

## **VSS Pro** Installation and adjustment guide

### **Technical Details:**

- Microprocessor based system
- Adjustment potentiometer to allow for different tire size calibration

### **Installation:**

Installation is recommended to be performed by a licensed mechanic

- Red = 12v switched power <0.5a
- Green = 0V / ground
- Black = ECU VSS input / Cluster VSS input – Usually green with a yellow stripe  
This can be attached at the ecu or the cluster, as they are linked by the same wire that carries the VSS signal.
- White = ECU ground (Near ecu.)

Serial Numbers: 3.xxx

- Brown = ABS Tone Signal (to white wire at abs sensor)
- Blue = ABS Ground/Return Signal (to black wire at abs sensor)

Serial Numbers: 4.xxx /5.xxx(New 2 conductor shielded wire for sensor)

- Black = ABS signal (usually black wire at abs sensor)\_
- White = ABS Ground/Return Signal (usually green wire at abs sensor)

**Note:** All three grounds are tied together in the unit internally in order to stabilize the grounds between the input and output. It is important to minimize electrical noise at the abs sensor to ensure a good reading.

### **Adjustment:**

You can mount the box anywhere that is convenient, near the ecu is recommended. A length of wire is supplied in order to reach the front right ABS sensor, feel free to cut it down to a shorter length as needed. Shorter is better for less signal noise.

Prior to permanently mounting the unit, you will need to calibrate your speed using a small flat screw driver as well as an accurate speed device (usually a GPS).

The unit is calibrated on quality control bench using a signal generator and oscilloscope but varying tire sizes can make a few km/hr difference. You should adjust the unit at a mid-level speed for accuracy. Something in the range of 50mph would be best.

Open the top of the box, on the motherboard there is a blue potentiometer with a brass adjustment screw on the top. (See inside of box or attached picture.)



Use a buddy to help out and get out on some open level highway where you can check it accurately with the cruise on and a very steady speed. Let the GPS settle down to an accurate and stable speed reading.

Make small adjustments with the screwdriver and give it 1 second to fully update the average speed. (Speed is updated approximately 10+ times per second.)

Adjust until you are happy that it's average speed is accurate over a normal driving range of 30-80mph. (If legal to do so.)

Generally so will see that it is not perfectly accurate at all speeds but can be averaged to  $\pm 1$  mph across the range of the entire speed. This is not due to a signal processing error, it is that the signal is slightly non-linear based on the behaviour of tires at low/high speed. (The circumference changes in a non-linear manner as you go faster.) The VSSPro is actually far exceeding the accuracy of the stock geared VSS system, which is closer to  $\pm 3$  percent!