PS4

Ragnarok

Flex Modchip

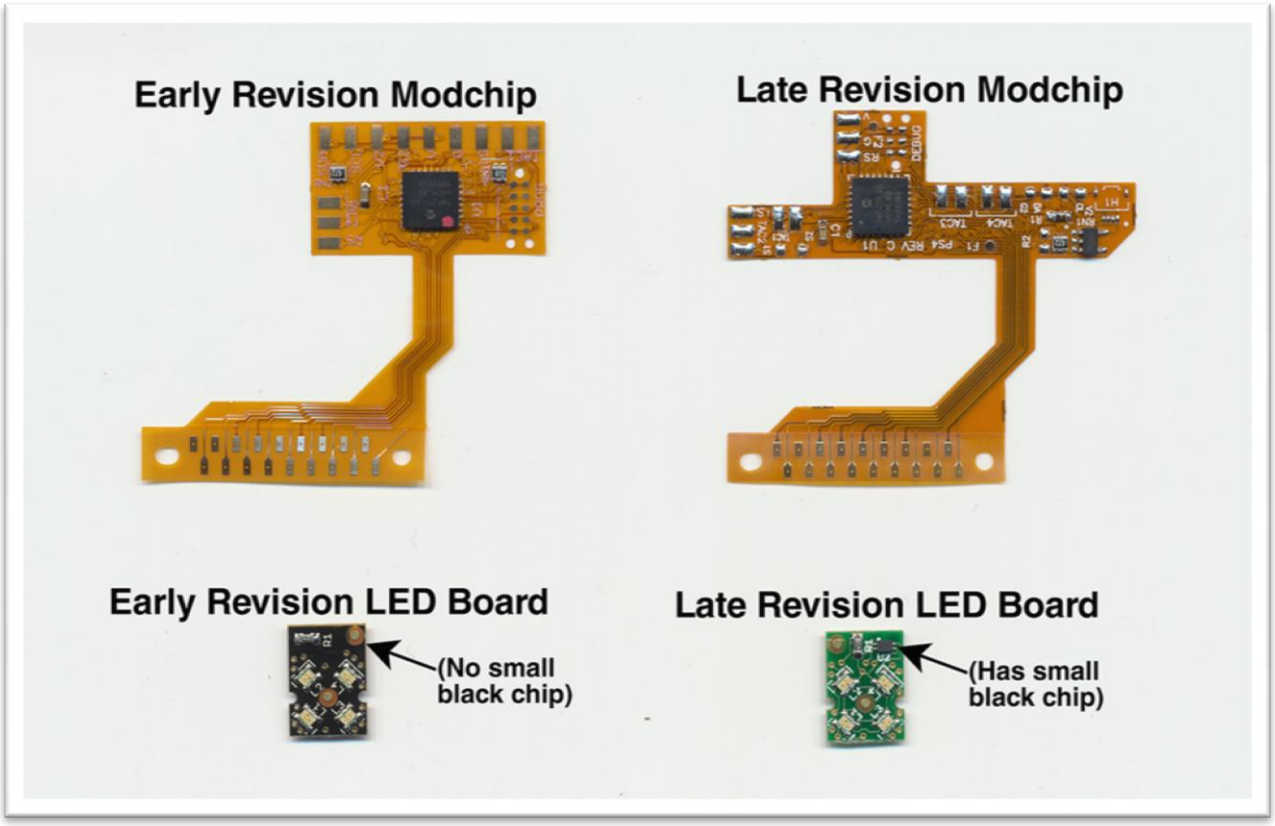
Installation Instructions

Revised 11/6/2014

Tools needed

- PS4 Controller
- Viking PS4 Ragnarok Flex modchip DIY Kit (includes mod chip, LED board, and LED lense)
- Two diodes (included with “revision 1” LED board)
- Soldering iron and solder
- 30 AWG wire (American wire gauge) or similar
- Wire strippers (capable of stripping above wire)
- Electrical tape
- Fine phillips screwdriver
- Power drill
- 9mm and 9/64 inch drill bits
- Hot glue and glue gun
- Safety glasses
- Additional useful items: flux, tweezers, scissors, wire snippers, etc.

Determine your modchip revision



It is important to identify whether your modchip is an early revision mod chip (pictured on the left) or a late revision modchip (pictured on the right).

Late Revision Modchip: Use only the Late Revision LED Board with this modchip. This modchip is compatible with and tested on Sony circuit board revisions JDM-001, JDM-011 and JDM-020. This modchip adds the ability to hook-up programmable re-mappable tactile switches.

Early Revision Modchip: The "RS" and "LS" are incorrectly reversed on this modchip. This modchip will ONLY work with the early revision LED board. This modchip requires the installation of two extra orange diodes (included in your kit). This modchip does not work with the later revision LED boards. This modchip is compatible with and tested on Sony circuit board revisions JDM-001, JDM-011 and JDM-020. This modchip does not have programmable re-mappable tactile switch function. When installed in JDM-011 or JDM-020, trimming of the black plastic battery pack is recommended to prevent stress on the modchip.

Remove the screws and cover

Once the 4 screws are removed, start separating the cover near the microphone port at the bottom. It may take some force to separate the shell. Cracking noise may be heard and some small tabs may be broken in the process, practice will make this process go more smoothly:

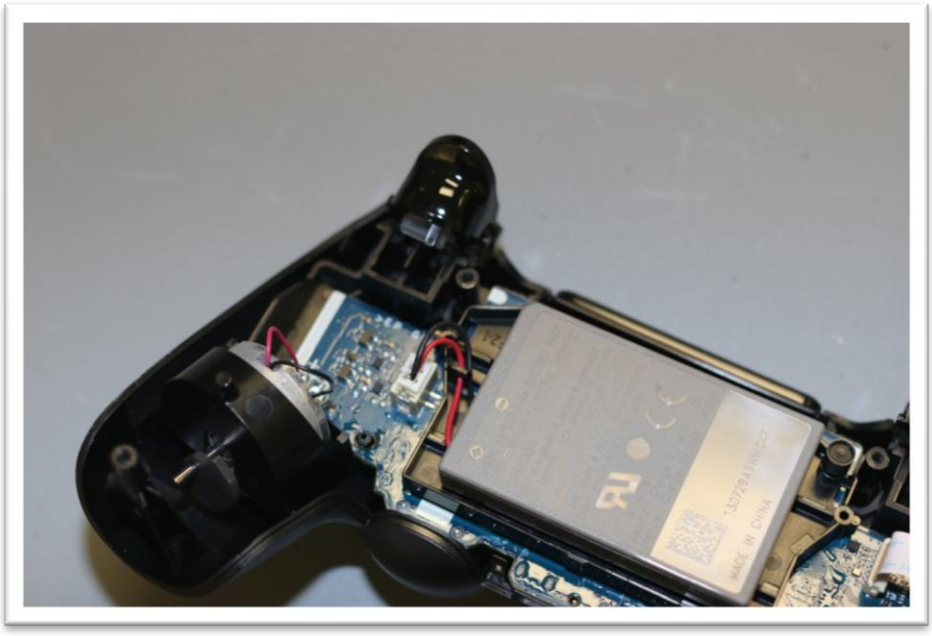
It is possible to remove the shell without removing either the triggers or the bumpers. The rear part near the round end of the handles should be lifted up and over the pegs that lie underneath:

Once the rear handles have cleared the pegs, it is possible to push the back half of the shell "forward" to clear the bumper and triggers, without causing the triggers to pop off. Practice will make this process go more smoothly. If the triggers pop off, **LOOK AROUND CAREFULLY FOR THE SMALL TRIGGER SPRING.** The small trigger spring is required otherwise the trigger will not return fully to the non-pressed position.

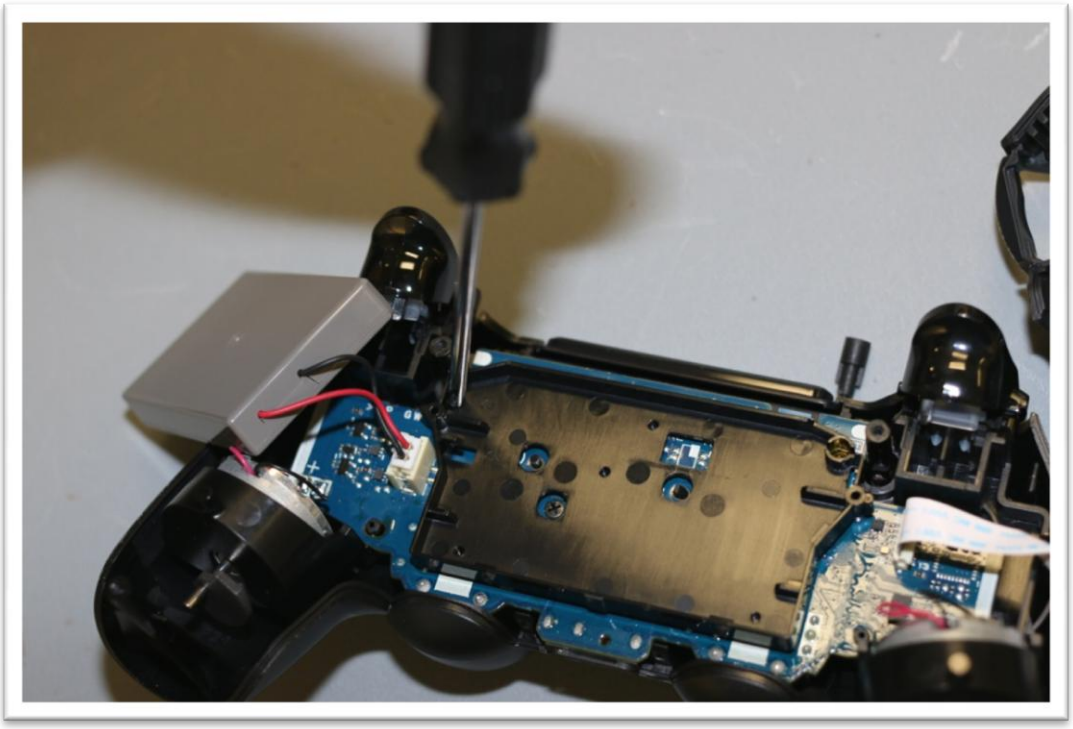
Disassemble the circuit board

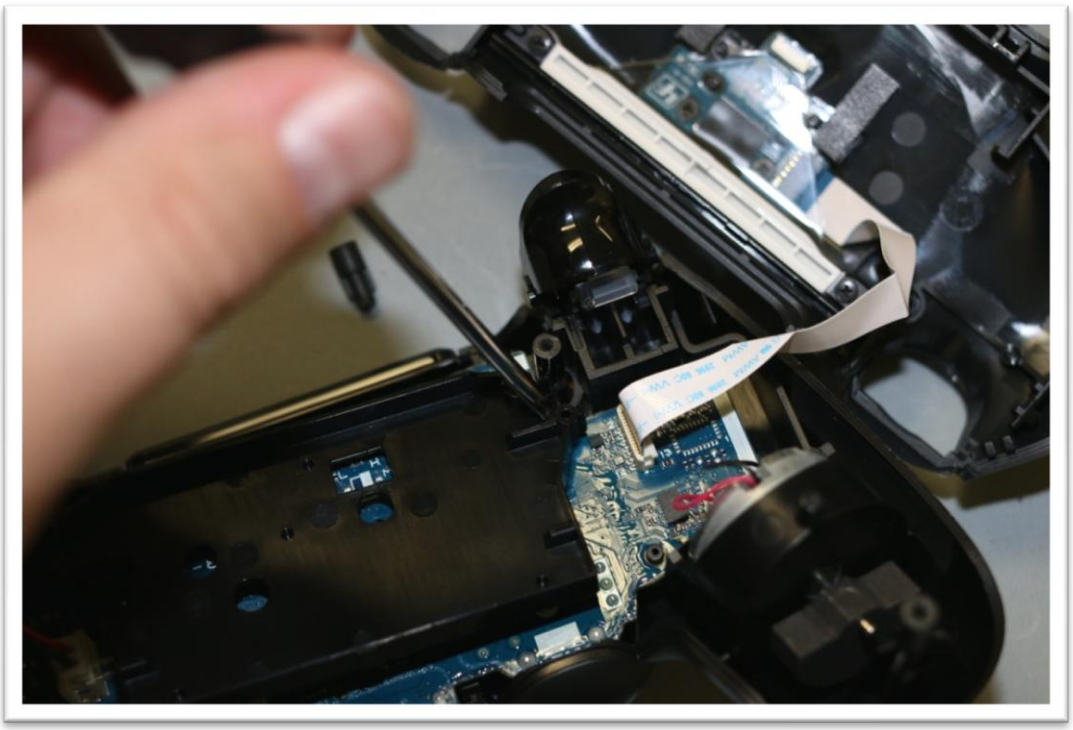
Once you've gotten the back half separated from the front half, flip it open like a clam shell:

Remove the small rubber reset button as it is easy to lose. Unhook the battery wires from the battery wires hook and remove the battery.



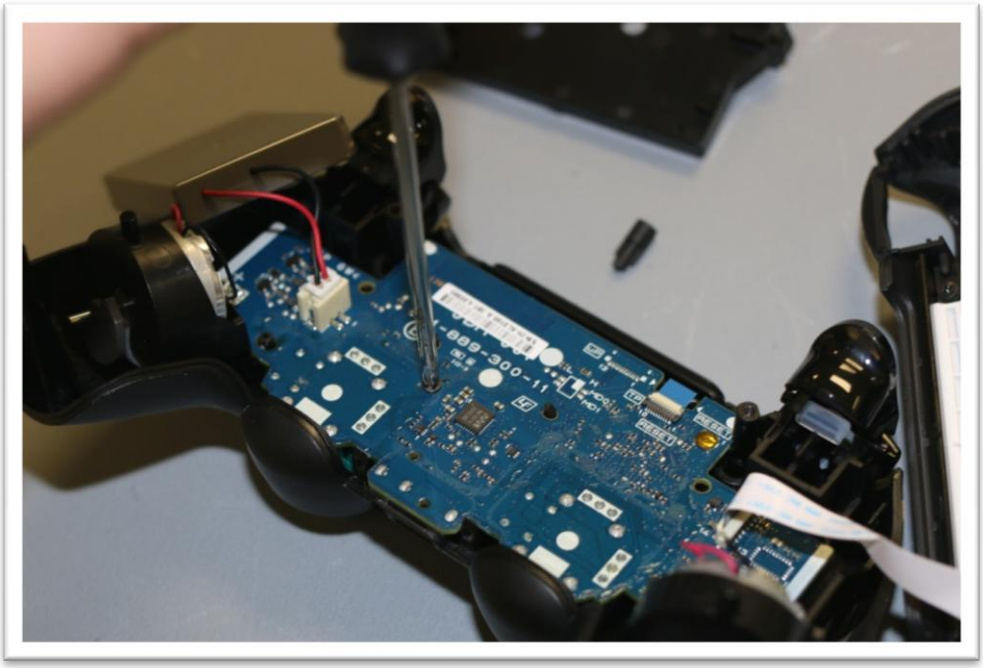
The black battery holder is held in place by two plastic tabs that “hook” around the circuit board. The tabs can be loosened by inserting a flat-tip screwdriver in the locations shown:



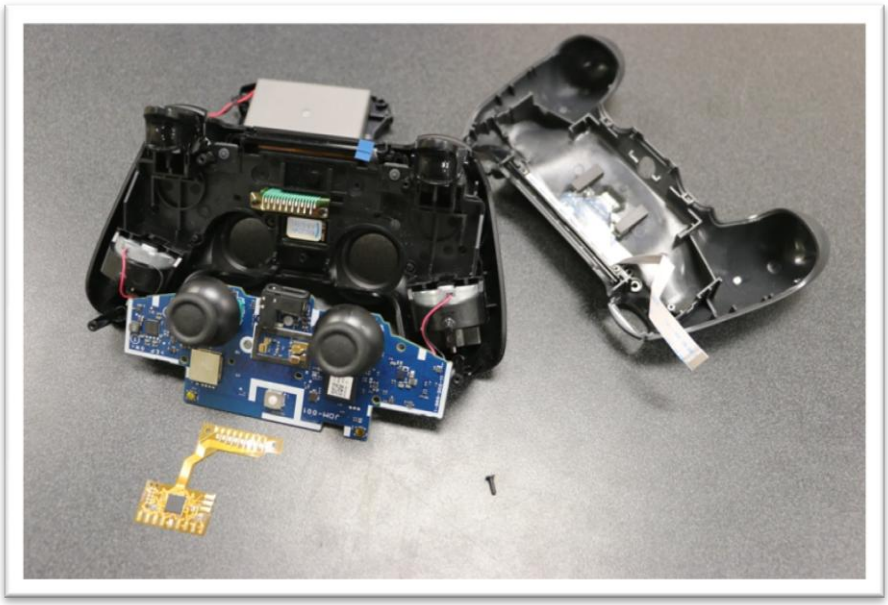


Remove the black plastic battery holder. Remove the single screw that holds the circuit board in place. Now, remove the battery wires, remove the larger white ribbon cable by pulling straight up on the blue tab.

Next, notice the smaller ribbon cable near the “RESET” on the board. Flip up the little white tab, then pull the ribbon cable out by pulling on the blue tab. The white tab locks the blue tab in place, so the white tab must be lifted before the blue tab can be pulled out.



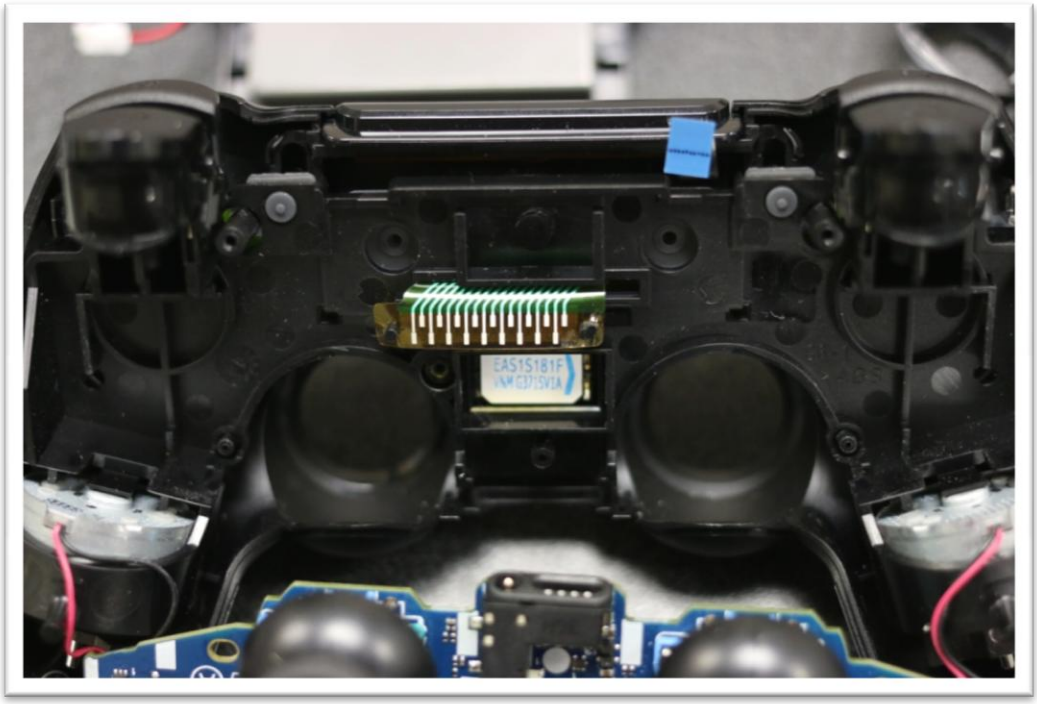
Once both ribbons have been removed, the battery has been removed, the reset button has been removed, and the single screw has been removed, the circuit board is still permanently connected to the two rumble motors. Pull the circuit board up and flip it over clam-style again:

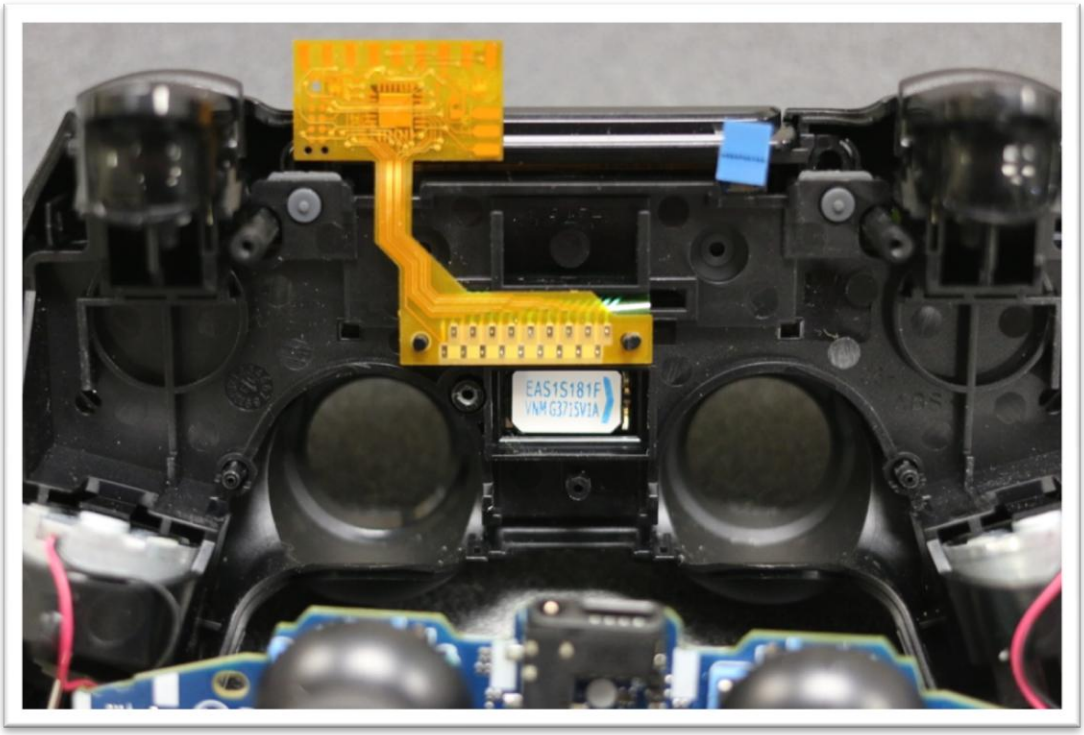


We are now ready to proceed with modchip installation.

Install the modchip

The modchip is installed into this location:





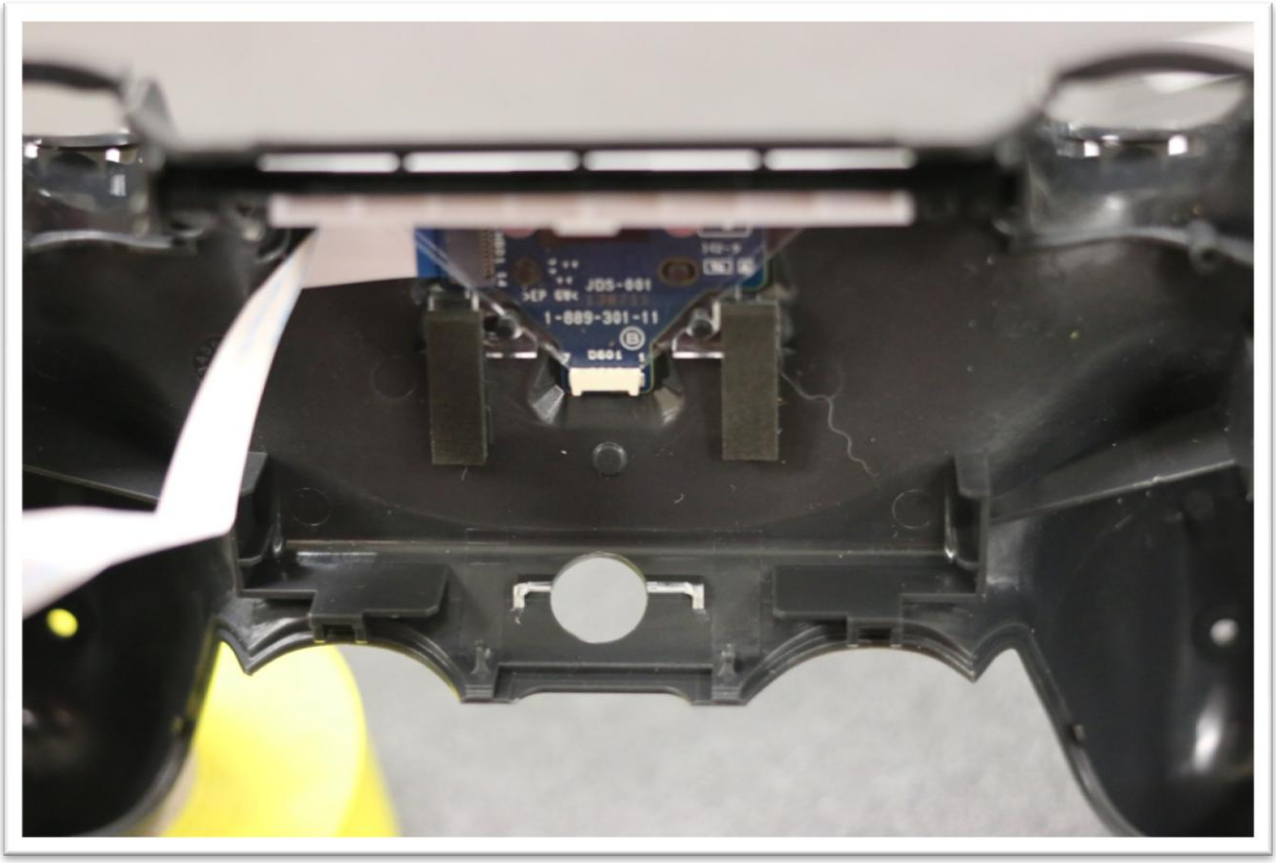
Once the solderless portion of the modchip is in place, re-install the Sony circuit board. Then put a square of electrical tape on the Sony circuit board, and fold the modchip over and stick it to the electrical tape:

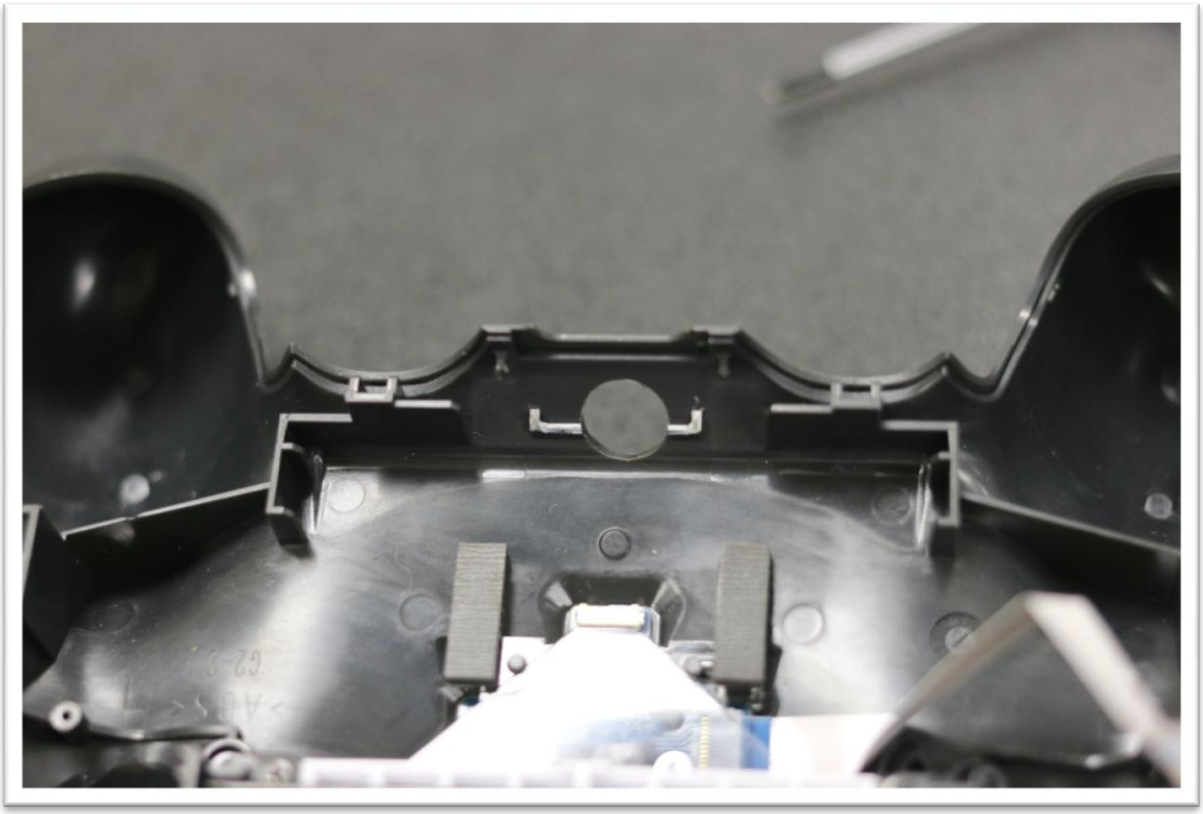
Drill Shell and Install Indicator

Drill a 9mm hole in the shell. Practice will be required to find the best location for the hole. Also drill a smaller hole as desired for the mod switch. We recommend using a smaller drill bit to drill a guide hole, then use a larger drill bit to make the hole a little larger, and then very last use the 9mm drill bit to make the hole the correct size.

The LED indicator is 9mm in diameter, and by using a 9mm drill bit, the indicator makes a nice press-fit into the hole. If you attempt to drill the shell without drilling a guide hole, you will most likely end up damaging the shell as the plastic is very soft.

Remove the tab of plastic before drilling:

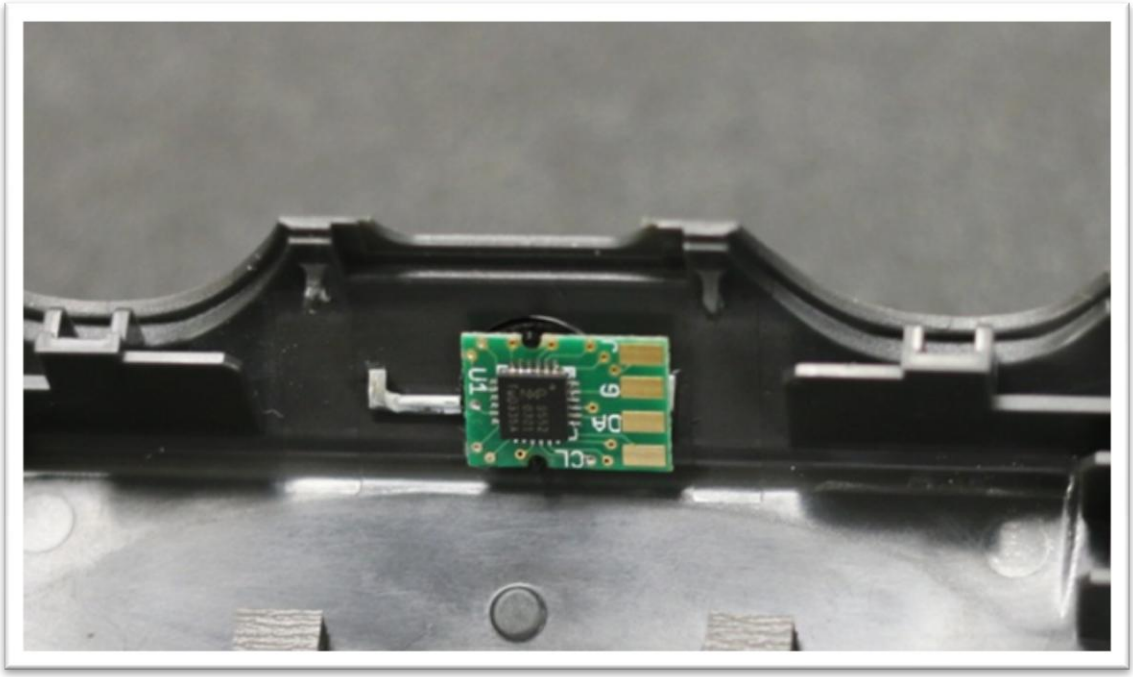




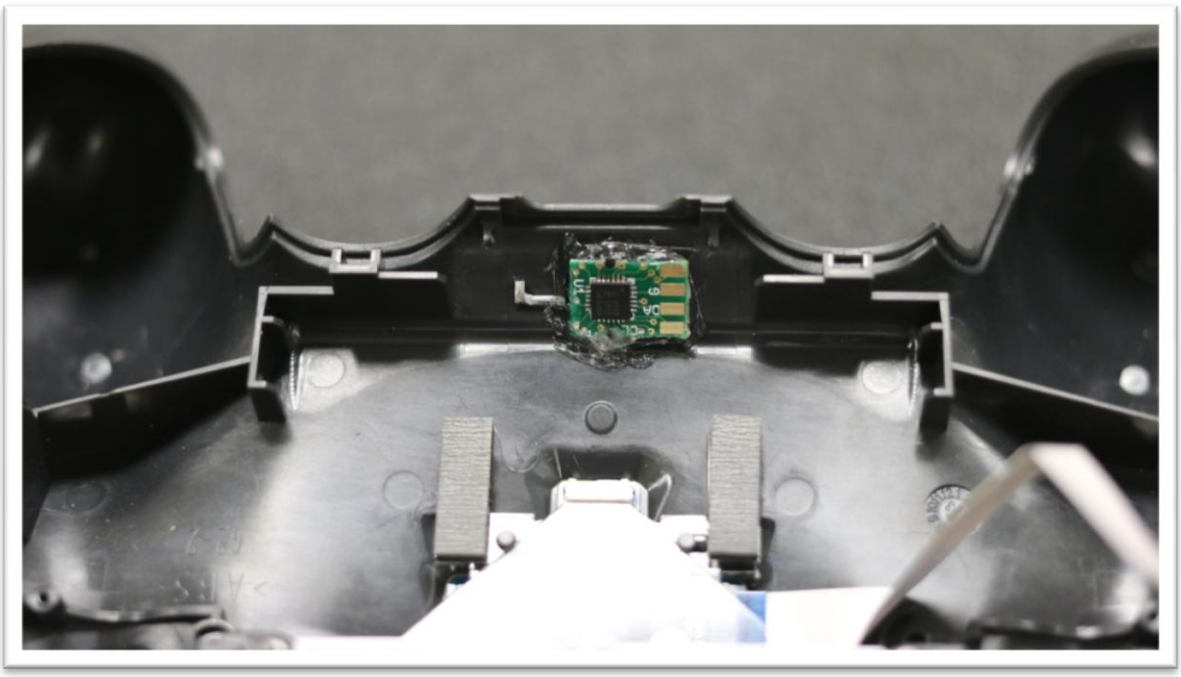
SONY
MODEL CUH-ZCT1U WIRELESS CONTROLLER 5V 800mA
Sony Computer Entertainment Inc.
MADE IN CHINA
NOM
ACCESSORY

SONY
MODEL CUH-ZCT1U
Sony Computer Entertainment Inc.
NOM
ACCESSORY

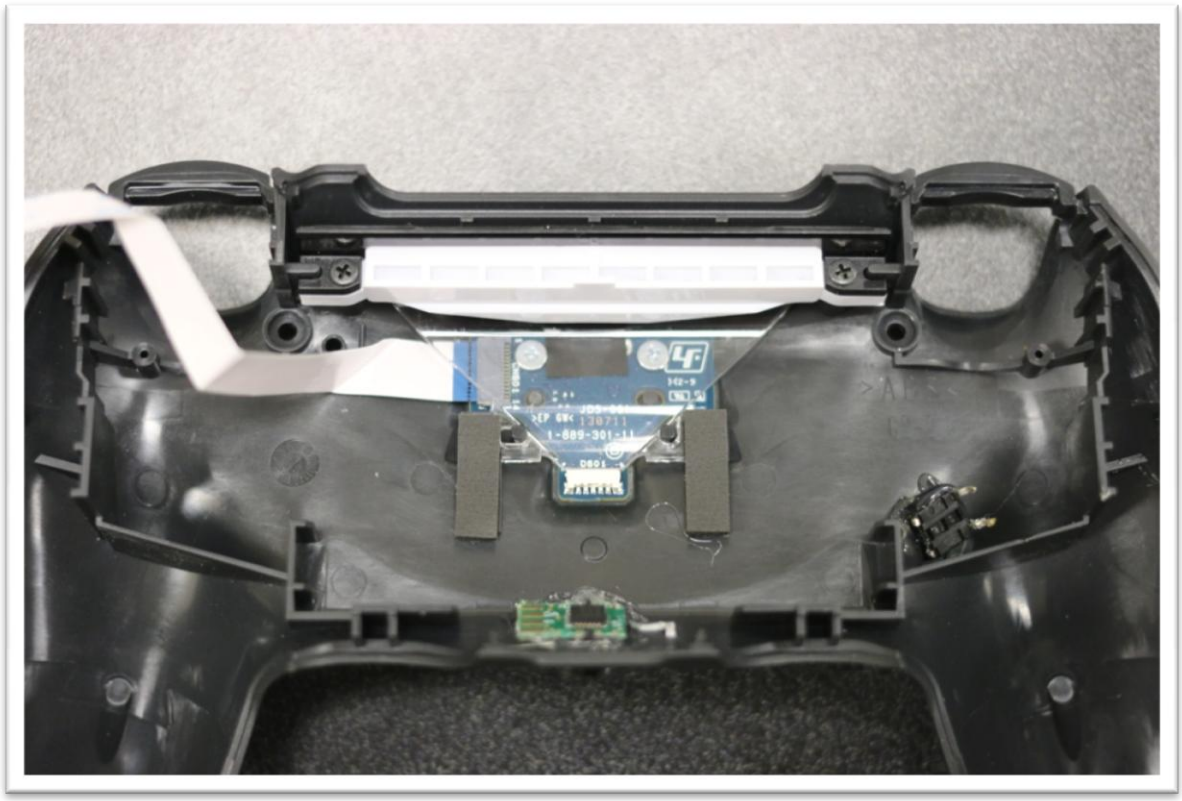
Press the LED lense all the way into the hole, noting the orientation of the two small nipples. The nipples will line up with the notches on the LED board. The LED board should be pressed firmly into the LED lense such that the little LED's on the board are sitting inside the LED lense. This will ensure best light performance.



Be sure to keep the LED board tight and firm against the LED lense and aligned in the alignment nipples, then use a few dabs of hot glue to secure everything in place.



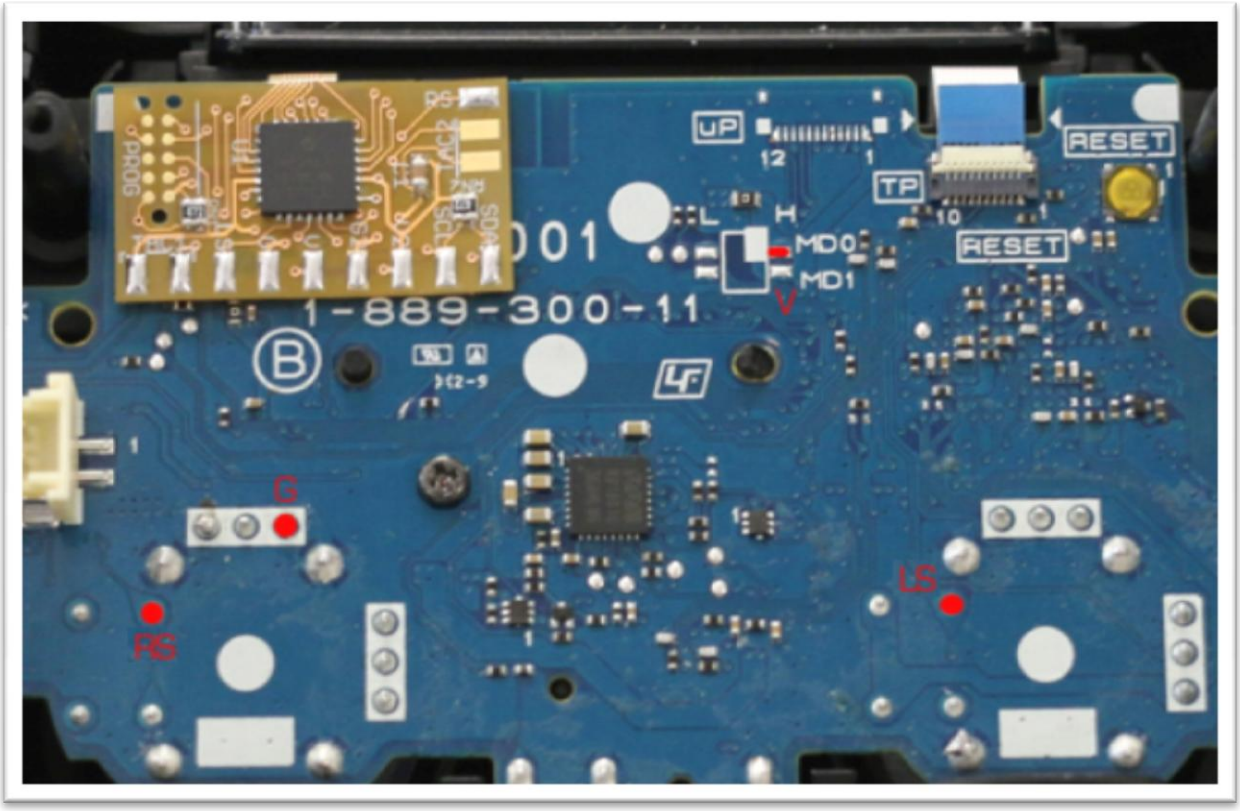
One possible location for the mod switch is shown in the photo below:



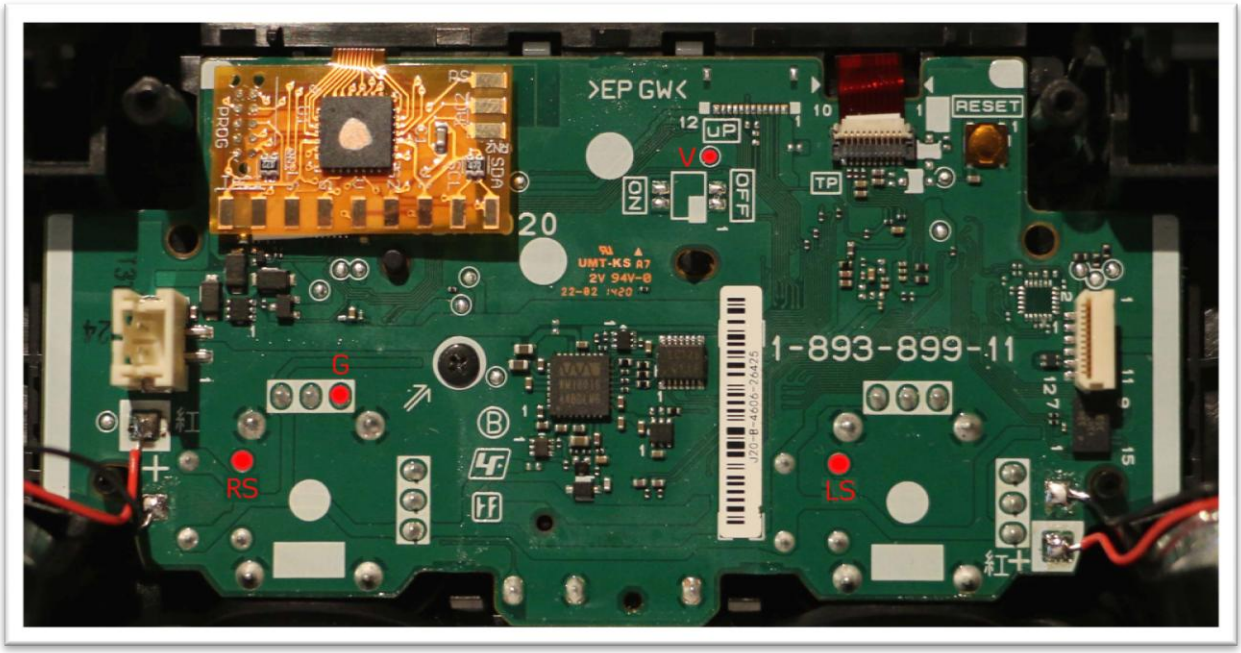
Begin soldering the modchip

PLEASE NOTE: THERE ARE SEVERAL DIFFERENT REVISIONS OF CIRCUIT BOARDS. You may have to remove a barcode sticker on the PS4 circuit board to uncover the JDM-001 marking. Currently the known circuit board revisions are JDM-001, JDM-011, and JDM-020.

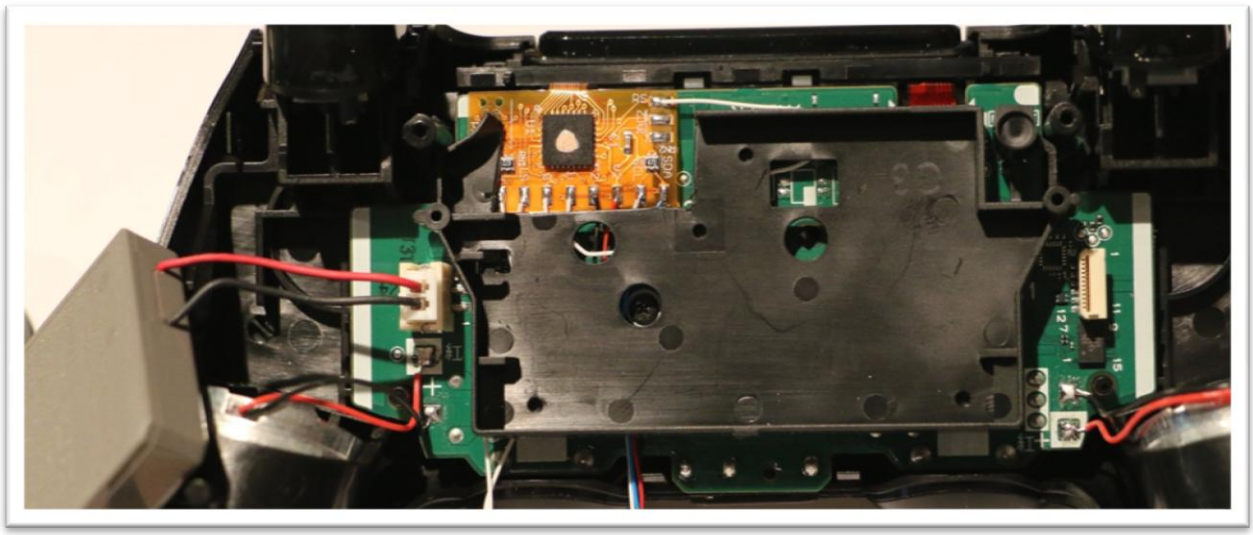
Four wires are soldered from the modchip to the Sony circuit board. “LS” which is the left thumbstick center button, “G” which is ground, “V” which is voltage/power, and “RS” which is the right thumbstick center button:



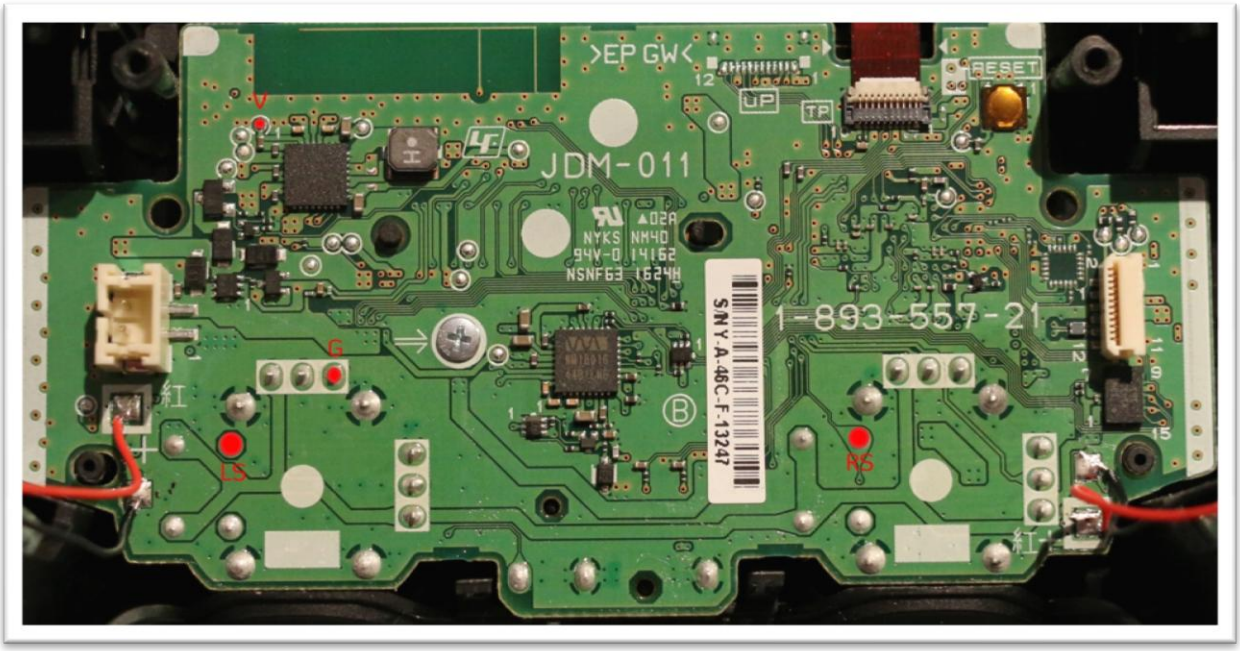
(Pictured above: JDM-001 circuit board connection points)



(Pictured above: JDM-020 circuit board connection points)

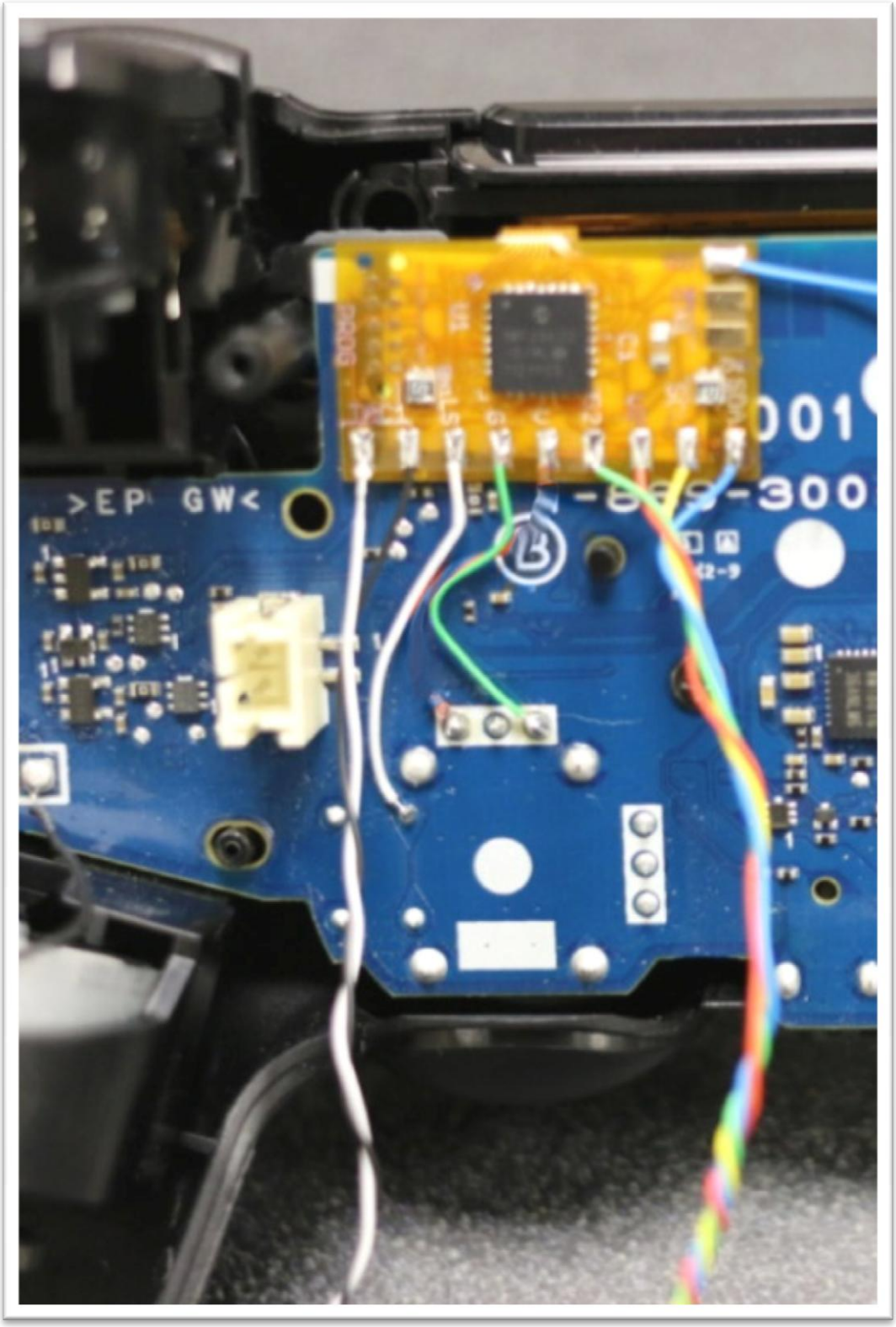


(Pictured above: JDM-020 circuit board. Battery pack holder only needs to be trimmed for early revision mod chip kits)



(Pictured above: JDM-011 circuit board connection points)

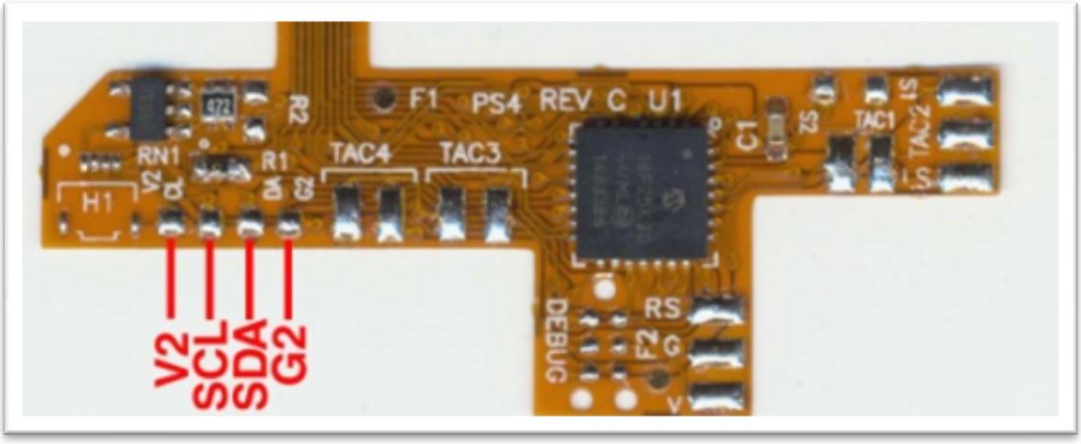
Create two small wiring harnesses: one for the mod selection switch (2 wires), and one for the LED indicator (4 wires). In the photo below we have twisted 30 AWG wires together. The mod selection switch should always be connected to “TAC1”.



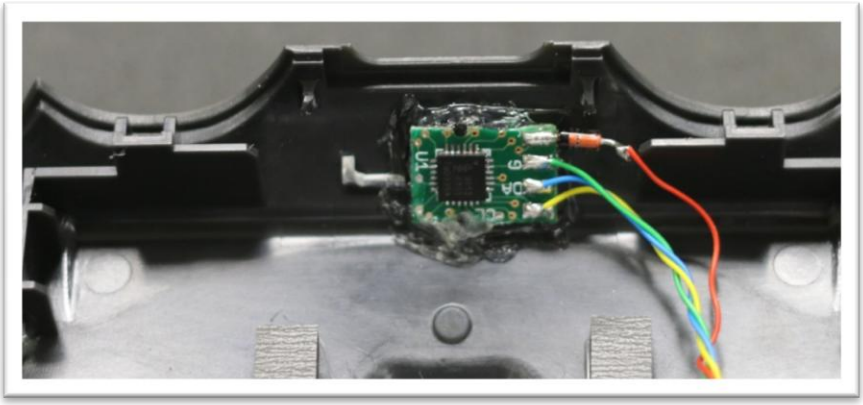
Install the two wires for the mod switch from “TAC1” to both legs of the mod switch. Install four wires from the pads on the modchip to the pads on the LED board. The connection pairs from the modchip to the LED board are:

- G2 goes to G
- V2 goes to V
- SCL goes to CL
- SDA goes to DA

Pictured below: Late Revision Modchips



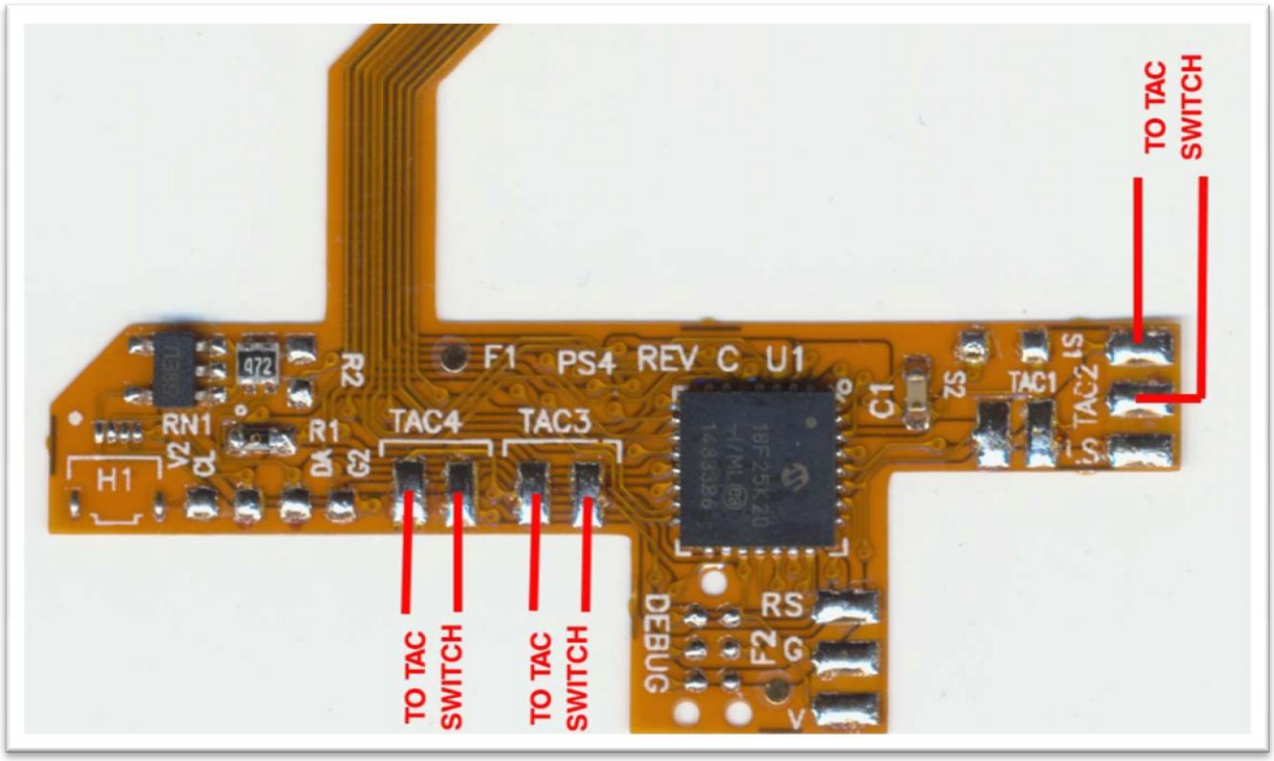
Pictured below: Early Revision Modchips



Note for Early Revision Modchip Only: if you have an early version of LED board, you will need to install the two diodes “in series”. Both diodes can be installed together near the flex board, or you could locate one diode on the LED board as shown above. The black band on the diode should go “towards” the LED board and “away” from the main flex modchip. These diodes limit the voltage and current to the LED’s.

Connecting Re-mappable Tactile Buttons

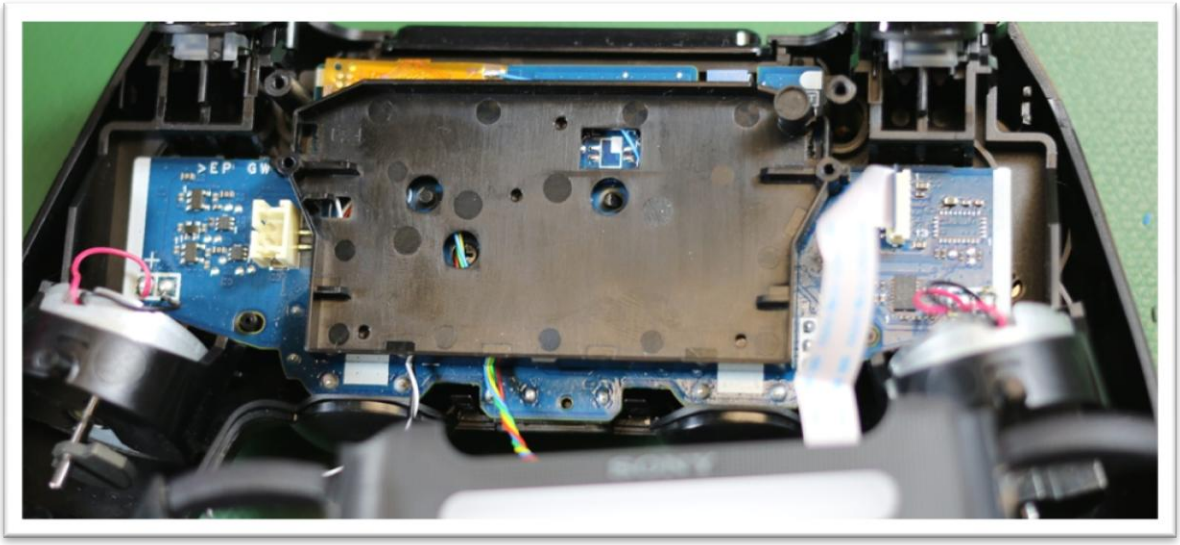
You may connect many additional tactile buttons to the late revision modchip, and these tactile buttons may then be used as programmable remapping buttons. The photo below shows “TAC2”, “TAC3” and “TAC4”.



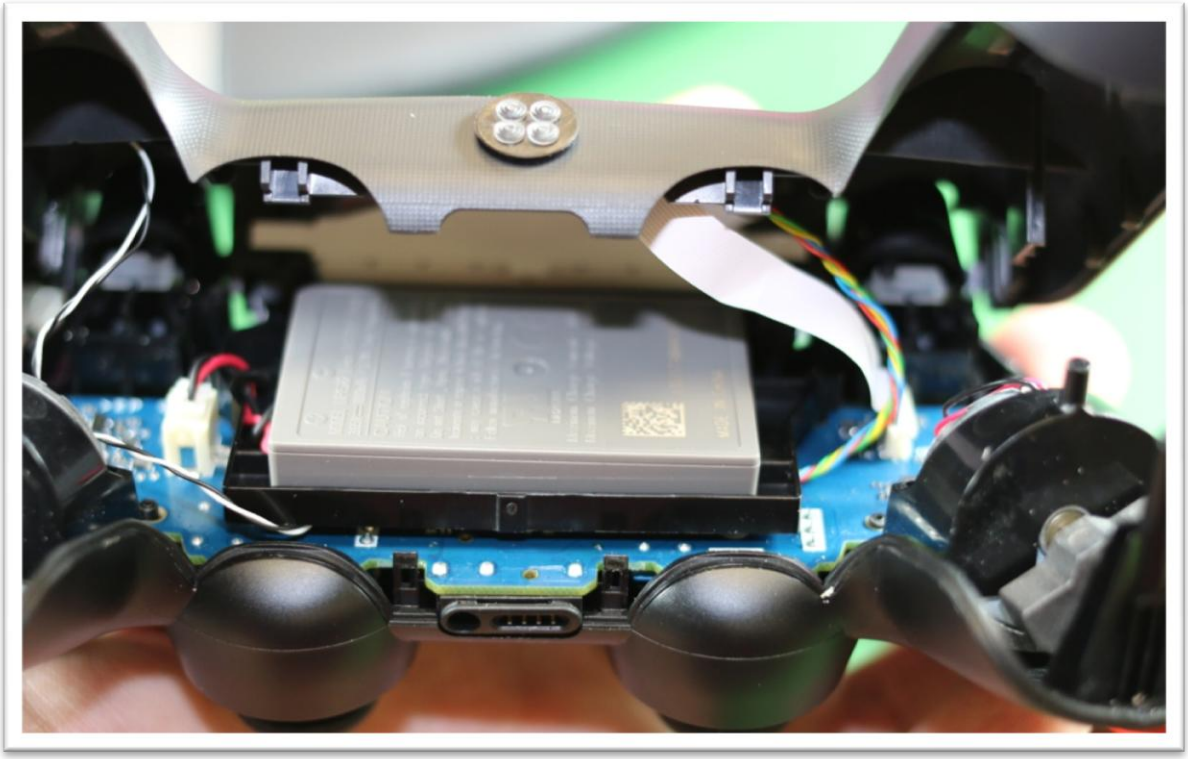
Note that the “S1” and “S2” pad may also each be used as an additional remap button, but a separate ground was not provided for these pads. To use “S1” as a remap button, for example: connect one leg of your tac switch to “S1” and the other leg of your tac switch to any ground.

Put the controller together

Once the 10 wires have been installed, re-install the plastic battery cover, the ribbon cables, and the rubber reset button. The wiring harnesses you created will be routed underneath the black plastic battery holder:

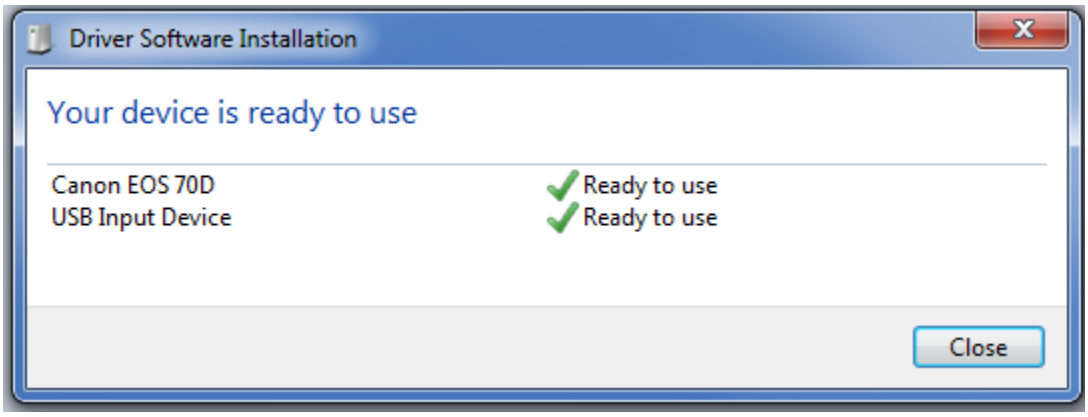


Route the wiring harnesses “left” and “right” into the more open areas such that they will not get pinched or caught when the shell is closed. The LED board harness can follow the ribbon cable:

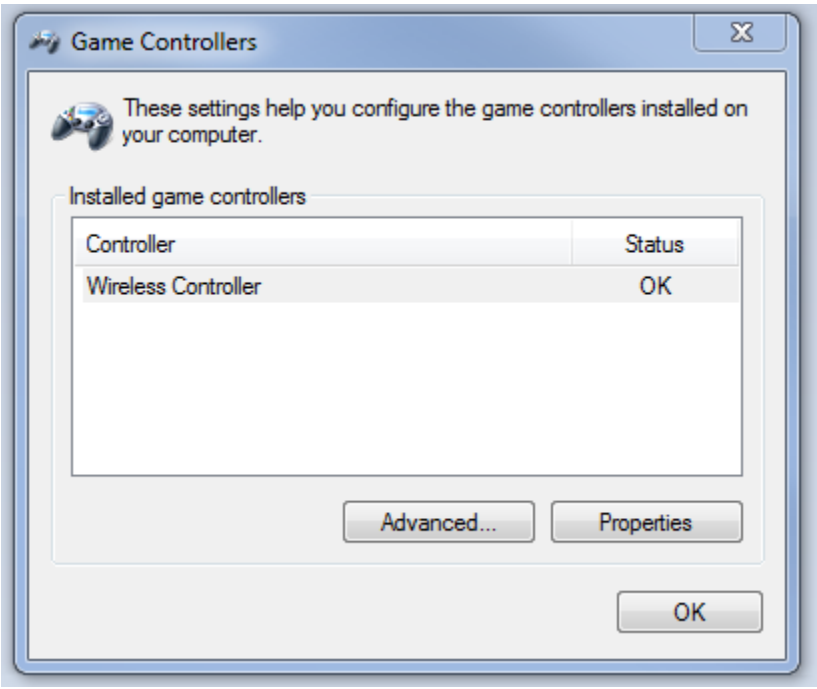


Test the Controller

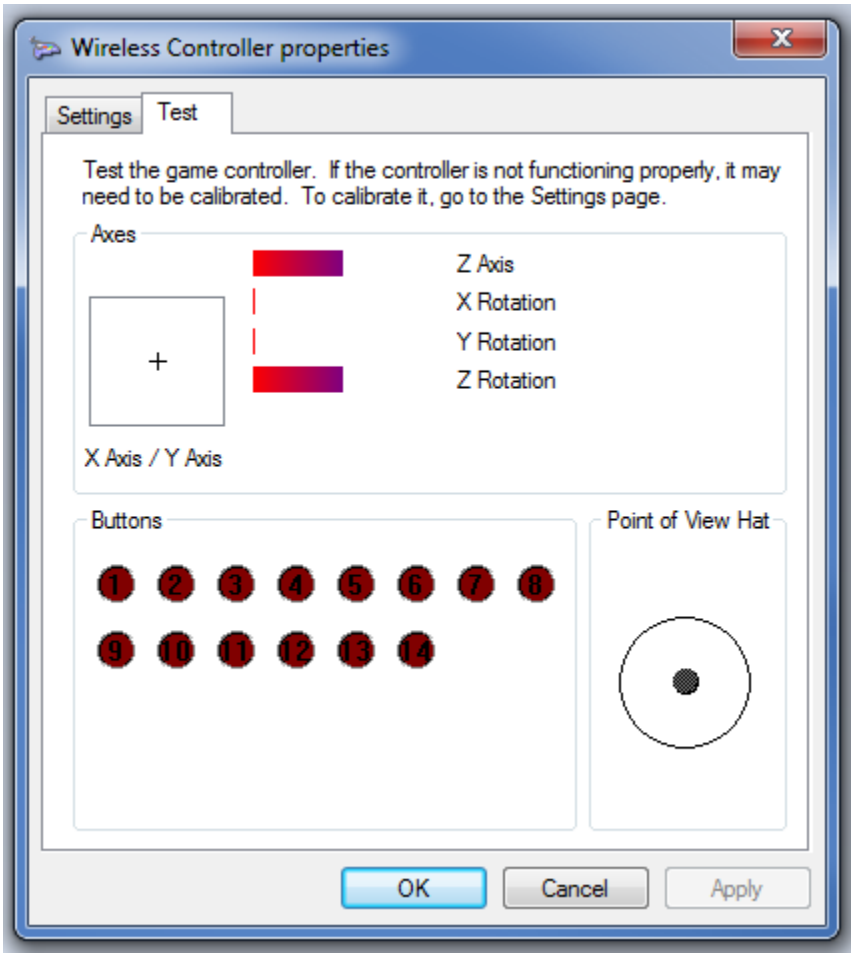
The PS4 controller can be connected to a Windows PC.



On Windows 7 for example, connect your controller by USB to your computer, and then type “Set up USB game controllers” into the search bar to launch the Windows native game controller tool.



The tool can be used to check that all button presses are functioning properly. Mods such as rapidfire can be tested without the need for a console by monitoring the flashing lights in the tool:



Once all button presses have been confirmed working and mods have been tested, it's time to play!