# SV MultiBot Installation
# 2003 thru 2006

*Please read the entire document before installation.*

SV Gauges 2003 thru 2006
MultiBot installation is only recommended for 2003 through 2006 gauges. Installation on these models is straight forward. It requires good soldering skill but does not require any cuts to the PC Board traces.

SV Gauges 2007+
MultiBot installation on the 2007+ years is different from 2003 thru 2006 and is not shown in this document. See document: SV MultiBot Installation 2007 for instructions.

The surface mount components on the SV gauge PC board are small and require a fine tip soldering iron. Good lighting is essential and some type of magnification is helpful too.

A simplified soldering technique can be used when attaching the wires to the PC board pads. Rather than heating the pad, then applying solder (standard method), first apply a small amount of solder to the bare pad then set the solder aside. Next, hold the wire in position on the pad, then just give a quick touch with the solder iron to reflow the existing solder. That's it. The wire will be securely attached.

This method takes two hands (instead of three!) and works well because Kynar wire-wrap wire is silver plated, takes solder easily, and is thin enough to heat almost instantly.

Once soldered in place, all wires should be secured to the PC board with tape (or dabs of hotmelt glue) to resist vibration.

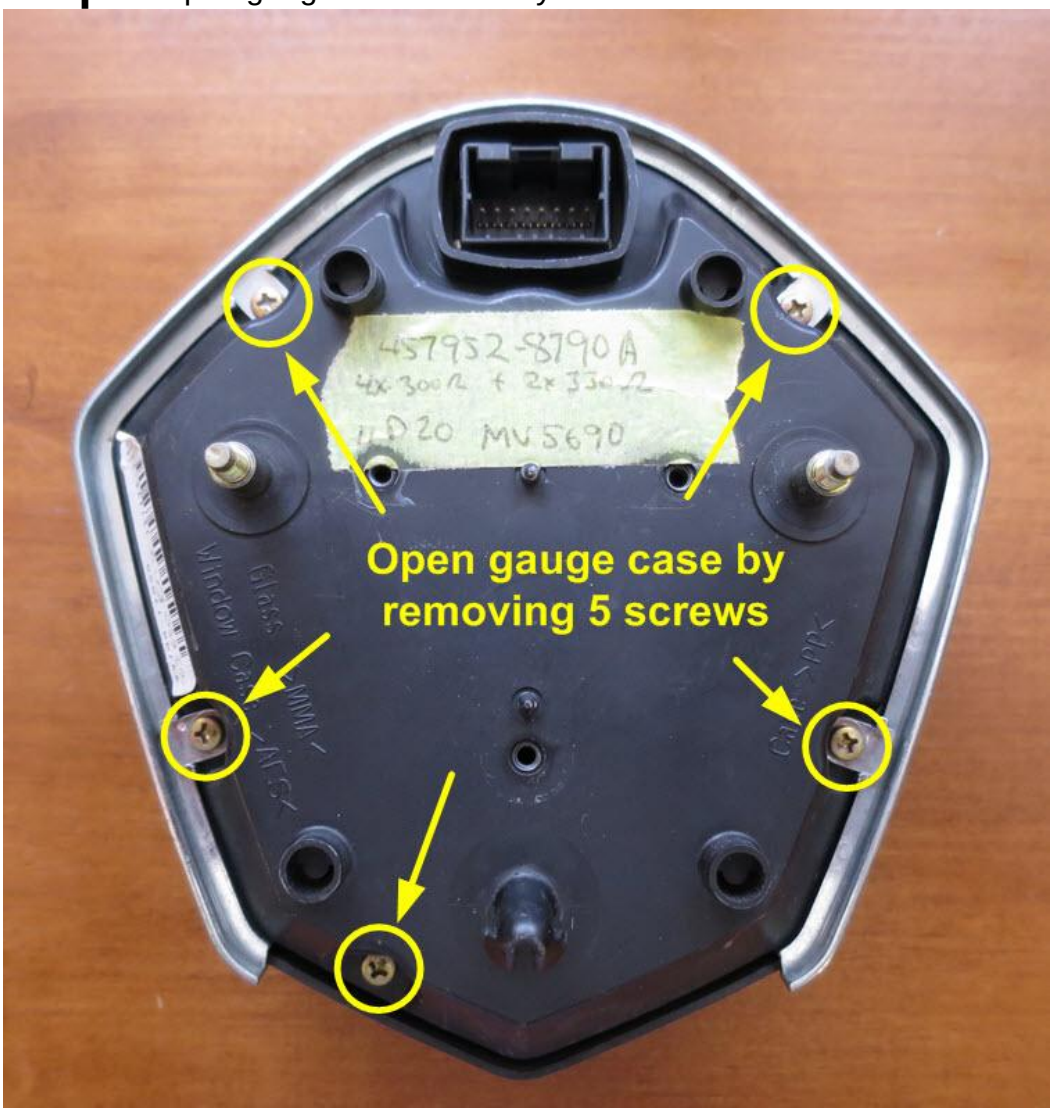
If for any reason the MultiBot is to be removed, simply unsolder the 8 wire connections and replace zero ohm resistor R192 (a small jumper wire can be used in place of R192 if need be). Resistors R154 and R155 do not need to be replaced if the White jumper wire is left in place.

**WARNING:** Do not attempt to install the MultiBot if you do not have prior soldering experience. The installer should understand and use standard ESD (ElectroStatic Discharge) precaution when handling the SV PC board and electronic components.

**DISCLAIMER:** Personal responsibility rules. Do not attempt to install or use the SV MultiBot unless willing to take full responsibility for anything that might go wrong.

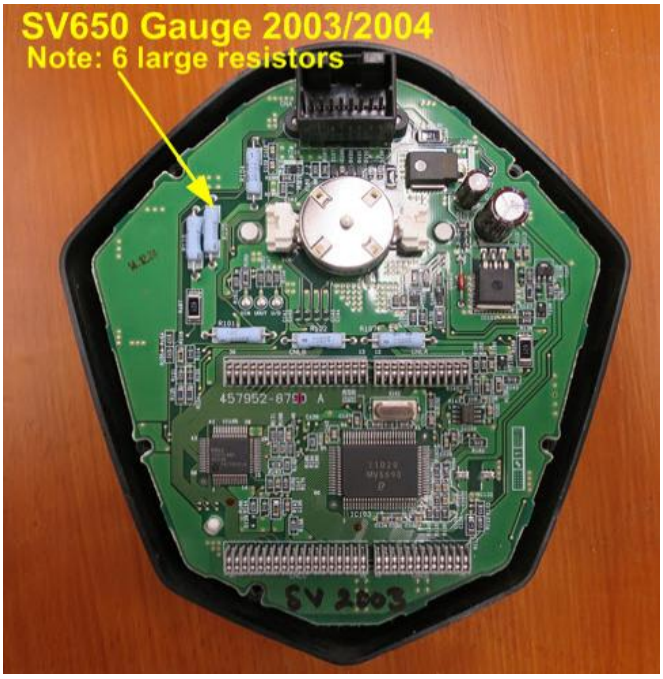
**Step 1:** Remove the gauge from the motorcycle. For SV Sport models, see the last two pages of this document (SV service manual excerpt) for fairing removal instructions.

**Step2:** Open gauge cover. Identify PC board version.

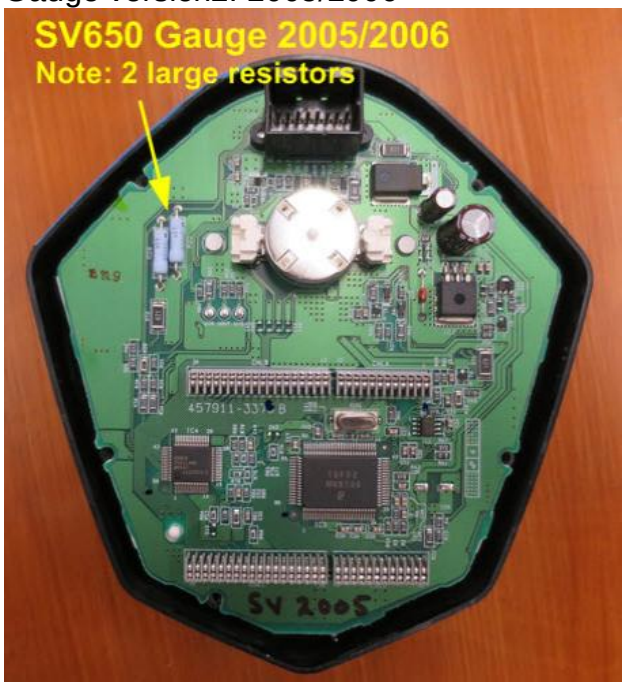


Suzuki revised the SV gauge PC board three times. To spot the difference look for the large gray resistors. '03/'04 have six resistors, '05/'06 have two, '07+ have none. Be sure to identify your gauge before proceeding.

Gauge version1: 2003/2004



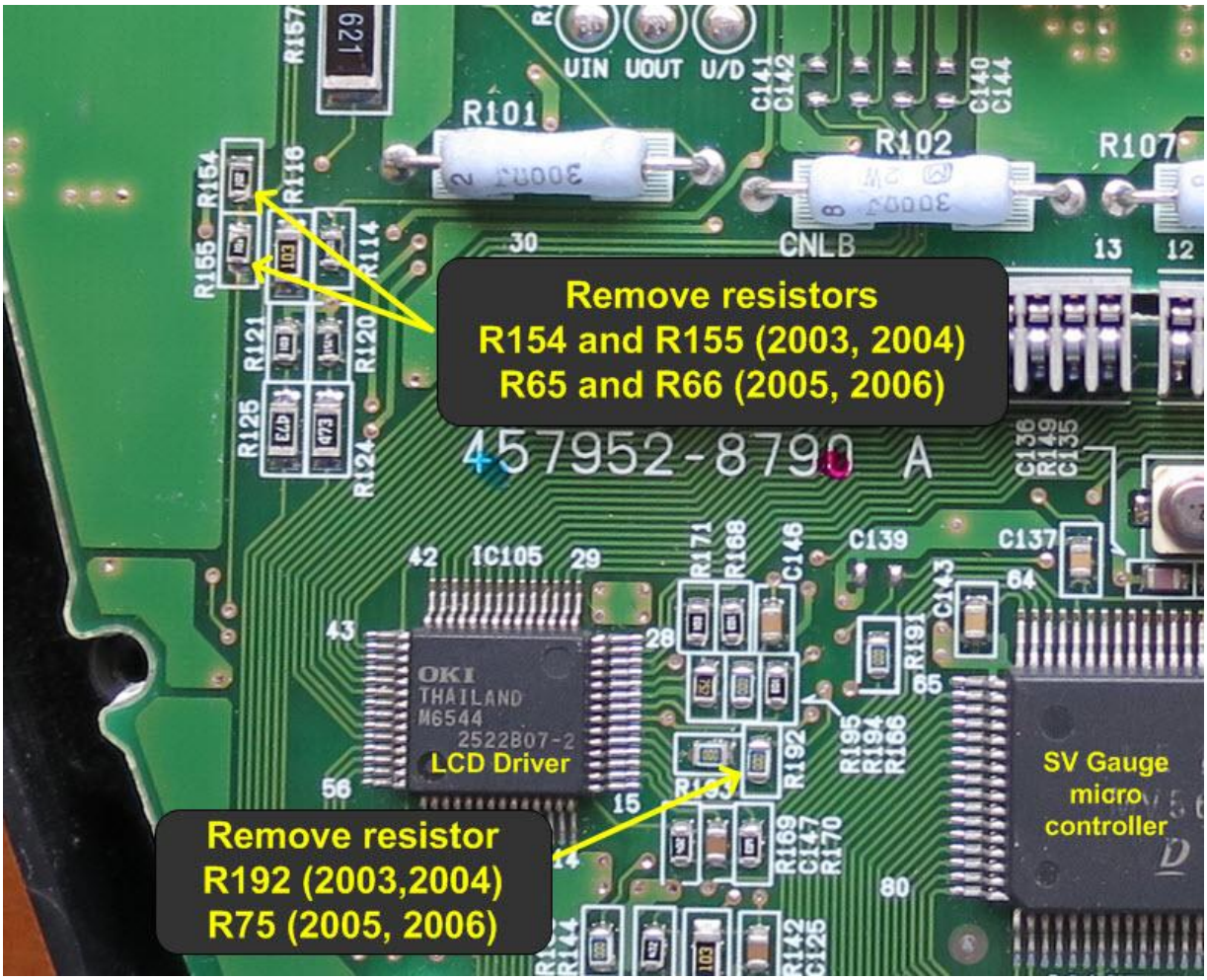

Gauge version2: 2005/2006



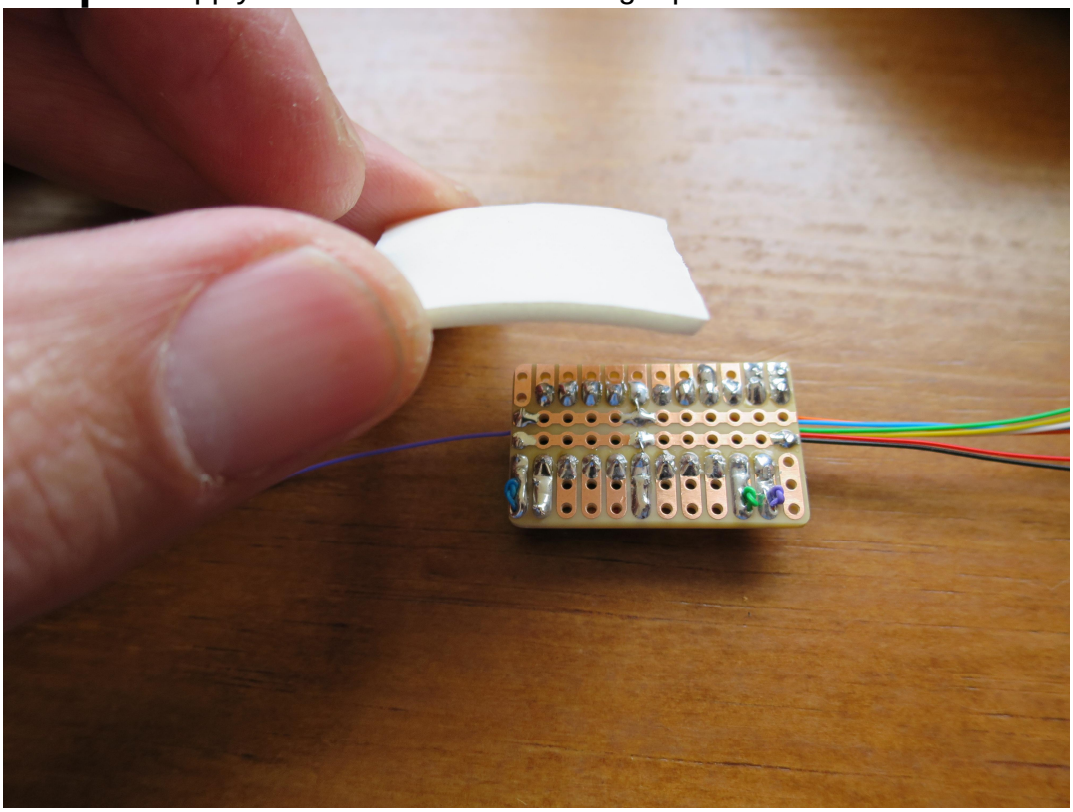

2003 thru 2006 MultiBot installation is identical. Only the component numbers are different.

**Step 3:** Remove resistors R154, R155 and R192. A few light touches side to side on the resistor will melt the solder and the part will easily push off. Note the different resistor numbers for SV years (2003, 2004) vs (2005, 2006).

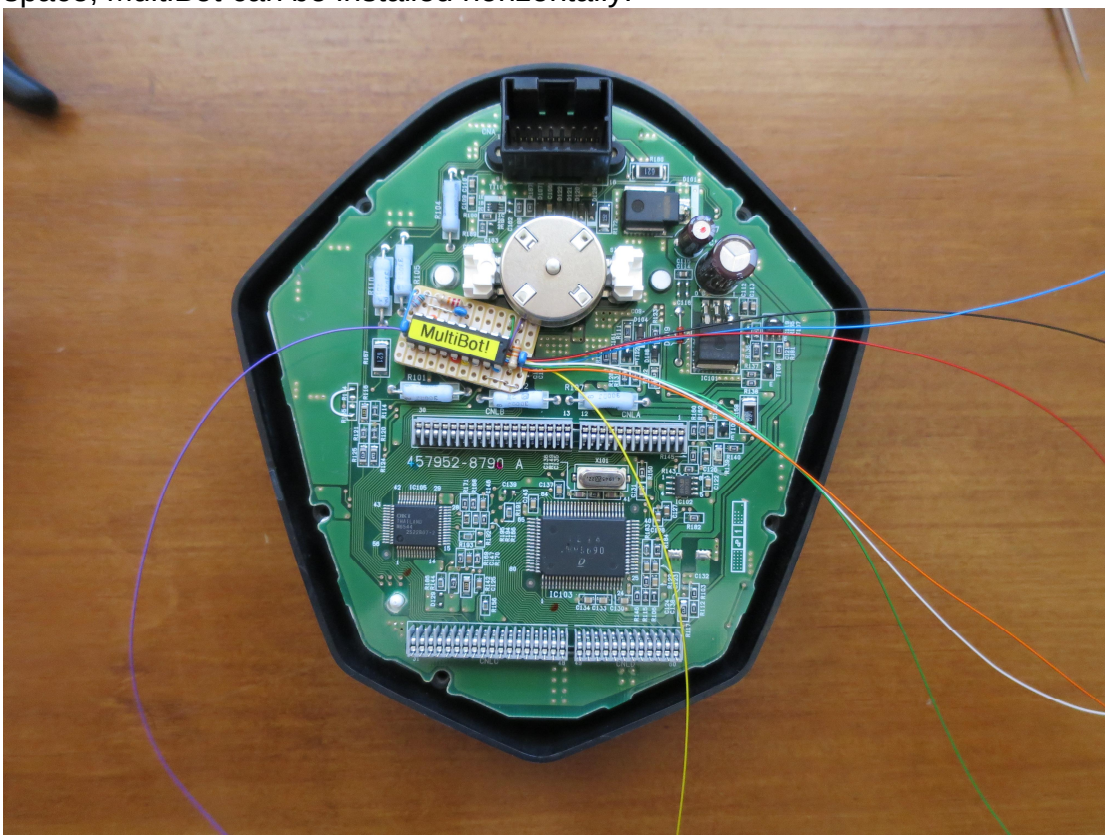
Purpose: Removal of R154 and R155 allows the MultiBot to use the spare pin on the SV gauge connector for the gear position signal. Removal of R192 allows the MultiBot to tap into the serial data line that runs from the SV gauge microcontroller to the LCD driver.



**Step 4:** Apply 3M double sided mounting tape to back of MultiBot.

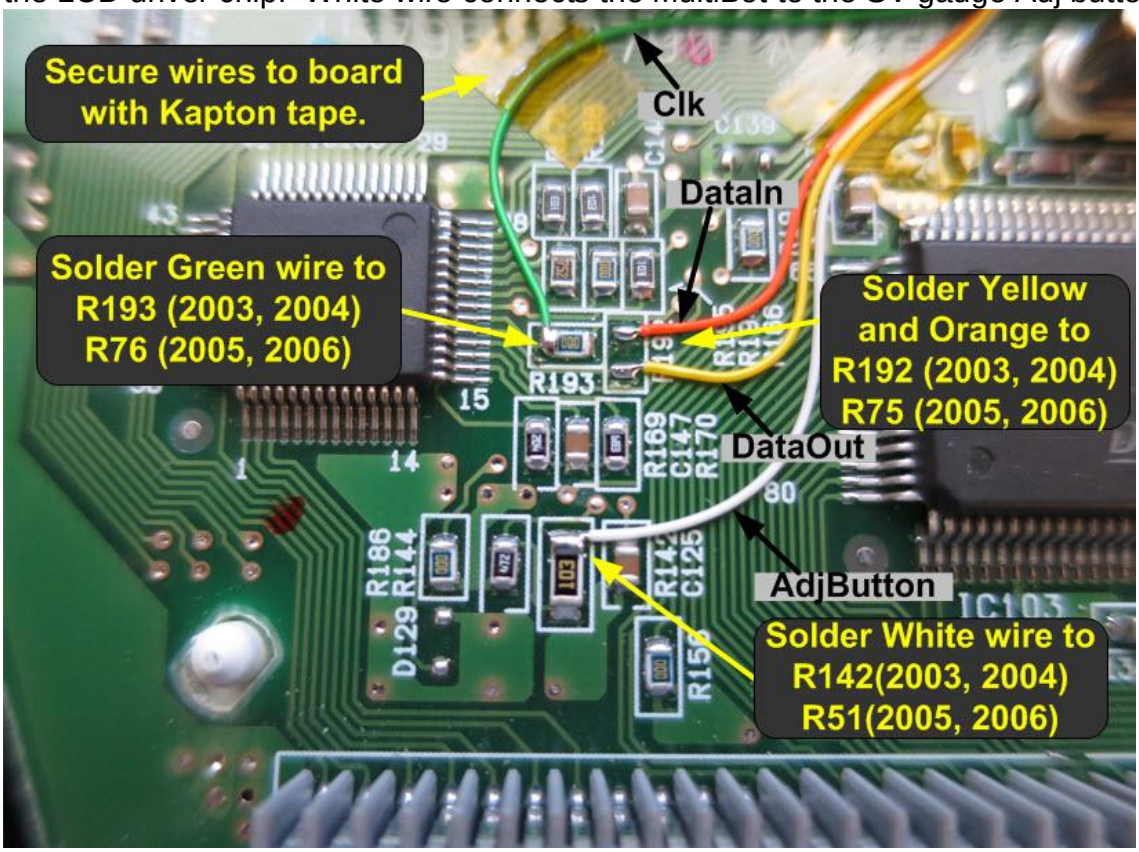


**Step 5:** Mount the MultiBot to gauge PC board as show (2003). The 2005 board has more space, MultiBot can be installed horizontally.



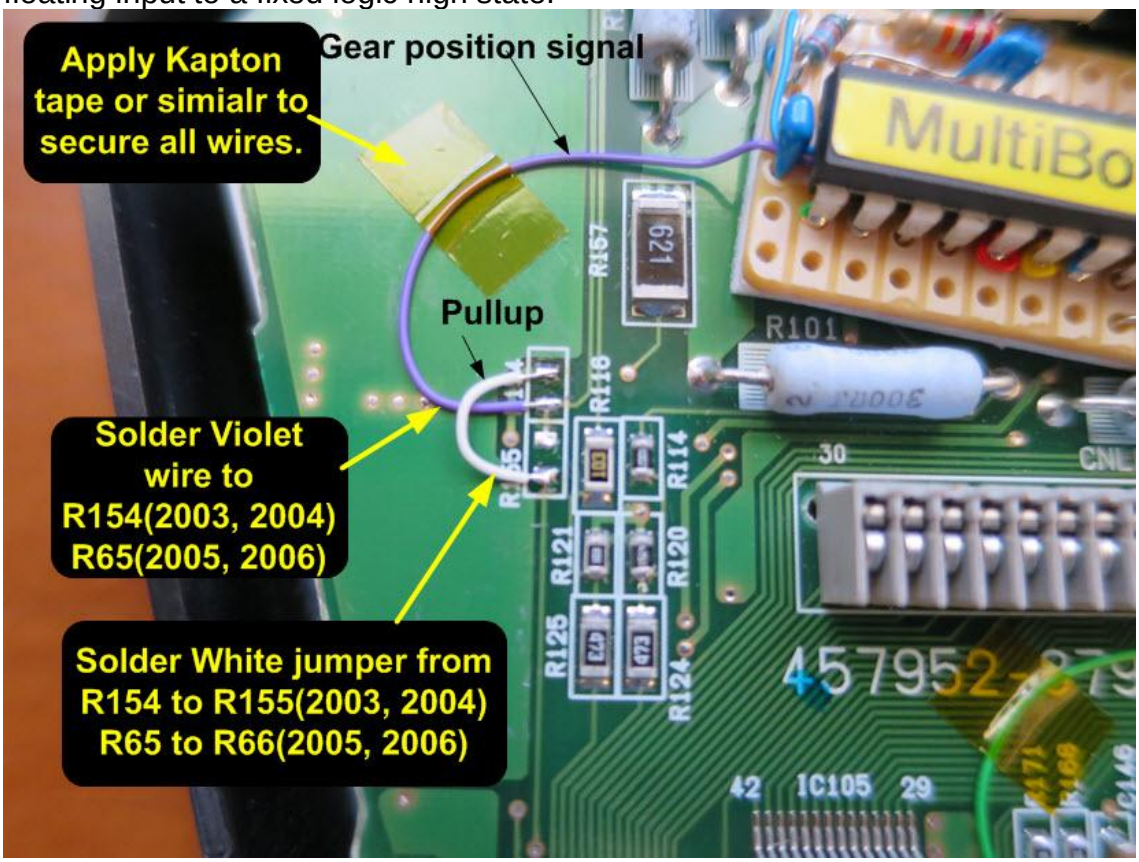
**Step 6:** Trim MultiBot wires to fit, stip 1/16" insulation off each wire using 30awg wire strippers. Solder Orange, Yellow, Green and White wires in place.

Purpose: Green wire connection to R193 allows the MultiBot to see the serial data clock. Orange wire to R192 is intercepted serial data from the SV gauge microcontoller. Yellow wire is processed (now contains gpi, voltmeter and speedohealer data) serial data from the MultiBot to the LCD driver chip. White wire connects the MultiBot to the SV gauge Adj button.



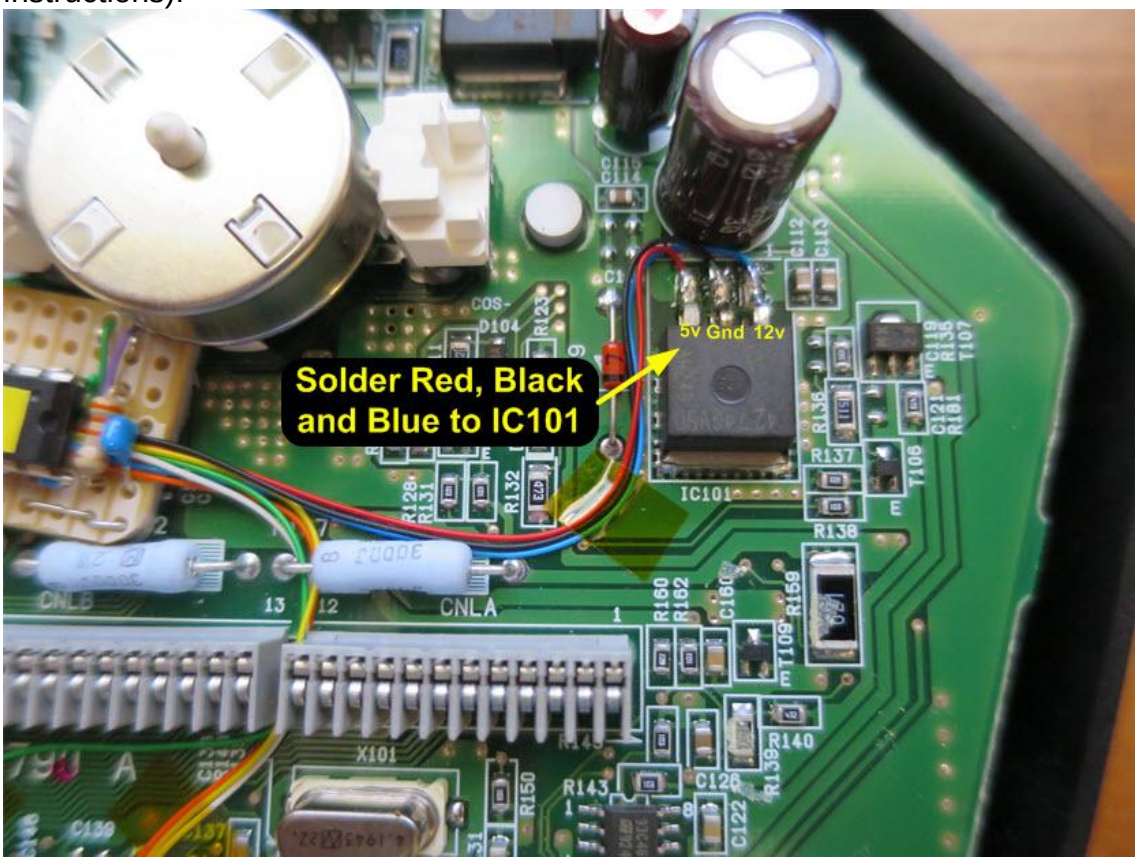
**Step 7**: Solder White jumper and Violet wire in place

Purpose: The Violet wire connects the MultiBot GPI input to pin-2 on the SV gauge connector (this is where the gear position signal enters the gauge). When SV gauge pin-2 is redirected to the MultiBot, one of the inputs ot the SV gauge uC is left floating; the White wire is used to tie that floating input to a fixed logic high state.

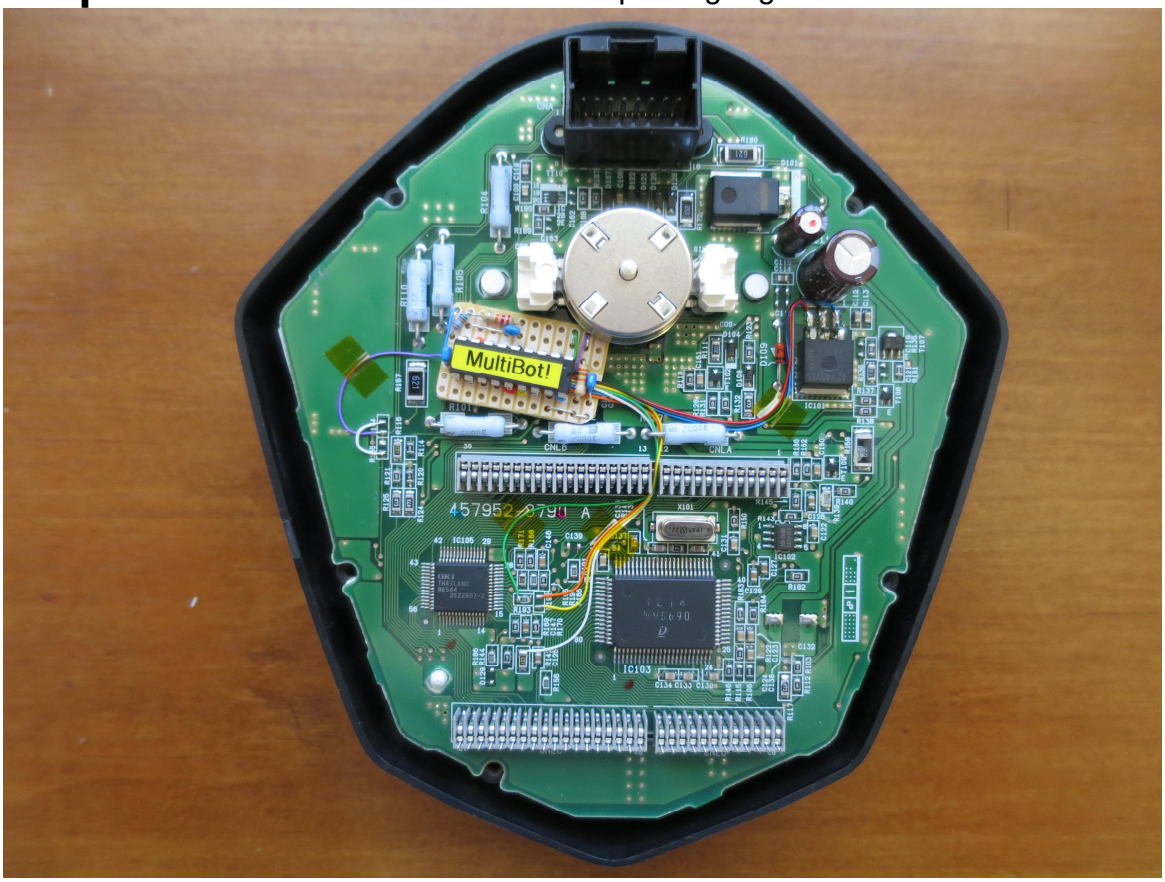


**Step 8:** Solder Voltage regulator wires. The voltage regulator connections are heavier and require a bit more heat (longer iron time).

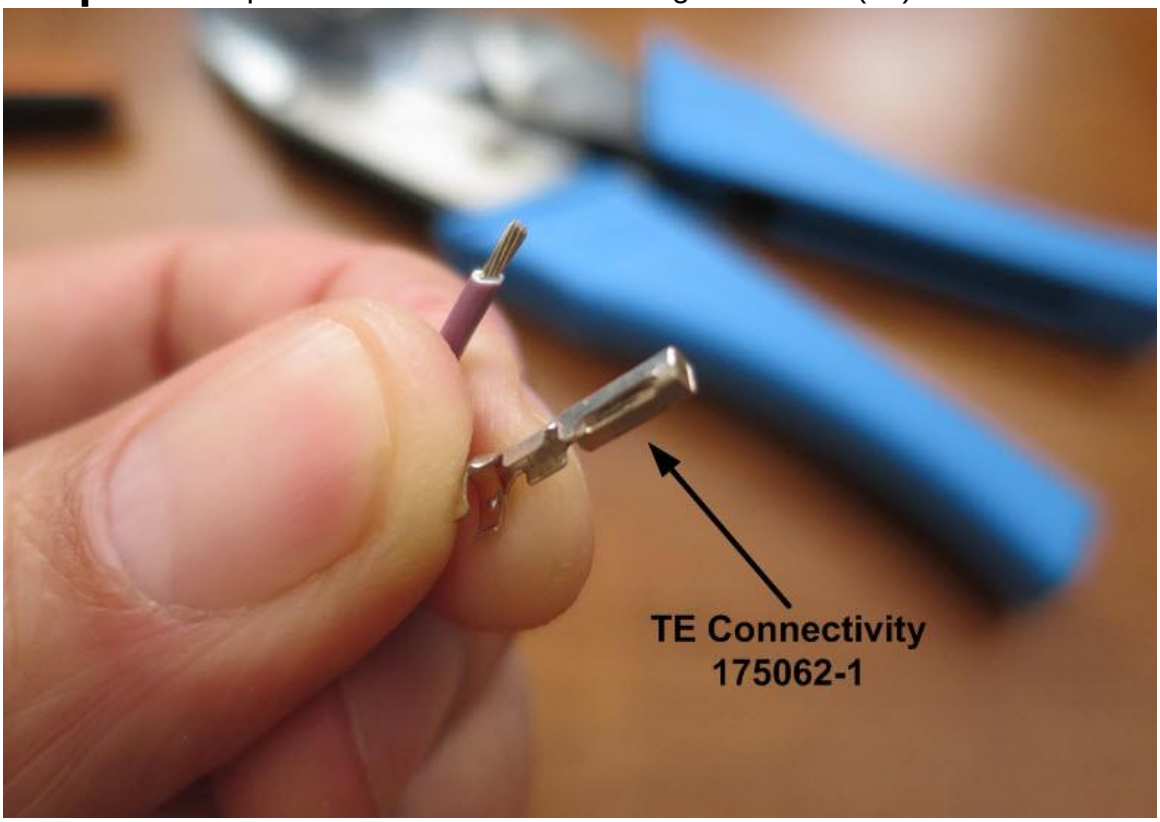
Purpose: Red (5v) and Black (ground) wires provide the MultiBot with power and ground. Blue (12v) is where the MultiBot voltmeter measures bike voltage. 12v inside the gauge is offset from true battery voltage which is why the MultiBot voltmeter must be calibrated (see calibration instructions).



**Step 9:** MultiBot circuit install done! Replace gauge rear cover and secure the 5 screws.

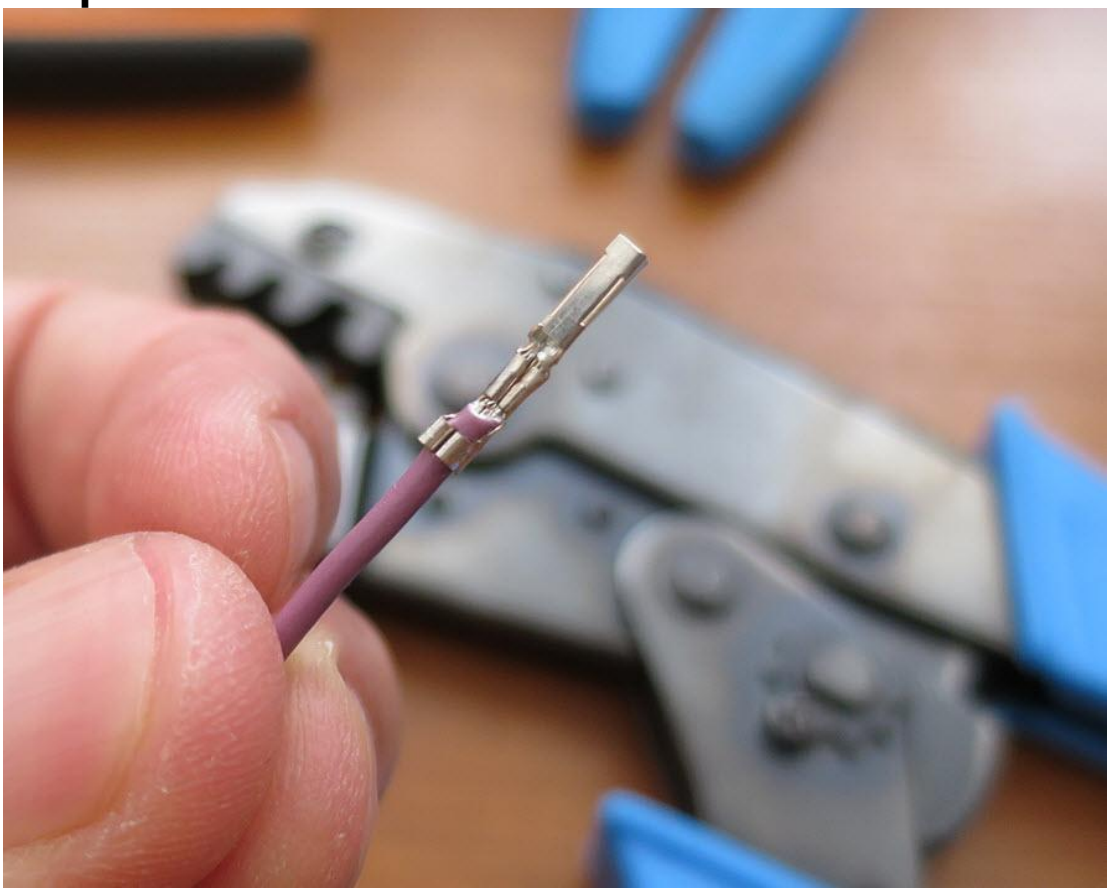



**Step 10:** Strip 1/8" off one end of the 20awg Violet wire (4ft).

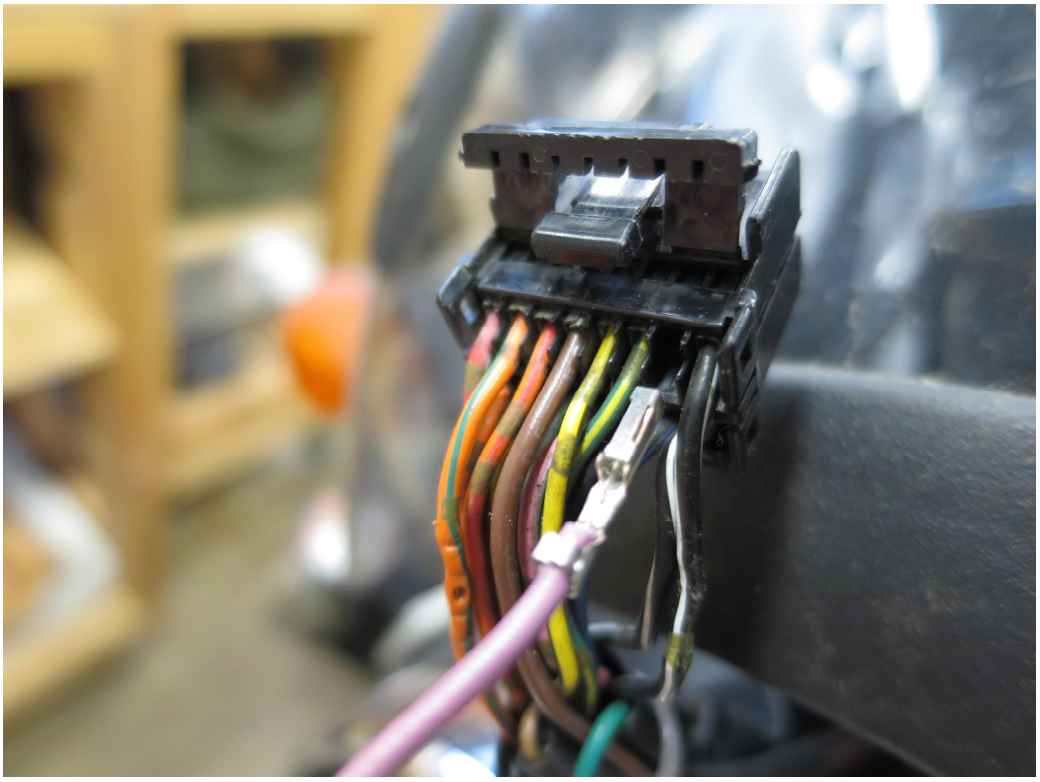



**Step 11:** Crimp using SG die 18922 or equivalent.


**Step 12:** It should look like this.

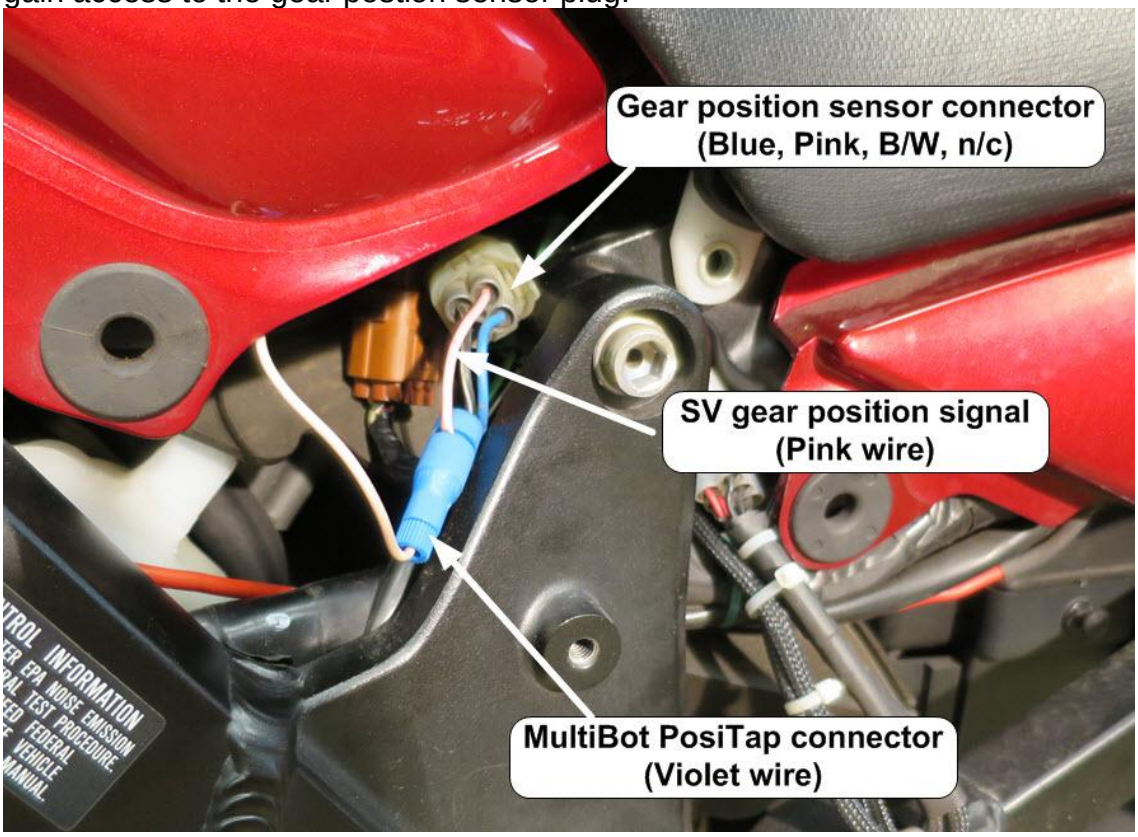


**Step 13:** Insert pin into spare position (loc #2) on SV gauge connector.



**Step 14:** Close the gauge plug cover then insert plug back into gauge. Route the Violet wire down the harness and under the tank to where the gear position sensor plug is located. For super slick installation, use a fish tape (small diameter welding rod works well) to route the wire *inside* the upper gauge harness.

**Step 15:** Attach the other end of the Violet wire to the SV gear position sensor plug. The SV gear position sensor plug is 4 position, one spare. SV wire colors are Pink, Blue and Black/White. MultiBot Violet attaches to SV Pink. On some models it may be necessary to lift the gas tank to gain access to the gear postion sensor plug.




**Step 16:** Turn the bike on, check all MultiBot functions, reinstall the gauge and parts removed during installation.

**Step 17:** Done! The MultiBot is ready to use. See MultiBot Operation document for instructions on how to calibrate the Voltmeter and setup the SpeedoHealer.