



**Installation Manual**  
**25-TSP5212**

## 25-TSP5212: 2003-2007 LS TRUCK WITH T56 MT STANDALONE WIRING HARNESS, EV6, DRIVE-BY-WIRE

This harness is designed to be a complete wiring harness for fuel injection system on GM 2003 and newer Vortec engines with Drive By Wire throttle body and T56 or non- electronic transmissions.

1. Never disconnect the battery or the PCM while the ignition is turned "ON"
2. Never short any wires in the wiring harness to ground (with the exception to the ground wires) this can cause damage to the PCM.
3. A Multi-meter with a minimum of 10-Mohm resistance is required for test circuits. Do not back probe wires, this can lead to permanent wire damage.

### Requirements:

1. All Vortec engines require VATS to be removed from the PCM. If the system is not removed from the PCM the engine will NOT start.
2. Vortec engine harness utilizes two oxygen sensors on each side of the engine, one before and after the catalytic converter. The rear O2 sensors (after the catalytic converter) are NOT used.
3. All Vortec engines utilize an EGR, Air Pump, and CCP features for emission control, this harness does not include provisions for EGR, Air Pump, and CCP are not necessary for engine operation. PCM programing may be necessary to avoid storing a Diagnostic Trouble Codes (DTC) for the absence of emission equipment
4. It is recommended that you use a VSS when using a T56 or nonelectric transmission (TH350, TH400, Powerglide, 700R4, etc.). Failure to use VSS can result in an unexpected stalling during hard braking or an inoperable throttle body.
5. A two-position brake switch is also recommended when using drive by wire throttle bodies. The brake switch should be closed (not electronically connected) when brakes are not being applied and open (not electronically connected) when brakes are being applied. This is the opposite of a standard brake switch.

**CAUTION:** Failure to wire brake switch correctly can result with the torque converter is unable to unlock.

| SENSOR PART NUMBERS              |                                |
|----------------------------------|--------------------------------|
| ITEM DESCRIPTION                 | PART NUMBER                    |
| MAIN COMPUTER (PCM)              | GM# 12586242                   |
| MANIFOLD ABSOLUTE PRESSURE (MAP) | GM# 16212460 / DELCO# 12614970 |
| ENGINE COOLANT TEMP SENSOR (ECT) | GM# 15326388 / DELCO# 213-953  |
| OIL PRESSURE SENSOR              | GM# 12562267                   |
| IGNITION COIL                    | GM# 12558948 / TSP# 81015-8    |
| OXYGEN SENSOR (O2)               | GM# 12587785 / DELCO# 213-1702 |
| THROTTLE POSITION SENSOR (TPS)   | GM# 12570800 / DELCO# 2172293  |
| MASS AIR FLOW SENSOR (MAF)       | GM# 25168491 / DELCO# 213-364  |
| CAM POSITION SENSOR              | GM# 12561211 / DELCO# 213-363  |
| CRANKSHAFT POSITION SENSOR       | GM# 12560228 / DELCO# 213-354  |

|                   |  |
|-------------------|--|
| TAC MODULE        | GM# 12573059   |
| ACCELERATOR PEDAL | GM# 15264643 (03-05 pedal 9 pin)<br>GM# 15107594 (06-07 pedal 6 pin) |
| KNOCK SENSOR      | GM# 10456603 / DELC0# 213-3521                                       |

Recommended Tools:

1. Terminal Crimping Tool
2. Wire Strippers
3. Electric Drill
4. 2" Hole Saw (for rubber grommet for the firewall)

- The wiring harness is designed to mount under the dash or in the kick panel on the right side of the vehicle.
- Route the harness away from sharp edges, exhaust pipes, and hinges.
- Allow enough slack in the harness at places where movement could possibly occur.

Proper grounding is crucial for the harness to operate (battery, chassis, and engine). This harness is equipped with ground wiring on the rear portion of the driver side cylinder head and adjacent the fuse block.

- Connect the chassis ground strap or cable to the negative side of the battery
- Connect the engine ground strap or cable to the chassis.
- Connect a ground strap from the engine to the body

Disconnect power from the vehicle by removing the negative battery cable from the battery.

- Mark the position that the wiring harness will go through the firewall with a metal punch. Using a 2" hole saw, drill a hole into the firewall. Debur the hole to ensure no damage to the wires will occur.
- From the inside of the vehicle, feed the engine section of the wiring through the 2" hole that was previously made.
- Route the engine compartment harness to the corresponding sides (driver and passenger). The driver side section has the connectors for the alternator, MAF, and ECT.
- Route the battery positive and crank sensor connectors behind the passenger head and under the exhaust manifold
- Route the fuse block/relay center and PCM connectors to the preferred mounting positions. Keep the PCM away from moisture or damage may occur
- Locate the black wires in the driver side group that end in two ring terminals. These are engine grounded.
- Using care to connect the two PCM connectors to not bend any of the pins. The connectors are color coded.
- All wires not being used should be taped and secured to avoid creating an unwanted short.
- Permanently mount your PCM to desired location.
- Once all connection have been made throughout the wiring harness, reconnect the battery

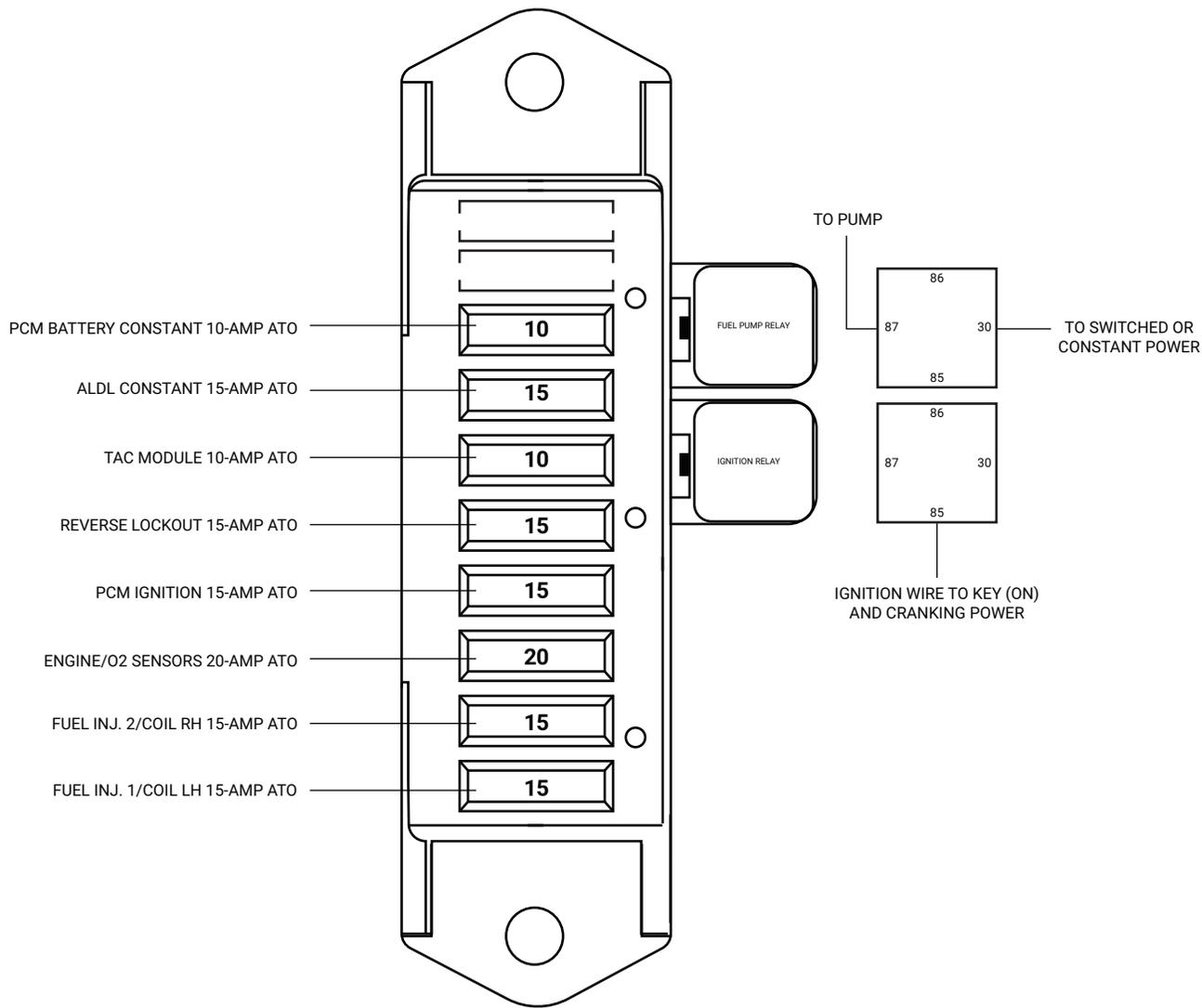
**CAUTION: BE SURE THE IGNITION IS OFF WHEN RECONNECTING THE BATTERY OR DAMAGE TO THE PCM WILL OCCUR.**

A fuel pump relay is provided with the signal side of the relay being pre-wired. The harness has two blade terminals to complete this circuit. Ensure that properly sized and fused wiring is used. Insert the terminal into the relay holder per figure two.

- Using care to connect the two PCM connectors to not bend any of the pins. The connectors are color coded.
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| ACCESSORY WIRES      |                                |                                 |
|----------------------|--------------------------------|---------------------------------|
| BROWN                | MIL LAMP GROUND                | THROUGH AUTOMOTIVE LIGHT TO 12V |
| BLACK                | SPEEDOMETER                    | SPEEDOMETER MODULE              |
| WHITE                | TACHOMETER                     | ELECTRONIC TACHOMETER           |
| DARK GREEN           | FAN 1 GROUND                   | GROUND SIDE OF FAN RELAY 1      |
| DARK BLUE            | FAN 2 GROUND                   | GROUND SIDE OF FAN RELAY 2      |
| ORANGE               | PARK NEUTRAL SIGNAL            | TO GROUND (IN PARK AND NEUTRAL) |
| PURPLE               | BRAKE SIGNAL / TCC GROUND      | TO 12V                          |
| BLACK MULTIPLE WIRES | CHASSIS GROUND (RING TERMINAL) | CHASSIS GROUND                  |
| RED                  | IGNITION RELAY                 | 12V IGNITION SOURCE             |
| MULTIPLE             | PCM CONNECTORS                 | PCM                             |



# FRONT VIEW