



### **GM 8100 Vortec /Allison/4L80E fuel Injection Harness installation instructions**

*To help aid in a successful installation, We have included these instructions. Please take the time to familiarize your self with all the components and instructions before installing. If these instructions are not followed very carefully it may result in severe damage or harm to your self and the vehicle. In addition to these instructions you must have at least a general idea of how fuel injection works and be familiar with all of its components.*

#### **Things that you need to start.**

- GM Vortec series engine and transmission, with all the correct sensors.
- GM PCM and Allison TCM for the correct year engine/transmission you are working with.
- Your PCM/TCM reprogrammed or “Flashed” with at least the correct tire size, gear ratio, emissions removed and vats removed. Other changes are up to you.
- 2 Heated O2 sensors (oxygen sensor) mounted in the exhaust with in 18 inches of the exhaust port. **Use AcDelco part# 213-1702**
- Electric fuel pump capable of delivering 60 PSI under all driving conditions and a fuel filter designed for that amount of pressure preferably with a built in regulator. As most systems will not have a return line from the engine.
- 3/8 or larger fuel supply line from the tank (Fuel injection line 90psi min only), and a 5/16 or larger return line to the tank. The return line must end at least ½ in from the bottom of the fuel tank to prevent vapor and static electricity build up.
- Injectors for your size engine. If you don’t have them already
- Retain the coil harness that attaches to all 8 coils.
- Retain injector harness that attaches to all 8 injectors.

In addition to standard mechanics tools you need a 12 volt test light or meter and a digital non-loading meter.

#### **INSTALLATION:**

**!!!IMPORTANT!!!**

**Do not force any connector into place. Take your time.**

To begin, decide on a mounting place for your PCM and TCM. It is normally mounted in the engine bay.

Lay the harness on top of the engine. Locate the black 10 wire connector, it connects to your injector harness. It will be located on the left side of engine. You must retain the original injector harness.

Connect both coil harnesses to your existing coil wiring. They are white 7 wire connectors. Solid colored wires will be for the left side and striped wires will be for right side.

Connect the coolant temp sensor plug to the two wire harness located on right side center of engine head. (yellow and black wires, black connector).

Connect the black wire to a clean solid bolt on the rear of the head (Ground). **DO NOT GROUND TO VALVE COVER**, it is insulated by o-rings

Connect the throttle position sensor (six wire connector) to the throttle position sensor on the side of the throttle body. Connect the black two wire connector (yellow & Brown wires) to the side of throttle body (*Early Throttle body*).

**For later throttle bodies it will be a single 8 wire connector located on the side of the throttle body.**

Install the Oxygen sensors and connect the o2 sensor wires to the correct side (purple, tan, black/white, pink wires (**Right side**) and purple/white, tan/white, black/white, pink wires (**Left Side**))

Connect the MAP sensor located towards the rear of the intake (grey connector, green, black and grey wires).

Connect the camshaft sensor wire to the sensor located in the engine front cover. (brown/white, pink/black, and red wires)

Connect the Crank sensor wires to the connector located left side rear of block just behind head. (blue/white, yellow/black, green wires)

Connect both knock sensors to their correct sensor. White connectors, with light blue and dark blue wires. Light blue is right side, dark blue is left side.

Connect the large orange wire to the starter battery hot terminal.

Connect mass air flow sensor. If using 5 Wire mass air the connector will be a large 5 pin connector with pink, black/white, black, tan, and yellow. (The 5 wire mass air includes the IAT sensor in it.)

Connect the large grey transmission plug to the correct location on the transmission. Connect VSS (green/black, ppl/white wires) to speed sensor located in the tail housing of the transmission. Connect ISS (Allison and 4L80E) sensor (red/white, blue/white wires) located in bell housing. Connect turbine (Allison only) sensor (light blue, orange wires) located center top of transmission.

Mount PCM, TCM, TAC fuse block, fuel pump relay, and power relay in a cool dry place. This set up uses a Drive by wire type throttle body and will need the correct TAC and Pedal. Pedal to TAC harness is not supplied with this harness.

Connect the large gang-plugs to the PCM, TCM, and TAC making sure you do not force them into place and that they are correctly positioned.

Connect the 14 gauge pink wire to an ignition switched on (**hot in start and run**). **It is very important that there is power on this wire in the start and run position.**

Connect 14 gauge grey wire (fuel pump inscribed on it) to the fuel pump at the + terminal of the pump.

Connect “Check Engine Light” (light brown wire) to negative terminal of light fixture and a 12 volt Key on power source to the positive side of light. Use **Low Wattage** (1/4 or less) bulb.

Connect the loose purple wire, at the TCM end of the harness, to a normally closed brake switch (in other words a switch that has key on 12 volts on it all the time except when the brake pedal is pressed.)

Connect the green/white wire to your speedometer (optional check with your speedo manufacturer.) Loose white wire is a tach output for aftermarket tach setups

Mount the ALDL connector out of sight, but easily accessible location for scanner connection later. (16 way black connector with an orange, 2 black/white, and purple wires)

Bleed the fuel lines by cycling the ignition on, wait for the pump to run and shut off, then turn the key off, and repeat several times.

**\*\*\*NOTE\*\*\***

If your injectors have set along time the gas in them will gum them up and they will not work. To make sure that they are in working order before plugging in the injectors you may consider taking two pieces of scrap wire and put 12 volts to one side of the injector terminal and ground to the other. The injector should make a click sound. If not remove them and have them cleaned or replace them. This test will confirm if the injectors are stuck or not, but they may still be dirty.

Start and run engine.

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