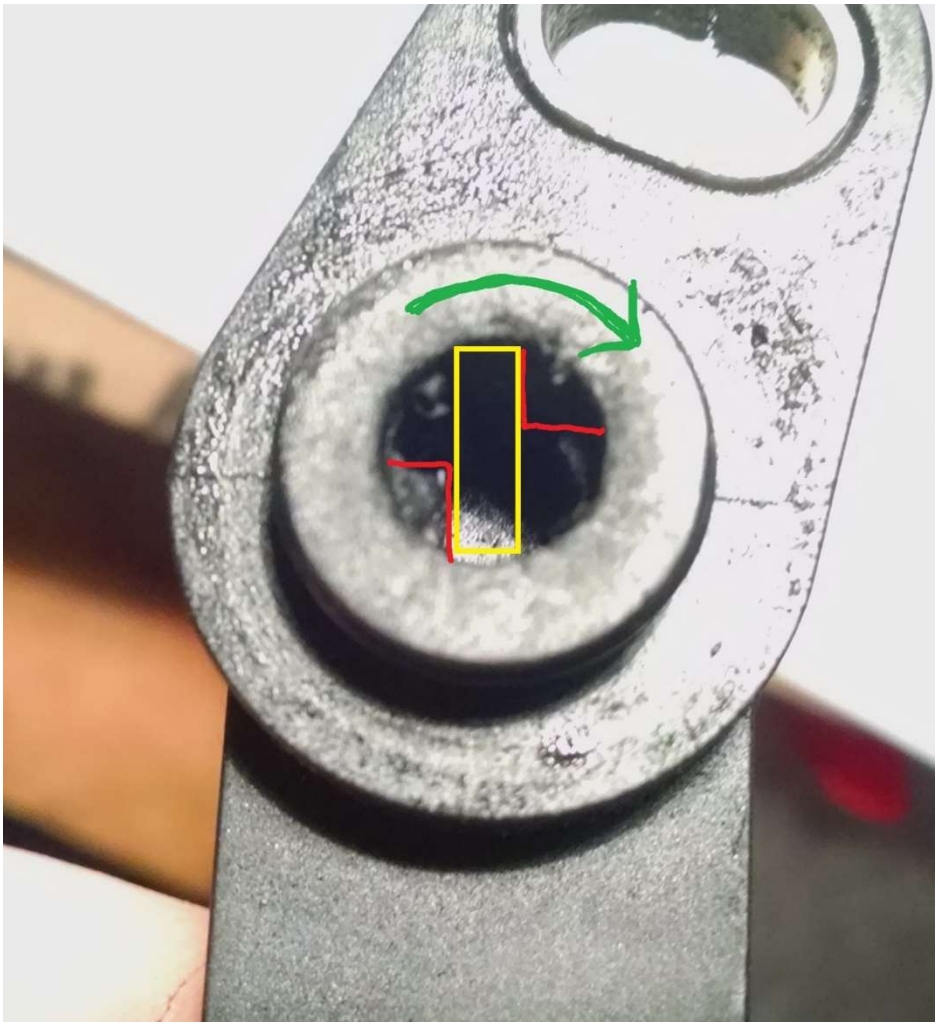
STPS installation for 2006-2007 GSX-R 600&750

Before beginning, it's important to understand the construction and function of the secondary throttle position sensor (STPS). The sensor is spring loaded and when not installed returns to its home position. Home position for the 2006 & 2007 models is counter clockwise.

Looking into the sensor (*figure 1*), you can see two bars (outlined in red). These provide the contact points for the secondary throttle shaft (represented in yellow). The sensor only has about 100 degrees of total movement and can only be turned clockwise (green arrow). Forcing the sensor beyond either limit can cause permanent damage.

Figure 1



The home position of the sensor aligns with the secondary throttle shaft when the secondary throttle valves are fully open. Any time the STPS needs to be removed or installed, the secondary valves must be

in the fully open position. Once the secondary valves are in the correct orientation, the sensor can be installed. When installing the sensor, the body of the sensor will be rotated counter clockwise. This position lines up the shaft with the sensor. Once the sensor is seated against the STVA body, it will look like this (figure 2).

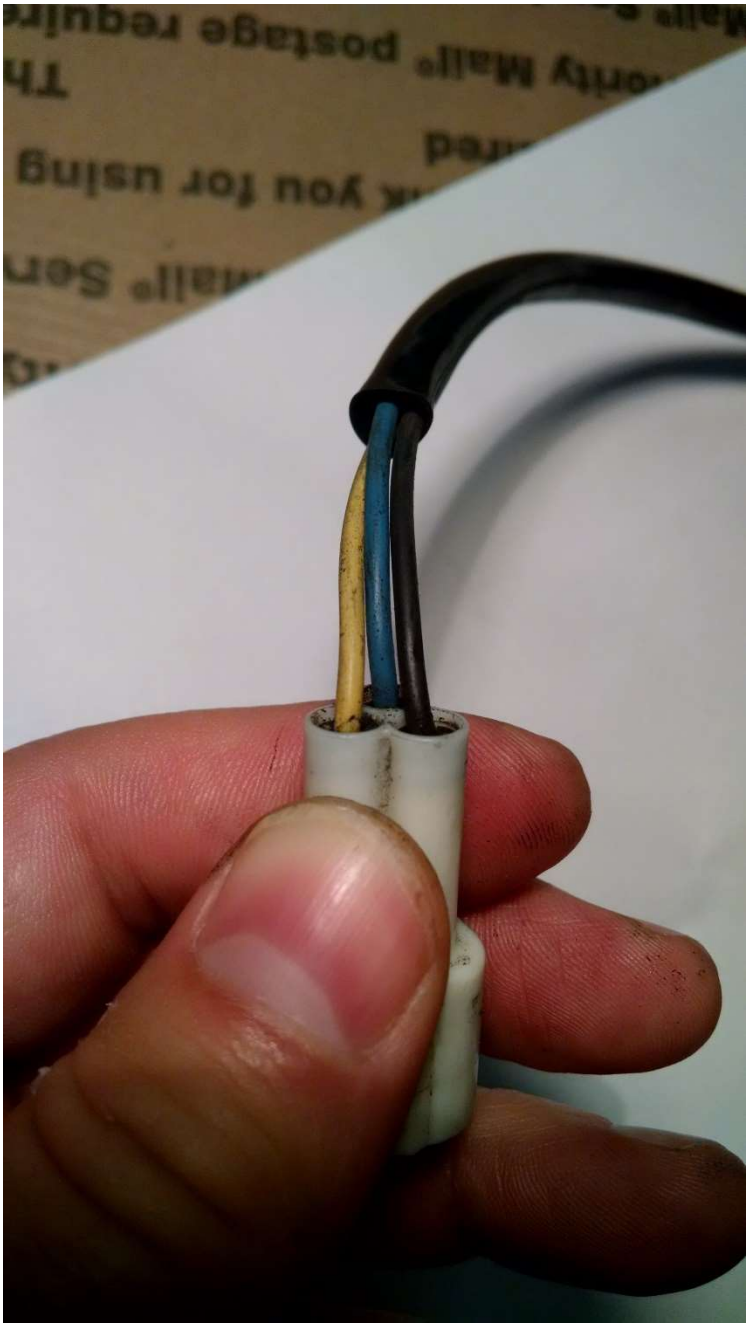
Figure 2:

At this point, rotate the sensor clockwise and install the screw. Thread the screw in until the washer makes contact with the sensor, but do not tighten.

Testing the sensor:

The STPS has three wires (*figure 3*). The BLACK wire is the power (5V), the BLUE wire is ground, and the YELLOW wire is the position signal. When testing a sensor, unplug the sensor from the wiring harness and connect a digital multi-meter in the kiloohm setting to the BLACK and BLUE wires. The resistance value should be around 4.5k Ohms and should not change regardless of the position of the secondary valves. Connect the meter to the YELLOW and BLACK wires. Turn the secondary valves from fully open to fully closed. The reading should be high when open and low when closed.

Figure 3



Calibration of the secondary throttle position sensor (STPS)

Calibration is performed similar to testing the sensor. Start by turning the secondary throttle plates to their fully closed position. With the sensor disconnected from the wiring harness, connect a digital multi-meter to the YELLOW and BLACK wires of the STPS. Loosen the fixing screw for the sensor just enough to allow the sensor to move, but do not remove it. Rotate the sensor until a value of 0.5k Ohms (500 Ohms) is obtained. **The screw does not need to be really tight!** Just snug it enough to prevent the sensor from moving. Overtightening this screw can cause permanent damage to the STVA housing. Once the screw is snug, turn the secondary throttle valves fully open. The reading should be about 4k Ohms. Turn the secondary valves back to closed and ensure the reading is still 0.5k Ohms. If not, readjust. It's common for this value not to be exact. If it reads 0.5k the first time, 0.51k the second, and 0.49k on the third cycle, it's normal.