# OWNER'S MANUAL

## 1999-2002 GM LS1 F-BODY SYSTEM, 1998-2002 TUNER KIT

# PROCHARGER®

*Centrifugal Supercharger Systems*

*The Intercooled Supercharging Experts!®*

PROCHARGER
ACCESSIBLE TECHNOLOGIES, INC

PROCHARGER
ACCESSIBLE TECHNOLOGIES

| Torque Specification Chart | Grade 5 Torque (lb.ft.) | | | Grade 8 Torque (lb. ft.) | | |
|---|---|---|---|---|---|---|
| Thread Size | Unplated | Plated | Lubricated | Unplated | Plated | Lubricated |
| 1/4-20 | 11 | 8 | 7 | 16 | 12 | 10 |
| 1/4-26 | 13 | 10 | 8 | 18 | 14 | 11 |
| 5/16-18 | 23 | 17 | 14 | 33 | 25 | 20 |
| 5/16-24 | 26 | 19 | 15 | 36 | 27 | 22 |
| 3/8-16 | 41 | 31 | 25 | 58 | 44 | 35 |
| 3/8-24 | 47 | 35 | 28 | 66 | 49 | 39 |
| 7/16-14 | 66 | 49 | 40 | 93 | 70 | 56 |
| 7/16-20 | 74 | 55 | 44 | 104 | 78 | 62 |
| 1/2-13 | 101 | 75 | 60 | 142 | 106 | 85 |
| 1/2-20 | 113 | 85 | 68 | 160 | 120 | 96 |

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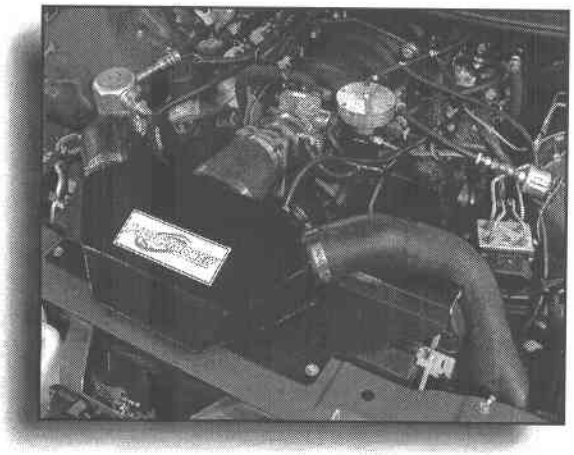
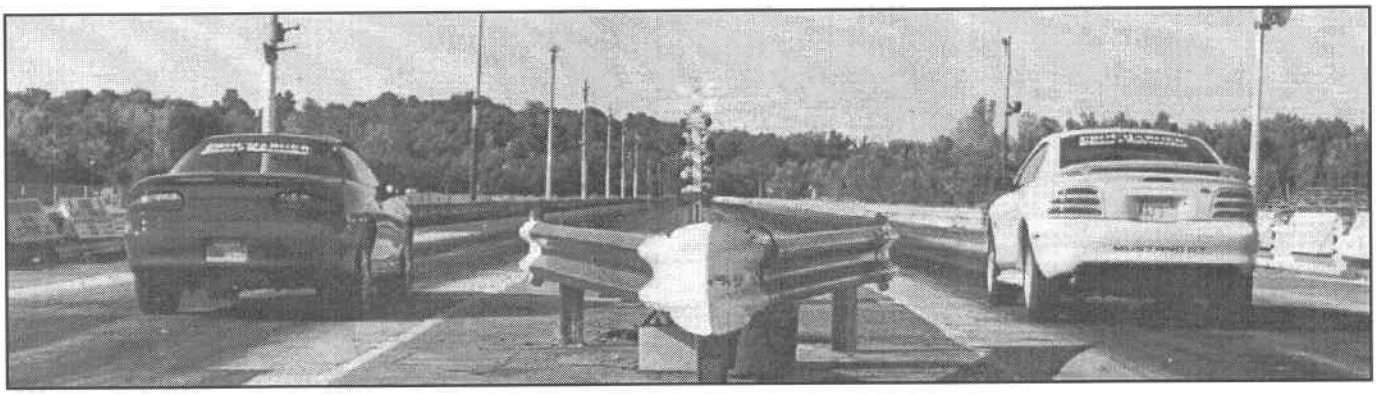





* HO Intercooled System Only (Not Applicable to Tuner Kit)

# A. INTRODUCTION

Congratulations on the purchase of your ProCharger® Blown+Intercooled centrifugal supercharger system, and welcome to the world of intercooled supercharging. You are now the owner of the most powerful and reliable supercharger system available, and the latest technology in supercharging!



If you are performing the installation of this system and this is your first ProCharger installation, you will likely benefit from reading the entire installation instructions prior to proceeding and then reviewing each section as you go. If you are familiar with supercharging, remember that intercooled supercharging is different from non-intercooled supercharging, and the same rules do not necessarily apply, primarily due to the unparalleled boost and airflow generated by the ProCharger and the vastly cooler intake temperatures that result from intercooling this boost. Additionally, based on feedback from our customers and our own experiences, you should start preparing yourself for accusations of having engine modifications far beyond your actual setup, having nitrous, and/or running racing fuel rather than pump gas.

Once your system is installed and dialed in, you will experience a performance gain that is approximately double that delivered by non-intercooled supercharger systems. Because of this, when racing blown cars that are not intercooled, not only will you be able to embarrass vehicles with modifications far exceeding your own, the owners of these vehicles and others will likely find it hard to understand what has happened, based on the magnitude of your superior performance and their own experiences with non-intercooled supercharging. As more and more people begin to understand that intercooling basically separates the men from the boys, not only because of the benefits of intercooling, but because you must also have a real gear-driven supercharger to blow through an intercooler, such misunderstandings will become less and less frequent. For now, though, you will just have to grin and bear it.

## B. Installation Overview

To obtain the best results from your ProCharger system, we recommend reviewing the installation instructions beforehand, and following the installation instructions closely and in sequence. A detailed packing list has been provided (stapled to your invoice) to assist you in identifying the components of your ProCharger system. The following tools will be required to install your ProCharger system:

### REQUIRED TOOLS

- 3/8" SOCKET SET (STANDARD & METRIC)
- 1/2" SOCKET SET (STANDARD & METRIC)
- 1/2" BREAKER BAR AND 4" EXTENSION
- ADJUSTABLE WRENCH
- OPEN END WRENCH SET (STANDARD & METRIC)
- DRILL AND DRILL BIT SET
- NEEDLE NOSE PLIERS
- SPARK PLUG SOCKET*
- FLAT SCREWDRIVER
- PHILLIPS SCREWDRIVER
- LARGE SCREWDRIVER OR CROWBAR
- FACTORY REPAIR MANUAL
- HEX BIT SET
- TORX BIT SET
- 8 SPARK PLUGS (NOT PLATINUM PLUGS)*
- FUEL FILTER**

*IF CURRENT PLUGS HAVE MORE THAN 10,000 MILES, ARE MORE THAN 1 YEAR OLD, OR ARE PLATINUM.
**THE FUEL FILTER SHOULD ALSO BE REPLACED AT THIS TIME.

Ideally, you should also have the following gauges available to properly check the finished installation and monitor your vehicle's performance (especially for racing applications):

- manifold boost pressure gauge (vacuum - 15psi)
- fuel pressure gauge (0-100 psi)

Both gauges should be of a type that can be read by the driver while performing a W.O.T. road test. Cockpit or hood-mounted gauges are preferable, although use of a shop fuel pressure gauge (which has a hose long enough to allow the gauge to be secured to the windshield during testing) is also acceptable. In order to obtain usable readings, the gauges must be installed to read air pressure inside the intake manifold and fuel pressure inside the fuel rail.

⚠ **CAUTION: Never use a mechanical fuel pressure gauge inside the vehicle without a fluid seperator, which will keep the fuel isolated to the engine compartment. Serious bodily injury or death could result from fuel inside the vehicle interior.**

The engine on which the ProCharger is to be installed must retain the factory compression ratio. If it has been modified in any way, please consult ATI's technical staff before proceeding with the installation. This supercharger system is intended for use on strong, well maintained engines. Installation on a worn or troublesome engine should be reconsidered. **Accessible Technologies will not be held responsible for damage to an engine or powertrain component.**

⚠ **WARNING: Read and understand all safety precautions in this manual before installation. Failure to comply with instructions in this manual could result in personal injury, property damage, and/ or voiding your warranty.**

## C. PREPARATION

*Completion of this section will configure the vehicle for system installation*

1. Remove gas cap to relieve fuel tank vapor pressure.
2. Remove the fuel pump fuse from fuse block. Crank the engine for a few seconds (the engine will not start) to bleed fuel pressure from the fuel lines. Replace the fuse.
3. Disconnect the negative battery cable from the battery.
4. If the vehicle has had any modifications done to the Powertrain Control Module (computer) other than the original factory programming, return the computer to factory settings before proceeding.

⚠ **WARNING: Aftermarket chips/programmers for naturally aspirated motors advance timing at elevated RPM's; this will cause detonation and engine damage if used with a supercharger.** Many aftermarket chips/programmers also extend your rpm range. Since boost is related to engine rpm, **this can produce excessive boost and engine damage**. Boost figures for ProCharger LS1 pulleys are rated at 6,000 rpm on a stock LS1. Boost levels above 4.5 psi and modified (non-stock) motors will likely require larger fuel injectors to ensure adequate fuel delivery (to avoid detonation and possible engine damage).

5. Unplug the air temperature sensor and Mass Air Flow(MAF) meter wiring from the wiring harness, as shown in Ilustration C3. Loosen the hose clamp that attaches the air intake flex-hose to the throttle body using an 8mm nut driver, and pull the flex-hose forward off of the throttle body. Remove the four bolts that attach the air filter assembly to the radiator core support using a 10mm socket and ratchet. Remove the entire air inlet tract which includes the air filter assembly, MAF meter and flex-hose as one piece and set aside. Taking care to protect the wire elements and screen inside the MAF meter, remove theMAF meter from the flex-hose and the air inlet noise baffle, using an 8mm nut driver and a large flat screwdriver respectively.
6. Raise the front of the vehicle and secure with jack stands.
7. Remove the plastic radiator air dam and both driver and passenger side vented splash panels from beneath the car and set aside. Be sure to keep the screws that retain the factory spash panels; they will be reused later on in the installation.
8. Cut the plastic radiator air dam at the two marked locations shown in Illustration C1. The cut lines are approximately 1 inch on either side of the outer most holes.
9. Cut both plastic flaps (drivers side flap shown in Illustration C2) along line shown. This will make way for the intercooler tubes later on. The passenger side flap is cut exactly the same except it is mirrored.

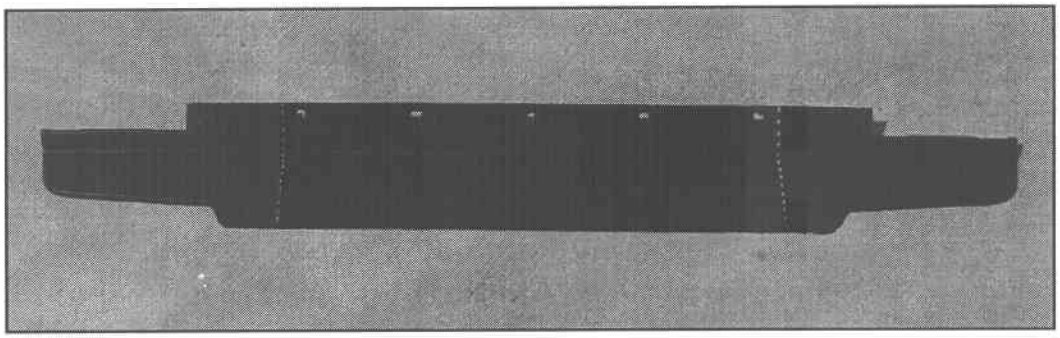


**ILLUSTRATION C1**
***STOCK RADIATOR AIR DAM WITH CUT LINES SHOWN***

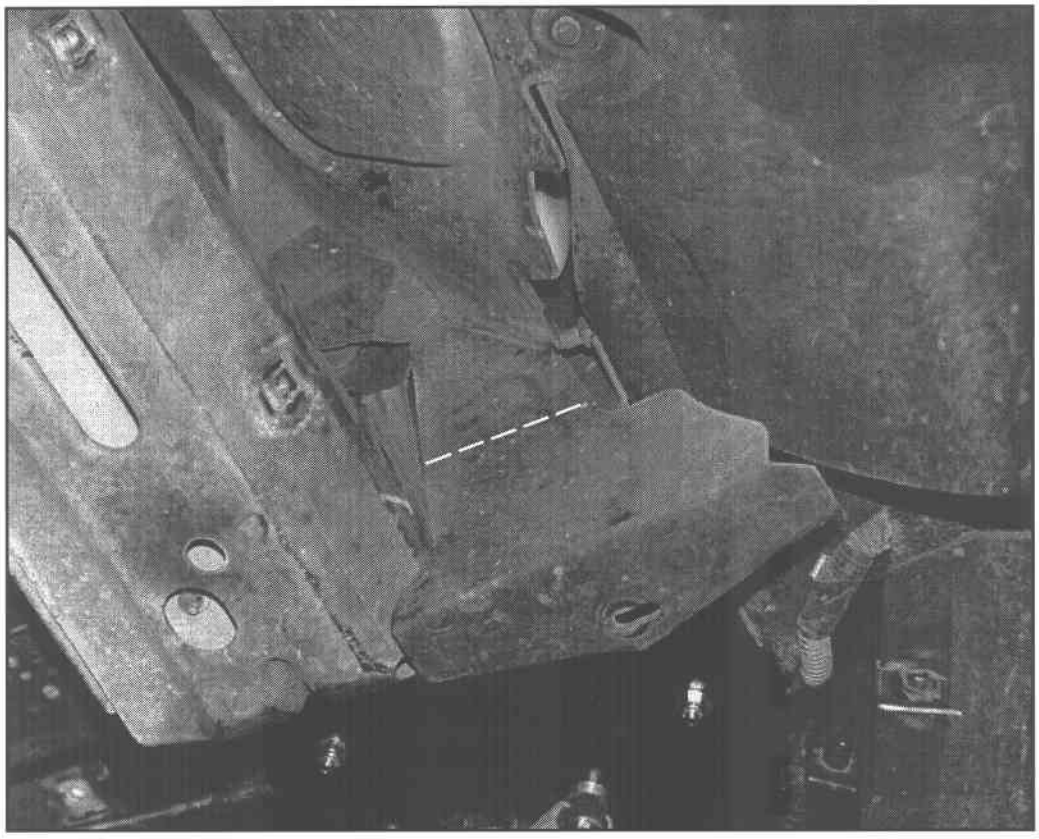


**ILLUSTRATION C2**
***STOCK PLASTIC FLAP-WITH CUT LINES SHOWN***

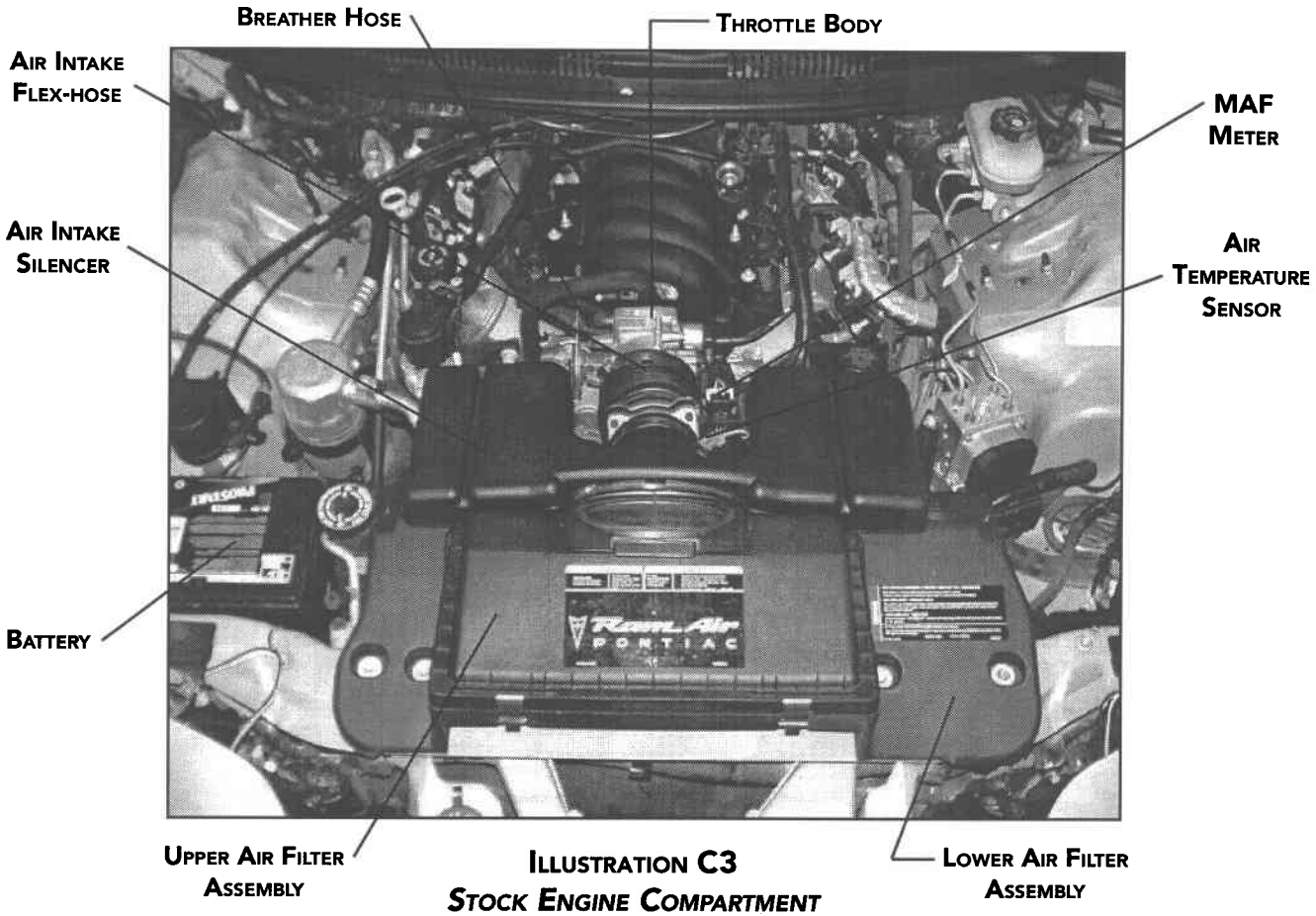



**Illustration C3**
***Stock Engine Compartment (Top View)***

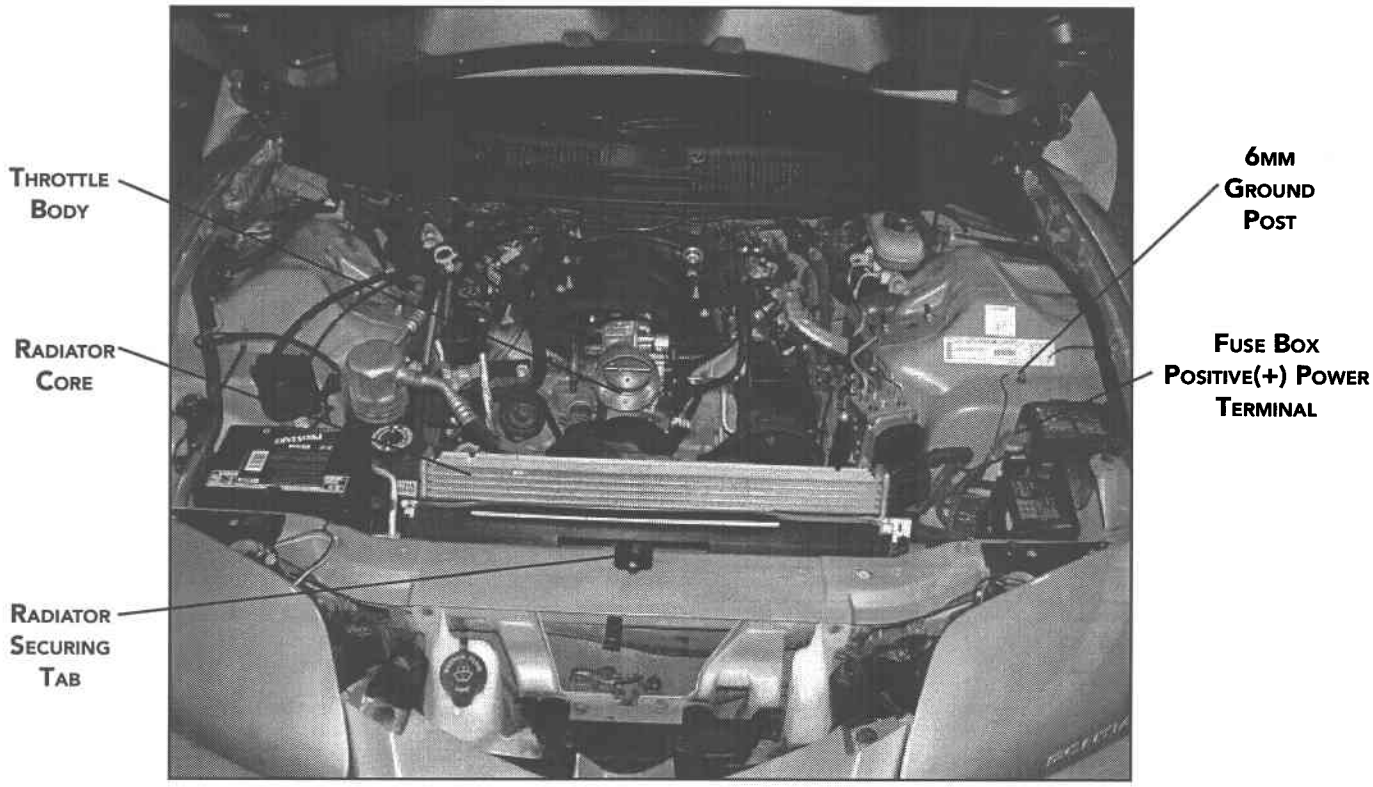



**Illustration C4**
***Engine Compartment with Factory Air Inlet Components Removed***

# D. Crank Pulley Installation

*In this section, you will install the billet aluminum crank pulley, which will drive the ProCharger.*

1. Remove the factory harmonic balancer retaining bolt using a 1/2" drive impact wrench and a 24mm impact socket. If you do not have access to an impact wrench, you can loosen the bolt by using a 1/2" breaker bar, extension and GM tool #J 42386(flywheel holding tool)

***6-RIB ONLY (proceed to page 10 for 8-rib Upgrade):***

2. Clean the inside face of the factory harmonic balancer using solvent and a wire brush. This is very important to ensure that the supplied pulley will sit flush once installed.
3. Install the ATI billet aluminum crank pulley, using the provided grade 14.4, M16-2.0x140 hex head cap screw and washer, making sure that the crank pulley dowel pins are sitting between the dampener spokes, and that it is rotated counter-clockwise until the dowel pins touch the dampener spokes. Make sure the pulley is sitting flush on the dampener.
4. Tighten and torque the new crank pulley center bolt to 40 ft/lbs. Now turn the bolt an additional 120 deg. of rotation (1/3 of a revolution). Verify that the face of the ATI crank pulley is now parallel with the face of the factory harmonic balancer.

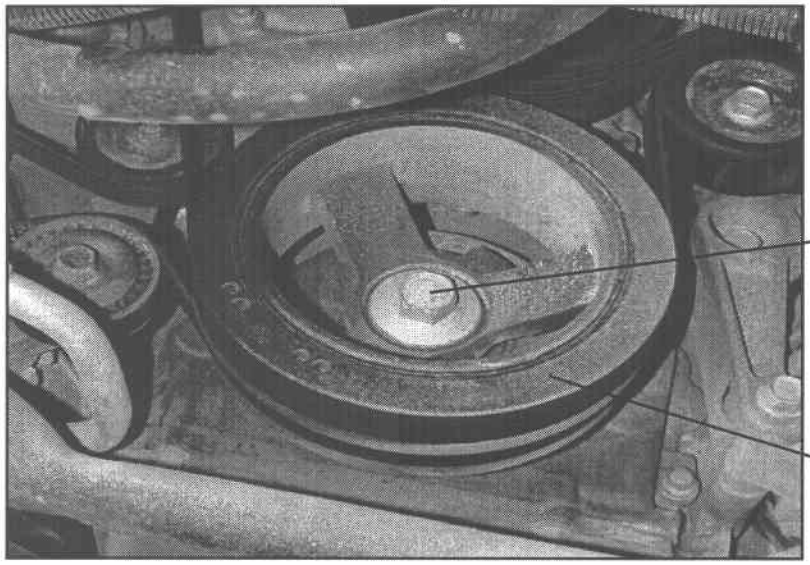



**Illustration D1**
***Factory Harmonic Balancer (Underneath Vehicle, Looking Up)***

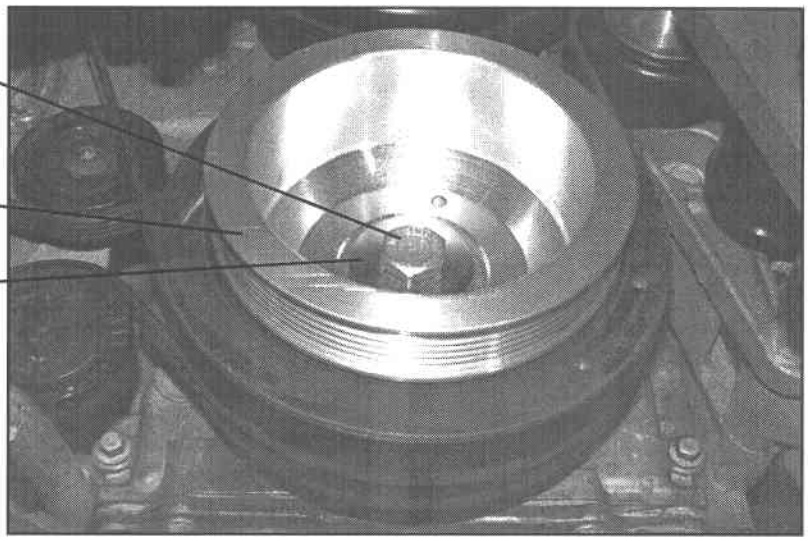



**Illustration D2**
***ATI Crank Pulley Installed (Underneath Vehicle, Looking Up)***

*8-RIB UPGRADE ONLY:*

***Note: 8-Rib Upgrade Requires ATI Performance Products LS1 Harmonic Balancer (Part No. 917242) and LS1 Crankshaft Keying Tool (Part No. 918993) which must be purchased directly from the manufacturer.***

5. Remove the stock harmonic balancer using GM tools J-41816 (LS1 Crankshaft Balancer Remover) and J-41816-2 (LS1 Crankshaft End Protector) according the instructions shown in the factory service manual, being careful not to damage the crankshaft center bolt threads.
6. Clean the crankshaft using solvent and a soft brush, being careful not to damage the crank shaft surface.
7. Following the instructions provided with the ATI Performance Products LS1 Crank keying tool, key the end of your crankshaft in preparation for the harmonic balancer install.
8. Install the ATI Performance Products harmonic balancer in accordance to the instructions provided by the manufacturer.
9. Install the supplied 8-rib crank pulley to the ATI Perf. Products harmonic balancer using the supplied 3/8"-16 x 1-1/2" SHCS and 3/8" heavy flat washers using red loctite, making sure to align the pilot surface on the back of the pulley with the balancer.
10. Confirm the pulley is sitting flush with the new harmonic balancer face and is running true.

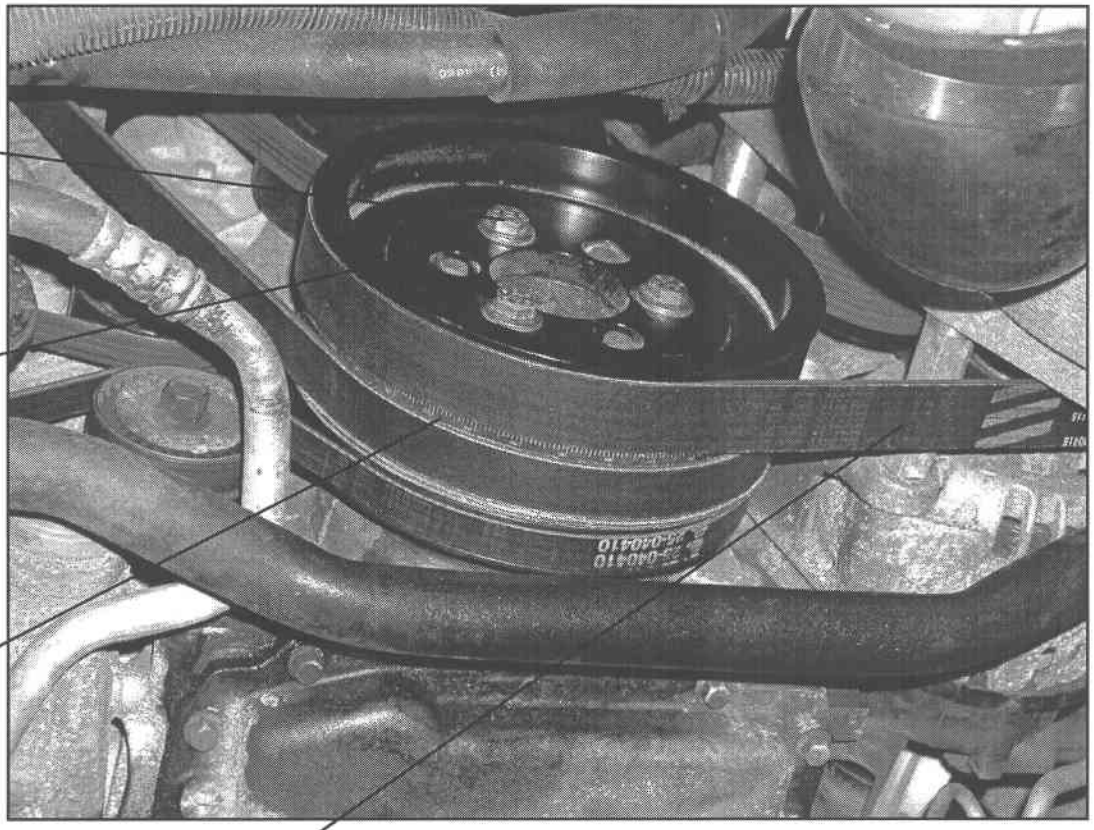



**ILLUSTRATION D2**
***ATI PERFORMANCE PRODUCTS HARMONIC BALANCER AND 8-RIB CRANKSHAFT PULLEY INSTALLLED (VIEW FROM BENEATH VEHICLE)***

## E. Air Pump, Cruise Control, amd Horn Relocation

*In this section, you will relocate the air pump and cruise control to make room for the driver's side intercooler and tubing. The air pump and cruise control will be relocated in the same general area but will be mounted closer together and up a little higher. The outlet of the air pump is routed to both exhaust manifolds while the inlet is left open (filtered) to draw in ambient air.*

**Driver's side splash panel location*

1. Remove the (4) bolts holding the air pump bracket to the frame.
2. Now unplug the wiring from the pump and pull off the inlet and outlet hose. The hoses are held on by plastic clamps that unlock by pushing one end to the side and the other end to the opposite side. Using pliers can make them much easier to remove.

   *Note: For 1998-1999 cars, the short inlet filtration hose and filter can also be removed completely. They will not be reused. These cars may also have a sensor attached to the bracket. If so, disconnect the wiring and pull off the vacuum line. Use a flat head screwdriver to release the tab that holds the sensor to the bracket and slide the unit off. Set it aside, it will be transferred to the new bracket.*

   *Note: For 2000 or newer cars, the inlet hose can be removed from the car completely. It will not be reused.*

   *The air pump and bracket should now be free from the car
3. Now remove the (3) bolts holding the air pump to its bracket and remove the pump.
4. Reinstall the air pump to the ATI supplied relocation bracket using the supplied bolts, nuts, and washers.

   *Note: For 1998-1999 cars, use the supplied 1/4-20x1 1/4" bolts and mount the pump so that its mounting tabs are on the bottom side of the bracket. Also, the sensor (if applicable) can now be reinstalled to the new bracket by sliding it onto its mount and bending the tab inward.*

   *Note: For 2000 or newer cars, use the supplied 1/4-20x2 1/2" bolts and mount the pump so that the mounting tabs are on the top side of the bracket.*
5. Follow the cruise control cable from the cruise control box towards the top of the engine compartment. Half way along the line there is a plastic retainer that holds the cable to the frame. Using a flat head screwdriver or needle nose pliers, remove this retainer and carefully work the cable a little to gain some slack. It may be much easier to work the cable from the top of the engine bay.
6. Disconnect the electrical wiring from the cruise control and remove the (3) bolts holding the cruise control bracket to the car. Carefully support the assembly.
7. Now remove the (3) bolts holding the cruise control to its bracket. Again, carefully support the cruise control unit.
8. At this time, loosen nuts A and B shown in Illustration E1. A, B, and C are the (3) mounting locations for the relocation bracket.

   *Note: For 1998-1999 cars, location C is a mounting location for the relocation bracket and the supplied M6x20 bolt will be used there.*

   *Note: For 2000 or newer cars, place the supplied 5/16-18x1" bolt with washer through hole C from the top.*

   Also, reroute the wiring for the cruise control so that it falls down through the larger hole in Illustration E1. The fuse box assembly can be moved over after pulling up on it to release it from its clips.

9. Support the relocation bracket(with the air pump already installed) in the general area where the cruise control was originally mounted. Install the cruise control onto the bracket using the supplied 1/4-20x1-1/4" bolts, nuts and washers.
10. Now install the supplied filter to the inlet of the air pump using the supplied 90 deg. hose and hose clamps. The 90 deg. hose can be cut/modified to to allow the filter to fit in the crowded area where the relocation bracket will sit. Some test fits might be a good idea.
11. Now reattach the outlet hose to the pump. It can be rerouted if need be.
12. Reattach all electrical connections to both the air pump and cruise control.
    *Note: For 1998-1999 cars, reconnect (if applicable) the sensor's electrical and vacuum connections.*
13. The bracket can now be bolted into place. Refer to mounting locations A, B, and C, in Illustrations E1 and E2.
    *Note: For 1998-1999 cars, use the supplied M6x20 bolt and washer for location C.*
    *Note: For 2000 or newer cars, use the 5/16-18x1" bolt, washers, and nut for location C.*
    *Nore: For Trans Am vehicles, use the supplied .343" long spacers and 1/4-20x1 1/2" bolts as shown in Illustration E3 to tilt the air pump away from the parking light location.*

*The air pump and cruise control should now be relocated.

**Driver's side splash panel location*

14. Unclip the the wires going to the horns.
15. Remove the (2) nuts holding the horns onto the factory bracket and remove the horns. Also remove the factory horn bracket at this time.
16. Reinstall the horns to the ATI supplied bracket as shown in Illustration E5 using the factory nuts. Slide the supplied M8 x 30 bolts with washers into the upper holes and install the supplied spacers on the backside of the bracket. **Note: On some years, the forward most hole (pointed out in Illustration E4) is not tapped. Use the supplied 5/16x1 1/4" thread cutting screw in place of the M8x30 bolt.**
17. Now reinstall the assembly using the (2) hole locations shown in Illustration E3 and clip the wiring back onto the horns.

*The horns should now be relocated and should look like Illustration E6.

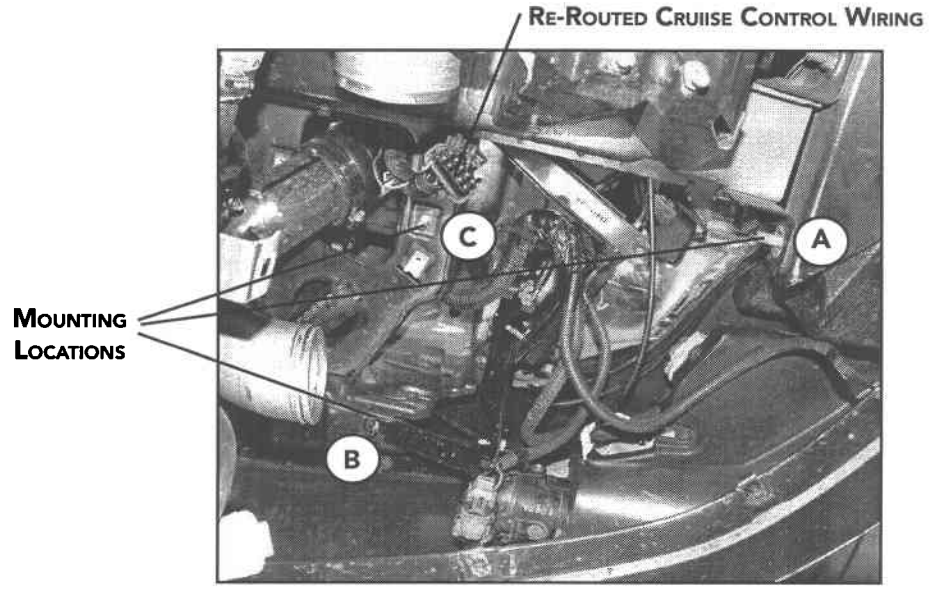



**ILLUSTRATION E1**

***MOUNTING LOCATIONS FOR AIR PUMP AND CRUISE CONTROL RELOCATION BRACKET (UNDERNEATH VEHICLE, LOOKING UP)***

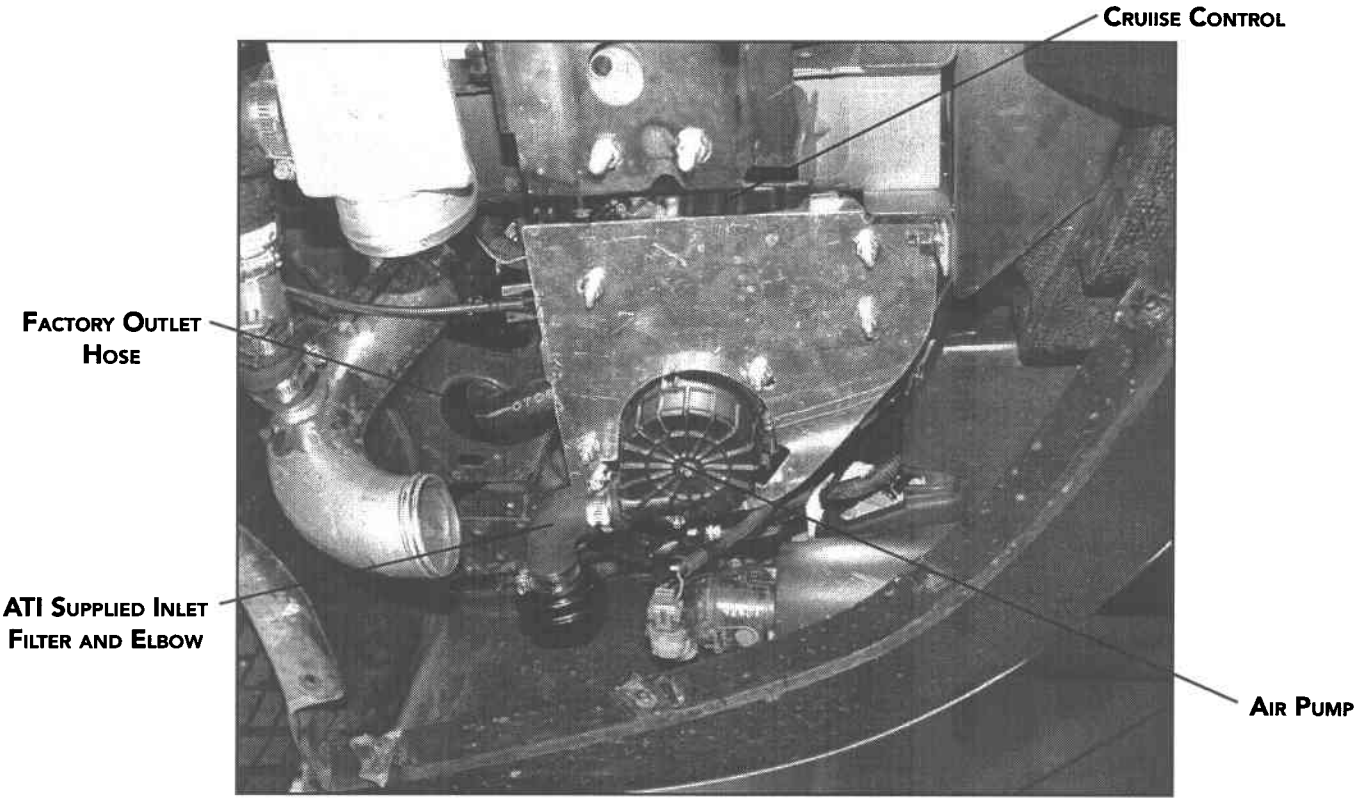



**Illustration E2**
***Air Pump and Cruise Control Relocation Bracket Installed (Underneath Vehicle, Looking Up)***

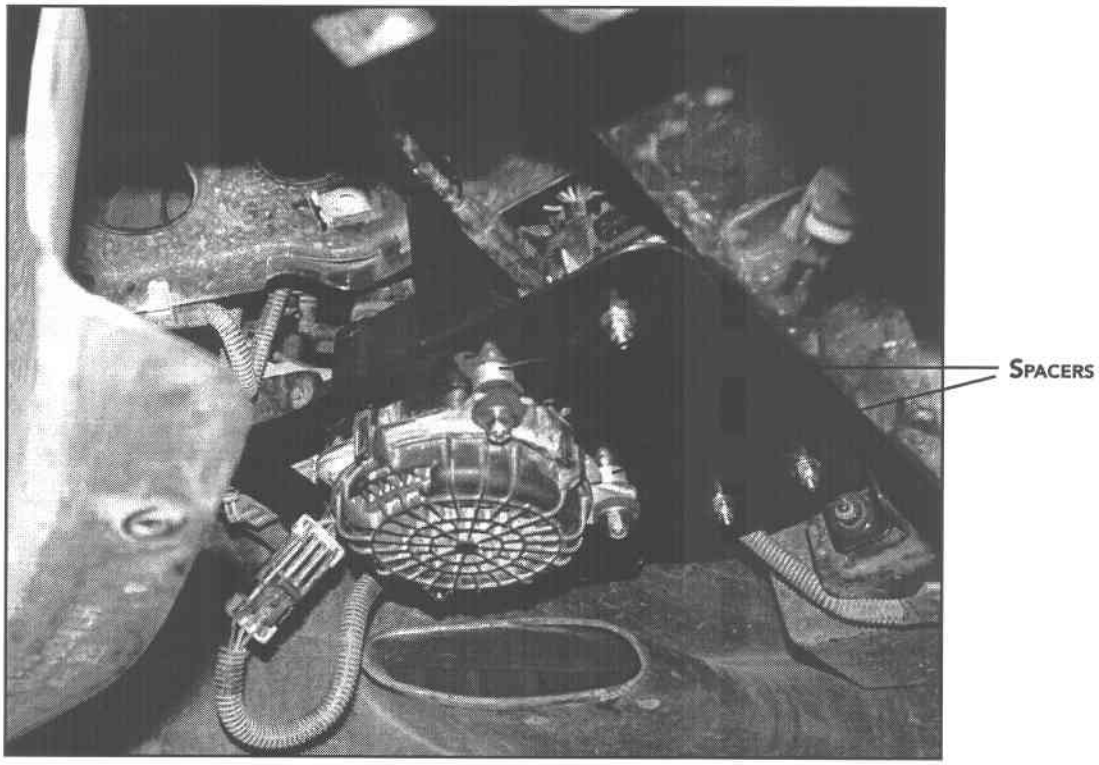



**Illustration E3**
***Air Pump and Cruise Control Relocation Bracket Installed (Trans Am with Spacers Installed, Looking Up)***

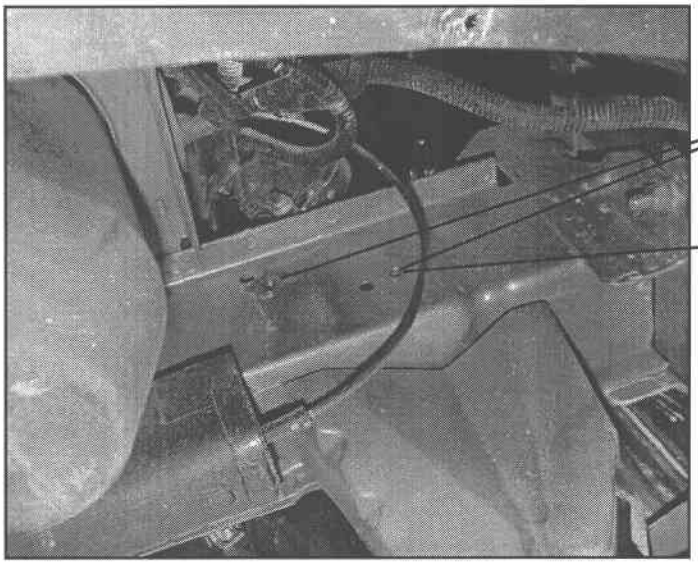



**ILLUSTRATION E4**
***HORN RELOCATION HOLES***
***(SHOWN WITH HORNS REMOVED LOOKING UP FROM PASSENGER SIDE SPLASH PANEL LOCATION)***

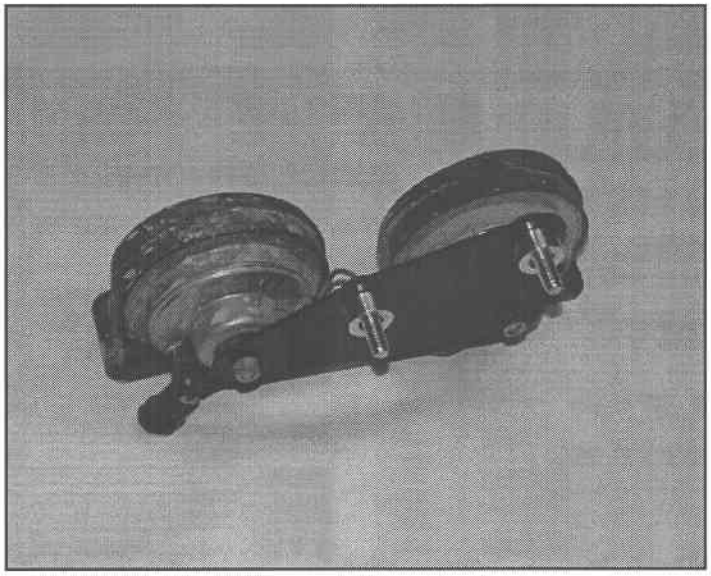


**ILLUSTRATION E5**
***HORNS INSTALLED ON RELOCATION BRACKET***

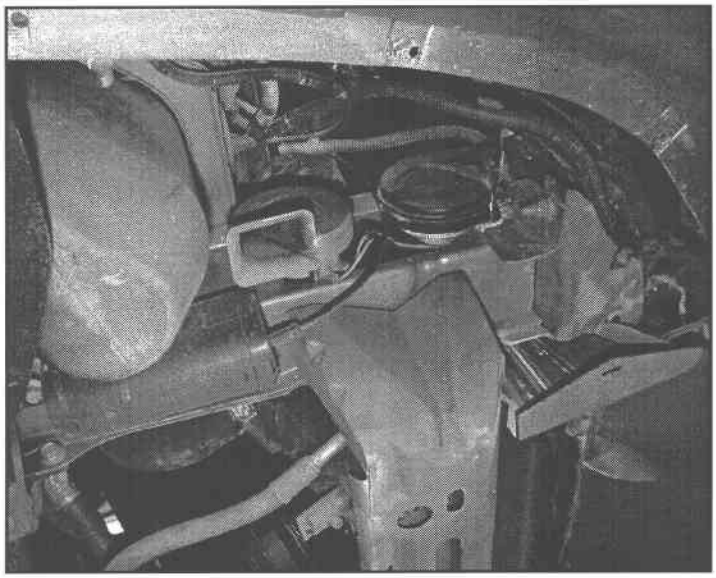


**ILLUSTRATION E6**
***RELOCATED HORNS***

## F. Cooling Fan Replacement

*In this section you will remove the factory cooling fan(s) and fan shroud and install the supplied cooling fan and sheetmetal fan shroud, to make room for the ProCharger and drive system.*

1. Remove the wiring clips from the both fan motors, using a flat head screwdriver to depress the tangs on the wiring clips to allow them to slide out.
2. Remove the fan wiring loom from the five retaining clips that are attached to the fan shroud.
3. From the top of the vehicle, remove the radiator hose from the plastic retaining clip on the upper side of the factory fan shroud, as identified in Illustrations F1 and F2. (Note: there is no need to disconnect any of the radiator hoses during this process)
4. Remove the factory fans and fan shroud from the engine compartment as one piece, by pushing upward on the shroud until it is free of the four retaining clips on the sides of the radiator, and then carefully lowering the entire assembly out from underneath the vehicle. Be careful not to damage the radiator or radiator fins during removal.
5. Mark and drill the four mounting holes for the fan. Attach the supplied 16" cooling fan to the supplied sheet metal fan shroud using the supplied fasteners.
6. Install the ATI sheet metal shroud and cooling fan the opposite of factory fan/shroud removal.
7. Attach the supplied wiring harness connector to the fan wiring harness. Cut and splice the other end of the supplied fan wiring harness into the factory fan wiring harness as shown in Illus. F4. The black lead on the new fan should be spliced into the white wire on the factory black/white wire connector and the light blue wire on the factory light blue/grey connector. The blue lead on the new fan should be spliced into the black wire in the factory black/white wire connector, as shown in Illus. F4.
8. Using a heat gun or butane lighter, heat the connector ends to shrink the tubing. Tape the center of the Y-connector to prevent a short. Verify all wires are free of moving parts and wire tie the new harness in place.
9. Install the supplied sheet metal radiator core support using the two factory M6 fasteners as shown in Illus. F5. Mark a hole on each side of this core support where it intersects the tabs on the top of the new fan shroud. Remove the support and drill each hole using a 5/32" bit. Re-install and attach the radiator core support to the fan shroud using the provided #12 sheet metal screws.

**Note: The sheet metal radiator core support will sit flush against the frame if the radiator securing tab is trimmed off. This step is optional. Refer to Illustration C3 for reference.**

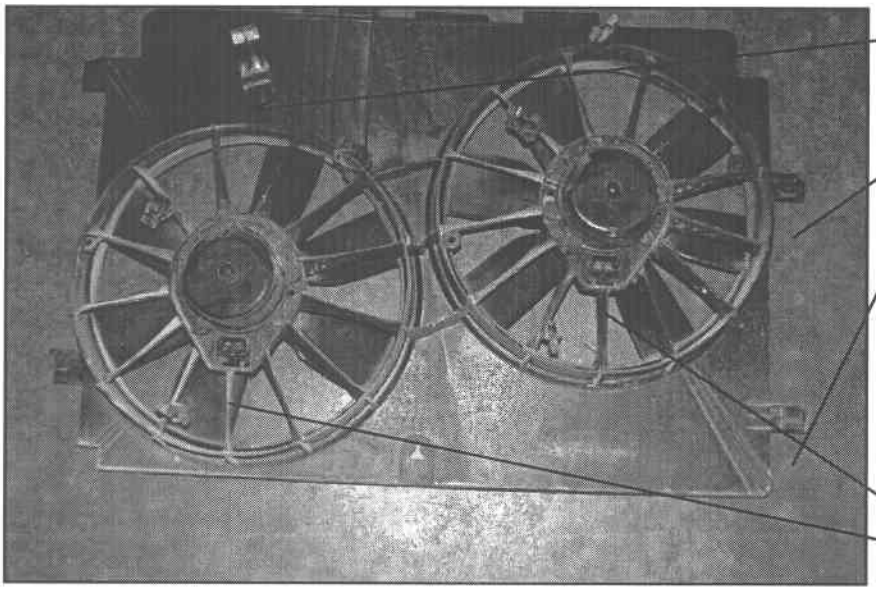



**Illustration F1**
***Factory Fans/Fan Shroud Assembly Removed From Vehicle***

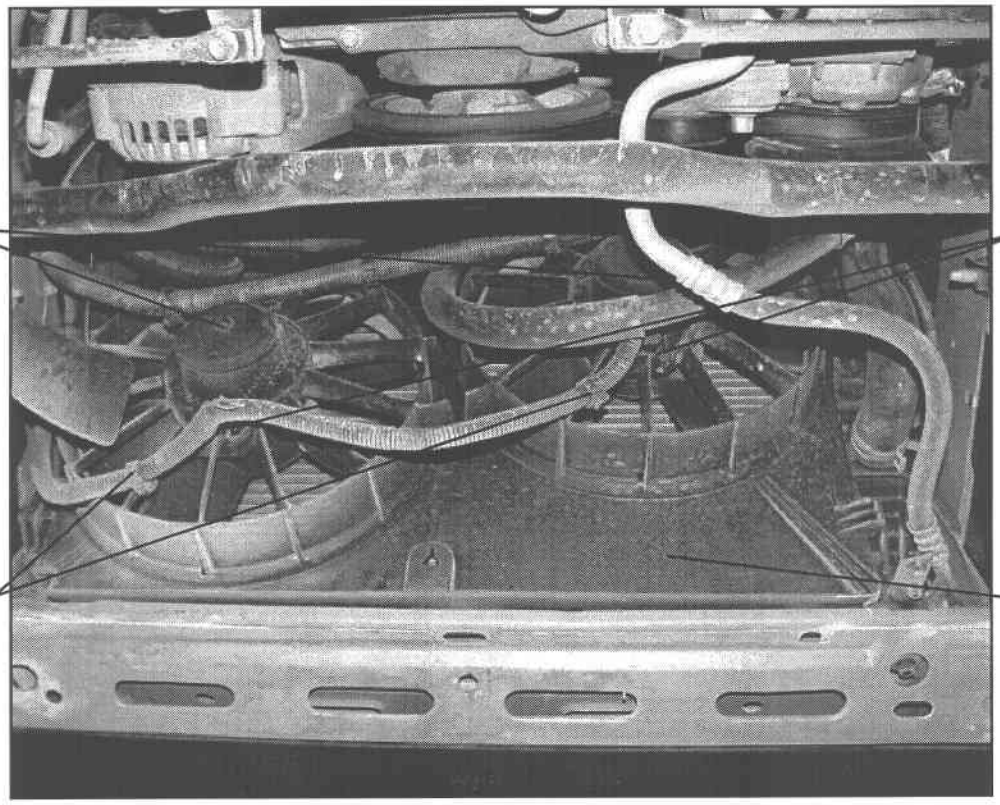



**Illustration F2**
***Factory Radiator Cooling Fans***
***(Underneath Vehicle, Looking Up)***

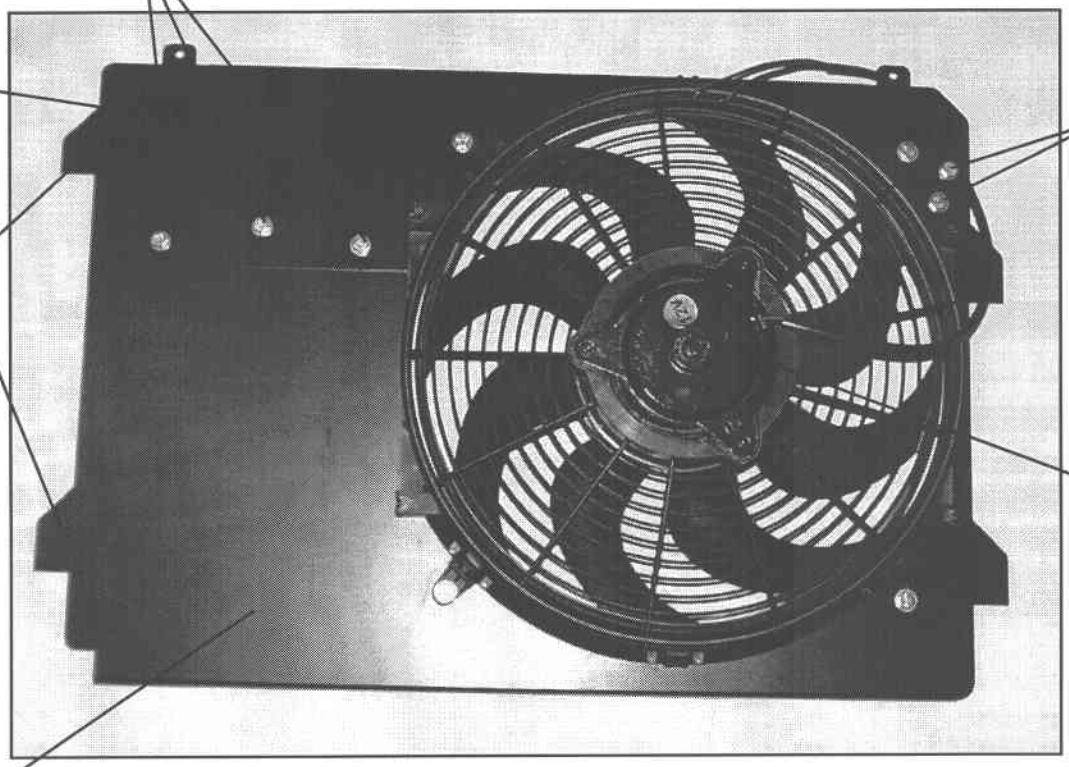



**Illustration F3**
***ATI Supplied Fan and Sheet Metal Shroud Assembled***

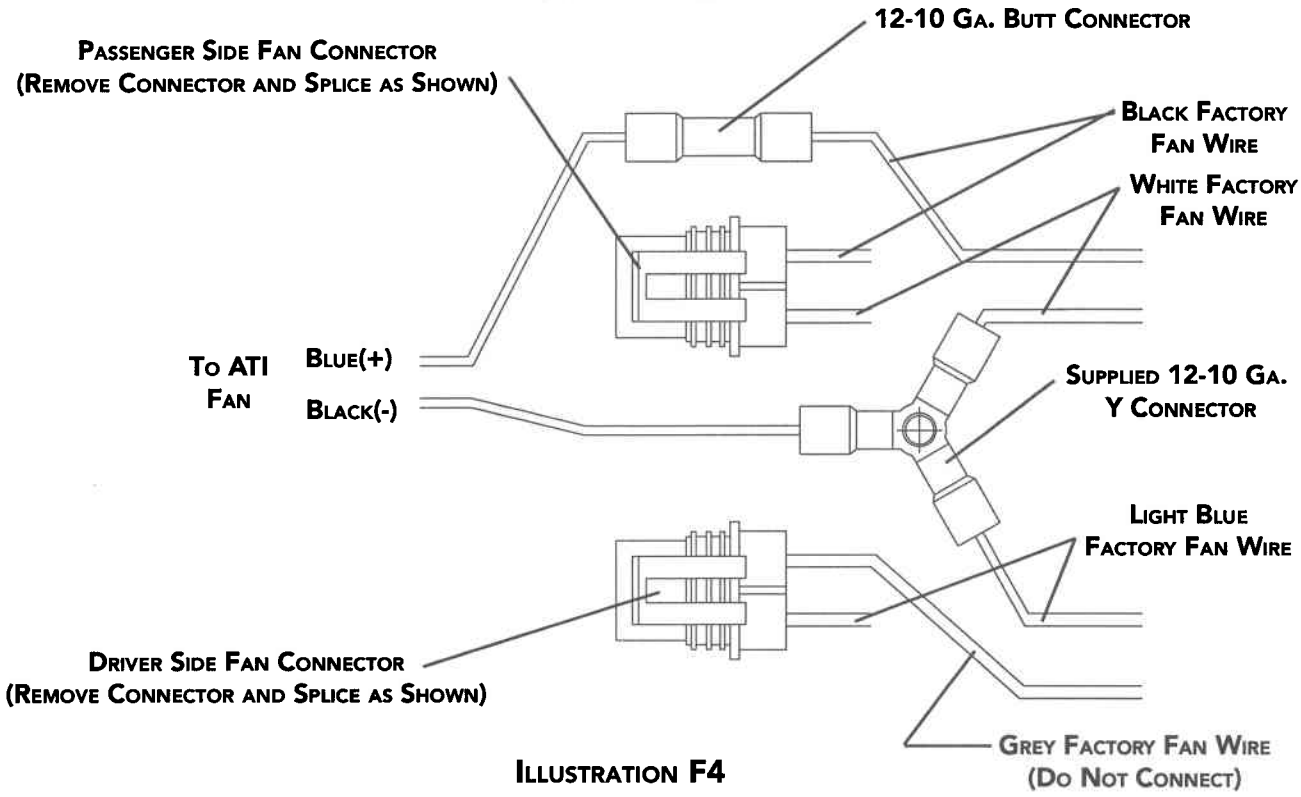



**Illustration F4**
*Cooling Fan Wiring Schematic*

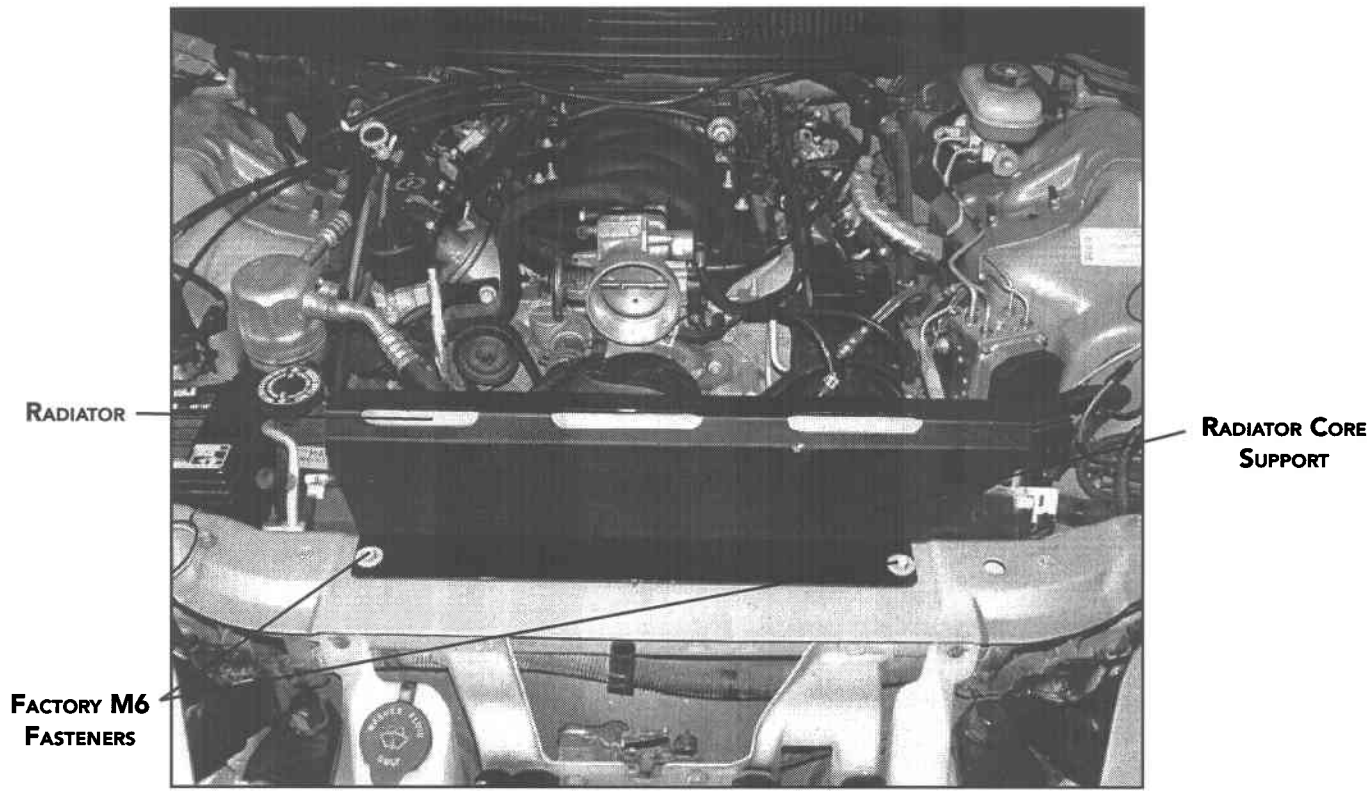



**Illustration F5**
*Radiator Core Support Installed*

# ProCharger Description and Operation

The main components for ProCharger installation are the ProCharger and mounting bracket. The ProCharger is an internally gear-driven centrifugal compressor. It is driven by a six or eight rib belt system which utilizes a jack-screw tensioner to maintain proper belt tension. The P-1SC-1 ProCharger uses a billet aluminum helixed impeller, super precision bearings and carburized gears. The impeller speed is dictated by engine rpm, crank pulley-to-driven pulley ratio and the ProCharger's internal gear ratio. As engine speed is increased, both airflow and boost (resulting from engine back-pressure) are increased. The quoted boost levels are rated at 6,000 rpm of the crankshaft. The mounting bracket is a billet aluminum bracket that is CNC machined to assure proper positioning of the ProCharger.

**WARNING: Never strike the ProCharger pulley with a hammer or other tool under any circumstance! Evidence of such force will void the warranty, as serious damage to the precision bearings within the ProCharger could occur.**

## G. ProCharger Installation

*In this section you will install the ProCharger and the drive system.*

1. Remove the factory serpentine drive belt. This is easily accomplished by using a 15mm wrench to rotate the factory rotary tensioner clockwise until the belt is loose, as shown in Illustration G1. Hold in place and slide belt off of the water pump pulley, leaving the belt wrapped around the lower pulleys. Slowly release the tensioner.
2. Remove the two alternator bolts as shown and set aside. Refer to Illustrations G2 and G5. Replace these bolts with the two supplied hex standoffs (2.5" for 6-Rib, 2.75" for 8-rib) and M10x140 studs. Tighten the studs by hand until resistance is felt (approximately 1.0") and then thread the standoffs onto the studs. Torque to 40 ft/lbs. These will be 2 of the 3 mounting points for the main bracket.
   **Note: For automatic transmission vehicles, it will be necessary to disconnect the transmission cooler lines in order to install the supercharger belt. Disconnect the lines toward the front of the engine compartment where they change from hard to rubber lines. Some fluid will poor out; *take safety precautions*. Now slide the supercharger drive belt onto the lines and reconnect the lines. Be sure to check your fluid level before you drive the vehicle. The transmission cooler line securing tab will be reused at its existing location and it might be necessary to use the 2.40" hex standoff (also supplied) in place of the 2.5" hex standoff (2.65" instead of 2.75" for 8-rib applications)in order to allow the main bracket to sit flush (parallel to the front of the block). Refer to Illustrations G3 and G4.**
3. Remove the factory idler pulley retaining bolt and stamped washer and set bolt aside.
4. Install the billet main bracket using the provided M10x25 bolts and flat washers to attach the bracket to the previously installed standoffs, **making sure to loop the ProCharger 6 or 8-rib drive belt over the bottom standoff, as shown in Illustration G6.** Leave the bolts loose.
5. Attach the main bracket through the center of the factory idler using the supplied M10x100 hex bolt, flat washer, aluminum spacer and the stamped factory idler washer. Spacer length will be 1.5"or 1.625" for 6-rib systems and 1.75" or 1.875" for 8-rib systems.
6. Tighten and torque all bolts.
7. Replace factory belt using the reverse procedure outlined in step #1.
8. Make sure that the jack screw for the tensioner at the top of the main bracket is backed out to allow the tensioner assembly to slide all the way to the top unrestricted. Loosen the bolt at the

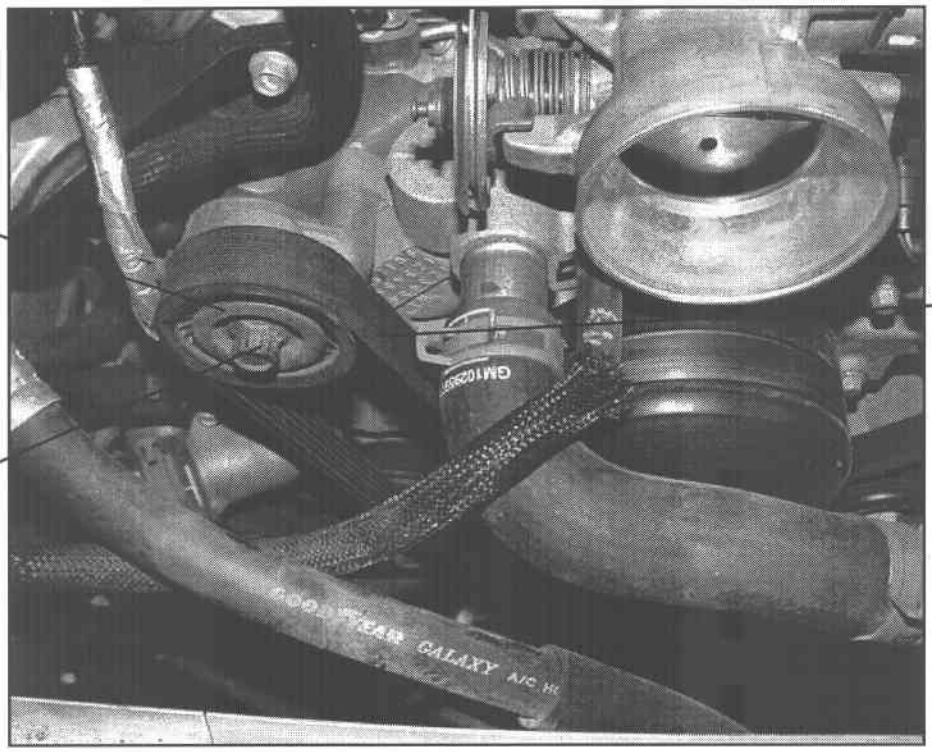



**Illustration G1**
***Factory Rotary Tensioner***

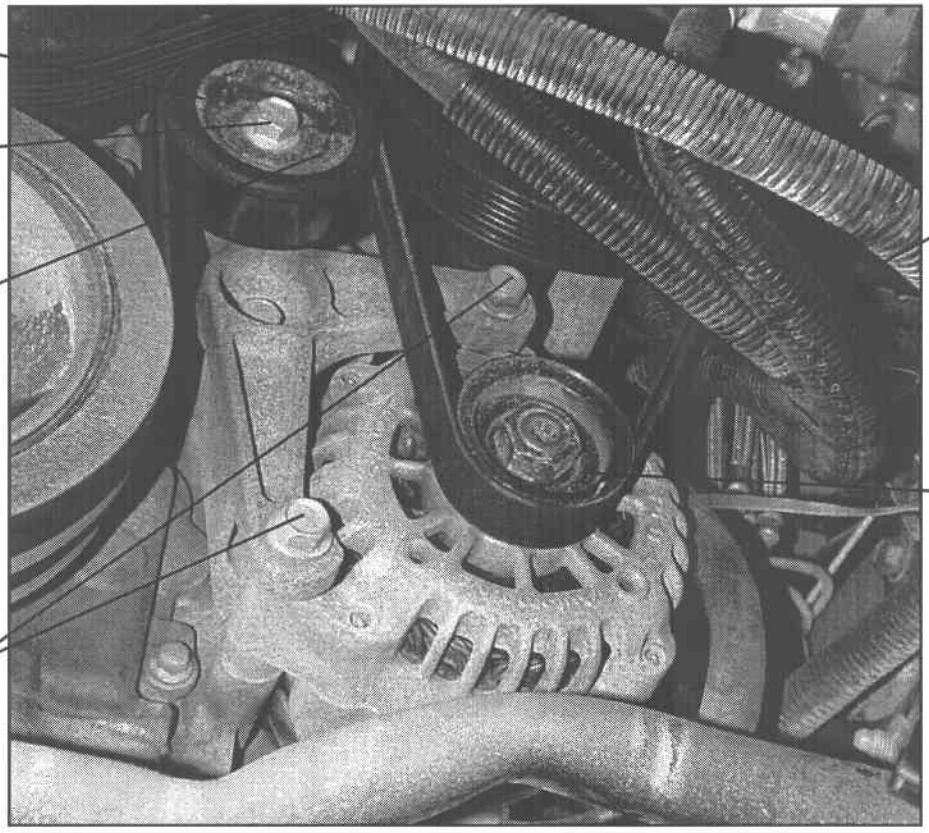



**Illustration G2**
***Main Bracket Mounting Points***
***(Underneath Vehicle, Looking Up)***

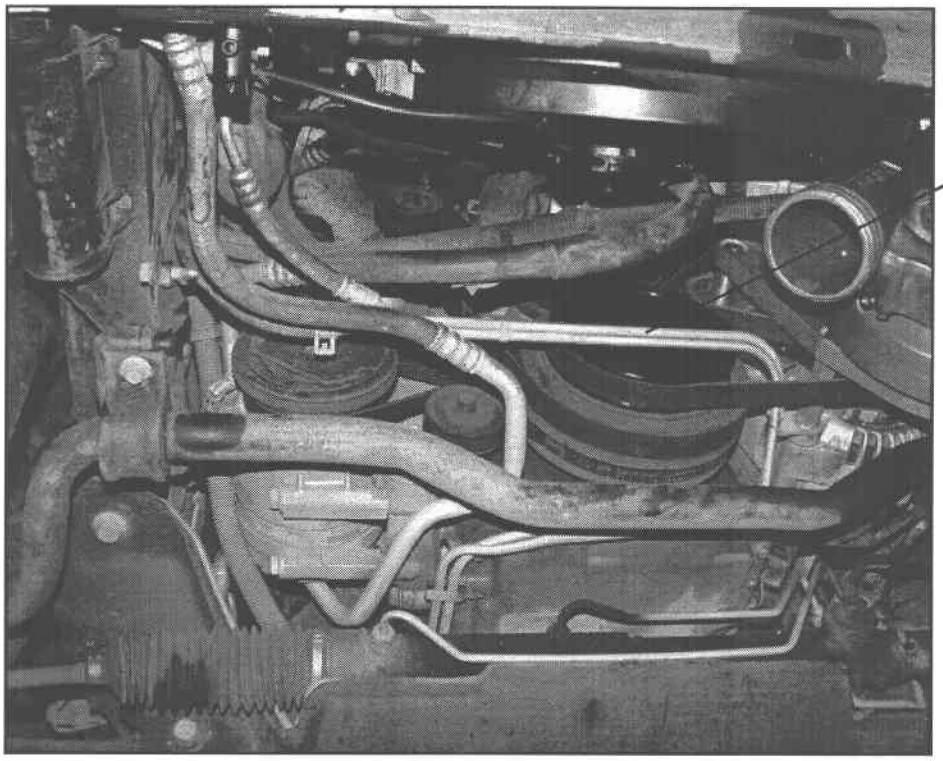



**ILLUSTRATION G3**
***TRANSMISSION COOLER LINES SHOWN FOR AUTOMATIC VEHICLES (SHOWN WITH PROCHARGER INSTALLED)***

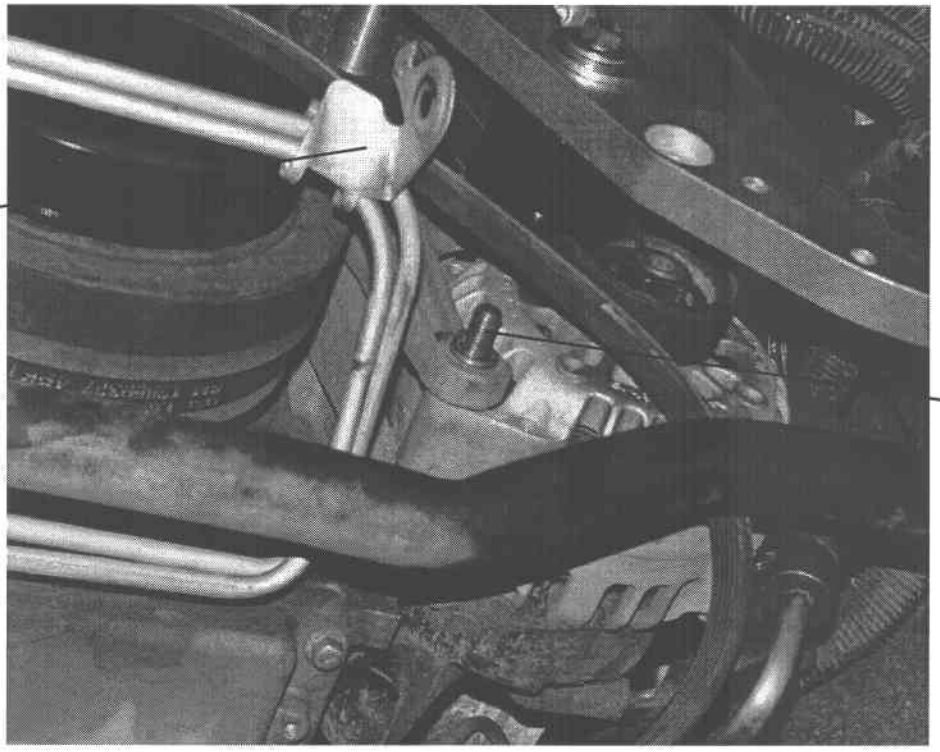



**ILLUSTRATION G4**
***TRANSMISSION COOLER LINES AND SECURING TAB SHOWN FOR AUTOMATIC VEHICLES***

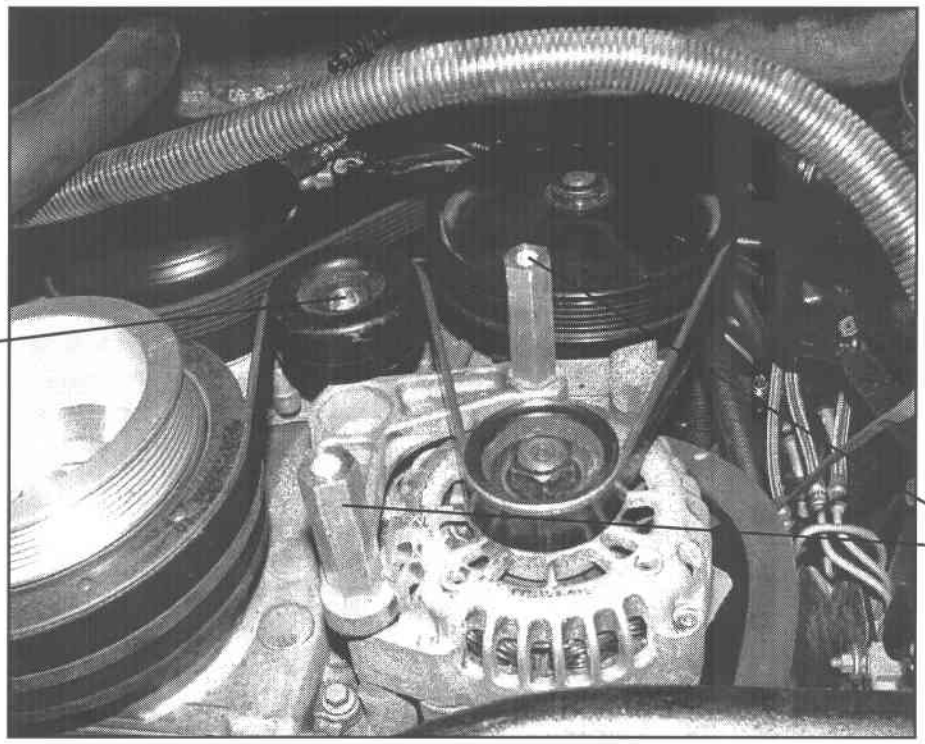



**Illustration G5**
***Main Bracket Standoffs Installed To Alternator Bracket (Underneath Vehicle, Looking Up)***

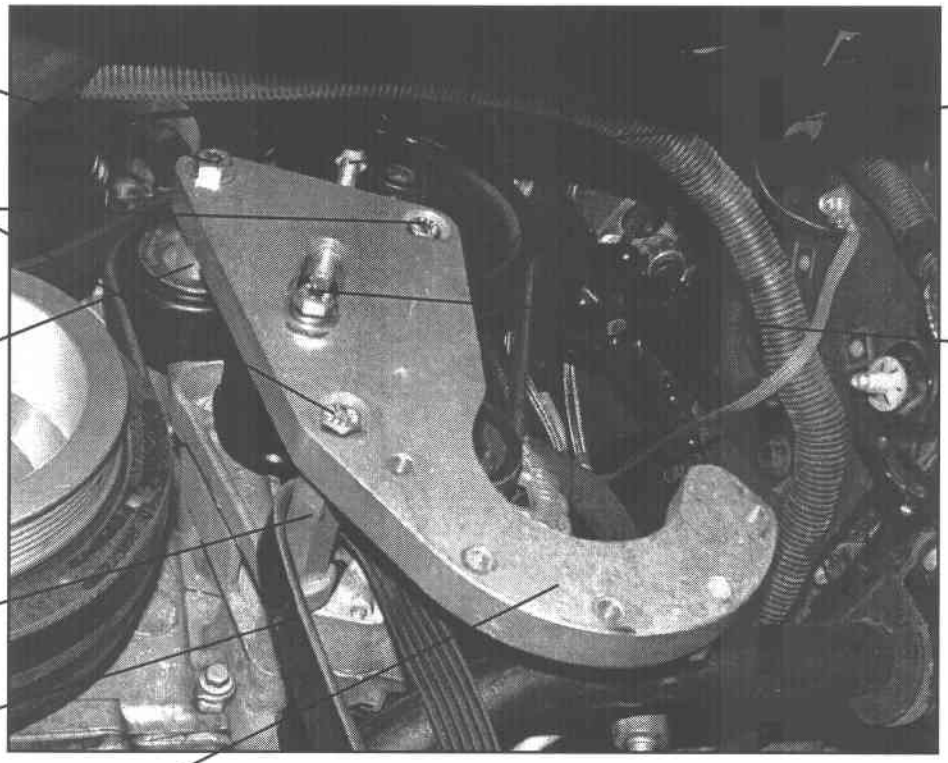



**Illustration G6**
***Main Bracket With Tensioner Installed (Underneath Vehicle, Looking Up)***

rear of the tensioner just enough to allow it to slide. Place the ProCharger drive belt around the billet crank pulley.

8. Install the ProCharger to the main bracket with the inlet facing the front of the vehicle, making sure to pass the ProCharger drive belt around the ProCharger pulley. Secure the procharger to the main bracket using the provided 5/16" and 3/8" socket head cap screws. Verify the belt routing matches that in Illustration G7.

***Note: To ensure belt alignment, verify that the supercharger has the proper shim between the supercharger pulley and supercharger input shaft. Proper shim width is 0.075" for 6-rib applications and 0.200" for 8-rib applications (may be 2 shims with total width of 0.200")!***

9. Tension the ProCharger drive belt by tightening the 3/8" jack screw at the top of the main bracket until all slack is removed from the belt, then tighten one more turn. Now tighten the bolt on the back of tensioner shaft to fix the tensioner in place.
10. Re-tension belt after initial stretch in period of 250 miles, or if black belt dust is noticed near the ProCharger Pulley.

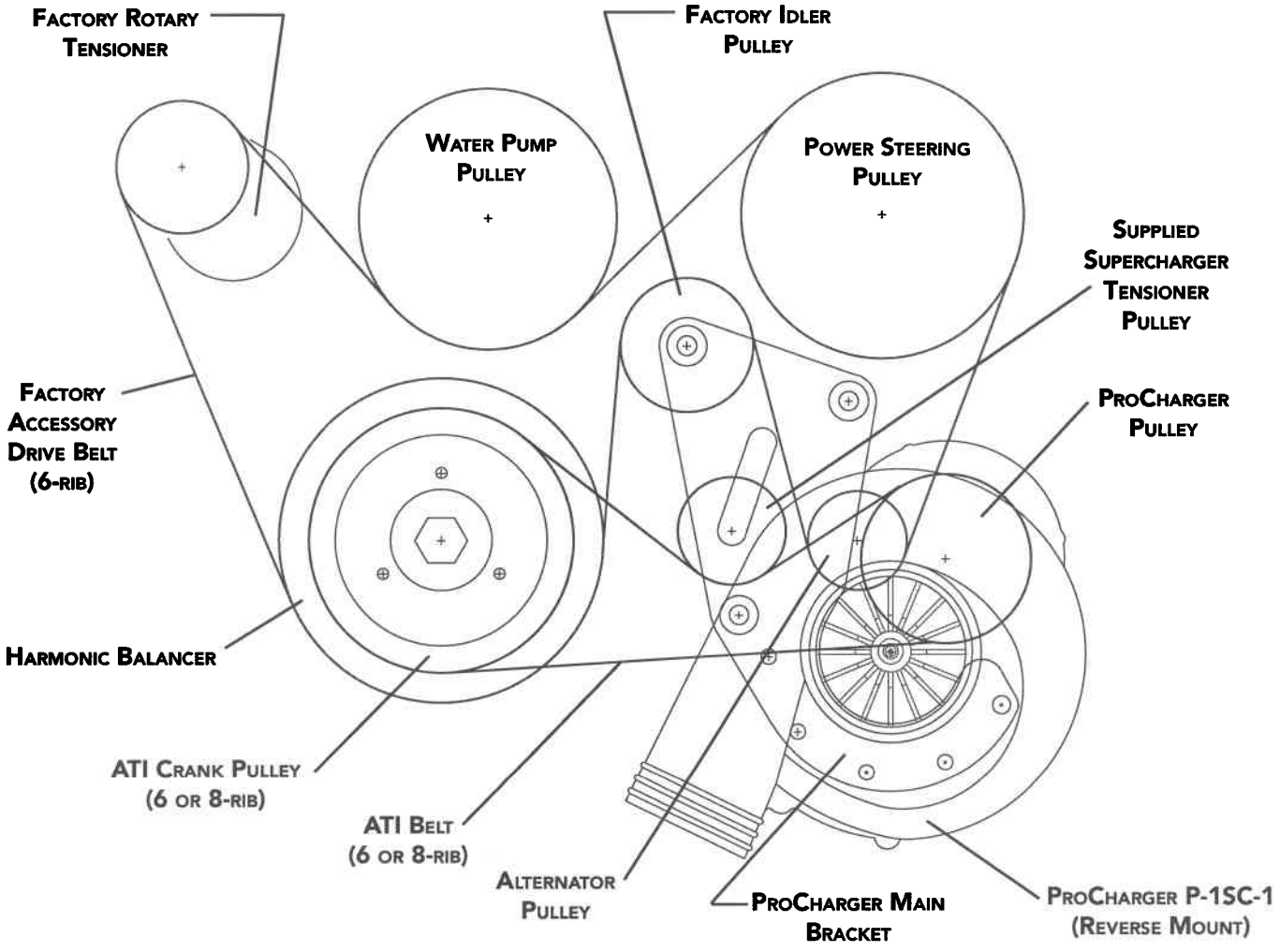



**ILLUSTRATION G7**
***PROCHARGER BELT ROUTING SCHEMATIC***

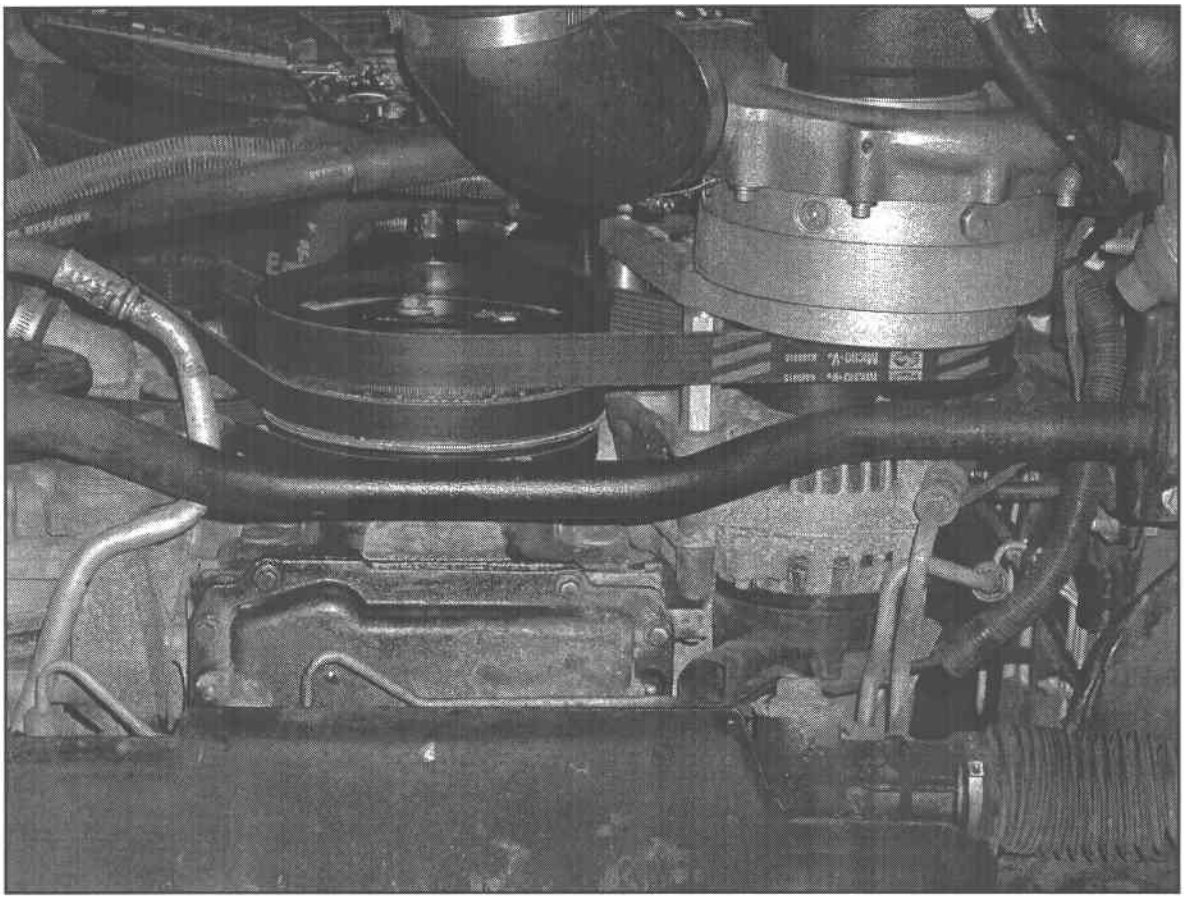


**ILLUSTRATION G8**
***8-RIB PROCHARGER INSTALLED***

## INTERCOOLER DESCRIPTION AND OPERATION

The intercooler system's major components consist of the intercoolers and the intercooler tubing. The intercooler is a plate style, air-to-air heat exchanger. The charge air (compressed and, therefore, heated) exiting the ProCharger enters the inlet plenum of the intercoolers, passes through a series of passages through the core and exits the outlet plenum. Ram-air flows between the core passages and draws heat from the charge air. Cooling fins between adjacent charge air passages aid heat transfer and increase cooling efficiency. The horizontally mounted intercoolers utilize air-scoops to increase the ram-air flow through the intercoolers. The tubing system is made up of mandrel bent carbon steel tubing and rubber hose connectors. The tubing system is powder coated to provide a durable finish. The tubing routes the charge air from the ProCharger to the intercoolers and then to the throttle body.

## H. TWIN HI-FLOW INTERCOOLER INSTALLATION

*In this section, you will install the intercooler and associated intercooler tubing, which are routed between the ProCharger and throttle body.*

1. Attach the 3" 90 deg. reinforced rubber elbow to outlet of the ProCharger as shown in Illustrations H1 and H2, using one of the#52 hose clamps. Attach the 3" end of the y-tube to this 3" rubber elbow.

TECH TIP Note: to ease installation, leave all hose clamps loose until all of the tubes have been installed. This will allow you to adjust the tubes as needed for best possible fit.

2. Attach the long end of one of the 2.5" reinforced 90 deg. elbows to the driver side of the y-tube using a #40 hose clamp. The long section of the tube should be sitting horizontal and run parallel to the lower radiator core support member, as shown in Illustration H2.
3. Drill two holes in the bottom of the lower radiator core support member as shown in Illustration H3. From the top side, drop in each hole a 3/8"-16 x 1-1/4" hex bolt from the top side and secure on the bottom with one of the 3/8" speed nuts and flat washer. These bolts will serve as mounting studs for the driver side intercooler.
4. Install the intercooler scoops to both intercoolers as shown in Illustration H4 using supplied hardware.
5. Install the driver side intercooler by sliding the intercooler up into place over the previously installed bolts and secure, using the remaining 3/8" lock nuts and flat washers. Now install the short 45 deg. steel tube and the short 2.5" 90 deg. rubber elbow between the 90 deg. rubber elbow previously installed on the y-pipe and inlet of the intercooler, using the supplied #40 hose clamps.
6. Referring to Illustrations H5 and H6, repeat steps 3 and 5 for the passenger side intercooler.
7. Adjust the installed tubes to give maximum ground clearance, and then tighten all hose clamps. All of the tubes between the ProCharger discharge and intercooler inlets should now be installed.
8. Install the 2.5" J-tube with surge fitting to the outlet of the driver side intercooler using the short 2.5" straight hose section and #40 hose clamps. The straight section of the J-tube should point into the opening below the underhood fuse box, as shown in Illustration H5.
9. Install the 2.5" 90 deg. rubber elbow onto to passenger side intercooler outlet as shown using one of the #40 hose clamps. Attach the 2.5" metal 90 deg. elbow to this elbow with the straight section pointing vertical inside the lower radiator hose, as shown in Illustration H6.

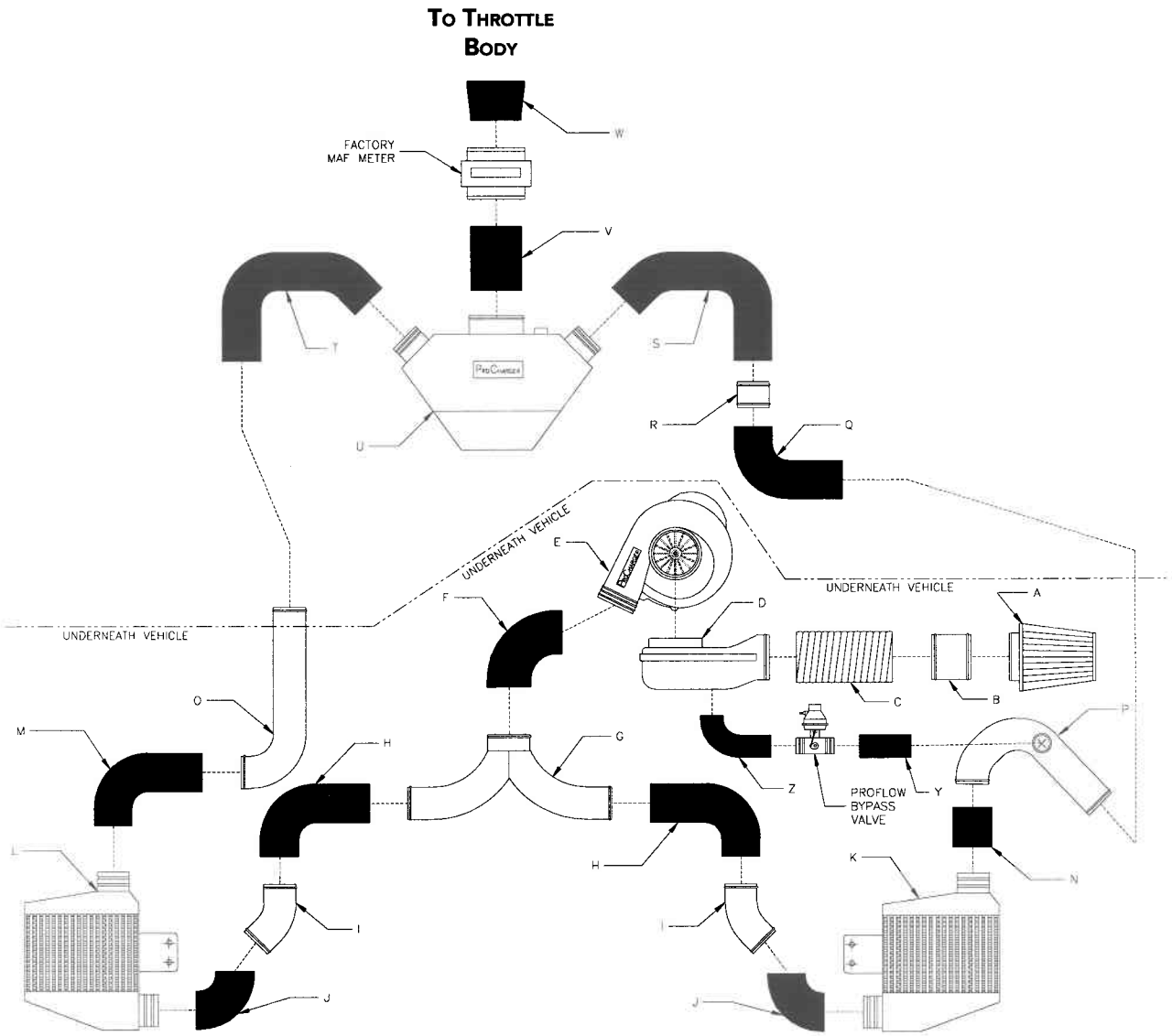



**ILLUSTRATION H1**

***LS1 F-BODY TWIN HIGH FLOW INTERCOOLER SCHEMATIC***

## 1998-2001 LS1 F-BODY INTERCOOLER SCHEMATIC

A. K&N AIRFILTER #RU-3130
B. 3.5" METAL COUPLER - (ATS56I-3)
C. 3.5" FLEX-HOSE
D. PROCHARGER INLET HAT
E. PROCHARGER P-1SC-1
F. 3.0" 90 DEG. RUBBER ELBOW
G. METAL Y-TUBE - (AIGA3I-1)
H. 2.5" 90 DEG. RUBBER ELBOW
I. 2.5" 45 DEG. METAL ELBOW - (AIGJ1I-6)
J. 2.5" SHORT 90 DEG. RUBBER ELBOW
K. DRIVER SIDE INTERCOOLER - (AIGJ1A-2)
L. PASSENGER SIDE INTERCOOLER - (AIGJ1A-1)
M. 2.5" 90 DEG. RUBBER ELBOW
N. 2.5" RUBBER COUPLER
O. 2.5" 90 DEG. METAL TUBE - (AIFA3I-2)
P. 2.5" J-TUBE WITH SURGE - (AIGJ1I-5)
Q. 2.5" 90 DEG. RUBBER ELBOW
R. 2.5" METAL COUPLER - (ATS40I-3)
S. 2.5" MOLDED HOSE DRIVER'S- (MHR08I-2)
T. 2.5" MOLDED HOSE - PASSENGER'S (MHR08I-3)
U. SHEET METAL AIR INLET PLENUM
V. 3.5" RUBBER COUPLER
W. 4.0" TO 3.5" RUBBER REDUCER

10. From the top side of the engine compartment, place the sheet metal LS1 air plenum in position on the radiator core support, so that the outlet aligns with the throttle body. **Note: Make sure that the bent tab at the fron of the air plenum hooks on to the lip of the frame.** Install the 5" long piece of 3.5" hose to the air plenum outlet and attach the MAF inlet to the other end using the #56 hose clamps. *Make sure the MAF is oriented in the proper flow direction (arrow should point into the throttle body).* Install the 4" to 3.5" reducer between the throttle body and MAF outlet and secure using the #64 hose clamps. Re-attach the wiring harness to the MAF and Inlet Air Temperature sensor, as shown in Ilustrations H7 and H8.
11. Install the remaining tubes on the passenger side of the air plenum, as shown. These tubes include one 90 deg. rubber elbow, one 2.5" oval metal hose coupler, and one 45 deg. rubber elbow. Make sure to rotate the oval coupler to maximize hood clearance. Secure all hose clamps.
12. Install the remaining tubes on the driver side of the air plenum. These tubes include two 2.5" 90 deg. rubber elbows, one 45 deg. rubber elbow, one 2.5" round steel coupler and one 2.5" oval coupler. Again, verify that the oval coupler is rotated to maximize hood clearance. If necessary, trim the rubber elbows slightly to improve tube fit/routing. Secure all hose clamps. Check all hose clamps and verify all tubing is clear of moving parts.

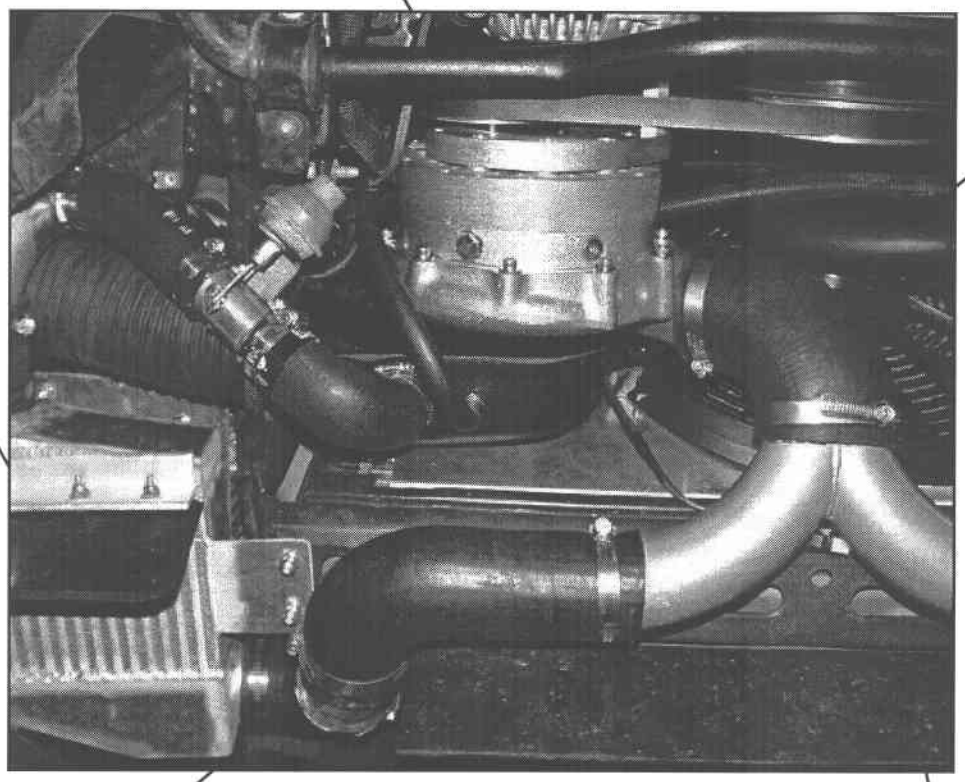



**ILLUSTRATION H2**
***PROCHARGER DISCHARGE TUBING***
***(UNDERNEATH VEHICLE, LOOKING UP)***

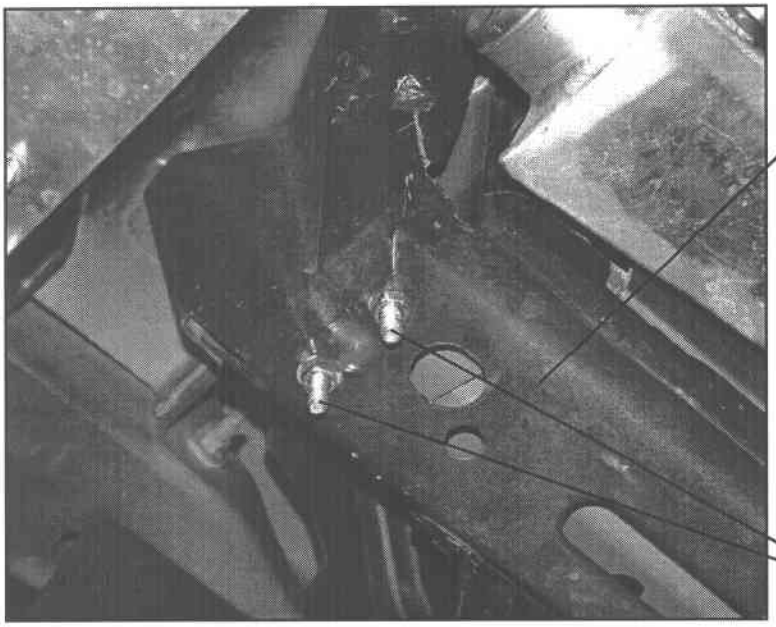
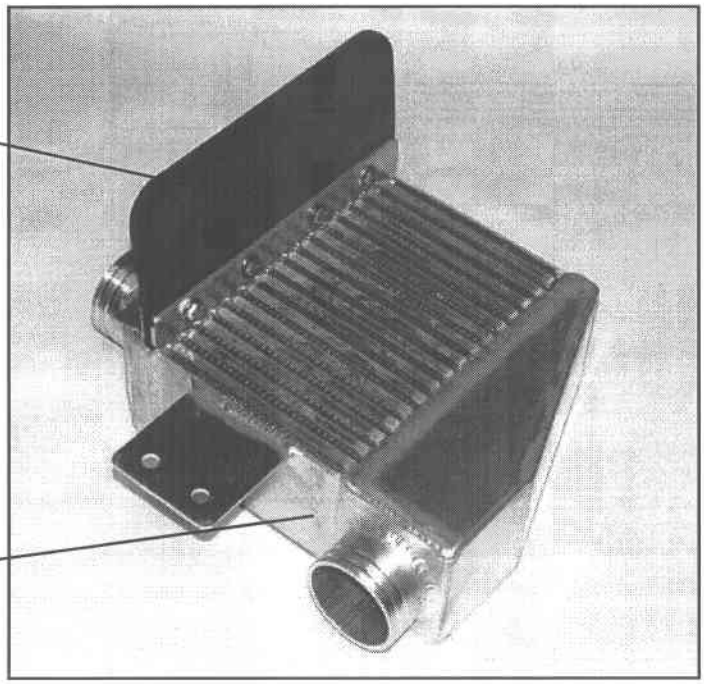



**Illustration H3**
***Driver Side Intercooler Stud Location***
***(Underneath Vehicle, Looking Up)***

**Illustration H4**
***Driver Side Intercooler Stud Location***
***(Underneath Vehicle, Looking Up)***



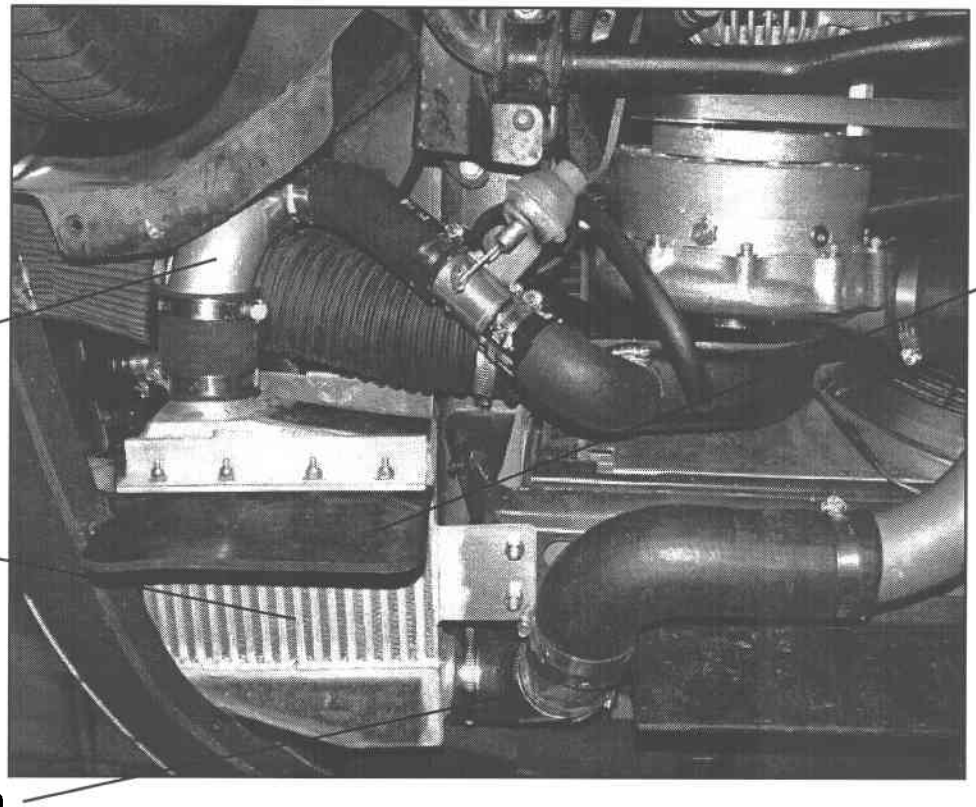



**Illustration H5**
***Driver Side Intercooler Installed***
***(Underneath Vehicle, Looking Up)***

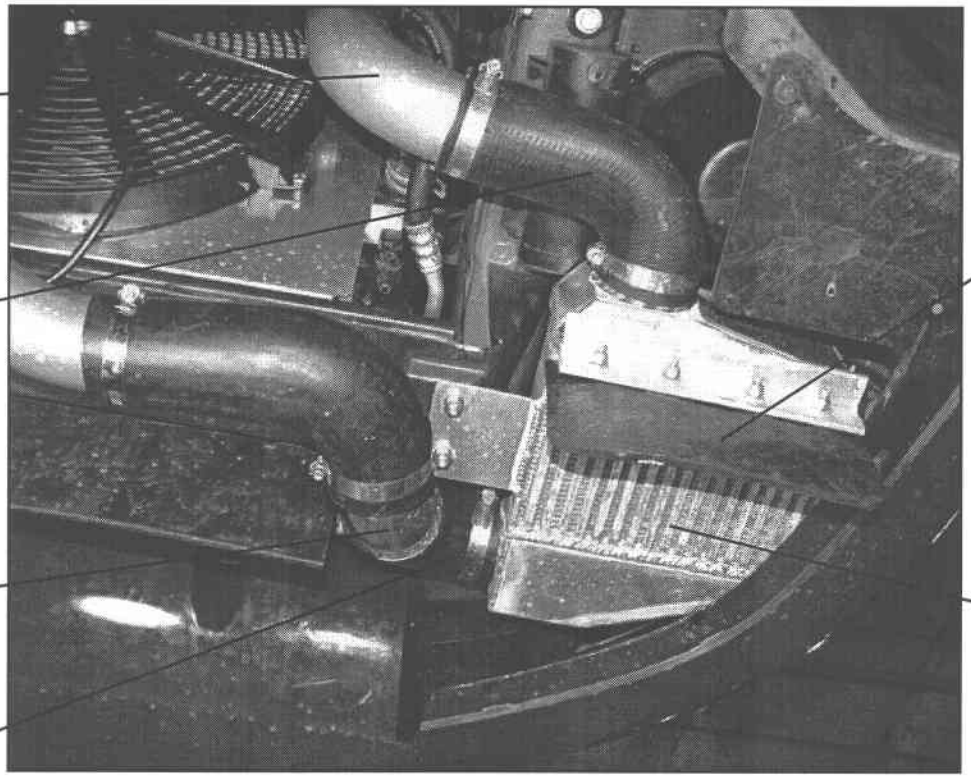



**Illustration H6**
***Passenger Side Intercooler Installed***
***(Underneath Vehicle, Looking Up)***

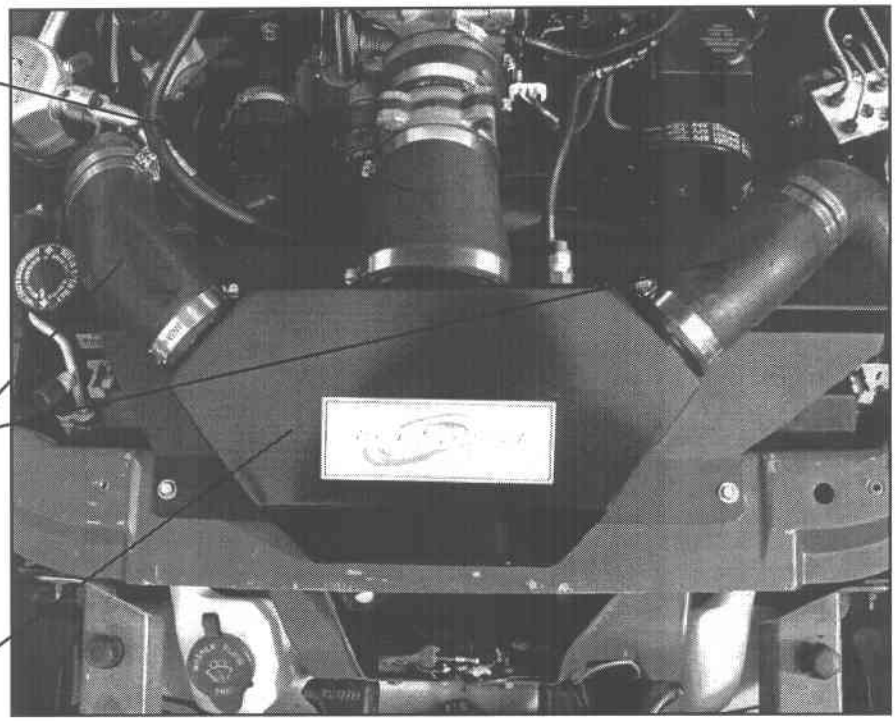



**Illustration H7**
***Intake Air Plenum and Tubing Installed***

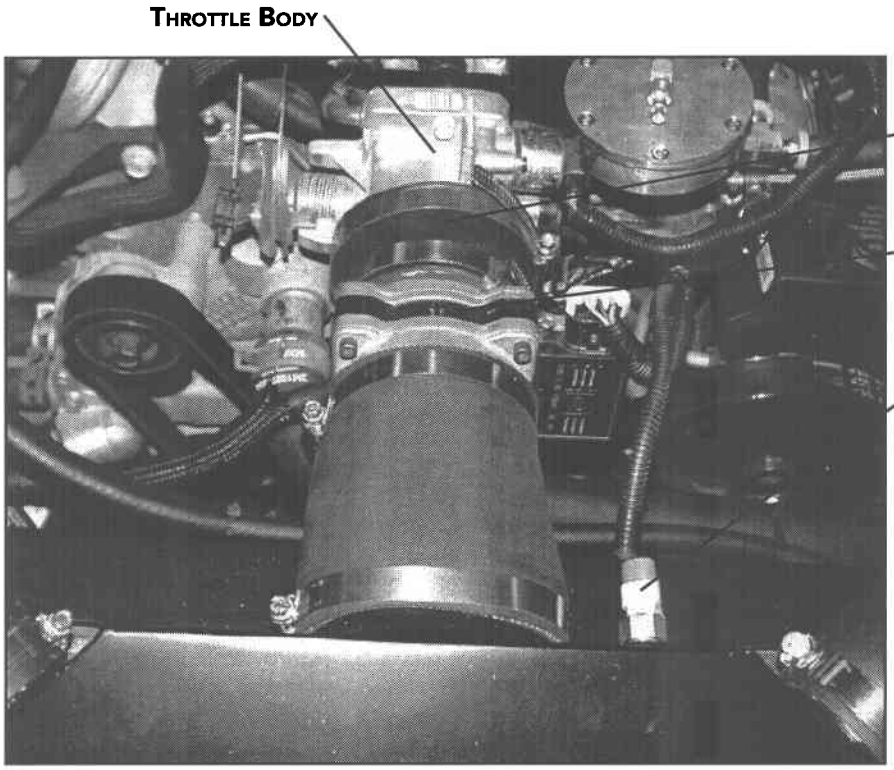



**Illustration H8**
***MAF Meter and Tubing Installed***

# AIR INLET AND ANTI-SURGE SYSTEM DESCRIPTION AND OPERATION

The air inlet system includes the ProCharger inlet hat, flexible tubing and a high flow air filter. The system enables the Procharger to draw in cold air with as little restriction as possible, which maximizes the ProCharger efficiency. The surge valve is a air-over-spring, diaphragm operated butterfly valve. The valve is attached to the intercooler tubing, downstream of the driver's side intercooler. The valve opens under manifold vacuum conditions to allow venting of the excess charge air to avoid compressor surge, and improve idle quality and fuel efficiency. This venting of air can usually be heard when changing from manifold boost to manifold vacuum. The valve closes under boost conditions (and is held shut by boost) so that all the charge air is routed into the engine. Under high rpm decelerations, minor compressor surge (a fluttering sound) can be heard; this is normal and no need for alarm. The surge valve travel is preset at the factory and should not require additional adjustment.

## I. AIR INLET AND ANTI-SURGE SYSTEM INSTALLATION

*In this section you will install the ProCharger air inlet tract with filter.*

1. From underneath the vehicle, attach the ProCharger inlet hat to the ProCharger using one of the #56 hose clamps. Make sure the outlet is pointing horizontal towards the driver side in front of the wheel, as shown in Illustration I1.
2. Attach the provided K&N air filter to one side of the 3.5" metal coupler using the hose clamp that is provided with the filter. Attach the other end of the 3.5" metal coupler to the 3.5" flex-hose using one of the #56 hose clamps, as shown in Illustration H1.
3. Now put the assembled air filter and tube in place and attach to the ProCharger inlet hat outlet using the remaining #56 hose clamp. The air filter and flex-hose should be between the relocated air pump/cruise control and the driver side intercooler tubing, as shown in Illustration I2.
4. Tighten all hose clamps.
5. Attach the long end of the 1-1/2" rubber angled hose to the inlet of the ProFlow surge valve using one of the #24 hose clamps. The ProFlow inlet is the end that the head of the bolt in the center of the butterfly is visible. Attach the long end of the 1-1/2" rubber 90 deg. elbow to the other end of the ProFlow surge valve using another one of the #24 hose clamps.
6. Install the Proflow and surge tubing to the J-tube surge fitting near the driver side intercooler and the other end to the surge bung on the ProCharger inlet hat, making sure the inlet end of the ProFlow is facing the intercooler J-tube. Clamp in place using the remaining #24 hose clamps, as shown in Illustration I2.
7. Attach the provided 3/16" vacuum hose to the ProFlow vacuum fitting and wire tie in place to prevent the hose from coming off the surge valve during boost conditions.
8. Route the vacuum hose up to the top of the engin bay. (It will be connected inline with the FMU vacuum source later on in the installation.) Verify the line is free of moving parts and wire tie in place. Refer to section K. of this manual for vacuum source location (FMU Installation Section).
9. Using the original (factory) retaining screws, install both ATI supplied (black) splash panels where the stock splash panels were located.

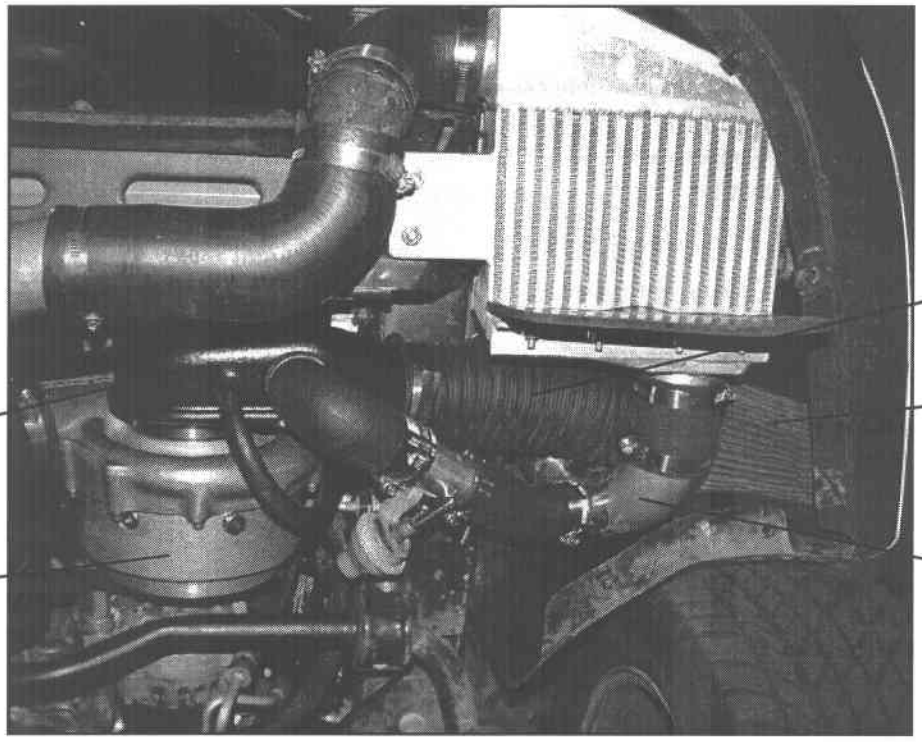



**Illustration I1**
***Air Inlet Installed***
***(Underneath Vehicle, Looking Up)***

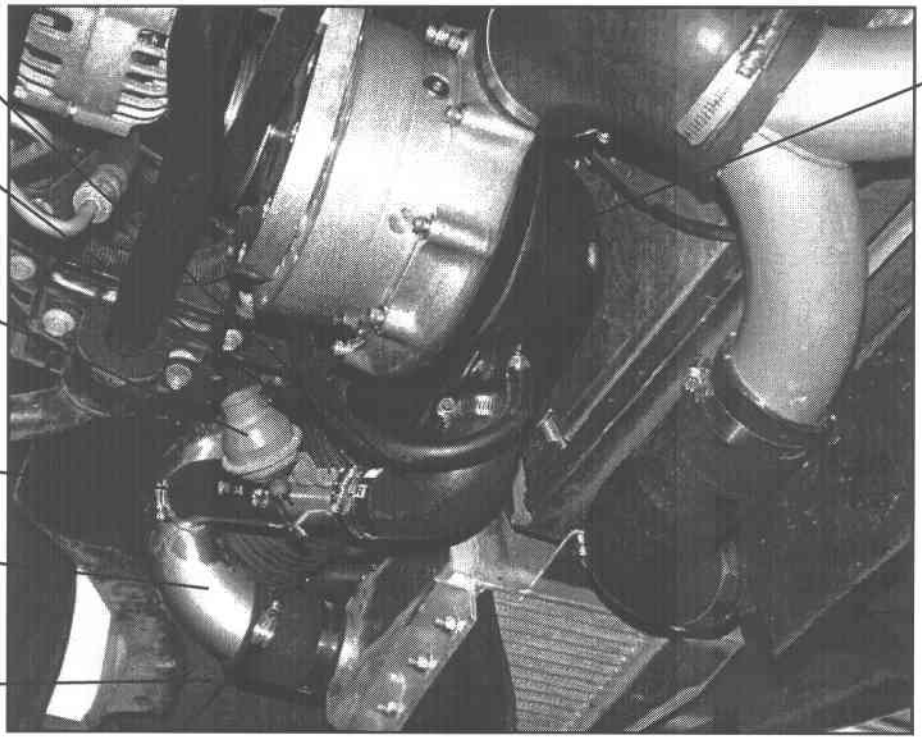



**Illustration I2**
***Anti-Surge System Installed***
***(Underneath Vehicle, Looking Up)***

## FUEL SYSTEM DESCRIPTION AND OPERATION

The Fuel Management Unit, FMU, is a pneumatically operated fuel valve. It is controlled by boost only and is not sensitive to vacuum. The FMU is installed downstream of the factory fuel pressure regulator (which is mounted in the gas tank), enabling it to override the factory regulator. When manifold vacuum is present, the fuel pressure is controlled solely by the stock regulator. As boost is created, the FMU begins to constrict the return line to the fuel tank (overriding the stock regulator), which forces the fuel pressure to increase in the fuel rails. Because this increased fuel pressure is not sensed by the car's computer, the injectors are cycled on a normal acceleration schedule. Since the fuel pressure under boost is now higher than the stock, the engine receives more fuel for each injector pulse, and the proper air/fuel ratio is achieved. The FMU can be adjusted for different fuel pressure requirements, as well as for different injector sizes. Please refer to the tuning section for adjustment of the FMU.

The fuel pump assembly contains a high flow, high pressure fuel pump. It is installed in-line between the stock in-tank pump and the fuel filter (outside of the tank), and is used to increase the fuel delivery capacity of the stock fuel system. Used in conjunction with your stock pump, fuel pressures in excess of 100 psi can be attained. The pump by itself is rated at 240 lph at 42 psi. The fuel pump is wired into your stock pump harness and operates only when the in-tank pump operates. Since the internal drive motor is a dc type motor, the pump output is dependent on proper voltage (13.5 vdc) and requires correct orientation of the positive and negative power leads (as specified near the power terminals of the pump) in order to flow in the correct direction.

## J. FUEL PUMP/LINES INSTALLATION

*In this section, you will install the inline fuel pump, fuel pump relay, and a fuel return line.*

1) From underneath the vehicle, disconnect the fuel lines going into the 'T' union near the fuel filter. Refer to Illustration J1.

⚠ **CAUTION: The fuel system should be depressurized, but some fuel may leak out when these lines are disconnected. Take the necessary precautions to avoid injury or fire.**

2) Replace this union with the supplied black 3/8" coupler. Make sure that the small black o-rings do not fall off of the fittings or stay inside the 'T' union. Refer to Illustration J2.
3) Now install the supplied black 5/16" coupler onto the fuel line that was going into the stock 'T' union.
4) Install the supplied stainless steel line to the 5/16" coupling and route this line along the stock fuel lines towards the engine compartment. Make sure that the supplied (1foot long) piece of heat shield is on the line and located where the driver's side exhaust piping travels beneath it. Use the supplied zip ties to secure the line as you route it.
5) Remove the (6) bolts holding the fuel line heat shields to the chassis and remove the heat shields. The stainless steel line will be routed (with the stock lines) behind the heatshields. The line should come out at the top of the engine compartment as shown in Illustration J4. Do **not** re-install the heat shields at this time.
6) From the top of the engine compartment, mount the supplied fuel pump relay to the ground stud shown in Illustration C3 and J5. The short 6 1/2" ground wire will also be mounted to this stud. Use the supplied M6 nut and washer to secure the relay and ground wire to the stud.
7) Mount the red wire to the factory positive terminal post as shown in Illustration J5.
8) Lift up on the fuse box assembly to release it from its clips. Then, using a flat head screwdriver, release the tab on the fuse box closest to the front of the car while pulling up on it at the same time. This should release it from the assembly and allow you to gain access to the wiring on the underside.

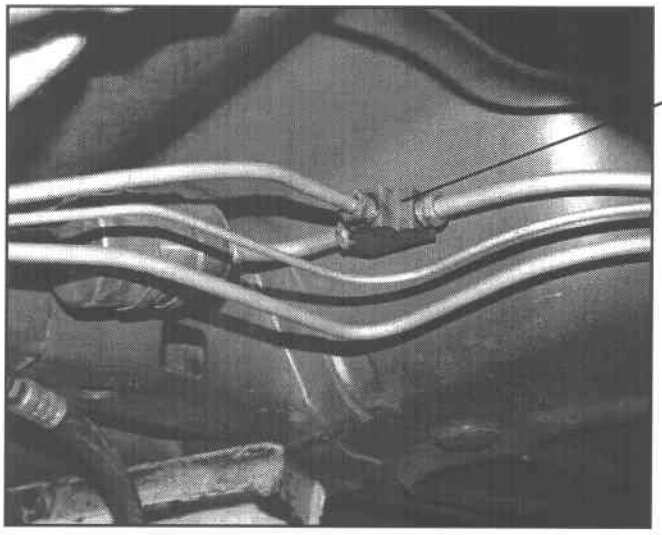



**Illustration J1**
***Stock Fuel Lines And Factory "T" Fitting***
***(Underneath Vehicle Rear)***

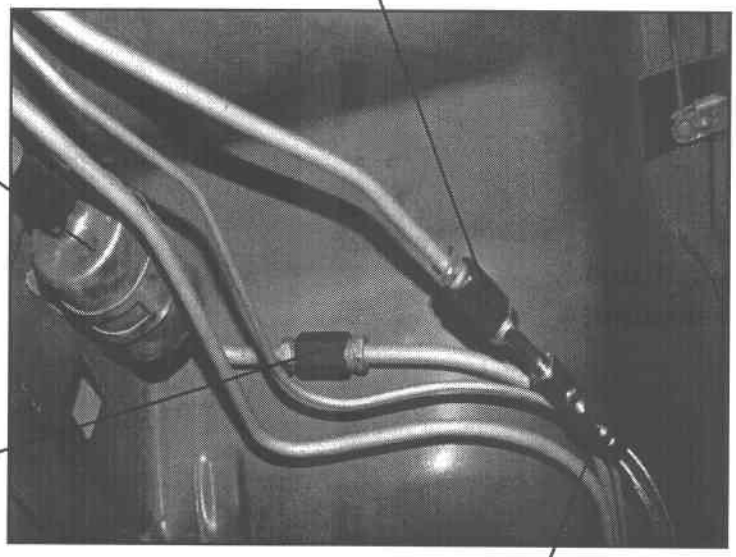



**Illustration J2**
***Fuel Return Line Installed***
***(Underneath Vehicle Rear)***

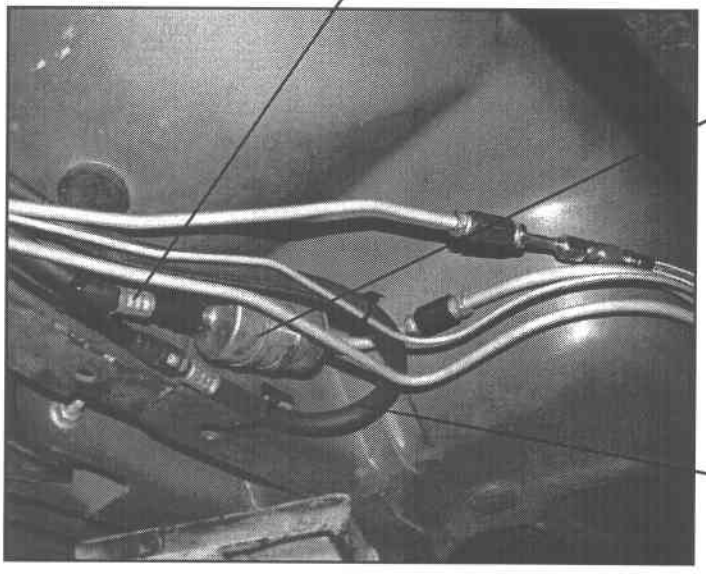
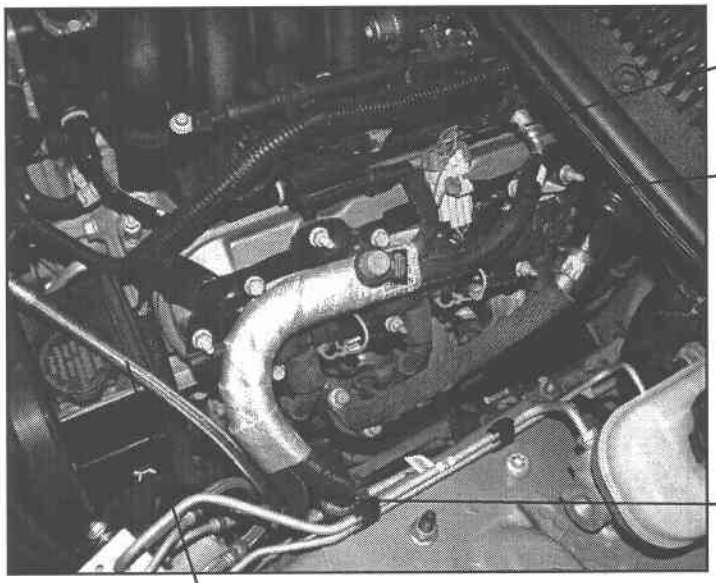



**Illustration J3**
***Fuel Pump Lines Installed***
***(Underneath Vehicle Rear)***



Factory Quick Disconnect Fitting

3/8" Fuel Line
(Will be Removed)

**Illustration J4**
***Fuel Lines, Driver Side of Engine Compartment***

Factory Quick Disconnect Fitting

ATI Stainless Steel Fuel Return Line

Relay Ground Wire (Black)

ATI Relay Installed

Positive (+) Power Supply Cable at Underhood Fuse Box

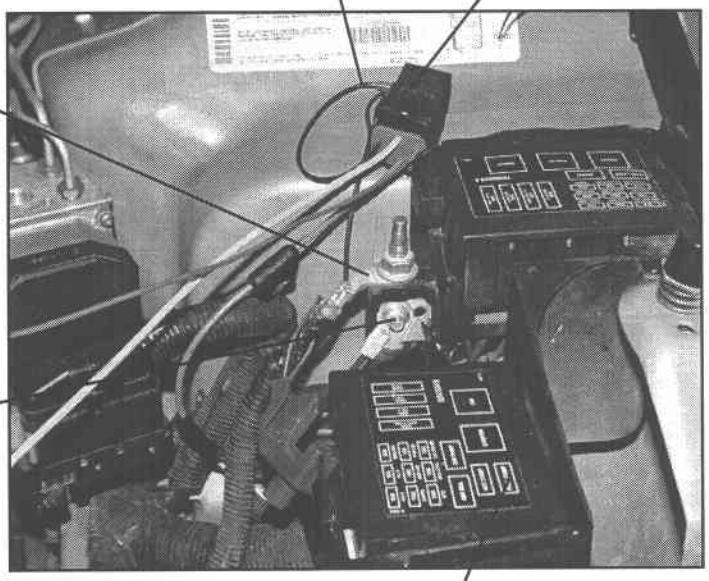
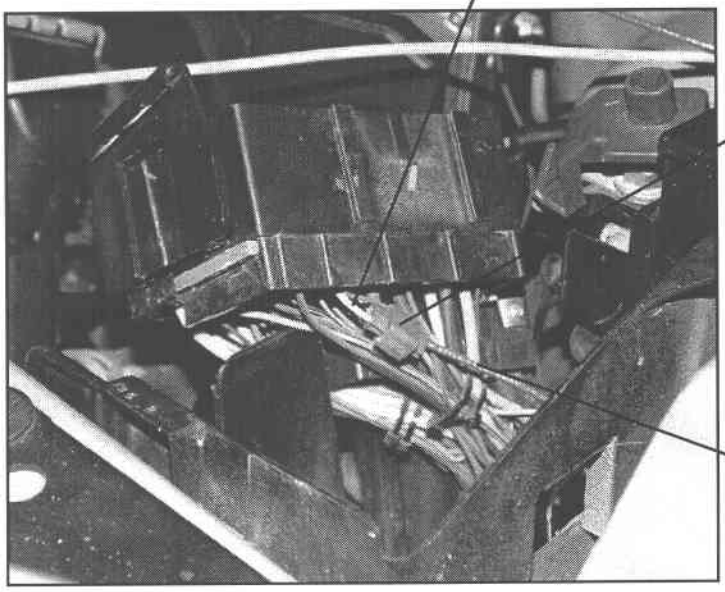


**Illustration J5**
***Fuel Pump Wiring and Relay Installed***

ATI Fuel Pump Relay (+) Power Wire ( Red)

Factory Fuel Pump Signal Wire (Gray)

Fuel Pump Relay Location



Supplied Blue "T" Connector

**Illustration J6**
***Fuel Pump Signal Wire Installation (Bottom Side of Underhood Fuse Box)***

ATI Fuel Pump Signal Wire
(Green Wire ATI Relay)

9) Using the supplied blue electrical "T" connector, connect the green wire from the relay to the solid grey wire coming out of the fuse location for the fuel pump. The location is labeled 'fuel pump' on the lid to the fuse box. Use pliers to depress the metal prong into the wires and make sure that the flap closes properly. Refer to Illustration J6.
10) Route the yellow wire (from the relay) along the same path as the stainless steel line all the way back to the fuel filter location. Use zip ties to secure the wire.
11) Now re-install the heat shields. Make sure that stainless steel line and the yellow wire are not interfering with anything and that they are both clear of the steering components.

*Note: To mount the fuel pump, it will be necessary to gain access to the area behind the rear seats. The carpet will need to be pulled back and unfortunately (for coupes), it is all one piece from the trunk forward.*

**Note: The following instruction are given for f-body coupes*

12) Remove the rear panels in the trunk area that contain the rear speakers. The passenger side is held down with fasteners that can be unlocked by turning them with a flat head screwdriver (a coin will also work). The driver's side panel is held down with plastic 'tree rivets' that can be removed by carefully pulling straight up on the panel. You will need to unclip the speaker wires from the speakers to completely remove the panels.
13) Next remove the two metal tie downs using a #40 Torx bit.
14) Push the levers (on either side of the back seat) towards the front of the car to fold the seat down.
15) Using a #50 Torx bit, remove the two pins on either side of the back seat side panels. These pins are what the handles that lock the back seat grab on to.
16) If your car is a T-top vehicle, remove the end caps that keep the back seat side panels in place. Use a Phillips head screw driver to remove the two screws in each one. These caps are located at the upper forward most part of the back seat side panel.
17) The back seat side panels can now be removed by sliding them forward and pulling them away from the side walls. The carpet can now be pulled back to expose the sheet metal behind the rear seat.
18) From underneath the car, place the fuel pump bracket and fuel pump (not installed yet) up into the area shown in Illustration J11. Make sure the location is high and out of the way, and that the outlet and inlet hoses do not interfere with anything. Hold the bracket in place and remove the pump. Use the bracket to mark the (3) mounting holes. Make sure to check that the location has nothing on the other side of the sheet metal.
19) Use a 5/16" drill bit to drill the holes. We recommend that you start out with a small bit to locate the hole, and then move to the 5/16" bit to finish the hole. Also, drill one of the holes first, and check the other side to confirm that there are no obstructions on the other side for the rest of the holes.
20) Next, drop the supplied 1/4-20x1" mounting bolts with washers through the holes from the inside of the car. Refer to Illustration J10. Place the fuel pump bracket (with grommets installed) onto the bolts and secure the bracket with the supplied nuts and washers. This will require (2) people, one on each side.
21) Roll carpet back into position and install interior components in reverse order of disassembly.
22) The fuel pump should already have its inlet and outlet lines connected to it, if not, go ahead and install the lines on the pump. The 55" line goes on the inlet side of the pump while the 30" line goes on the outlet side of the pump. The outlet is labeled and is the end with the +/- terminals. Using the supplied brass nut and lock washer, install the 18" black wire to the negative terminal of the pump.
23) Now using the supplied #32 hose clamp, mount the fuel pump to its bracket, making sure the outlet end is pointed towards the driver's side rear wheel. The ground wire can then be mounted at the bolt location for the bracket that secures the rear brake lines. Refer to Illustrations J11 and J12.

24) Now continue running the yellow wire (from the relay) along the fuel lines up to the fuel pump. This is the positive wire for the pump. Cut the wire at the appropriate length and crimp on the supplied (yellow) ring termianal. Then connect it to the positive terminal on the pump using the supplied lock washer and brass nut.

**Refer to Illustration J7 for steps 25-27.*

25) Disconnect the fuel line going into the fuel filter. It has a quick disconnect fitting that can be undone by pressing in on the plastic tabs while pulling the connection apart. Make sure that the (white) plastic retainer does not stay on the fuel filter. Use a screw driver to release the ' tabs if it is stuck on the fuel filter inlet.

26) Now connect the 30" inch fuel line from the pump outlet to the fuel filter inlet. The quick disconnect fitting should snap when it is locked onto the fuel filter inlet.

27) Now connect the 55" fuel line from the pump inlet to the fuel line that was disconnected from the fuel filter. Again you should hear them snap together when they are locked.

28) Make sure all fuel lines and wiring are securely zip tied out of the way. Refer to Illustration J13.

*You are now finished with the fuel system underneath the car.

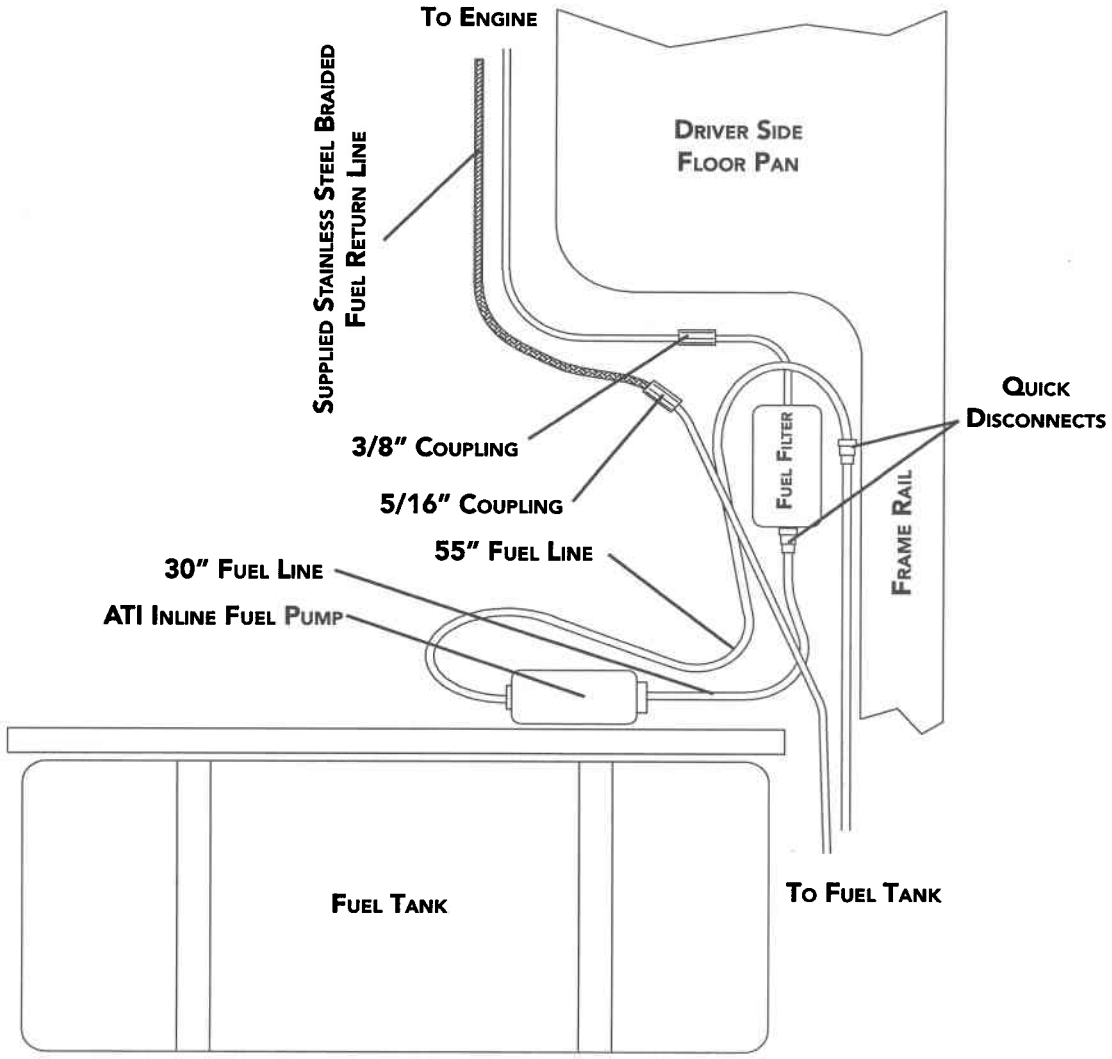
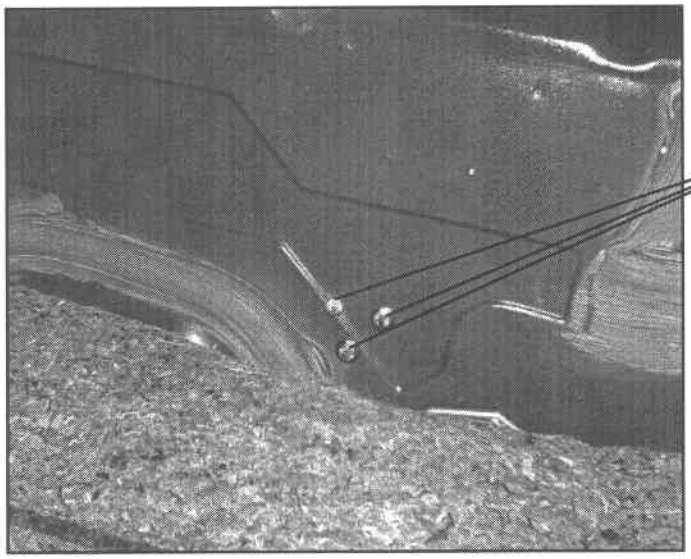



**Illustration J7**
***Fuel Pump Installation Schematic***
***(Underneath Vehicle Rear, Looking Up)***

**Illustration J8**
***Carpet Removed From Vehicle Rear***



**ATI Fuel Pump Signal Wire**
**(Green Wire ATI Relay)**

**Fuel Pump Mounting Bolts**
**(Use Fuel Pump Bracket as Template)**

**Illustration J9**
***Fuel Pump Mounting Bolts***
***(Inside Vehicle, Rear Seat Back Sheet Metal)***

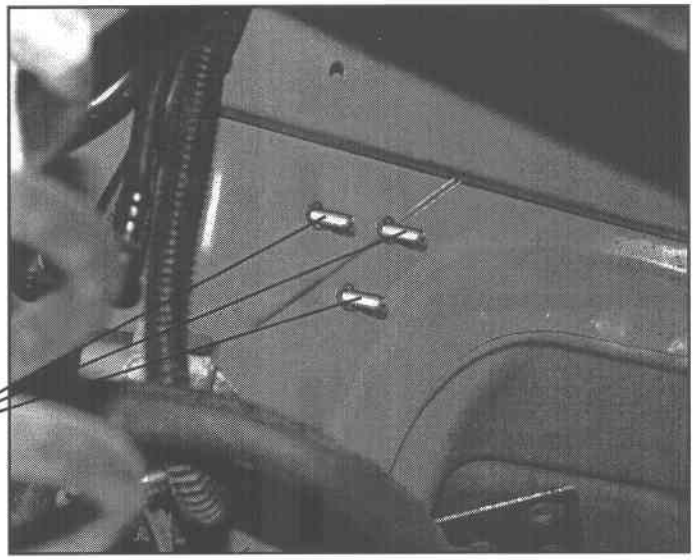


**Illustration J10**
***Fuel Pump Mounting Location***
***(Underneath Vehicle, Above Rear Axle)***

**Fuel Pump Mounting Bolts**
**Installed**

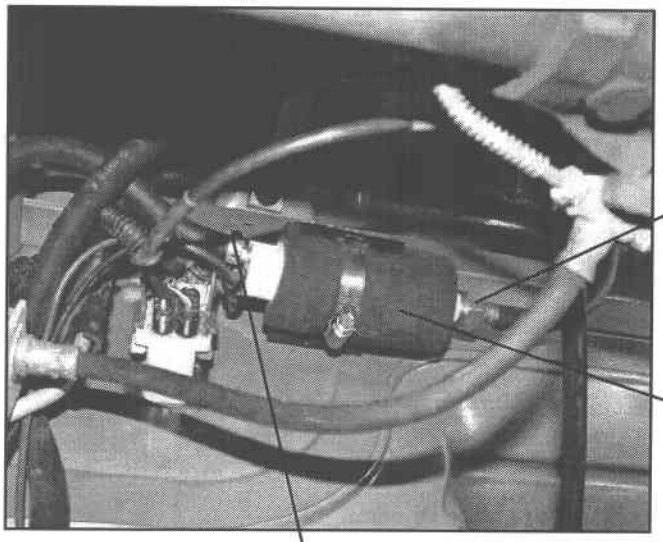



**Illustration J11**
***Fuel Pump Installed***
***(Underneath Vehicle, Above Rear Axle)***

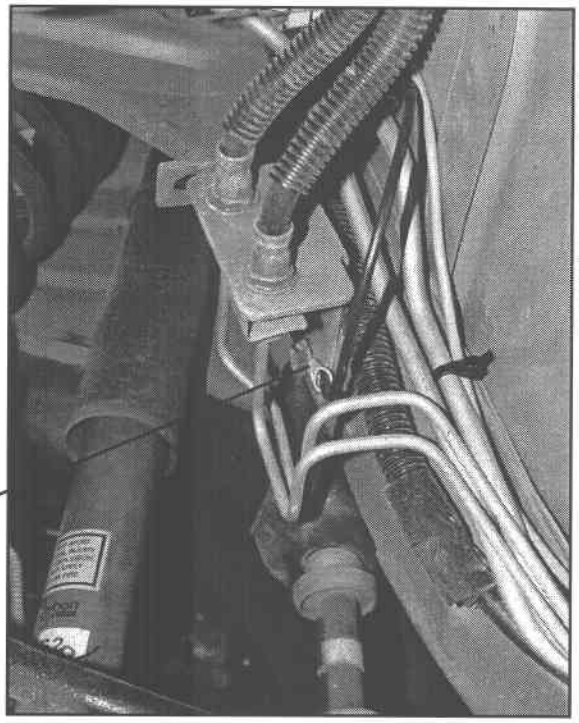



**Illustration J12**
***Fuel Pump Mounting Ground Location***
***(Underneath Vehicle, Above Rear Axle)***

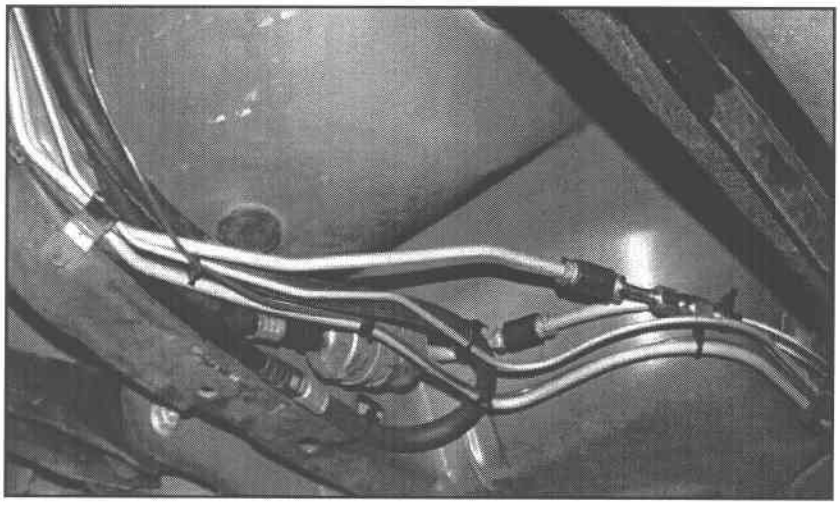


**Illustration J13**
***Fuel Pump Lines Installed***
***(Underneath Vehicle Rear)***

# K. Fuel Management Unit (FMU) Installation

*In this section, you will install the Fuel Management Unit (FMU) and Lines.*

1) In the engine compartment, back out bolts A, B, and C (about 1/8 of an inch),and remove bolt D shown in Illustration K3.
2) Using the (3) supplied bolts and washers, attach the FMU to its bracket so that the bottom 90 deg. fitting will be pointed towards the driver's side front wheel once the bracket is installed. Slide the FMU bracket onto the backed out bolts and reinstall bolt D from Illustration K3. Now tighten bolts A, B, and C.
3) Route the previously installed stainless steel braided line under any wiring and hoses and attach it to the bottom 90 degree fitting on the FMU.
4) Using the supplied (blue) quick disconnect tool, remove fuel line A (shown in Illustration J4) by disconnecting both quick disconnect ends. The tool will slide into the female socket and when pushed into the fitting, will unlock the connection.
5) Now connect the 14" hose from the FMU to the rear most fuel fitting (fuel rail) and the 10" hose from the FMU to the fuel supply line on the side of the engine.
6) Install a 3/16" vacuum 'T' fitting into the long end of the supplied 1/8" vacuum line and plug the 'T' fitting into the 2" section of vacuum hose coming off of the top of the FMU. Run the other end of the line (with the 2" and 5" vacuum sections) to the passenger side firewall in the engine compartment.
7) Tee into the factory vacuum lines at the check valve on the passenger side firewall by using the 5" and 2" piece of 1/8" vacuum hose, along with the 1/4x3/16 plastic fitting. Refer to Illustration K1 and K2. One end of the 3/16" 'T' fitting shoud be connected to the vacuum line going to the FMU.
8) Verify that the bleeder screw on top of the FMU is closed completely (CW).

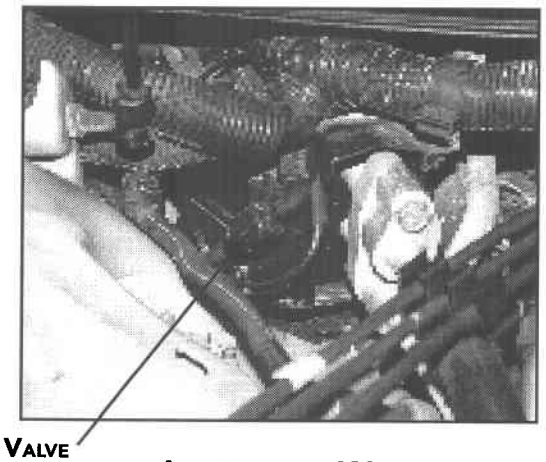



**Illustration K1**
***Manifold Vacuum Source***
***(Pass. Side Engine Compartment)***

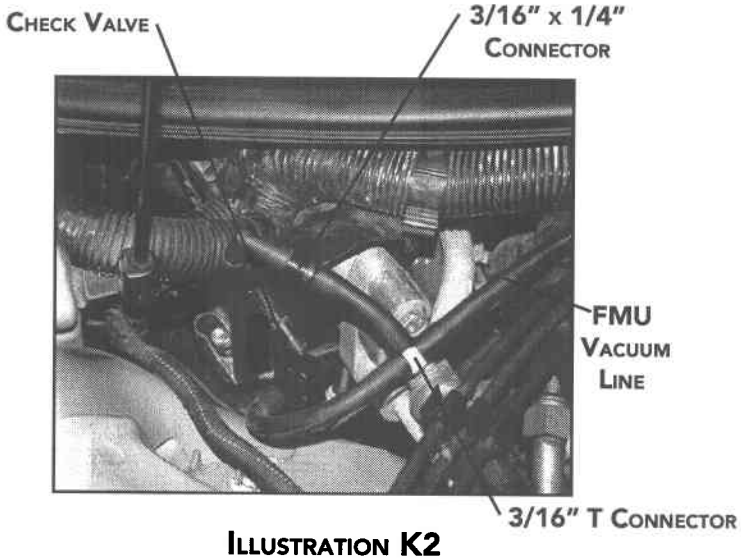



**Illustration K2**
***FMU Vacuum Line Installed***
***(Pass. Side Engine Compartment)***

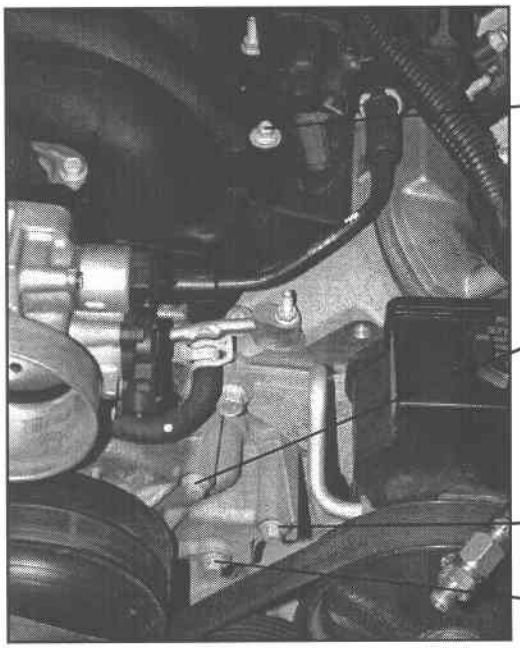



**ILLUSTRATION K3**
***FMU MOUNTING LOCATIONS***


**ILLUSTRATION K4**
***FMU INSTALLED***

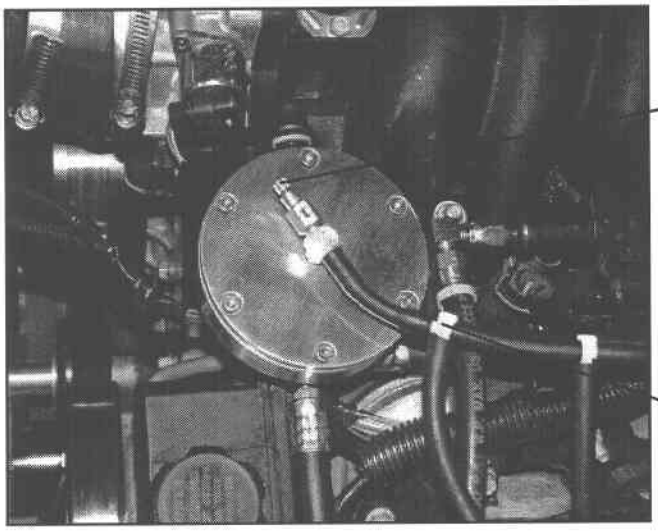



**ILLUSTRATION K5**
***FMU INSTALLED***
***(TOP VIEW)***

## L. Final Assembly

*This section covers installation of the miscellaneous remaining items.*

1. Remove the crankcase vent line coming out of the passenger side valve cover and from the side of the throttle body. Place the supplied 3/8" rubber cap over the tube where the breather was connected and secure with a zip tie.
2. Attach the supplied 3/8" breather hose to the fitting on the passenger side valve cover and then route this hose to the blower inlet hat. Secure both ends with a zip tie. Make sure the line is out of the way of any moving parts.
3. Check all fluids and correct levels as necessary.
4. Reconnect the negative battery cable.

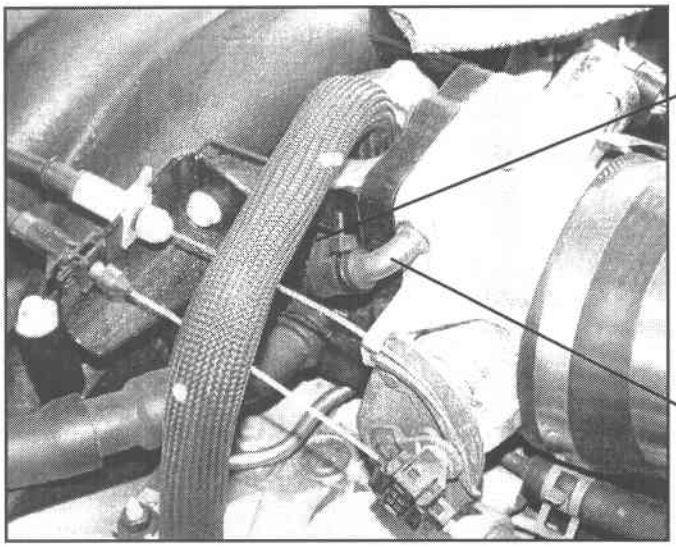



**Illustration L1**
***Throttle Body Breather Fitting Capped***

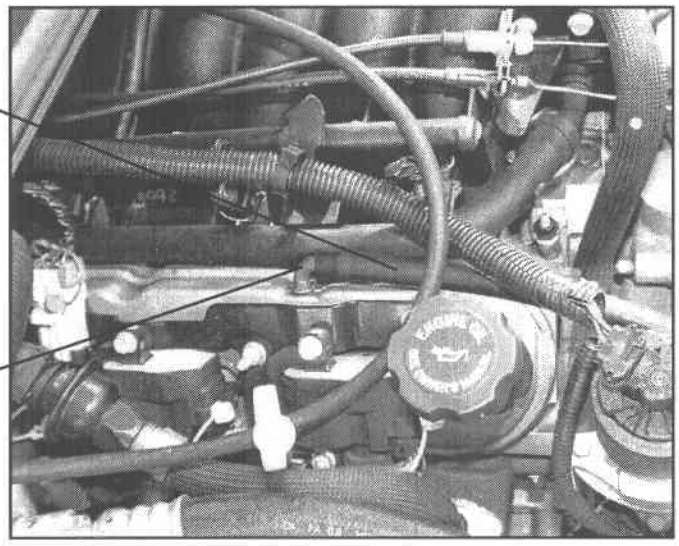



**Illustration L2**
***Passenger Valve Cover Breather With New Hose***

## ⚠ M. Installation Review and Safety Check

Carefully review the entire installation. Examine air tubes and fuel lines routed near moving parts and exhaust components to ensure that they are protected from chafing or abrasion, secure and free of twists and kinks. All wires and hoses should be firmly secured with clamps or wire ties. Also, ensure that the air filter is installed.

Check and correct all fluid levels (oil, power steering &, radiator). Your vehicle should be filled with 91 or higher octane fuel before any driving.

⚠ **WARNING: The P-1SC-1 supercharger contains no oil from the factory. The unit must be filled prior to use.**

Use only ATI supplied oil in your P-1SC-1 ProCharger. The ATI oil has been specially formulated for the bearings in the ProCharger and use of oil other than that supplied by ATI will void your warranty. Review Section J. before starting engine.

Start engine and idle for a few minutes. Inspect connections for air or fluid leaks.

Shut off engine and check for fluid leakage, signs of rubbing parts, and other potential problems.

Your vehicle should display a significant, detonation free increase in performance when you step into the throttle, yet maintain its previous driveability during daily driving. If this is not so, review your installation, then contact your dealer or ATI for assistance.

For best performance and reliability, **always use premium grade fuel (91 octane or higher)** and listen for signs of detonation. If detonation should occur, decrease throttle application immediately. With a properly installed ProCharger intercooled supercharger system, detonation should not be an issue.

TECH TIP **NOTE: Larger cities (especially during the winter months) often use oxygenated or re-formulated fuels to reduce pollution. Although these fuels have the same octane ratings as unaltered fuels, some people have experienced problems (detonation) with their use. If you experience similar problems, it is advised to use octane booster to avoid detonation.**

Never race your engine (and ProCharger) when they are cold. Allow the coolant temperature to rise into operating range and remain for several minutes before driving above 2,500 rpm, in order to ensure adequate lubrication.

Be sure you have purchased and properly installed a fuel pressure gauge and/or fuel/air ratio meter to montior fuel delivery while driving. Installation of a boost pressure gauge is also recommended.

Please review the maintenance and warranty sections within this owner's manual.

# N. TUNING

Proper fuel pressure is the main tuning issue of your system. The ProCharger is nothing more than an efficient air pump used to substantially increase the volumetric efficiency of your engine. Intercooling is utilized to remove the heat caused by compressing the air, and this in turn results in an intake air temperature which is only 25°-35° above ambient at 9 psi (vs 90°-150° above ambient with non-intercooled superchargers). Thanks to this efficiency, brake specific fuel consumption (BSFC) is very close to that of a naturally aspirated application. This means that there is no need to run the over-sized (over-rich) fuel injectors frequently seen with non-intercooled forced induction applications, where fuel is being used not only to create horsepower, but to fight detonation as well. However, maintaining the proper air/fuel ratio is still extremely important even in intercooled applications. In order to extract as much power as possible from this increased air flow, the proper amount of fuel must be added. Too much fuel will cause the car to hesitate, be sluggish, emit heavy black smoke and not attain proper boost levels. A lean condition will cause the car to detonate (which, under higher boost conditions, can cause engine damage), run hot or break up. The FMU can be adjusted via the air bleed needle valve on the top of the unit. Since each car is different and engine and exhaust modifications will affect your final fuel pressure settings, the following is a guide offered to help you arrive at your final FMU setting.

**WARNING: FMU AIR-BLEED NEEDLE-VALVE ADJUSTMENT IS EXTREMELY SENSITIVE, NEVER REDUCE FUEL PRESSURE BY MORE THAN 1/2 TURN INCREMENT AT A TIME.**


To get the most out of your system it will prove beneficial to utilize an air fuel ratio meter. The wide band units are most ideal when tuning an engine for maximum performance. Meters that utilize stock oxygen sensors are excellent for tuning under idle and cruise conditions, where fuel economy is the targeted goal, but lack the necessary resolution in the regions where maximum power is made (12.6:1 A/F ratio). Usage of a wide band sensor will provide data that will allow you to achieve optimum performance throughout your engine's operating range.

**Stock injectors (25 lb/hr):** Initial setting: fully closed (cw)
Fuel pressure should increase linearly from the stock setting (58 psi) to approximately 80 to 95 psi at moderate to full boost conditions. If the car hesitates upon snap acceleration or heavy black smoke is emitted from the tail pipe, reduce fuel pressure by turning the needle valve ccw in 1/4 turn increments until the hesitation is gone.

NOTE: THE STOCK FUEL PRESSURE STATED ABOVE IS WITH THE ENGINE OFF AND THE KEY TURNED TO THE ON POSITION, OR WITH THE VACUUM LINE DISCONNECTED FROM THE FUEL PRESSURE REGULATOR WHILE THE CAR IS AT IDLE.

**SUPPLEMENTAL OFF-ROAD NOTES:**

Off-road, high boost applications require high energy ignition systems for proper combustion. If using a stock ignition system on such an application, the plug gap must be reduced to approximately 0.035" to avoid "blowing out" the flame/spark. The use of plugs one heat range cooler than stock is also advised.

# O. Operation and Maintenance

- ## Cold Starting

Never race your engine (and ProCharger) when your engine is cold. Allow the water temperature to climb into operating range for several minutes before driving above 2,500 rpm, to ensure adequate oil lubrication.

- ## Fuel Quality

For best performance and reliability, **always use premium grade fuel (91 octane or higher)**. Always listen for signs of detonation after refueling, and after replacement or modification of any fuel system components. Back off throttle should detonation occur. With a properly installed ProCharger intercooled supercharger system, detonation should not be an issue. Your fuel filter should be changed every 10,000-15,000 miles.

- ## Oil and Filter Maintenance

Always change your engine oil and filter every 2,500 - 3,000 miles! Synthetic oils are recommended.

- ## Ignition System Maintenance

Because of the vastly cooler intake temperatures delivered by intercooling, you should be able to run full timing on your intercooled ProCharger application. Also, be aware that with forced induction and full timing your engine will continue to pull hard all the way to the redline, and for maximum performance you should now shift just prior to the redline. If your spark plugs are platinum, more than a year old or have more than 10,000 miles logged, you should consider changing them before driving your vehicle under load. Additionally, spark plug wires should be changed if visibly damaged or whenever resistance exceeds factory specifications.

- ## Air Filter Maintenance

Your air filters should be cleaned periodically, potentially as often as every 10,000 miles or 6 months, even though a service interval of 50,000 - 100,000 miles is quoted by the manufacturer under normal driving conditions. A clogged air filter will result in decreased boost levels and vehicle performance. **Always operate your vehicle with an air filter, failure to do so may result in damage to your ProCharger and/or personal injury!**

- ## Belt Replacement

The belt which turns your ProCharger will stretch after initial run-in, and should be retightened after the first hundred miles, if not sooner. After possibly one more tightening of the belt with the tensioner, further stretching should not occur. Tighten the belt sufficiently to avoid slippage, but do not overtighten, as this could cause damage to the ProCharger's precision bearings. When removing belts, ensure that they are reinstalled to turn in the same direction as before. Should you reuse a thrown belt and find that it needs frequent re-tightening, the belt is damaged and should be replaced. Belts can be bought from ATI or from your local parts store. Gates Micro-V belts are recommended; these belts are available at CarQuest™, NAPA™ and other auto parts stores. Your nearest CarQuest store can be found by dialing 800-492-7278, the nearest NAPA store at 800-538-6272.

- ## Impeller Speed

**Maximum impeller speed should not exceed the impeller redline speed of 60,000 rpm for the P-1SC-1 model.** To determine the impeller speed, the following formula is used: Maximum impeller speed = crankshaft pulley diameter (N1) divided by supercharger pulley diameter (N2), multiplied by the step-up ratio (4.10 for the P-1SCH), multiplied by engine rpm at redline.

**Impeller RPM = (N1/N2) x 4.10 x engine RPM**

**If you require technical support, please contact us at (913) 338-3086 9:00-5:00 CST, Monday - Friday, or contact technical service via email at techserv@procharger.com**

# P. SUPERCHARGER MAINTENANCE

- **WARNING:**

**ALL SC SUPERCHARGERS CONTAIN NO OIL FROM THE FACTORY. YOU MUST ADD THE SUPPLIED PROCHARGER OIL PRIOR TO USE.**

Use only ATI supplied oil in your SC ProCharger. The ATI oil has been specially formulated for the bearings in the ProCharger and use of oil other than that supplied by ATI will void your warranty.

- **OIL CHANGE INTERVALS**

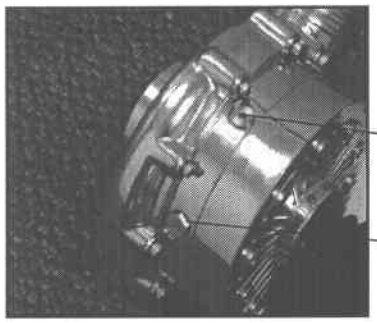
The first oil change should be performed at 500 miles and at 6000 mile intervals thereafter. Clean drain plug after every oil change. Drain oil by removing the magnetic drain plug. Clean off the magnetic drain plug before reinstalling. *See figure below, left*

- **OIL LEVEL**

The oil level must be checked periodically (when cold) to ensure the proper oil level in the ProCharger. The dipstick can be loosened using a flat blade screwdriver or a coin. When installed, the oil level should be between the min and max levels (See fig. below). If the oil level falls below min, fill the ProCharger, through the dipstick hole, until the proper oil level is reached. **Warning: Filling the ProCharger higher than the "max" level on the dipstick will lead to bearing and/ or seal damage.** The SC ProChargers are sealed units and normally will not require the addition of oil between service intervals. If excessive consumption is noted, the unit should be sent to ATI for inspection/repair. Disassembly of the supercharger will void your warranty.

- **GENERAL**

When removing the dipstick, be sure to retain the nylon washer. A spare washer is provided with each box of SC oil (a box is included with each system). Do not remove or replace either the nylon washer on the dipstick, or the rubber o-ring on the drain plug with anything other than ATI supplied replacements. **Evidence of either case may void factory warranty.** A discoloration of the oil and residue on the drain plug will be noticed during initial oil changes. This is no cause for concern and will eventually diminish. The serial tag on your SC ProCharger must be pointing upwards for proper orientation. Installing the supercharger in another orientation will result in inadequate oiling and supercharger failure. If you have any questions about the maintenance of your SC ProCharger they should be directed to an ATI service technician or dealer.

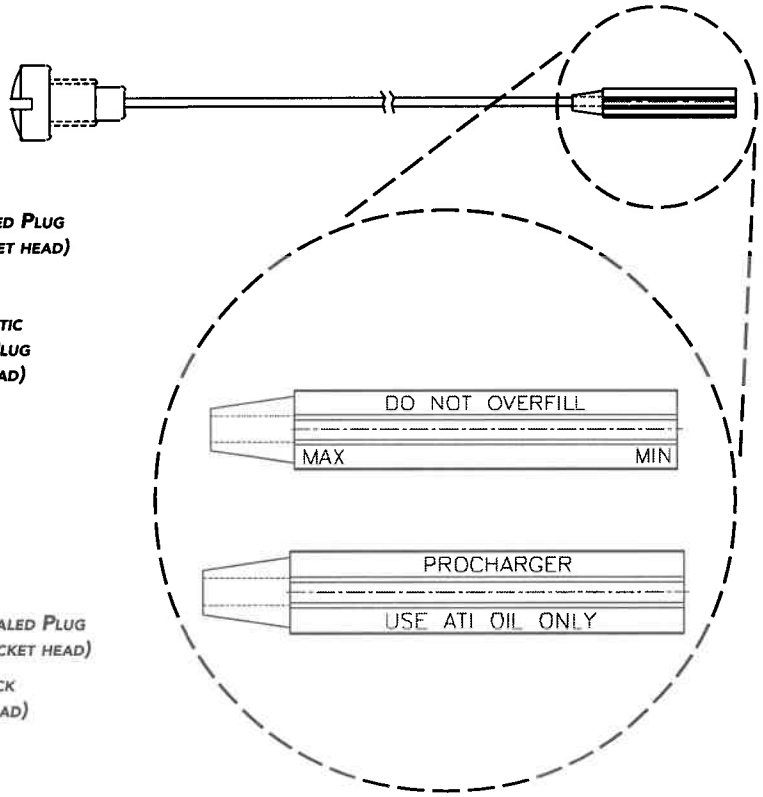


SEALED PLUG (SOCKET HEAD)

MAGNETIC DRAIN PLUG (HEX HEAD)

SEALED PLUG (SOCKET HEAD)

DIPSTICK (FLAT HEAD)



# Q. Warranty Information

## The ProCharger® and ProCharger Installation System Limited Warranty

Accessible Technologies, Inc. ("ATI") is proud to offer a twelve (12) month limited warranty on its ProCharger supercharger systems and a thirty-six (36) month warranty on ProCharger superchargers (supercharger only) with eligible, factory-installed pulleys. ATI's warranty obligations are limited to the terms below:

ATI warrants the ProCharger and ProCharger installation system against defects in materials and workmanship for a period of twelve (12) or thirty six (36) months (supercharger only, if eligible) from the date of original purchase from your local dealer, or date of shipment from the factory if purchased directly from ATI. If the product is used in its intended manner, ATI will repair or replace any component found to be defective at no charge to the customer. SHOULD THE CONSUMER PURCHASE A SMALLER DRIVEN PULLEY THAN THE PULLEY INSTALLED BY THE FACTORY, WARRANTY COVERAGE IS REDUCED AS INDICATED ABOVE. USE OF ANY PULLEY NOT MANUFACTURED BY ATI VOIDS ALL WARRANTY COVERAGE. This warranty coverage is extended only to the original consumer purchaser and excludes hoses, sleeves, and electronic components manufactured by other companies.

To obtains service under this warranty you must do the following during the warranty period:

1. Phone ATI (913-338-3086) and provide us with the following information:
   - ProCharger serial number
   - vehicle year, make, model, engine modifications and other modifications
   - description of perceived problem

2. If no solution to your problem can be found after the above phone conversation, you will be assigned a warranty claim number. You must then properly ship your product, at your expense, to the ATI factory. The product should be carefully packaged in a rugged box so that none of the components being shipped could strike each other or the side of the box during shipping. The box should be strong enough to safely contain the weight of the components being shipped.

3. Include the following information inside the box with your product:
   - copy of your original invoice or receipt
   - name, address and daytime telephone number
   - warranty claim number
   - vehicle year, make, model, engine modifications and other modifications
   - description of perceived problem

4. Clearly mark the warranty claim number on the top and one side of the box in characters no less than 2" tall. Ship the properly packaged product, prepaid and insured for the retail value of the component(s) being returned, to the following address: Accessible Technologies, 14801 West 114th Terrace, Lenexa, Kansas 66215

ATI agrees to honor a warranty claim at its sole discretion and only after inspection by engineers at the ATI factory. No warranty will be honored if any product subassembly is found to have been improperly installed, tampered with, mishandled or misused in any way. DISASSEMBLY OF THE PROCHARGER OR REMOVAL OF THE PROCHARGER SERIAL PLATE VOIDS ALL WARRANTIES. Claims for freight damages should be directed to the freight company.

If ATI's limited warranty applies, your product will be repaired or replaced at ATI's option and shipped back to you, freight prepaid, via UPS ground service. If the limited warranty does not apply, we will advise you of the specific reason for denial, and advise you of repair expense and timing. After advising you of this information we will, at your option, either proceed with repairs or return your product to you in the state in which it was received. In either case the product will be shipped to you COD, insured at replacement value. This means that you would pay the return shipping and insurance charges if ATI's limited warranty does not apply to your product.

THE WARRANTY AND REMEDIES SET FORTH ABOVE ARE EXCLUSIVE AND IN LIEU OF ALL OTHERS, WHETHER ORAL OR WRITTEN, EXPRESS OR IMPLIED. THE DURATION OF ANY AND ALL WARRANTIES ON THE PRODUCTS DISCUSSED ARE LIMITED TO THE PERIOD IDENTIFIED ABOVE. ATI IS NOT RESPONSIBLE IN ANY EVENT FOR DIRECT, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES. No ATI dealer, agent, or employee is authorized to make any modification, extension, or addition to this warranty.

# THE PROCHARGER SC
# EXTENDED COVERAGE PROGRAM

## DESCRIPTION

- The ProCharger Extended Coverage Program extends the warranty coverage for your P1-SC-1 ProCharger an additional TWENTY-FOUR (24) months, for a total of thirty-six months. This extended coverage applies to parts and labor for the ProCharger centrifugal supercharger unit only, and does not include other system components.

- Under the extended coverage program, ATI will repair or replace any component within the ProCharger which is found to be defective.

- Service under the extended coverage program is obtained through the same process as described in The ProCharger Twelve Month Limited Warranty.

## QUALIFICATION

- Only the original consumer purchaser of the ProCharger is eligible, so long as this purchaser qualifies under the terms described below.

- Completion of the Extended Coverage Registration Form is required, along with a $49 registration fee. In return for the $49 registration fee, your system record will be updated to reflect the extended warranty and you will recieve (6) additional bottles of ATI SC oil. This form must be completed in its entirety, and must be submitted along with payment within 30 days from the date of original purchase from your local dealer, or date of shipment from the factory if purchased directly from ATI.

- ***PARTICIPANTS MUST HAVE ORDERED THE PROCHARGER WITH THE 5 OR 7 PSI (INTERCOOLED) DRIVEN PULLEY,*** and must agree to maintain this original pulley, and not remove this pulley or disassemble or modify the ProCharger unit in any manner. With respect to the ProCharger itself, all terms and conditions within the ProCharger Twelve-Month Limited Warranty apply. Tampering with the driven pulley and any other modification of the ProCharger unit will disqualify an owner from participating in the Extended Coverage Program. Acts resulting in disqualification include but are not limited to the following:
    - Removal or attempted removal of the ProCharger driven pulley
    - Removal or attempted removal of the ProCharger serial plate
    - Removal or attempted removal of the compressor housing or transmission case

- ***PARTICIPANTS MUST AGREE TO PROPERLY MAINTAIN THE PROCHARGER, AND PROVIDE PROOF OF COMPLIANCE WITH THE FOLLOWING REQUIRED MAINTENANCE:***
    - Only ATI supplied oil must be used in the ProCharger.
    - ProCharger oil level must always remain within the specified limits.
    - ProCharger oil change every 6000 miles using the ATI supplied oil (After initial oil change at 500 miles).
    - See additional information in Section J.

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# PROCHARGER® EXTENDED COVERAGE PROGRAM REGISTRATION FORM

**(MUST BE RETURNED WITHIN 30 DAYS OF PURCHASE WITH $49 CHECK)**

Name: _____

Address: _____

City: _____

State: _____ Zip: _____

Daytime phone: _____

Evening phone: _____

Date of Purchase: _____

Purchased From: _____

ProCharger Serial #: _____

Vehicle Year: _____

Vehicle Make: _____

Vehicle Model: _____

Which information sources most influenced your decision to purchase a ProCharger system? Please rank in order of importance (1 = most important, 2 = second most important, etc.).

- ___ Magazine advertising
- ___ Dealer recommendation
- ___ ProCharger Brochures
- ___ Witnessed performance on a car
- ___ Test drive
- ___ Magazine editorials
- ___ Friends
- ___ Conversations with ATI technicians
- ___ Web Site (please specify)_____
- ___ Other (please specify) _____

What issues most influenced your decision to purchase a ProCharger system? Please rank the following issues in order of importance.

- ___ Reliability
- ___ Standard warranty
- ___ Extended coverage warranty
- ___ Performance
- ___ Quiet operation
- ___ Removability (ability to return car to stock)
- ___ Cost
- ___ Ease of Installation

What magazines do you read?

- ☐ Car & Driver
- ☐ Car Craft
- ☐ Chevy High Performance
- ☐ Four Wheel and Off Road
- ☐ Hot Rod
- ☐ Motor Trend
- ☐ Muscle Mustangs and Fast Fords
- ☐ GM High-Tech Performance
- ☐ 5.0 Mustang
- ☐ Super Street
- ☐ Mustang Monthly
- ☐ Truck Trends
- ☐ Popular Hot Rodding
- ☐ Road & Track
- ☐ Sport Truck
- ☐ Super Chevy
- ☐ Truckin'
- ☐ Sport Compact Car
- ☐ Street Truck

Age ☐ 18 - 24 ☐ 25 - 34 ☐ 35 - 44 ☐ 45 - 54 ☐ 55 and up

Income ☐ $15,000 - $29,000 ☐ $30,000 - $44,000 ☐ $45,000 - $69,000 ☐ $70,000 and up

Who installed your ProCharger system? ☐ Self ☐ Dealer ☐ Other

Have you own a forced induction system previously? ☐ Yes ☐ No

Supercharger: Brand(s) _____ Vehicle(s) _____

Turbocharger: Brand(s) _____ Vehicle(s) _____

I have read and understand the terms and qualifications for the ProCharger Extended Coverage Program. I have not modified my ProCharger in any way and will not during my participation in the extended coverage program. I have read and answered all questions on this form. I have also enclosed my check for $49, payable to ATI, for enrolling my ProCharger (serial # indicated above) in the extended coverage program for an additional 30 months beyond the standard limited warranty period of 6 months.

Signature: _____ Date: _____

Please mail completed registration form to ATI at: 14801 West 114th Terrace, Lenexa, KS 66215.
If you have any questions, please contact us at (913) 338-3086 9:00-5:00 CST, Monday - Friday
Or contact technical services via email at techserv@procharger.com