



GM Tuned Port Injection Harness installation instructions

Thank you for your purchase from Larry's Electric. To help aid in a successful installation, I 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.

- A complete TPI unit (manifold, intake runners, plenum and throttle body complete with idle air motor and throttle position sensor). Any unit will work the only difference is the cold start injector on the early style manifold (1985-1988). The cold start injector can be left in place or blocked off without problems. The bolt pattern can be re-drilled to match the head style you have
- Intake manifold, runner and plenum gaskets
- GM #1227730 ECM (computer)
- Prom chip for you application 305-350 CID with vats removed (available upon request)
- Acdelco MAP Sensor # 213-1545
- O2 sensor (oxygen sensor) mounted in the exhaust with in 18 inches of the exhaust port. Heated O2 sensors may also be used (especially with headers) and need to be mounted as close as possible to the exhaust port.
- Acdelco Knock sensor #213-92 or Delphi AS10133
- 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 1/2 in from the bottom of the fuel tank to prevent vapor and static electricity build up.
- Electric fuel pump capable of delivering 45 PSI under all driving conditions and a fuel filter designed for that amount of pressure.
- Injectors for your size engine (I.E. 19 lb/hr=305 and 21 lb/hr = 350)
- Distributor from any TBI or TPI engine (Small or large cap)

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

INSTALLATION:

To begin, remove the intake runners and plenum to gain access to the injectors and fuel rail assembly. You will be routing the wires through the area under the plenum to the sensors as you progress.

Locate and drill a 2 inch hole through the fire wall for the main loom to the ECM. Just behind the distributor is an ideal location. Working from inside the vehicle, start feeding the harness through the fire wall into the engine compartment. Feed the harness until the rubber grommet can be inserted into the fire wall.

Pull the injector wires under the fuel rails far enough to lay out the injector plugs to match the injectors. The pink/blue wires connect to the injectors on cylinders 1,3,5,7. The pink/green wires connect to the injectors on cylinders 2,4,6,8.

Connect the distributor plug (white, purple/white, tan/black, and black/red wires).

Connect the coolant temp sensor plug at the front of the manifold (yellow and black wires).

Connect the black/white wire to a clean solid bolt on the manifold.

Install intake runners on the manifold with gaskets, **tighten bolts only finger tight.**

Clip the upper runner gaskets to the runners, connect the air temp sensor (black and tan wires) at the bottom rear of the plenum, and install plenum on to the runners and tighten all remaining bolts to specs.

Connect the throttle position sensor (black, blue, and grey wires) on the left front of the throttle body. Connect the idle air motor (green/white, green/black, light blue/white, light blue/black) to the bottom of the throttle body just below the throttle position sensor.

Remove block drain plug on lower right or left side of engine and install Acdelco Knock sensor #213-92 or Delphi AS10133. **YOU MUST USE THIS PART NUMBER KNOCK SENSOR.** Most knock sensors look the same but are different electrically.

Install the Oxygen sensor and connect (purple wire)

Mount MAP sensor as close to the rear of the plenum as possible and connect the vacuum line between it and the plenum. Connect MAP sensor plug (green connector, green, black and grey wires).

If using a 700R4 connect the white 4 pin connector to the transmission and the black 2 pin connector to the speed sensor in the rear tail shaft. Speed sensor must be 4000 ppm.

Mount ECM, fuse block and fuel pump relay under dash in a cool dry place.

Connect the large gang-plugs to the ECM, making sure you do not force them into place and that they are correctly positioned. Open the ECM access panel and install the new PROM chip (may be already installed if you ordered an ECM along with your harness).

Handle carefully, do not force it in or out, do not subject the PROM to static discharge, do not subject the PROM to direct sun light.

Connect the 14 gauge orange wire to a **12 volt battery source (always hot)**

Connect the 14 gauge pink wire to an ignition switched on **(hot in start and run)**. A separate 12 V Ignition coil supply is needed (not part of this kit), and may be connected to the same source. Connect coil power supply **(hot in run and start)** to the + terminal of the remote coil or to the **BAT** side of an HEI coil. If you are using the factory remote coil then you must retain the grey and black coil connectors, the black connector is a pig tail that connects to the coil, the grey connector must be cut from the original harness and the pink wire should be connected to the coil power supply wire. If you do not have the factory connectors they are available from us for an added cost.

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

Connect “Check Engine Light” (brown wire located near the ecm) 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, no LED’s.

Connect the loose purple wire, at the ECM end of the harness, to normally closed switch (Brake Pedal switch) so that 12 volts is turned off when the brake pedal is pushed. This is for the 700-r4 lockup function. If you do not have the brake switch then use GM # 25524845

Mount the ALDL connector out of sight, but easily accessible location for scanner connection later.

Set the Throttle position sensor to 0.55 volts at idle using a scan tool, or a non-loading volt meter. Do this by loosening the two mounting screws and gently rotating the sensor up or down. The volt meter method is done by probing the black, and blue wire for voltage. 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. It is a good idea to have them cleaned prior to your installation. If the injectors are working properly they should make a “click” sound when 12 volts is applied to one side of the injector terminal and ground to the other. This should only be done when fuel is not present, use caution when dealing with fuel.

Start and run engine. Set static timing at factory specs for your engine, but remember to disconnect the **tan/black wire at the distributor (black single connector)** to disable electronic timing adjustments while setting the static timing. Reconnect the tan/black wire when finished.

If you have any questions/problems or require technical assistance, please call Larry’s Electric @ 618-282-2852 Monday – Friday 8 – 4 pm CST.

If for any reason that you are not satisfied with this product with in 10 days of purchase please call us and we will refund or exchange it, as long as the product is not altered in any way shape or form and is returned it its original box with all pieces. Shipping is a non refundable service, we are not responsible for shipping cost or transit times.

This product is not intended for sale or use on any emissions controlled vehicle which will ever be operated on a public thoroughfare.

For off road use only

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Please see http://www.larryselectricsite.com/storefront/Product_Policy.php For warranty and return information.

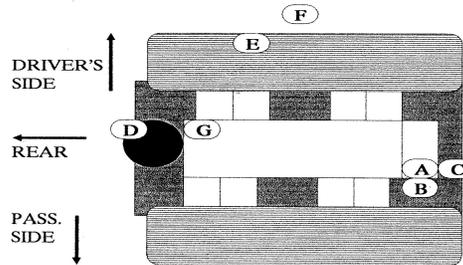
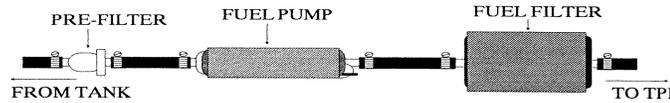


By connecting between the A and B terminals of the ALDL, you can pull the trouble codes described in any GM or other repair manual.

ALDL CONNECTOR TERMINAL FUNCTIONS:

- A. Ground
- B. Test
- M. Serial Data

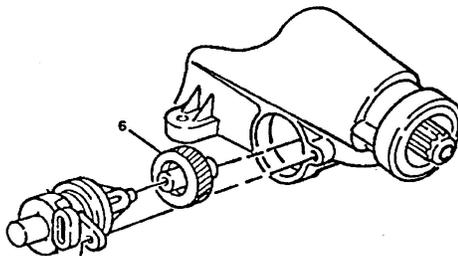
A typical installation of fuel pump and filters includes pre-filter to protect the pump.



Sensor locations for TPI engine. TOP VIEW

- A. Idle Air Motor- In throttle body.
- B. Throttle Position Sensor- On throttle body.
- C. Coolant Temp. Sensor- In intake manifold..
- D. Set Timing Plug- On distributor.
- E. Detonation Sensor- On lower engine block.
- F. Oxygen Sensor- In exhaust manifold or header collector.
- G. Air Temp. Sensor- In plenum, rear, underside.

4.337	GEAR_SPEEDO DRVN(ORANGE)(35 TEETH)	92	B(D7A)	1	25513042
4.337	GEAR_SPEEDO DRVN(PURPLE)(43 TEETH)	92	B(D4L)	1	25513050
4.337	GEAR_SPEEDO DRVN(LT GREEN)(34 TEETH)	92	B(D4U)	1	25513041
4.337	GEAR_SPEEDO DRVN(WHITE)(36 TEETH)	92-93	B(D7B)	1	25513043
4.337	GEAR_SPEEDO DRVN(RED)(37 TEETH)	92-93	B(D3W)	1	25513044
4.337	GEAR_SPEEDO DRVN(BLUE)(38 TEETH)	92-93	B(D7C)	1	25513045
4.337	GEAR_SPEEDO DRVN(BROWN)(39 TEETH)	92-93	B(D3V)	1	25513048
4.337	GEAR_SPEEDO DRVN(YELLOW)(41 TEETH)	92	B(D5W)	1	25513048
4.337	GEAR_SPEEDO DRVN(GREEN)(42 TEETH)	92-93	B(D3X)	1	25513049
4.337	GEAR_SPEEDO DRVN(DK GRAY)(44 TEETH)	92-93	B(D5X)	1	25513051
4.337	GEAR_SPEEDO DRVN(PURPLE)(43 TEETH)	93	B(D4L)	1	25513050



G.M. part # for different gear ratio

WARNING: Cancer and Reproductive Harm - www.P65Warnings.ca.gov