



AEROMOTIVE
Part # 17103
83-93 Mustang 5.0L Fuel System Kit
INSTALLATION INSTRUCTIONS

CAUTION:

Installation of this product requires detailed knowledge of automotive systems and repair procedures. We recommend that this installation be carried out by a qualified automotive technician.

Installation of this product requires handling of gasoline. Ensure you are working in a well ventilated area with an approved fire extinguisher nearby. Extinguish all open flames, prohibit smoking and eliminate all sources of ignition in the area of the vehicle before proceeding with the installation.

When installing this product, wear eye goggles and other safety apparel as needed to protect yourself from debris and sprayed gasoline.

WARNING!

The fuel system is under pressure. Do not open the fuel system until the pressure has been relieved. Refer to the appropriate vehicle service manual for the procedure and precautions for relieving the fuel system pressure.

Aeromotive system components are not legal for sale or use on emission controlled motor vehicles.

This kit contains the following parts:

- | | |
|--|--|
| 1 ea fuel tank kit | 1 ea AN-06 straight hose end |
| 1 ea fuel tank w/sump | 3 ea AN-06 90-degree hose end |
| 1 ea return line fitting | 2 ea AN-10 90-degree hose end |
| 1 ea fuel pump wiring kit | 1 ea p/n 11101 Pump |
| 1 ea 3ft length of 10 ga. Black wire | 1 ea p/n 12304 Filter 100 Micron SS |
| 1 ea 25ft length of 10 ga. Red wire | 1 ea p/n 12301 Filter 10 Micron Paper |
| 1 ea 30 amp circuit breaker | 4 ea 1/4" flat washers |
| 1 ea 30 amp automotive relay | 4 ea 1/4-20 nyloc nuts |
| 2 ea blue female blade connector | 4 ea 1/4-20 x 1" carriage bolts |
| 2 ea yellow female blade connector | 12 ea tie-wraps |
| 5 ea yellow #10 stud ring connector | 9 ea AN-10 o-ring |
| 1 ea yellow 3/8" stud ring connector | 1 ea p/n 15101 Return line adapter |
| 6 ea tie-wraps | 1 ea p/n 15103 supply line adapter |
| 4 ft AN-10 stainless steel braided line | 4 ea p/n 15608 AN-10 cutoff union |
| 14 ft AN-06 stainless steel braided line | 2 ea p/n 15609 AN-10 cutoff to AN-06 union |
| | 1 ea p/n 15617 AN-10 port plug |

Warning – The included Aeromotive fuel pump is not compatible with alcohol based fuels or fuel additives!

The following steps are typical of most installations:

Section 1 - Fuel system installation

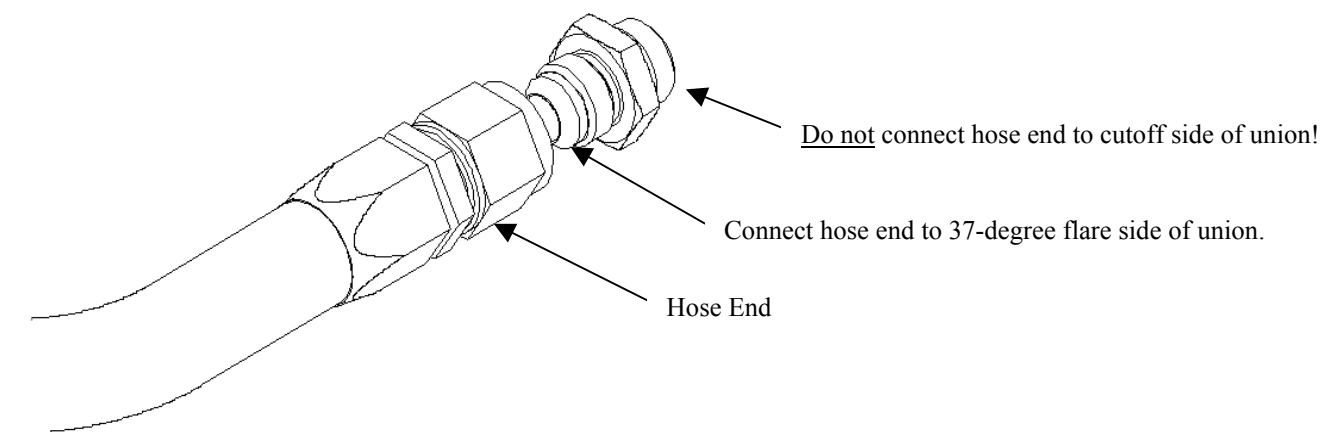
Section 2 – Fuel line hose end installation

Section 3 – Electrical Installation

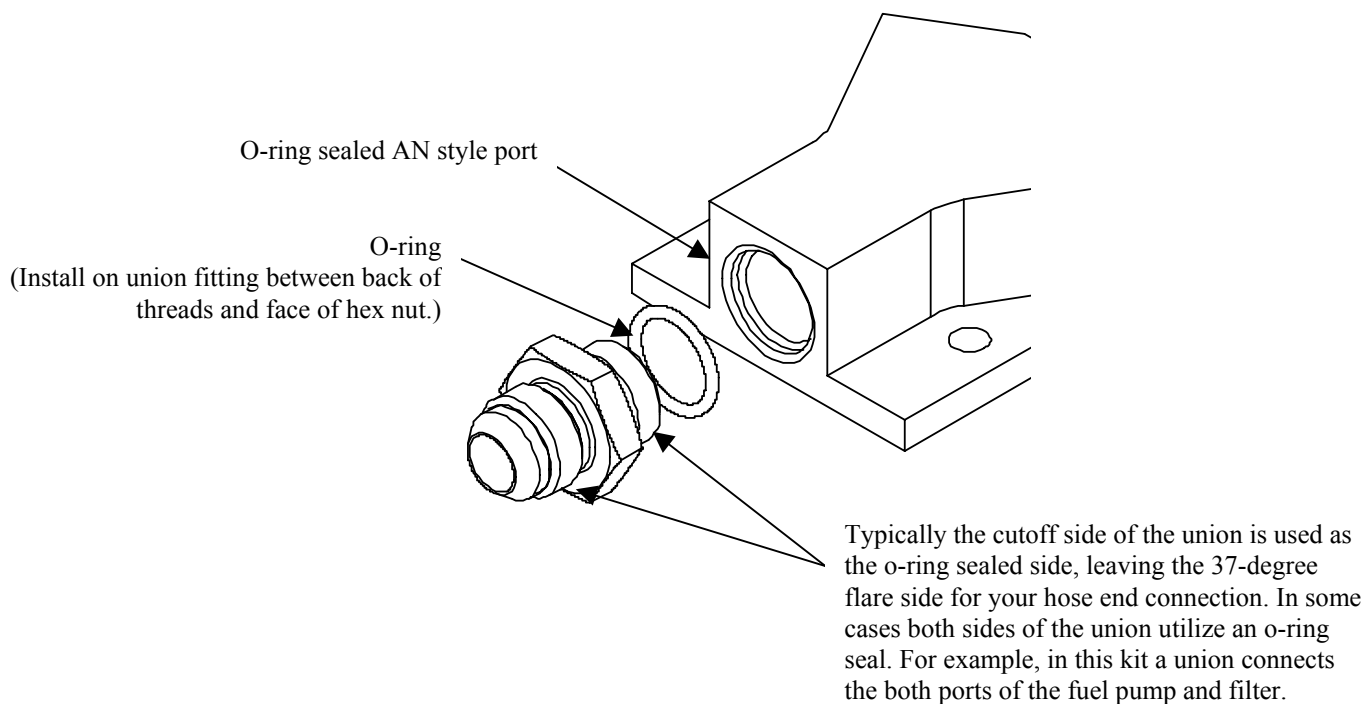
Section 4 – Final checks and system start-up

Fuel Pump Template

Typical hose end to fitting connection:



Typical o-ring sealed port connection:



Section 1 - Fuel system installation:

- 1-1. Once the engine has been allowed to cool, disconnect the negative battery cable and relieve the fuel system pressure.
- 1-2. Raise the vehicle and support it with jack stands.
- 1-3. Referring to the appropriate vehicle service manual for instructions, drain, disconnect any electrical and fuel component connections and remove the OEM fuel tank. The removal of the vehicles exhaust system may be necessary for fuel tank removal.
- 1-4. Once the OEM fuel tank has been removed, remove the plastic fuel tank shield from the bottom of the tank.
- 1-5. Measure the position of the sump on the supplied Aeromotive fuel tank and mark the plastic fuel tank shield accordingly. Using an $\frac{1}{2}$ " drill bit, drill the four corners of the sump cutout in the plastic fuel tank shield. Using a small hand saw or reciprocating saw, cut out the remaining area from the plastic fuel tank shield. Once you have completed this step your plastic fuel tank shield should look similar to Figure 1-1.

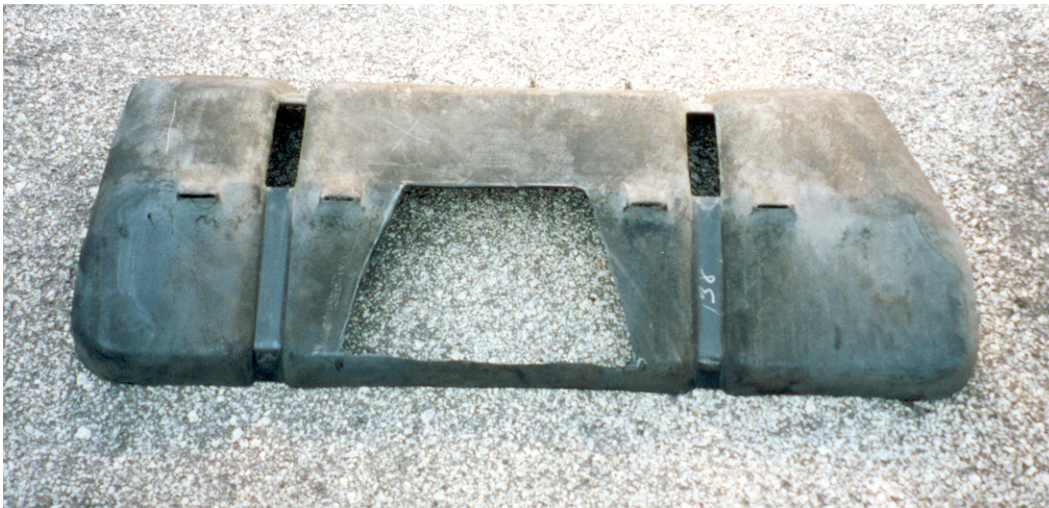


Figure 1-1

- 1-6. In the kit find two AN-10 cutoff union fittings and four of the AN-10 o-rings. Install each of the four o-rings on each end of the two AN-10 cutoff union fittings.
- 1-7. Install each of the two AN-10 cutoff fittings into each end of the provided Aeromotive fuel pump, Aeromotive p/n 11101.
- 1-8. Noting the appropriate flow directions, install the provided fuel filter, Aeromotive p/n 12301, on the fuel pump outlet and the other fuel filter, Aeromotive p/n 12304, on the fuel pump inlet. See figure 1-2.



Figure 1-2

- 1-9. Install one of the supplied AN-10 o-rings on the cutoff side of the AN-10 cutoff union fitting, if not already installed, and install on the inlet side of the pump / filter assembly as shown in figure 1-3.
- 1-10. Install one of the supplied AN-10 o-rings on the AN-10 cutoff side of the AN-10 cutoff to AN-06 reducer union fitting, if not already installed, and install on the outlet side of the pump / filter assembly as shown in figure 1-3
- 1-11. Position the fuel pump / filter assembly from above on the opposite end of the plastic fuel tank shield as the sump cutout. Center the pump / filter assembly in all directions on the flat shown in figure 1-3. Using the fuel pump as a guide, mark the four pump mounting holes. Insure there are no obstructions behind the plastic fuel tank shield and drill four $\frac{1}{4}$ " mounting holes.
- 1-12. The fuel pump should be installed such that when the plastic fuel tank shield is installed the fuel pump outlet is on the driver side of the vehicle. Secure the fuel pump to the plastic fuel tank shield by installing each of the four $\frac{1}{4}$ " carriage bolts from the inside of the fuel tank shield, through the fuel tank shield and through the fuel pump mounting holes. Install each of the four provided flat washers and nuts on the bolts and tighten. The plastic fuel tank shield now should look similar to the one shown in figure 1-3.

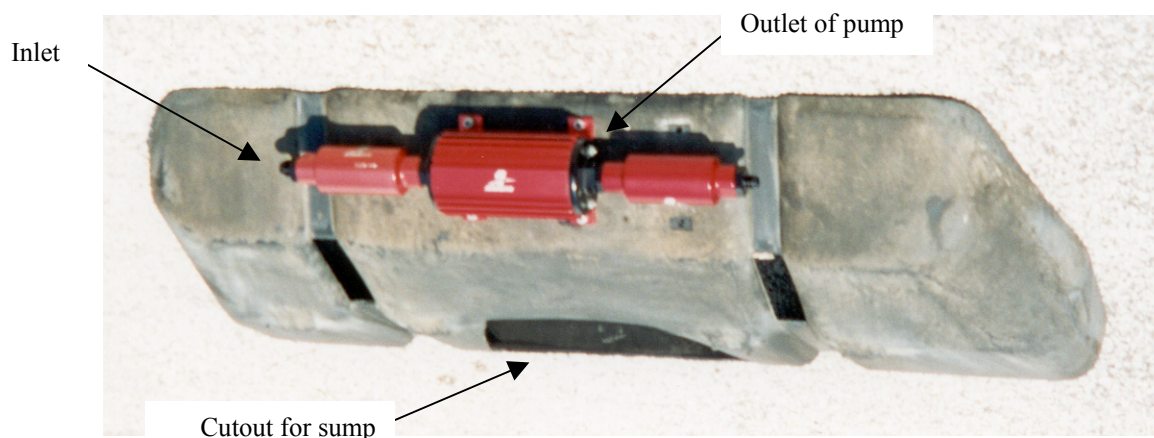


Figure 1-3

- 1-13. Inspect the inside of the plastic fuel tank shield for any sharp edges that could puncture the fuel tank. If any sharp edges are found, correct before proceeding.
- 1-14. Position the plastic fuel tank shield on the Aeromotive fuel tank.

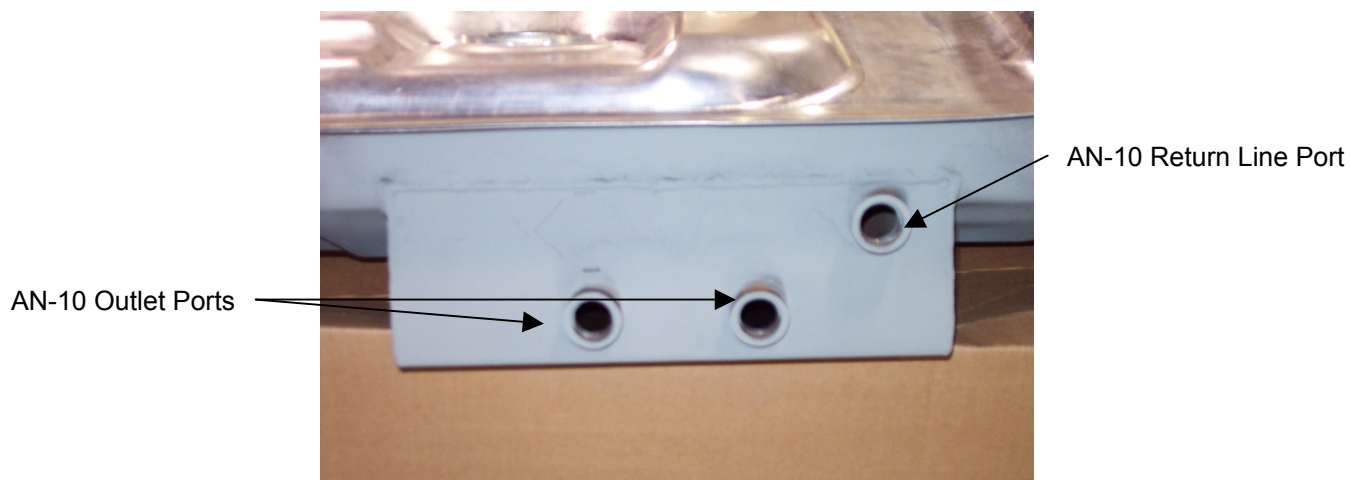


Figure 1-4

- 1-15. Install one of the supplied AN-10 o-rings on the cutoff side of the AN-10 cutoff union fitting, if not already installed, and install on the passenger (right) side of the fuel tank sump.
- 1-16. Install one of the supplied AN-10 o-rings on the AN-10 port plug, if not already installed, and install on the driver (left) side of the fuel tank sump.

- 1-17. Using the two supplied 90-degree AN-10 hose ends as a guide, measure the length of AN-10 steel braided line needed to connect the fuel tank sump outlet to the fuel pump / filter assembly inlet.
- 1-18. Cut and assemble the steel braided hose and hose ends as shown in Section 2.
- 1-19. Using the above steel braided hose assembly, connect one end to the outlet of the fuel tank sump and the other end to the fuel pump / filter assembly inlet and tighten. See figure 1-5.

Note: It is recommended that a fuel shut off valve be installed between the fuel tank outlet and the fuel pump / filter assembly inlet, these valves are available from most popular racing fitting manufactures; Aeroquip, Earl's, Goodridge, Russell, etc.



Figure 1-5

- 1-20. Using any type of household tape, secure the plastic fuel tank shield to the Aeromotive fuel tank along each of the fuel tank strap indentations.
- 1-21. Carefully flip the fuel tank / plastic fuel tank shield assembly over.
- 1-22. From the old OEM fuel tank, remove the filler neck rubber grommet, fuel level sender, vent and vent grommet, and wiring harness. Reinstall each of these components in the new Aeromotive fuel tank while inspecting them for any damage. If any of the OEM components are damaged replacement parts are available through your local Ford dealer or auto parts store. See figure 1-6.
- 1-23. Remove the OEM fuel pick up from the OEM fuel tank, inspect the gasket for any damage. Using the OEM gasket install the Aeromotive provided return pick up block off plate in the new Aeromotive fuel tank.

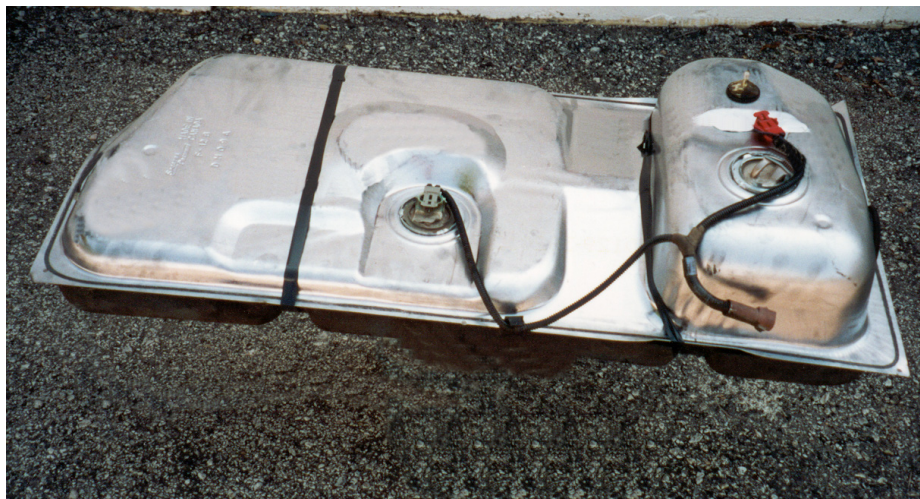


Figure 1-6

- 1-24. Install the supplied AN-10 o-ring on the AN-10 side of the AN-10 cutoff to AN-06 reducer union, if not already installed, and install this fitting in the AN-10 return port on the sump.
- 1-25. Position the fuel tank under the vehicle, insuring that the retaining rings on the return and fuel level sender are secure. Apply a light oil weight oil to the filler neck grommet to ease installation.
- 1-26. In the front of the vehicle, near the right wheel well, find the OEM return line quick-disconnect coupler. Disconnect this coupler and install the supplied adapter fitting, this will allow you to run an AN-06 return line back to the fuel tank.
- 1-27. Starting from the above mentioned adapter fitting, plan a route to run an AN-06 return line back to the Aeromotive fuel tank return port and measure the required length. Cut the return line to the determined length and install two of the supplied AN-06 90 degree AN-06 hose ends, as detailed in section 2.

Note: Be sure to route all fuel lines clear of any moving suspension or drivetrain components and any exhaust components! Protect fuel lines from abrasion and road obstructions or debris.

- 1-28. Thread one 90-degree side of the AN-06 return line that you have just created onto the adapter fitting installed in the front of the vehicle, and tighten. Using the supplied tie-wraps secure the return line to the vehicle in the route you have chosen, ensuring that all lines are routed clear of any suspension, drivetrain, and exhaust components.
- 1-29. Thread the other 90-degree end of the AN-06 return line onto the AN-06 return port fitting located on the Aeromotive sump, and tighten.
- 1-30. As the Aeromotive fuel tank is lifted into position reattach the vent line to the top of the fuel tank and work the filler neck in to the grommet on the side of the fuel tank. Once the Aeromotive fuel tank is in position, align tank straps, ensure that there are not any hoses or wiring pinched and tighten the strap bolts.
- 1-31. Make any line or electrical adjustments necessary to clear the vehicles exhaust, suspension, and drivetrain components.
- 1-32. Under the car just in front of the fuel tank, locate the OEM supply line quick-disconnect coupler. This is the same quick-disconnect coupler that you disconnected to remove the OEM fuel supply line from the OEM fuel tank. Locate the supplied adapter fitting that adapts the quick-disconnect fitting to an AN-06 fitting. Apply a light oil to the surface of the supplied adapter fitting and install, this will allow you to connect an AN-06 supply line to the OEM fuel line.
- 1-33. Using the two remaining supplied AN-06 hose ends as a guide, measure the length of line needed to connect the outlet of the pump / filter assembly to the adapter fitting that you just installed into the OEM supply line. Figure 1-7 shows a typical installation.



Figure 1-7

- 1-34. Using the remaining AN-06 steel braided hose, cut and assemble the steel braided hose and hose ends as shown in Section 2.
- 1-35. Thread the straight side of the AN-06 supply line that you have just created onto the above adapter fitting and tighten. Thread the 90-degree side of the AN-06 supply line on the AN-06 fitting that you installed earlier on the pump / filter assembly outlet. Ensure that all lines are routed clear of any suspension, drivetrain, and exhaust components.

Section 2 - Fuel Line Hose End Installation:

CAUTION:

When assembling this product, wear eye goggles and other safety apparel as needed to protect yourself from debris and sharp edges.

2-1. Wrap hose with masking tape at desired cutoff length. Cut hose through masking tape squarely to desired length using a cut-off machine or a fine tooth hacksaw. Remove the masking tape.

2-2. Unthread the hose socket from the rest of the hose end fitting.



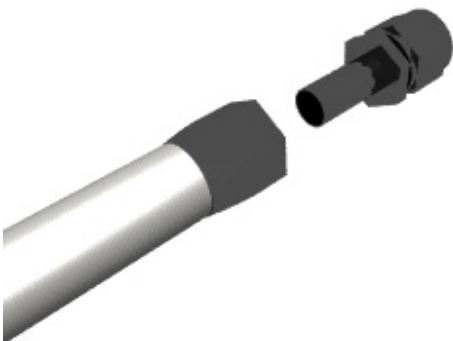
2-3. Insert hose in the socket with a twisting and pushing motion until the hose is fully seated in the socket.



2-4. Using a grease pencil, marker or tape, mark the location of the hose in relation to the hose socket that you just installed.

2-5. Using a light oil, lubricate the inside of the hose and hose end mating parts.

2-6. Carefully thread the hose end onto the hose socket, making sure that the hose does not push out of socket, by



observing the mark you placed on the hose in step 2-4.

2-7. Using a properly sized wrench, complete threading the two components together (The maximum allowable gap between the two fitting components is .030 inches).



2-8. Inspect the hose for push out by comparing the mark you made on the hose in step D to the hose end socket location.

2-9. Clean all debris from exterior and interior of hose.

2-10. All lines should be tested to twice their operation pressure prior to use.

Section 3 - Electrical Installation:

- 3-1. Find a suitable place to mount the supplied relay, the relay is typically mounted by the OEM fuel pump wiring connector (***Never mount the relay inside of the fuel tank or next to fuel tank vents!***). Insure the relay and any associated parts are clear of the exhaust, any moving suspension or drivetrain components and any possible road obstructions or debris.
- 3-2. Attach the OEM fuel pump wires (These typically are the red and black wires from the OEM wiring harness going to the fuel tank) to relay terminals 85 and 86 using two of the supplied blue female blade connectors (See Figure 3-1 Below).

Note: Be sure to route all electrical wires clear of any moving suspension or drivetrain components, and any exhaust components! Protect wires from abrasion and road obstructions or debris.

- 3-3. Find a suitable location for mounting the supplied circuit breaker. For optimal circuit protection, the circuit breaker needs to be mounted as close to the battery as possible.
- 3-4. Connect terminal number 30 on the relay to the circuit breaker by using the supplied red 10 ga. wire, one of the yellow female blade connectors on the relay end of the wire and one of the yellow #10 ring connectors on the circuit breaker side of the wire.

Note: Be sure to route all electrical wires clear of any moving suspension or drivetrain components and any exhaust components! Protect wires from abrasion and road obstructions or debris.

- 3-5. Connect terminal number 87 on the relay to the positive terminal on the fuel pump. This is accomplished by using the supplied red 10 ga wire, one of the yellow female blade connectors on the relay side of the wire and one of the yellow #10 ring connectors (or appropriate connector for the installation) on the fuel pump side of the wire.
- 3-6. Connect the negative terminal on the fuel pump to a clean chassis ground using the supplied black 10 ga wire and two yellow #10 ring connectors.
- 3-7. Connect 12VDC to the circuit breaker using the supplied red wire and one of the yellow #10 ring connectors and the supplied yellow 3/8" ring connector.
- 3-8. Ensure that electrical components and wires are connected properly (See Figure 3-1) and are clear of any moving suspension or drivetrain components and any exhaust components! Protect wires from abrasion and road obstructions or debris.

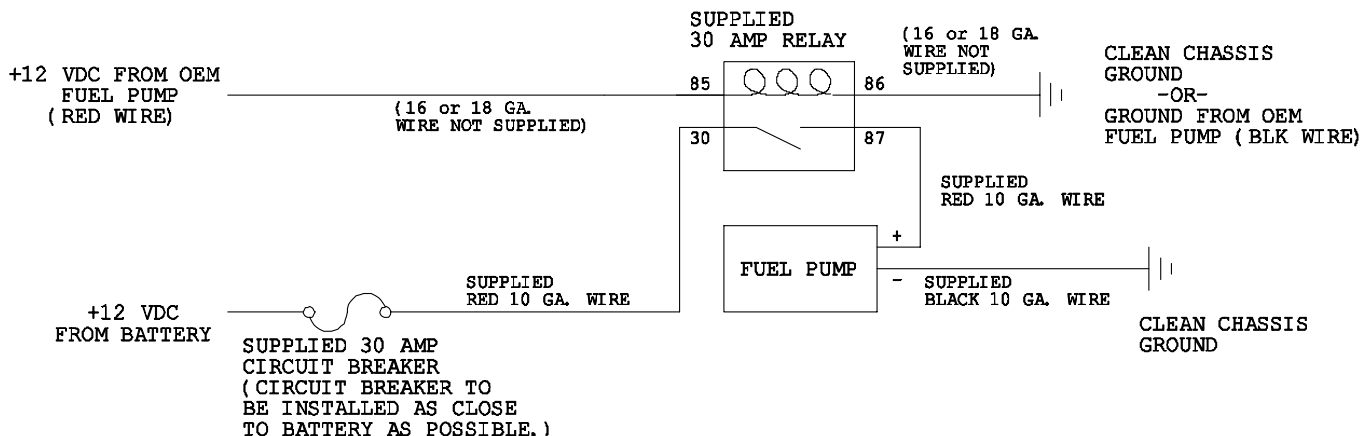


Figure 3-1

Section 4 – Final Checks and System Start-up

6-1. **Ensure that any spilled gasoline and any gasoline soaked shop towels are cleaned up and removed from the vicinity of the vehicle!**

6-2. Carefully lower the car onto the ground.

6-3. Fill the fuel tank with gasoline and check for any leaks in the system, if any leaks are found repair immediately.

CAUTION: While performing the following steps, if any fuel leaks are detected, immediately turn the ignition of OFF, remove any spilled fuel and repair the leak(s) before proceeding!

6-4. Reconnect the battery and turn the ignition to the ON position **WITHOUT** starting the car. After several seconds, check the fuel pressure. If there is no fuel pressure, turn the ignition key to the OFF position, wait one minute, return the ignition to the ON position, and recheck the fuel pressure. Repeat this ignition OFF and ON procedure until the fuel pressure gauge registers fuel pressure.

6-5. With the fuel pressure gauge registering fuel system pressure, check for fuel leaks throughout the entire fuel system! If any fuel leaks are found, turn the ignition key to the OFF position, remove any spilled fuel and repair the leak before proceeding!

6-6. Once the fuel pressure gauge registers fuel system pressure and there are no fuel leaks, start the engine and adjust the regulator to the desired fuel pressure. Turning the adjustment screw clockwise will increase fuel pressure. OEM regulators are typically set at approximately 43 psi, without the vacuum line attached. The fuel pressure adjustment range for this regulator is 35-80 psi.

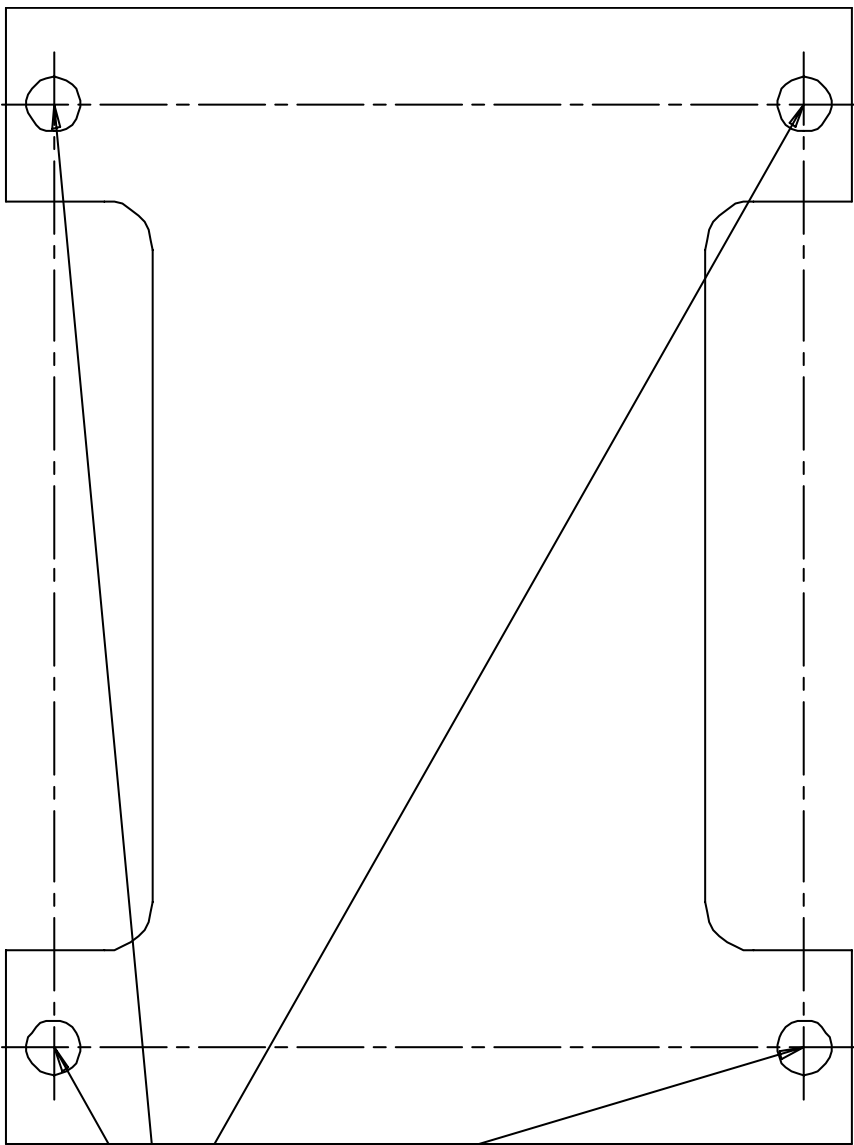
6-7. Once the desired fuel pressure is achieved, tighten the regulator adjustment jam nut and attach the vacuum line.

6-8. Remove the fuel pressure gauge and replace the cover on the schrader valve.

6-9. Test drive the car to insure proper operation and re-check the fuel system for leaks. If any leaks are found, immediately discontinue use of the vehicle and repair the leak(s)!

Thanks for purchasing another quality product designed, engineered and manufactured in Kansas City,
USA!

AEROMOTIVE, INC.
7805 Barton Street, Lenexa, KS 66214
913-647-7300 fax 913-647-7207



DRILL 4 HOLES TO
ACCEPT 1/4" BOLTS

AEROMOTIVE, INC. LIMITED WARRANTY

This Aeromotive Product, with proof of purchase dated on or after January 1, 2003, is warranted to be free from defects in materials and workmanship for a period of one year from the original date of purchase. No warranty claim will be valid without authentic, dated proof of purchase.

This warranty is to the original retail purchaser and none other and is available directly from Aeromotive and not through any point of distribution or purchase.

If a defect is suspected, the retail purchaser must contact Aeromotive directly to discuss the problem, possible solutions and obtain a Return Goods Authorization (RGA), if deemed necessary by the company. Please call 913-647-7300 and dial option 3 for the technical service dept. All returns must be shipped freight pre-paid to the company and with valid RGA before they will be processed.

Aeromotive will examine any product returned with the proper authorization to determine if the failure resulted from a defect or from abuse, improper installation, misapplication or alteration. Aeromotive will then, at it's sole discretion, return, repair or replace the product.

If any Aeromotive product is determined defective, buyer's exclusive remedy is limited in value to the sale price of the good. In no event shall Aeromotive be liable for incidental or consequential damages.

Aeromotive expressly retains the right to make changes and improvements in any product it manufactures and sells at any time. These changes and improvements may be made without notice at any time and without any obligation to change the catalogs or printed materials.

Aeromotive expressly retains the right to discontinue at any time and without notice any Aeromotive product that it manufactures or sells.

This warranty is limited and expressly limits any implied warranty to one year from the date of the original retail purchase on all Aeromotive products.

No person, party or corporate entity other than Aeromotive shall have the right to: determine whether or not this Limited Warranty is applicable to any Aeromotive product, authorize any action whatsoever under the terms and conditions of this Limited Warranty, assume any obligation or liability of any nature whatsoever on behalf of Aeromotive under the terms and conditions of this Limited Warranty.

This Limited Warranty covers only the product itself and not the cost of installation or removal.

This Limited Warranty is in lieu of and expressly excludes any and all other warranties, expressed or implied. This Limited Warranty gives you specific legal rights, and you may also have other rights which vary from state to state.