TPS TEC™

Theory of Operation

The TPS TEC ™ is designed to assist the throttle position sensor found on fuel injected vehicles built since 1984. The module plugs in-between the TPS sensor and its electrical connector.

The throttle position sensor (TPS) is affixed to the throttle body of the vehicle and operates much like a volume control on a radio. As the sensor shaft is rotated, the voltage from the unit increases, linearly, to the angle of the throttle butterfly. So, as the throttle is increased, so then is the TPS voltage. This voltage is fed into the ECM (electronic control module), the vehicle's computer, and tells the computer how much throttle is being applied. This data, along with engine RPM and airflow data, is processed and applies something known as Power Enrichment to the fueling of the engine. Power Enrichment occurs when the throttle is pressed aggressively, and causes the engine to produce as much power as it is capable of, as long as RPM, TPS and airflow are at a certain programmed level.

There are different levels, or percentages, of Power Enrichment. If the throttle is not fully engaged, or if the engine RPM is not near its shift point, the power enrichment falls to a percentage. Typically, the TPS sensor is not very reliable or accurate. In fact, the TPS could fall way short of optimum voltage at wide-open-throttle and reduce the amount of power on tap – without setting a malfunction code. Since the TPS voltage plays into the Power Enrichment percentage, a "less than optimum" TPS voltage can slow decrease performance of your engine. So it's possible that you don't ever realize the full potential of your engine as a result of a low or inaccurate TPS voltage.

The TPS TEC™ is designed to overcome this inconsistency in the throttle sensor by monitoring the TPS voltage, and then increasing it once it reaches a certain level. Essentially, the module sits silently in the background, and begins its operation once the throttle voltage reaches 70%, at which time, the unit takes over and sends a signal equivalent to 100% TPS to the vehicle's computer.

Once installed, the unit simply hangs near the wiring connector. It has two LEDs, one green and one red. Upon "key on" condition, the red LED will illuminate indicating power to the unit. Once the throttle is pressed, the green LED will illuminate, indicating throttle enhancement.

Another feature of the TPS TEC™ is the ability to reduce power-robbing detonation. It works like this: Once the engine starts to detonate due to a lean condition (generally at the top of the gear, right before the shift) the driver of the vehicle simply lets up on the throttle – very slightly – until the detonation is reduced. Because the TPS TEC™ is forcing the ECM into 100% Power Enrichment, the maximum fuel is available. When the driver lets up on the throttle, a certain amount of air component is reduced, causing a slightly richer fuel/air mixture, thereby eliminating the lean spot at the top of the shift.