



Wire Harness Installation Instructions

For Installing:

Part # 65108 – '99 – '06 GM 5.3L Manual Throttle Engines



Manual # 90568

Perfect Performance Products, LLC

Painless Performance Products Division

2501 Ludelle Street Fort Worth, Texas 76105

(800) 423-9696

We have provided with this kit the most accurate instructions possible and are always concerned about corrections or improvements that can be made. If any errors or omissions have been found please submit them to us via a fax, phone call to our technical department or an email with a detailed description about suggestions concerning these instructions. On our website www.painlessperformance.com the “Contact Us” link can be used to submit this valuable information as well.

For Technical Questions

E-mail address: tech@painlessperformance.com

Tech Line: (800) 423-9696

Tech Fax: 817-413-0897

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P/N 90568 Painless Performance Products Manual

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1.0 Introduction

Congratulations on purchasing the most up-to-date and easiest-to-install engine management system on the market. It has been designed for an easy installation; even with little or no electrical experience.

This kit is a complete fuel injection system for the GM Gen III 5.3L (LM7) engine. This kit includes all the wiring needed by the MEFI computer to control the fuel injection system. It is designed to use the parts listed in **Table 4.1**. Use of any other parts may cause the system to function improperly.

This system will work on GM 5.3L engines from 1999-2006 with a manual throttle body and all the appropriate sensors. See **Table 4.1** below for throttle body, sensor, coil and fuel injector requirements.

This system is weatherproof; meaning most of the connectors on this harness are of the weather pack type of design, thus allowing the ECM and Relay/Fuse Block to be mounted in the engine compartment without corrosion or moisture control problems. The computer and dash group can also be easily mounted under the dash for a clean installation.

Most of the wiring in the harness has been pre-terminated to each proper connector and all wire has been color-coded. All of the wire used is 600 volt, 275° F, TXL (Trans Cross Linked) insulation.

This harness has three major groups:

Engine Group	Includes wiring for the fuel injectors, coils, sensors, and the alternator.
Dash Group	Ignition feed wires, Diagnostic Link Connector (DLC), check engine light, computer connectors, tachometer wiring, relays and fuse block.
Tail Group	Includes main power wire for the fuel pump.

2.0 About these instructions

These instructions provide the information needed to install the **65108 PERFECT '99-'06 GM 5.3L Engine** fuel injection kit. These instructions are divided into eight major **Sections**, as follows:

- 1.0 Introduction
- 2.0 About These Instructions
- 3.0 Tools Needed
- 4.0 Contents of the 65108 Wiring Harness Kit
- 5.0 Pre-Installation and Harness Routing Guidelines
- 6.0 General Installation Instructions
- 7.0 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 labels with **CAUTION**.

3.0 TOOLS NEEDED

In addition to everyday mechanics tools; the following will also be needed:

Crimping Tool - Always use a quality tool, such as a Thomas & Betts to ensure superior crimps.

Wire Stripper – Be sure to only strip 1/4” of the insulation off for all crimps made during the installation of the harness.

Continuity Tester – ONLY use this device when the battery is disconnected.
CAUTION: Do not use a test light to test the computer or sensor wiring or damage to the computer may result.

Electric Drill & 1 3/8” Hole Saw – Use this to drill the hole into the firewall for the main pass through location of the fuel injection harness.

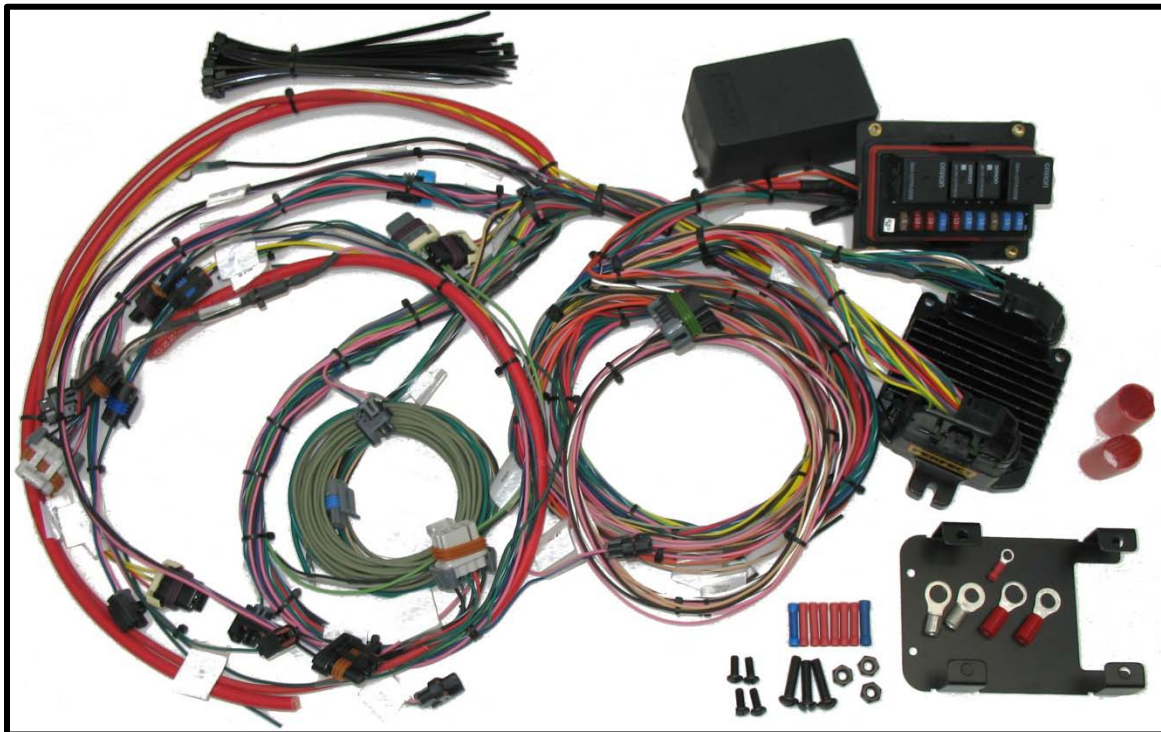
Digital Voltmeter – Use this to verify the battery is fully charged (11.9 – 12.7 volts) and once the engine is running, the alternator is charging the battery (13 – 14.5 volts).

4.0 CONTENTS OF THE 65108 WIRE HARNESS KIT

Take inventory to verify everything that is supposed to be in this kit is there. If anything is missing go to the dealer where the kit was purchased or contact Painless Performance at (800) 423-9696.

This kit contains the following items:

- **The main wiring harness with required connectors installed.**
- **PERFECT ECM 65108**
- **Installation Manual (this booklet)**
- **One Weatherproof fuse block with four relays and ten fuses**
- **(1) Bag of 4" Zip Ties**
- **(20) 7" Zip Ties**
- **Parts Kit w/Terminals and Fasteners**
- **Fuse Block Bracket**



5.0 PRE-INSTALLATION AND HARNESS ROUTING GUIDELINES

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

- * The physical routing and securing of the harness, wire groups and individual wires and connectors.
- * Plugging in each preterminated connector into its proper component and to complete the electrical connection of each individual circuits.

How to route the harness in the vehicle depends a great deal upon the particular make of vehicle and what extent is desired to secure and conceal the harness. See Paragraph 5.1.3, for some general routing guidelines. See the general installation instructions in Section 6.0 and precise instructions concerning the electrical connections beginning in Section 7.0.

To begin the installation of the wire harness, read the following sections:

5.1 Understanding the GM 5.3L V8 engine

- 5.1.1 The 1999-2006 GM 5.3L V8 engines came with the same sensor/component packages until GM started using Electronic Throttle Control in 2003. For the most part GM built these Gen III engines to the same specifications from 1999-2006 only to add some small revisions but for all practical purposes they stayed the same. So, through the use of specific components based on what year engine needs to be controlled, this kit can control the 1999-2006 GM 5.3L engines.

NOTE: This kit can also control both the 4.8L and 6.0L from these years but will require calibration work to be completed using the 65245 Perfection Software.

- 5.1.2 **The PERFECT system for the GM 5.3L engines requires the use of the following parts in Table 4.1.** These parts meet or exceed all requirements of the PERFECT Performance Products harness and controller.

<u>1999 – 2006 GM 5.3L V8 Sensor Requirements</u>	
GM MAP Sensor	Delco #16137039
GM Coolant Temp	Delco #15326388
GM Intake Air Temp	Delco #12160244
GM Oxygen Sensor	Delco #AFS-105
GM Knock Sensor	Delco #12589867
GM Cam Position Sensor	Delco #12561211
GM Crank Position Sensor	Delco #12560228
GM Throttle Position Sensor	Delco #17123852
Idle Air Control Motor (IAC)	Delco #17113598
Fuel Injectors 1999-2006 GM 5.3L Vin T (Used in all 4.8L and 6.0L from '01-'06)	Delco #17113698
*Note: All of the injectors with the “Truck Style” connectors will work with this Fuel Injection Kit. Be sure to regulate the fuel pressure to 58-60psi with the engine idling fully warmed up. Any significant change of the fuel pressure will affect the performance of this system and require recalibration of the fuel tables.	
*Note: This system is shipped with a calibration for the GM 5.3L only, however if a 4.8L or 6.0L engine is to be used, then simply purchase the Perfect CalTool Software P/N 65245 and calibrate for the different displacement engine.	

Table 4.1 – Sensor Requirements

- 5.1.3 **This harness does not have wiring for emission devices.** Most of the GM truck engines had catalytic convertors for their main emission devices.
- 5.1.4 Decide on the mounting location for the computer and relays. This PERFECT Fuel Injection harness kit is designed to mount the computer and relays under the dash of the vehicle.
- 5.1.5 A good exercise is to lay out the harness on a workbench beside your vehicle and study the harness by locating and reading each of the harness labels to gain understanding on what each connector plugs into on the engine.
- 5.1.6 When routing the harness, be sure to avoid exhaust manifolds, accessory belts, hood hinges and any other objects on the engine or under the hood that may damage the harness. Whenever possible, be sure to use the provided zip ties to help secure the harness.

- 5.1.7 Plan where harness supports will be located. Many times the OEM harness supports can be used. **The harness brackets located on or near the fuel injector rail are prime examples of a good harness supports to use.**
- 5.1.8 Allow enough slack in the harness at places where movement could possibly occur such as engine to body and engine to frame.

6.0 GENERAL INSTALLATION INSTRUCTIONS

CAUTION:

- **Separate the two ground wires by connecting them to two different locations. This will aid in noise suppression throughout the harness and especially on the clean sensor ground. Again DO NOT SKIP THIS STEP, in this harness there are (2) two harness grounds. ONE needs to be connected to the rear of the right cylinder head and ONE needs to be connected to the rear of the left cylinder head. DO NOT CONNECT BOTH OF THEM TO THE SAME BOLT.**
- **Giving or Receiving a “Jump Start” may cause damage to the computer.**
- **NEVER WELD ON THE VEHICLE WITH THE ECM CONNECTORS PLUGGED INTO THE ECM. EVER!!! THERE IS AN ALMOST CERTAINTY OF THE ECM TO FAIL IF THIS OCCURS.**
- **A test light may be used to check for 12 volts at the coils and the injectors. Never use it to test a sensor input to the ECM.**
- **There is normally a small amount of current drain on the battery with this fuel injection system.**
- **When connecting the plugs to the computer use extra care to ensure none of the pins on the computer are bent.**
- **The fuel pump MUST be rated at a minimum of 60 PSI (lbs. per square inch). It will be necessary to purchase an external fuel pressure regulator in most instances. The fuel pressure needed for this system is 58psi. All Perfect calibration work was completed with the fuel pressure at 58 psi at the fuel rail. If this pressure is not correct with this system; the engine will inevitably not run correctly, may stall and hesitate and could even run lean or rich.**

6.1 GROUNDING THE VEHICLE AND ENGINE

A correctly wired vehicle will only have problems if the chassis harness components and the fuel injection systems are not properly grounded. Don't go to the effort of installing a quality fuel injection system 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 frame. Be sure to clean the place of connection on the frame with a wire wheel to remove any grease, dirt or paint. For the best connection, use a star type lock washer to fasten the ground cable to the frame.
- 6.1.2 Connect a ground strap (minimum of a 4 GA. wire) from the engine to the same point on the frame in step 6.1.1. This is best accomplished with a braided ground strap which is available from most auto parts stores. **DO NOT RELY ON THE MOTOR MOUNTS TO MAKE THE CONNECTION FROM THE ENGINE TO THE FRAME, THEY'RE MADE OF RUBBER AND RUBBER DOESN'T CONDUCT ELECTRICITY.**
- 6.1.3 Connect a ground strap from the body to the frame. This will ensure your vehicle has the proper grounds for most all circuits both for the engine and separate from the engine.

6.2 ROUGH INSTALLATION

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

- 6.2.1 Position the computer, fuse block/relay base assembly in the desired mounting location. This location should be either under the dash in most applications but can also be on the firewall in the engine compartment.
- 6.2.2 If mounting the computer under the dash, drill a 1 3/8" hole in the firewall for the pass thru grommet.
- 6.2.3 Route all of the engine section connectors and the gray fuel pump wire though the hole. Push the grommet (already installed on the harness) into the hole until it is seated. Be sure the split on the grommet is at the top of the hole in the firewall.
- 6.2.4 Permanently mount the fuse block/ relay base in the desired mounting location.
- 6.2.5 Mounting screws for the computer have been included. Be sure not to over tighten these screws to avoid warping the computer housing. An effort also needs to be made to mount the computer onto a relatively flat surface. Otherwise, damage can result to the steel cover on the rear of the computer, which will damage the internals of the computer.

6.3 HARNESS ATTACHMENT

Note: Harness routing doesn't necessarily need to be a time-consuming task, but some caution must be taken to ensure isolation of the harness from hot and sharp parts on the engine. A good way to protect the harness is to use the factory harness mounting points as often as possible. Most GM Truck Gen III engines have mounting tabs which can be used to support the trunks of the harnessing.

- 6.3.1 Attach harness groups to your vehicle with clips or ties starting at the computer and working outward.
- 6.3.2 Rubberized clamps from your local auto parts supplier make for a very professional method of fastening the engine section of the harness onto the engine.
- 6.3.3 Call your local Painless Wiring dealer for a price on the Power Braid Fuel Injection Kit P/N 70921. This kit comes with all the high performance braid needed to protect your new harness and makes for a great looking install under the hood of your vehicle.

6.4 TERMINAL INSTALLATION INSTRUCTIONS

- 6.4.1 Select the correct terminal for each different gauge of wire. (Red – 22-18ga/ Blue – 16-14ga/Yellow – 12-10ga)
- 6.4.2 Determine the correct wire length and cut the wire. Remember to allow enough slack in the harness and wires at places where movement will occur. **Double-check your calculations.**
- 6.4.3 Strip insulation away from the wire. Strip only enough length necessary for the type of terminal being used. (1/4" will be appropriate for most crimp on terminals.)

Note: In the following steps, be sure each terminal is crimped with the proper die in the crimping tool. An improper crimp will not make good enough of a connection and be sure not to over crimp and compromise the connection.

- 6.4.4 Crimp the terminal onto the wire.
- 6.4.5 Connecting the wires and connectors throughout the harness is a simple process; just be sure each wire is properly routed and then terminated.
- 6.4.6 When all the wires are terminated, tighten the mounts and zip ties to secure the harness permanently.
- 6.4.7 Attach the connectors to the computer with the battery disconnected. **Be careful not to bend any pins.**
- 6.4.8 Once all the connections have been made throughout the harness, connect the

battery to the vehicle with the ignition off or damage to the ECM may occur.

7.0 SYSTEM WIRE HARNESS INSTALLATION

7.1 SPECIFIC CIRCUIT CONNECTION

Note: If you have not already done so, please go back and 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 Diagnostic Link Connector (DLC), the check engine light (pre-mounted into a bracket), the ECM, the Fuse Block and three (3) other wires.

- A. Fuse Block and ECM** – mount with the provided fasteners in a secure location under the dash of the vehicle.



Figure 7.1 Engine Control Module (ECM)

- B. DLC** - Mount the DLC connector in an easily accessible location on or under the dash. See Table 7.1.



Figure 7.2 Diagnostic Link Connector (DLC)

- C. Fuseblock Ignition Wire** -Locate the ORANGE ignition hot activation wire, labeled “FUSEBLOCK IGNITION” and attach it to a swithed 12V power source. It must have power when the key is in the run and start positions only. This is the ignition power signal wire for the harness and computer. It allows the computer to power up and enables the main harness relay to power up the sensors, injectors, and ignition system. With the orange wire correctly wired, the check engine light will come on when the ignition switch is in the “ON” position with the engine not running. **See Table 7.1.**
- D. Tachometer Output** – This is the grey signal wire coming from the ECM to be connected to any aftermarket or some factory tachometers. **See Table 7.1.**
- E. Alternate Fuel Table Wire** – this wire is not used in this application. Be sure to crimp a red 18-22ga butt splice on the end of it to isolate it from ground. **See Table 7.1.**
- F. Check Engine Light** – Mount this light in a location which is visible when driving the vehicle. It allows for easy troubleshooting if problems occur. **See Table 7.1.**

Label on Harness	Connects to:	# of Wires	Wire Colors
BLACK J1	Computer J1 Side	-	-
CLEAR J2	Computer J2 Side (Has the single slotted mounting tab next to it)	-	-
DLC	Diagnostic Link Connector	4	Blk, Wht/Blk, Pnk, Tan
CEL	Check Engine Light	2	Pnk, Brn/Wht
ALT. FUEL	Not Used – Isolate from Ground	1	Tan/Blk
TACH OUTPUT	Tachometer Signal	1	Grey
FUSEBLOCK IGNITION	12V Ignition/Start Hot Power Source	1	Orange

Table 7.1 Dash Section Installation Harness Connections

The four relays supplied in the kit:

- **Cooling Fan Relay** – Supplies 12V power for (1) one standard electric cooling fan. This will not handle a fan that draws more than 40 amps continuously.
- **Cooling Fan Temperature Settings** – On at 200deg F/ Off at 170deg F
- **Fuel Pump Relay** - Supplies the 12V power to your fuel pump. It will run for 3 seconds after the ignition is turned to the on position to prime the fuel rail to prepare the engine to start.
- **A/C Signal Relay** – Supplies the computer a ground signal to slightly increase engine RPM to compensate for the load on the engine from the A/C compressor.
- **Ignition Relay** – Supplies 12V power to the O2 sensor heater, Ignition System, Check Engine Light and Computer when the key is in the Run or Start position.

See Figure 7.3 on the next page for Relay Function and Fuse Sizes.

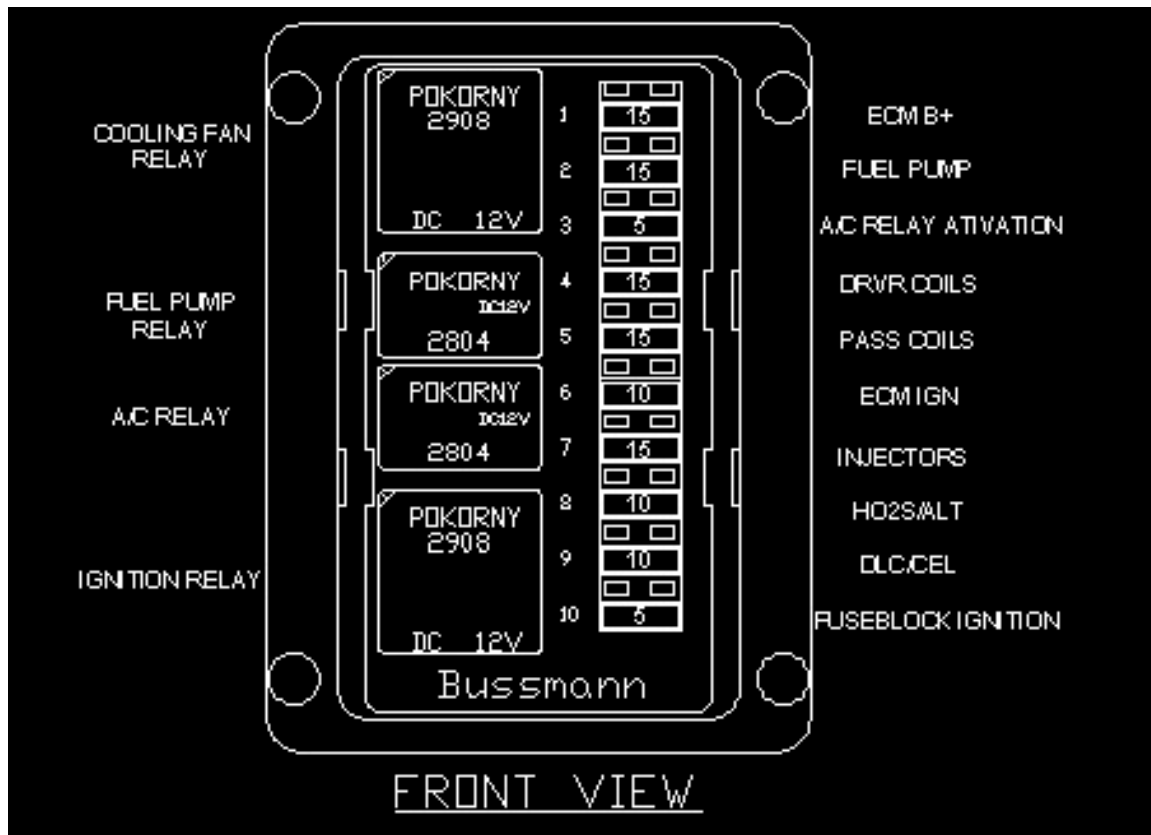


FIGURE 7.3 Relays and Fuses

Note: The Cooling fan and Ignition relays are identical sizes and the Fuel Pump and A/C relays are identical sizes.

7.3 ENGINE SECTION INSTALLATION

The engine group is designed to be separated into left side (driver) and right side (passenger) sections. Each side is tie-wrapped separately and labeled. The Drivers side of the harness has connectors for the TPS, IAC, CTS, IAT, Coils and Injectors. The Passenger side of the harness has connectors for the Knock sensors, Cam sensor, Crank sensor, idle air control motor, throttle position sensor, injectors, and oxygen sensor. knock sensor and MAP sensor. To begin routing, separate the engine groups into left and right sections and place them between the intake manifold and valve covers.

- 7.3.1 Before you connect any wires, separate the fuel pump wire from the engine group and place it out of the way.
- 7.3.2 Locate the Ground #1 and Ground #2 breakouts on the harness. Attach each of them to their own separate bolts. Separating them aids in noise signal cancellation throughout the harness.
- 7.3.3 Using **Figures 7.4** thru **7.16** and the **Table 7.2**, plug in each harness connector to its appropriate sensor or device. They are all labeled accordingly.
- 7.3.4 The Green wire tagged A/C SIGNAL needs to be connected to the A/C compressor clutch power wire; if the vehicle is equipped with A/C. This will enable an increase in the engines RPMs when the A/C is turned on to compensate for the additional load of the A/C compressor and the additional electrical load on the alternator.
- 7.3.5 If running a single electric cooling fan with this kit and want the ECM to control the on and off temperatures for it; connect the Green wire labeled Cooling Fan to the positive side of the cooling fan motor. (On most aftermarket puller fans, the positive wire is the blue wire.)
- 7.3.6 Locate the green/white wire labeled VSS in this harness. If running a later model GM automatic or manual transmission which has an analog VSS, this system requires the use of a signal conditioning device from Dakota Digital P/N SGI-5. The ECM in this kit is only compatible with a digital signal for the VSS input. The Dakota Digital piece will allow an analog signal from any GM factory VSS to be used. Otherwise, if running a speedometer cable, purchase Painless Performance VSS P/N 60117 and install it according to the instructions included with it. It connects inline to the existing speedometer cable on most GM transmissions (7/8" – 18 thread).
- 7.3.7 Notice the large red 6 gauge wire in the harness near the alternator and the starter. This wire provides the alternator power down to the starter battery post and then to the battery. This is the main charging circuit. Two large terminals are provided to make these connections.

Label on Harness	Connects to:	# of Wires	Wire Colors
DRVR.COILS	Drivers Side Coils	7	Blk/Wht, Red, Grn, Blk, LtBlu, Pur, Pnk
PASS. COILS	Passenger Side Coils	7	Blk/Wht, Red/Wht, Grn/Wht, Blk, Pur/Wht, Pnk
O2	Oxygen Sensor	4	Blk, Pur/Wht, Pnk, Blk/Wht
INJ #1 – INJ #8	Fuel Injectors (GM Truck Style Connectors)	2	Blu, Pnk OR Grn, Pnk
GROUND #1	Passenger Rear Cylinder Head	1	Black
GROUND #2	Drivers Rear Cylinder Head	1	Blk/Wht
STARTER B+	Large Battery Post on Starter Solenoid	2	Red
ALT B+	Alternator Output Post	1	Red
ALT REG.	Alternator Regulator	2	Brown, Grey
ELECTRIC FUEL PUMP	Positive Post on Fuel Pump	1	Grey
A/C SIGNAL	A/C Compressor Clutch B+	1	Green
MAP	MAP Sensor	3	Gry, Lt Grn, Blk
KNOCK	Knock Sensor	2	Blue, Lt.Blue
IAT	Intake Air Temp Sensor	2	Blk, Tan
IAC	Idle Air Control Motor	4	Lt Grn/Blk, Grn/Blk, Lt Blu/Blk, Blu/Blk
TPS	Throttle Position Sensor	3	Gry, Blu, Blk
CTS	Coolant Temp Sensor	2	Ylw, Blk
CMP	Cam Position Sensor	3	Brn/Wht, Ylw/Blk, Red/Blk
CKP	Crank Position Sensor	3	Ylw, Ylw/Blk, Red/Blk
VSS INPUT	Vehicle Speed Sensor Input to the ECM	1	Grn/Wht
ELECTRIC COOLING FAN	Positive wire on Electric Cooling Fan Motor	1	Grn

Table 7.2 Engine Harness Connections

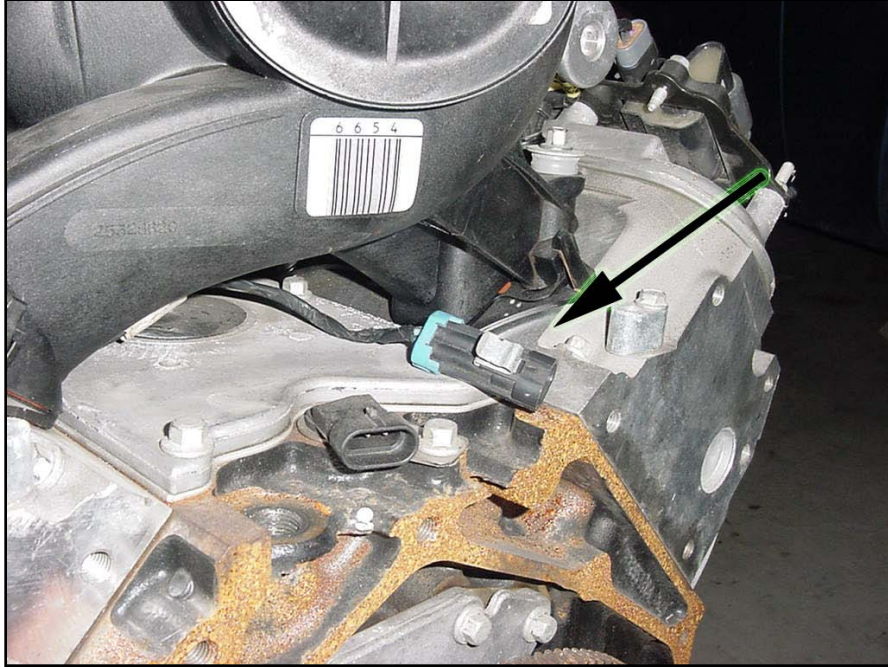


Figure 7.4 Knock Sensors (Two below Intake Manifold)

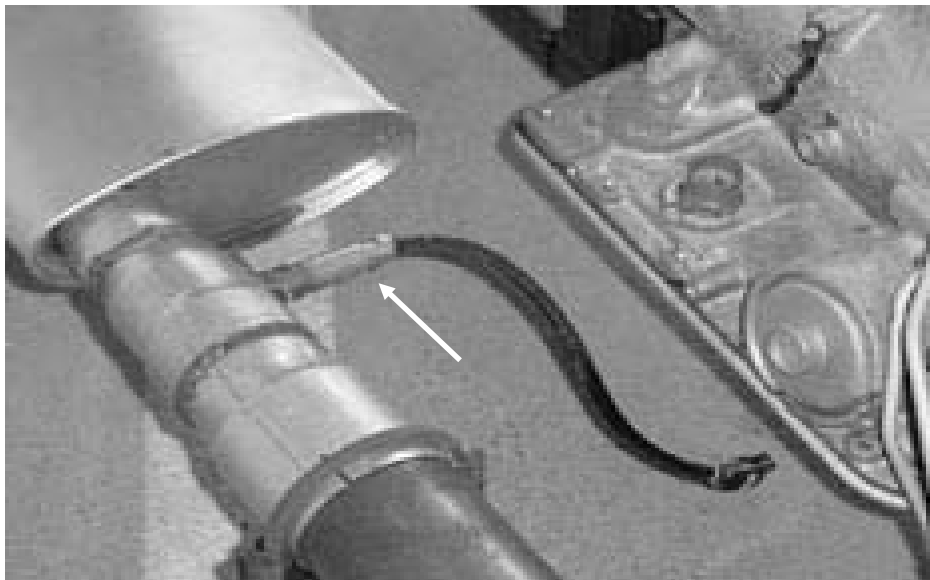


Figure 7.5 Oxygen Sensor

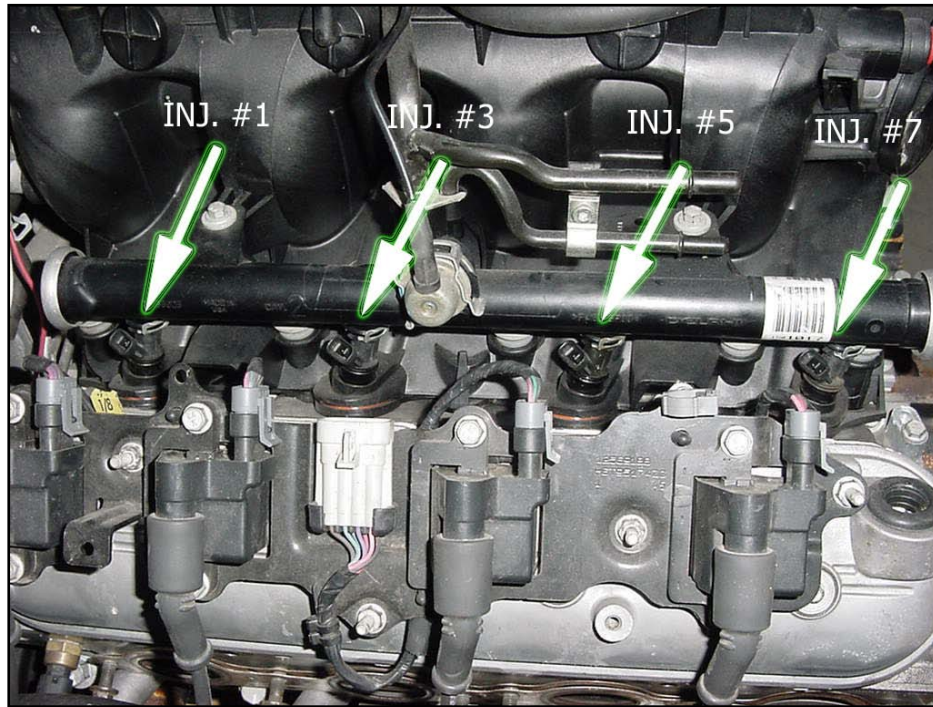


Figure 7.6 Injectors 1, 3, 5, 7



Figure 7.7 Injectors 2, 4, 6, 8

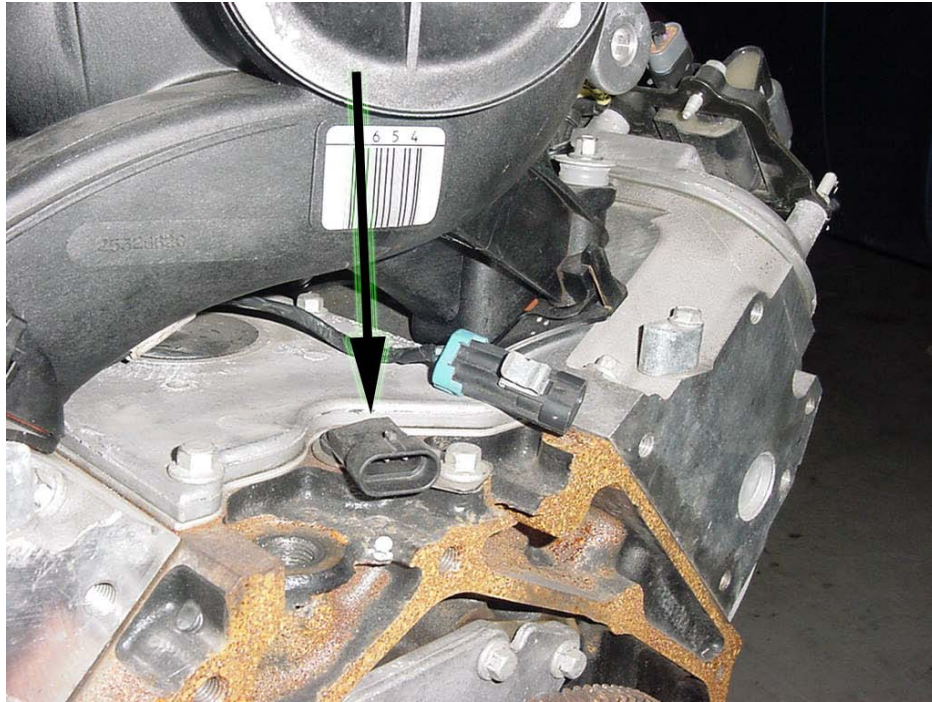


Figure 7.8 Camshaft Position Sensor (CMP)

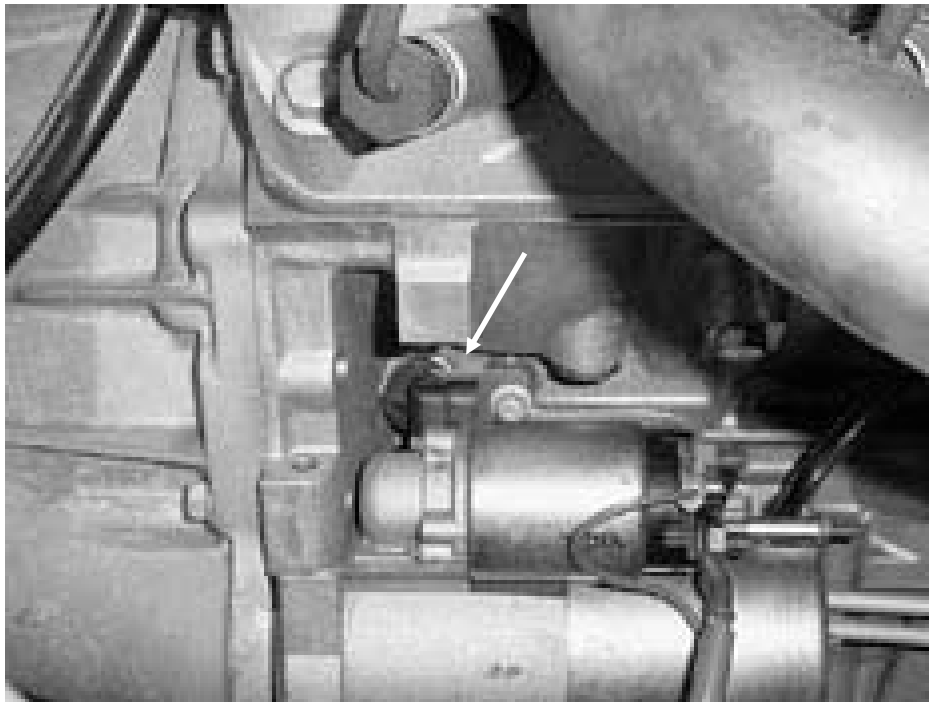


Figure 7.9 Crankshaft Position Sensor (CKP)

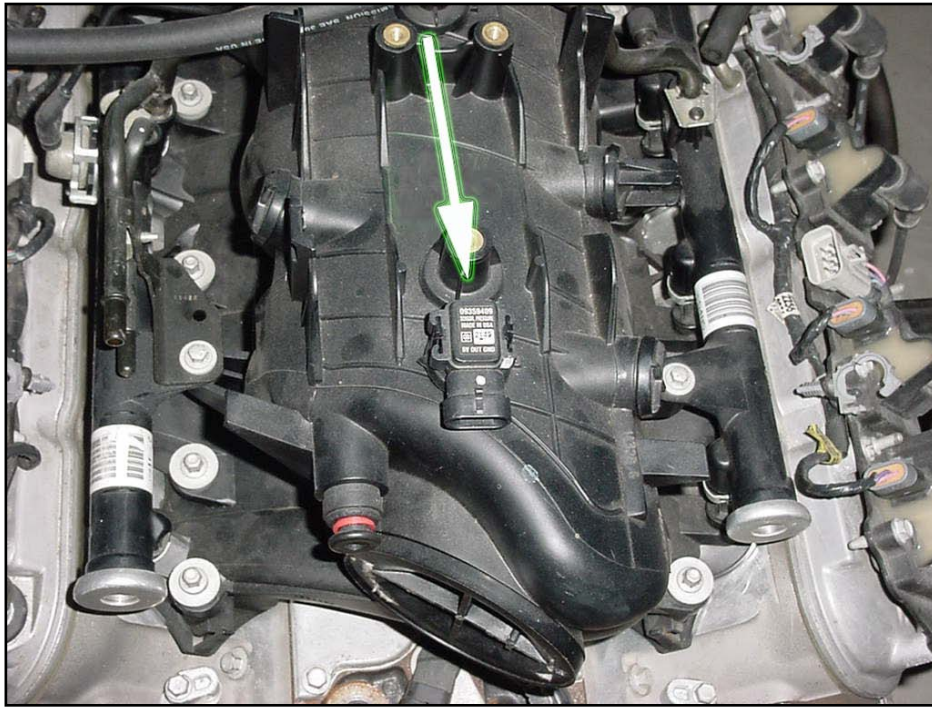


Figure 7.10 Manifold Absolute Pressure Sensor (MAP)

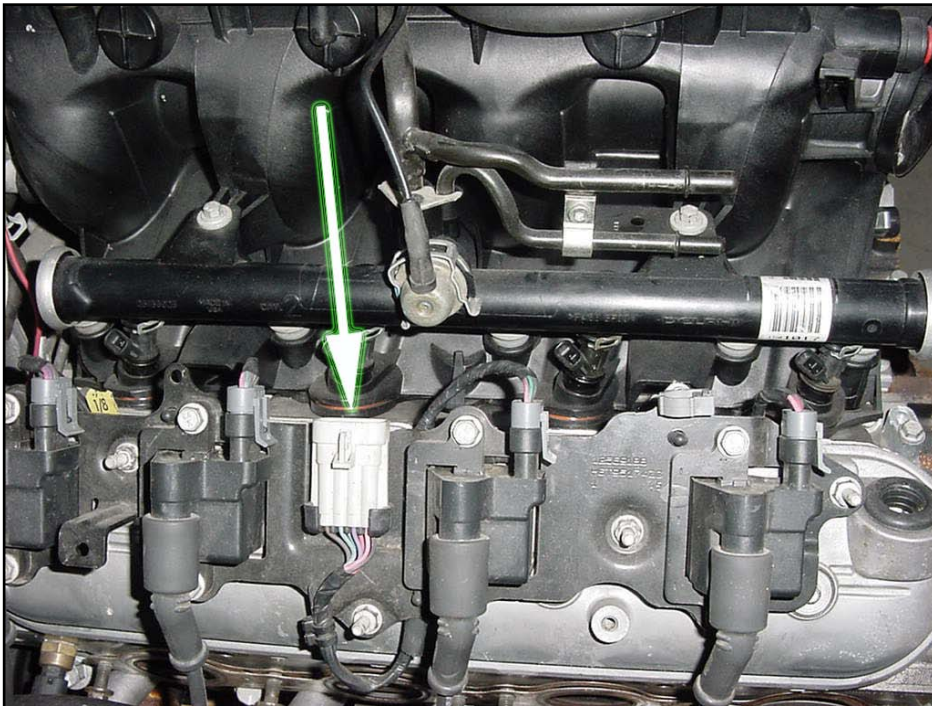


Figure 7.11 Driver Side Coil Connector

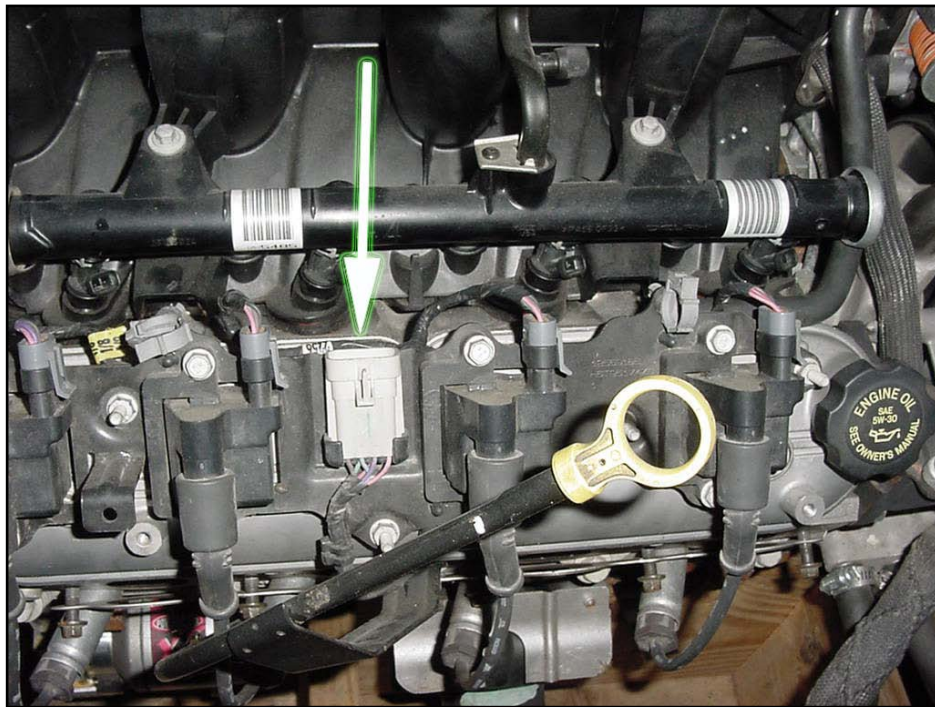


Figure 7.12 Passenger Side Coil Connector

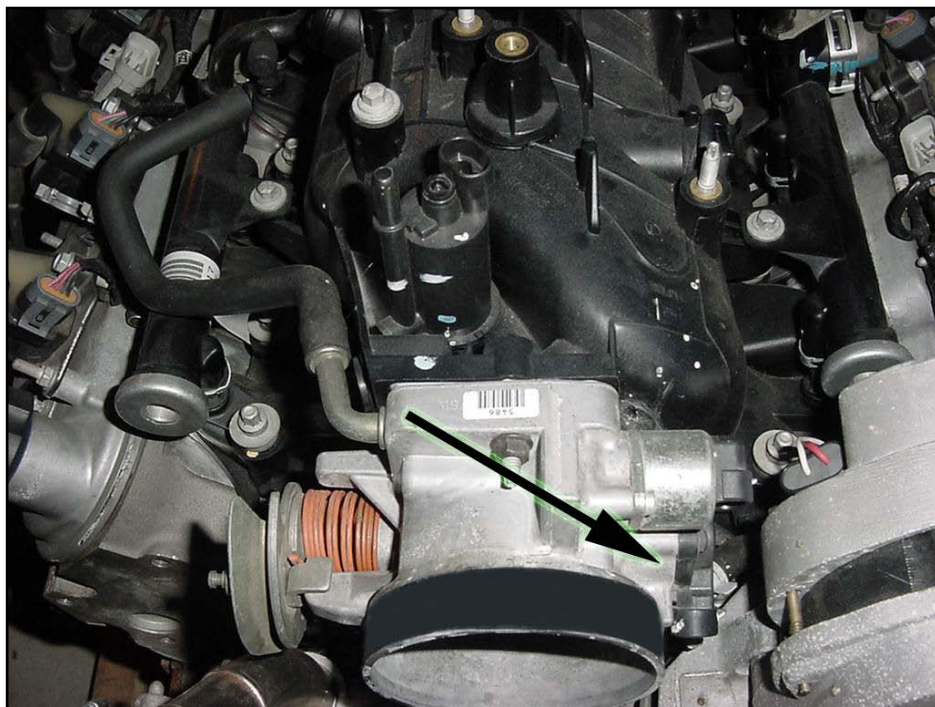


Figure 7.13 Throttle Position Sensor (TPS)

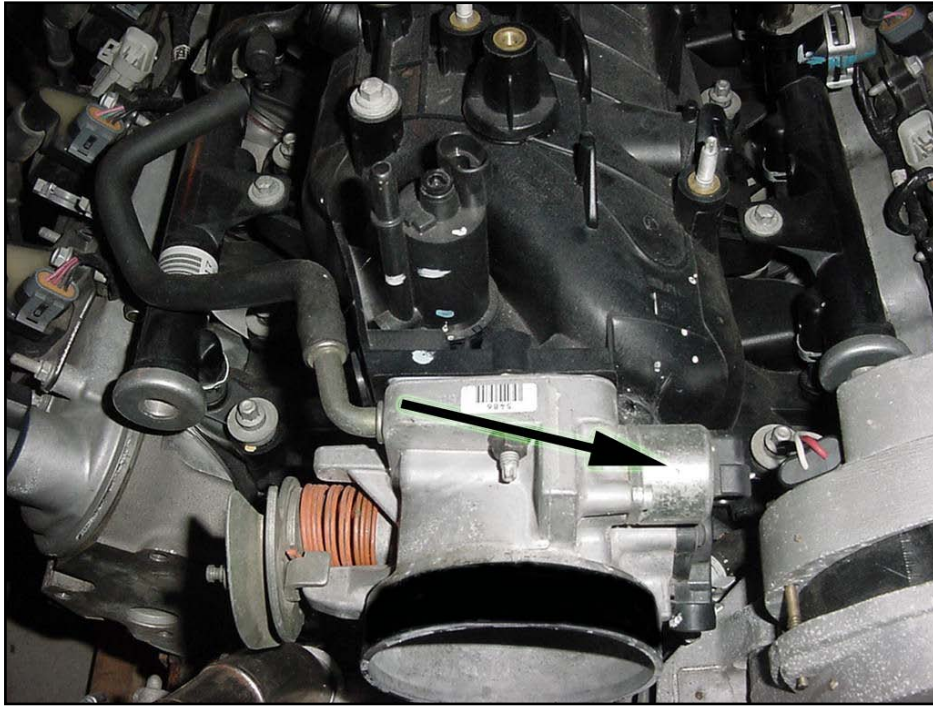


Figure 7.14 Idle Air Control Motor (IAC)



Figure 7.15 Coolant Temperature Sensor (CTS)



Figure 7.16 Intake Air Temperature Sensor (IAT)

7.4 TAIL SECTION INSTALLATION

- 7.4.1 Locate the Gray Fuel Pump wire which was separated earlier from the engine group. Carefully route it to the high pressure fuel pump. Be sure to avoid all sharp edges and moving or hot parts that may damage the wire. Connect this wire directly to the positive terminal on the fuel pump and connect the wire on the other side of the pump to a good chassis ground. When the key is turned to the on position the ECM will command the fuel pump to run for 3 seconds and then shut off until the engine is cranked over or started. **See Table 7.3.**

Label on Harness	Connects to:	# of Wires	Wire Colors
Electric Fuel Pump	Fuel Pump Positive Post	1	Grey

Table 7.3 Tail Section for Fuel Pump

8.0 TROUBLE SHOOTING INSTRUCTIONS

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 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.

8.1.1 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.

8.2 RETRIEVING TROUBLE CODES FROM THE COMPUTER

- 8.2.1 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.
- 8.2.2 If you have read any codes (remember the normal code 12), write them down for reference Remove the jumper wire from the ALDL connector.
- 8.2.3 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 indicates there is a problem with a specific circuit, **NOT NECESSARILY THAT A PARTICULAR PART IS BAD.**

- 8.2.4 Before taking more extensive corrective actions for any trouble codes, make sure 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.
- 8.2.5 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 us please double check all connections and perform basic trouble shooting (fuel pressure, spark, injector pulse, etc.).
- 8.4.2 If you have any questions concerning the installation of this harness or are having trouble in general; please call the Painless Performance tech line at (800) 423-9696. All 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. If there are plans to run the 4.8L or 6.0L GM Truck engines with this system, you must purchase Perfect Part Number 65245; the Perfect CalTool Software. This computer has been programmed with a REV. limit set @5,700 RPM. If your computer was to detect an engine malfunction it will set the “check engine” light and store a code. The computer will also place itself into a “safe mode” if the engine temperature reaches 250°. Once the engine cools down the computer will reset itself out of “safe mode” and return to normal running operation. Safe mode will still allow you to drive your vehicle, but will not allow the engine to rev over 1,300 RPM.

E-mail: tech@painlessperformance.com

WEB: www.painlessperformance.com

Painless Performance Limited Warranty and Return Policy

Chassis harnesses, 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.