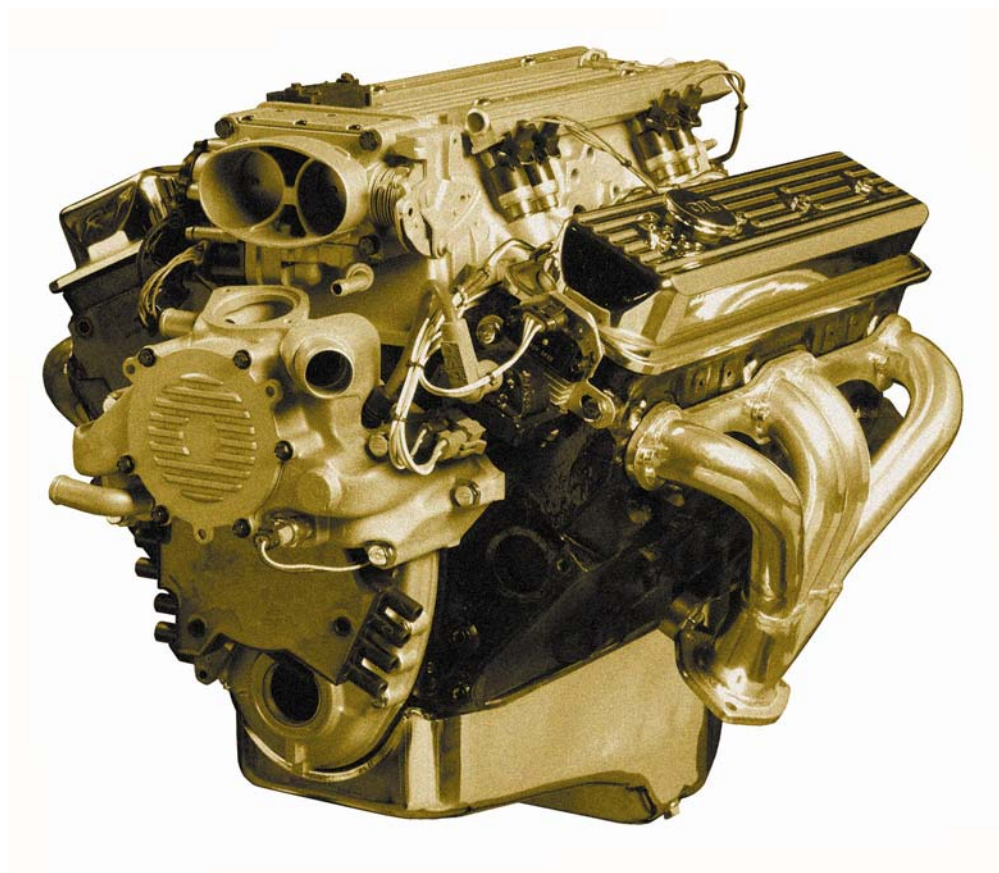




**Wire Harness Installation Instructions
For Installing:**

Part # 65105 – Into 1992-1997 (5.7L) LT-1 Engines

Part # 65205 – Into 1992-1997 (5.7L) LT-1 Engines



Manual # 90537

Perfect Performance Products, LLC
Painless Performance Products Division
2501 Ludelle Street Fort Worth, Texas 76105-1036
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We have attempted to provide you with as accurate instructions as possible, and are always concerned about corrections or improvements that can be made. If you have found any errors or omissions, or if you simply have comments or suggestions concerning these instructions, please write us at the address on the cover and let us know. Or, better yet, send us a fax at (817) 244-4024

For Technical Questions

E-mail address: tech@painlessperformance.com

Tech Line: (800) 423-9696

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P/N 90537 Painless Performance Products Manual
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PLEASE READ ALL INSTRUCTIONS PRIOR TO INSTALL

1.0 Introduction

You have purchased what we at Painless Performance believe to be the most up-to-date and easiest -to-install automotive engine management system on the market. It is designed for easy installation, even if you have no electrical experience.

This harness is designed to be a complete wiring system for the computer and fuel injection system on General Motors LT-1 engines. This kit includes all wiring that is needed by the computer to run and control the fuel injection system. It is designed to use the part listed in **Table 4.1**. Using any other parts could cause the system to function improperly.

The system will work on LT-1 engines from 1992-1997 models. When using this harness on 1992-1993 LT-1 engines please call the Painless tech hot line and request a WH-399 distributor pigtail. When using this harness on a 1996 or 1997 engine, you must replace the Coil, Coil Output Wire and Knock Sensor with the parts from a 1992 thru 1995 engine. Painless Performance part number 60126 has the proper parts for this change. This harness will not have any of the wiring for the 700R4, 4L60 or 4L60E / 4L80E electronic transmissions. If you are running a 700R4 transmission and would like to have the lock-up functions you can purchase Painless Performance part number 60109. If you are running an electronic transmission you will need to contact an aftermarket transmission supplier for that harness and computer.

Note: This harness does not have wiring for emission devices.

Note: When installing the 65105 we recommend that you start from the back of the engine and work your way forward.

Note: This system has been designed to run on the batch fire system. See note on page 22 for information.

Usually, the computer and dash group can easily be mounted under the dash. Most of the wiring in the harness has been pre-terminated to proper connector and all wire has been color-coded. All wiring is 600 volt, 275° F, TXL. Standard automotive wire is GPT, 300 volt, 176°F, with PVC insulation.

This harness is divided into three major groups:

Engine Group	Includes wiring for the fuel injectors, distributor and sensors.
Dash Group	Includes ignition feed wires, assembly line diagnostic link (ALDL) connector, check engine light, computer connectors, tachometer wiring, relays and fuse block.
Tail Group	Includes power wire for the fuel pump.

2.0 About these instructions

These instructions provide information for the installation of the 65105 LT-1 (92-97) fuel injection harness kit. The contents of these instructions are divided into major **Sections**, as follows:

- 1.0 Introduction
- 2.0 About These Instructions
- 3.0 Tools Needed
- 4.0 Contents of the 65105 Wiring Harness Kit
- 5.0 Pre-Installation and Harness Routing Guidelines
- 6.0 General Installation Instructions
- 7.0 GM 1992-1997 LT-1 System Wire Harness Installation
- 8.0 Trouble Shooting Instructions

Sections are further divided into **Paragraphs** and **Steps**. Throughout, the **Figure** numbers refer to illustrations and the **Table** numbers refer to information in table form. These are located in or near the sections or paragraphs to which they correspond. Please pay special attention to any **Notes** or any labeled **CAUTION**.

3.0 TOOLS NEEDED

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

Crimping Tool
Wire Stripper
Continuity Tester

Note: Use a quality tool to avoid over-crimping.

CAUTION: Do not use a test light to test the computer or sensor wiring or you will damage the computer.

Electric Drill
1 5/8" Hole Saw
Digital Voltmeter

(for the rubber grommet in the firewall)

4.0 CONTENTS OF THE 65105 WIRE HARNESS KIT

Take inventory to see that you have everything you are supposed to have in this kit. If anything is missing go to your dealer where you purchased the kit or contact Painless Performance at (800) 423-9696. This kit should contain the following items:

- *The main wiring harness with, the connectors already on the ends of most of the wires.
- *PERFECT ECM 65105
- *Fuel Injection Installation Instructions, part number 90537 (this booklet)
- *Distributor, Idle Air Control and Throttle Position Sensor Adaptors

5.0 PRE-INSTALLATION AND HANRESS ROUTING GUIDELINES

The installation of your harness kit will consist of two (2) steps

- * The physical routing, positioning and securing of the harness, wire groups and individual wires and connectors.
- * The proper electrical connection of the individual circuits.

We cannot tell you how to route the harness in your vehicle. That depends a great deal upon the particular make of the vehicle and what extent you want to secure and conceal the harness. We do offer some general guidelines and routing practices starting in **Paragraph 5.1.3**, general installation instructions in **Section 6.0** and precise instructions concerning the electrical connections you will have to make beginning in **Section 7.0**. To help you begin the installation of your wire harness, read the following sections:

5.1 Understanding the engine that you are using.

- 5.1.1 The 1992-1997 LT-1 engine has two (2) oxygen sensors, one on the right side and one on the left side of the engine. Depending on the model of vehicle that the engine came out of you may or may not have two (2) knock sensors, one on the right side and one on the left side. For both the oxygen and knock sensors the PERFECT system has been designed to only require one of each sensor. You will reuse both the right side (passenger) O2 and right side knock sensor.
- 5.1.2 Painless Performance recommends the use of the following parts. See **Table 4.1**. These will meet all requirements and are compatible with this Painless Performance harness and controller. The following numbers listed in **Table 4.1** are GM or AC Delco part numbers, except for the 60126 part number which is a Painless number (for 1996-1997 engines only).
- 5.1.3 Familiarize yourself with the harness by locating each of the harness groups and by looking at the connectors on the wire ends.
- 5.1.4 Decide where and how the computer and relays will be mounted. Painless Performance wire harness kits are designed to mount both under the dash or in the kick panel side of the vehicle. They must be no further apart than the wiring will allow (approx 10 inches).
- 5.1.5 A good exercise is to lay out the harness on the floor beside your vehicle and identify all the connectors and wires.
- 5.1.6 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 supports.
- 5.1.7 Route the harness away from sharp edges, exhaust pipes, the hood and door hinges.
- 5.1.8 Plan where harness supports will be located. Use support approximately every 6 inches unless the harness routes under the carpet floor.
- 5.1.9 Allow enough slack in the harness at places where movement could possibly occur (body to frame, frame to engine, etc.).
- 5.1.10 The wires should be bundled into groups. Use tape, nylon ties or split loom.

65105 LT-1 Fuel Injection Harness (1992-1997)			
Intake Air Temperature.....	12110319	Manifold Absolute Pressure.....	16137039
Ignition Module.....	D-1986-A	Idle Air Control.....	17113099 ¹
Coolant Temp. Sensor.....	25036979	Oxygen Sensor.....	AFS-105
Coil.....	D-573 ²	Knock Sensor.....	10456126 ²
<p>Note: Other parts may plug into the harness, but the part numbers <u>must</u> match the ones on this list for proper operation.</p> <p>1. An adapter is included to adapt the 4-pin square IAC connector to the 1994-97 flat 4-pin IAC connector.</p> <p>2. If you have a 1996 or 1997 engine you will need to purchase Painless Performance part number 60126 for the correct Coil, Coil Output and Knock Sensor.</p>			

Table 4.1 Compatible Parts

6.0 GENERAL INSTALLATION INSTRUCTIONS

CAUTION:

- **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!**

Notes:

- There is a normal, small drain of the battery on these fuel injection 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** be rated at a minimum of **45 PSI** (lbs. per square inch). Place the fuel filter in the **pressure** side of the pump for best possible operation.

6.1 GROUNDING THE VEHICLE

A perfectly and beautifully wired vehicle 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.

- 6.1.1 Connect a ground strap or cable (minimum of a 4 GA. wire) from the negative battery terminal to the chassis (frame).
- 6.1.2 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.**
- 6.1.3 Connect a ground strap from the engine to the body.

6.2 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.

- 6.2.1 Position the computer, fuse block and relay bases in their intended locations.
- 6.2.2 Drill a 1 5/8" hole for the firewall grommet near the computer for the engine group and tail sections to pass through.
- 6.2.3 Route the engine group and tail sections through the hole. Push the grommet (already installed on the harness) into the hole until it is seated.
- 6.2.4 Route the dash group over to the driver's side of the vehicle.
- 6.2.5 Route the fuse block and relay bases to where they will be mounted.

6.3 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.

- 6.3.1 Permanently mount your computer. You should mount the parts (sensors, relays, etc.) that will be used for your engine at this time. These parts will vary by application.
- 6.3.2 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.
- 6.3.3 Attach harness groups to your vehicle 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.

- 6.3.4 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.**

7.0 GM 1992-1997 LT-1 SYSTEM WIRE HARNESS INSTALLATION

7.1 SPECIFIC CIRCUIT CONNECTION

Note: If you have not already done so, read sections 5.0 and 6.0 of these instructions and think through the installation of the harness before securing or cutting any wires.

7.2 DASH SECTION INSTALLATION

The wires in this group consist of the assembly diagnostic link connector (ALDL) (SEE **FIGURE 7.1**), the check engine light (pre-mounted into a bracket) and four (4) other wires.

Note: You may need to connect the check engine light wire to their mates in the wire harness.

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.



FIGURE 7.1 Assembly Line Diagnostic Connector (ALDL)

- A. Find a suitable location to mount the ALDL connector that will allow access to the front of the connector and still allow you to see the light while driving.
- B. Mount the ALDL connector and the check engine light in the place selected.
- C. Locate the PINK ignition hot activation wire, labeled “Fuse Block Ignition B+ (18 GA.) for the fuse block and attach it to a 12V **fused** power source where there is power **WHEN THE KEY IS IN THE START AND RUN POSISTION**. This is the ignition feed power wire for the harness. If the pink wire is connected correctly, the check engine light will come on when the ignition is “ON or in START”.

The three relays that have been supplied for you in the kit are the following:

Fuel Pump Relay	This relay will supply the 12V ignition hot power to your fuel pump when the key is on and in start
A/C Signal Relay	This relay will supply a ground for the computer to increase engine RPM when the A/C compressor has been turned on.
Ignition Relay	This relay will supply 12V ignition hot power to the O2 sensor, check engine light and computer when the key has been turned on or start position.

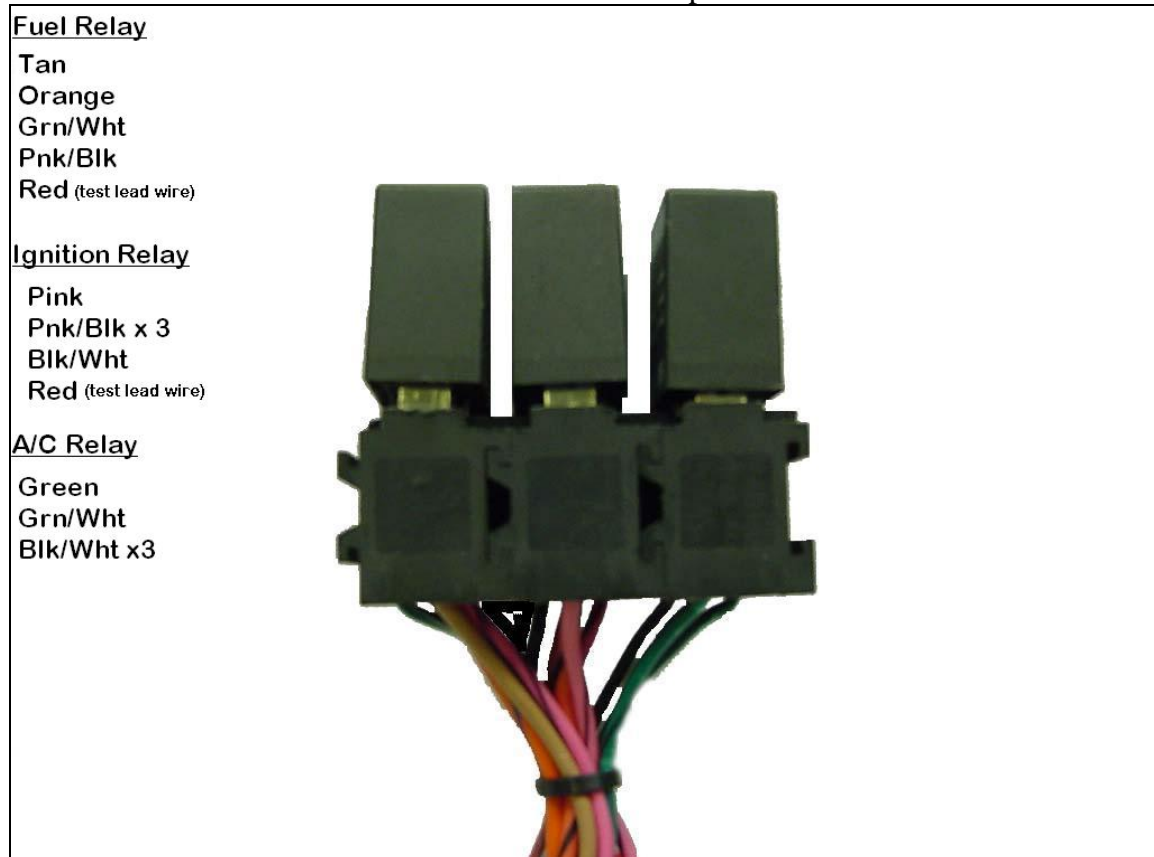


FIGURE 7.2 65105 Relays and Relay bases

Note: You will have to install the relays in their housing after mounting the bases.
All three relays are identical.

Note: The little RED wire with the female terminal that comes out of the IGN. and Fuel Pump relay bases is a test lead only. It is not connected to anything. See Section 8.1

7.3 ENGINE GROUP INSTALLATION

The engine group is designed to be separated into left side (driver) and right side (passenger) sections. Each side is tie-wrapped separately, **but not labeled**. The right side of the engine has connectors for the idle air control, throttle position sensor, distributor, injectors and map sensor, all of which **are** labeled. When you begin routing, **first** separate the engine group into left and right sections and place them accordingly.

- 7.3.1 Before you connect any wires, separate the tail section (fuel pump wire) from the engine group and place it out of the way.
- 7.3.2 Locate the two separate Blk/Wht wires in the harness that each end in a ring terminal and ground them to the engine each on their own separate ground source.
- 7.3.3 Using **Figure 7.1** thru **7.11** and the specific connections indicated in **Table 7.1**, connect the wiring as directed.
- 7.3.4 Check to make sure that the 65105 wire harness has the correct distributor connector (shown in **Figure 7.7**) on it for your particular engine. The 1992 & 1993 used the short connector (1") and the. When using this harness on 1992-1993 LT-1 engines please call the Painless tech hot line and request a WH-399 distributor pigtail. The 65105 harness includes in the kit the 1994-1997 long connector (2") see **Figure 7.8**. Plug in the correct pigtail to match your distributor.
- 7.3.5 Check to make sure that the 65105 wire harness has the correct Throttle Position Sensor connector on it for your particular engine. If you have a round style TPS you will need to find the pigtail adaptor in the kit a connect it to the TPS plug that is already on the harness. The other end of the pigtail will have your style of plug.
- 7.3.6 Check to make sure that the 65105 wire harness has the correct Idle Air Control connector on for your engine. If you have a square for pin plug you will need to remove the pigtail that has already been placed onto the harness.
- 7.3.7 The Pink wire labeled Coil Power needs to be connected to the wire that powered the coil on the original engine, or route to a fused ignition switched 12V power source.
- 7.3.8 The GRN wire tagged A/C POWER attaches to the A/C compressor power wire at the compressor if the vehicle is so equipped. This will increase the engine's RPM when the A/C is turned on.

7.4 TERMINAL INSTALLATION INSTRUCTIONS

Note: In the following steps you will be making the circuit connections. Before you start, you should carefully read SECTION 7.0 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.

- 7.4.1 Have all tools and connectors handy.
- 7.4.2 Select the correct terminal for the wire and application.
- 7.4.3 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.**
- 7.4.4 Strip insulation away from the wire. Strip only enough length necessary for the type of terminal lug you are using.

Note: In the following steps, 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.**

- 7.4.5 Crimp the terminal onto the wire.
- 7.4.6 Connecting the wires and connectors throughout the harness is a repeating process. Make sure that each wire is properly routed and then attached. **Do not attach then route afterward.**
- 7.4.7 When all the wires are attached, tighten the mounts and ties to secure the harness permanently.
- 7.4.8 Attach the connectors to the computer. **Being very careful not to bend any pins.**
- 7.4.9 After all the 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.**

7.5 TAIL SECTION INSTALLATION

- 7.5.1 Locate the tail section that you earlier separated from the engine group. Begin routing it towards the rear of the vehicle. Be sure to avoid all sharp edges, moving or hot parts, or anything else that may damage the harness.
- 7.5.2 Take the gray wire and route it to the fuel pump. This is the ignition 12V power wire for the fuel pump.

Wire Colors	# of Connectors in Connector	Labeled	Connects to:
Red/Blk,Pnk/Blk Red	4	DIST.	Distributor
Blk/Wht,Pnk/Blk Pur. , Blk	4	OYX	O2 Sensor
Blu.,Pnk/Blk or Grn.,Pnk/Blk	8	INJ #	Injectors
Dark Blue	1	KNOCK	Knock Sensor
Tan, Blk.	2	IAT	Intake Air Temp.
Blk., Blue, Gray	3	TPS	Throttle Position Sensor
Lt. Blu./Wht, Lt.Blu./Blk Lt.Grn/Wht, Lt.Grn/Blk	4	IAC	Idle Air Control
Yellow,Blk	2	CTS	Coolant Temp.
Red		STARTER	Battery B+
Lt.Grn, Gry., Blk.	3	MAP	Map Sensor
Wht., Blk., Pnk/Blk, Wht/Blk	4	IGN MOD	Ignition Module
Pnk., Wht.	2	COIL	Ignition Coil
Pnk/Blk, Wht/Blk	2	COIL	Ignition Coil
Blk/Wht	2	GROUND 1&2	Engine Ground

Table 7.1 LT-1 Harness Connection Overview part#1

Wire Colors	# of Positions in Connector	Labeled	Connects to:
Gray		FUEL	Fuel Pump
Pnk.		COIL B+	Power for Coil
Pnk.		IGN B+	Ignition B+
Wht.		TACH	Tachometers

Table 7.1 LT-1 Harness Connection Overview part #2

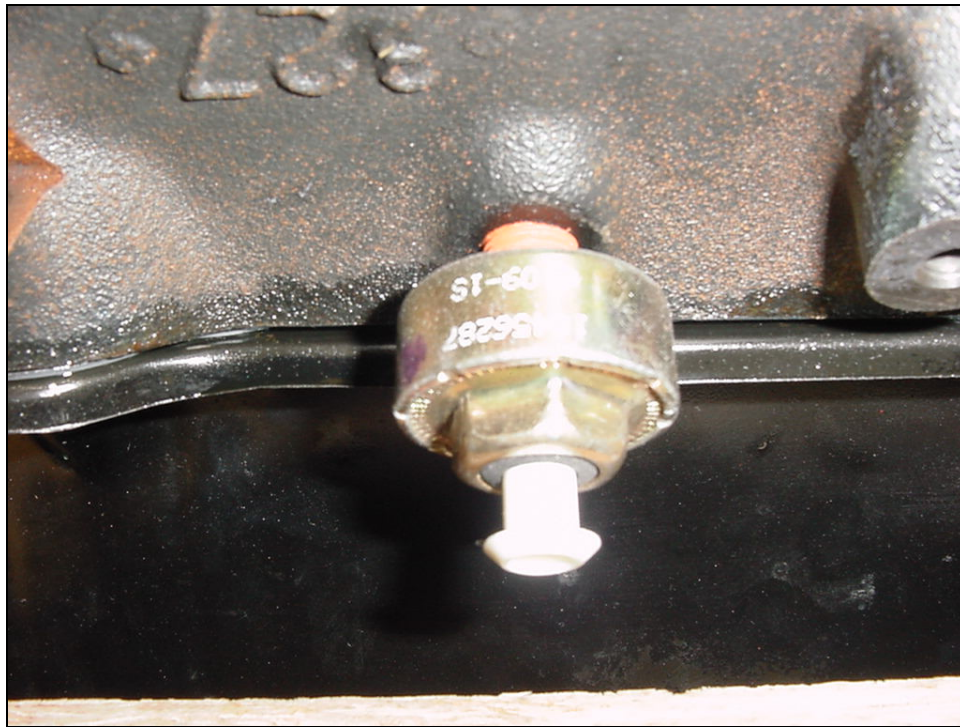


Figure 7.3 Knock Sensor



Figure 7.4 Oxygen Sensor

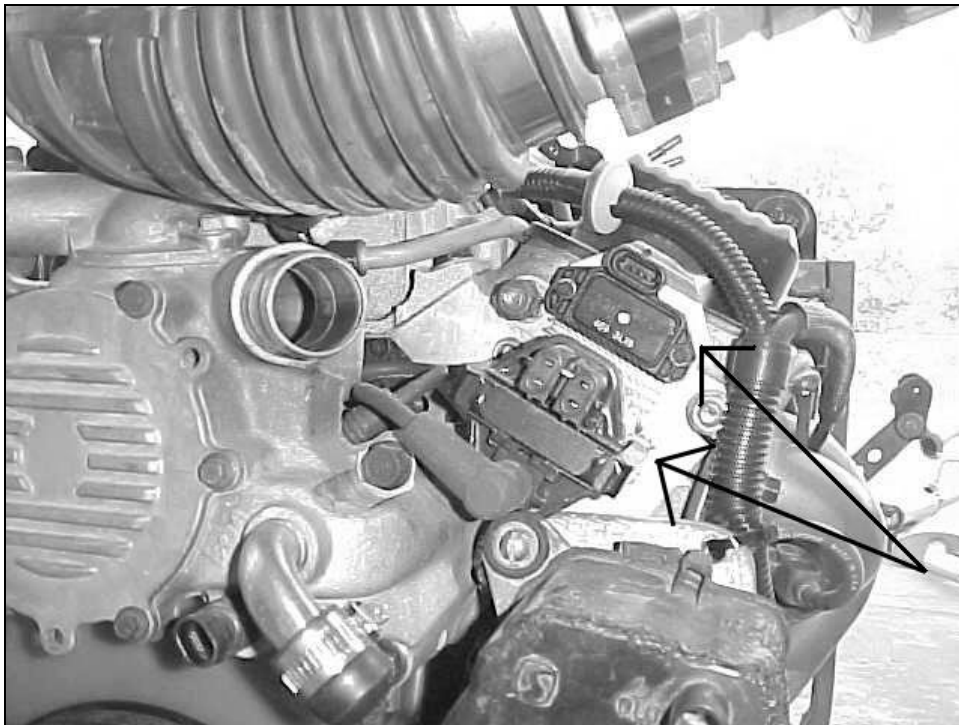


Figure 7.5 Ignition Module (top arrow) and Coil (bottom arrow)

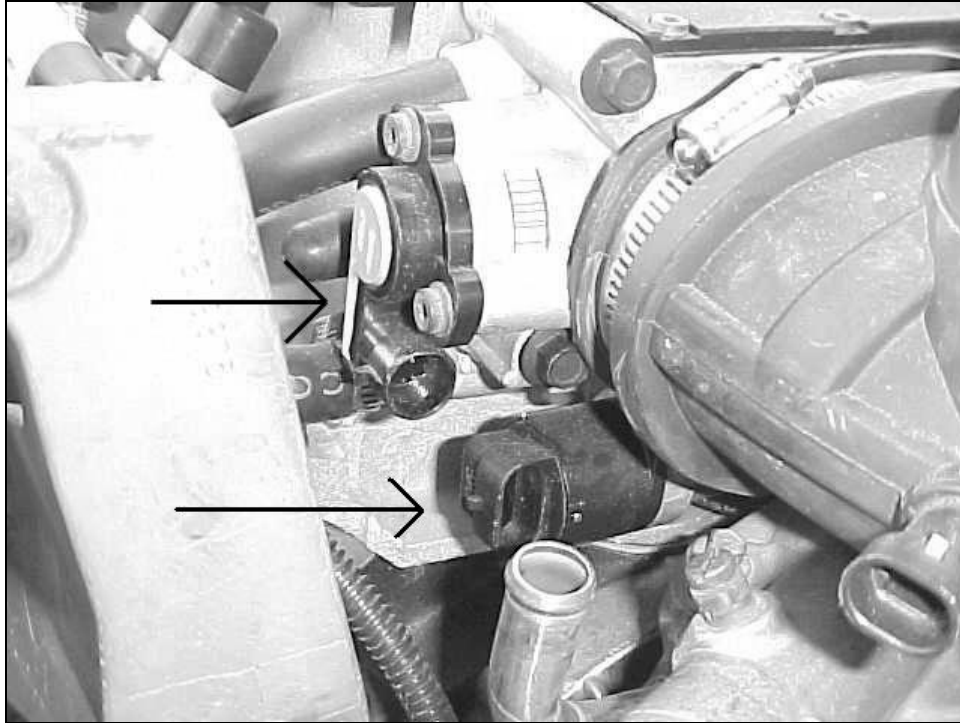


Figure 7.6 Throttle Position Sensor (TPS) (top) and Idle Air Control (IAC) (bottom)

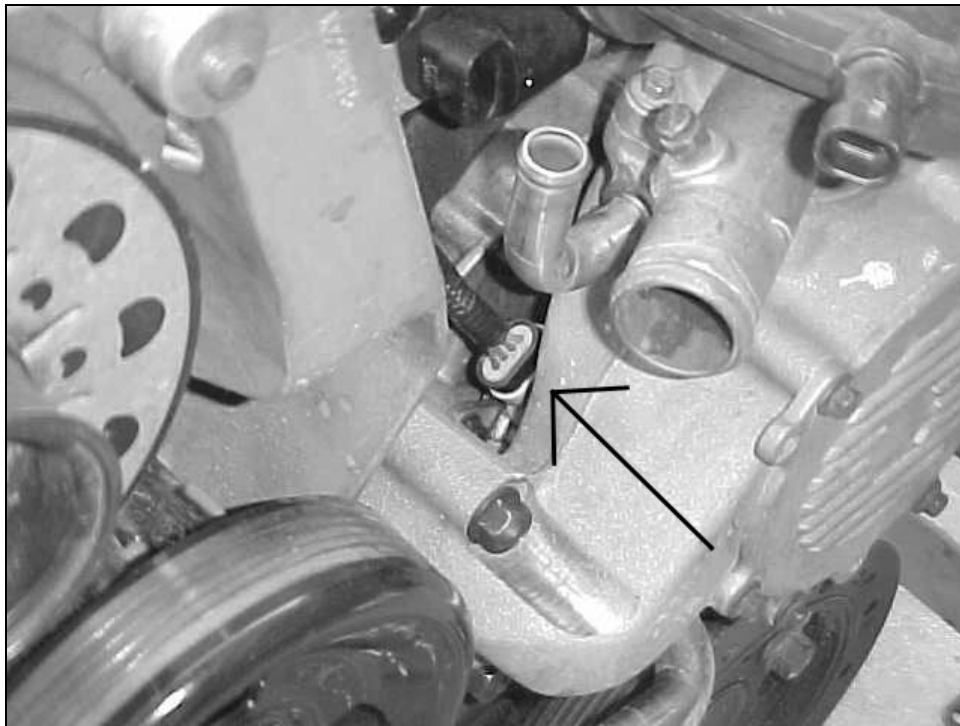


Figure 7.7 Distributor Connection



Figure 7.8 Distributor Pigtails ('92 & '93) 1" Top ('94-'97) 2" Bottom

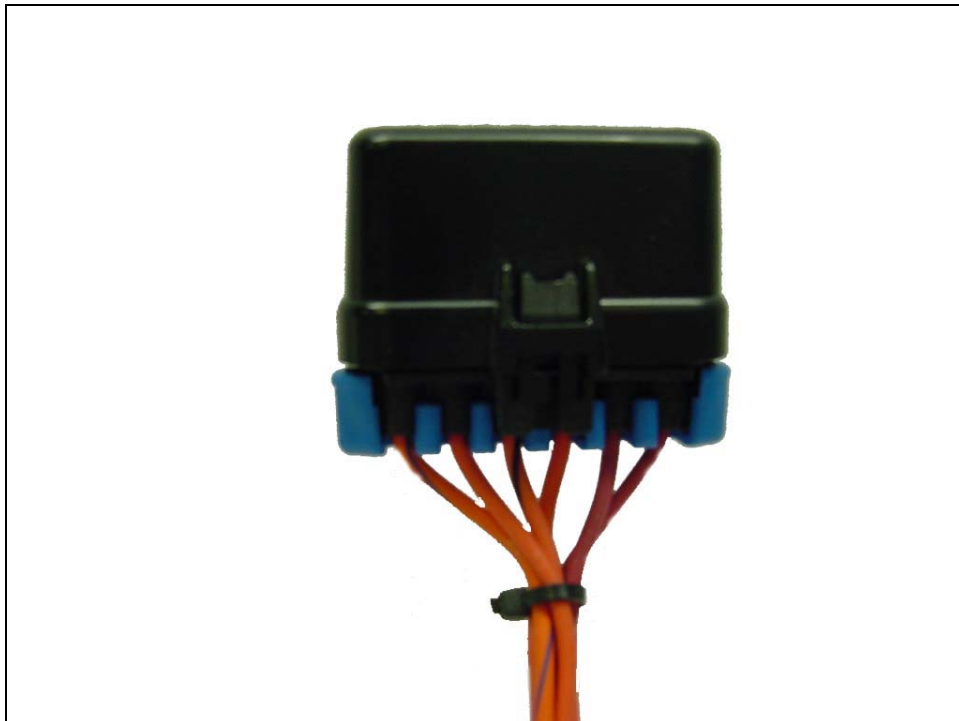


Figure 7.9 LT-1 Harness Fuse-block

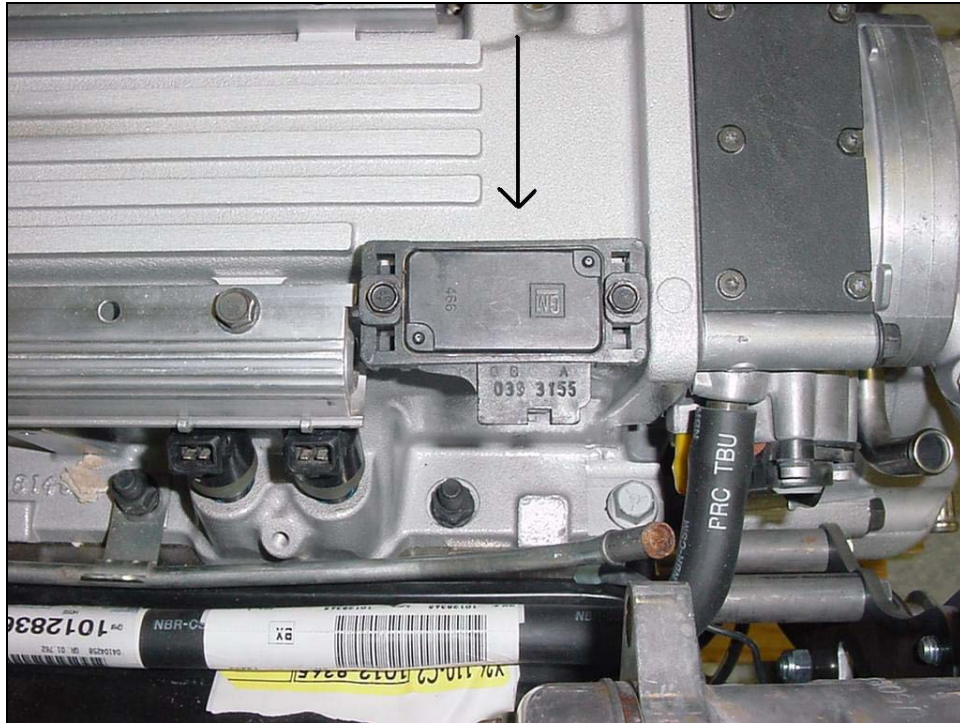


Figure 7.10 Manifold Absolute Pressure Sensor



Figure 7.11 PERFECT ECM

8.0 TROUBLE SHOOTING INSTRUCTIONS

Note: Only scanners with marine cartridges and marine cable plugs will communicate with the PERFECT computer.

If you are having trouble with your engine running badly or not running at all, first perform basic trouble shooting (checking for faulty connections, spark, fuel pressure, etc.) then see if the computer has stored any trouble codes in its memory.

8.1 THE FUEL RELAY TEST WIRE

The small RED wire that is coming out of the relay is a TEST lead wire. If you do not hear your fuel pump prime when you turn on the ignition take a jumper wire and connect it from a 12V power source to the RED wire coming out of the FUEL PUMP RELAY. By supplying 12V to that wire you are bypassing the relay completely. You should hear the pump run. If you do not hear anything make sure that all connections are good and the pump has a good ground.

8.2 THE CHECK ENGINE LIGHT

Normally, the “check engine” light should come on when ignition is initially turned on, and then go out few moments after the engine starts running. If the computer has detected a problem and a fault code has been set the light will come back on.

8.2.1 The computer identifies particular trouble codes by flashing the “check engine” light in a certain way. The codes are read by counting flashes:

- A: The first digit (the “tens” digit) of the code is flashed quickly, followed by a brief pause, then the second digit (or “ones” digit) is flashed, followed by a longer pause. For example, three (3) quick flashes followed by a brief pause followed by two (2) flashes indicate a code 32.
- B: The code will repeat itself. The next code, if any, will be displayed in the same manner.

Note: When you access the codes from the computer a code 12 (one flash followed by two flashes) will first be displayed. THIS DOES NOT INDICATE A PROBLEM. Code 12 will be flashed 2 times, followed by the particular trouble codes, if any. If the computer merely flashes code 12 there are no trouble codes stored. Code 12 means the engine is not running.

8.3 RETRIEVING TROUBLE CODES FROM THE COMPUTER

- 8.3.1 In order to retrieve the trouble codes stored in the computer, locate the ALDL plug installed in **Section 7.2**. Turn the ignition on, **BUT DO NOT START THE ENGINE**. Connect a jumper wire from the ALDL terminal “A” to terminal “B” see **Figure 7.1** and observe the check engine light.
- 8.3.2 If you have read any codes (remember the normal code 12), write them down for reference Remove the jumper wire from the ALDL connector.
- 8.3.3 Take the codes one at a time and match them to the codes in **Table 8.1**. This will tell you in which circuit the computer has detected a problem.

Note: A code indicated a problem is a specific circuit, NOT THAT A PARTICULAR PART IS BAD.

- 8.3.4 Before taking more extensive corrective actions for any trouble codes, make sure that all connections on the indicated circuit, **INCLUDING** the computer, are clean and tight. Inspect the wiring in the circuits for any broken, shorted, or exposed wires. Finally, insure all ground wires are clean and secure.
- 8.3.5 If you are getting a code from your computer and need to clear the code, other than 12, after you have replaced a part, readjusted a part, etc. You can do this by making the following steps.
 - A: Install a jumper wire from terminal A to terminal B
 - B: Ignition ON engine OFF
 - C: Move throttle from 0% (idle) to 100% (WOT) and back to 0%.
 - D: Remove the jumper wire.
 - E: Turn ignition OFF for at least 20 seconds.
 - F: Ignition ON engine OFF
 - G: Recheck for codes.

Code #	Circuit affected
13	Oxygen Sensor
14	Coolant Temp. High Voltage (COLD)
15	Coolant Temp. Low Voltage (HOT)
21	Throttle Position Sensor (high voltage)
22	Throttle Position Sensor (low voltage)
23	Intake Air Temp. Low Voltage (HOT)
25	Intake Air Temp. High Voltage (COLD)
33	MAP Sensor Circuit (high voltage)
34	MAP Sensor Circuit (low voltage)
41	Ignition Control Circuit (open IC circuit)
42	Ignition Control Circuit (grounded IC)
44	Knock Sensor Inactive
54	Heated Oxygen Low Voltage (lean)
55	Heated Oxygen High Voltage (rich)

Table 8.1 Diagnostic Trouble Code Chart

8.4 WHEN TO CALL PERFECT PERFORMANCE PRODUCTS TECH LINE

- 8.4.1 These harness kits have been built with the highest regard to strict quality control and tested before shipment. Before calling use please double check all connections and perform normal basic trouble shooting (fuel pressure, ignition, spark, etc.).
- 8.4.2 If you have any questions concerning the installation of this harness or are having trouble in general; feel free to call Painless Performance tech line at (800) 423-9696. Calls are answered from 8 AM to 5 PM CST, Monday-Friday, except holidays. Please leave a message if you are unable to reach us and we will return your call as soon as possible.

Note: HELPFUL INFORMATION ON THE PERFECT ECM CALIBRATIONS.

The PERFECT ECM has been specifically calibrated for your particular engine. This computer will NOT work with any other type of engine, nor will it work with a modified engine. The computer has been programmed with a REV. limit set @5,000 RPM. If your computer was to detect an engine malfunction it will first set the “check engine” engine light and then proceed to place itself into a “safe mode”. This “safe mode” will still allow you to drive your vehicle, but it will not allow you to drive over 1,300 RPM. The computer will not take itself out of “safe mode” until the malfunction has been corrected. The computer will place itself into “safe mode” even if your vehicle starts to over-heat. Once the engine cools down the computer will place itself out of the mode and return back to normal functions. Engine over-heat temp. has been set at 250°.

E-mail: tech@painlessperformance.com

WEB: www.painlessperformance.com

**Painless Performance Limited Warranty
and Return Policy**

Chassis, fuel injection harnesses, and Striker ColdShot units are covered under a lifetime warranty.

All other products manufactured and or/sold by Painless Performance are warranted to the original purchaser to be free from defects in material and workmanship under normal use. Painless Performance will repair or replace defective products without charge during the first 12 months from the purchase date. No products will be considered for warranty without a copy of the purchase receipt showing the sellers name, address and date of purchase. You must return the product to the dealer you purchased it from to initiate warranty procedures.