

1985-1991 L98 Corvette High Output Intercooled System **Installation Guide**



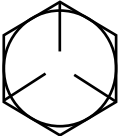
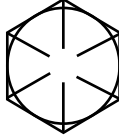
The Intercooled Supercharging Experts!®

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Torque Specification Chart	 Grade 5			 Grade 8		
	Thread Size	Torque (lb. ft.)			Torque (lb.ft.)	
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

INTRODUCTION

Congratulations on purchasing your ProCharger® 1985-1991 L98 Corvette High Output Intercooled System. Read this entire manual before you attempt to install your ProCharger kit. It is imperative that you follow all of the instructions in the order they appear in this installation guide. If you have any questions regarding any aspect of this installation, call us at (913) 338-2886.

For best results, we recommend reviewing the installation instructions beforehand, and following the installation instructions closely and in sequence. A detailed packing list has been provided to assist you in identifying the components of your ProCharger system.

 **Warning:** *Your supercharged Corvette must always be run on 91 octane or higher gas.*

Required Tools and Supplies

- 1/2" and 3/8" Socket Sets (standard & metric)
- 1/2" Breaker Bar and 4" Extension
- Torx Bit Set
- Open End Wrench Set (standard & metric)
- Adjustable Wrench
- Flat & Phillips Screwdrivers
- Spark Plug Socket
- GM Factory Repair Manual
- Center Punch
- 9/16" Tapered Punch
- 3/8" NPT Tap
- Heavy Grease
- Silicone Sealer
- Oil Filter Wrench & Filter
- 5 Quarts Engine Oil (Synthetic Preferred)

You should also have the following gauges available to properly check the finished installation and monitor your vehicle's performance (especially for testing):

- Manifold Boost Pressure Gauge
- Fuel Pressure Gauge
- Wide Band Oxygen Sensor and Gauge


Gauges should be of a type that can be read from the cockpit while performing a wide-open throttle road test. Cockpit or hood-mounted gauges are preferable. In order to obtain usable readings, the gauges should measure pressure at the intake manifold and fuel rail. IF VEHICLE DOES NOT MAINTAIN PROPER FUEL PRESSURE, DECREASE THROTTLE APPLICATION IMMEDIATELY. In some cases, extra vehicle modifications can strain the stock fuel pump. If your vehicle has difficulty retaining adequate fuel pressure, contact ATI ProCharger about the availability of an upgraded fuel system.

The engine on which the ProCharger® is to be installed should retain the factory compression ratio. If it has been modified in any way, please consult ProCharger staff before proceeding with the installation. This supercharger system is intended for use on STOCK, strong, well-maintained engines/transmissions. Installation on a worn or troublesome powertrain should be reconsidered. ATI PROCHARGER WILL NOT BE HELD RESPONSIBLE FOR DAMAGE TO A VEHICLE'S POWERTRAIN.

For best performance and reliability, always use premium grade fuel (91 octane or higher) and listen closely for signs of detonation, which might sound like ball bearings rolling around in a tin can. IF DETONATION SHOULD OCCUR, OR IF YOU ARE UNSURE WHETHER WHAT YOU'RE HEARING IS DETONATION, DECREASE THROTTLE APPLICATION IMMEDIATELY and please consult ATI ProCharger staff. Detonation should not be an issue with a properly installed intercooled supercharger system, though OEM factory-shipped engine and parts inconsistencies are possible on any vehicle.

TABLE OF CONTENTS

Introduction	i
Table of Contents.....	ii
Getting Started.....	1
Oil Drain/Feed Setup.....	4
Fuel System	6
ProCharger Head Unit	9
Intercooler and Tubing.....	15
Final Assembly	25
Tuning	26
Installation Review/Safety Check	27
Operation and Maintenance	28
Limited Warranty	29

 *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.*

GETTING STARTED



Note: Spark plugs should be replaced if they are platinum or have more than 10,000 miles of use. Plugs that are one heat range colder than stock are recommended.

- 1 Remove the gas cap to relieve fuel tank vapor pressure.
- 2 Remove the fuel pump fuse from the fuse block. Crank the engine a few seconds (the engine will not start) to bleed fuel pressure from the fuel lines. Replace the fuel pump fuse.
- 3 Disconnect the negative battery cable from the battery.
- 4 If installed, replace any aftermarket computer chip with the original stock chip.



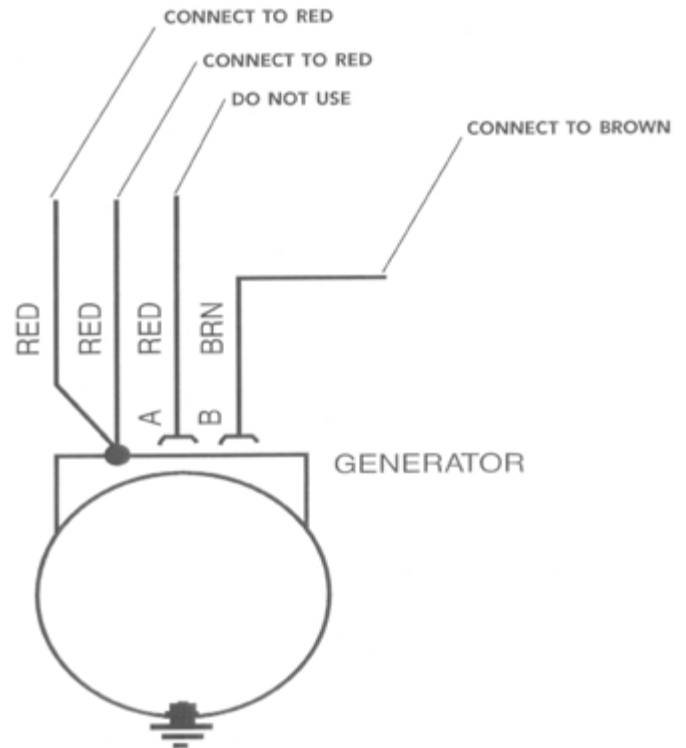
Warning: Aftermarket ECM modules, unless specifically designed for use with a supercharger, advance timing at elevated rpm's, and in most cases will cause detonation and engine damage under boost conditions.

- 5 If the vehicle is equipped with the ride control option, the driver's side shock adjuster may need to be removed and in some cases the ride control option may need to be eliminated.
- 6 Remove the hose clamp from the throttle body and MAF sensor connector. Remove the two nuts retaining the stock air intake assembly and the intake assembly itself. Remove the two studs above the radiator used to attach the intake assembly.
- 7 Remove the stock 6-rib serpentine drive belt.
- 8 Remove the driver's side fenderwell fairing adjacent to the shock absorber. Cut the upper shock absorber stud approximately 1/4" above the shock mounting nut. (**Note:** Flats may be filed on the remaining shock stud material to aid in future shock replacement.)
- 9 Remove the power steering to alternator bracket.
- 10 Remove the rear alternator support bracket.
- 11 Disconnect the alternator wires.

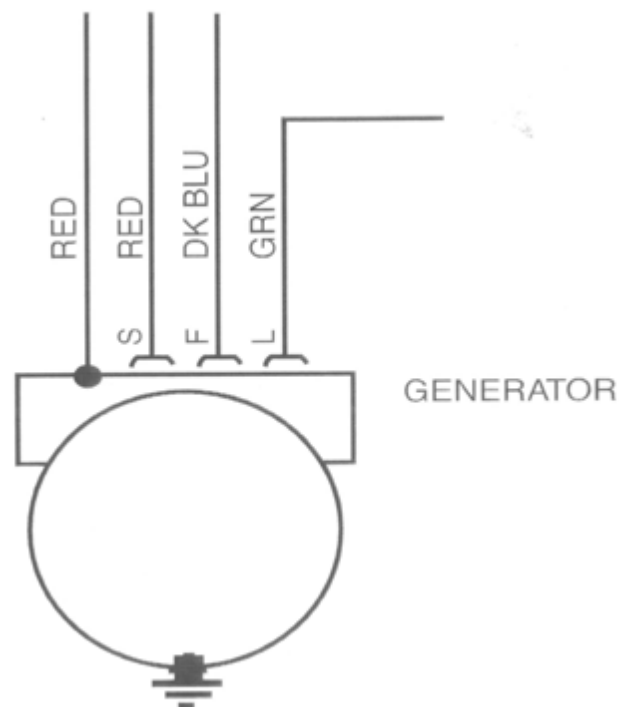
Getting Started

✓ **Note:** 1985 model alternators will need to be replaced by newer, smaller units ('86-'91). See right for wiring schematic.

- 12 Remove the alternator and drill out the smaller mounting hole to approximately 13/32" diameter.
- 13 Replace the stock alternator fan with the supplied fan. Using a center punch, stake the alternator nut to the shaft.
- 14 Remove the rear air pump bracket.
- 15 Remove the two bolts and one nut from the front of the air pump.
- 16 Disconnect the air pump to diverter valve hose at the air pump.
- 17 Remove the air pump and discard as desired.
- 18 Remove the upper stud and lower bolt from the power steering bracket.
- 19 Disconnect the power steering lines and remove the power steering pump/bracket assembly.
- 20 Modify the power steering pump bracket by removing the alternator support ears as shown.
- 21 Remove the radiator hose and support hanger.



1985 wiring diagram



1986 wiring diagram

22 If so equipped, remove the dampener attached to the front side of the water pump pulley and discard. Re-install the water pump pulley and bolts.

23 Reattach and secure the power steering lines, and install the lower bolt in the power steering bracket, but don't tighten.

'85-'89 models:

24 Below and in front of the radiator, remove the three center sections that make up the lower spoiler/air dam assembly.

25 Remove the two bolts retaining the forward fan from the upper radiator fairing. Unplug and remove the fan.

26 Remove the upper radiator fairing, unplugging the air temperature sensor and relay. Remove the sensor and relay from the fairing.

'90-'91 models:

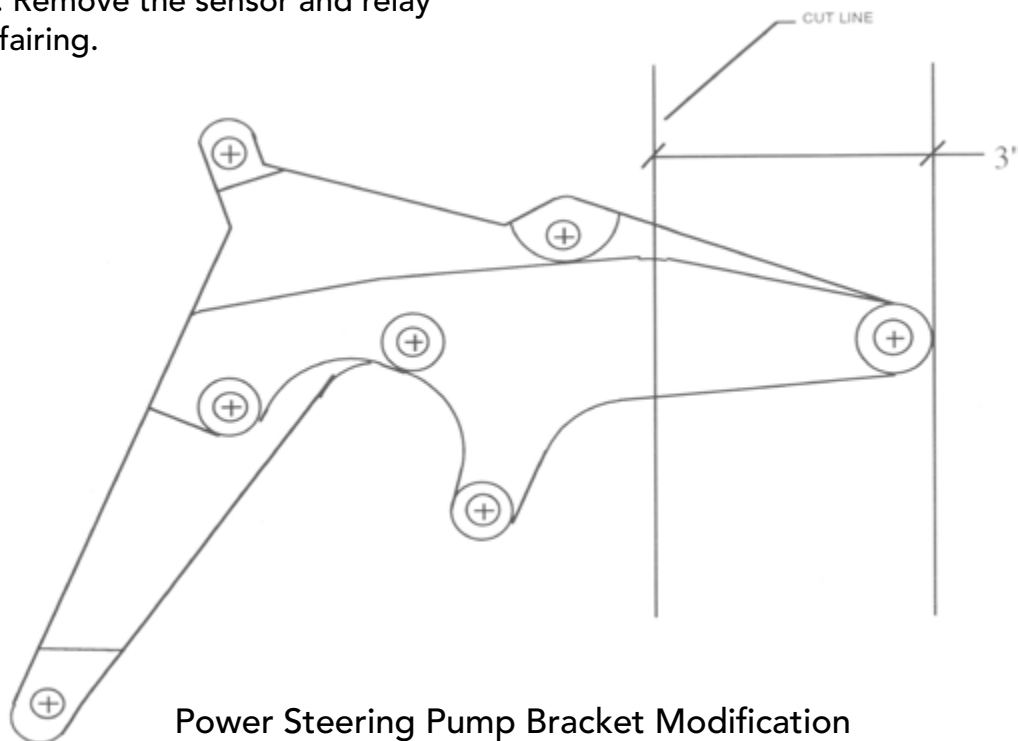
24 Remove both the left and right hand sections of the lower air dam assembly.

25 Unbolt the electrical box from the driver's side splash guard. Remove the left and right front fenderwell splash guards located just in front of each tire.

26 Remove the cruise control vacuum canister from the driver's side headlight galley. This will not be reused.

27 Remove the radiator overflow bottle from the passenger's side headlight galley. This will not be reused.

28 Remove the bolts securing the horn assemblies from the frame.



Power Steering Pump Bracket Modification

OIL DRAIN/FEED SETUP

Oil Drain Setup

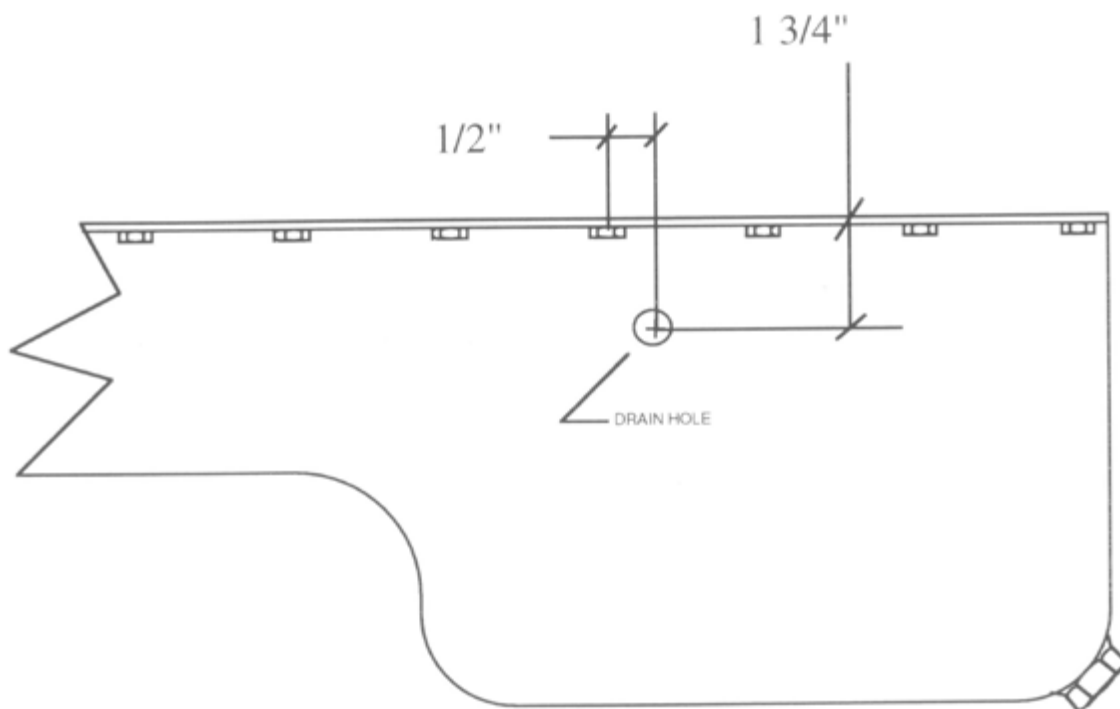
! **Warning:** This is a gravity feed system; the oil-return line must be kink-free and run downhill for its entire length, draining into the pan above the oil-level line.

- 1 Raise the front end of the car and support with jack stands.
- 2 Drain the engine oil and coolant.
- 3 Remove the oil pan from the car if there is not enough clearance to perform steps 4 thru 7. It will be necessary to temporarily disconnect the engine oil cooler/lines (if present).

4 Punch (don't drill) a small pilot hole 1/2" behind the fourth bolt hole from the rear on the driver's side of the pan and 1-3/4" down from the pan flange. Stepping up punch sizes sequentially, enlarge the pilot hole to approximately 9/16".

5 Tap the hole with a 3/8" NPT (National Pipe Thread) tap.

✓ **Note:** 3/8" NPT refers to a pipe's inner diameter. Use as short a punch as possible to ensure sufficient clearance between the punch and internal engine components. This tap is tapered and should not be fully threaded into the pan.



Oil Drain Fitting Location (Viewed from Driver's Side)

- 6 Clean the threads and remove all chips (a magnet works well).
- 7 Liberally apply silicone sealer and attach the 3/8" NPT - 1/2" barb fitting to the oil pan – do not connect the oil drain line at this point, as it should be connected to the ProCharger first.
- 8 Temporarily install the oil return line at this time, and pour approximately 1/2 quart of oil through it to flush out any residue in the oil pan.
- 9 Cover the return fitting inlet to prevent any foreign matter from entering the oil pan.
- 3 If not already done, screw the bushing into the center port of the "T" fitting and orient it so that the single outlet is angled down away from the block at approximately 45°.
- 4 Install the oil pressure sending unit in the other port of the tee and the oil feed line into the bushing side of the "T". Reconnect the oil pressure sending unit electrical connector.
- 5 If removed, re-install the oil pan. **Note:** If the pan gasket has lost its pliability, it should be replaced. The oil drain line will be installed after ProCharger installation so that it may be trimmed to proper length.



Perform an oil (synthetic preferred) and filter change prior to completing installation and starting the engine.

Oil Feed Setup

- 1 Unplug the electrical connector from the oil pressure sending unit located just above the oil filter. Unscrew the sending unit from the block.
- 2 Using hydraulic sealer on all **external** threads only, install the 2" extension into the block. Attach the 90° "T" fitting to the exposed end of the installed extension and tighten. Orient the "T" so that the center port is pointing towards the front of the car.

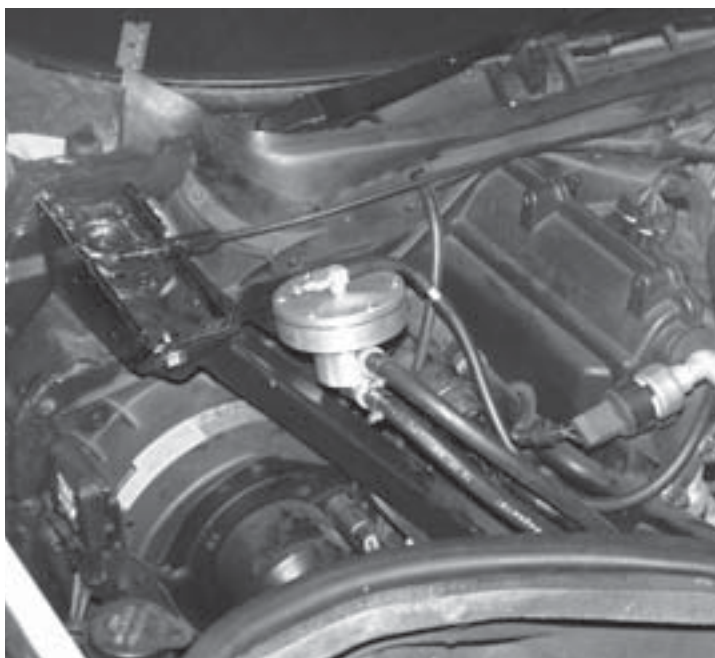


Warning: Do not use Teflon™ tape or sealant on the fitting, as this could block the ProCharger oil nozzle!

FUEL SYSTEM

✓ **Note:** This section only applies to full systems, which include a fuel management unit and an in-line fuel pump. If you do not have a full system, additional fuel system modifications will be required before starting the vehicle.

! **Warning:** When working on high pressure fuel systems, caution should be taken when handling high pressure lines, as residual pressure may cause fuel to spray unless relieved prior to disconnection. Take precaution to avoid injury or fire.



Installed FMU

Fuel Management Unit

- 1 Remove the nuts from the hood retaining bracket to the firewall and mount the FMU as shown. Tighten the FMU bracket using the previously removed nuts.
- 2 Remove the catalytic converter heat shield from the passenger's side of the vehicle.
- 3 Disconnect the fuel return line. The return line is the smaller of the two lines.
- 4 Connect the factory line going to the tank to the line going to the bottom of the FMU.
- 5 Connect the factory line coming from the fuel rails to the line going into the side of the FMU.
- 6 Route the vacuum line from the FMU to the vacuum port on the passenger's side near the back of the intake plenum; splice using the supplied "T".
- 7 Secure the fuel and vacuum lines as needed using wire ties.
- 8 Verify the FMU needle valve initial setting: 1/2 turn from fully closed (cw).

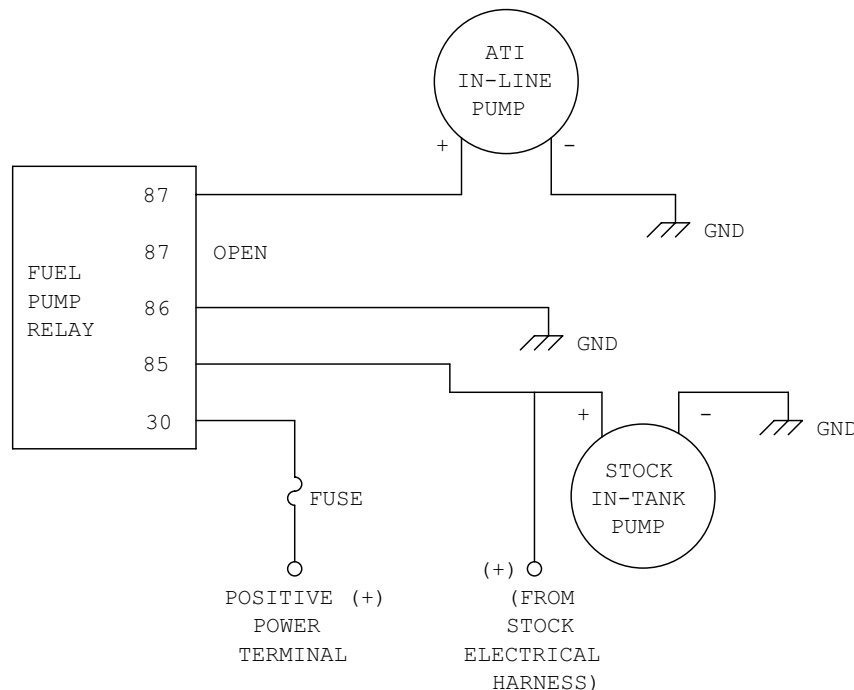
In-Line Fuel Pump

- 1 Remove the four screws that retain the fuel filler door assembly and remove the door assembly.
- 2 Remove the rubber spill tray surrounding the fuel filler neck.
- 3 Disconnect the fuel pump outlet line from the fuel pump. The outlet line is the largest (3/8") line, located at the forward passenger's corner of the pump assembly, and is usually secured with two hose clamps.
- 4 Remove the license plate.
- 5 Attach the yellow wire from relay terminal #87 to the positive terminal of the inline pump.



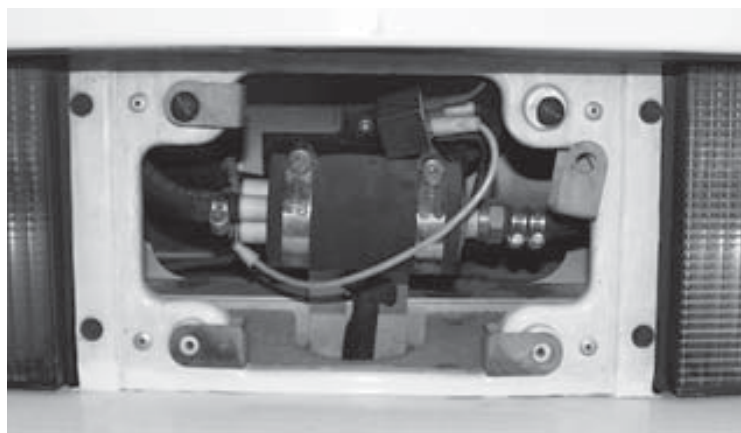
Fuel Filler Neck, Fuel Line and Wiring Connection

- 6 Attach the ground wire from relay terminal #86 to the ground terminal of the inline pump.
- 7 Install the fuel pump/relay bracket assembly to the support post in the license plate opening using the supplied 1/4" bolt/washer/nut assembly so that the large washer clamps the bracket to the support post (see next page).



In-line Fuel Pump Relay Wiring Diagram

- 8 Connect the line from the in-line pump inlet to the outlet of your stock in-tank pump and secure with a clamp.
- 9 Connect the outlet of the in-line pump to the previously removed line, which runs to the engine, with the supplied hose barb and secure with a hose clamp.
- 10 Using the supplied electrical connector, connect the green wire from relay terminal #85 to the grey wire at the in-tank pump (this should be the positive lead to your stock pump).
- 11 Drill a 5/32" diameter hole in the support post and attach the ground wire from the pump to the support post using the supplied screw.
- 12 Route the red wire from relay terminal #30 along the inside of the driver's side frame rail, securing with wire ties as needed, and attach to the power terminal located at the rear, outside corner of the battery utilizing the supplied in-line fuse and ring connector.
- 13 Reconnect the negative battery terminal and turn the key to the "on" position (do not start). Check for any fuel leaks in the fuel pump and regulator areas. If leaks exist, repair as necessary.
- 14 Disconnect the negative battery terminal.
- 15 Re-install the license plate, spill tray and fuel filler door.



Fuel Pump Installation
(Behind License Plate)



Power Terminal Connection
(Adjacent to Battery)

PROCHARGER HEAD UNIT

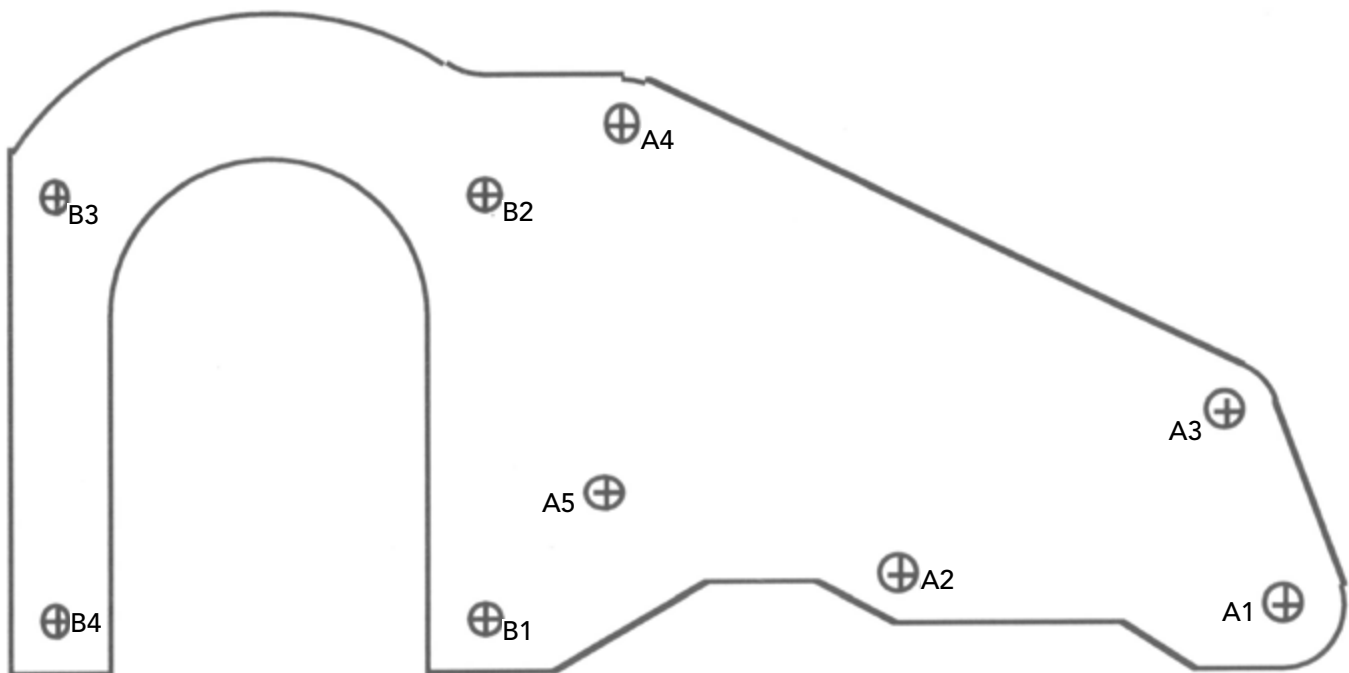
! **WARNING: Never strike the ProCharger pulley with a hammer or other tool under any circumstance! Evidence of such force will void the warranty, as serious damage to the precision bearings within the ProCharger could occur.**

2 Install the alternator using the supplied 6" and 7.5" long bolts and the two smallest diameter spacers between the alternator and the bracket (holes A3 and A4), and the long (2.88") spacer between the bracket (hole A3) and the cylinder head. Secure all fasteners. **Note:** It may be necessary to slightly offset the power steering pump reservoir to clear the alternator.

P600B/Bracket Install

1 Using the two shortest spacers (1.75") and supplied 4" long bolts and flat washers, insert the bolts and washers through the supplied flat bracket (holes A1 and A2), spacers, and power steering bracket and into the cylinder head. Secure all three power steering bracket bolts.

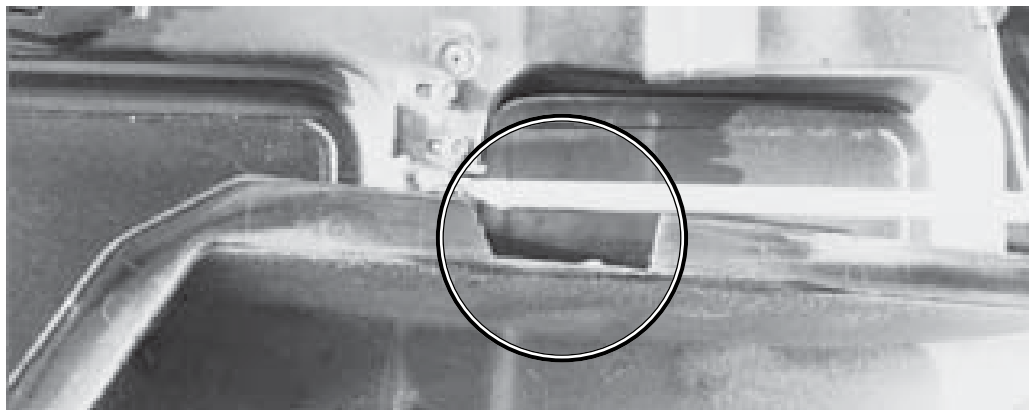
3 Using the supplied 10 AWG wire, extend the large alternator wire using the supplied bolt/nut combination, wrapping the connection with electrical tape, and re-attach to the alternator.



ProCharger Main Bracket (P600B)

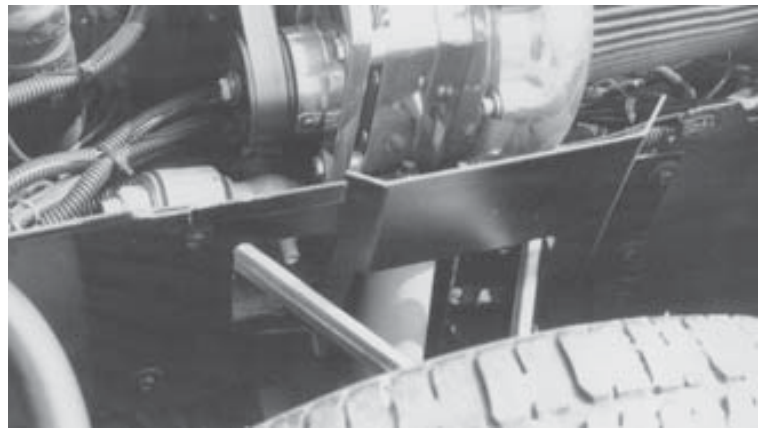
ProCharger Head Unit

- 4 Using the supplied three wire harness extensions and connectors, extend the alternator electrical connector. For a more secure connection, solder the extension.
 - 5 Install the supplied radiator hose. It may be necessary to trim approx. one inch from the radiator end of the supplied hose if interference with the power steering reservoir is encountered.
 - 6 Attach the oil drain hose and oil feed line to the ProCharger.
 - 7 Using the supplied bolts, attach the ProCharger to the bracket (holes B1, B2, B3 and B4). When installing the ProCharger, route the oil drain line down near the fitting previously installed in the drain pan so that it does not have any kinks or upward bends where oil may accumulate.
- !** **Caution:** *The oil feed and drain lines should be routed as distantly as possible from the exhaust headers and securely tied to avoid burn through.*
- 8 While slowly lowering the hood, watch through the driver's side fender well opening. Mark where the flange of the upper fender well guard (attached to the hood) begins to contact the ProCharger. Trim approximately four inches of the flange to clear the ProCharger. It may also be necessary to adjust the hood support rod for clearance. (Some cars may require redrilling or slotting of the hood support rod bracket to obtain proper clearance.) If needed, the ProCharger's compressor housing can be adjusted (for best fit) by loosening the eight attaching bolts and rotating slightly. Retighten attaching bolts after optimum fit is obtained.
 - 9 Close the hood slowly to verify proper clearance between the hood and the ProCharger. Modeling clay placed on top of the ProCharger works well to measure the clearance. If required, you may need to loosen and re-tighten the bracket and ProCharger mounting bolts while applying light downward pressure on the ProCharger in order to gain more clearance.

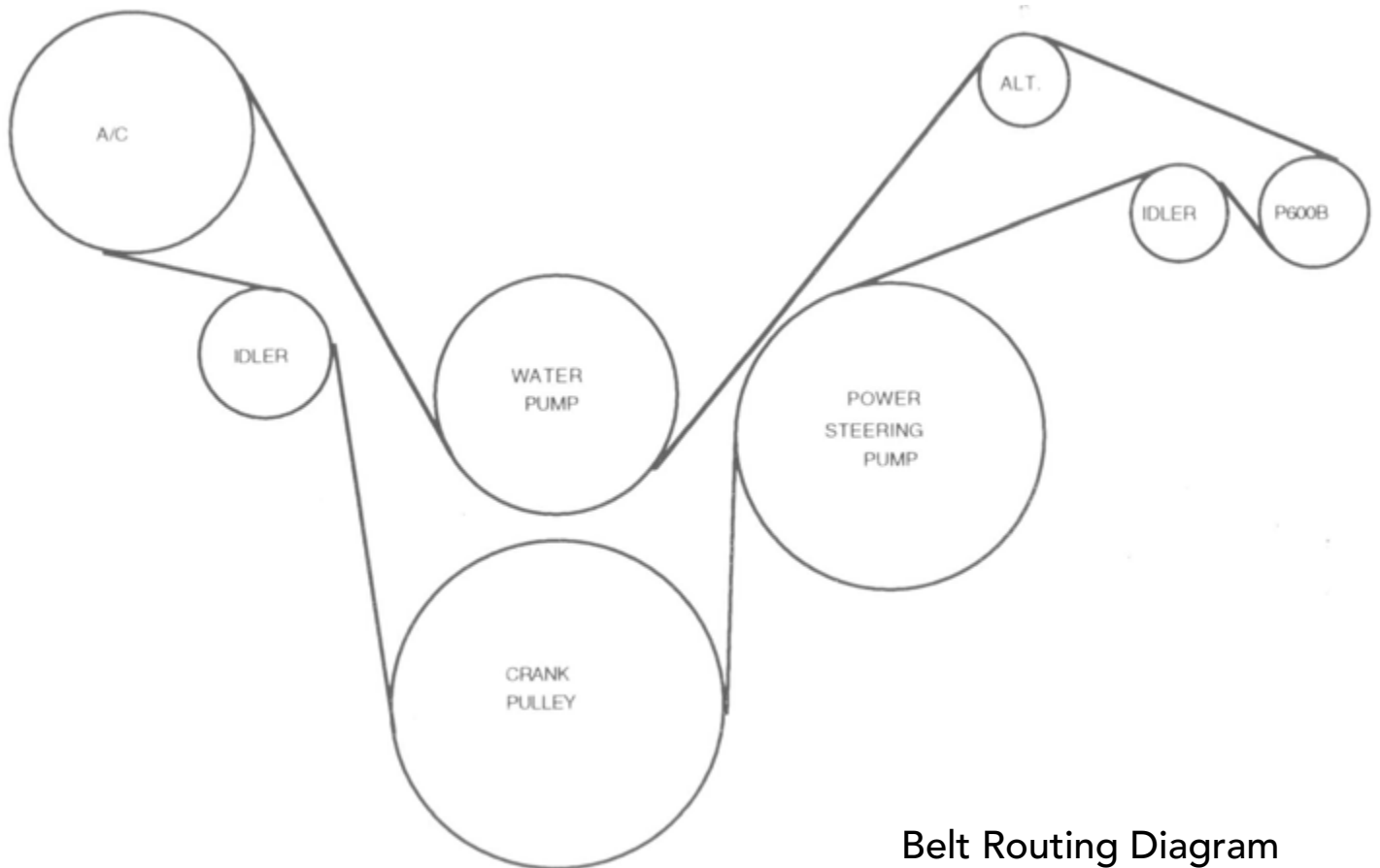


Trimmed Fenderwell Flange

- 10 Install the supplied fenderwell fairing in place of the previously removed fairing and re-install the weather-stripping.
- 11 Trim the oil drain line (at the oil pan) to length and attach to the previously installed drain fitting, securing with a hose clamp.
- 12 Install the supplied belt, routing as shown.



Installed Fenderwell Fairing

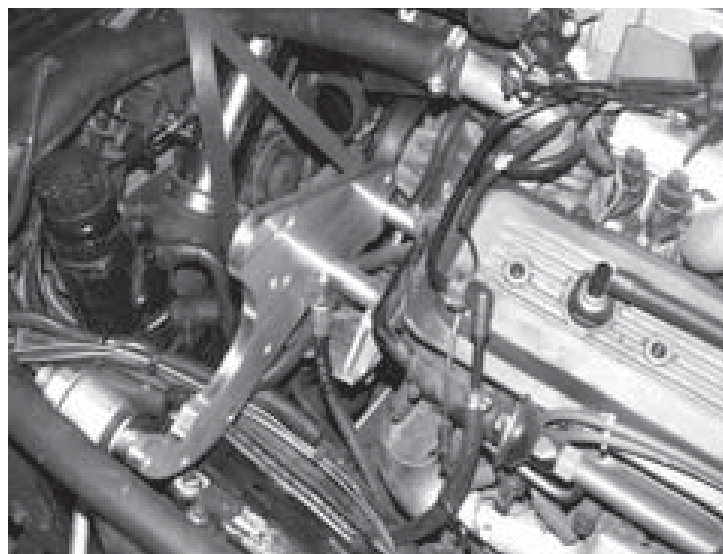


Belt Routing Diagram

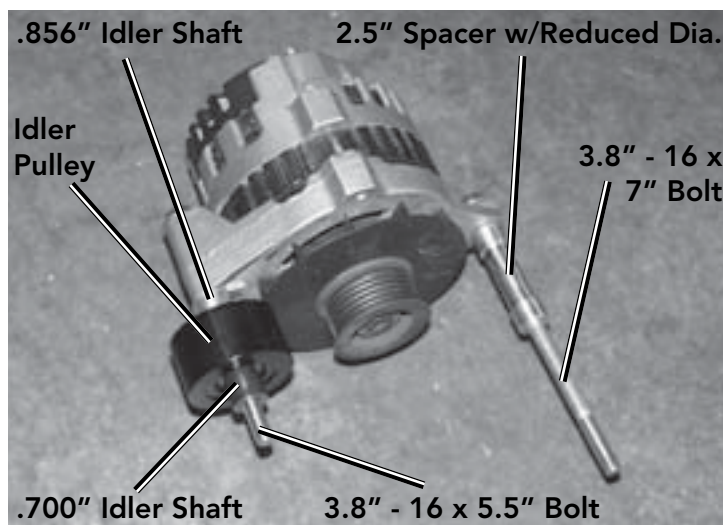
D1/Bracket Install

✓ **Note:** You will need to purchase the hood support assembly and bracket (for 1984 model) from your local GM dealer.

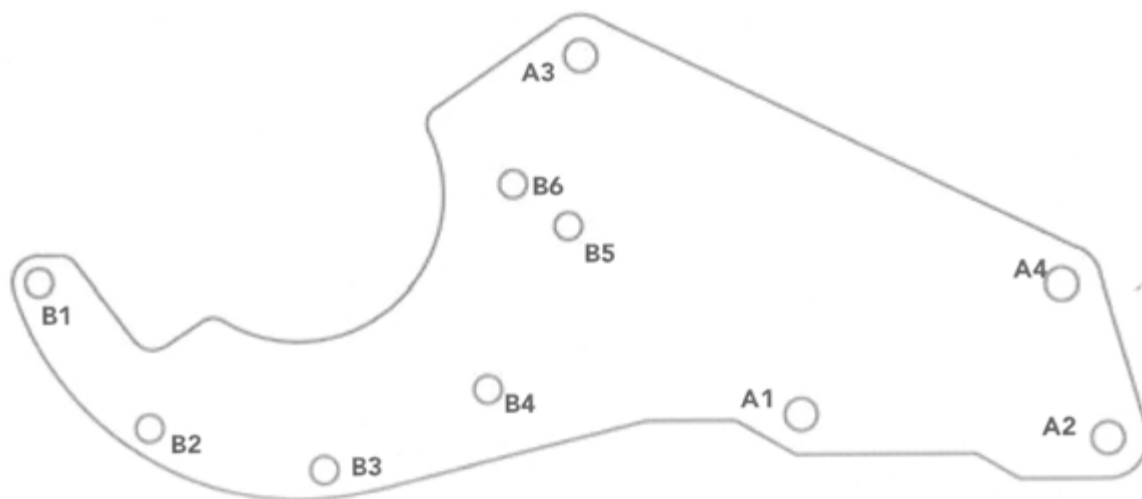
- 1 Using the two 1.75" spacers, bolt the main bracket through holes A1 and A2 to the engine using the 3/8"-16 x 4" bolts.
- 2 Assemble the alternator assembly as shown.
- 3 Mount the alternator assembly to the main bracket using a locknut on the 5.5" bolt which goes through hole A3 and the 2.88" spacer on the 7.5" bolt which goes through hole A4. Tighten all bolts at this time.
- 4 Using the supplied 10 AWG wire, extend the large alternator wire using the supplied bolt/nut combination, wrapping the connection with electrical tape, and re-attach to the alternator.



Main Bracket Installation

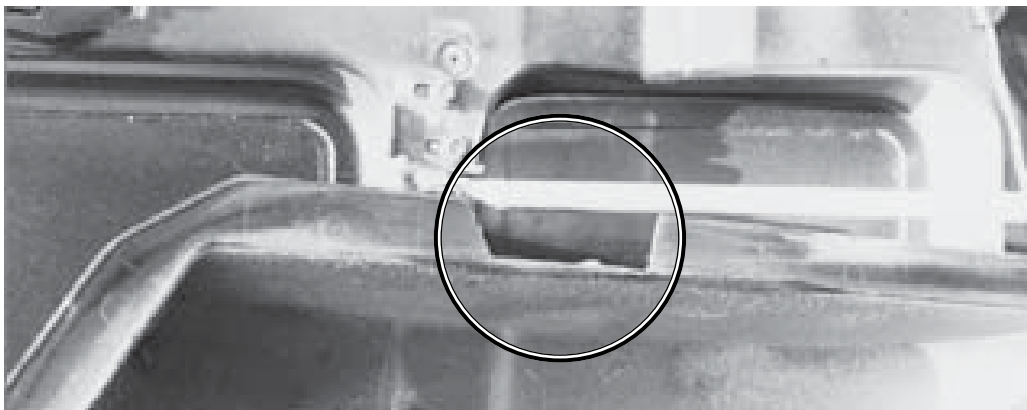


Alternator Mounts



ProCharger Main Bracket (D1)

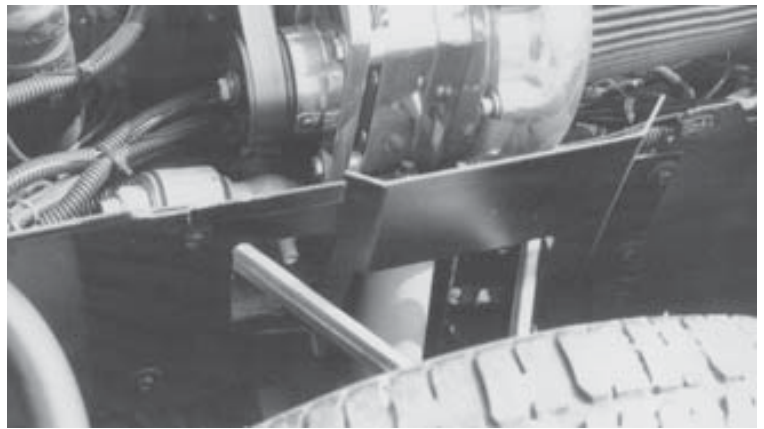
- 5 Using the supplied three wire harness extensions and connectors, extend the alternator electrical connector. For a more secure connection, solder the extension.
 - 6 Install the supplied radiator hose. It may be necessary to trim approx. one inch from the radiator end of the supplied hose if interference with the power steering reservoir is encountered.
 - 7 Attach the oil drain hose and oil feed line to the ProCharger.
 - 8 Using the supplied bolts, attach the ProCharger to the bracket (holes B1-B6). **Note:** Run the oil feed line between holes B4 and B5 when mounting the ProCharger. Use the 1.72" spacers for holes B1-B5 and the .350" spacer for B6. When installing the ProCharger, route the oil drain line down near the fitting previously installed in the drain pan so that it does not have any kinks or upward bends where oil may accumulate.
- Caution:** The oil feed and drain lines should be routed as distantly as possible from the exhaust headers and securely tied to avoid burn through.
- 9 Remove the hood support rod and install the hood support assembly from a 1984 model.
 - 10 While slowly lowering the hood, watch through the driver's side fender well opening. Mark where the flange of the upper fender well guard (attached to the hood) begins to contact the ProCharger. Trim approximately four inches of the flange to clear the ProCharger. If needed, the ProCharger's compressor housing can be adjusted (for best fit) by loosening the eight attaching bolts and rotating slightly. Retighten attaching bolts after optimum fit is obtained.



Trimmed Fenderwell Flange

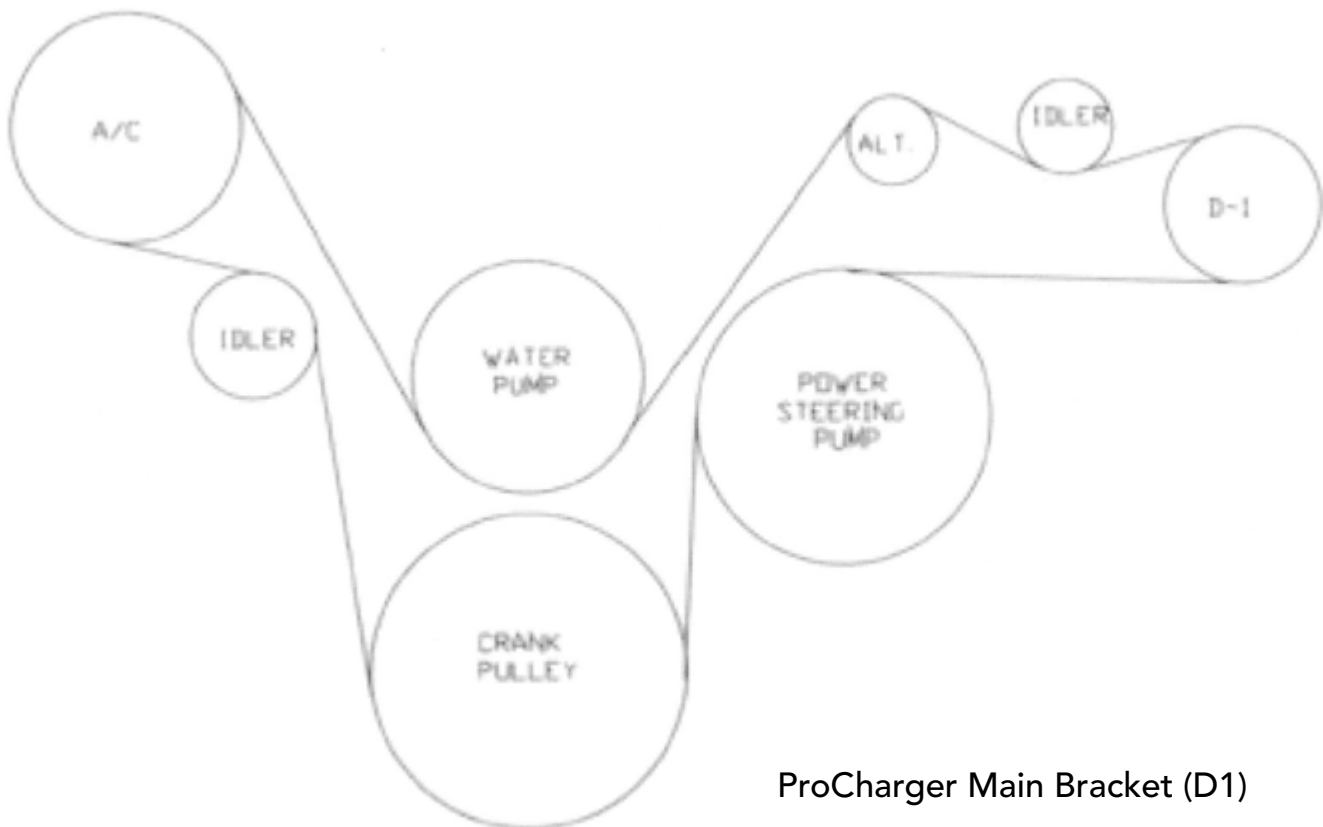
ProCharger Head Unit

- 11 Close the hood slowly to verify proper clearance between the hood and the ProCharger. Modeling clay placed on top of the ProCharger works well to measure the clearance. If required, you may need to loosen and re-tighten the bracket and ProCharger mounting bolts while apply light downward pressure on the ProCharger in order to gain more clearance.



Installed Fenderwell Fairing

- 12 Install the supplied fenderwell fairing in place of the previously removed fairing and re-install the weather-stripping.
- 13 Trim the oil drain line (at the oil pan) to length and attach to the previously installed drain fitting, securing with a hose clamp.
- 14 Install the supplied belt, routing as shown.



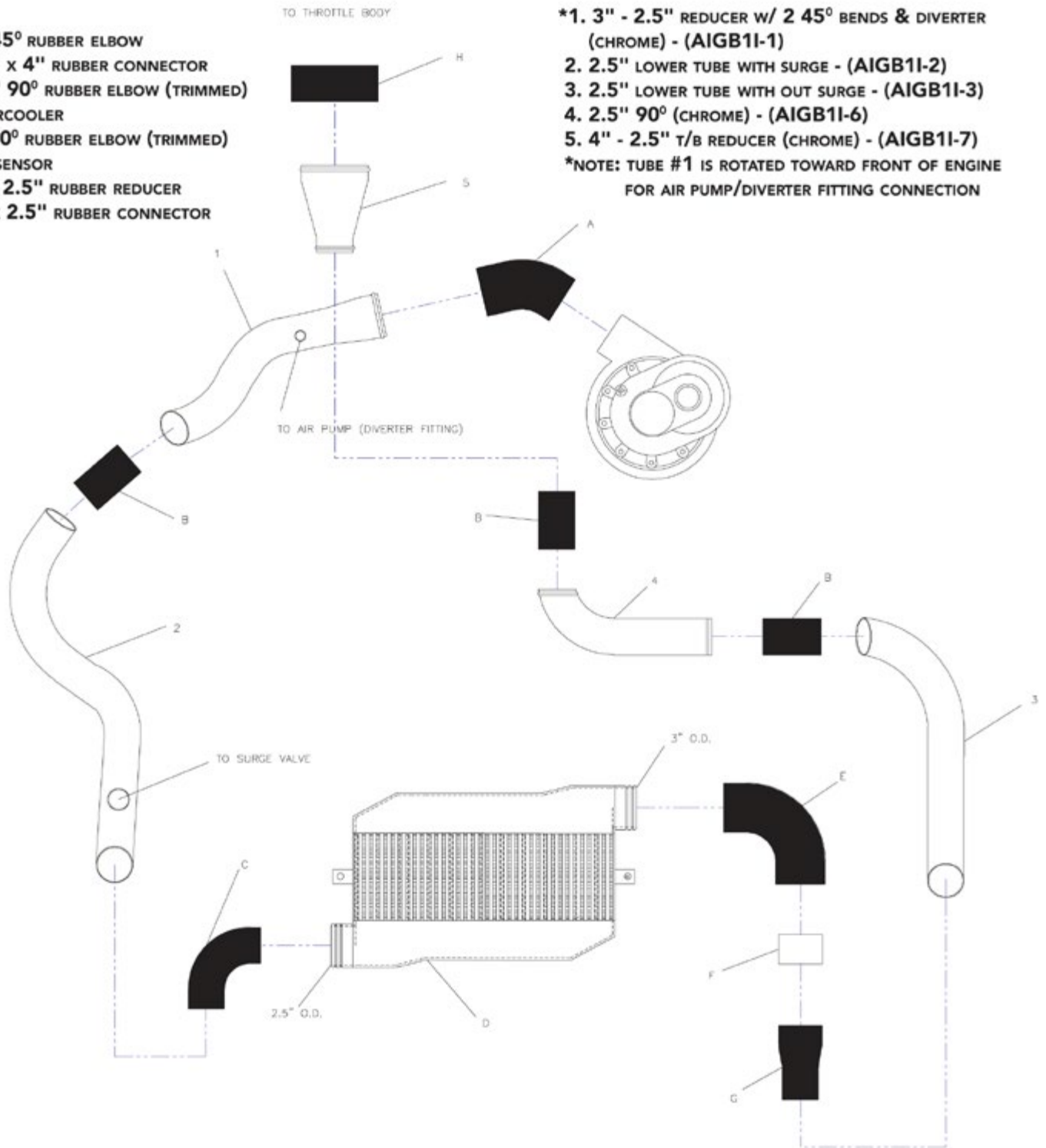
ProCharger Main Bracket (D1)

'85-'89 L98 Corvette Supercharger System Schematic

METAL TUBES

- *1. 3" - 2.5" REDUCER W/ 2 45° BENDS & DIVERTER (CHROME) - (AIGB11-1)
 - 2. 2.5" LOWER TUBE WITH SURGE - (AIGB11-2)
 - 3. 2.5" LOWER TUBE WITH OUT SURGE - (AIGB11-3)
 - 4. 2.5" 90° (CHROME) - (AIGB11-6)
 - 5. 4" - 2.5" T/B REDUCER (CHROME) - (AIGB11-7)
- *NOTE: TUBE #1 IS ROTATED TOWARD FRONT OF ENGINE FOR AIR PUMP/DIVERTER FITTING CONNECTION

- A. 3" 45° RUBBER ELBOW
- B. 2.5" x 4" RUBBER CONNECTOR
- C. 2.5" 90° RUBBER ELBOW (TRIMMED)
- D. INTERCOOLER
- E. 3" 90° RUBBER ELBOW (TRIMMED)
- F. MAF SENSOR
- G. 3" - 2.5" RUBBER REDUCER
- H. 4" x 2.5" RUBBER CONNECTOR

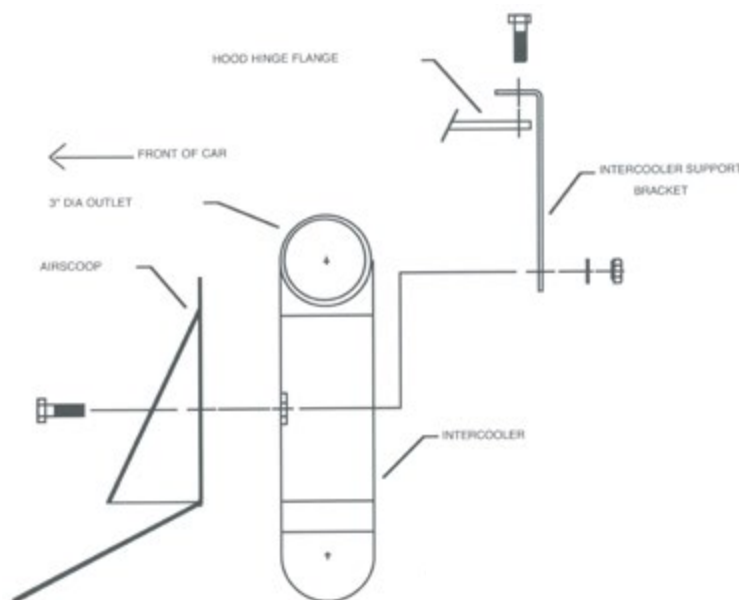


INTERCOOLER AND TUBING

✓ **Note:** Leave all clamps loose until you have installed all of the tubes and hoses. Adjust each hose and tube for best fit and then tighten all clamps. Hose installation can be eased if you first wet the metal tubes and fittings with a solution of dishwashing soap and water. Some hoses may require trimming for optimal fit; this can be accomplished using a sharp utility knife.

'85-'89 Model Years

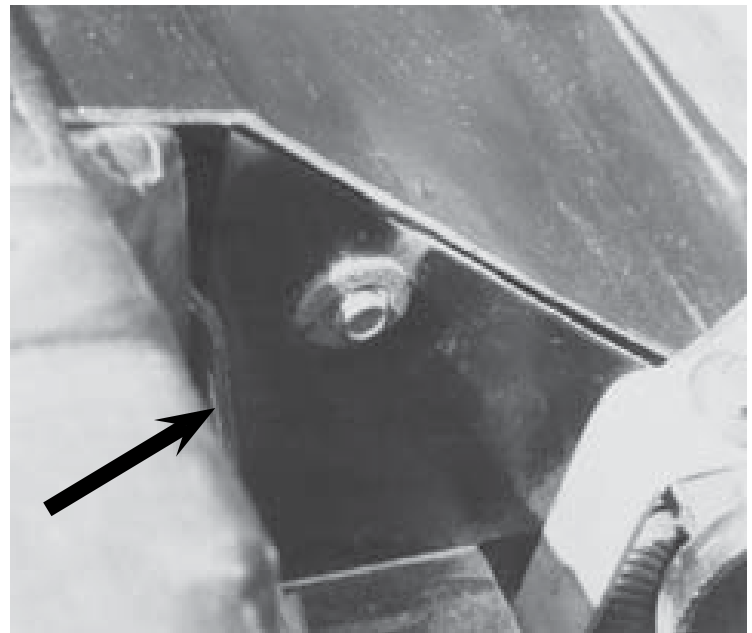
- 1 If not already done, raise the front end of the vehicle and support securely on jack stands.
- 2 Attach the two intercooler support brackets to the rear bolt of each hood hinge support flange. Do not tighten the bolts at this time.
- 3 To improve hose retention, file 3 equally spaced notches, approximately 1/2" long, around each flange of the MAF sensor.
- 4 Attach the air temperature sensor (removed with the upper radiator fairing) to the passenger's side of the radiator cowl so that it is adjacent to the inlet side of the radiator.



Intercooler Installation
(Viewed from Driver's Side)

✓ **Note:** For assembly reference purposes, the following instructions assume the intercooler is in front of you, oriented vertically so that the larger 3" outlet is at the upper left corner pointing left and the air scoop is on the side furthest away from your body with the opening facing down.

- 5 Attach the 3" 90° rubber elbow to the intercooler outlet (upper left corner) so that the elbow is pointed down and parallel to the intercooler. Secure with a hose clamp. Attach the MAF sensor (with the flow arrow pointing down and the connector towards the air scoop) to the other end of the elbow and secure with a hose clamp. Attach a 3" to 2.5" rubber reducer to the other end of the MAF sensor and secure with a hose clamp. Attach the 2.5" 90° rubber elbow to the intercooler inlet (lower right corner pointing right), but do not fully tighten the hose clamp; position the hose clamp so that it may be tightened from the bottom.



Upper Radiator Fairing Side Piece

- 6 Remove the bolts holding the air scoop to the intercooler. Insert the intercooler/air scoop assembly from below the car and re-install the bolts so that they "sandwich" (in order starting from the furthest rear) the intercooler support bracket, intercooler mounting flange and air scoop. The air scoop opening front flange should be resting on the frame lip. Secure the bolts with self-locking nuts. Secure the bolts at the hood hinges.

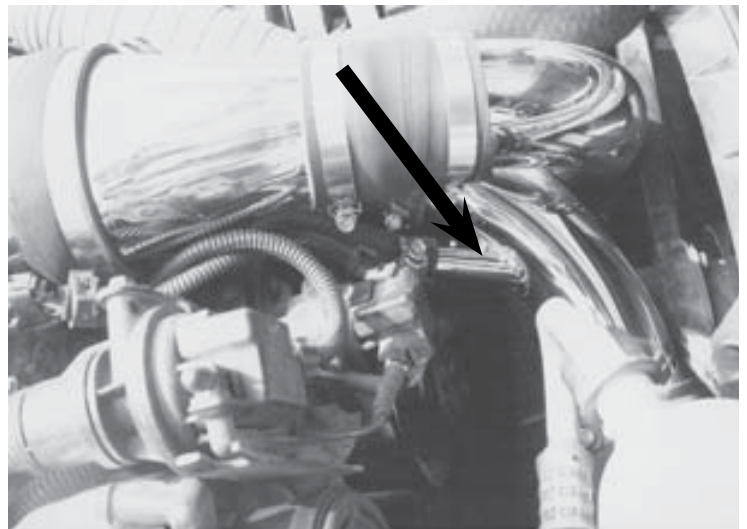


Upper Radiator Fairing Assembly

- 7 Attach the supplied upper radiator fairing assembly (top piece and passenger's side piece) to the upper radiator cowl with the previously removed screws. The front edge of the fairing should rest on the second lowest frame lip.

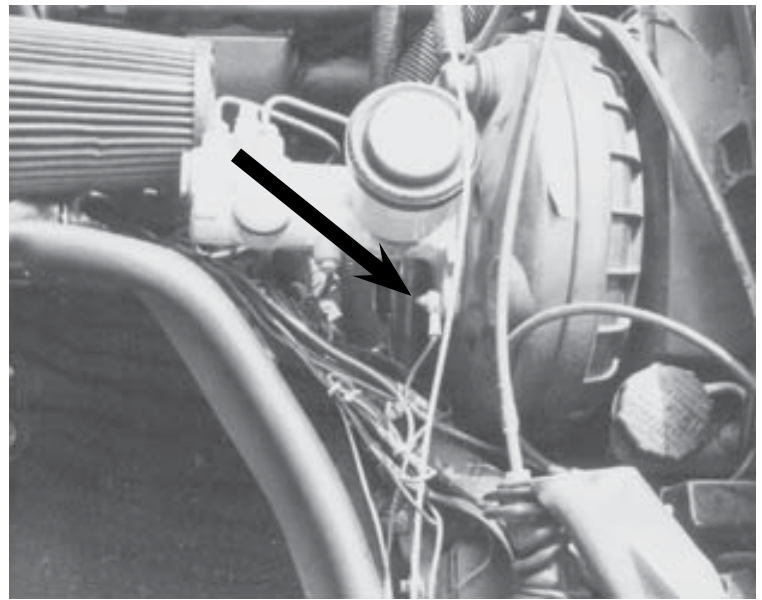
Intercooler and Tubing

- 8 Using the supplied spacers and bolts, attach the previously removed forward fan between the the intercooler and the radiator. Plug in the fan electrical connection. Using the supplied offset strap bracket, secure the lower fan support arm to the lower radiator shroud flange (you will need to drill a mounting hole through the fiberglass flange once you have secured the bracket to the fan). Use one of the unused nut plates from the side of the shroud to secure the bracket.
- 9 Install intercooler tubing, starting at the intercooler and working back towards the throttle body and ProCharger (see schematic on page 15). The power steering reservoir may require slight shimming to allow for installation of the #5 tube.
- 10 Move the A/C evaporator away from the fan shroud using the 1-3/4" spacers and hardware.
- 11 Attach the surge hose to the surge valve fitting on tube #2. Run the surge hose through the passenger's side wheel well between the horn and the coolant overflow tank. Attach the ProFlow valve to the end of the hose and secure it with a hose clamp.
- 12 Route the vacuum line from the surge valve to the vacuum port on the passenger's side near the back of the intake plenum; splice using the supplied "T".
- 13 Install the supplied 3/8" x 5" long diverter valve hose between the diverter valve and the intercooler tube as shown.



Diverter Valve Hose Installation

- 14 Plug the supplied connector into the MAF sensor and route the harness through the driver's side headlight well (secure so that it does not interfere with headlight operation) and back towards the original MAF sensor location. Cut the original MAF sensor connector approximately 10" away from the engine. Cut any excess length from the supplied harness and splice together, matching wire colors and using the supplied connectors (or solder for a more secure connection). Tape any exposed wiring with electrical tape.



Front Fan Relay Ground Installation

Warning: Wire colors may vary from year to year. Verify connections using the original connector as a guide; crossing wires can damage the MAF sensor and/or ECM.

- 15 Plug the front fan relay (removed from the upper radiator fairing) into its connector. Using the supplied wire and splice, ground the green wire from the fan relay to the frame (this will cause the front fan to run whenever the ignition switch is placed in the "on" position). **Note:** Cars operated primarily in cold weather climates may wish to omit grounding this relay. Wire tie the relay to the wire harness adjacent to intercooler outlet.

- 16 Attach the lower black center air dam (previously removed) to the supplied spoiler using the screws and nut plates from the removed spoiler. Install the spoiler assembly and secure with four screws and the two frame guard bolts.

'90-'91 L98 Corvette Twin Intercooler System



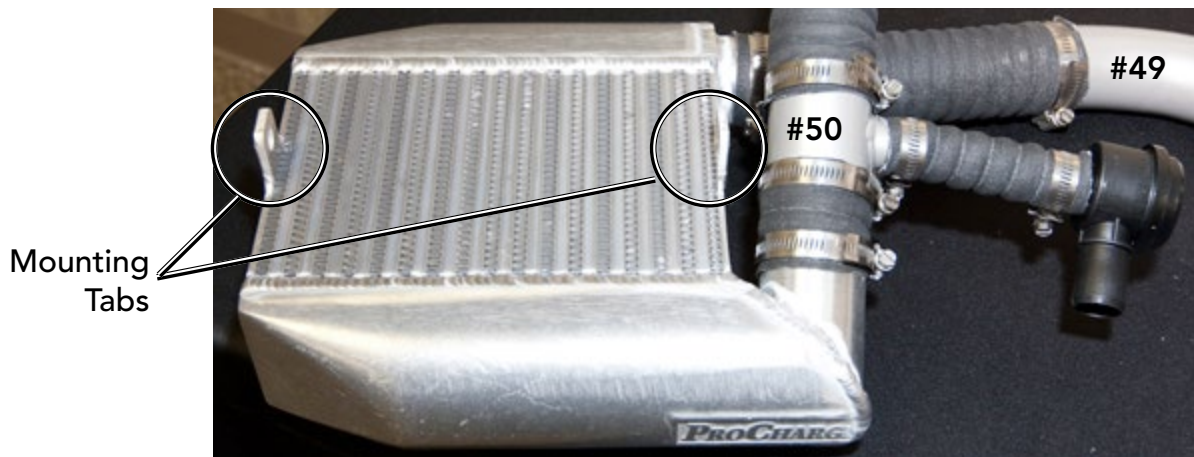
- (A) Passenger's Side Intercooler (AIGB1A-060)
- (B) Driver's Side Intercooler (AIGB1A-006)
- #48A "Y" Tube (AIGB2I-001)
- #48B "J" Tube (AIGB2I-008)
- #49 45° 2-1/2" to 2" Reducer (AIGB2I-002)
- #50 Surge Tube (AIGB2I-003)
- #51 45° Tube (AIGB2I-004)
- #52 Double 90° Twisted Tube (AIGB2I-005)
- #53 Throttle Body Inlet Tube (AIGB2I-006C)
- #95 Blower Outlet Tube (AIGB2I-007C)

'90-'91 Model Years

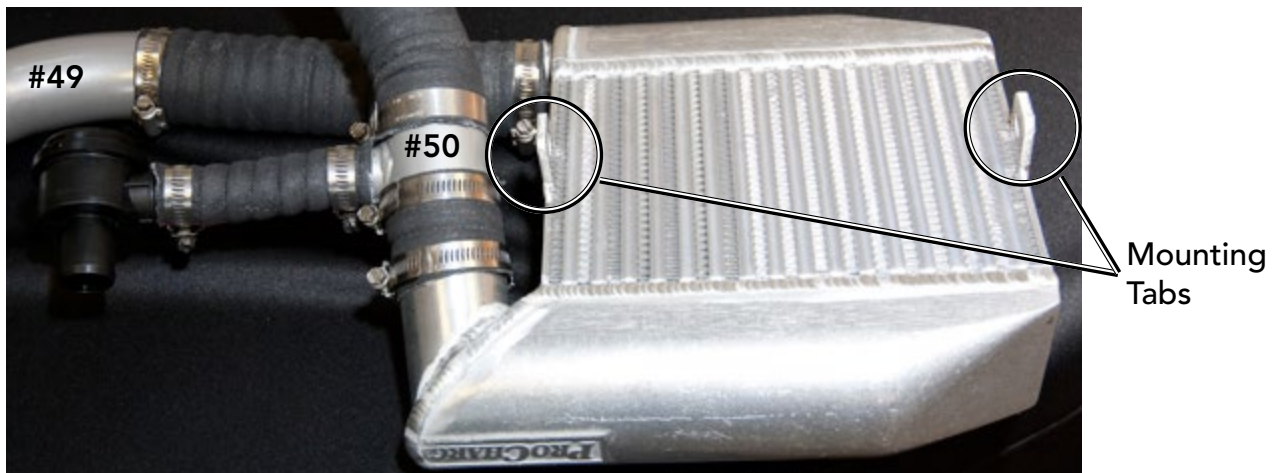
- 1 If not already done, raise the front end of the vehicle and support securely on jack stands.
- 2 Remove the inner fenderwell splash guards and modify as shown (see instruction sheet included in bagged assembly #3GBMM-003). Install the supplied air scoops to the splash guards using the supplied hardware. Re-install the fenderwell splash guards.
- 3 Attach the metal surge valve tubes (#50) to the angled outlet of each intercooler using the two 2" x 2" long hose sections.
- 4 Attach the surge valves to each surge tube with the port on the side of each valve facing towards the tube.
- 5 Attach the 2" x 8" long hose section to the straight fitting on the driver's side intercooler.
- 6 Attach the 2" x 9" long hose section to the #50 tube on the driver's side intercooler.
- 7 Lay the driver's side intercooler into the driver's side headlight galley with the mounting tabs pointing up and with the fittings facing inwards.
- 8 Attach the 2" x 7" long hose section to the straight fitting on the passenger's side intercooler.
- 9 Attach the 2" x 10" long hose section to the #50 tube on the passenger's side intercooler.
- 10 Lay the passenger's side intercooler into the passenger's side headlight galley with the mounting tabs pointing up and with the fittings facing inwards.
- 11 Attach the 2" x 13" long hose section to the long end of the 2" double 90° twisted metal tube (#52).
- 12 From outside the driver's side frame rail extension, route the 13" long hose section above the extension and up between the cooling fans so that it exits between the alternator and radiator hose.
- 13 Attach the bottom end of tube #52 to the hose section coming from the angled intercooler fitting.
- 14 Attach a 6" long hose section to one end of the 2" 45° metal tube (#51).
- 15 Route the open end of the 6" long hose section up just inside of the frame rail and behind the radiator. Attach the open end of the #51 tube to the hose section coming from the angled fitting on the passenger's side intercooler.
- 16 On the 2-1/2" end of the 2-1/2" to 2" reducers (#49), attach the 2-1/2" x 4" long rubber hose sections.
- 17 Attach the 2-1/2" "J" tube (#48B) to the "Y" tube (#48A) with a 2-1/2" rubber connector. Tighten the clamp.

Intercooler and Tubing

- 18 From beneath the car, insert the "Y" tube assembly between the radiator and engine. The "Y" outlets should sit above the frame rail extensions.
- 19 Using the attached rubber hose sections, clamp a #49 tube to each outlet on the #48A tube so that the 45° bend is pointing towards each intercooler.
- 20 Attach the open end of the #49 tubes to their respective hoses coming from the straight fittings on each intercooler.
- 21 Attach the blower outlet tube (#95) to the blower discharge with a 3" rubber connector.
- 22 Attach tube #95 to tube #48B with a 3" rubber hose.
- 23 Attach the shorter 2" end of the upper throttle body inlet tube (#53) to the driver's side hose section extending up between the alternator and radiator hoses.
- 24 Attach the large oval end of tube #53 to the throttle body using the 4" rubber hose section.
- 25 Attach the longer 2" end of tube #53 to the passenger's side hose section extending up behind the radiator.



Passenger's Side Intercooler w/Surge Valve Installed



Driver's Side Intercooler w/Surge Valve Installed

- 26 Tighten all hose clamps.
- 27 Route the vacuum lines from each surge valve to the vacuum port on the passenger's side near the back of the intake plenum. Splice in using the supplied "T".
- 28 Install the 3/4" 90° hose between the diverter valve and the upper intercooler tube.
- 29 If not already done, install the supplied driver's side fenderwell fairing in place of the removed stock fairing. Re-install the weather stripping.
- 30 Secure the intercoolers in place using the supplied aluminum straps.
- 31 Reattach both horns and the electrical box previously removed from the driver's side splash guard.



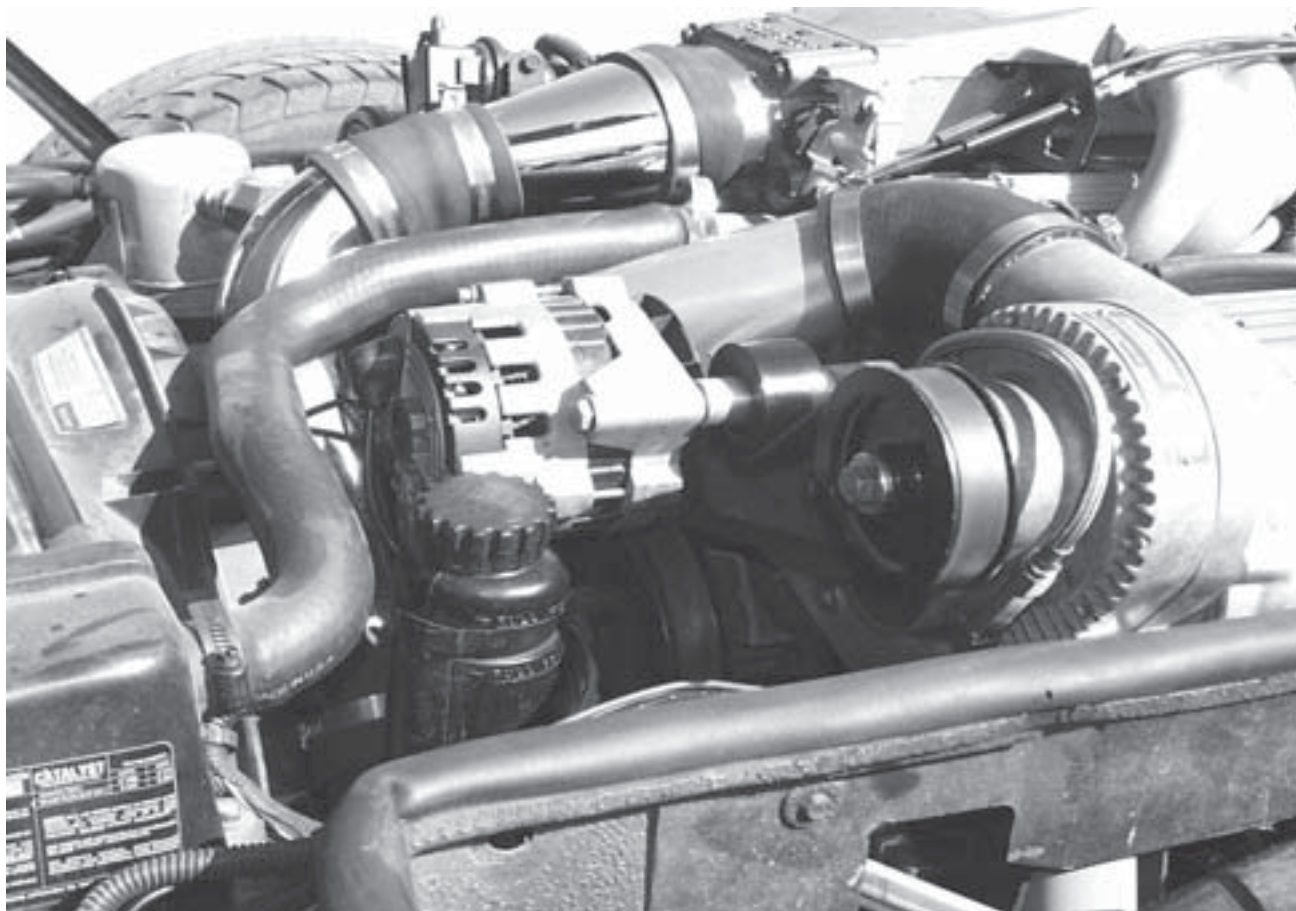
Inverted "Y"



Throttle Body Inlet Tube

FINAL ASSEMBLY

- 1 At the passenger's side valve cover, disconnect the angled tube coming from the breather at the tube that runs to the throttle body and at the throttle body. Install the supplied 5/8" cap over the throttle body nipple and secure it with a wire tie. Install the supplied breather hose to the valve cover tube and route it underneath the intake plenum. "T" this line into the PCV valve with the supplied plumbing and route to near the air filter. This hose will vent to atmosphere.
- 2 If not already done, perform an oil (synthetic preferred) and filter change prior to completing installation and starting the engine.
- 3 Add engine coolant as needed.
- 4 Install the supplied air filter to the intake of the ProCharger.



Congratulations! You have successfully completed the installation of your new ProCharger supercharger system!

Please continue reading the following pages for important information about how to maintain your system.

TUNING

- ✓ **Note:** This section only applies to full systems, which include an FMU. If you do not have a full system, additional tuning will be required before starting the vehicle.
- ✓ **Note:** To get the most out of your system it may prove beneficial to utilize an air fuel ratio meter. Wide band units are most ideal when tuning an engine for maximum performance. Use of a wide band sensor will provide data that will allow you to achieve optimum performance throughout your engine's operating range. If using a fuel/air ratio meter, the meter should show lean under idle, low throttle and steady-state cruise conditions. Under hard acceleration and high boost conditions the meter should read rich (between 11.1 and 12.1).
- 1 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 motor 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.
- 2 When using a fuel pressure gauge, the fuel pressure should read the same as stock at idle, low throttle and steady-state cruise conditions. Under hard

acceleration the fuel pressure should increase linearly with boost adding approximately 10 psi to the stock reading at full boost (assuming a 7 psi kit and stock injectors). Engine and exhaust modifications will affect these figures and usually require fuel/air ratio meters for proper tuning.

- 3 Initial driving should be performed under maximum rich conditions and slowly leaning out in order to improve throttle response and performance. Reducing the fuel pressure (under boost) can be achieved by turning the FMU bleed screw counter clockwise approximately 1/4 turn at a time and finally in 1/16 turn increments. **Note:** Adjusting the FMU bleed screw will not affect idle, low throttle or steady-state fuel pressures.

! **Warning:** FMU air-bleed needle-valve adjustment is extremely sensitive; never change fuel pressure by more than 1/2 turn increment at a time (decrease to 1/4 or 1/8 turn increments as you get closer to your final setting).


Supplemental/Off-road Notes

- 4 High boost applications require high energy ignition systems for proper combustion. If you are using a stock ignition system on such an application, the plug gap must be reduced to approximately .035" to avoid extinguishing the arc discharge. The use of spark plugs one heat range colder than stock is also advised.


INSTALLATION REVIEW/SAFETY CHECK

1 Carefully review the entire installation. Examine oil 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.

2 Ensure that the air filter is installed.

 **Warning:** Never operate the vehicle without an air filter. Failure to do so may result in damage to the supercharger and/or personal injury.


3 Check and correct all fluid levels.

 **Note:** Your vehicle **MUST** be filled with 91 or higher octane fuel before any hard driving. You should switch to 91 octane 2 or 3 tanks of gas prior to installation of the ProCharger system in order to guarantee removal of low octane fuel from your vehicle

4 Start the engine and let it idle for a few minutes. Inspect for air leaks.

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

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

 **Note:** Larger cities (especially in winter months) often use oxygenated or reformulated 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 reduce your timing or use octane booster to avoid detonation.

OPERATION AND MAINTENANCE

Cold Starting

Never race your engine and ProCharger supercharger 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

With a properly installed intercooled ProCharger supercharger system, detonation should not occur. For the best performance and reliability, use premium grade fuel (91 octane or higher). Listen for signs of detonation after refueling, and after replacement or modification of any fuel system component(s). If detonation occurs, reduce the throttle and locate the source.

Ignition System Maintenance

If your spark plugs are more than a year old or have more than 10,000 miles logged, you should consider changing them before driving your vehicle under load. Spark plug wires should be changed if visibly damaged or when 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. Be sure to re-oil the cleaned filter before re-installing. Always operate your vehicle with an air filter, failure to do so may result in damage to your ProCharger supercharger and personal injury!

Belt Replacement

The serpentine belt, which turns your ProCharger supercharger, will stretch after initial run-in, and should be retightened after the first hundred miles. Tighten the belt sufficiently to avoid slippage, but do not overtighten. Overtightening the belt could cause damage to the ProCharger supercharger's precision bearings. When re-installing the belt, use the belt routing diagram in this manual. If you reuse a thrown belt and find that it needs frequent re-tightening, the belt is damaged and should be replaced. Gates Micro-V belts can be purchased from ATI or from your local parts store.

LIMITED WARRANTY

Accessible Technologies, Inc. (ATI) provides a limited twelve (12) month warranty on the ProCharger supercharger (36 months for P600B) against defects in materials and workmanship unless otherwise specified. This limited warranty starts on the date of original purchase from your local dealer, or date of shipment from the factory. This limited warranty coverage is extended only to the original owner and excludes hoses, sleeves, and electronic components manufactured by other companies. IF THE SUPERCHARGER'S DRIVE RATIO IS ALTERED IN ANY WAY FROM THE FACTORY SETTING, WARRANTY COVERAGE IS VOID. USE OF ANY PULLEY NOT MANUFACTURED OR SUPPLIED BY ATI VOIDS ALL WARRANTY COVERAGE. ATI's warranty obligations are limited to the terms below:

ATI agrees to honor a warranty claim at its sole discretion and only after inspection at the ATI factory. No warranty will be honored if any part of the product is found to have been improperly installed, tampered with, mishandled, or misused in any way. Disassembly of the ProCharger supercharger or removal of the ProCharger supercharger's 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 discretion and shipped back. If the limited warranty does not apply, ATI will advise you of the specific reason, cost of the repair, and delivery time. 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, insured at replacement value. Therefore, you will 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, 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.

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

Phone ATI (913-338-2886) and provide us with the following information:

- ProCharger supercharger serial number.
- Vehicle year, make, model, engine modifications, and other modifications.
- Description of perceived issue.

If a solution to your issue can not be found after the above phone consultation, you will be assigned a return authorization number (RMA). You must then properly package and ship your product, at your expense, to the ATI factory. The product should be carefully packaged in a rugged box.

Include the following information inside the box with your product:

- Copy of your original invoice or receipt.
- Name, address, and daytime telephone number.
- Return authorization number (RMA).
- Vehicle year, make, model, engine modifications, and other modifications.
- Description of perceived issue.

Clearly mark the warranty claim number on the top and one side of the box in characters at least 2" tall. Properly package the product and ship it, 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**



**Accessible Technologies, Inc.
14801 W. 114th Terrace
Lenexa, KS 66215
Phone: 913.338.2886
Fax: 913.338.2879
techserv@procharger.com**

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