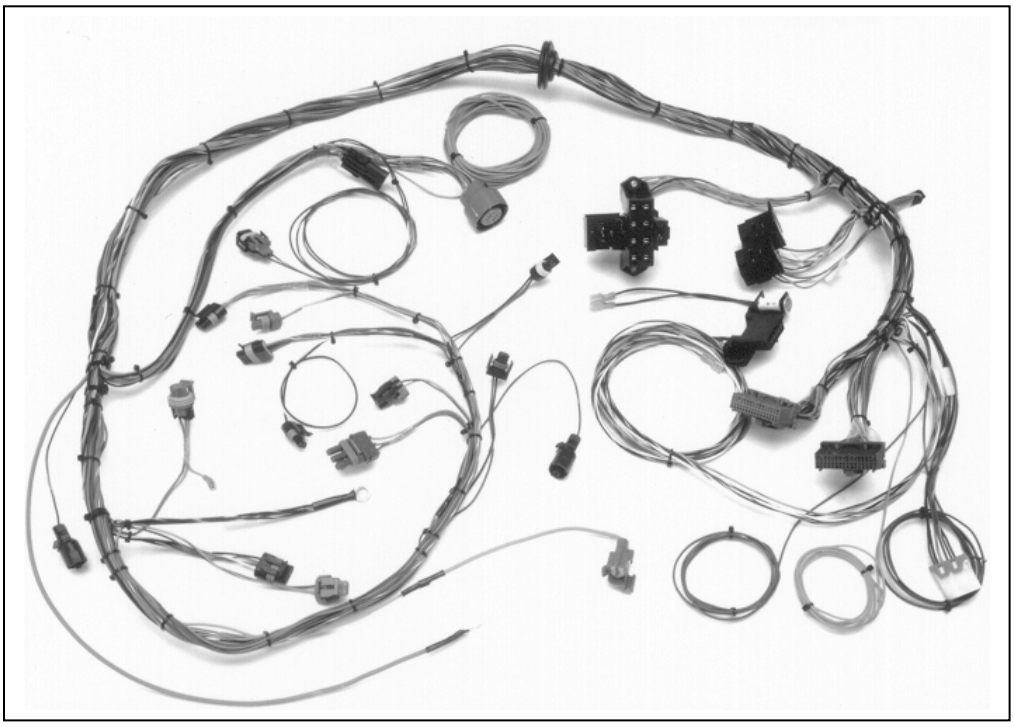

Part # 60210

GM `92-95 VORTEC V6 FUEL INJECTION (Central Multiport Fuel Injection) WIRING HARNESS INSTALLATION INSTRUCTIONS

Manual # 90514

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1.0 INTRODUCTION

You have purchased what we at Painless Performance believe to be the most up-to-date and easiest-to-install automotive fuel injection harness 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 central multiport fuel injection system on General Motors Vortec (4.3L) injection engines. This harness is designed specifically for the central multiport fuel injection system, and will not work on the throttle body fuel injection also used on the Vortec engines. This harness includes all wiring that is needed by the computer to run and control the fuel injection system.

Usually, the Computer, Fuse Block and Relays 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 600 volt, 125° centigrade with crosslink insulation.

These fuel system harnesses have been divided into three major groups:

ENGINE GROUP	Includes wiring for the fuel injector, distributor, and sensors.
DASH GROUP	Includes ignition feed wire, fuse block, relays, assembly line diagnostic link (ALDL) connector, check-engine light, computer wiring and connectors, vehicle speed sensor buffer connector, brake switch wire, and A/C signal wiring.
TAIL GROUP	Includes vehicle speed sensor connector, transmission connector, and power wire for fuel pump.

2.0 ABOUT THESE INSTRUCTIONS

These instructions provide information for the installation of the 60210 Vortec (`92-95 4.3L) Central Multi-port Fuel Injection (CMFI) 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 Pre-Installation and Harness Routing Guidelines
5.0 General Installation Instructions
6.0 60210 GM ’92-95 Vortec System Wire Harness Installation
7.0 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, or the back of the manual. Always pay careful attention to any *Notes* or any text labeled ***CAUTION*.**

3.0 TOOLS NEEDED

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 <u>not</u> use a test light to test the computer or sensor wiring or you will damage the computer.***
Electric Drill	
1-5/8" Hole Saw	(for the rubber grommet in the firewall)

4.0 PRE-INSTALLATION AND HARNESS ROUTING GUIDELINES

The installation of your harness kit consists mainly of two parts:

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

These two major tasks are not separate steps, but are integrated together. That is, you will route some wires and make some connections, route some more wires and make some more connections.

We cannot tell you how to physically route the harness in your automobile. That depends a great deal upon the particular make of automobile and to what extent you want to secure and conceal the harness. We do offer some general guidelines and routing practices starting in **Paragraph 5.3,** general installation instructions in **Section 5.0**, and precise instructions concerning the electrical connections you will have to make beginning in **Section 6.0**. To help you begin thinking through the installation of your wire harness, read the following sections:

4.1 TRANSMISSION OPERATION

You should decide at this time what transmission you will use with your Vortec engine and this harness. If you are not using the Electronic Transmission (4L60E) read **Paragraph 4.1.1**, then skip to **Paragraph 4.1.3**. If you **ARE** going to use an Electronic Transmission (4L60E), then skip **Paragraph 4.1.1**, and start at **Paragraph 4.1.2**.

4.1.1 If you **DO NOT** wish to use the Electronic Transmission function, tape off and store the single purple wire in the dash group labeled “Brake Switch” and the 20-position “Transmission” connector in the tail section.

4.1.2 If you **ARE** going to use the Electronic Transmission circuitry then you **MUST** have a vehicle speed sensor (VSS), vehicle speed sensor buffer, and the correct brake switch. These are necessary to make the transmission function 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 send the correct signal to the computer – See page 15. The vehicle speed sensor lets the computer know how fast the wheels are turning.

4.1.3 Regardless of whether you use the Electronic Transmission function, the vehicle speed sensor (VSS) and VSS buffer must be used and is needed by the computer so that it can command the emissions control devices and control the engine properly. This part is necessary if you want your vehicle to be street-legal. Buffer not needed with manual transmission. Use Part #60116 VSS, ground one wire and connect other wire to ECM at the buffer connector. Will not pass emissions testing station in California with a manual transmission, because all "W" vin engines had a 4L60E transmission and vin number entered is for automatic transmission, if you select manual transmission it gives no data and testing personnel will not select automatic transmission if vehicle has a manual transmission.

4.2 UNDERSTAND THE ENGINE THAT YOU ARE USING

The `92-95 CMFI Vortec engine has a computer that has two rectangular connectors. This system requires two knock sensors, and one heated oxygen sensor that can be placed anywhere in the exhaust system.

4.2.1 Painless recommends the use of the following parts. See **Table 4.1**. These will meet all requirements and are compatible with the Painless harnesses. The following numbers given are GM or Delco part numbers. The main computer part number is REQUIRED for use with our harnesses. The use of any other computer may damage the computer, harness or both. Use of the wrong computer will almost certainly cause problems. Please double check to be sure that you have the correct computer part number (it is shown as a service number on the computer itself). The rest of the part numbers shown are for your information only.

4.2.2 If your engine didn't come with the "distributor to coil" wiring you will need to obtain it either from your local dealer or a wrecking yard.

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

4.2.4 Decide where and how the computer and fuseblock will be mounted. This wire harness kit is designed for the computer to be mounted under the dash or in the lower kick panel on the right side. They must be no further apart than the wiring will allow.

4.2.5 A good exercise is to lay out the wire harness on the floor beside your vehicle and identify all the connectors and wires. The harness must be routed from the passenger compartment out to the engine compartment.

4.2.6 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 support.

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

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

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

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

REQUIRED VORTEC V6 FUEL INJECTION PARTS AND NUMBERS

Main Computer.....16197427
Brake Switch.....25524845
Intake Air Temperature Sensor.....214-243
Variable Tuning Control Solenoid.....17087562
Idle Air Control.....217-421
Throttle Position Sensor.....17106680
Oxygen Sensor.....AFS 74
Vehicle Speed Sensor Buffer.....GM Dealer
(Note: You will need to know the tire circumference and rear end gear ratio.)

Linear EGR Valve.....214-5594
Canister Purge Solenoid.....214-565
Manifold Absolute Pres. Sensor.....213-187
Oil Pressure Switch.....D1808A
Coolant Temperature Sensor.....213-310
Knock Sensor (back of head).....213-95
Knock Sensor (side of head).....D8003
Distributor to Coil Wiring.....12039177

Table 4.1 Compatible Parts

5.0 GENERAL INSTALLATION INSTRUCTIONS

CAUTION: DO NOT DISCONNECT THE BATTERY OR THE COMPUTER CONNECTOR(S) WHILE THE IGNITION IS ON. DO NOT SHORT ANY WIRE 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) MAKE CERTAIN THAT THEY ARE AT LEAST 12 INCHES AWAY FROM ANY IGNITION WIRING (SPARK PLUG WIRES, ETC.).

Notes: ***An oil pressure SWITCH must be used with this harness. DO NOT BYPASS OIL PRESSURE SWITCH WIRES. There is a normal, small current drain on these fuel injected systems. Vortec CMFI systems will NOT work with anything other than a STOCK CAMSHAFT. 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.To activate the ignition hot part of the fuseblock the PINK 18 gauge wire in the dash section must be connected to a power source that has power in the START AND THE RUN positions. This wire activates power to the ignition coil, injector, etc. YOUR AUTOMOBILE WILL NOT START OR RUN WITHOUT IT.***

The set timing connector for the ignition is about one foot down the harness from the computer.The fuel pump you are using MUST be rated at a minimum of 55 pounds PSI (per square inch and not to exceed 75 PSI or damage to the regulator may result.

The oil pressure switch wires are designed to be connected to an oil pressure switch, not the oil pressure sending unit. An oil pressure sending unit is for a gauge or an indicator light and will only have one terminal on the top. The stock oil pressure switch is cigar shaped and has three terminals. The Tan wire is for the factory indicator light.

5.1 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 of installing a quality wire harness only to neglect proper grounding.

Note: Painless wire harness kits include no separate ground wires in its kits. You must supply the ground wire(s) for the vehicle.

5.1.1 Connect a ground strap or cable (minimum of a 4-gauge wire) from the negative battery terminal to the automobile chassis (frame).
5.1.2 Connect a ground strap from the engine to the chassis (frame). DO NOT RELY UPON THE MOTOR MOUNTS TO MAKE THIS CONNECTION.
5.1.3 Connect a ground strap from the engine to the body.

5.2 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.

5.2.1 Position the computer, fuseblock, and relays in their intended locations.
5.2.2 Drill a 1-5/8" hole for the firewall grommet near the computer for the engine group and tail section to pass through.
5.2.3 Route the engine group and tail section through the hole. Push the grommet (already installed on the harness) into the hole until it is seated.
5.2.4 Route the dash group over to the driver's side of the car.

5.3 HARNESS ATTACHMENT

Note: Harness routing and shaping will be a time-consuming task. Taking your time will enhance the beauty of your installation. Please be patient and take your time.

5.3.1 Permanently mount the computer and any parts (fuse block, relays, etc.) that will be used for your engine at this time.

5.3.2 Mold harness groups to the contour of the dash, engine, frame, etc. Remember to route the harness away from sharp edges, exhaust pipes, hinges, and moving parts.

5.3.3 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.

5.3.4 When used every 1-1/2" or so on the visible areas of the harness. Otherwise, a tie installed in other areas every 6" or so will hold the wires in place securely. REMEMBER TO TAKE YOUR TIME.

5.4 TERMINAL INSTALLATION INSTRUCTIONS

Note: In the following steps you will be making the circuit connections. Before you start, you should carefully read Sections 6.0 through 8.0, as applicable, and continually refer to the wire connection 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.

5.4.1 Have all needed tools and connectors handy.

5.4.2 Select the correct terminal for the wire and application.

5.4.3 Determine the correct wire length and cut the wire. Remember to allow enough slack in the harness and wires at places where movement could possibly occur. DOUBLE CHECK YOUR CALCULATIONS.

5.4.4 Strip insulation away from wire. Strip only enough length necessary for the type of terminal lug you are using.

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

5.4.5 Crimp the terminal onto the wire.

5.4.6 Connecting the wires and connectors throughout the harness is a repeating process. Make sure that each wire is first properly routed and then attach. DO NOT ATTACH THEN ROUTE AFTERWARD.

5.4.7 When all wires are attached tighten the mounts and ties to secure harness permanently.

5.4.8 Attach the connectors to the computer BEING CAREFUL NOT TO BEND ANY PINS.

5.4.9 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.

6.0 GM `92-95 VORTEC SYSTEM WIRE HARNESS INSTALLATION

6.1 CONTENTS OF THE 60210 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 the dealer where you obtained the kit or contact Painless at (817) 244-6898. The kit should contain the following items:

- The main wire harness with the connectors already on the ends of most of the wires.
- Fuel Injection Installation Instructions P/N 90514 (this booklet).

6.2 SPECIFIC CIRCUIT CONNECTIONS

Note: If you have not already done so, read Sections 4.0 and 5.0 of these instructions and think through the installation of the harness before securing or cutting any wires.

6.2.1 DASH SECTION INSTALLATION

This group consist of the ignition feed wire, fuse block, relays, assembly line diagnostic link (ALDL) connector (See **Figure 2)**, check-engine light (pre-mounted into a mounting bracket), computer wiring and connectors, vehicle speed sensor buffer connector, brake switch wire, and A/C signal wiring.

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

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

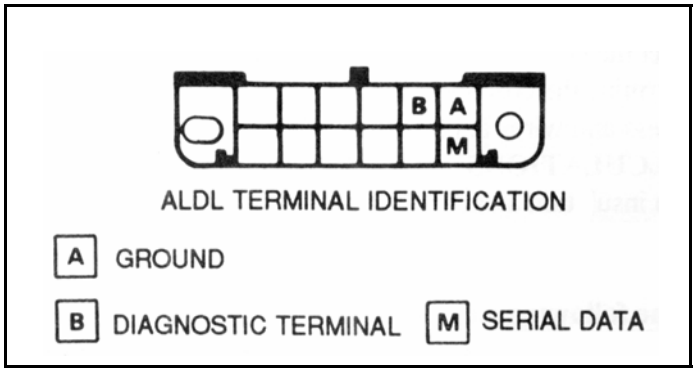

Figure 2.1 Diagnostic Link Connector

A. Find a suitable location to mount the ALDL connector (using the bracket that the check engine light is mounted in) that will allow access to the front of the connector and still allow you to see the check engine light while driving.

B. Mount the ALDL connector using the bracket containing the check engine light in the place selected.

C. Locate the Pink wire and attach it to a 12V **fused** source where there is power **WHEN THE KEY IS IN THE RUN AND START POSITION**. A good wire to connect to is the coil wire coming from ign. switch. This is the activation wire for the ignition hot part of the fuel injection fuse block.

D. The single purple wire is the wire that controls the functioning of the transmission. If you ARE NOT using the Electronic Transmission (4L60E) then you will tape off and store this wire. If you ARE using the Electronic Transmission function then you will have to install a brake switch as described in **Paragraph 4.1.2**.

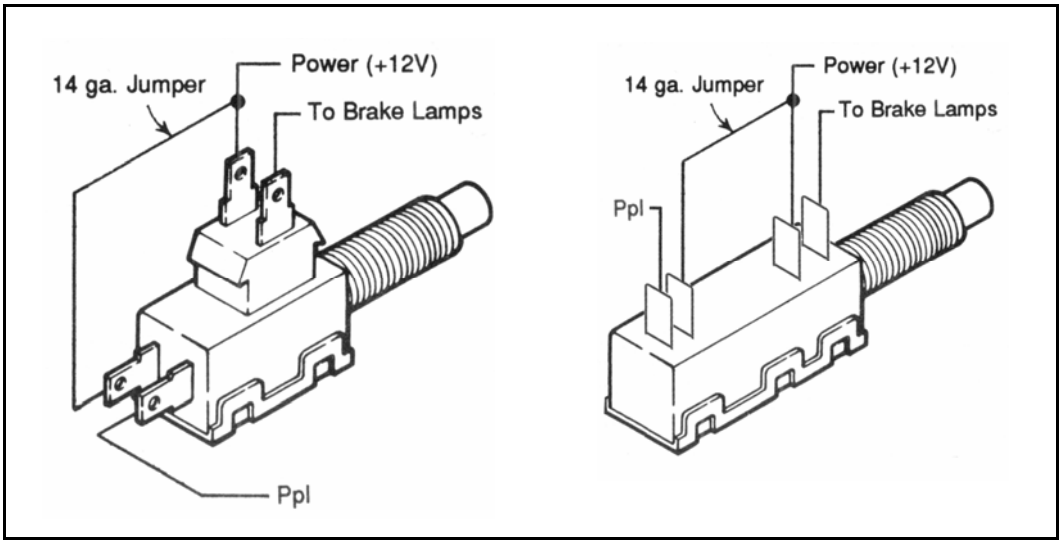

Figure 4.1 Brake Switch

E. If you are using the recommended brake switch then you will wire it according to **Figure 4.1**. The wire jumped 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 you have installed your own switch then it must connect the single purple wire to power ONLY when the brakes are NOT being applied. If you are using a hydraulic brake switch see page 15.

CAUTION: FAILURE TO WIRE THIS SWITCH CORRECTLY WILL RESULT IN A DANGEROUS SITUATION ON THE VEHICLE.

F. Locate the Green wire labeled "A/C Signal" and connect this wire to the wire that runs from the a/c controls out to the compressor. This wire tells the computer to speed the idle up to compensate for a/c load. (Note: This wire is not a compressor power feed wire.)

G. Connect the vehicle speed sensor buffer connector to the buffer module.

Note: The buffer module needs to be programmed to match the gear ratio and tires on the vehicle to function properly. If the buffer module is not programmed properly and is used with an Electronic Transmission (4L60E) it could affect the shifting and operation of the transmission.

Note: The fuel pump relay has a small Gray wire at the bottom of it that is a test point for the fuel pump. After the vehicle has been wired and tested OK, tape off this wire and store it in the harness.

6.3 ENGINE GROUP INSTALLATION

Note: If you have not already done so, separate the tail section from the engine group and place it out of the way.

A. Locate the three Blk/Wht wires in the harness that end in a single ring terminal. Ground these wires to the engine. These wires are the ground for the harness. The engine will not work if not attached properly.

B. Starting at the rear of the engine, using **Figures 5-14, Table 6.1**, and the specific illustrations indicated in **Table 6.1**, begin attaching the connectors to their proper places and THEN secure the harness to the engine when ready.

Note: In order to set base timing on these harnesses you will have to disconnect the timing connector located inside the vehicle. It is approximately 12 inches from the main computer connectors. The timing connector is in line on the tan wire with the black stripe (Tan/Blk) and looks similar to the oxygen sensor connector. Once you have this disconnected you should set base timing as you normally would then reconnect the timing connector, clear the codes and test run the engine.

6.4 TAIL SECTION INSTALLATION

A. 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.

B. If you ARE using an Electronic Transmission (4L60E) route the 20-position connector to the transmission and attach it, **Figure 15**.

C. If you ARE NOT using a Electronic Transmission, tape up the connector and store it in the harness.

D. Take the GRAY wire and route it to the fuel pump. This is the power wire for the fuel pump.

E. Take the 2-position connector with PUR/WHT and GRN/BLK wires and connect to the Vehicle Speed Sensor (VSS).

Wire Colors	# of Positions In Connector	Labeled	Connect To:
Grn/Blk, Pur/Wht, Blk, Pnk/Blk, Blu, Brn	6	VSS Buffer	Vehicle Speed Sensor Buffer (**Figure 3**)
Pur/Wht, Grn/Blk	2	VSS	Vehicle Speed Sensor (**Figure 16**)
----------	20	Transmission	Transmission (**Figure 15**)
Pur, Pnk/Blk, Blk	3	Oxygen Sensor	Oxygen Sensor (**Figure 14**)
Blk, Pur	2	VTC Solenoid	Variable Tuning Control Solenoid (**Figure 9**)
Blue	1	Knock Sensor	Knock Sensor {requires 2} (**Figure 13**)[1]
Blu, Gry, Blk	3	TPS	Throttle Position Sensor (**Figure 8**)
Lt.Blu/Wht, Lt.Blu/Blk Lt.Grn/Blk, Lt.Grn/Wht	4	IAC	Idle Air Control Valve (**Figure 7**)
Tan, Pur	2	IAT	Intake Air Temperature Sensor (**Figure 8**)
Brn, Gry/Wht, Pur Gry, Pnk/Blk	5	Linear EGR Valve	Linear EGR Valve (**Figure 6**)
Ylw, Blk	2	CTS	Coolant Temperature Sensor (**Figure 5**)
Blu, Pnk/Blk	2	Injector	Fuel Injector Connector (**Figure 6**)
Lt.Grn, Pur, Gry	3	MAP	Manifold Absolute Pressure Sensor (**Figure 8**)
Pnk/Wht	2	Coil	Ignition Coil (**Figure 11**)
Pur/Wht, Blk/Red, Wht, Tan/Blk	4	Distributor	Distributor (**Figure 12**)
Gry, Orn, Tan	3	Oil Pressure Switch	Oil Pressure Switch (**Figure 10**)[2]
Grn/Ylw, Pnk/Blk	2	Canister Purge Solenoid	Canister Purge Solenoid
Blk/Wht (3)	Ring Terminal	Ground	Engine Ground
Red	Ring Terminal	Starter (Battery)	Battery Terminal of Starter
Purple	---	Brake Switch	Caution: See Page 8 paragraph D & E
Green	---	A/C Signal	Wire going out to compressor[3]
Pink	---	IGN	See Page 7 Section 6.2.1 Paragraph C
Gray	---	Fuel Pump	Fuel Pump

Notes:

1. You must use two knock sensors or you will get a trouble code and the system will not function properly. See Table 4.1 on page 4 for the part numbers.

2. The TAN wire coming out of the oil pressure switch connector is for an Oil warning light in the dash.

3. The AA/C Signal wire should be spliced into the A/C compressor power wire. The A/C signal wire tells the computer if the A/C compressor is on. This wire does not power the compressor and must be used only to sense the compressor power. If you do not have A/C then tape and store this wire.

Table 6.1 Vortec Harness Connections

7.0 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, timing, fuel pressure, etc.) then see is the computer has stored a trouble code in its memory.

7.1 THE CHECK ENGINE LIGHT

Normally, the check enginelight should come on when the ignition is initially turned on, 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.

7.1.1 The computer identifies particular trouble codes by flashing the check engine light in a certain way. The codes are read by counting the 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 indicates code 32.

B. The code will repeat itself three (3) times. 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 3 times, followed by the particular trouble codes, if any. If the computer merely flashes code 12 there are no trouble codes stored.

7.2 RETRIEVING TROUBLE CODES FROM THE COMPUTER

7.2.1 In order to retrieve the trouble codes stored in the computer, locate the Assembly Line Diagnostic Link (ALDL) connector. Turn the ignition on, BUT DO NOT START THE CAR. Connect a jumper from ALDL terminal "A" to terminal "B" (see **Page 7 Figure 2.1**) and observe the "check engine" light.

7.2.2 After you have read any codes (remember the normal code 12), write them down for reference. Remove the jumper from the ALDL connector.

7.2.3 Take the codes one at a time and match them to the codes in **Table 7.1**. This will tell you which circuit the computer has detected a problem.
Note: A code indicates a problem in a specific circuit, NOT THAT A PARTICULAR PART IS BAD.

7.2.4 Before taking more extensive corrective actions for any trouble code, make sure that all connections on the indicated circuit, INCLUDING THE COMPUTER, are clean and tight. Inspect the wiring in the circuit for any broken, shorted, or exposed wires. Finally, insure all ground wires are clean and secure.

7.2.5 If you have replaced a part, readjusted a part, etc. and need to clear the code, you can do this by making sure the ignition is off and then disconnecting the negative battery cable for a minimum of two minutes. After the two minutes are up then you simply reconnect the negative battery cable and recheck the system for codes.

CODE #	CIRCUIT AFFECTED	CODE #	CIRCUIT AFFECTED
13	Oxygen Sensor	34	Manifold Absolute Pressure Sensor
14	Coolant Temp (High)	35	Idle Air Control Circuit
15	Coolant Temp (Low)	42	Ignition Control Circuit
16	Vehicle Speed Sensor Buffer	43	Knock Sensor
21	Throttle Position Sensor (High)	44	Oxygen Sensor (Lean)
22	Throttle Position Sensor (Low)	45	Oxygen Sensor (Rich)
23	Intake Air Temp (Low)	51	Prom Error
25	Intake Air Temp (High)	53	System Voltage (High)
32	Exhaust Gas Recirculation	54	Fuel Pump Relay (Low Voltage)
33	Manifold Absolute Pressure (Low)	55	Faulty Computer

Table 7.1 Diagnostic Trouble Codes

7.3 WHEN TO CALL THE PAINLESS PERFORMANCE TECH LINE

7.3.1 These harness kits have been built with the highest regard to strict quality control. Before calling us please double-check all connections and perform normal basic trouble shooting (fuel pressure, timing, ignition system, etc.).

7.3.2 If you have any questions concerning the installation of this harness or are having trouble in general, feel free to call Painless tech line at (800) 423-9696, or E-Mail us at: painless@painlessperformance.net. Calls are answered from 8 am to 5 pm central time, Monday through Friday, except holidays. Please leave a message if you are unable to reach us and we will return your call as soon as possible.

Figure 1 Fuse Block, Fuel Pump Relay & VTC Relay

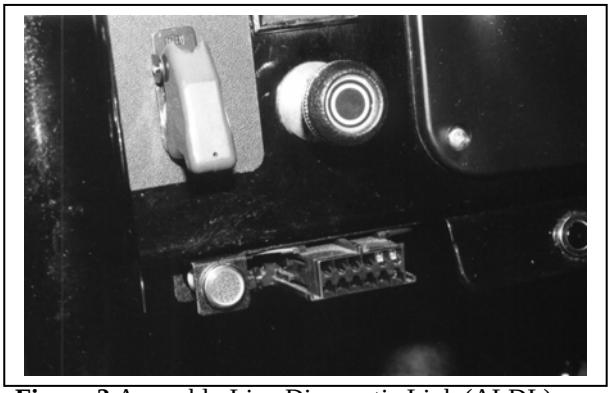

Figure 2 Assembly Line Diagnostic Link (ALDL)

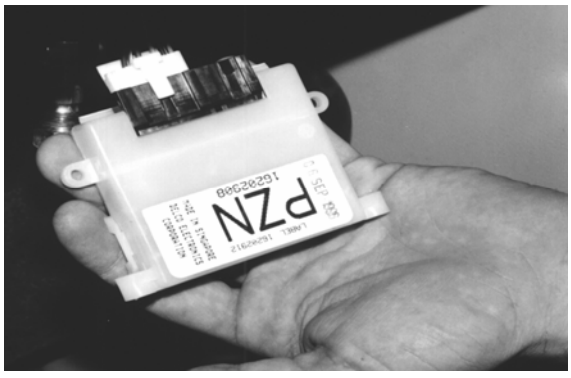

Figure 3 Vehicle Speed Sensor Buffer

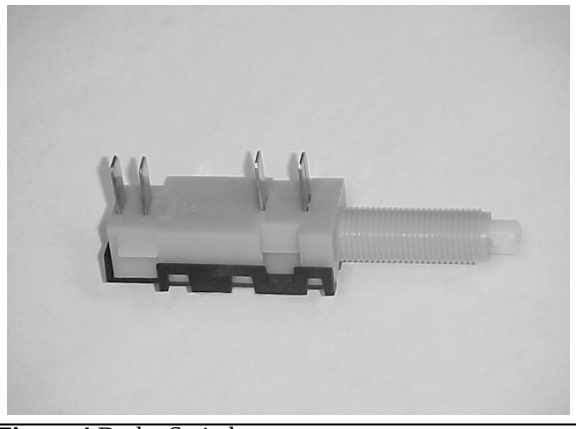

Figure 4 Brake Switch

Figure 5 Coolant Temperature Sensor (CTS)

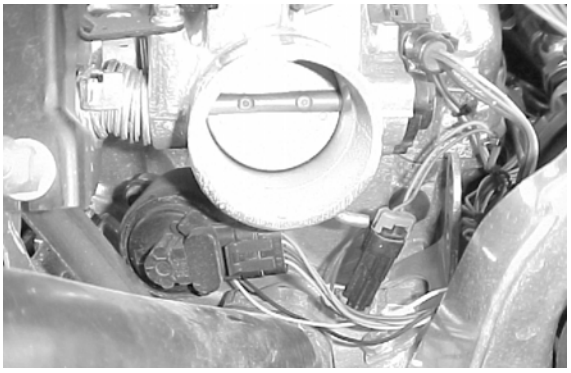

Figure 6 Linear EGR Valve & Injector Conn.

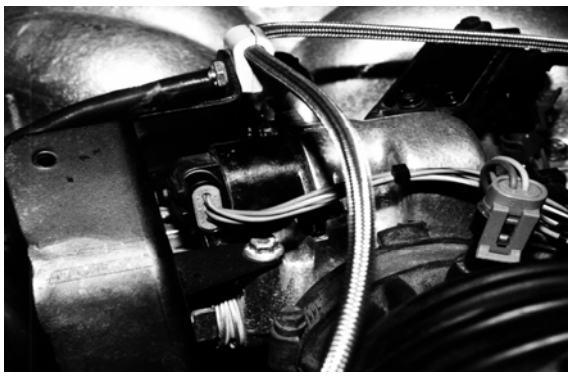

Figure 7 Idle Air Control Valve (IAC)

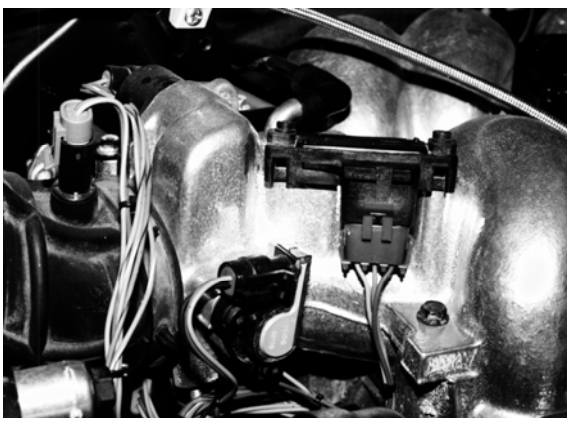

Figure 8 Throttle Position Sensor (TPS)
Manifold Absolute Pressure (MAP)
Intake Air Temperature Sensor (IAT)

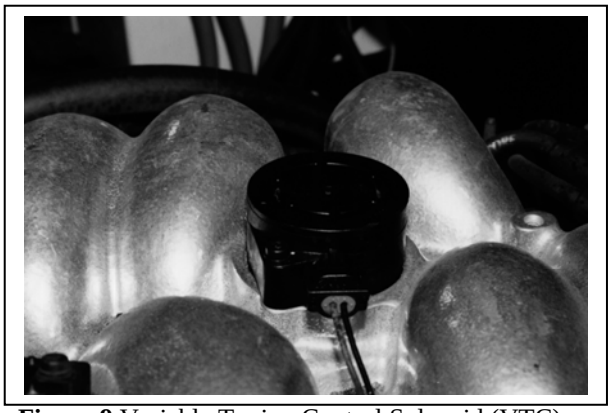

Figure 9 Variable Tuning Control Solenoid (VTC)

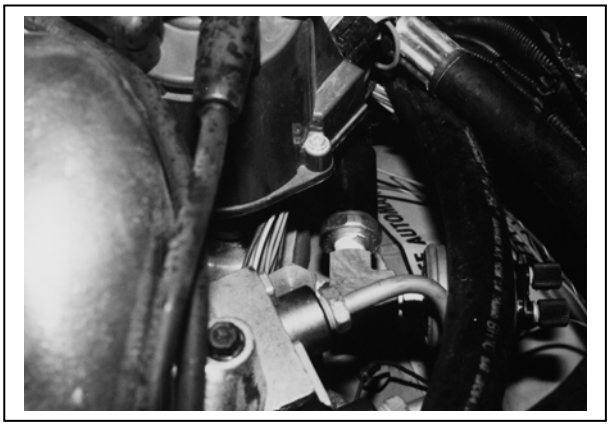

Figure 10 Oil Pressure Switch

Figure 11 Ignition Coil

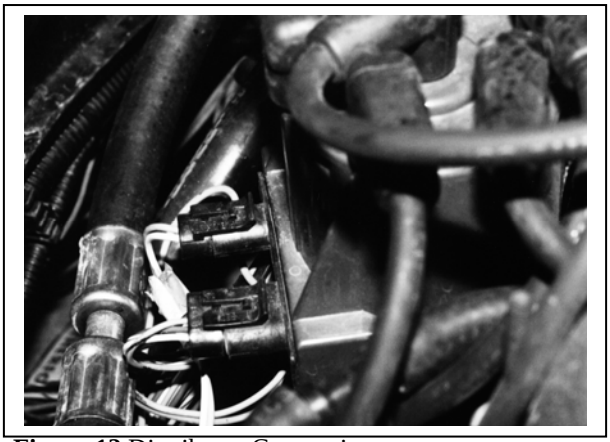

Figure 12 Distributor Connection

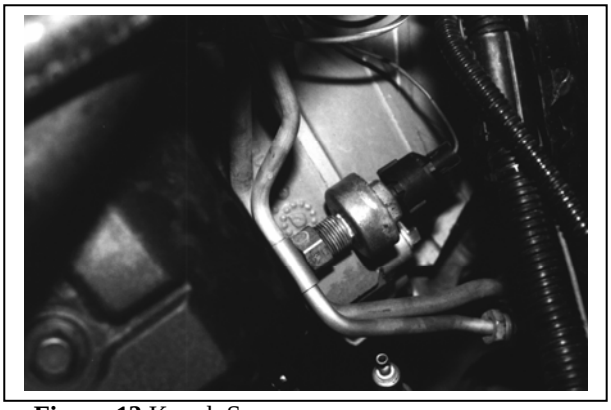

Figure 13 Knock Sensor

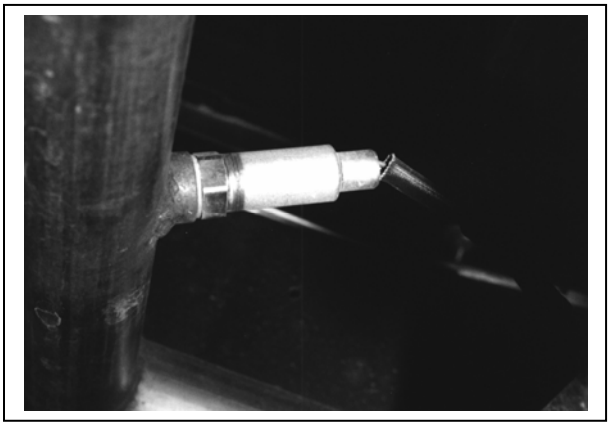

Figure 14 Oxygen Sensor

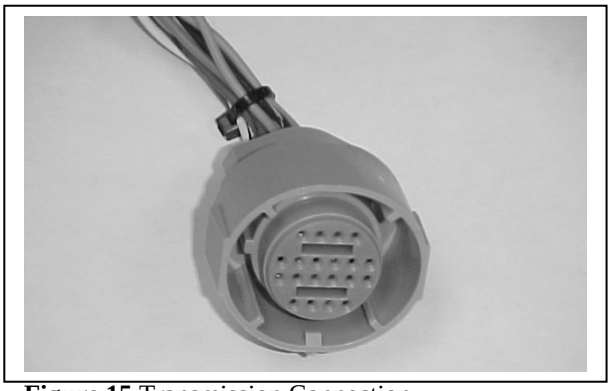

Figure 15 Transmission Connection

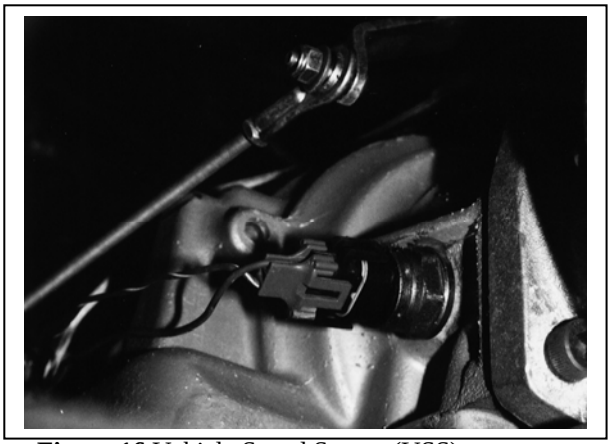

Figure 16 Vehicle Speed Sensor (VSS)

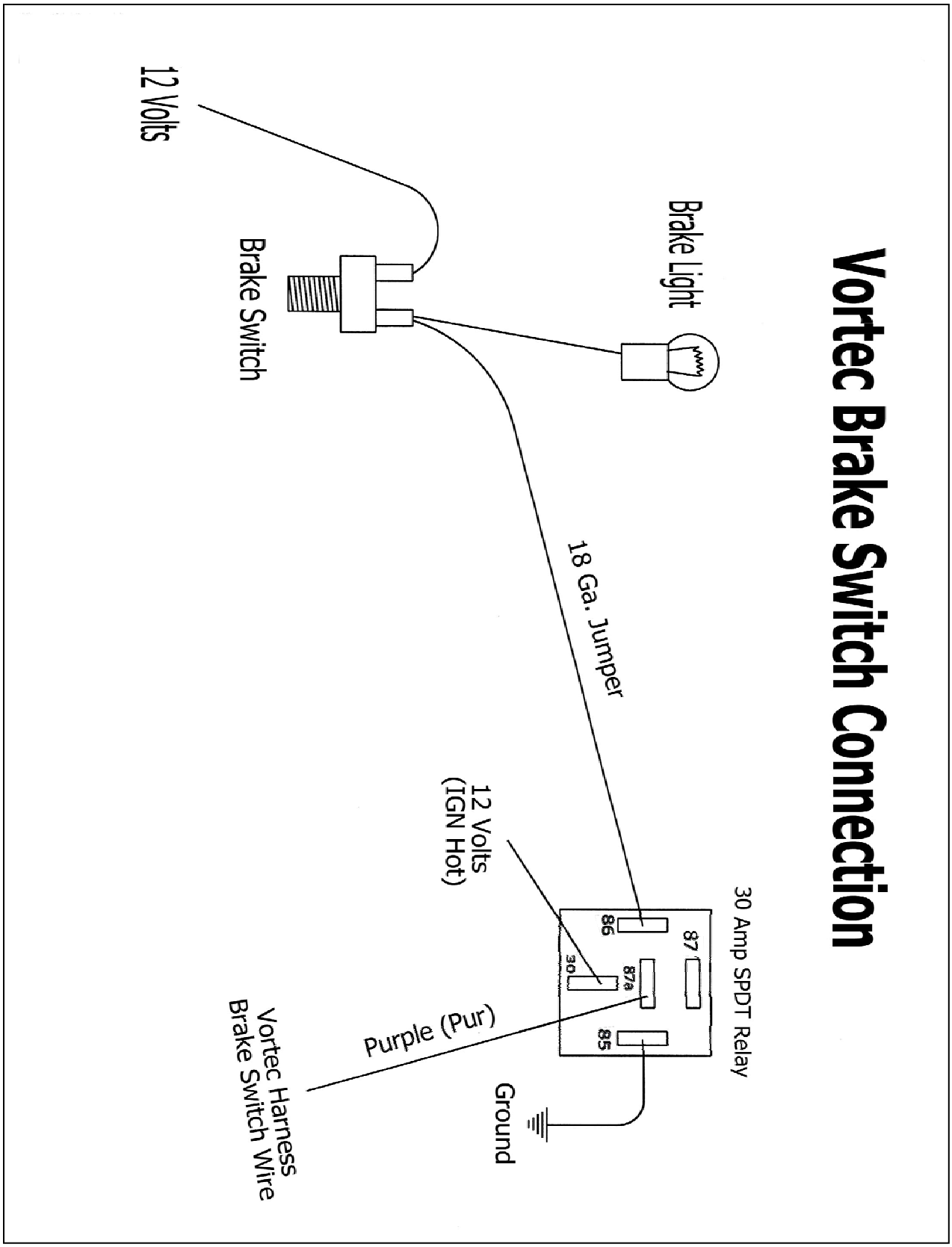

Diagram 1 Vortec Brake Switch Connection

Fuse Block Wiring and Fuse Locations

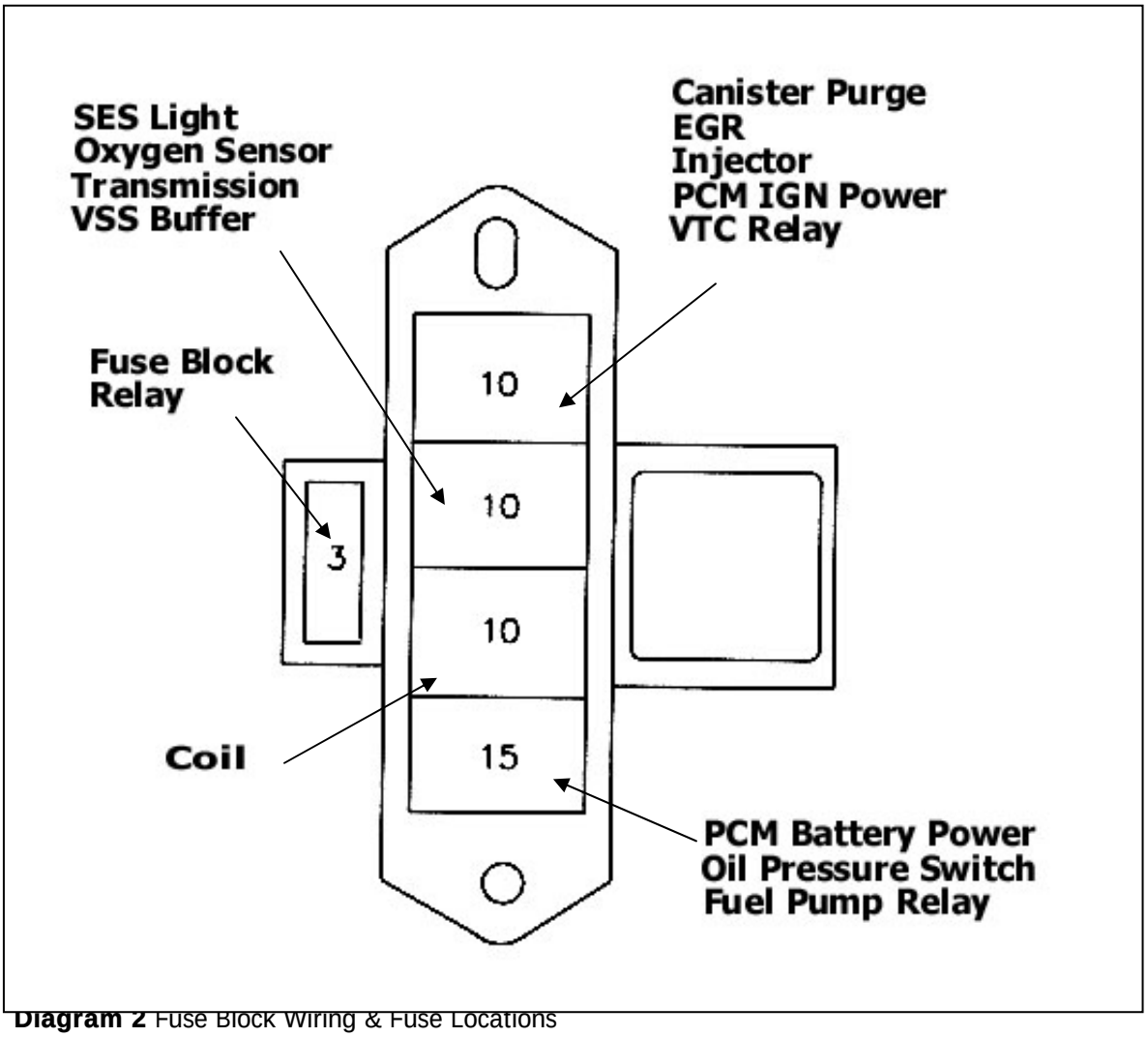

Diagram 2 Fuse Block Wiring & Fuse Locations

NOTES

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.