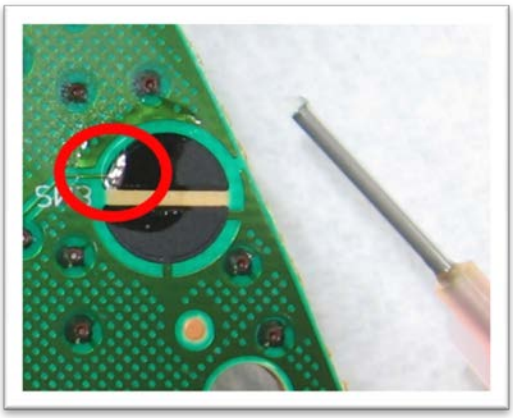


Using the hobby knife expose some of the copper below the black pad for the B button as shown below:

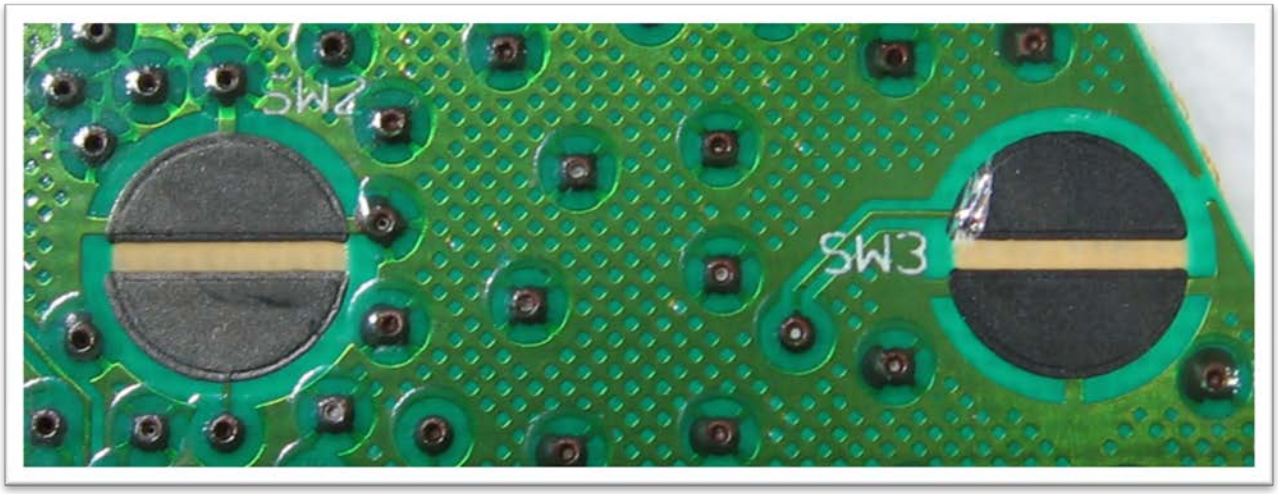



Apply some flux to the exposed copper and tin the copper. The flux will clean any oxidation off of the copper allowing the solder to stick. You can tin this copper by putting solder on your iron, and running over the surface of the copper while it is covered in flux. See below for example:

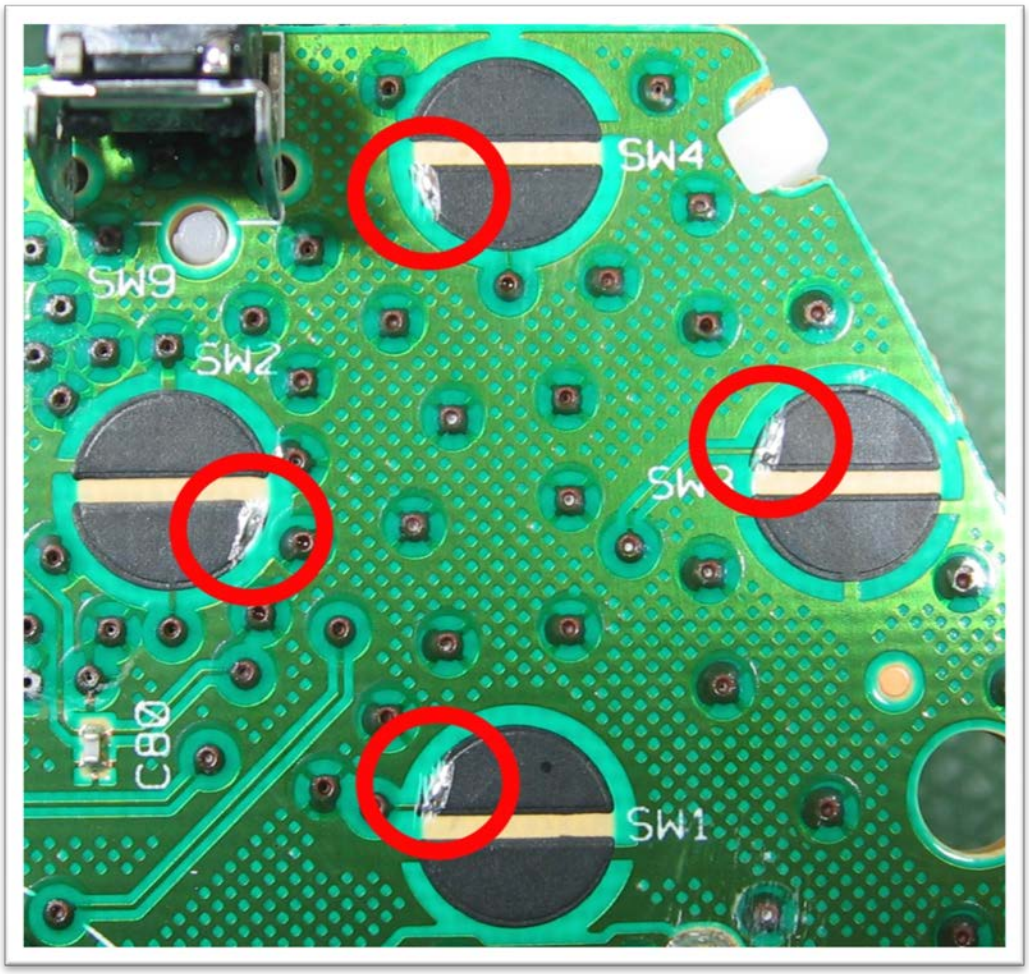




The flux can be cleaned by wiping it up with a dry cotton swab; any remaining residue can then be cleaned with a small amount of isopropyl alcohol and then wiped with a clean cotton swab. The tinned and cleaned pad is shown below:




Expose the copper and tin the pads for the remaining 3 pads as shown below:

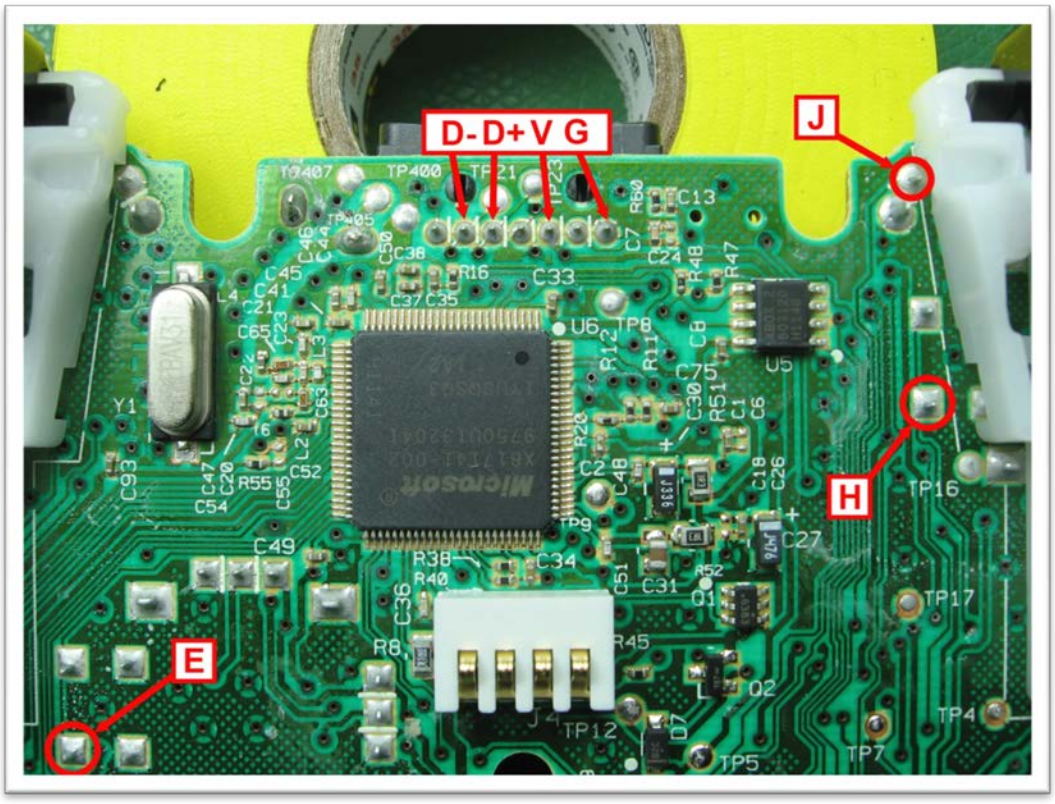


# Strip the wires

We are ready to begin installing wires. Use the wire strippers to cut and strip the wires. Only a very small amount of wire needs to be stripped to get the job done; see photo below for an example.

# Begin soldering the wires

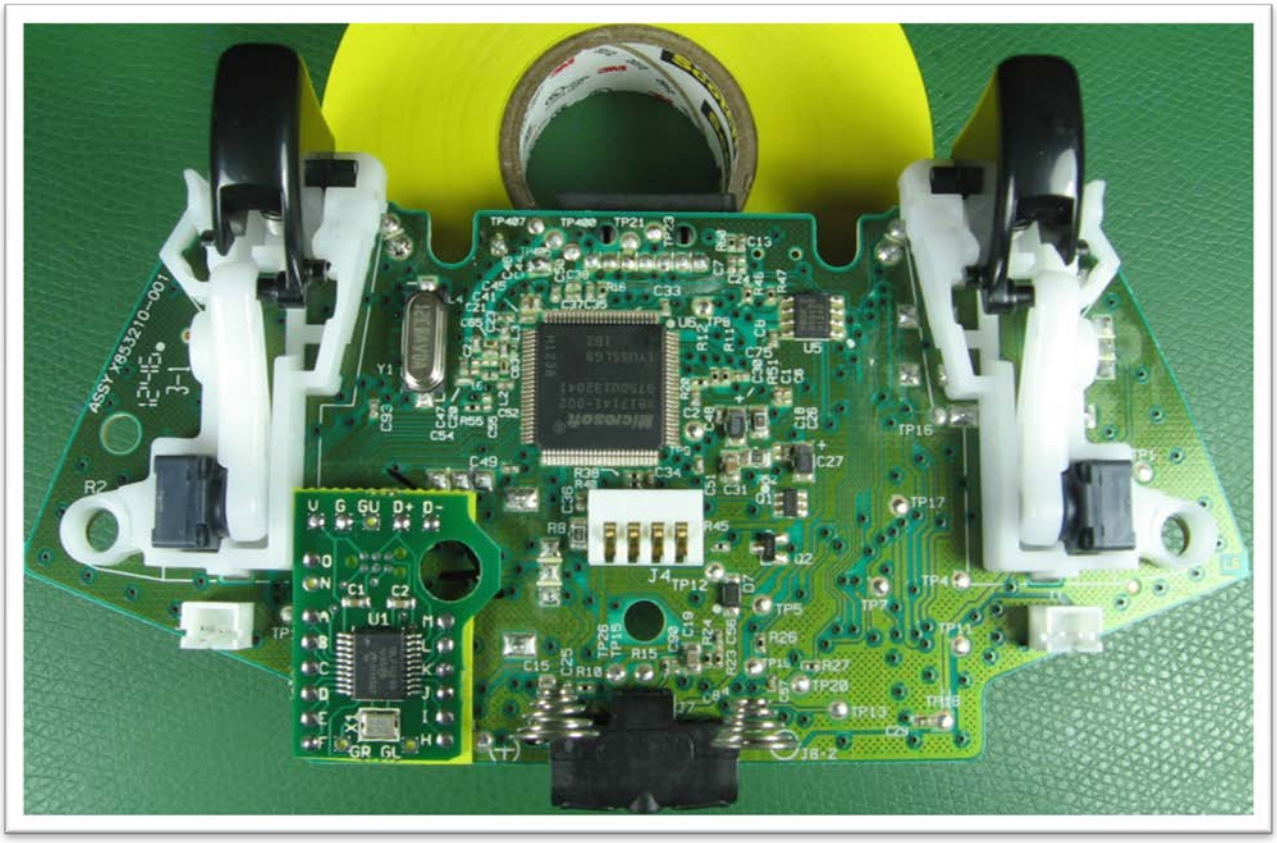
Solder the first 7 wires, "V, G, D+, D-, E, H and J" per the diagram below:




*The E wire is placed underneath the modchip and must be soldered in place before the modchip is put into place. The rest of the wires can wait to be attached until after the modchip is placed on the circuit board, in the next step, if you prefer.

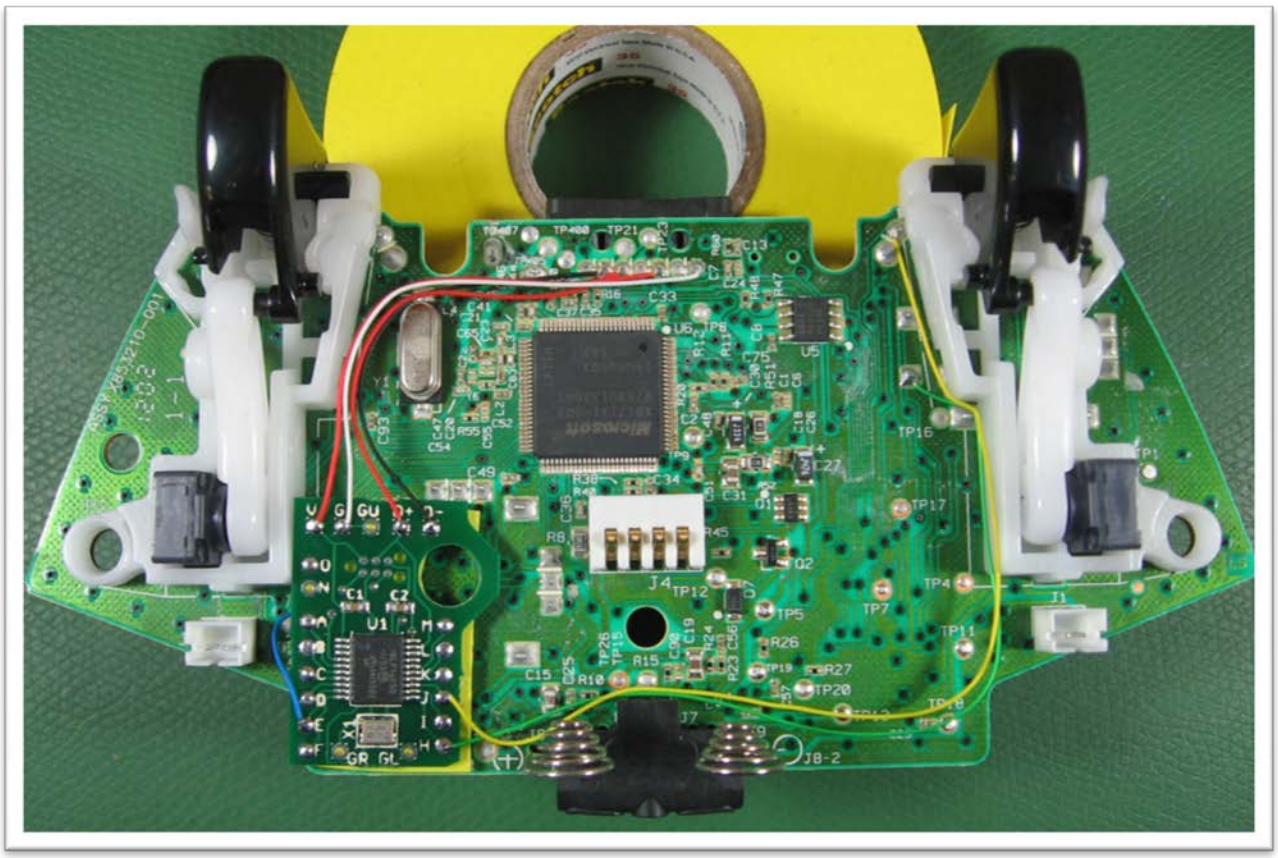
# Place the modchip

Put the modchip onto the circuit board as shown below. Make sure the bottom of the modchip is flush with the bottom of the circuit board and the left side of the modchip is resting against the white plastic of the trigger.

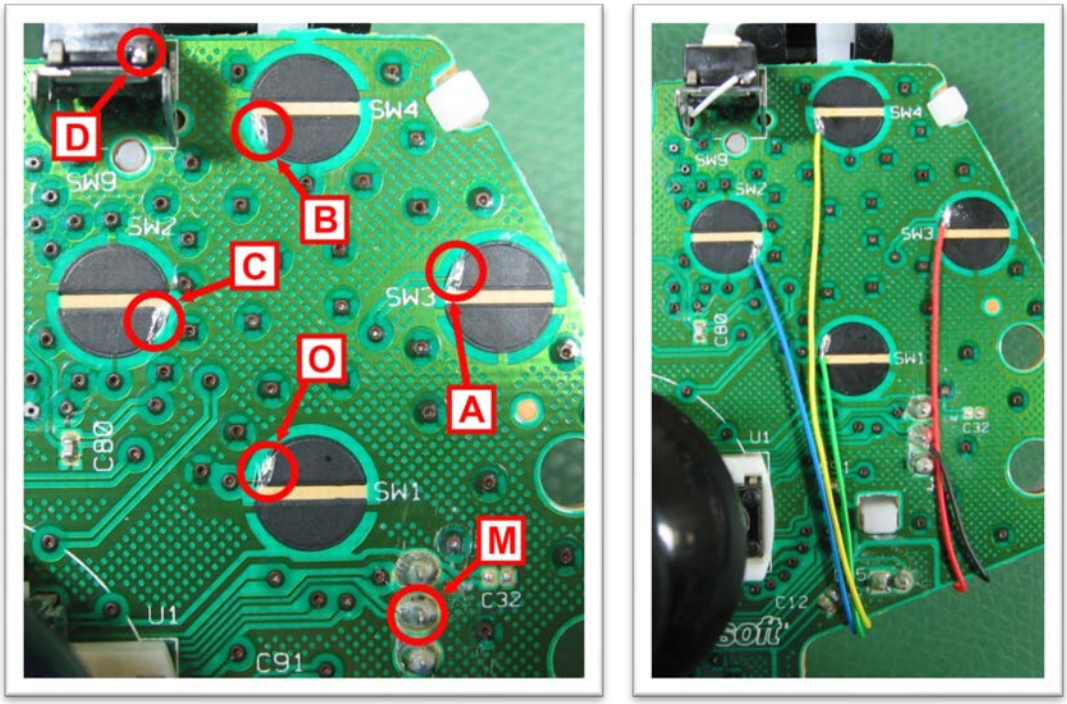


# Finish soldering the wires

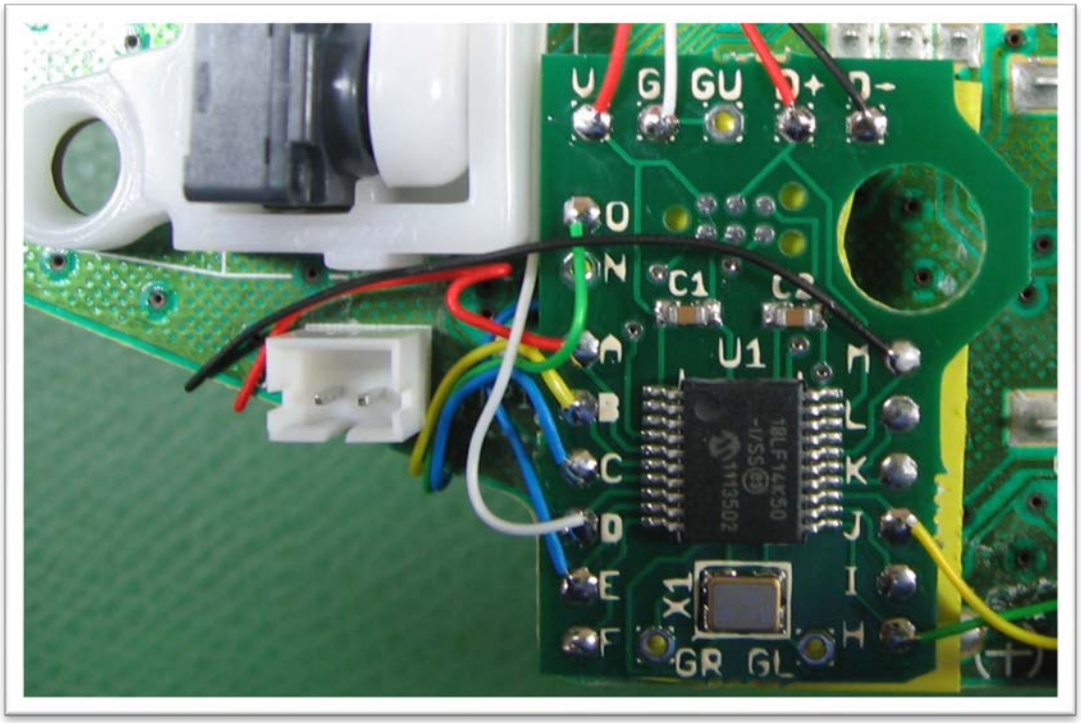
Solder the V, G, D+, D-, E, H and J wires to the modchip. Here is an example of a clean installation of the first 7 wires.



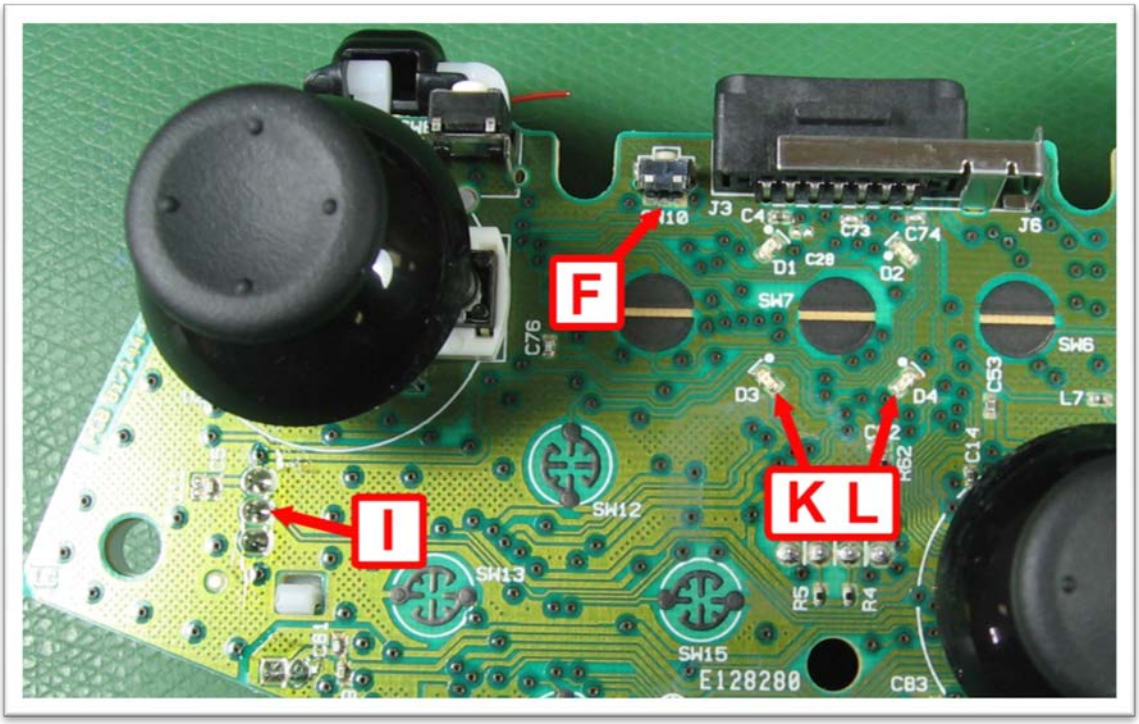
Next wire the A, B, C, D, M and O wires to the opposite side of the circuit board as shown in the diagram below. Be careful not to cover the black pads with your wires as you run them to the other side of the circuit board.



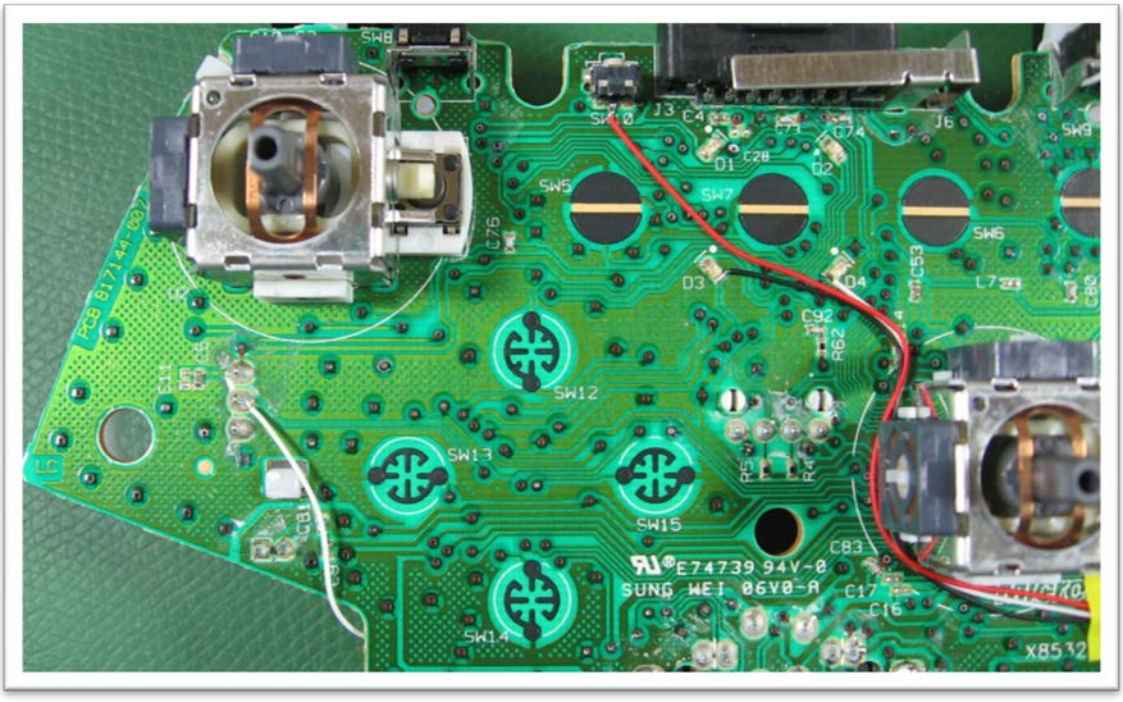

You can now connect the A, B, C, D, M, and O wires to the modchip as shown in the diagram below:



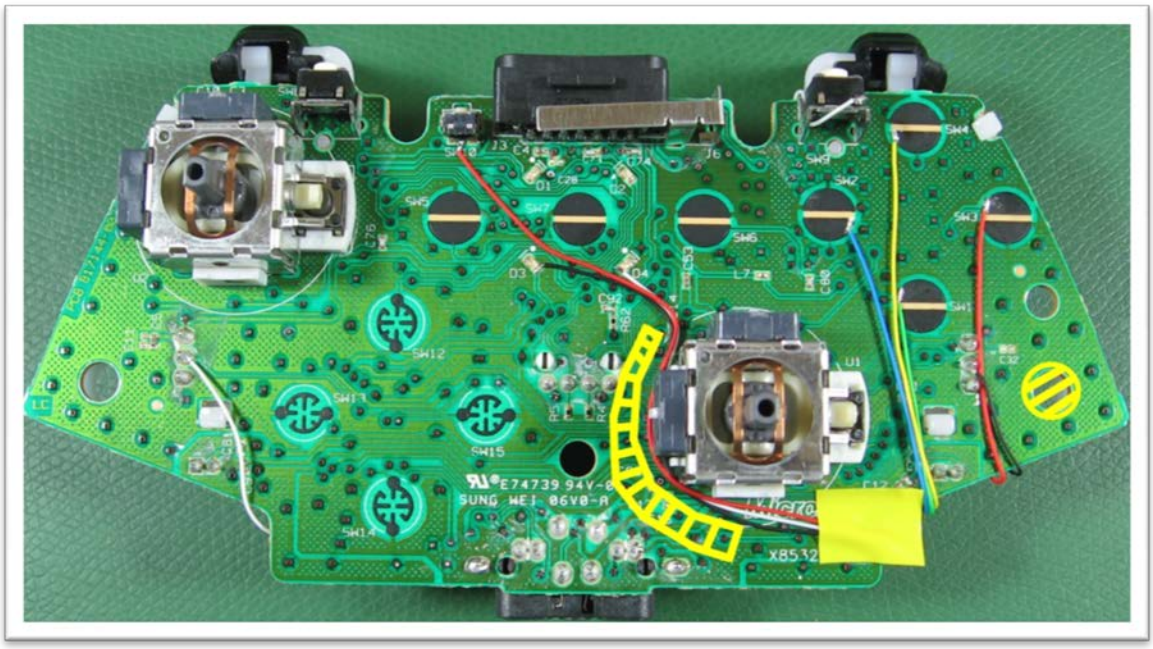
Now it is time to wire the "F, I, K, and L" wires to the circuit board per the diagram below:




The F wire is soldered to the center pin on the sync button. To make soldering this wire easier you can pre-tin the center pin. If you bridge the center pin to one of the outside pins, flux can be used to un-bridge the connection. To wire the K and L wires to the LEDs place a dab of solder on the lower side of the LEDs in the location shown above. This will make it easier to attach the wires as shown below:



Below is an example of a clean installation of the wires on this side of the controller circuit board. Be careful not to cover the LEDs or the Guide Button pad with the F wire. The F, K and L wires need routed as shown around the left side of the right thumbstick; be careful to stay out of the yellow "Keep Out" areas shown below:

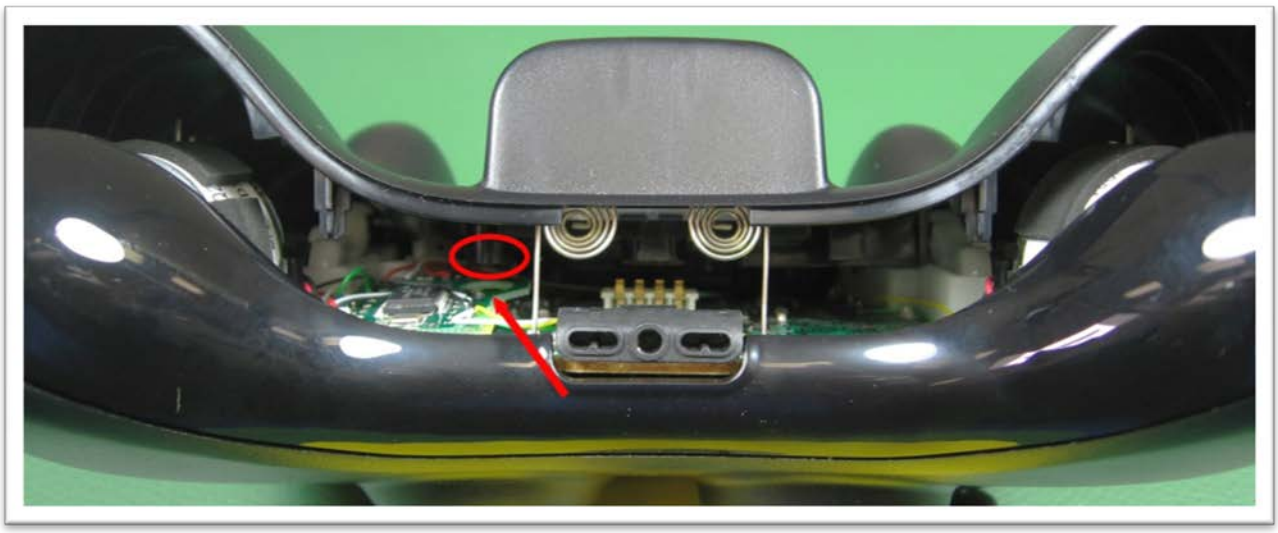


Now it is time to wire the F, I, K, and L wires to the modchip as shown in the diagram below:

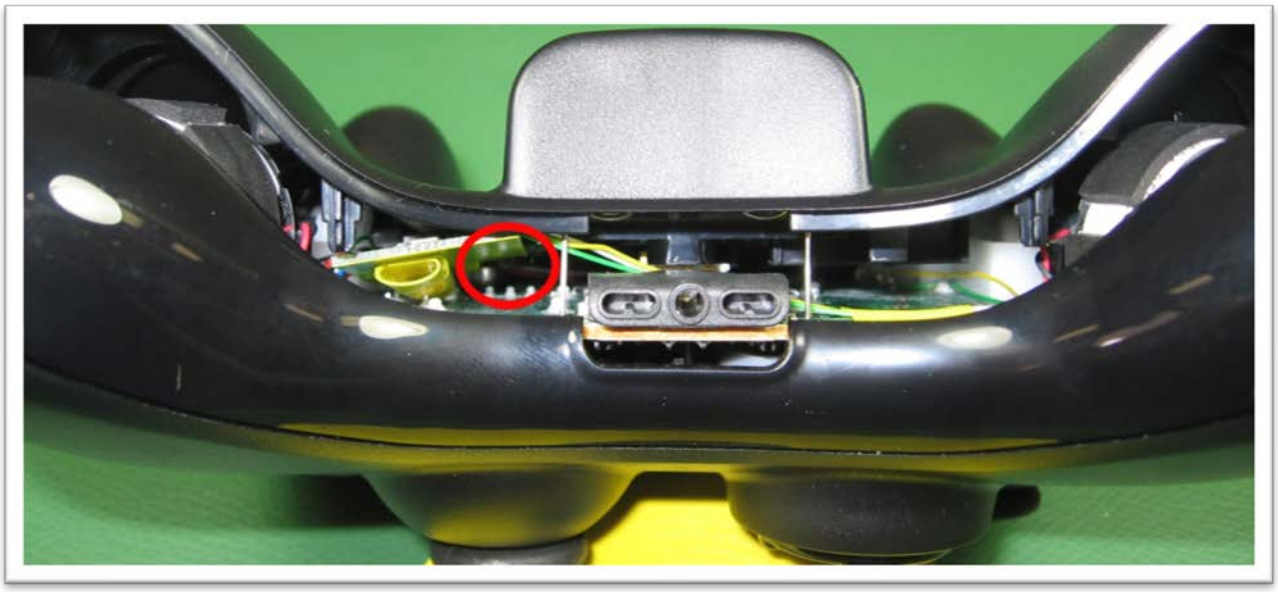
You can tape the H, I and J wires to hold them in place and help keep them out of the yellow "Keep Out" circle.

# Put the controller together

After you place the controller circuit board back into the top of the shell and install the rumble pads start to put the bottom of the shell on but stop as shown in the diagram below:



Using some tweezers or similar small object, push the modchip up so the hole in the modchip is around the post circled in the above diagram. When this is complete it should look like the diagram below:



Once the controller is closed make sure the H, I and J wires are visible and not pinched by the case. Wire placement should be as shown below:

Now you can put the 7 screws back in the controller.

# Test the Controller

To test your new Thor's Hammer controller visit: http://www.viking360.com to download the latest software for your controller. You will need the following files:

- Legacy Controller Software
  - http://www.viking360.com/downloads/legacy/Viking360 Legacy Rapidfire Customization Software v1.0.1.zip
- Thor's Hammer test code
  - http://www.viking360.com/downloads/legacy/test-code-thors-hammer.zip
- Thor's Hammer all in one driver (this is the driver installed on Thor's Hammer when shipped from Viking360)
  - http://www.viking360.com/downloads/legacy/all-in-one-driver-thors-hammer.zip

For information on how to program your Thor's Hammer controller please download the Thor's Hammer Programming Instructions PDF from Viking360.com:

http://www.viking360.com/downloads/legacy/instructions/thors-hammer-programming-instructions.pdf

When the test code is programmed onto your controller you can use the following table to determine if your controller is wired correctly.

| XBOX360 Thor's Hammer Button Test Codes | | | | | |
|---|---|---|---|---|---|
| **Long name** | **Short name** | **LED** | **Photo** | **Number of Flashes** | **Solder Joint** |
| **Left Thumbstick Press** | LSC | 4 |  | 1 | H |
| **Left Bumper** | LB | 4 |  | 2 | J |
| **Right Bumper** | RB | 4 |  | 3 | D |
| **Right Thumbstick Press** | RSC | 4 |  | 4 | E |
| **X Button** | X | 3 |  | 1 | C |
| **Y Button** | Y | 3 |  | 2 | B |
| **B Button** | B | 3 |  | 3 | A |
| **A Button** | A | 3 |  | 4 | O |
| **Sync Button** | SY | 3 |  | 5 | F |
| **Left Trigger** | LT | 3 THEN 4 |  | 1 | I |
| **Right Trigger** | RT | 3 THEN 4 |  | 2 | M |