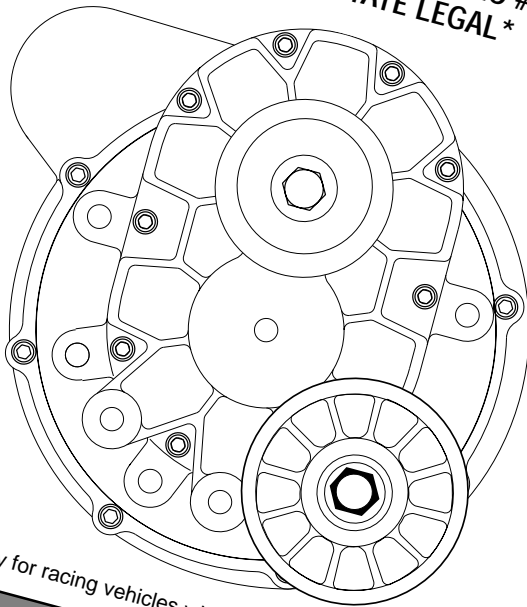


GM VORTEC 5.7L Engine Light Trucks/SUVs

Supercharger System Installation Instructions

1996-1998 MODEL YEARS
50 STATE SMOG LEGAL PER CARB EO #D-213-16
1999-2000 49 STATE LEGAL *



*Legal in California only for racing vehicles which may never be used upon a highway.



ENGINEERING, INC.

1650 PACIFIC AVENUE • CHANNEL ISLANDS, CA 93033-9901

FOREWORD

Proper installation of this supercharger kit requires general automotive mechanic knowledge and experience. Please browse through each step of this instruction manual *prior* to beginning the installation to determine if you should refer the job to a professional installer/technician. Please call Vortech Engineering for installers in your area.

© 2000 VORTECH ENGINEERING, INC.

All rights reserved. No parts of this publication may be reproduced, transmitted, transcribed, or translated into another language in any form, by any means without written permission of Vortech Engineering, Inc.

Table Of Contents

FOREWORD	i
TABLE OF CONTENTS	ii
NOTICE	iii
TOOL AND SUPPLY REQUIREMENTS	iv
PARTS LIST - 1996-2000 GM VORTEC 5.7L ENGINE FOR LIGHT TRUCKS/SUVs	v
CARROLL SUPERCHARGING MAF SIGNAL MASSAGER	vi
1. COMPONENT REMOVAL	1
2. OIL DRAIN	1
3. OIL FEED	2
4. MAIN BRACKET	3
5. SUPERCHARGER INSTALLATION	4
6. SUPERCHARGER/ACCESSORY DRIVE BELT	5
7. SUPERCHARGER AIR INLET	6
8. SUPERCHARGER DISCHARGE	7
9. FUEL MANAGEMENT UNIT (FMU)	8
10. SUPPLEMENTARY FUEL PUMP AND HARNESS	8
11. SUPERCHARGER/ACCESSORY DRIVE BELT	9
12. FINAL CHECK	11

GM VORTEC 5.7L LIGHT TRUCKS/SUVs

NOTICE

This product is protected by state common law, copyright and/or patent. All legal rights therein are reserved. The design, layout, dimensions, geometry, and engineering features shown in this product are the exclusive property of Vortech Engineering, Inc. This product may not be copied or duplicated in whole or part, abstractly or fundamentally, intentionally or fortuitously, nor shall any design, dimension, or other information be incorporated into any product or apparatus without prior written consent of Vortech Engineering, Inc.



ENGINEERING, INC.

1650 PACIFIC AVENUE • CHANNEL ISLANDS, CA 93033-9901 • (805) 247-0226
FAX (805) 247-0669 • www.vortechsuperchargers.com • M-F 8:00 AM - 4:30 PM PST

1996-2000 GM VORTEC 5.7L Engine Light Trucks/SUVs

Installation Instructions

50 State Smog Legal, per CARB EO #D-213-16
1999-2000 49 State Smog Legal

*Congratulations on selecting the best performing and best backed automotive supercharger available today...
the VORTECH® V-2® Supercharger!*

Before beginning this installation, please read through this entire instruction booklet and the Street Supercharger System Owner's Manual which includes the Limited Warranty Program, the Warranty Registration form, and return envelope.

Vortech supercharger systems are performance improving devices. In most cases, increases in torque of 30 to 35% and horsepower of 35 to 45% can be expected with the boost levels specified by Vortech Engineering. This product is intended for use on healthy, well maintained engines. Installation on a worn-out or damaged engine is not recommended and may result in failure of the engine as well as the supercharger. **Vortech Engineering is not responsible for engine damage.**

Installation on new vehicles will not harm or adversely affect the break-in period so long as factory break-in procedures are followed.

For best performance and continued durability, please take note of the following key points:

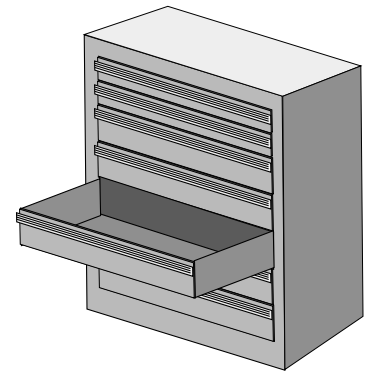
1. Use only premium grade fuel 92 octane or higher (R+M/2).
2. The engine must have stock compression ratio.
3. If the engine has been modified in any way, check with Vortech prior to using this product.
4. Always listen for any sign of detonation (pinging) and discontinue hard use (no boost) until problem is resolved.
5. Perform an oil and filter change upon completion of this installation and prior to test driving your vehicle. Thereafter, always use a high grade SF rated engine oil or a high quality synthetic, and change the oil and filter at least every 3,000 miles. **Never attempt to extend the oil change interval beyond 3,000 miles, regardless of oil manufacturer's claims, as potential damage to the supercharger may result.**
6. Before beginning installation, replace all spark plugs that are older than 1 year or 10,000 miles with original heat range plugs as specified by the manufacturer and reset timing to factory specifications (follow the procedures indicated within the factory repair manual and/or as indicated on the factory underhood emissions tag). **Do not use platinum spark plugs unless they are original equipment.** Change spark plugs every 15,000 miles and spark plug wires at least every 50,000 miles.

TOOL & SUPPLY REQUIREMENTS

- Factory Repair Manual
- 3/8" Socket and Drive Set: SAE & Metric
- Drill Motor, 3/32" and #16 Drill Bits
- Flat #2 Screwdriver
- Open End Wrenches: 5/16", 3/8", 7/16", 1/2", 9/16", 5/8", 10mm, 13mm, 15mm, 16mm, 17mm, 18mm
- Hammer
- Silicone Sealer
- Oil Filter Wrench
- Oil Filter
- SF rated quality engine oil
- Gasket Scraper
- Punch (Tapered)
- 3/8" NPT Tap

If your vehicle has in excess of 10,000 miles since its last spark plug change, then you will also need:

- Spark plug socket
- NEW spark plugs



4GM218-050S



1996-2000 GM VORTEC 5.7L Engine for Light Trucks/SUVs

Part No. 4GM218-050SQ/058SQ

PARTS LIST

IMPORTANT: Before beginning installation, verify that all parts are included in the kit. Report any shortages or damaged parts immediately.

Part Number	Description	Quantity	Part Number	Description	Quantity
2E228-180	V-2 Supercharger Assembly	1	4GM020-030	MAF Buffer	1
2E128-240	Supercharger	1	4GM112-020	Air Discharge Assembly	1
7U100-070	3/16" x 3/16" x 7/8" Key	1	7R002-044	#44 Hose Clamps	3
2A040-011	Pulley Retainer	1	7R002-052	#52 Hose Clamp	1
7B375-125	3/8"-24 x 1-1/4" HX Bolt	1	8D001-001	Bypass Valve	1
7K375-040	3/8" AN960 Flat Washer	1	7R002-016	#16 Hose Clamps	4
2A036-361	6 Rib Pulley	1	7P156-082	5/32" Tee	1
4GM111-021	Mounting Bracket Assembly	1	7U030-046	5/32" x 24" Vacuum line	1
4GD011-032	Belt Tensioner	1	4GM012-020	Air Discharge Tube	1
7A375-124	3/8"-16 x 1-1/4" HH Cap Screws	2	7U050-000	1" x 6" Heater Hose	1
7K375-040	3/8" AN960 Flat Washers	16	7S275-200	2-3/4" x 2" Sleeve	1
7A375-100	3/8"-16 x 1" HXHD Bolts	5	7S350-275	2.75-3.5 Reducer	1
7A375-275	3/8"-16 x 2-3/4" HX Cap Screws	2	7U375-054	3/4" Vinyl Cap	1
7U133-024	5/8" Molded Elbow Hose	1	7U038-000	1" x 3" Heater Hose	1
7P625-002	5/8" Hose Barb	1	7P500-156	1/2" Vacuum Tee x 1/4" NPT	1
7R001-008	#8 Hose Clamps	3	4GM010-060	Vortech Discharge Support	1
5W001-007	3/16" x 6" Heat Shrink Tube	1	7R001-008	#8 Hose Clamps	2
7U100-055	Tie Wraps	3	7P250-033	1/4" Reducer	1
2A046-112	Belt	1	7P250-039	1/4" NPT x 1/4" Fitting	1
4GM011-021	Mounting Bracket	1	7U030-030	1/4" x 3" Vacuum Hose	1
4GM010-033	Mounting Plate	1	4GM130-026	Oil Feed Line Assembly	1
5W022-120	12" 22GA. Std. Brown Wire	1	7U030-026	1/4" x 65" Oil Feed Hose	1
7A375-075	3/8-16 x 3/4" HXHD Bolts	6	7P525-067	.525" Crimp Ferrules	2
7A250-050	1/4-20 x 1/2" SH Cap Screw	1	7P250-066	#4 Swivel x 1/4" Hose Barb Fittings	2
7J250-001	1/4" SAE Washer	1	7P250-080	1/4 NPT Elbow 90°	1
5W001-005	3/8" x 12" Plastic Wire Loom	1	7P125-103	-4 x 45° 1/8" NPT Male Elbow	1
4GM010-050	Heat Shield	1	7U100-055	Tie Wraps	2
7A375-101	3/8 x 1" Socket Head	1	7P250-036	-4 Flare to 1/4" NPT	1
4FA016-170	Wide Idler	1	7P250-123	1/4" NPT x 1-1/2" Nipple	1
4FD017-011	Idler Spacer	1	7S625-000	Mylar Fire Sleeve	1
7C012-050	M12 Bolt	1	4GM101-002	Fuel Pump Assembly	1
4FA016-171	Dust Cover	1	5W001-001	Wire Tap	1
4FH016-150	Flanged Idler	1	5W001-002	Fuse Tap	1
4GM016-150	4" Idler	1	5W001-010	16-14 GA. Female Slides	3
7C010-066	M10 Bolt	1	5W001-011	16-14 GA. Eyelets	2
7K437-001	7/16 AN Washer	1	5W001-014	Fuse Holder	1
4GM112-010	Air Intake Assembly	1	5W001-015	20 amp Blade Type Fuse	1
8H040-010	Air Filter	1	5W001-017	Large Ring Terminal	1
7S350-200	3-1/2" x 2" Sleeve	1	7C011-075	10-32 x 3/4" HXHD Cap Screws	2
7R002-056	#56 Hose Clamps	4	7F010-032	10-32 Nylock Hex Nuts	2
7U100-056	90° Vent Tube	1	7J010-001	#10 Flat Washers	4
7U030-060	3/4" x 5/8" -180° Molded Hose	1	7P625-001R	Fuel Fitting Adapter	1
7P375-020	3/8" NPT x 5/8" Straight Hose Barb	1	7R001-008	#8 Hose Clamps	2
7U100-055	Tie Wraps	4	7U030-050	12mm x 16" Fuel Hose	1
4FA012-013	90° Intake Elbow w/Boss	1	7U100-055	6" Nylon Tie Wraps	4
7P750-102	3/4" NPT x 1" 90° Hose Fitting	1	8F001-002	155 Inline Fuel Pump	1
7U035-000	3-1/2" x 6" Flex Hose	1	7R003-024	1-1/2" Adel Clamp	1
7R002-052	#52 Hose Clamps	2	8F101-200	T-Rex Wiring Assembly	1
7E010-046	#8 x 3/4" Sheet Metal Screws	2	7F008-020	M8 x 1.25 Nut	1
4GM012-040	Air Box	1	5W001-019	12-10 GA. Solderless Connector	1
4GM012-050	Fender Adapter	1	7U031-018	5/16" x 20" Fuel Hose	1
4GB012-010	Air Filter Cover	1	7R004-003	14.5 Stepless Clamps	2
4GM012-060	Airbox Clamp	1	7P250-124	1/4" NPT to 1/2" Barb	1
4GM012-070	Airbox Clamp Support	1	7P250-042	1/4" NPT x 3/8" Compressor Fitting	1
7C080-016	8mm x 1.25 x 16 HXHD Bolts	2	7P250-043	1/4" NPT x 5/16" Barb	1
7J312-000	5/16" SAE Flat Washers	2	7E010-075	#12 x 3/4" HXHD Sheet Metal Screw	1
4CJ017-051	Spacer Support	1	4GM238-068	FMU With Lines	1
7E014-015	#14 x 1.5" HXHD Sheet Metal Screw	1	6Z110-114	8:1 Fuel Management Unit	1
7P375-052	3/8" NPT x 90° x 5/8" Barb	1	7P525-067	.525 Crimp Ferrules	4
7P625-002	5/8 Hose Mender	1	7P250-036	-4 Flare to 1/4" NPT	2
7U033-000	5/8 x 10" Hose	1	7P156-082	5/32" Tee	1
4GM130-036	Oil Drain Assembly	1	7U030-046	5/32" x 65"	1
7R001-008	#8 Stainless Hose Clamps	2	7U030-016	1/4" x 36" Fuel Line	1
7P375-017	3/8" NPT x 1/2" Straight Hose Barb	1	7U030-016	1/4" x 22" Fuel Line	1
7U030-036	1/2" x 34" Oil Drain Hose	1	7E010-075	#12 x 3/4" HXHD Sheet Metal Screws	2
7U100-055	Tie Wraps	2	7P250-041	1/4" NPT x 5/16" Compression Fittings	2
7P375-045	45° Street Elbow	1	7P250-066	-4 Swivel x 1/4" Hose Barb Fittings	4
			7U100-044	4" Nylon Tie Wraps	6

SPECIAL NOTICE CONCERNING THE
*Carroll Supercharging
MAF Signal Massager*

The MAF Signal Massager, manufactured by Carroll Supercharging Co., Inc. is serviced exclusively by the manufacturer. Carroll Supercharging Co., Inc. warrants this product to be free from defects in material and workmanship under normal use and if properly installed for 90 days. In case of malfunction, this unit will be repaired free of charge according to the terms of the warranty. If found to be defective as mentioned above, it will be repaired or replaced if returned prepaid along with proof of date of purchase. This shall constitute the sole remedy of the purchaser and the sole liability of Carroll Supercharging Co., Inc. and/or Vortech Engineering, Inc. To the extent permitted by law, the foregoing is exclusive and in lieu of all other warranties or representations whether expressed or implied, including any implied warranty of merchantability or fitness. In no event shall Carroll Supercharging Co., Inc. and/or Vortech Engineering, Inc. be liable for labor charges, special or consequential damages.

When returning this unit for service, proof of purchase must be supplied for warranty verification. Please send the unit pre-paid with proof of purchase to the attention of:

Carroll Supercharging Co., Inc.
Customer Service Department
14 Doty Rd.
Haskell, NJ 07420
(973) 835-1705
(973) 835-1660 Fax
www.carrollsupercharging.com

The repaired unit will be returned as soon as possible after receipt, COD for any charges. Be sure you include a detailed account of any problems experienced, the type of vehicle and any modifications.

Should you have any technical or installation questions regarding this unit, contact Vortech Engineering, Inc. directly at (805) 247-0226.



1. COMPONENT REMOVAL

- A. Disconnect the negative battery cable from the battery.
- B. Remove and set aside the following components:
 - The entire air inlet/filter box assembly, including the throttle body resonator.
 - The crankcase vent tube from the right side (passenger) valve cover.
 - The accessory drive belt.
 - The tensioner and idler from the alternator mounting bracket.
 - The alternator and bracket.
 - The 3/8" stud protruding from the right side cylinder head.
- C. Drain approximately one gallon of coolant from the radiator into a clean container.
- D. Remove the formed section of rubber/aluminum hose running from the water pump to the heater core hose. (See *Fig. 1-a*.) The heater core hose will be reconnected to a new hose in step 9.

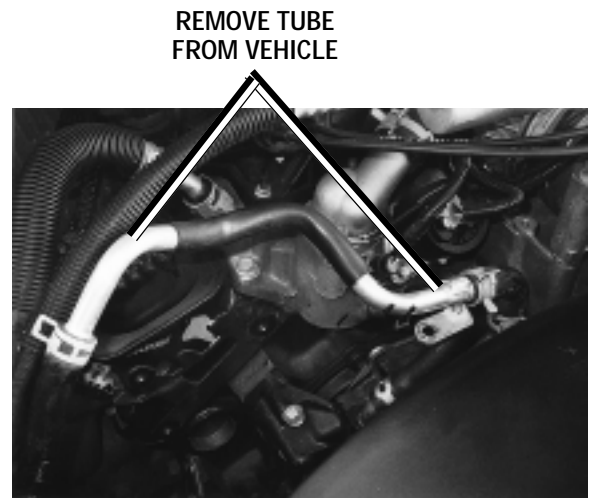


Fig. 1-a

2. OIL DRAIN

- A. To provide an oil drain for the supercharger, it is necessary to make a hole in the oil pan. Locate and mark hole (see *Fig. 2-a*). It is best to punch the hole rather than drill.

NOTE: Removal of the oil pan may ease oil drain fitting installation on some applications.

- B. Remove the two factory anti-roll bar brackets from the frame and allow the bar to temporarily drop down. Unplug the factory crank trigger connector from the sensor located in the timing cover.

NOTE: The factory transmission cooler lines may require bending to clear the supercharger oil drain hose.

- C. Remove paint around the hole area.
- D. Use a small center punch to perforate the pan and expand hole, switch to a larger diameter punch and expand the hole further to approximately 9/16" diameter. Most punches are made from hexagon material and may be placed in a socket with an extension to make this procedure easier. Use caution so that the hole is not enlarged too much and punch does not contact the crankshaft.

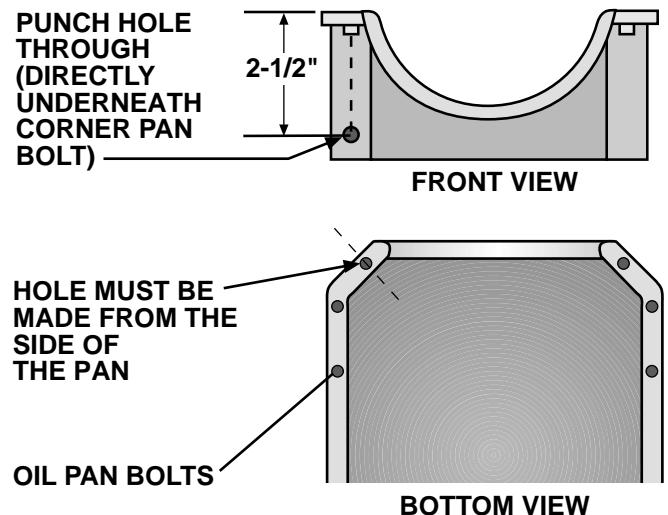


Fig. 2-a

2. OIL DRAIN, cont'd.

- E. Tap the hole with a 3/8" NPT tap approximately 1/4" deep. Pack the flutes of the tap with heavy grease to hold chips. Use a small magnet to check for any stray chips.

NOTE: This method of rolling over the lip of the hole and tapping works very well if carefully done and should cause no problems.

- F. Thoroughly clean the threaded area. Apply a small amount of silicone sealer to the new threads. Apply more sealer to the supplied 3/8" NPT x 45° elbow and secure in hole. Make sure a seal is formed all around the fitting. Install the supplied 3/8" NPT x 1/2" barb fitting. Rotate the fitting assembly so that the oil drain hose (installed in step 5) can be easily routed to it.
- G. Drain the engine oil, install a new filter and refill with fresh oil.
- H. Reattach anti-roll bar and crank trigger connector.

3. OIL FEED

- A. The supercharger uses engine oil for lubrication and must have an oil feed line connected to a filtered oil access on the engine.
- B. Remove the 1/4" NPT plug located on the engine block just above the oil filter boss. Replace the plug with the supplied 1/4" NPT x 1.5" nipple, 1/4" NPTF x 90° elbow and 1/4" NPT x -4 flare fitting (see Fig. 3-a).

NOTE: Use clean engine oil on the pipe threads. Teflon tape and sealant is not recommended, as it might loosen and cause blockage of the small oil feed orifice resulting in supercharger failure.

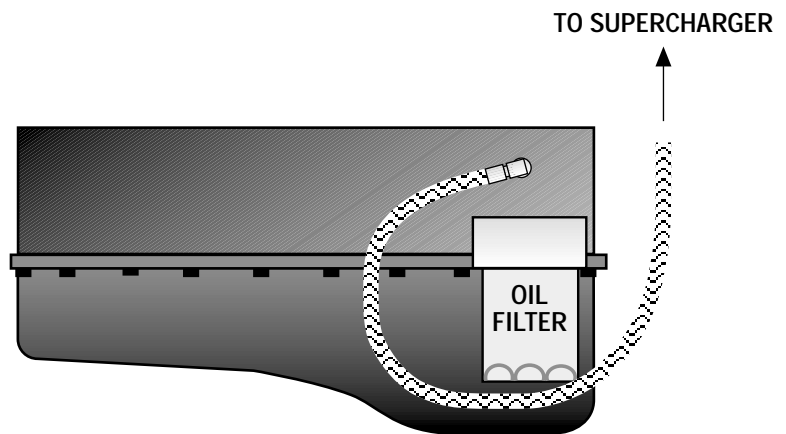


Fig. 3-a

- C. Connect the supplied feed line to the flare fitting (make sure that the silver fire sleeve has been slid onto the feed line to protect from radiant exhaust heat) and make a gentle downward loop around and back up to the rear of the engine (see Fig. 3-a). Secure the hose with the tie wraps provided, routing it away from exhaust heat, chaffing and/or sharp objects. Temporarily cover the open end from debris until the connection is made to the supercharger in step 5.

4. MAIN BRACKET

- A. To accommodate the relocation of the alternator onto the new main bracket, the brown field wire must be extended approximately 12". Proceed by cutting the wire approximately 4" from the factory plug that attaches to the alternator. Splice the supplied piece of brown wire into the cut wire by soldering. Use the supplied piece of heat shrink tubing to seal the joints. Re-wrap the wire/harness with the supplied length of plastic flex-loom.
- B. The transmission cooler lines must be bent downward as far as possible (toward the frame) to obtain alternator clearance. Rotate the lower radiator hose clamp (at the water pump) 90° toward the front (the clamp tabs should be facing the front of the vehicle).
- C. Attach the supplied stainless steel heat shield onto the rear of the Vortech main bracket using the supplied 1/4" hardware (see *Fig. 4-a*).
- D. Place the mounting bracket on the front of the passenger side cylinder head. Line up the bracket with the holes on the front of the head and block and start the 3/8-16 socket head bolt into the lowest bracket hole. Install the two 3/8-16 x 1.25" bolts and washers into the two remaining upper holes. Torque the three bolts evenly.
- E. Reattach the field wire and positive wire to the alternator (make sure that the large positive wire has the factory rubber boot properly secured to prevent arcing to the heat shield). Using the supplied 3/8-16 x 2.75" bolts and washers, attach the alternator to the main bracket. Secure all alternator wiring from heat and sharp objects.
- F. Align the supercharger mounting plate with the bracket and secure with the supplied 3/8-16 x 3/4" bolts and AN washers.
- G. Mount the supplied automatic belt tensioner onto the main bracket. (See *Fig. 4-b*.) Rotate the unit so that the small alignment pins fall into the corresponding holes in the bracket. Secure the tensioner using the supplied M10 bolt.



Fig. 4-a - Stainless Steel Heat Shield.

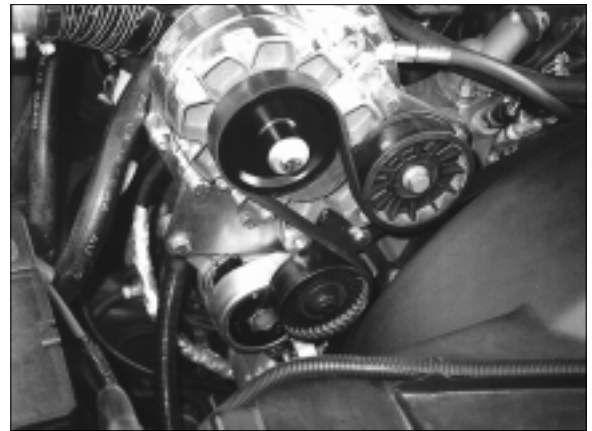


Fig. 4-b

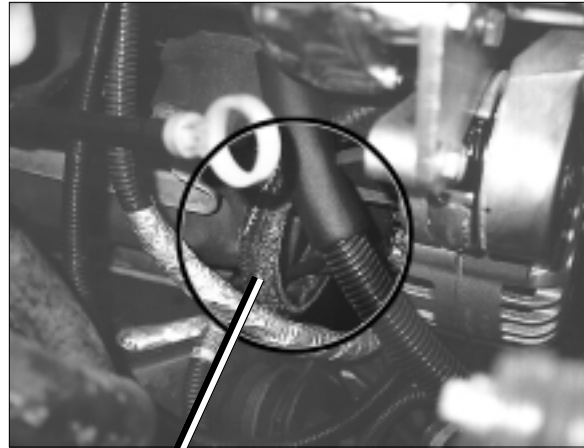
5. SUPERCHARGER INSTALLATION

NOTE: Before the supercharger can be installed onto the bracket, it will be necessary to carefully bend the aluminum air conditioning line running over to the passenger side of the vehicle. A minor bend pushing the line toward the rear is all that is required.

- A. Attach the 1/2" oil drain hose to the supercharger and secure with the #8 hose clamp.
- B. Route the hose down the rear of the main bracket while lowering the supercharger into the proper mounting location on the plate. Be sure that the oil drain hose remains unknicked with smooth bends. (See Fig. 5-a.)
- C. Using the five supplied 3/8-16 x 1" bolts and AN washers, secure the supercharger to the mounting plate.
- D. Route the oil drain hose around the main casting and down to the fitting in the oil pan. Make sure that the hose runs below the positive alternator lug, but still remains running "downhill". It is very important that the oil drain hose is free from restrictions, tight bends, kinks or any other drain obstructing conflict. Route the hose away from direct exhaust heat. Trim hose length if necessary and secure to the oil pan with the supplied #8 hose clamp.
- E. Attach the 1/8 NPT x 45° brass fitting to the supercharger oil feed. Use a 1/2" wrench to hold the feed fitting while tightening the 45° fitting. Attach the oil feed hose to the supercharger.

WARNING: The oil system contains a small orifice that is easily plugged. Do not use any type of sealant on any of the threads. Instead, use clean engine oil. Disassemble and blow out the entire line if there is any question.

- F. Using the tie wraps provided, secure the feed and drain systems away from heat and/or sharp objects.
- G. Using the supplied spacer, bolt and dust shield, mount the supplied 3" idler pulley (non-flanged) to the boss on the supercharger. (See Fig. 4-b.)



OIL DRAIN
HOSE

Fig. 5-a

6. SUPERCHARGER/ACCESSORY DRIVE BELT

- A. Separate the spacer and hardware from the factory idler removed in step 1. Using the supplied flanged idler and spacer with hardware mentioned above, secure the idler to the threaded boss located on the face of the air conditioner compressor pump mounting bracket. (See *Fig. 6-a*.)
- B. Route the supplied belt as shown in the graphic. Belt installation is easiest when the water pump is the last pulley to be mounted (the radius on the edge of the water pump pulley allows the edge of the belt to slide over it).

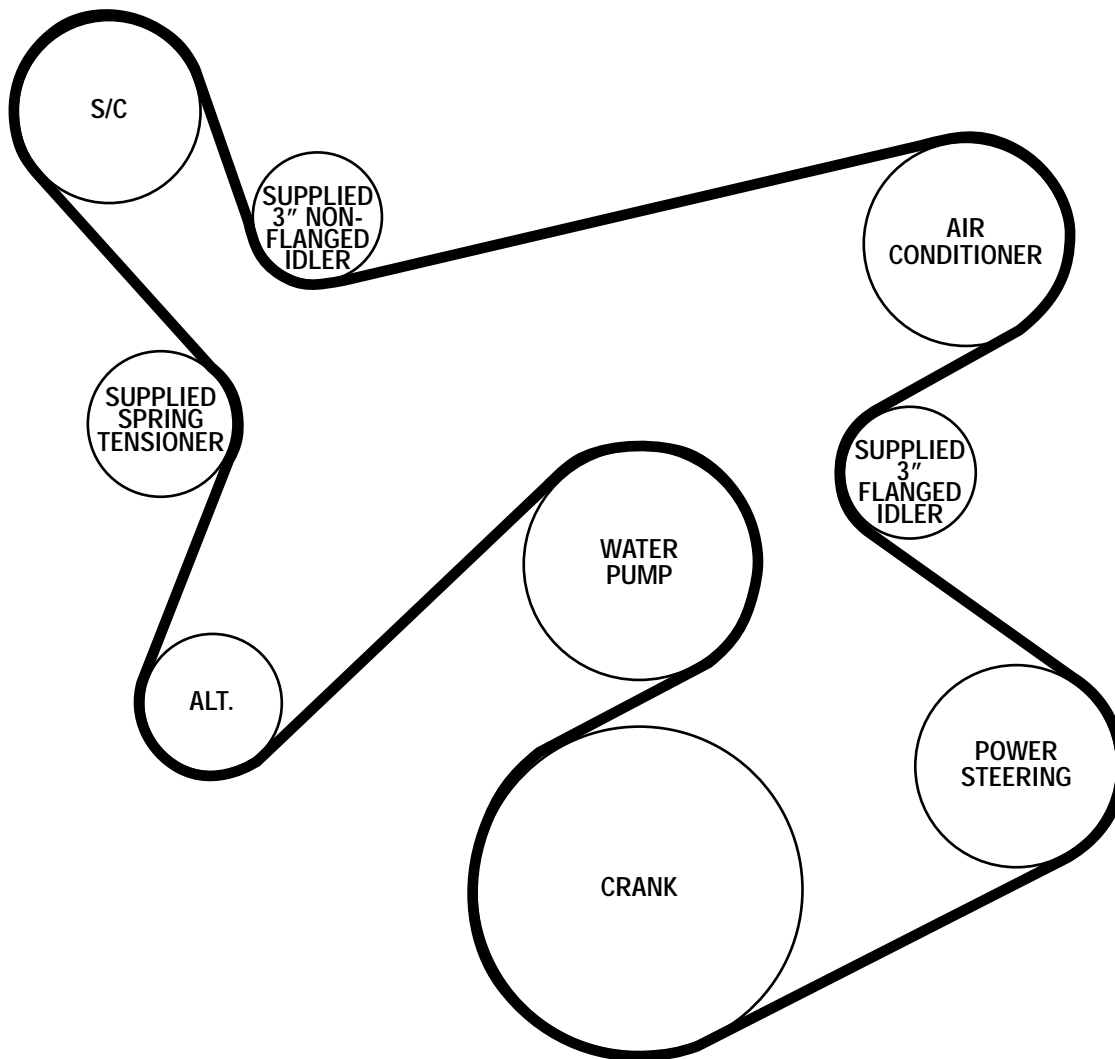


Fig. 6-a

7. SUPERCHARGER AIR INLET

- A. Install the 1" x 90° plastic fitting into the supplied 90° x 3.50" plastic inlet elbow. Attach the elbow to the supercharger using the silicone sleeves and #56 hose clamps.
- B. Assemble the new air filter housing along with air filter and end cap. Fit the end housing with the air filter element provided, to the new filter housing. Secure the end by drilling two 3/32" holes (transfer the hole location from the end cover to the housing) and fasten with the screws provided. Attach the filter housing/assembly to the steel inner fender using the supplied GM adapter, clamp, spacer, support and 6mm bolts with washers. (See Fig. 7-a.)
- C. Attach the factory MAF sensor to the new filter housing using the supplied silicone sleeve and #56 hose clamps. The MAF sensor is directional, so make sure that the "flow" arrow is pointed to the supercharger. Connect the MAF to the supercharger inlet elbow with the supplied length of flex hose and #52 hose clamps.
- D. Install the factory air temperature sensor and grommet into the hole located in the plastic supercharger air inlet elbow. Reattach the factory connector to the sensor. Following Fig. 7-b, splice the supplied MAF buffer in between the factory MAF plug and the MAF meter. Mount the buffer unit inside the engine compartment on the inner fender using the supplied Velcro strips. Make sure the unit is away from heat. Removing the plastic nut retaining the main harness to the firewall allows proper slack in the wire.
- E. Install the supplied 3/4" vent adapter into the factory rubber grommet located on the right side valve cover. Rotate the vent adapter so that it points toward the rear of the vehicle. Attach the 3/4" end of the supplied 180° rubber hose to the vent adapter. Attach the supplied length of 5/8" hose and the 5/8" hose splice to the 90° x 5/8" barb located on the top of the supercharger inlet elbow. Connect the 180° rubber hose to the inlet elbow hose. Trim excess hose length.

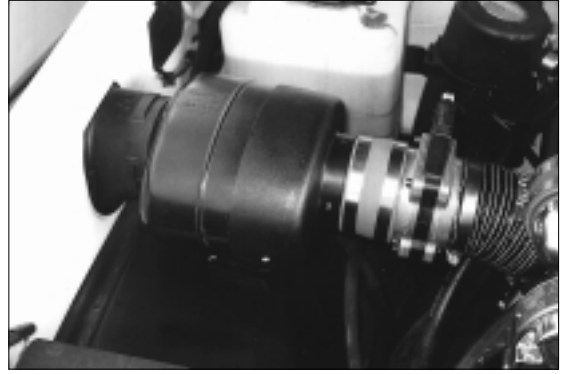


Fig. 7-a

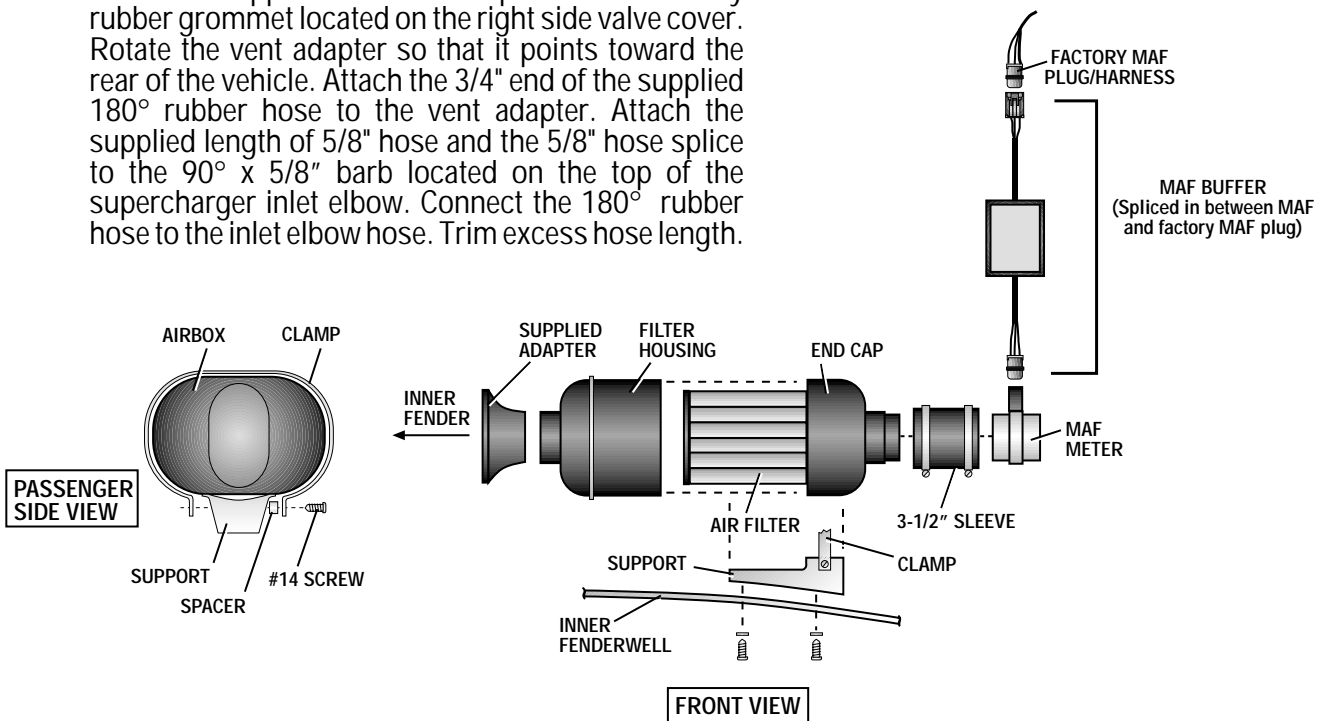


Figure: 7-b

8. SUPERCHARGER DISCHARGE

- A. Following *Fig. 8-a*, attach the supplied discharge support between the VORTEC plenum and the throttle body duct. Sandwich the dogleg end of the support in between the #56 hose clamp and the reducer sleeve. Make sure that the circular end of the support is up flush against the bottom of the plenum.
- B. Attach the discharge tube between the supercharger and the throttle body plenum using the supplied 3.5-2.75 reducer, 2.75 sleeve, #56 and #52 hose clamps.
- C. Following *Fig. 8-b*, connect the 1" x 6" and 1" x 3" hoses to the supplied supercharger bypass valve and secure with #16 hose clamps. Attach the bypass valve/hose assembly to the bung located on the discharge tube and the plastic 1" fitting located on the inlet elbow (make sure that the bypass valve nipple is pointing down when installed). (See *Fig. 8-c*.) Secure with #16 hose clamps.
- D. Remove the 1/2" brake booster vacuum line from the intake manifold fitting and cut approximately 2" off the end. Splice the supplied adapter TEE into the brake booster line. Run the supplied piece of 1/4" vacuum hose from this TEE to the reducer, and connect the 5/32" hose to the nipple located on the bottom of the supercharger bypass valve. (See *Fig. 8d*.)
- E. Attach the supplied 3/4" vacuum cap to the open barb located on the factory throttle body duct (previous crankcase vent tube location). Secure with supplied tie wrap.



Fig. 8-a



Fig. 8-b

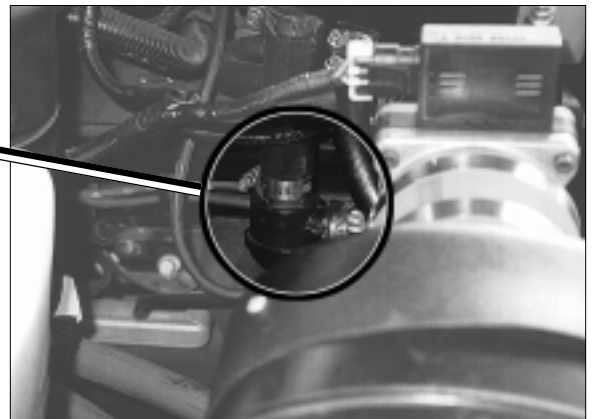


Fig. 8-c

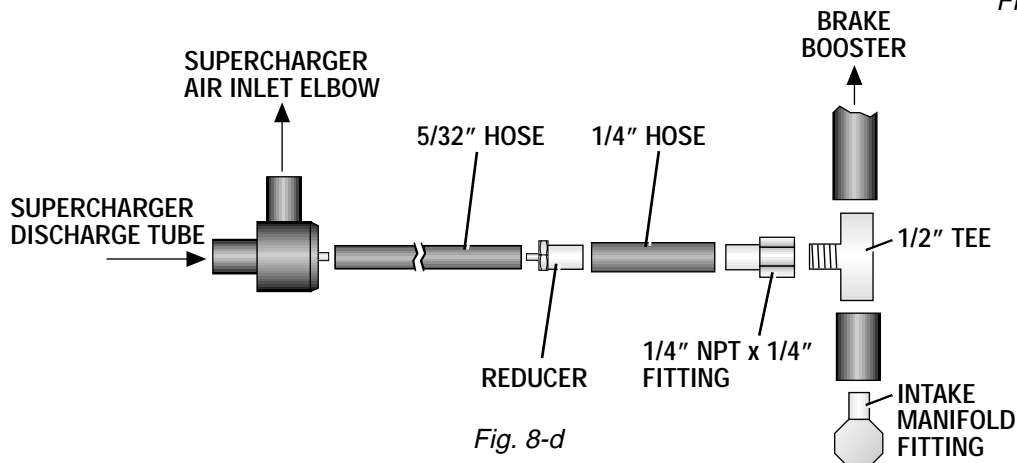
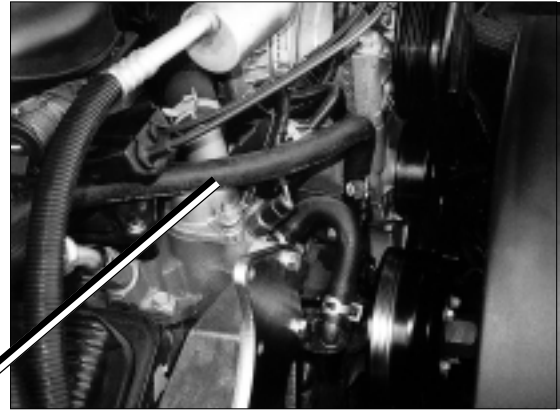


Fig. 8-d

9. HEATER HOSE EXTENSION

- A. Attach the supplied 5/8" x 24" pre-bent 90° hose to the top water pump fitting (points straight up) and secure using the factory clamp.
- B. Route the new hose over to the existing factory heater hose modified in step 1. (See Fig. 9-a.) Join the two hoses together using the supplied 5/8" coupling and #8 hose clamps.
- C. Refill the cooling system with the previously drained coolant.



INSTALL NEW HOSE

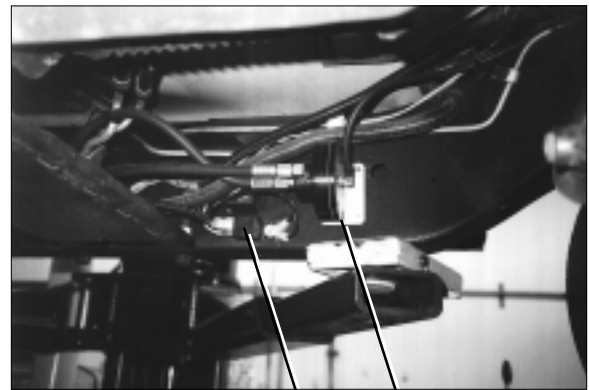
Fig. 9-a

10. FUEL MANAGEMENT UNIT

- A. Position the fuel management unit (FMU) on the inside of the vehicle frame, underneath the driver seat. (See Figs. 10-a, 10-b.) Mark and drill two #16 holes. Secure the FMU using the supplied #12 hex head screws.
- B. Separate the factory 5/16" fuel rail return line at the compression fitting junction underneath the vehicle near the fuel filter. Attach the supplied -4 flare fitting adapters to each end of the open return line (one fitting will point toward the rear, and one toward the front). Connect one end of the supplied 22" FMU hose to the return line running back to the tank, and the other end to the straight fitting on the center of the FMU. Connect one end of the remaining 36" FMU hose to the return line coming from the fuel rail, and the other end to the 90° fitting on the side of the FMU (see Fig. 10-c).
- C. Secure the lines away from abrasion using the supplied tie wraps.
- D. Tap into the supercharger bypass valve vacuum hose using the supplied 65" long length of hose and 5/32" brass TEE. Route the hose in a manner that will keep it away from exhaust heat and will allow gentle bends without pinching. Attach the hose end to the lid of the FMU.



Fig. 10-a



FUEL PUMP HARNESS FMU HARNESS

Fig. 10-b

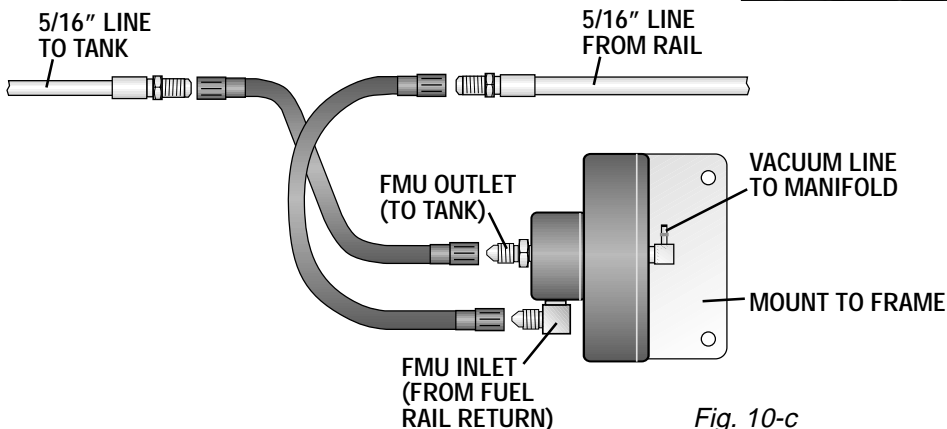


Fig. 10-c

11. SUPPLEMENTARY FUEL PUMP AND HARNESS

- A. Separate the factory 3/8" fuel rail supply line at the compression fitting junction underneath the vehicle just to the rear of the fuel filter.
- B. Attach the supplied 1/2" hose to 3/8" compression fitting to the line coming from the fuel tank. Connect the supplied length of 1/2" fuel hose to the 1/2" fitting previously installed and the remaining end to the supplied inline pump. Secure with a #8 hose clamp.
- C. Attach the discharge end of the fuel pump to the line running into the fuel filter (use the supplied 5/16" hose to 3/8" compression fitting). Position the pump in such a way that the inlet and discharge hoses are not kinked or restricted and maintain a gentle bend. The pump inlet is the most critical as far as restriction is concerned and may be trimmed if necessary to hold a smooth radius. Make sure that all fuel pump hose connections are secure.
- D. Mount the fuel pump to the frame using the 1.5" adel clamp. Position the clamp and drill a #16 hole. Secure using a #12 hex head screw.
- E. Using the existing hole in the frame and supplied #10 hardware, mount the relay to the vehicle frame (see Fig. 11-b and Fig. 10-b in section 10). The relay mounting hole will also work well as a grounding point for the pump and relay. Scrape away the frame coating and paint to provide a proper ground connection. Make sure that the pump and relay grounding terminals are mounted **under** the relay as opposed to **on top** so that a metal-to-metal contact will be made.

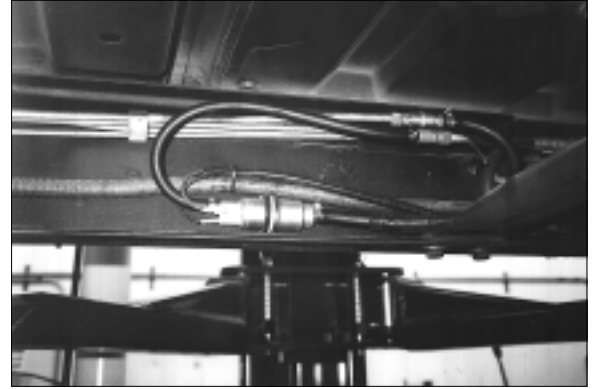


Fig. 11-a

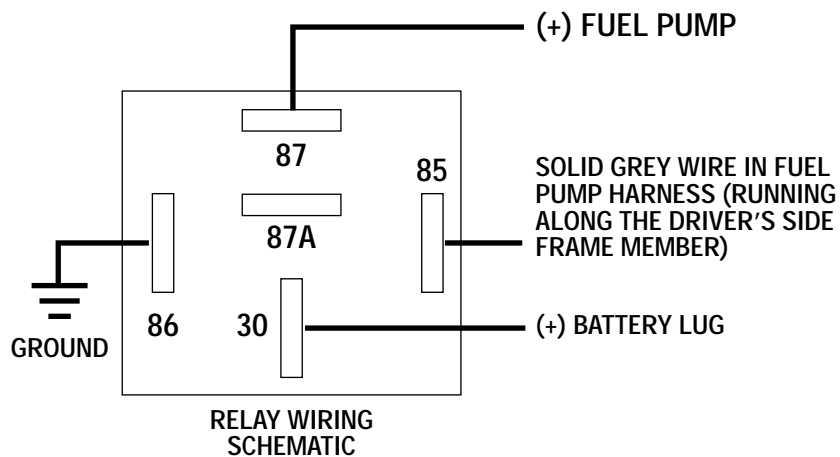


Fig. 11-b

11. SUPPLEMENTARY FUEL PUMP AND HARNESS, cont'd.

- F. Wire the fuel pump and relay (see *Fig. 11-c*). Use the supplied tie wraps to run the wire and keep it away from heat/abrasion. Use the supplied 8mm nut to connect the main power lead on the relay to the main power lead on the relay to the factory fuse/power box underhood (the factory has provided two open power lugs under the power box cover). Tap the yellow relay wire (terminal #87) into the solid gray wire in the harness running along the driver side frame member. Use the supplied wire tap.

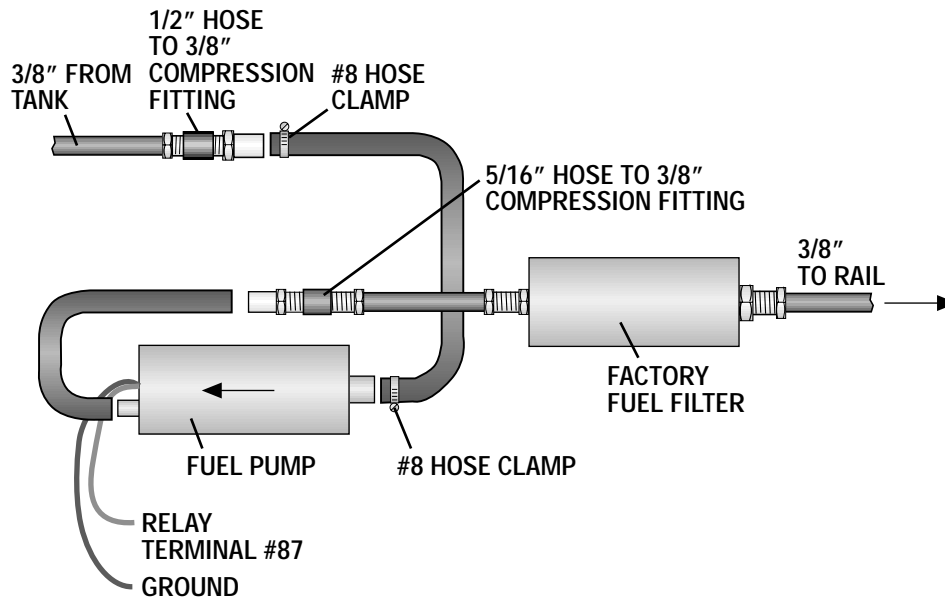


Fig. 11-c

12. FINAL CHECK

- A. If your vehicle has gone over 10,000 miles since its last spark plug change, you will need to change the spark plugs now before test driving the vehicle.
- B. Check all fittings, nuts, bolts and clamps for tightness. Pay particular attention to oil and fuel lines around moving parts, sharp edges and exhaust system parts. Make sure all wires and lines are properly secured with clamps or tie wraps. (See Fig. 12-a.)
- C. Check all fluid levels, making sure that your tank(s) is/are filled with 92 octane or higher fuel before commencing test drive.
- D. Start engine and allow to idle a few minutes, then shut off.
- E. Recheck to be sure that no hoses, wires, etc. are near exhaust headers or moving parts and for signs of any fluid leakage.
- F. **PLEASE TAKE SPECIAL NOTE:** Operating the vehicle without all sub assemblies completely and properly installed and working may cause **FAILURE OF MAJOR ENGINE COMPONENTS.**
- G. Test drive the vehicle.
- H. Read the **STREET SUPERCHARGER SYSTEM OWNER'S MANUAL AND RETURN THE WARRANTY REGISTRATION FORM** within thirty (30) days of purchasing your supercharger system to qualify.

WARNING: *Do not attempt to operate the vehicle until ALL components are installed and ALL operations are completed including final check.*

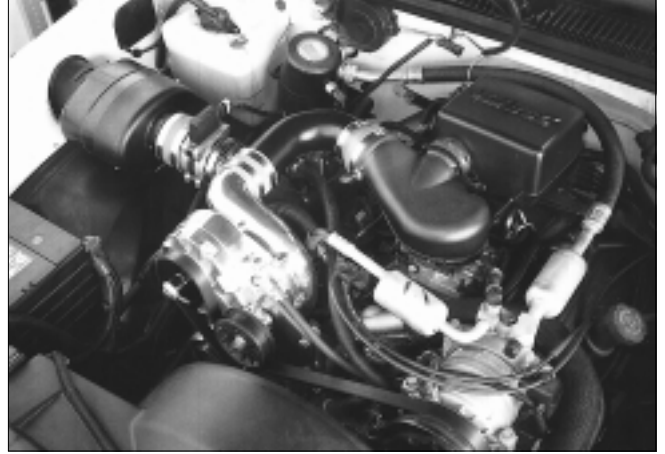


Fig. 12-a



ENGINEERING, INC.

1650 PACIFIC AVENUE • CHANNEL ISLANDS, CA 93033-9901 • (805) 247-0226
FAX (805) 247-0669 • www.vortechsuperchargers.com • M-F 8:00 AM - 4:30 PM PST