

PERFECT

FLOW FUEL DELIVERY SYSTEM

Installation Instructions

Part #65100



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If you have any questions concerning the installation of this product or having trouble in general, feel free to call Painless Performance Product's tech line at 1-800-423-9696. Calls are answered from 8am to 5pm central time, Monday thru Friday, except holidays.

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 about them. Or, better yet, send us a fax at (817) 244-4024 or e-mail us at painless@painlessperformance.com. We sincerely appreciate your business.

Perfect Performance Products, LLC shall in no event be liable in contract or tort (including negligence) for special, indirect, incidental, or consequential damages, such as but not limited to, loss of property damage, or any other damages, costs or expenses which might be claimed as the result of the use or failure of the goods sold hereby, except only the cost of repair or replacement of the Painless Product.

P/N 65100 Painless Instruction

May 2010

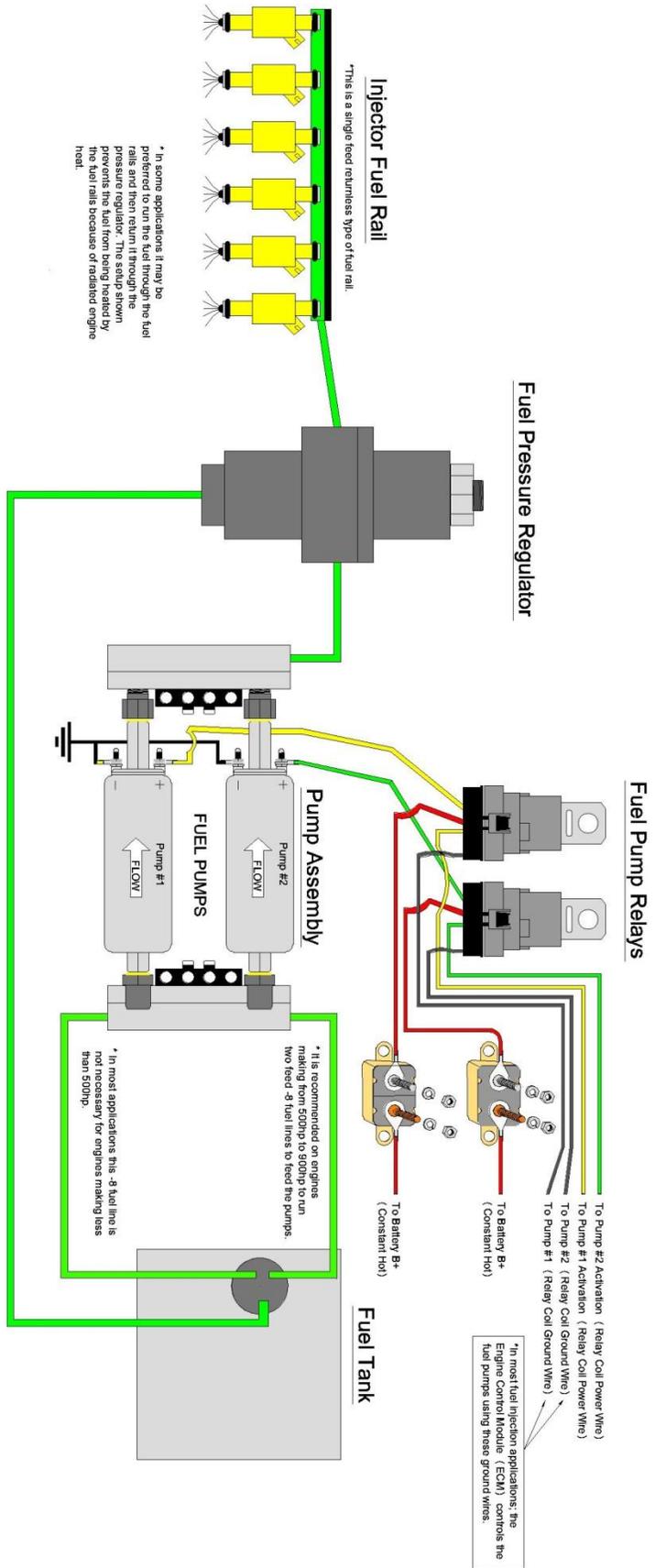
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Kit Contents Photos:



- Included:**
- (2) PERFECT FLOW Black Anodized covers**
 - (4) Stainless Socket Head Cap Screws**
 - (4) Stainless Button Head Allen Screws**
 - (4) Nitrol Sealing Washers**
 - (2) Walbro 255 liter per hour fuel pumps**
 - (1) Inlet assembly with O-Rings**
 - (2) Inlet assembly fittings**
 - (1) Outlet assembly with pre-installed fittings**
 - (2) Preterminated Weatherproof Relay Assemblies**
 - (2) 30Amp Circuit Breakers with Weatherproof Covers**
 - (X) Necessary crimp on terminals to complete installation**

INSTALLATION DIAGRAM



- **Painless Performance Products recommends you, the installer, read this installation manual from front to back before installing this Fuel Pump system. Due to the variables in modifications done to most vehicles, reading this manual will give you considerable insight on the proper installation of this product.**
- **THIS PRODUCT IS NOT COMPATIBLE WITH E85 FUEL. E85 doesn't lubricate the pumps internals properly, therefore leading to premature failure.**
- **INTRODUCTION**

Congratulations on purchasing the most reliable, well designed, vibration resistant and efficient Fuel Pump system on the market. It is designed for easy installation, even with little or no electrical or fuel system plumbing experience.

The **PERFECT FLOW Fuel Delivery System** is equipped with two Walbro 255 liter per hour pumps, two weatherproof 30 amp relays with 15 feet of 600 volt, 275°F, TXL abrasion resistant wire, two 30 amp circuit breakers along with two weather resistant circuit breaker boots.

This kit can provide fuel at injection pressures for up to 900hp in naturally aspirated applications and up to 700hp in boosted applications. Most Walbro pump performance curves show the pumps delivering 255lph (liters per hour) at 45psi (pounds per square inch) to support 1000hp naturally aspirated. The flow rate drops to approximately 190lph (liters per hour) at 80 psi (pounds per square inch) to support boosted applications.

NOTE: Use the provided formulas to calculate exactly how much horsepower this kit will support for your specific application. The pressure and fuel line size will have a direct effect on how this system performs.

Listed below are some very important definitions of terms used in the calculation of the quantities of fuel needed for engines based on their power outputs:

Brake Specific Fuel Consumption – the measure of fuel efficiency for a shaft reciprocating engine. Most naturally aspirated engines use .45 B.S.F.C.

Work – Force X Distance

Power – Work / Time

Horsepower – (1HP (746W) = 33,000ft-lb/min or 550ft-lb/sec) This is the amount of work a horse can accomplish over a measured amount of time.

NOTE: When it comes to “estimating” the amount of horsepower a specific engine will make; there generally tends to be some “over-estimating” that takes place. If you are not sure about how much horsepower your engine will produce; then it may be advisable to either use a desktop software to calculate it based on engine modifications or to see the advice of the engine builder. An over exaggeration of an engines ability to make power will only result in the improper sizing of the injectors and fuel system.

Step 1: Use this formula to calculate the injector size required for your engine.

$$(\text{HP target X BSFC}) / (\# \text{ of Injectors X Duty Cycle}) = \text{Injector Size (lbs per hour)}$$

Example: 1000HP, Naturally Aspirated V8 Engine,
Brake Specific Fuel Consumption = .45
8 Port Fuel Injectors at 80% Duty Cycle

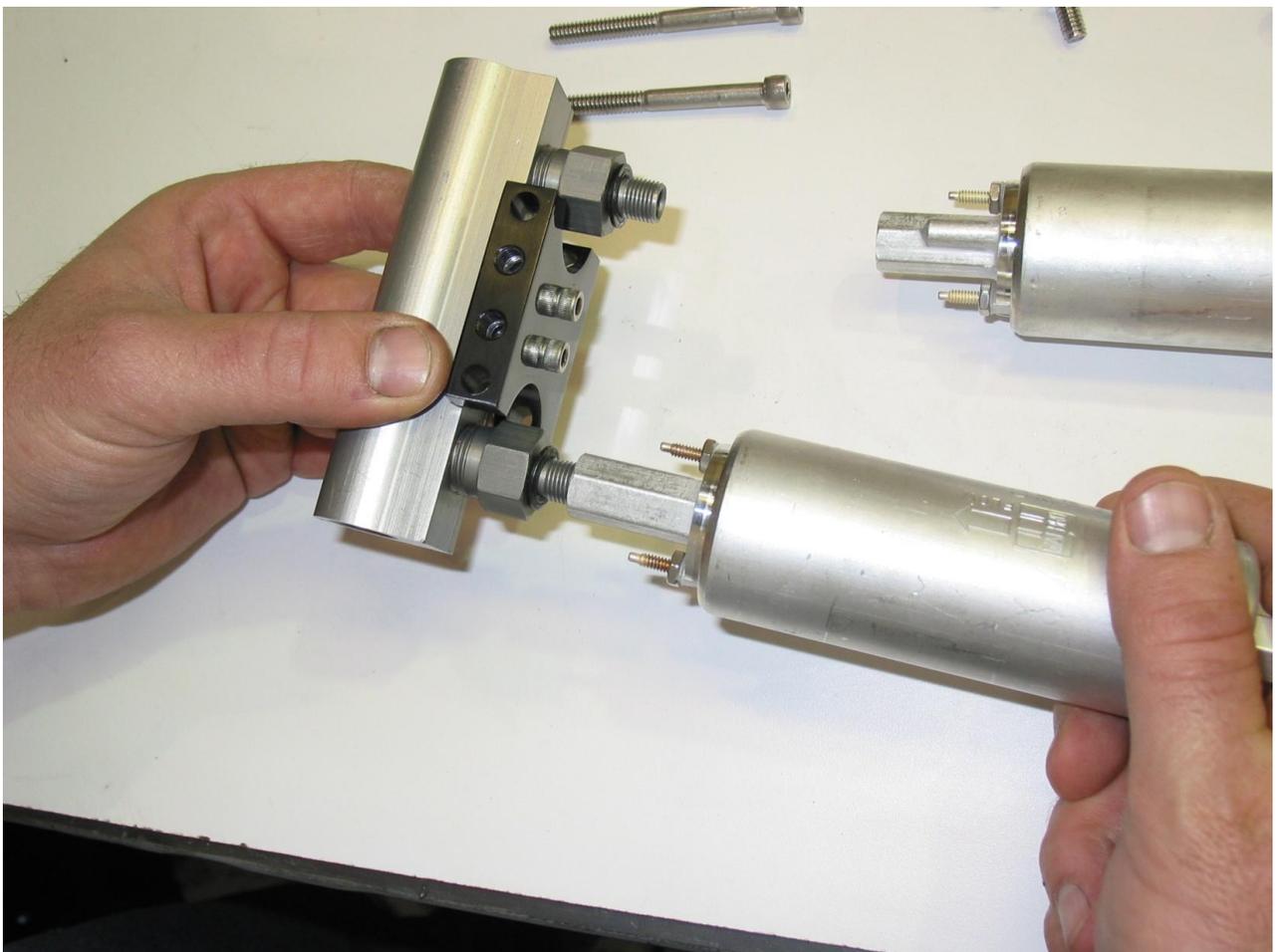
Formula: $(\text{HP target X BSFC}) / (\# \text{ of Injectors X Duty Cycle}) = \underline{\text{Injector Size}}$

$(1000 \text{ X } .45) / (8 \text{ X } .8) = 75 \text{ lb/hr injector @ 45psi @ 80\% Duty Cycle}$

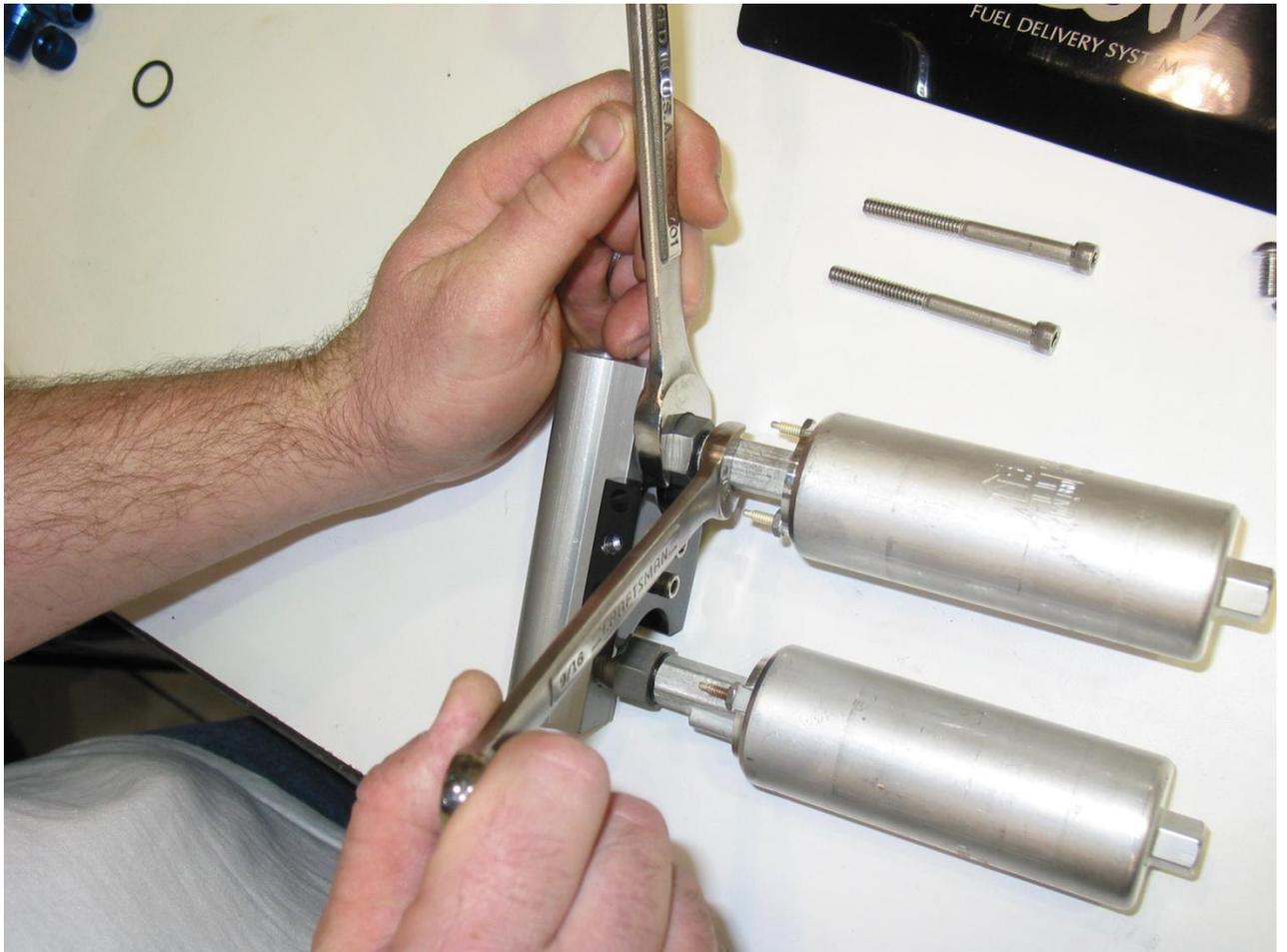
Total Fuel = 75lb/hr X 8 = 600lb/hr @ 45psi @ 80% Duty Cycle

Installation Steps:

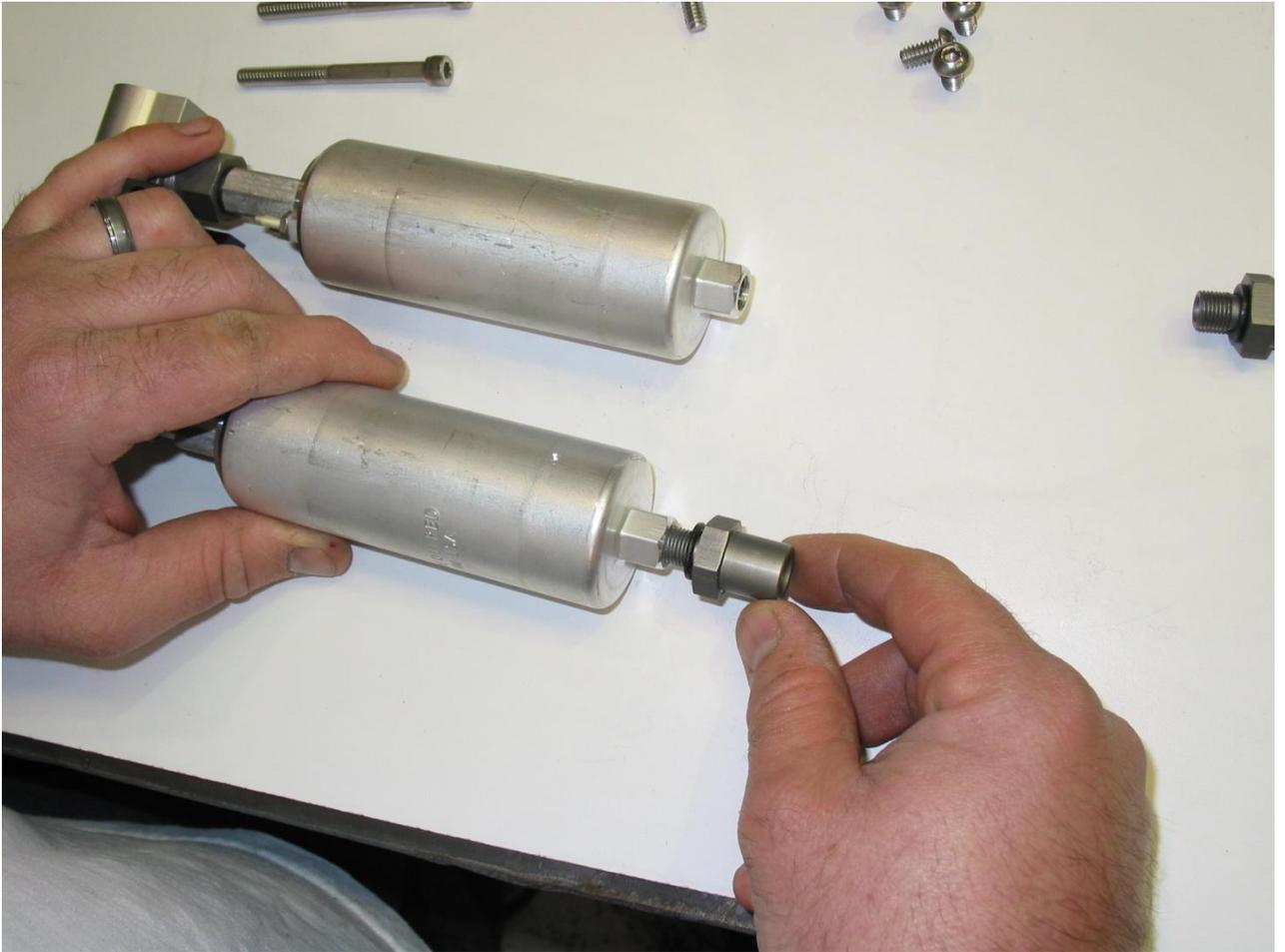
1. Start by installing the copper washers onto the pressure side fittings and thread the fuel pumps onto the pressure side fuel rails.



2. Tighten pumps onto the pressure side fittings. **BE CAREFUL** as these are aluminum threads and can be stripped.



3. Next place one copper washer on each Inlet Assembly fitting and thread the fittings into the suction side of the pumps.



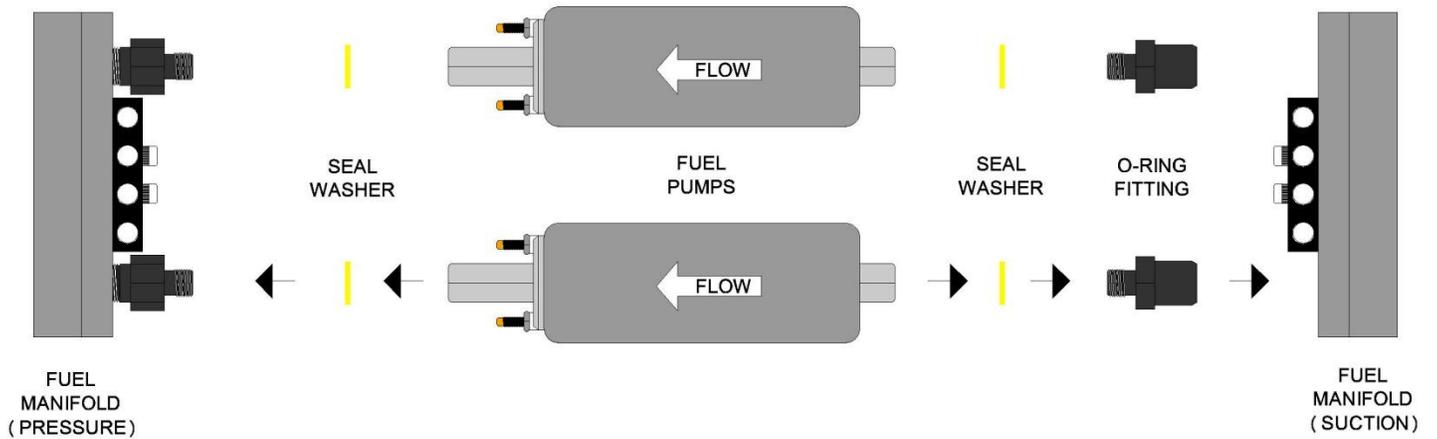
4. Tighten the Inlet Assembly fittings. **BE CAREFUL** as these are aluminum threads and can be stripped.



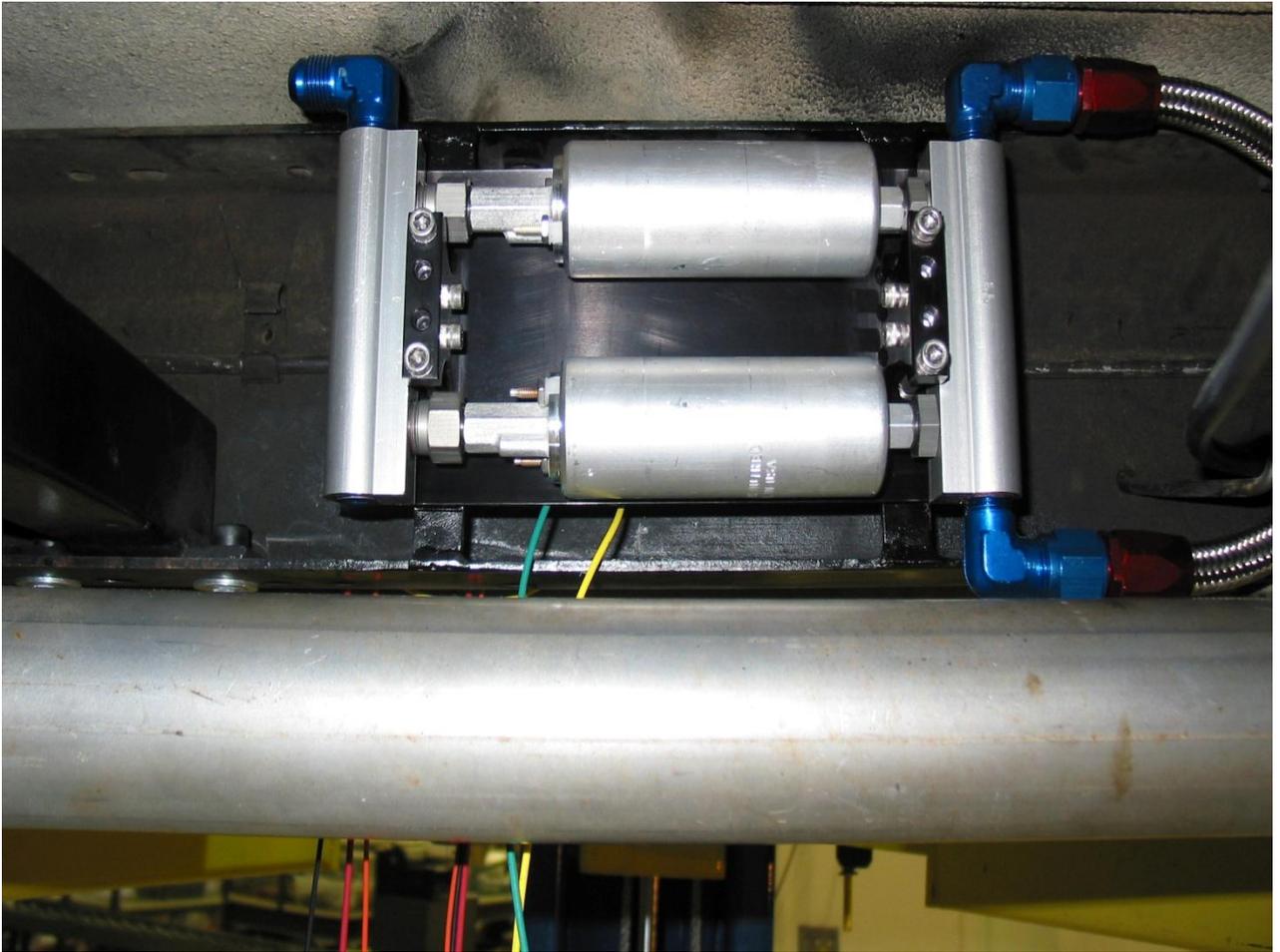
5. Now carefully push the Inlet Assembly with O-Rings onto the inlet side fittings.



FRONT VIEW PRE-ASSEMBLY

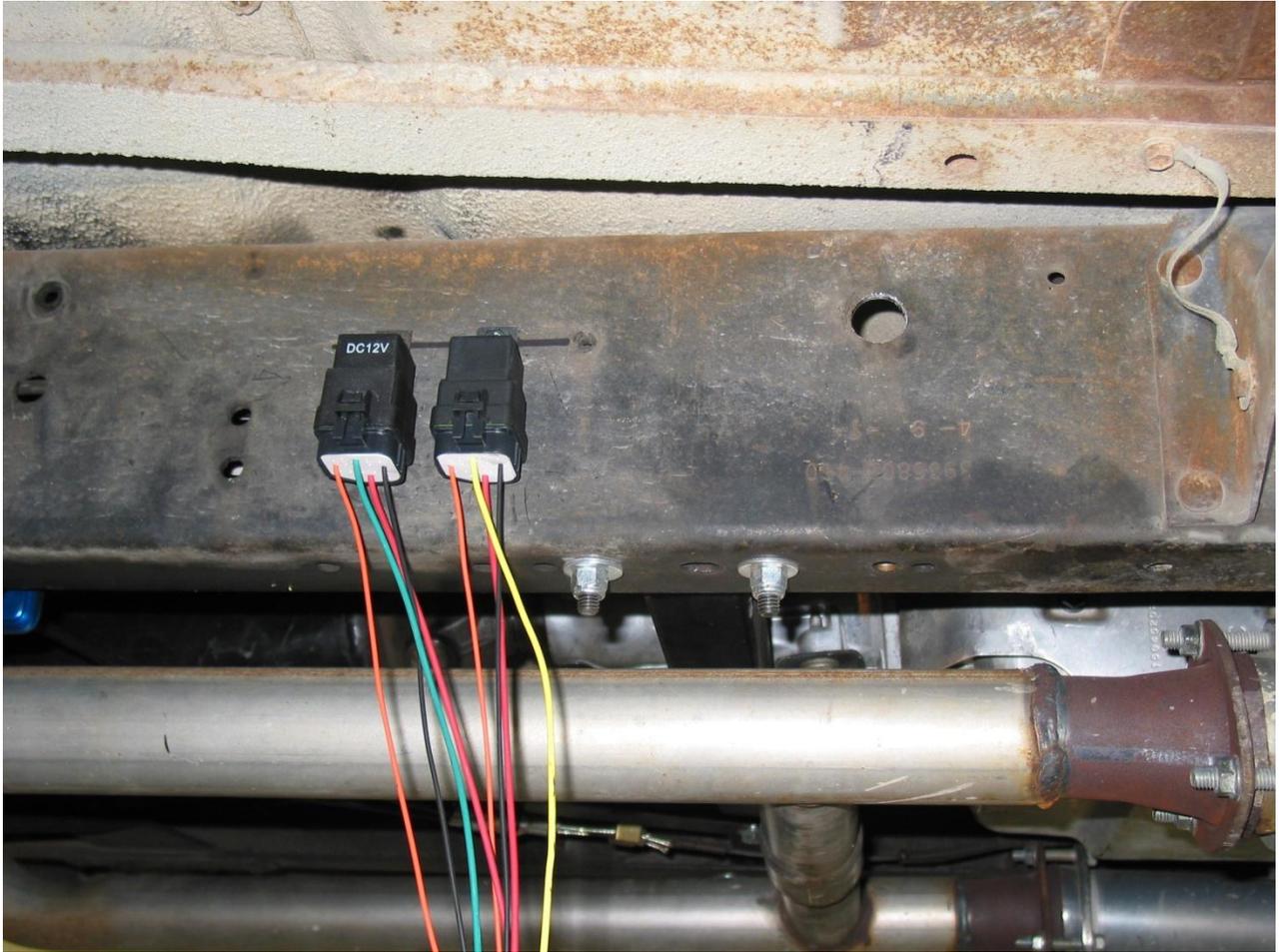


6. Next, using the provided stainless socket head cap screws, mount the fuel pump assembly to the frame or other desired location on the vehicle with one of the black anodized covers between the pumps and this location.

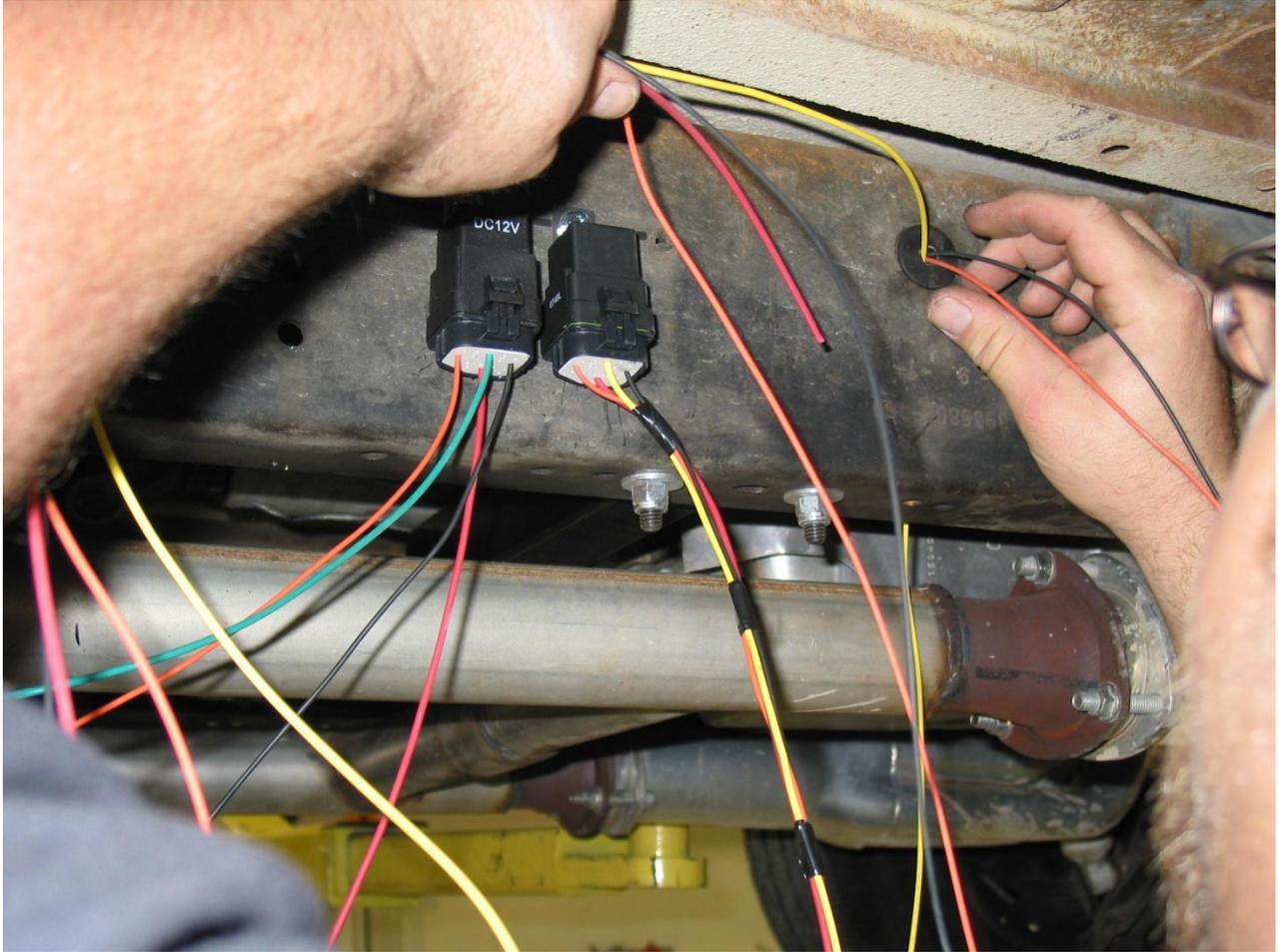


Note: It may be necessary to remove the rear cover button head cap screws in order for the pump assembly to seat flush against any bracket or the frame of the vehicle.

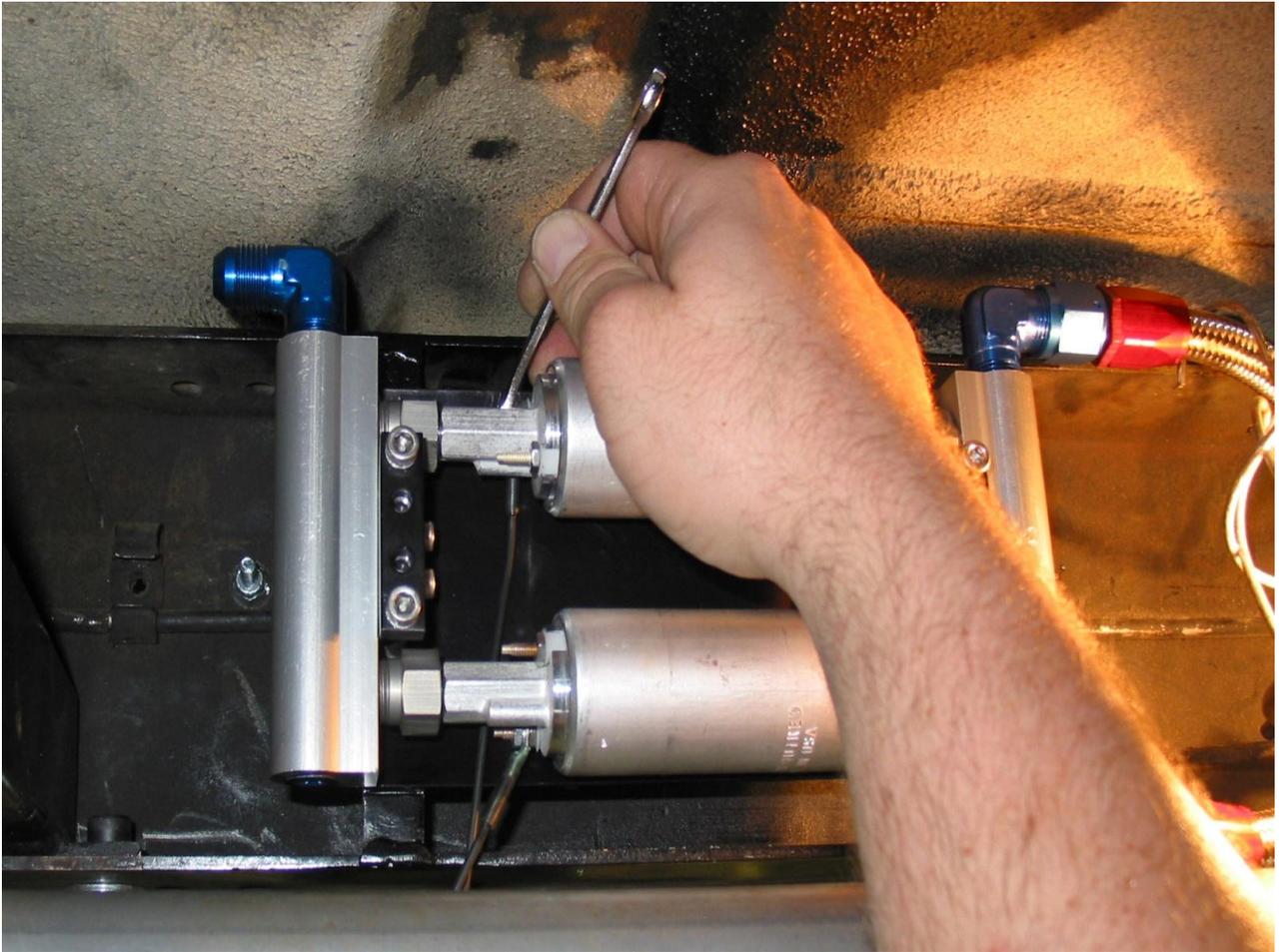
7. Locate a desirable location for the weather proof relays to be mounted on the vehicle. In this application, the relays were mounted on the outside of the frame.



8. Now spot tape the wires into bundles to help keep the wires sorted and easier to loom. Locate the desired location to route the wires and drill out the hole for the provided grommet.



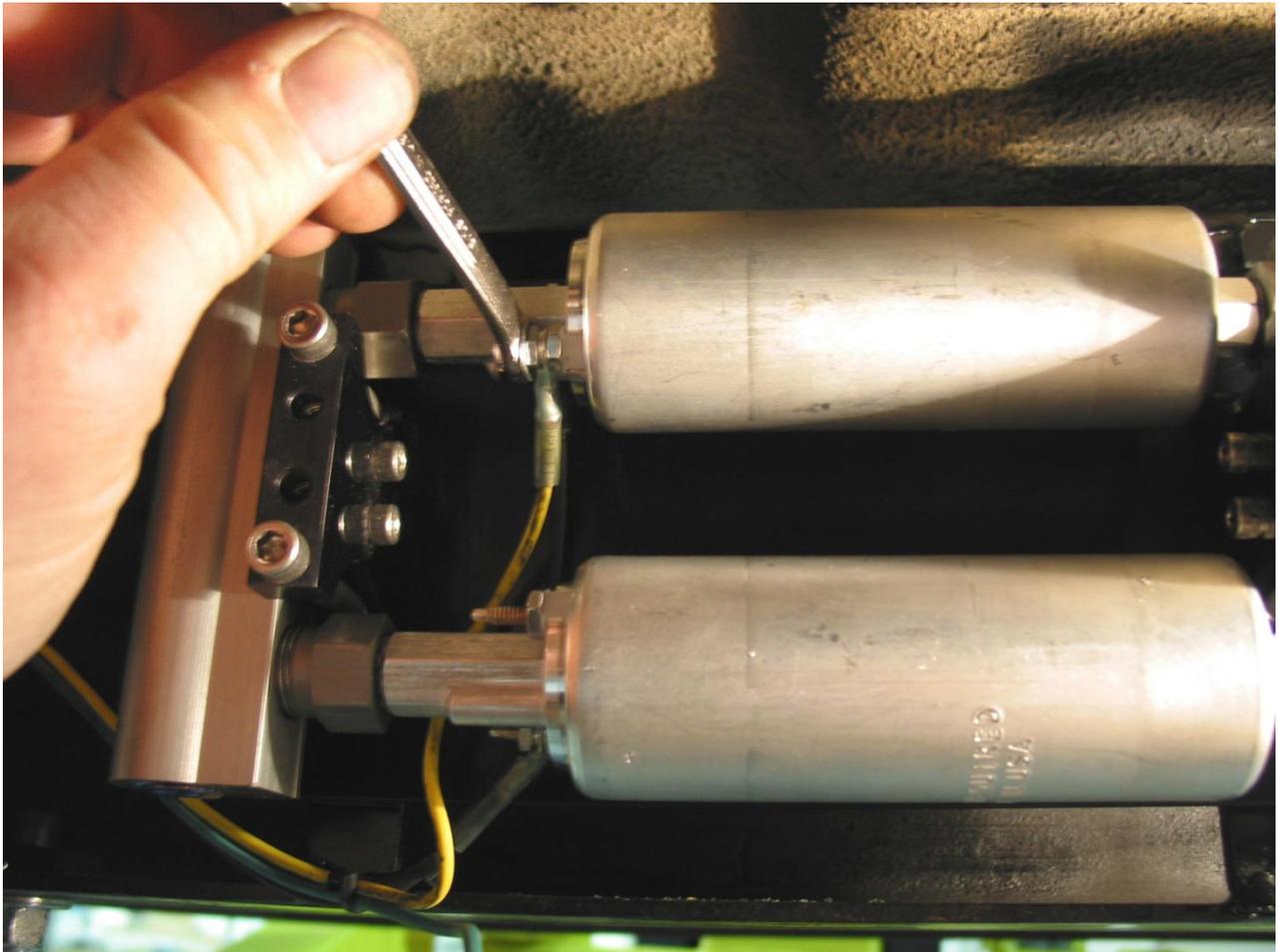
9. Using the provided black ground harness; attach the two black wires to the #1 and #2 fuel pump negative terminals.



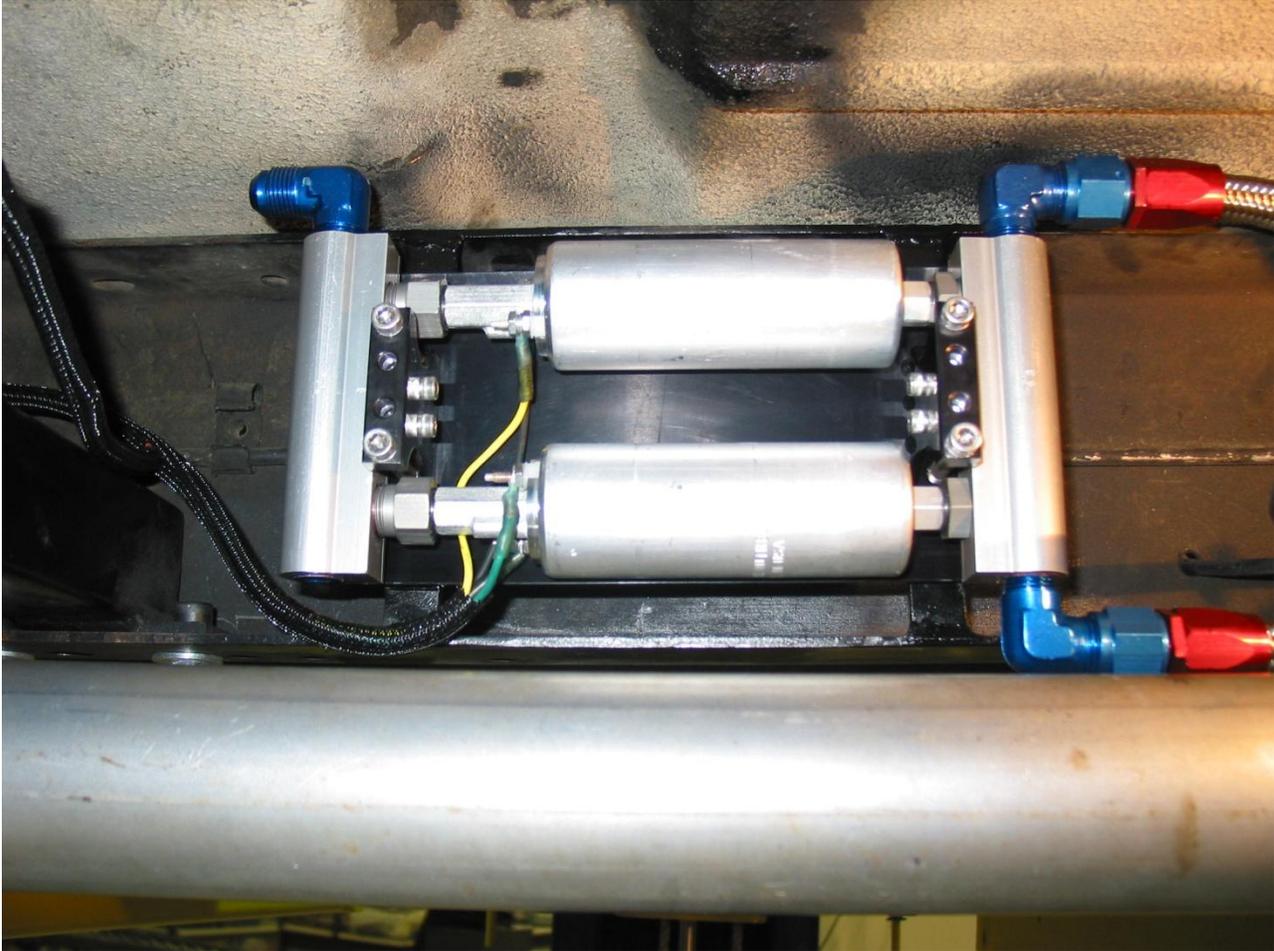
10. Now attach the large single black wire from the pump ground harness to a good clean ground source along the vehicles frame. Also attach the relay ground wires to this point if the relays are being 12 volt activated. Otherwise, if using an engine fuel injection computer to ground the relays to activate the pumps; do not connect the relay grounds to this same point.



11. Using the provided terminals in this kit; attach the yellow 14 gauge wire to the #1 fuel pump positive terminal and attach the green 14 gauge wire to the #2 fuel pump positive terminal.



12. Final picture of pumps installed, wired and ready for the outer black anodized cover to be installed.



13. Using the (4) button head allen screws provided install the outer black anodized cover.



Painless Performance Limited Warranty and Return Policy

Chassis harnesses and fuel injection harnesses 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.