

# Modification of the TOS sensor (Tip Over Sensor) in GV650 and GT650

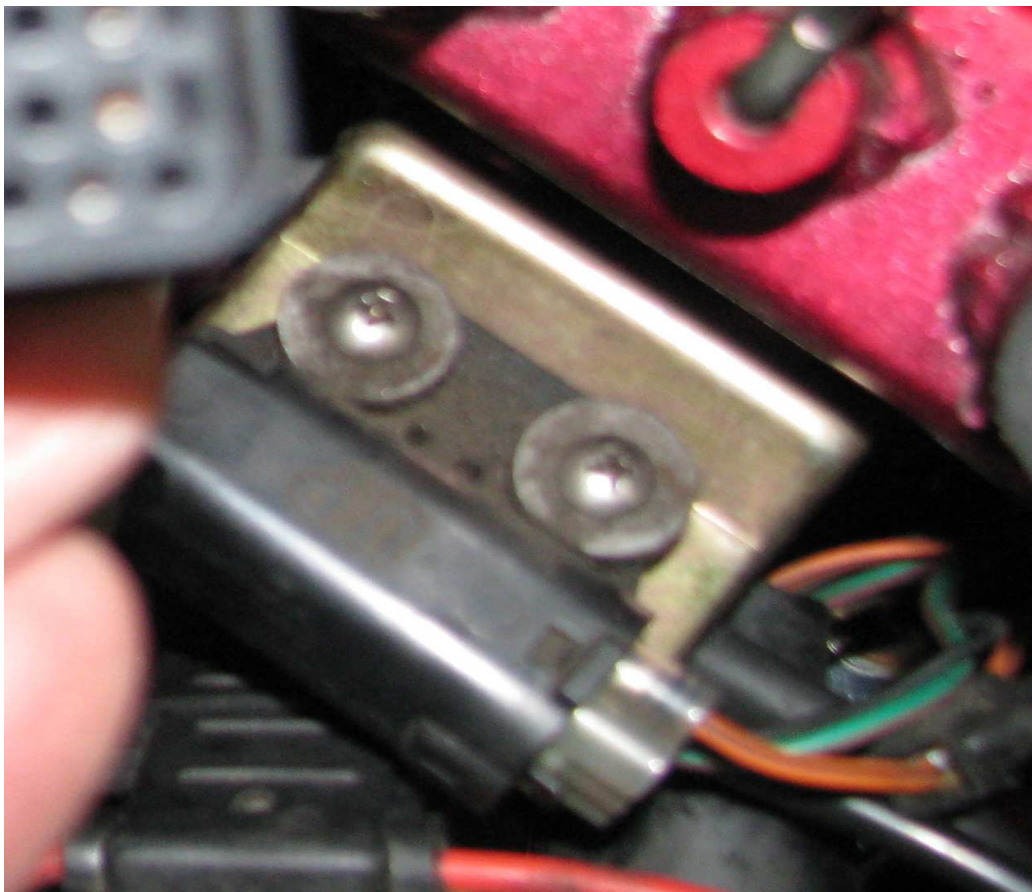
## Introduction

The TOS sensor, the same in the GT650 and GV650, turns the ignition off when an emergency happens such as excessive tilting or the tipping over of the bike. If the sensor is not working it will create a situation whereby after a short time of about 2 seconds after the ignition is switched off the injection pump is disabled and you cannot fire up the engine.

When this happens, the display will always show an “FI” error. When this happens the sensor should be checked. Put the bike into service mode. There should be displayed error c23. This means that the sensor is faulty and needs replacing. If there is any problem with buying a new sensor, or the price of about \$ 100 is too high, you can hand-edit the faulty sensor for the engine to run properly not display FI error. The cost of modification is only the purchase of two resistors in the price of .30¢ - .40¢ cents. The only drawback of this modification is that if you tip over the bike while running, the ignition will not be stopped.

## The procedure

1. Position sensor and its removal:



*View of the sensor in a motorcycle*

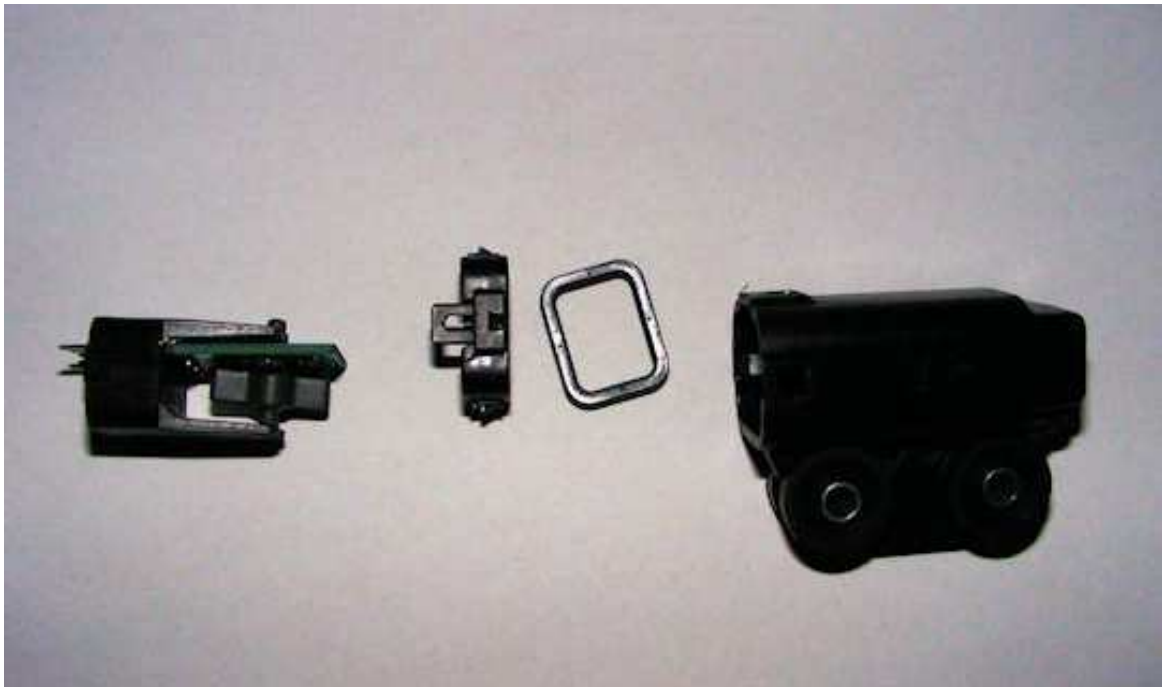
The GV650's Tip Over Sensor is mounted under the seat and is bolted to the fuel tank mounting plate where it is mounted to the frame. Two Phillips screws are used to mount the sensor to the plate. Once you remove the screws, unplug the cables and remove the sensor from the motorcycle.



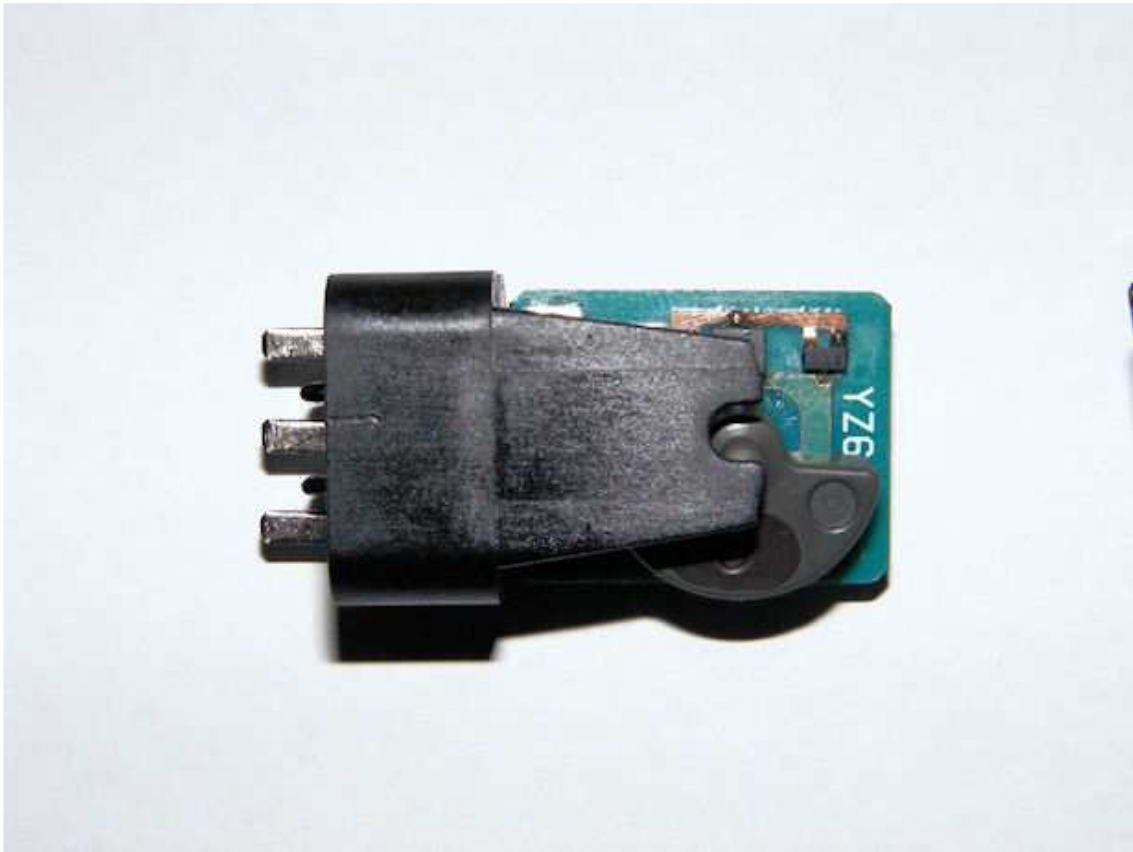
View of disassembled sensor

## 2. Dismantling of the sensor to prepare for the modification

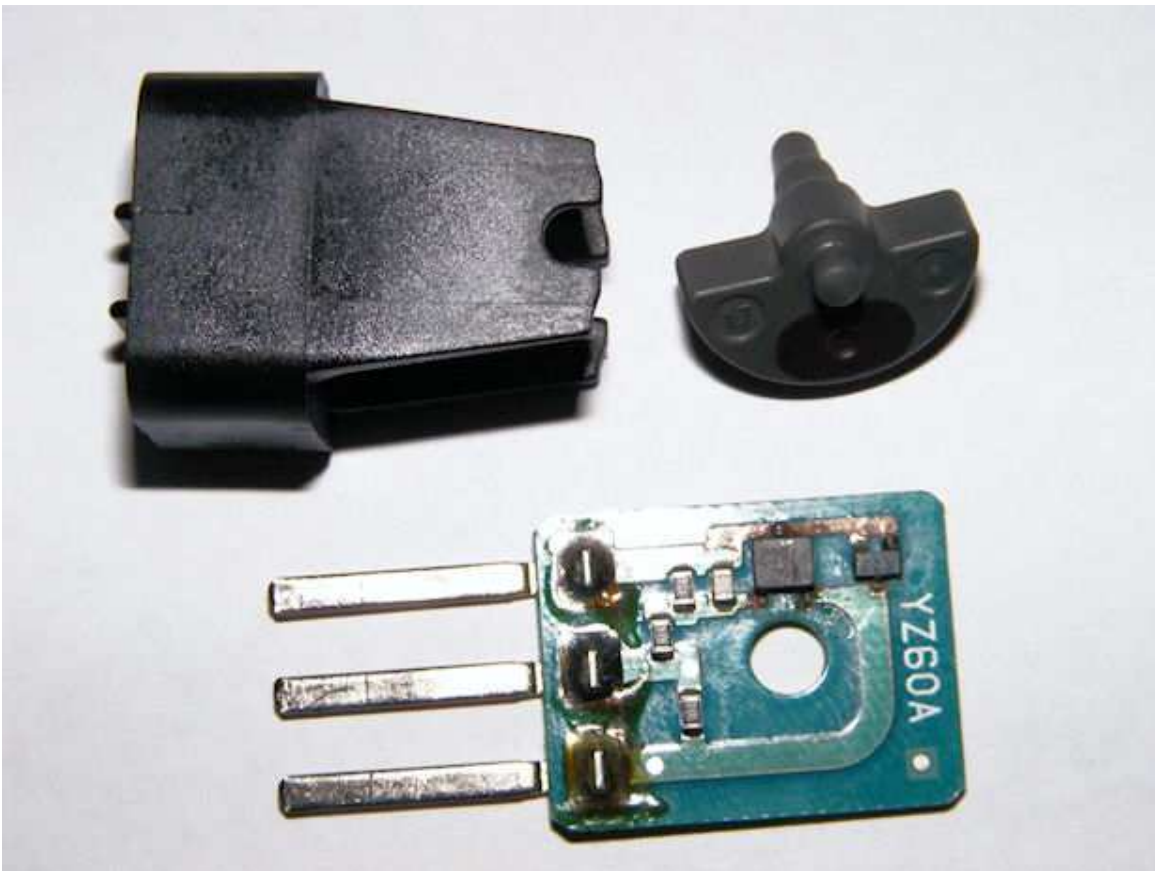
Just use a small flat edge screwdriver to pry the sensor apart.



*View of the individual sensor parts*

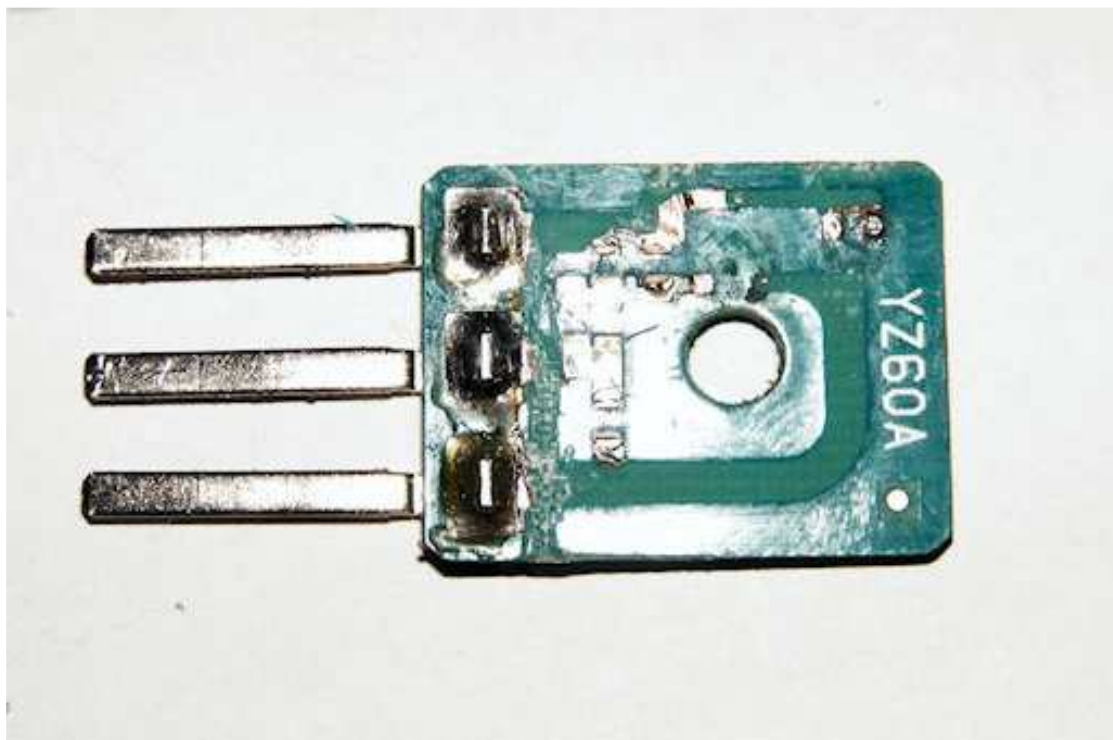


*Close-up of the sensor out of the cover*



*View of the board after removing the sensor*

The next step is to cut all the tracks on the sensor plate and remove all electronic components. You may want to use a soldering iron or a sharp knife.



*View of the sensor plate after removing all elements*

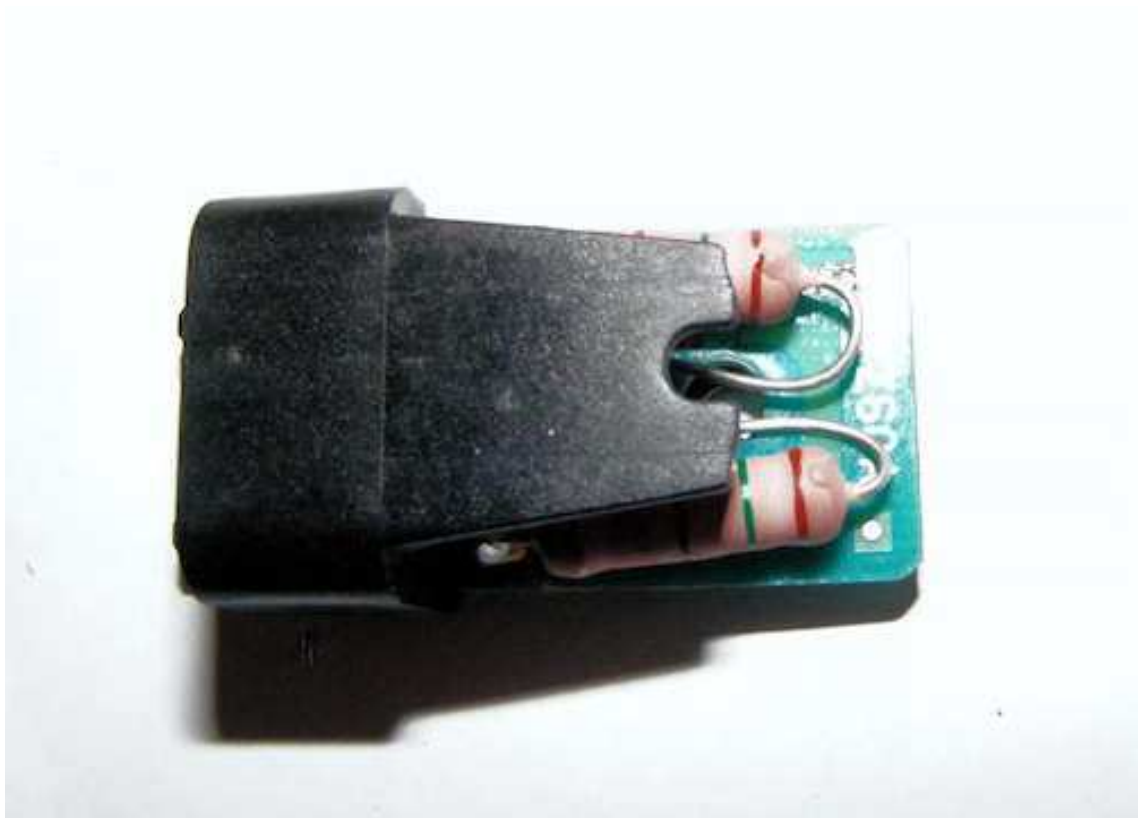
### 3. Modification of the sensor

The next step of the modification is to solder two resistors (150 Ω, 3 W) to the board. We solder the resistors in a series between the three contacts the sensor as in the picture.



*View of resistors soldered to the contact sensor*

Once the resistors are soldered in place the tray back in the cover.



*View of the modified sensor when placed in the cover*

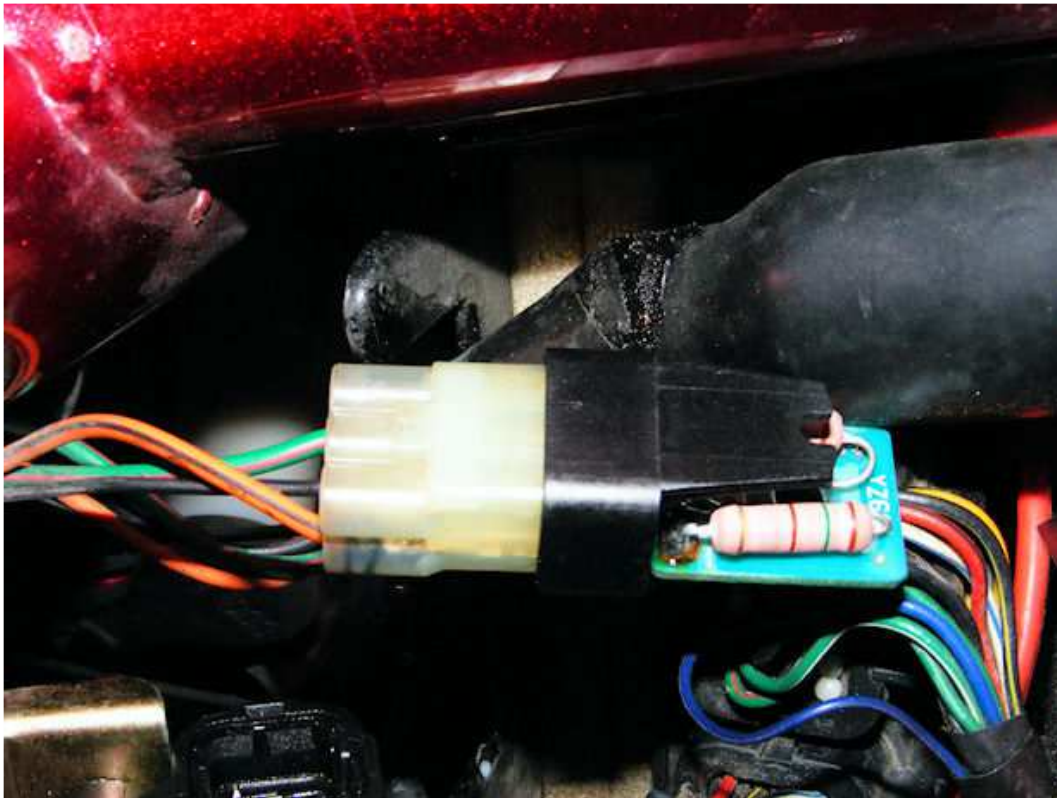
Please note that this modification does not use the back magnetic element that mounted on the axle in the hole of the plate.



*Unnecessary element*

#### 4. Installation of the modified sensor back into the motorcycle

The modified sensor can be placed anywhere on a motorcycle. The only limitation is the length of the wires connecting the sensor.



*Placing the sensor after modification*

#### 5. Notices

If you do not wish to attempt this procedure you can replace the Hyosung factory tip over sensor with a sensor from brands such as Suzuki, Yamaha R1, R6, Fazer and Triumph.

Note: It must be from a fuel injected motorcycle!!!

Developed by tom740509

Any questions or comments send email: [modificationsdrives@gmail.com](mailto:modificationsdrives@gmail.com)