



Installation Manual
Product No. WH1211

**1997-2004 LS1/LS6 CAR WITH 4L60E
STANDALONE WIRING HARNESS,
EV1, DRIVE-BY-WIRE**

WH1211: 1997-2004 LS1/LS6 CAR WITH 4L60E STANDALONE WIRING HARNESS, EV1, DRIVE-BY-WIRE

This harness is designed to be a complete wiring harness for fuel injection system on GM LS1 AND LS6 engines with Drive-by-Wire throttle body and 4L60E or 4L80E (with adapter) transmissions.

1. Never disconnect the battery while the ignition is "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.
2. Vortec harness utilize two 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. When using 4L60E or 4L80E transmission you Must have a two-position brake switch. These are necessary to allow proper function of the TCC. The brake switch should be closed (not electronically connected) when brakes are not being applied and open (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# 9354896 OR 12200411
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# 25161131 / DELCO# AFS123
THROTTLE POSITION SENSOR (TPS)	GM# 17123852 / DELCO# 213-912
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# 12578953
ACCELERATOR PEDAL	GM# 12565643
KNOCK SENSOR	GM# 10456603
BRAKE SWITCH	DELCO# D850A

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 through and around open areas. Inside edges provide extra protection from hazards.
- 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.

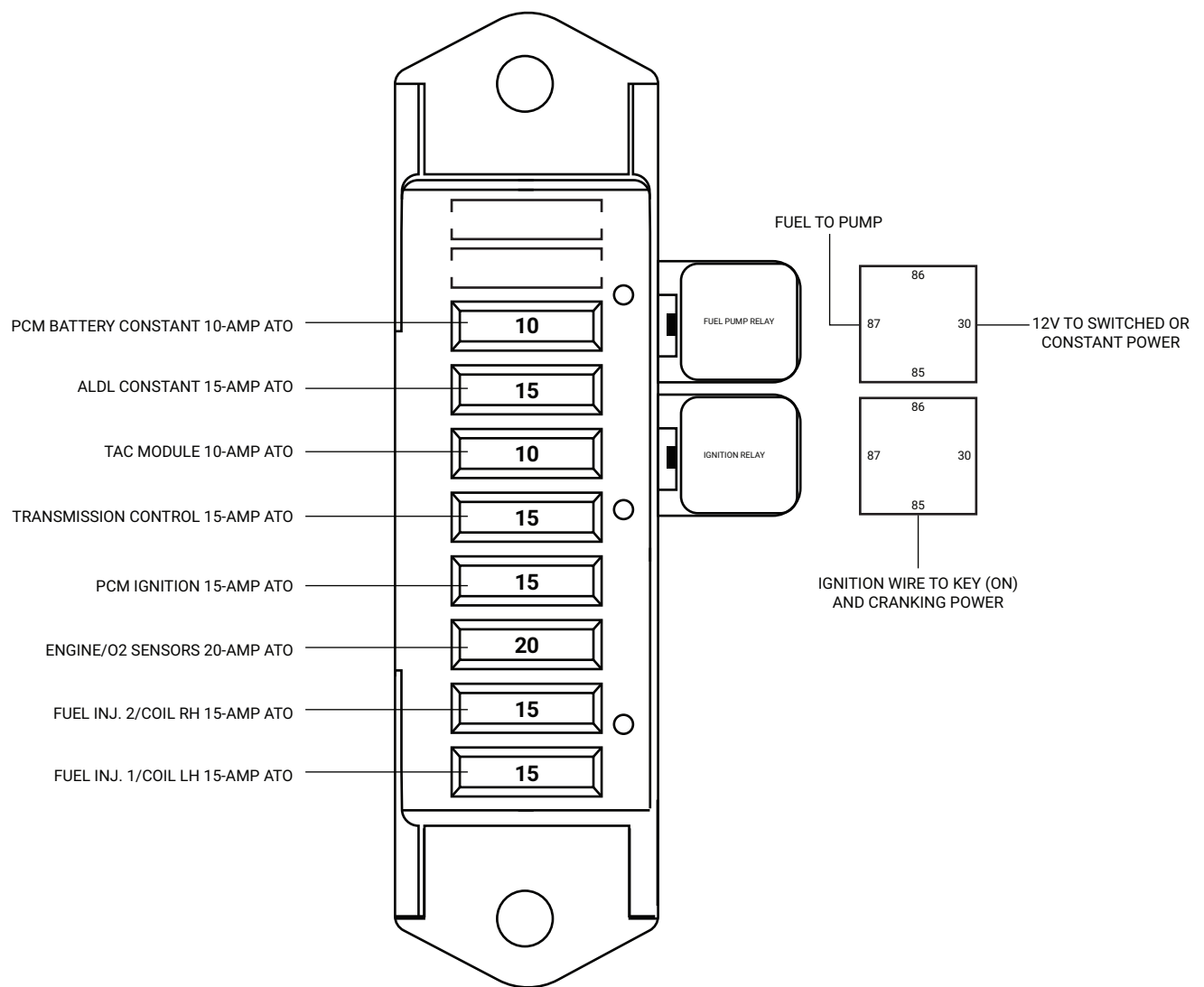
- Connect the chassis ground strap or cable to the negative side of the battery
- Connect the engine ground strap or cable to the chassis.
- Connect a ground strap from the engine to the body

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

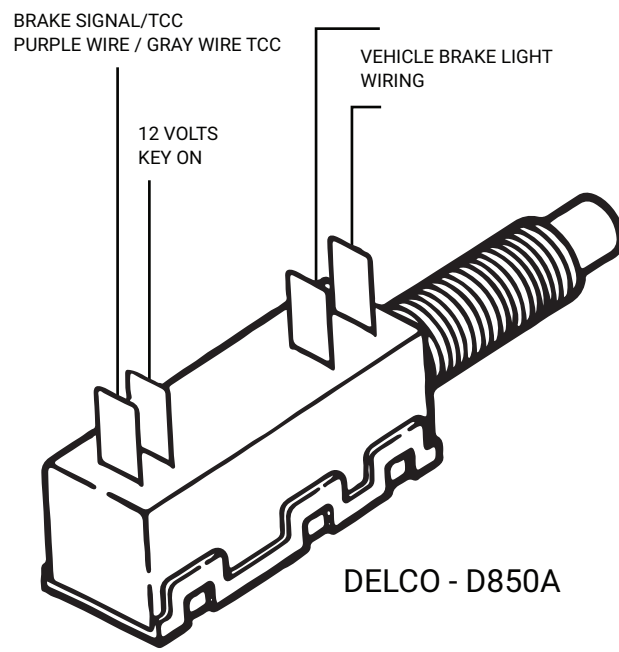
- Mark the position that the wiring harness will go through the firewall with a metal punch. Using a 2" hole saw, drill a hole into the firewall. Debur the hole to ensure no damage to the wires will occur.
- From the inside of the vehicle, feed the engine section of the wiring through the 2" hole that 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.

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	TO 12V (SEE DIAGRAM ON LAST PAGE)
BLACK MULTIPLE WIRES	CHASSIS GROUND (RING TERMINAL)	CHASSIS GROUND
RED	IGNITION RELAY	12V IGNITION SOURCE
MULTIPLE	PCM CONNECTORS	PCM
GRAY	TCC GROUND	TO 12V (SEE DIAGRAM ON LAST PAGE)



FRONT VIEW



TCC BRAKE SWITCH DIAGRAM