

Resetting the TPS

This document explains in detail how to use the VDSTS Software to reset the TPS on a Buell. It is not a comprehensive manual for VDSTS, and it assumes that you have successfully installed the SW and are capable of communicating with the ECM.

The Active Test mode is entered by pushing the "button" (the icon at the top of the screen) that looks like a screwdriver. The Diagnostics mode has a few different presentations, Gauges, strip chart, or horizontal bar, once you've selected the correct diagnostics mode, you still have to connect to the ECM. There is a green button with two round arrows at the top for connecting. If the ignition key and run switch are in the run position, you click that connect icon and the ECM will connect and start communicating. Connection status is displayed at the bottom of the screen.

Go to Diagnostic mode, go to the horizontal bar graph display, and configure three of the bar graphs to display Throttle Position, Throttle (Volt), and Throttle (%). Do this by clicking the Channels/Mode "Ch" icon button at the top of the screen and assigning three of the bar graphs to these functions. Connect with the ECM, and you should be able to see the throttle position responding to you opening and closing the throttle.

Some notes about what you are seeing. Throttle (volt) is an absolute reading. There is a Throttle Position Sensor potentiometer (pot) on the end of the throttle "butterfly" shaft, and the ECM is reading a voltage that varies depending upon the position of that pot. Depending upon how the shaft is attached to the pot, and the calibration of the pot itself, every throttle body will display a slightly different voltage when the butterfly is at any given position. This is why a TPS reset is mandatory any time the throttle body or Throttle Position Sensor is removed or changed.

Throttle position and Throttle (%) are positions relative to the zero point for the throttle butterfly. The purpose of a TPS reset is to tell the ECM what voltage is at the pot when the butterfly is completely closed (i.e., 0% open). The ECM is then capable of calculating the exact throttle position based on the offset voltage from the absolute voltage reading that it read when the butterfly was fully closed. Throttle position is the measure of the angle (degrees) that the throttle butterfly open between 0 and 85.

The first step of performing a TPS reset is to back the throttle stop screw off until it no longer is touching the stop on the butterfly shaft. The easiest way to check if the throttle stop is no longer engaged is to turn the throttle grip to zero and force it there gently. If when you start to open it, you can feel it gently sticking, this means that the butterfly is wedging in the throttle body and you have achieved absolute closure.

Activate the VDTS SW, and put it in horizontal bar graph diagnostics mode. With the throttle screw backed off completely, force the throttle closed so that it gently sticks as described above. Note the Throttle (volt) value each time. It should be within .01 volts each time you do this. If not, there is something wrong with the throttle body or Throttle Position Sensor.

Click on the Active Test Mode. You will see a button that performs the TPS reset function.

Before you actually reset your TPS to zero, I recommend that you perform a test of the TPS reset procedure in order to confirm that the TPS reset is working properly. This is optional but may save some headaches if things don't seem to be working right later. Hold the throttle in the 1/3 open position, and then execute a TPS reset in the Active test mode with it held steady there. The throttle should be held steady while the duration counts decrements. Once you get a PASSED message, go back to Diagnostic mode, put it in horizontal bar graph mode as per above, and slowly open the throttle. If the Throttle Position bar graph remains stationary until you cross the threshold position that you held the throttle at (i.e., 1/3 throttle) and only then starts climbing, THEN you know that both communication modes are working correctly and that you have successfully set the TPS.

If that worked correctly, shut the throttle and gently force it closed at the throttle grip. Execute the TPS reset, and wait for the PASSED message to display. Go back to Diagnostics/Horizontal bar graph display mode. Slowly turn the throttle stop screw up until you get a Throttle Position Reading of 5.1. Start the engine, let it warm up until an indicated temperature of 320F, and adjust the idle to 1050 RPM and you're done.

It is EXTREMELY important that the throttle plate is fully closed when the TPS is performed. Even slightly open will make the bike run poorly. The throttle butterfly must be made to gently stick in the closed position when the TPS is reset or you will not get proper engine operation.