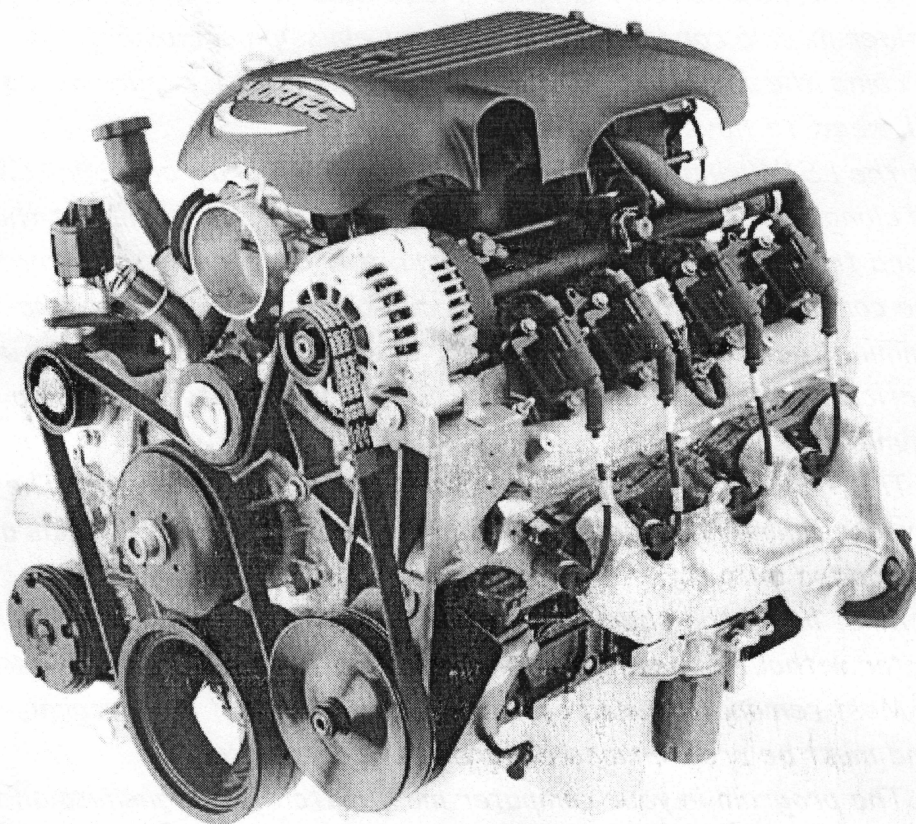


**1999 - 2004 GM LS1 and VORTEC
FUEL INJECTION
4.8L, 5.3L, 5.7 & 6.0L
WIRE HARNESS INSTALLATION
INSTRUCTIONS**



Thank you for purchasing our electronic fuel injection wiring harness. LS1WiringHarness.com strives to bring you the best wiring harness for your money. We understand that to do the job right you need the right gear at a good price.

LS1WiringHarness.com is here to provide the best quality and easiest-to-install automotive fuel injection harness on the market. It is designed for easy installation, even if you do not have electrical experience. This wiring harness is designed to be a complete wiring system for the fuel injection system on General Motors 1999 - 2004 4.8L, 5.3L, 5.7 & 6.0L Vortec fuel injected engines and to control the T56, 4L60E, 4L65E, 4L80E, 4L85E automatic or manual transmissions using the computer Service #12200411. This includes all wiring that is needed by the computer to run and control the injection system and transmission if equipped. Each harness is tailored for your needs so there aren't a lot of extra un needed plugs and wires to hide because of non use.

NOTE: This harness is NOT emissions legal, and is best suited for a street rod or older muscle car installation without emission equipment.

To overcome the Pass-lock system in the 12200411 programming, the PCM will need to have this feature removed.

Contact the LS1WiringHarness.com tech line to re-program your PCM. This harness along with the removal of the Pass-lock software will get the Vortec engine and transmission up and operating but it is recommended that you also have the computer reprogrammed to remove anything in the original factory programming that relates to a device or devices that are not being used in your particular vehicle. The people at LS1WiringHarness.com can do that programming for you as well.

NOTE: This harness has no provision for operating cooling fans. The fan relay trigger wiring is included but will only be used if the PCM has a Camaro program loaded onto it.

NOTE: Most likely the check engine light will come on and stay on when using a computer without removing the programming for any unused devices.

NOTE: Most remanufactured computers come without any programming in them and must be programmed before they can be used.

NOTE: The program in your computer must match the transmission that you plan on using, the manual, 4L60E, 4L65E, 4L80E, or 4L85E.

Usually the computer, relays and fuse block can easily be mounted under the dash. Most of the wiring in the harness has been pre-terminated to the proper connector and all wire has been GM color-coded. All wiring is GXL, 600 volt, and 125 degree centigrade with cross-link insulation.

This fuel injection system harness has been divided into three major groups: ENGINE GROUP Includes wiring for the fuel injectors, ignition & charging systems, power/ ground and sensors.

Break out GROUP Includes wiring for the ignition feed, assembly line diagnostic link (DLC) connector, check engine light, computer connectors, brake switch, tachometer, electric speedometer, fuse block, fuel pump relay connector, wiring for the VSS, park neutral position sensor, transmission and power wire for fuel pump.

In addition to your regular tools, you will need, at least, the following:

Crimping tool NOTE: USE A QUALITY TOOL TO AVOID OVER-CRIMPING.

Wire stripper, Continuity tester CAUTION: DO NOT USE A TEST LIGHT TO TEST THE COMPUTER OR SENSOR WIRING OR YOU WILL DAMAGE THE COMPUTER.

Tech II or equivalent scanner (for presetting and diagnostic purposes)

Electric drill, 1 5/8" Hole saw (for the rubber grommet in the firewall)

PRE-INSTALLATION AND HARNESS ROUTING

The installation of your harness kit will consist of two parts:

~ The physical routing, positioning, securing, group/ individual wires and connectors.

~ The proper electrical connection of the individual circuits.

We cannot tell you how to route the harness in your automobile. That depends a great deal upon the particular make of the automobile and what extent you want to secure and conceal the harness. We do offer some general guidelines and routing practices but you will be the final decision maker.

If you are using a manual transmission, tape off and store the purple (brake switch) wire, the park neutral position plugs/ wires and the 13-position (transmission) round connector in the tail section if equipped.

If you ARE going to use a 4L60E, 4L65E, 4L80E, or 4L85E transmission, you must use the vehicle speed sensor (VSS), transmission connector, park neutral position connectors and correct brake switch. These are necessary

*to make the transmission work correctly. The brake switch should be closed (electrically connected) when the brakes **ARE NOT** being applied and open (not electrically connected) when the brakes **ARE** being applied. This is the opposite of a standard brake light switch. If you are using a pressure brake switch, a **SPDT** relay must be installed to unlock the converter when the brakes are applied.*

The vehicle speed sensor lets the computer know how fast the wheels are turning. The park neutral position sensor tells the PCM if the transmission is in park or neutral.

NOTE: Emission devices. *This harness does not have provisions for the emission devices.*

YOU SHOULD GET TO KNOW THE PARTICULAR ENGINE YOU ARE USING:

NOTE: *The 99-02 4.8L, 5.3L, 5.7 & 6.0L LS-1 and Vortec engines had four oxygen sensors from the factory, but we have provisions for only two, one on the driver side and one on the passenger side of the engine. We removed the two rear oxygen sensors since they originally where behind the catalytic converters and most people don't want to run more than two oxygen sensors. This system has two rectangular connectors at the computer. A **12200411** computer is required for proper operation.*

You must use the computer part #12200411.

Familiarize yourself with the harness by locating each of the harness groups and by looking at the connectors on the wire ends.

Decide where and how the computer, fuse block, and relays will be mounted. A good exercise is to lay out the wire harness on the floor beside your vehicle and identify all the connectors and wires. You will want to route the harness through and around open areas. Inside edges provide extra protection from hazards and also provide places for tie wraps, clips, and other support.

Route the harness away from sharp edges, exhaust pipes, and the hood, trunk and door hinges.

Plan where harness supports will be located. Use a support approximately every 6 inches unless the harness routes under the floor carpet.

Allow enough slack in the harness at places where movement could possibly occur (body to frame, frame to engine, etc.).

The wires should be bundled into harness groups. Use tape, nylon ties, or poly split loom.

GENERAL INSTALLATION INSTRUCTIONS

- ~ DO NOT DISCONNECT THE BATTERY OR THE COMPUTER CONNECTORS WHILE THE IGNITION IS ON.*
- ~ DO NOT SHORT ANY WIRES IN THIS HARNESS TO GROUND (WITH THE EXCEPTION OF LABELED GROUND WIRES) OR DAMAGE TO THE COMPUTER WILL RESULT.*
- ~ GIVING OR RECEIVING A "JUMP START" MAY DAMAGE THE COMPUTER.*
- ~ DO NOT USE A TEST LIGHT WHEN TESTING COMPUTER SENSORS OR COMPUTER CIRCUITS. DAMAGE TO THE COMPUTER WILL RESULT!*
- ~ WHEN ROUTING THE WIRES FOR THE VEHICLE SPEED SENSOR (IF USED) MAKING CERTAIN THAT THEY ARE AT LEAST 12 INCHES AWAY FROM ANY IGNITION WIRING (SPARK PLUG WIRES, ETC.).*

NOTES:

- ~ There is a normal, small current drain on these fuel injected systems.*
- ~ Each connector in this harness is different and will not fit in the wrong place. NEVER FORCE ANY CONNECTOR.*
- ~ When connecting the plugs to the computer USE EXTREME CARE to make sure none of the pins in the computer are or become bent.*
- ~ The fuel pump you are using MUST maintain a constant pressure of 55-62 P.S.I. (pounds per square inch). The Vortec fuel system does have a built-in regulator on the fuel rail as in many earlier GM fuel injection systems, HOWEVER you will need to insure that the pressure is correct and that there aren't any leaks. Too much pressure will result in a very dangerous situation.*

GROUNDING THE VEHICLE

A perfectly and beautifully wired automobile will nevertheless have problems if everything is not properly grounded. Don't go to the effort to installing a quality wire harness only to neglect proper grounding.

Note: The installer of this harness is responsible for all ground wires not provided with this part.

4.8L, 5.3L 5.7 & 6.0L Vortec Fuel Injection Harness (99 - 02) Part #

- Main Computer.....Service#12200411*
- Fuel Pump Relay.....Tyco 15-8571*
- Brake Switch.....GM Delco# 25524845*
- MAF/ IAT Sensor.....Delco# 213-364*
- Engine Coolant Temperature.....Delco# 213-953*
- Oxygen Sensor (Pass. Side).....Bosch# 15703 or tagged on harness*

Oxygen Sensor (Drvr. Side).....Bosch# 15703 or tagged on harness
TPS Sensor.....Delco# 213-912
MAP Sensor.....Delco# 213-796
Idle Air Control Motor.....GM# 17113598
Knock Sensor.....Delco# 213-362
Coils.....GM# 10457730
Cam Position Sensor.....GM# 12561211
Crankshaft Position Sensor.....Delco# 213-354

Connect a ground strap or cable (minimum of a 4 Ga. wire) from the negative battery terminal to the chassis (frame). Connect a ground strap (minimum of a 4 Ga. wire) from the engine to the chassis (frame). Do not rely upon the motor mounts to make this connection. Connect a ground strap from the engine to the body.

ROUGH INSTALLATION

CAUTION: DISCONNECT THE POWER FROM YOUR VEHICLE BY REMOVING THE NEGATIVE BATTERY CABLE FROM THE BATTERY.

Note: Make no wire connections or permanent mounting of any kind at this time Position the computer and sensors in their intend locations.

Drill a 1-5/8" hole for the firewall grommet near the computer for the engine group and tail section to pass through. Route the engine group and tail section through the hole. Push the grommet (not included with the harness) into the hole until it is seated. Route the dash group over to the driver's side of the car. Route the fuse block and relays to the place they will be mounted.

HARNESS ATTACHMENT

Note: Harness routing and shaping will be a time-consuming task. Taking your time will enhance the beauty of your vehicle. Please take your time and be patient. Permanently mount your computer. You should mount the fuse block and relays at this time. Mold harness groups to the contour of the dash, engine, frame, etc. Remember to route harness away from sharp edges, exhaust pipes, hinges, and moving parts. Attach harness groups to your automobile with clips or ties starting at the computer and working your way outward.

Note: Do not tighten tie wraps or mounting devices at this time. Make all harness attachments LOOSELY.

When used every 1-1/2" or so on the visible areas of the harness, colored plastic wire ties make a very attractive assembly. Otherwise, a tie installed in other areas every 6" or so will hold the wires in place securely.

REMEMBER TO TAKE YOUR TIME.

TERMINAL INSTALLATION INSTRUCTION

Note: In the following steps you will be making the circuit connections. Before you start, you should carefully read, and continually refer to the wire charts, DOUBLE CHECKING your length calculations before cutting any wire or making any connections. These directions are for the wires, which do not have a connector already, installed on them.

Have all tools and connectors handy. Select the correct terminal for the wire and application. Determine the correct wire length and cut the wire. Remember to allow enough slack in the harness and wires at places where movement could occur. DOUBLE CHECK YOUR CALCULATIONS.

Strip insulation away from wire. Only strip as much insulation off as necessary for the type of terminal lug you are using.

Note: In the following step, make sure that the terminal is crimped with proper die in the crimping tool. An improper crimp will not make a good connection. DO NOT OVER-CRIMP.

Crimp the terminal onto the wire. Connecting the wires and connectors throughout the harness is a simple process. Make sure that each wire is properly routed and then attached. When all the wires are attached, tighten the mounts and ties to secure the harness permanently. Attach the connectors to the computer.

BE VERY CAREFUL NOT TO BEND ANY PINS.

After all connections have been made throughout the harness, connect the battery to the vehicle.

CAUTION: BE SURE THE IGNITION IS OFF WHEN YOU RECONNECT THE BATTERY OR YOU WILL DAMAGE THE COMPUTER

DASH SECTION INSTALLATION

Note: think through the installation of the harness before securing or cutting any wires.

The wires in this group consist of the diagnostic link connector (DLC) the check engine light wire is part of the bundle of separate wires.

CAUTION: DO NOT MAKE ANY CONNECTIONS WHILE THE COMPUTER IS PLUGGED INTO THE HARNESS.

Note: Wire color (Example: Blk/Wht) is one wire with a stripe. The second color (the stripe) may not be bold. Observe all two-color wires closely.

AC REQUEST - This is not a power supply for the compressor

This circuit is used to inform the PCM that the AC compressor has been turned on. This wire is to be spliced into the circuit from the AC switch to the AC compressor. The color is Dark Green

CAN VENT (not equipped on all models) - The Evaporative Emissions (EVAP) control system used on all vehicles is the charcoal canister storage method. This method transfers fuel vapor from the fuel tank to an activated carbon, charcoal, storage device, canister, to hold the vapors when the vehicle is not operating. When the engine is operating, the fuel vapor is purged from the carbon element by intake air flow and consumed in the normal combustion process.

CANISTER PURGE (not equipped on all models) - The Evaporative Emissions (EVAP) control system is the charcoal canister storage method. This method transfers fuel vapor from the fuel tank to an activated carbon charcoal storage canister, to hold the vapors when the vehicle is not operating. When the engine is operating, the fuel vapor is purged from the carbon element by intake air flow and consumed in the normal combustion process.

BRAKE SW (optional) - These circuits are used to provide power to the TCC solenoid in the automatic transmission. If you are not using the electronic automatic transmission, you may stow these wires. If you are using the electronic automatic transmission, these wires will connect to the brake switch terminals that are normally used for cruise control or TCC solenoid (normally closed). These wires do not connect to the terminals for the brake lights. See table 4.1 for the recommended brake switch. If you are using the recommended brake switch then you will wire it according to a stock wiring schematic. The pink wire to the back of the switch in the illustration is the wire that has power on it whether or not the brake is being applied. If your vehicle has a pressure type brake switch, you may use a relay as shown in a stock schematic. The relay must be a SPDT Relay and wired correctly or it could result in a dangerous situation with the vehicle. The torque converter may not unlock.

DLC - The Data Link Connector (DLC) is used to communicate with the PCM. The Powertrain On Board Diagnostic (OBD) System Check is an organized approach to identifying a problem created by an electronic powertrain control system malfunction. The Powertrain OBD System Check is the starting point for any drivability concern diagnosis. The Powertrain OBD System Check directs the installer to the next logical step in diagnosing a drivability concern. Understanding and using the Powertrain OBD System Check correctly will reduce the diagnostic time and prevent the replacement of good parts. Mount the DLC connector allowing access to the front of the connector.

***FUSE BLOCK IGNITION (mandatory)** - This circuit is used to provide power to the injection system. Connect this wire to a terminal/ wire from the ignition switch that is hot in the RUN and CRANK positions. Failure to provide power in the crank position will result in PCM shutdown while the engine is trying to start. Note: You will know this circuit is properly connected if the Check Engine Light is on when the ignition switch is on and while starting.*

***TACH (optional)** - This circuit is used to provide a signal from the PCM to the tachometer. Connect this wire to the signal input on the tachometer.*

White wire

***VSS OUTPUT (optional)** - This circuit is used to provide a signal from the PCM to the electric speedometer. Connect this wire to the signal input on the electric speedometer (not all aftermarket electric speedometers use the same signal for operation. Consult the tech dept of the speedometer manufacture for compatibility). Green wire with white stripe*

Connector & Check Engine Light, Brown wire

Brake Switch Connections, Purple wire

WIRE COLOR # OF WIRES LABELED CONNECT TO:

IN CONNECTOR

Fuel Pump Feed #14 Gray, this is positive wire for electric fuel pump

Green/White VSS Output Speedometer

White Tach Tachometer

Purple Brake Switch Brake Switch

Pink Fuse Block Ignition Ignition Power

*The engine group is designed to be separated into left (driver) and right (passenger) sections. Each side is tie-wrapped separately, **BUT NOT LABELED**. The left side of the has the connectors for the idle air control, throttle position sensor, mass air flow sensor, and engine coolant sensor, all*

of which **ARE** labeled. When you begin routing, **FIRST** separate the engine group into left and right sections, and place them accordingly.

ALT (optional) - This circuit is used to excite (turn on) the voltage regulator. When using the stock alternator equipped on the 4.8, 5.3 or 6.0L Vortec engines, this wire will connect to the L terminal in the voltage regulator plug.

CKP (mandatory) - The Crankshaft Position (CKP) sensor provides the PCM with crankshaft speed and crankshaft position. The PCM utilizes this information in order to determine if an engine misfire is present. The PCM monitors the CKP sensor for momentary drop in crankshaft speed in order to determine if a misfire is occurring.

CMP (mandatory) - The Camshaft Position (CMP) sensor provides the PCM with camshaft speed and position. The PCM monitors the CMP sensor for any momentary drops in camshaft speed in order to determine if a misfire is occurring.

DRVR. & PASS COIL (mandatory) - The ignition system on this engine is a multiple coil configuration called coil per plug. The ignition coil mounting bracket is attached to the rocker cover. The secondary ignition wires are short compared to a distributor ignition system wire.

ECT (mandatory) - The (PCM) supplies a 5.0 volt signal to the Engine Coolant Temperature (ECT) sensor through a resistor in the PCM and measures the voltage. The voltage is high when the engine is cold. The voltage is low when the engine is hot. The PCM calculates the engine coolant temperature by measuring the voltage. The engine coolant temperature affects most systems the PCM controls.

GROUND (mandatory) - These circuits are used to provide ground for the various devices. Connect these wires under a bolt in the engine block, transmission, or cylinder head. These are the grounds for the entire injection system. For best results from your EFI system, be certain your grounding surfaces are clean and your connections are secure.

IAC (mandatory) - The purpose of the Idle Air Control Motor (IAC) is to control engine idle speed. The IAC valve, mounted in the throttle body, controls the amount of bypass air.

INJ #1 - #8 (mandatory) - The Multec 2 fuel injector assembly is a solenoid operated device, controlled by the PCM that meters pressurized fuel to a single engine cylinder. An injector that has been sitting for more than 6 months will need to be cleaned/ replaced as the varnish residue in the

fuel will cause the injector to stick closed. This will keep the injector from delivering fuel as needed by the injection system.

***KNOCK (mandatory)** - To control spark knock, a Knock Sensor (KS) system is used. This system is designed to retard spark timing up to 20 degrees to reduce spark knock in the engine. This allows the engine to use maximum spark advance to improve drivability and fuel economy.*

***LEFT & RIGHT O2 SEN. (mandatory)** - The PCM uses the signal voltage from heated oxygen sensors in a Closed Loop to adjust the fuel injector pulse width. In Closed Loop, the PCM adjust fuel delivery to maintain an air to fuel ratio which allows the best combination of emission control and drivability.*

***MAF-IAT (mandatory)** - The Mass Air Flow (MAF) sensor measures the amount of air which passes through the sensor. The PCM uses this information to determine the operating condition of the engine in order to control the fuel delivery. A large quantity of air indicates acceleration. A small quantity of air indicates deceleration or idle.*

***MAP (mandatory)** - The Manifold Absolute Pressure (MAP) sensor responds to changes in the intake manifold pressure as a result of engine load and speed. The map sensor converts this to a voltage output.*

***TPS (mandatory)** - The TP sensor attaches to the side of the throttle body opposite the throttle lever. The TP sensor senses the throttle valve angle and relays that information to the control module. The control module requires knowledge of throttle angle in order to generate the required injector control signals, or pulses.*

WIRE COLOR # OF WIRES LABELED CONNECT TO:

IN CONNECTOR

DRVR. COIL

PASS COIL

MAF-IAT

IAC

LEFT O2 SEN

RIGHT O2 SEN

CKP

CMP

MAP

TPS

ECT

INJ #1

INJ #2

INJ #3

INJ #4

INJ #5

INJ #6

INJ #7

INJ #8

Knock

ALT

B+

GROUND

***FUEL PUMP (mandatory)** - This circuit provides power to the electric fuel pump. Connect this wire to the positive side of the electric fuel pump. This wire only has power for a few seconds when the ignition switch is turned on. It will have constant power while the engine is cranking/ running.*

***INPUT SPEED SEN (optional) (not equipped on all models)** - This connection is only used on the 4L80E/ 4L85E transmissions. This will rarely be used and can be stowed if not needed.*

***E. OUTPUT SPEED SEN (optional)** - The Vehicle Speed Sensor (VSS) is a pulse counter type input that informs the PCM how fast the vehicle is traveling. The VSS system uses an inductive sensor, mounted in the tail housing of the transmission, and a toothed reluctor wheel on the tail shaft. The teeth of the reluctor wheel alternately interfere with the magnetic field of the sensor creating an induced voltage pulse as the reluctor rotates.*

***PNP (optional)** - The Transmission Range Switch (PRND) switch is mounted to the side of the transaxle and is part of the Park Neutral Position (PNP) switch. The PRND switch is used by the PCM to indicate the actual gear selected. The PRND is made up of 4 individual switches. The scan tool indicates ON or OFF for each switch depending on the position of the gear selector lever. The combination of ONs and OFFs will indicate the gear selected. If the combination of ONs and OFFs is invalid, a DTC is set.*

***NOTE:** some harnesses have a single orange or Orn/Blk wire that is used for the park neutral. It needs to be grounded when the transmission is in Park or Neutral. The wire is in the wiring break out near PCM*

***TRANS (optional)** - These circuits are used by the PCM to determine vehicle speed, gear position and control shift patterns. In applications where a 4L80E is to be used, follow this procedure to change your transmission*

connector to ensure all functions of the transmission work properly. See Figure 6.28 for repining the transmission connector 1. With the terminal end of the connector and the arrow on top pointing towards you, carefully remove the white retaining lock located in the center of the connector.

2. Locate the white wire located in terminal location S. Using a paper clip or small screwdriver, gently lift the locking tab inside the connector and pull the wire from it's location.
3. Now locate the brown wire located in terminal location U. Using the same method, remove the brown wire from it's location
4. Gently insert the brown wire into terminal location S.
5. The white wire has no function with the 4L80E transmission; it needs to be taped up and stowed in the harness in case a 4L60E is ever to be used.

THE "CHECK ENGINE" LIGHT

Normally, the "check engine" light should come on when the ignition is turned on, and then go out a few moments after the engine starts running. If it reappears, or stays on while the engine is running, the computer has detected a problem and a trouble code has been set.

NOTE: Most likely the check engine light will come on and stay on when using a computer with the original factory programming. This is why we recommend that the computer be reprogrammed to remove any items that the factory vehicle had that aren't being used in the vehicle you are installing the engine into.

RETRIEVING TROUBLE CODES FROM THE COMPUTER

Diagnosing problems in modern automobiles can sometimes be very frustrating and confusing, especially when it involves computer controlled systems. The fact is, for the most part automotive electronics have been proven quite reliable, and the greatest number of problems with new cars is the same kinds of problems that older cars without computer controls have. Begin all troubleshooting by checking the basics. Certain basic faults may be undetectable by the Powertrain Control Module (PCM) self-diagnostic system and can actually interfere with self-checking and fault memory operation. Low battery voltage, for example, can cause erroneous faults to set in PCM memory or can cause a system to go "Fail Safe" without setting a fault in memory. Because system faults memory is cleared whenever PCM or battery are disconnected, fault codes should be read prior to any vehicle power interruption or troubleshooting.

Before suspecting a computer problem, perform a careful visual inspection. Check under the hood for the same kinds of problems you would look for on a

non-computer controlled engine. These include fluid leaks, vacuum leaks, dirty filters, overheating, oil burning, poor connections or loose wires, bad spark plug wires and/or spark plugs, restricted mufflers and exhaust systems, worn mechanical parts, exhaust leaks, and other familiar kinds of problems. Be thorough! You may save a lot of time.

The PCM is designed to withstand normal current draws associated with vehicle operations. Avoid overloading any circuit. When testing for opens or shorts, do not ground any of the PCM circuits unless instructed. When testing for opens or shorts, do not apply voltage to any of the PCM circuits unless instructed. Only test these circuits with a DMM while the PCM connectors remain connected.

PROCEDURE

A Tech II or equivalent Scan tool must be used to check or clear Diagnostic Trouble Codes (DTCs) from the PCM memory. When clearing DTCs, follow the instructions supplied by the Scan tool manufacturer.

NOTES: Do not clear the DTCs unless directed to do so by the service information provided for each diagnostic procedure. All of the diagnostic data that was saved along with the DTC (freeze frame data and/or malfunction history records) which may be helpful for some diagnostic procedures will be erased from the memory when the DTCs are cleared. Interrupting PCM battery voltage to clear DTCs is NOT recommended and will not turn off the check engine light.

Once a DTC has been identified, contact a GM Service Manual for a procedure to identify why a particular code is being set. Do not assume a code for a component is the result of the component being faulting and its replacement will solve the reason for the code. This could result in unnecessary replacement of functioning components.

IDLE LEARN PROCEDURE

Anytime the Powertrain Control Module (PCM) or the battery is disconnected, the PCM loses power, or the PCM is reprogrammed, the PCMs learned idle position is lost. The engine idle is unstable when the learned idle position is lost. Perform the following procedure in order to return the learned idle to the correct position:

AUTOMATIC TRANSMISSION

- 1. Turn OFF the ignition.*
- 2. Restore the PCM battery feed.*
- 3. Turn OFF the A/C controls.*
- 4. Set the parking brake and block the drive wheels.*

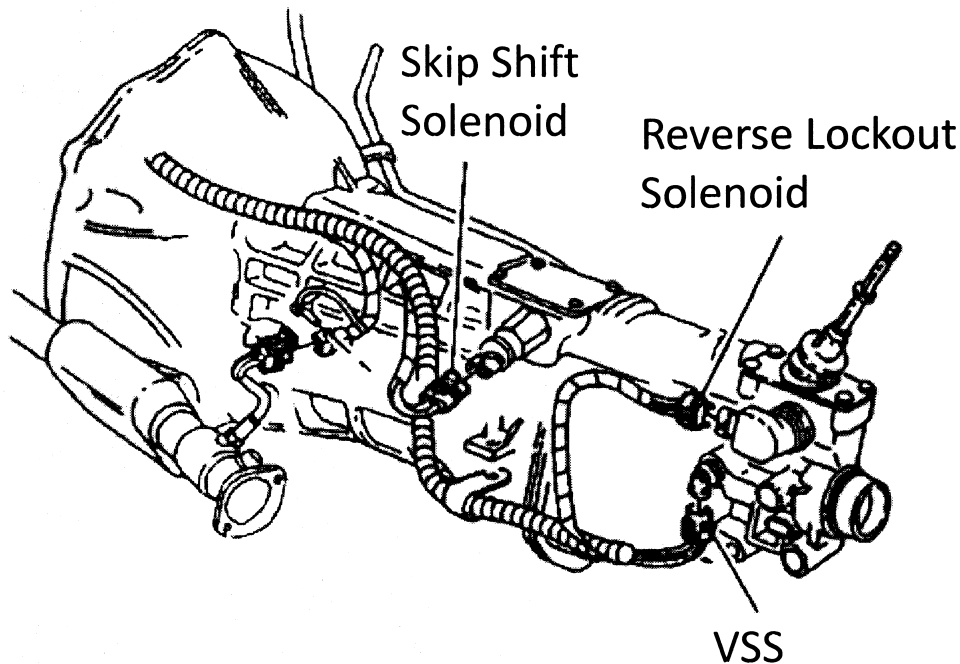
5. Start the engine.
6. Ensure that the engine coolant temperature is more than 80°C (176°F).
7. Shift the transmission into Drive.
8. Allow the engine to idle for 5 minutes.
9. Shift the transmission into Park.
10. Allow the engine to idle for 5 minutes.
11. Turn OFF the engine for 30 seconds.

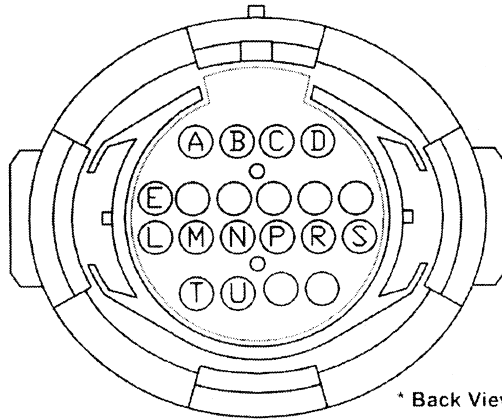
MANUAL TRANSMISSION

1. Turn OFF the ignition.
2. Restore the PCM battery feed.
3. Turn OFF the A/C controls.
4. Set the parking brake and block the drive wheels.
5. Place the transmission in Neutral.
6. Start the engine.
7. Ensure that the engine coolant temperature is more than 80°C (176°F).
8. Allow the engine to idle for 5 minutes.
9. Turn OFF the engine for 30 seconds.

NOTES:

We have attempted to provide you with the most accurate instructions possible, and are always concerned about corrections or improvements that can be made. Limited Warranty and Return Policy
Chassis harnesses and fuel injection harnesses are covered under a lifetime warranty.





A- Lt. Green	N- Pink/Black
B- Yellow	P- Red
C- Red/Black	R- Blue
D- Lt. Blue/White	S- White (4L60E Only)
E- Pink	Brown (4L80E Only)
L- Yellow/Black	T- Tan/Black
M- Black	U- Brown (4L60E Only)

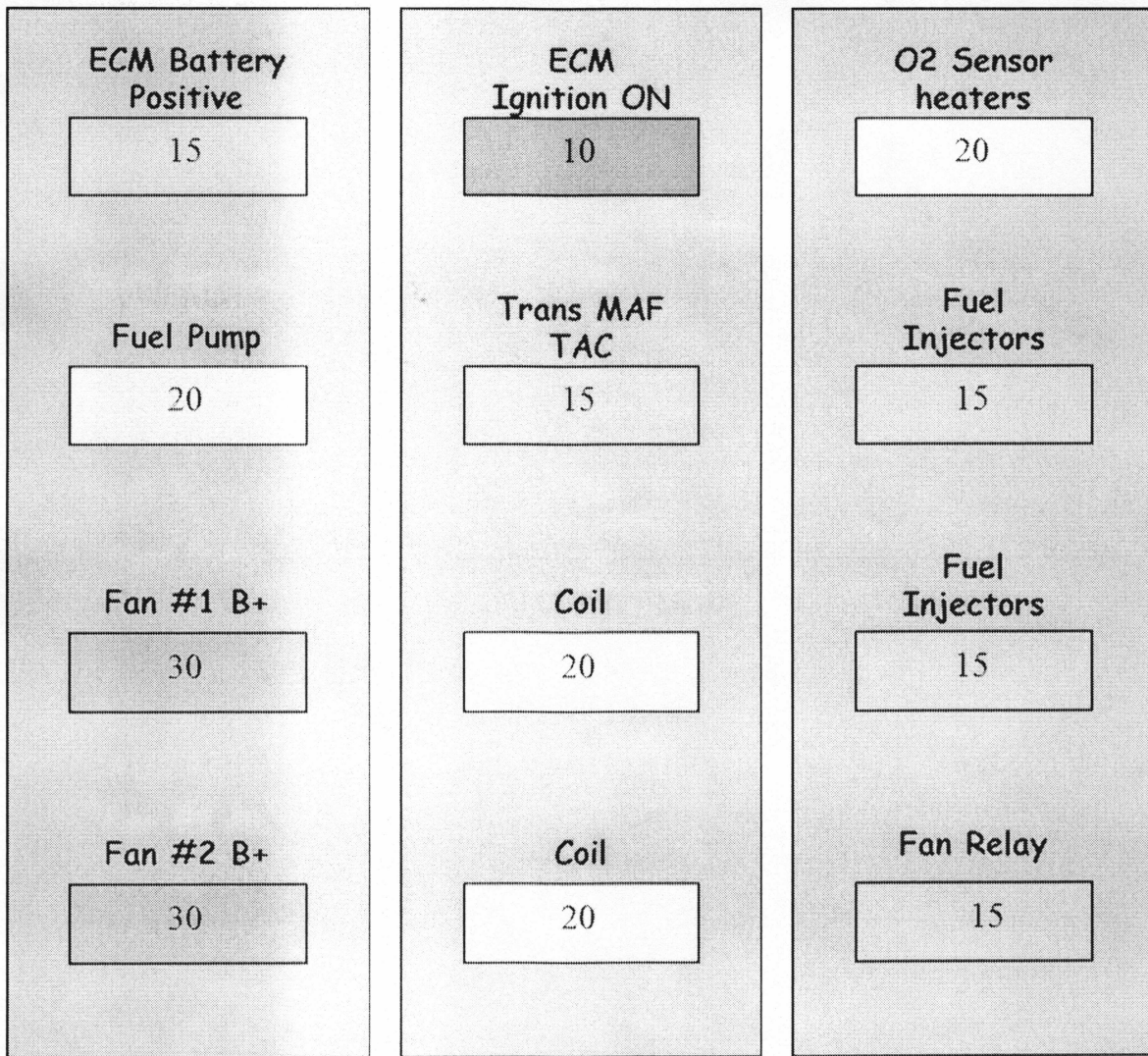
* Back View Of Transmission Connector

Converting the 4L60E Transmission Connector to a 4L80E Connector

*Note: Harness for trucks have been wired for both the 4L60E and the 4L80E. All harnesses have the transmission connector pre terminated to allow use of the 4L60E transmission.

In applications where a 4L80E is to be used, follow this procedure to change your transmission connector to ensure all functions of the transmission work properly. See Figure 6.28 for repinning the transmission connector

1. With the terminal end of the connector and the arrow on top pointing towards you, carefully remove the white retaining lock located in the center of the connector.
2. Locate the white wire located in terminal location S. Using a paper clip or small screwdriver, gently lift the locking tab inside the connector and pull the wire from it's location.
3. Now locate the brown wire located in terminal location U. Using the same method, remove the brown wire from it's location
4. Gently insert the brown wire into terminal location S.
5. The white wire has no function with the 4L80E transmission; it needs to be taped up and stowed in the harness in case a 4L60E is ever to be used.



LSX Panel Fuse Location with Fans