

# 1964.5-1966 Ford Mustang **Installation Guide**



**The ULTIMATE Power Adder™**

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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 (50-65 PSI), 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. ATI ProCharger is not responsible for ECM tuning/programming on non-stock vehicles. ATI PROCHARGER recommends verifying that your vehicle has current ECM updates from the vehicle manufacturer before installation.


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.

# INTRODUCTION

Congratulations on purchasing your ProCharger® 1964.5-1966 Ford Mustang. 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:** 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.

 **Tech Tip:** Installing spark plugs that are one heat range colder than stock and gapping your plugs to .035" is recommended.

## Required Tools and Supplies

- 3/8" Socket Set (standard & metric)
- 1/2" Socket Set (standard & metric)
- 1/2" Impact Gun
- 1/2" Breaker Bar and 4" Extension
- #20 Torx Wrench
- Open End Wrench Set (standard & metric)
- 5/16" Nut Driver
- 3/8" Hex Bit Set (allen head)
- Flat Screwdrivers
- Phillips Screwdrivers
- Plier Set
- Soldering Iron and Solder
- Heat Gun
- Ford Engine Coolant

 **Warning:** Your supercharged Mustang must always be run on 91 octane or better gas. The best way to insure this is to run the tank near empty (below 1/4) and fill with 91 octane for several tanks prior to installing the supercharger.

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# FUEL SYSTEM

**! WARNING:** Your vehicle's fuel pressure must be boost referenced for proper operation. Use of a conventional (un-referenced) fuel system will result in lean operation, detonation, and engine damage under boost conditions!

**✓ Note:** The fuel filter should be replaced at this time if it has more than 15,000 miles on it.

**✓ Note:** Many aftermarket pumps (both mechanical and electric) are not capable of generating sufficient pressure (20+ psi) to support a boost referenced system. In order for a system to be boost referenced, a mechanical fuel pump or regulator with a reference port is necessary. If you are uncertain whether or not your equipment meets these specifications, please consult ATI's technicians for additional information.

## Mechanical Fuel System

- 1** Remove 10 Allen screws from outer edge of the bottom of the fuel pump, leaving the two center screws in place.
- 2** Using cold-weld compound, fill in the two atmospheric vent holes in the top of the fuel pump.
- 3** Drill a 2-1/64" hole in the boss on the housing opposite the fuel pump lever that is driven by the camshaft; tap with a 1/8" - 27 NPT tap. Install the supplied straight poly-push fitting using hydraulic sealant.
- 4** Thoroughly clean all parts, making sure to remove all metal filings, and reassemble the fuel pump.
- 5** Verify that idle fuel pressure is set to 6-10 psi.



Mechanical Fuel Pump



Mechanical Fuel Pump



## Electric Fuel System

- 1 Your engine will now require more fuel and as such will need a performance fuel pump. Make sure your pump selection matches your engines horsepower output.
- 2 You will also need a boost sensitive fuel pressure regulator (Aeromotive P/N 13301 shown).
- 3 Run the return line back to the fuel tank. Make sure the return line goes to the tank, and not just back into the main fuel line. Set idle fuel pressure to 6-10 psi.

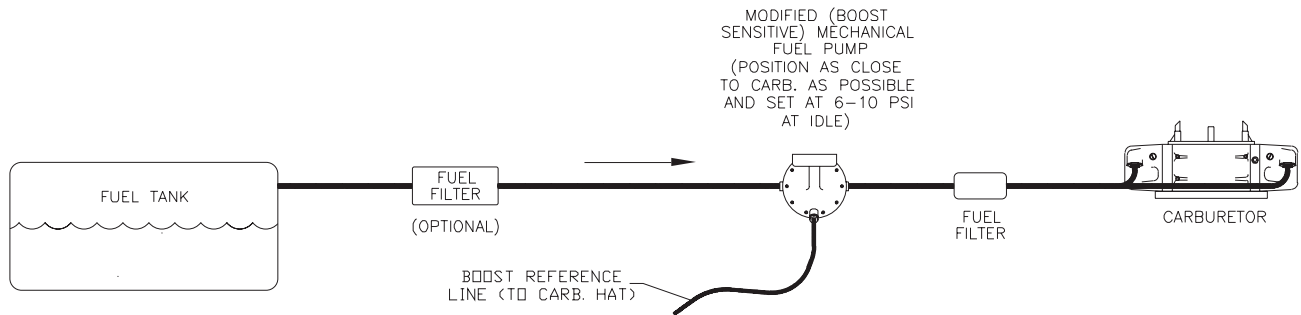
Fuel Pressure Adjustment Screw (Tighten Nut To Lock In Desired Pressure)

Boost Reference Port

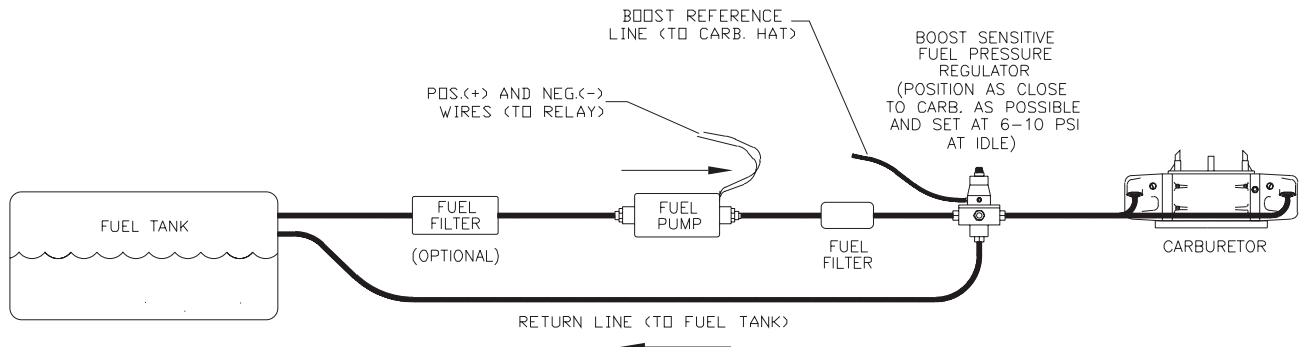
Fuel Line Port (Used for Fuel Inlet, Fuel Outlet, Fuel Gauge, or Plugged (1 of 4))

Fuel Return Port (Returns Fuel To Tank)

**Boost Sensitive Fuel Pressure Regulator**

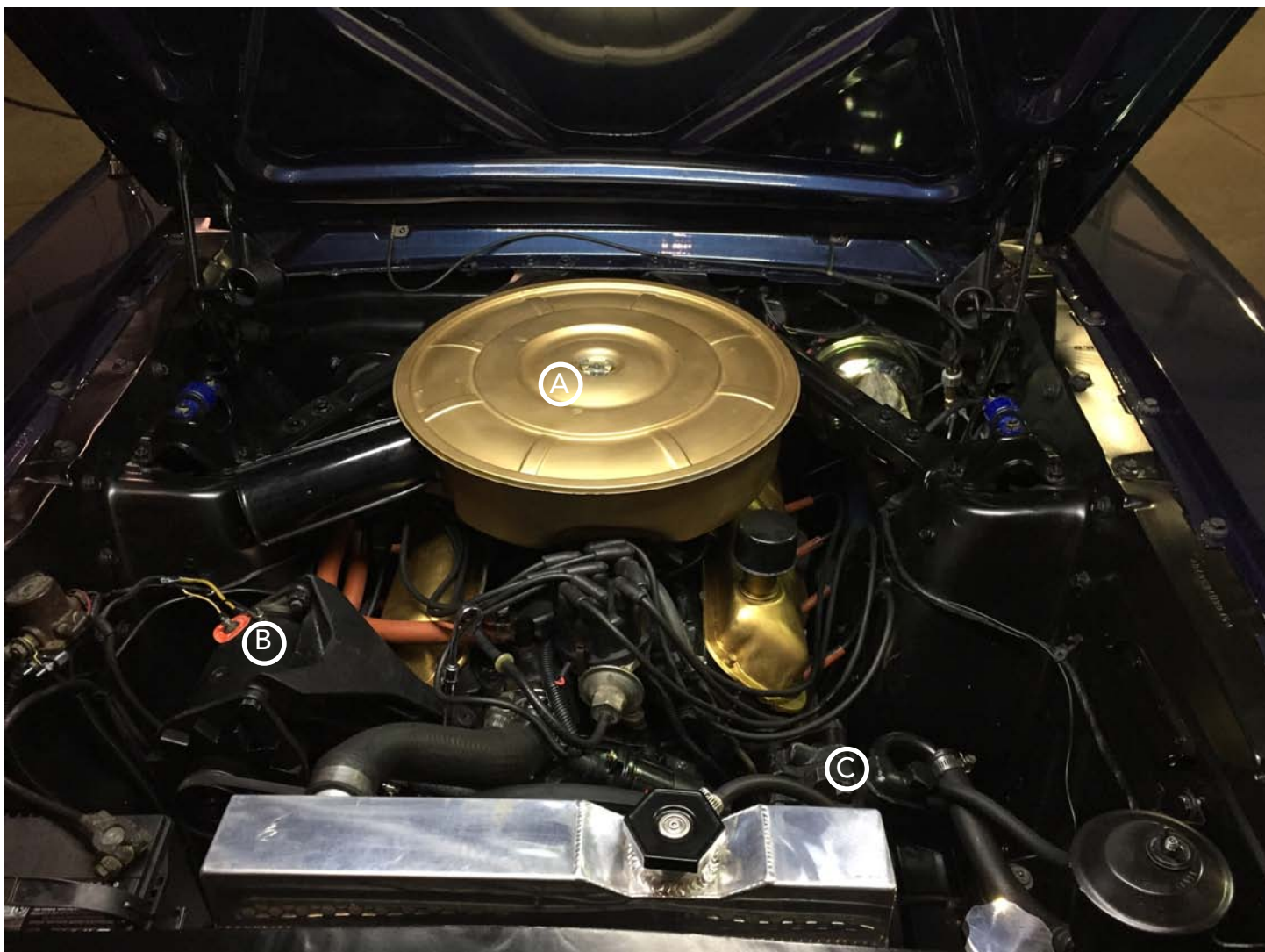


**MECHANICAL FUEL SYSTEM**



**ELECTRONIC FUEL SYSTEM**

# GETTING FAMILIAR



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

- (A) Air Cleaner
- (B) Generator / Alternator
- (C) Power steering Pump

**!** 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.

# STOCK COMPONENT REMOVAL

- 1 Unscrew the wingnut on top of the air cleaner lid. Lift the air cleaner assembly straight up and out of the vehicle.

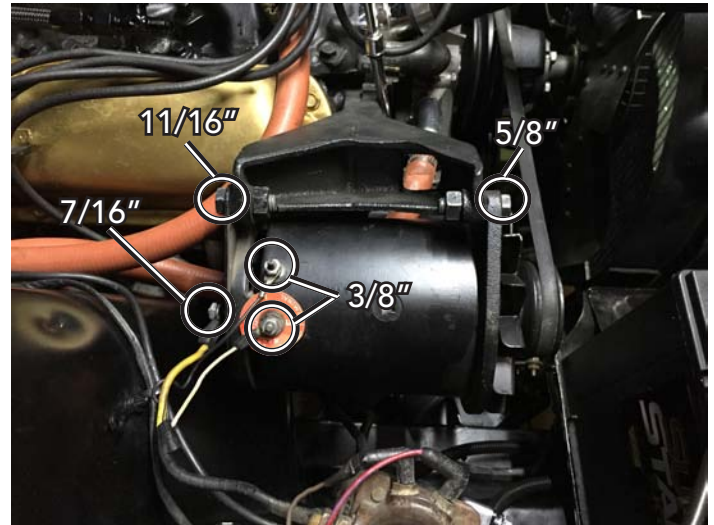
*Generator shown, alternator is similar.*

- 2 Using a  $9/16"$  remove the bolt on the bottom of the generator, rotate the generator counterclockwise to remove the belt.
- 3 Remove the electrical connector on the generator using a  $3/8"$  and a  $7/16"$ .
- 4 Use an  $11/16"$  and a  $5/8"$  remove the bolts securing the generator to the bracket. Remove the generator.
- 5 Using a  $9/16"$  remove the (1) bolts and (1) nut on the stamped steel generator bracket. Using a  $7/16"$  remove the remaining bolt on the bracket. Remove the bracket. Using a  $3/4"$  and a  $9/16"$  remove the stud and the bolt by the water pump. Remove the generator bracket.

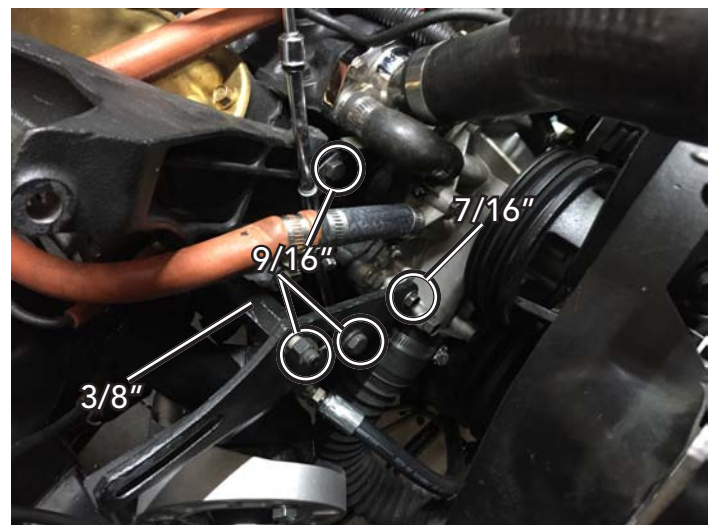
*Power Steering Removal If Equipped.*

*For Non Power Steering Skip to Step: 10*

- 6 With a drain pan under the power steering pump and lines, remove the lines from the powersteering reservoir. Remove the reservoir from the vehicle by using a  $1/2"$  to remove the (2) bolts (there are nuts on the backside that can be accessed from behind the inner fender).



Generator Connections



Generator Bracket



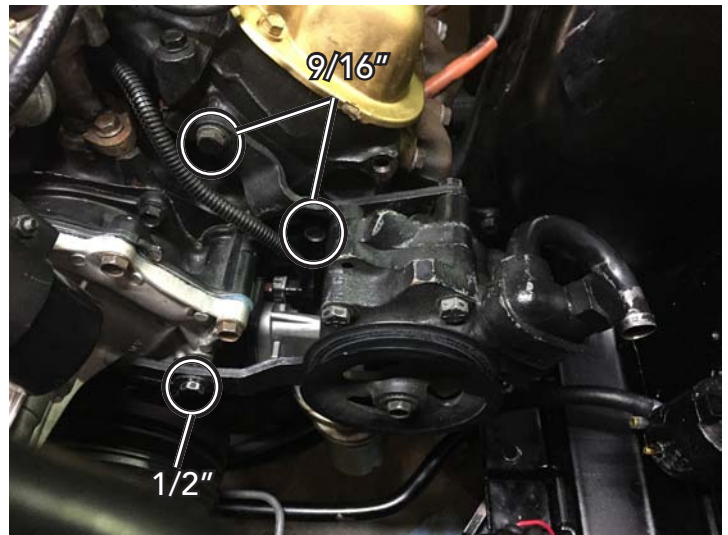
Power Steering Reservoir Connections



- 7** With a 1/2" loosen the power steering pump slide bolt and remove the power steering pump belt.
- 8** Using a 5/8" wrench remove the feed line off of the back side of the powersteering pump.
- 9** Using a 1/2" and a 9/16" remove the (3) bolts securing the power steering pump to the vehicle.
- 10** While holding the water pump pulley to keep it from spinning use a 1/2" to remove the (4) bolts holding the fan and pump pulley. Carefully remove the fan and pulley as to not damage the radiator.
- 11** With a 7/16" remove the (4) bolts securing the fan shroud to the radiator. Carefully remove the shroud.



Power Steering Line

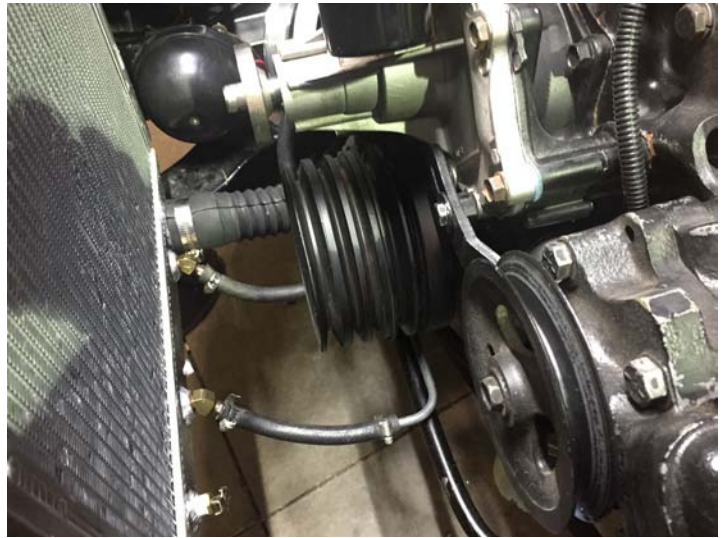


Power Steering Pump Bolts



Fan And Water Pump Pulley

- 12 Remove the 3 bolts from the crank pulley with a  $9/16"$ , then remove the crank pulley.



Crank Pulley

## CRANK PULLEY

- 1 Install the supplied crank pulley spacer onto the harmonic balancer while lining up the bolt holes. The small diameter alignment ring goes towards the balancer.



Crank Pulley Spacer Installed

- 2 Install the crank pulley onto the crank pulley spacer, line up the correct (3) bolt holes. Secure the pulley using the supplied 3/8" bolts and lock washers.



Crank Pulley Installed

- 3 Install the supplied water pump pulley onto the water pump, secure with the supplied 5/16" bolts and lock washers.



Water Pump Pulley Installed



# POWER STEERING / ALTERNATOR

*For Power Steering Equipped Vehicles only  
For non PowerSteering Proceed To Page 11.*

This power steering setup is for use with a factory 86-93 mustang 5.0L power steering pump, bracket and pulley. The alternator can be either from the same vehicle or the popular 94-95 Mustang 3G offering.

- 1** Using a 1/2" remove the power steering feed line from the hold down on the bottom of the engine cross member.
  - 2** Finish removing the feed line from the power steering pump by using a 1/2" wrench on the fitting at the connection on the steering rack (be sure to place a drain pan under the line and rack to catch any excess fluid).
  - 3** Install the provided power steering line onto the power steering rack (the metal end may need to be bent to fit around the tie rod end).
- ✓ **Tech Tip:** Do to variances in model years, fittings may vary on the power steering rack.
- 4** Install the new power steering line into the holder on the engine cross member.

**!** **CAUTION:** Be sure the power steering line is away from any heat source or moving components. Failure to do so can result in loss of steering.



Power Steering Line Hold Down



Power Steering Line Connection

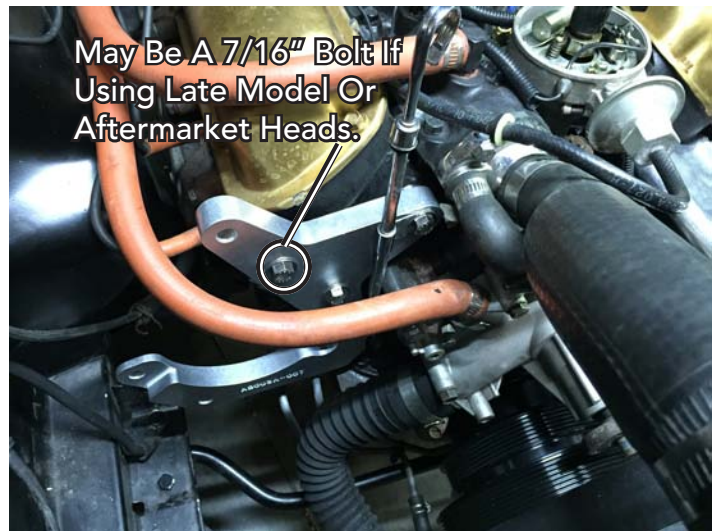


Power Steering Line Installed



- 5 Attach the supplied power steering bracket to the cylinder head the (3) supplied 3/8" bolts washers and .250" spacers on the back side of the bracket (later model year and aftermarket cylinder heads will have a 7/16" bolt in the upper left hole ,this bolt is provided).

✓ **Tech Tip:** If the dipstick was located on the cylinder head before, locate it behind the bolt closest to the water neck as shown to the right.



Power Steering Bracket Installed

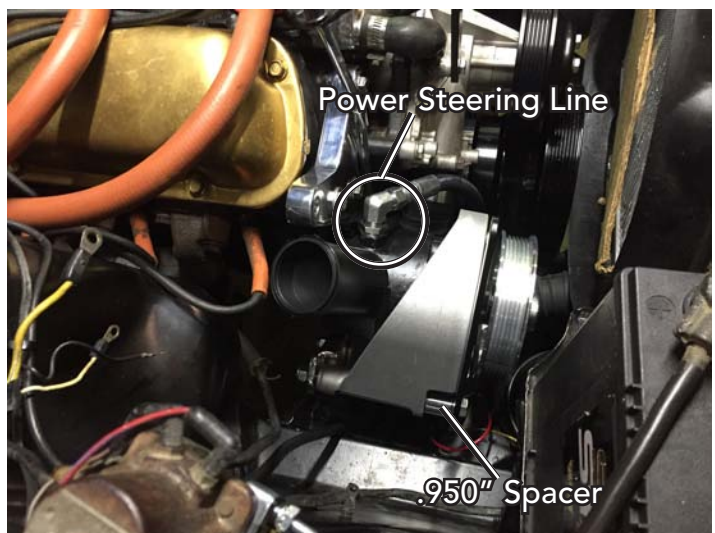
- 6 Loosely install the supplied 90° fitting into the power steering pump.



Power Steering Fitting Installed

- 7 Insert (2) supplied 7/16"x 6" bolts with washers inserted through the bottom 2 holes on the power steering support bracket followed by (2) .950" spacers. Inset the bolts through the bracket on the power steering pump, then install the whole assembly onto the pre mounted bracket on the motor. Lightly secure the pump to the bracket using the supplied lock-nuts and washers.

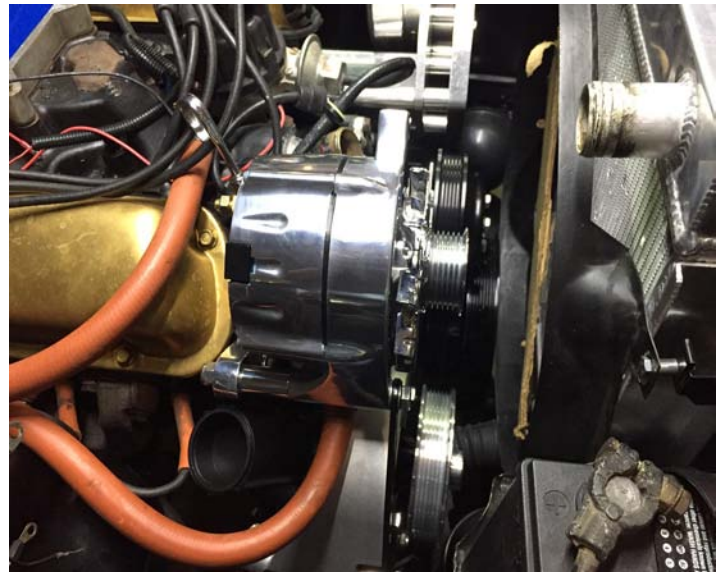
- 8 Route the previously installed power steering line to the fitting on the pump, rotate the pump fitting to keep the line away from any heat source or moving components. Tighten the locknut and the fitting.



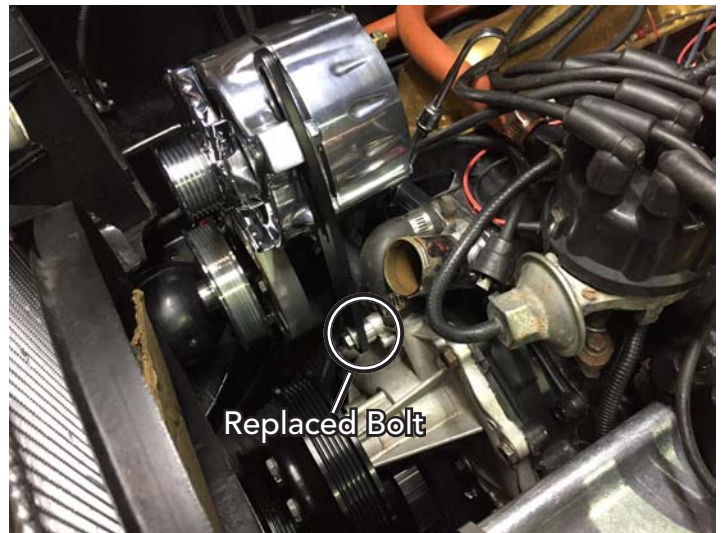
Power Steering Pump Installed

- 9 Route the factory power steering return line to the nipple on the bottom of the power steering pump. Cut the line to length and secure to the pump using the factory hose clamp.
- 10 Insert a 7/16" bolt with washer through the upper hole on the power steering support brace, followed by the bottom hole of the alternator and through the 1.440" spacer and into the power steering bracket. Loosely secure the bolt with a washer and a lock-nut.
- 11 Using a 1/2" remove the corner water pump bolt. Replace the bolt with the supplied alternator bracket, 5/16" x 3" bolt and .350" spacer. Attach the upper alternator mounting point to the alternator bracket using the supplied 3/8" x 1" hex bolt and washer.
- 12 Tighten the power steering bracket at this time.
- 13 Install the supplied accessory belt at this time. Tension the belt by using the adjustment slot on the alternator bracket to allow the alternator to pivot. Once proper tension has been achieved tighten all the alternator bolts.

Continue to Page 13.



Alternator Installed



Alternator Bracket Installed



Belt Installed



## ALTERNATOR

*For non power steering equipped vehicles*

- 1 Attach the stand-off mount to the cylinder head using the provided 3/8"x 3" hex bolt and washer.
- 2 Attach the alternator sub bracket assembly to the stand-off mount using the supplied 3/8"x 5" (7/16x 5" if late model or aftermarket heads) hex bolt with washer and another 3/8"x 5" hex bolt with washer.
- 3 With the alternator bracket securely fastened to the engine, install the alternator using the provided 3/8" x4.5" hex bolt, washers and lock-nut in the bottom hole and a 3/8 x 1" hex bolt and washer securing the top hole. Leave the hardware loose enough to allow the alternator to pivot.
- 4 Install the supplied serpentine belt. Tension the belt by using the adjustment slot on the alternator bracket to allow the alternator to pivot. Once proper tension has been achieved tighten all the alternator bolts.



Alternator Spacer Installed

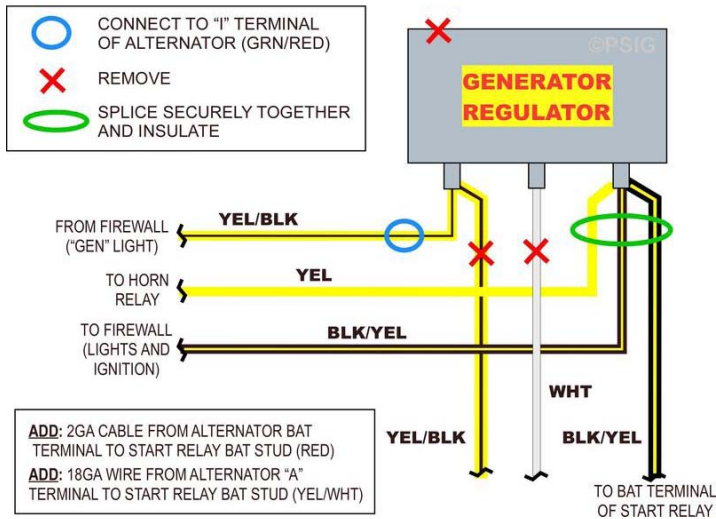


Alternator Bracket Installed

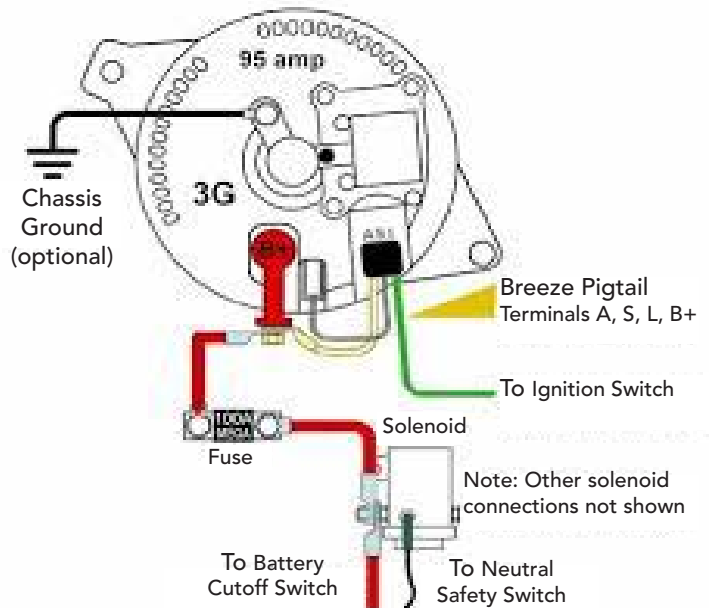


Alternator Installed

# ALTERNATOR WIRING



Generator To Alternator Wiring



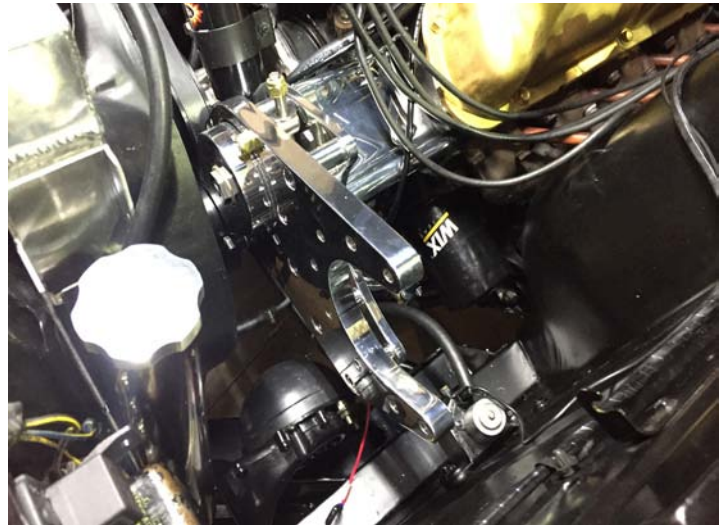
Alternator To 3G Alternator Wiring

- 1 Due to the variances in vehicles and alternator choices the above schematics have been given to assist in wiring up the alternator.



## PROCHARGER HEAD UNIT

- 1 Mount the supercharger bracket and support tower to the cylinder head using the supplied 3/8" x 8.5" bolts and washers (7/16 x 8.5" bolts and washers for late model or aftermarket heads).



Supercharger Bracket Installed

✓ **Tech Tip:** The windshield washer bag may need to be relocated to allow room for the supercharger.

- 2 Mount the supercharger to the main bracket using the supplied (2) 3/8 x 1-1/2" bolts and washers and (6) 5/16 x 1-1/4" bolts and washers.



Supercharger Installed

- 3 Install the supplied 8-rib belt onto the crank pulley, over the blower pulley and under the tensioner pulley. Tension the belt by loosening the 3/4" and 9/16" bolt on the back side of the bracket, turn the brass bolt on the tensioner clockwise until the first set of etched marks on the tensioner body align. Tighten the 3/4" and 9/16" bolts loosened earlier.



Belt Tensioner Alignment Marks

## CARBURATOR HAT / TUBING

### Non-Intercooled Installations (Intercooled kits, proceed to page 16)

- 1 Install a piece of 3" rubber hose onto the ProCharger volute using a #52 hose clamp. The length of this hose will vary depending on your set-up, so you will need to trim to fit.
- 2 Connect the 3" 45° metal tube to the rubber outlet hose using a #52 hose clamp. There are three different tubes depending on which (if any) bypass valve option you selected.
- 3 Connect the carburetor cover to the 45° metal tube. There are three different options depending on which carburetor cover you chose to purchase.
  - A. "Competition" Carburetor Cover:  
Use the supplied 3.5" to 3" rubber reducer, one #52 hose clamp, and one #56 hose clamp.
  - B. "Tall Boy" Carburetor Cover:  
Use the supplied 3.5" to 3" rubber reducer, one #52 hose clamp, and one #56 hose clamp.
  - C. "Low Profile" Carburetor Cover:  
Use the supplied 3" rubber hose (trim as necessary) and two #52 hose clamps.



Competition Carb Hat Installed

4 Bolt the carb. cover onto the carburetor using the supplied gasket, placing any spacers you chose to purchase in between the carburetor and the carb. cover.

5 Tighten the carburetor cover bolt firmly, and verify adequate bolt thread engagement to avoid loosening of the cover and damage to the hood.

6 Tighten all hose clamps.



Surge Tube Installed (non intercooled)

✓ **Note:** Retighten all hose clamps after initial warm up. Due to different height intake manifolds, carb. spacers, etc., it may be necessary to rotate the supercharger volute to achieve the proper tubing angle with the carb. cover. Contact ATI Technical Service before rotating the volute!

7 Attach the supplied tube fittings to the fuel pressure regulator or mechanical fuel pump and to the carb. cover. Attach 1/4" black tubing between the fitting on the carburetor cover and the boost-reference fitting on the fuel pressure regulator or mechanical fuel pump.

8 Attach the supplied fittings to the bypass valve and to an intake manifold source or the carburetor base plate. Attach the 1/4" nylon hose between the bypass valve and intake manifold source.

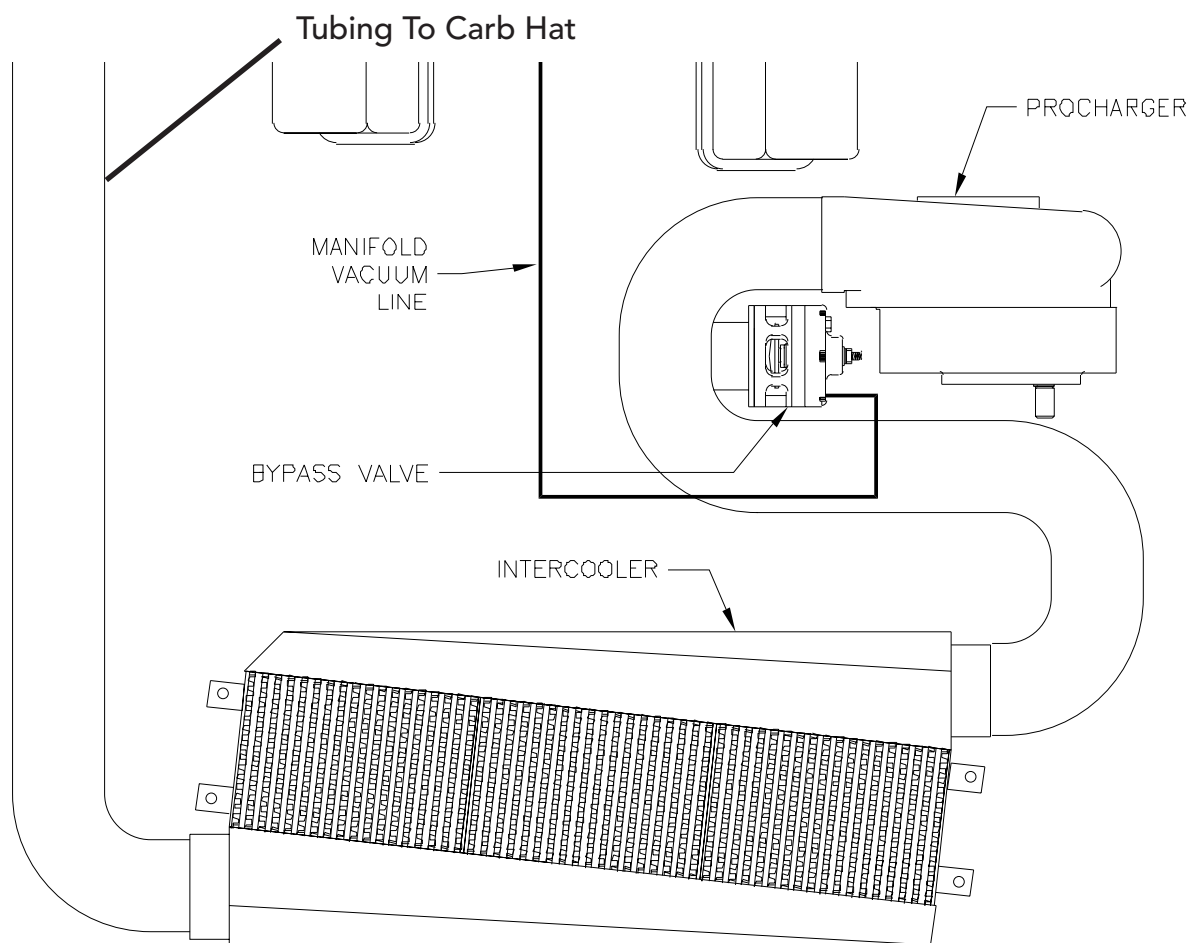
✓ **Note:** The crankcase must be vented to atmosphere or the supercharger intake. Failure to do so may result in damage to your engine's gaskets or seals. Do not vent to the intake manifold.

## INTERCOOLER / TUBING INSTALLATION

The main components of the intercooler system are the intercooler and intercooler tubing. The intercooler is a two or three core, bar & plate style, air-to-air heat exchanger. The compressed (therefore heated) charge air exiting the ProCharger enters one intercooler plenum, passes through a series of passages, exiting at the opposite plenum. Ram-air flows between the charge-air passages drawing heat from the charge air. Cooling fins between adjacent passages enhance cooling efficiency. The tubing kit is composed of mandrel bent carbon steel tubing. The tubing transfers the charge air from the ProCharger to the intercooler and then to the engine inlet duct. Note: The intercooler is non-directional and charge air may flow either direction.



**Tech Tip:** Due to the variety of vehicle models, this section is for general tubing and surge system installation.



Intercooler/Tubing/Surge System Installed  
(Race Valve Shown, Same Procedure Applies to Proflow Valve)



# INTERCOOLER AND TUBING

## (OPTIONAL)

### (For Optional Intercooler Installation)

- 1 Determine where you are going to mount the intercooler. The intercooler may be mounted either vertically or horizontally. Location will depend upon available space and personal preference. Vertical location in front of the radiator is recommended.

✓ **Tech Tip:** A horizontally mounted intercoolers performance will be greatly enhanced with the aid of an air scoop (optional).



Front Mount Intercooler Installed

- 2 Mount the intercooler using the two mounting tabs on the intercooler. Fabricate two straps to secure the intercooler in position. For best performance, minimize the distance the charge air has to flow and the number of bends it has to make.
- 3 The universal tubing kit contains an assortment of 3" (or 3.5") tubes and elbows (180/90/45°) that may be cut to form the intercooler ducting. After cutting, clean the tube ends with a file or sander and bead roll or flare if a bead roller is not available.

✓ **Tech Tip:** Flare the ends of the tubes is done to prevent the rubber connectors from pulling off due to boost pressure.

- 4 Secure each connection using the provided hose clamps.



2-core Intercooler (rated to 500 hp) w/3" Inlet/Outlet (Part #AI002A-001)



3-core Intercooler (rated to 825 hp) w/3" Inlet/Outlet (Part #AI003A-001)



3" Universal Tubing Kit (Part #AI004A-003)



# VACUUM MANIFOLD AND SURGE VALVE

For Proflow or Bullet valves. For race valves proceed to step 4.

- 1 Assemble the vacuum manifold (found in the surge valve bag) using the provided fittings and plugs.

✓ **Tech Tip:** If installing a boost gauge, replace one of the 1/8" plugs with the additional provided barb fitting. Route the vacuum line to the boost gauge.

- 2 Cut the provided 3/8" hose to 2-3" length attach it to the a vacuum source on the bottom of the carburetor or the intake. Secure with the #6 hose clamps.

For Proflow or Bullet valves:

- 3 Insert the supplied 90° 1-1/2" rubber hose onto the bung of the surge tube followed by the surge valve. Secure with (2) #24 hose clamps.

For Race valves:

- 4 Mount the provided race valve to the surge tube by setting the provided o-ring into the groove on the tube bung, and fasten the race valve onto the bung using the (6) 10 - 24 x 1/2" SHCS's. Verify that the o-ring is seated properly in place before moving on to the next step. Install one of the push lock fittings onto the race valve at this time.

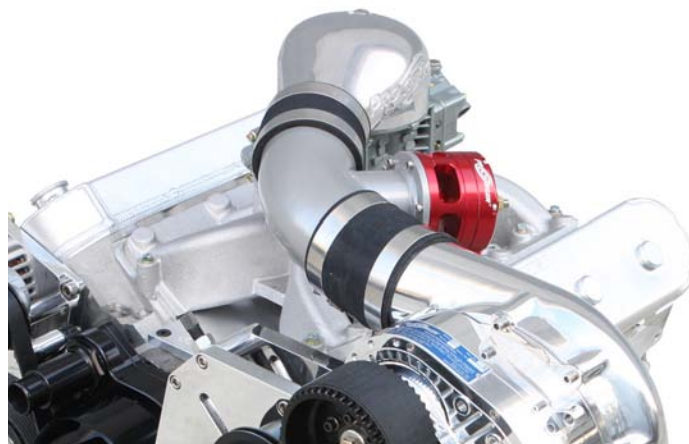
- 5 Insert either a barb fitting or a push-lock fitting into the tapped port of the surge valve, run either a push-lock line or a 3/8" hose to the previously installed vacuum manifold.



Vaccum Manifold Assembled



Bullet Surge Valve Installed (non intercooled)



Race Valve Installed (non intercooled)

# AIR INLET

- 1 Locate the provided air filter assembly.
- 2 Loosen the hose clamp located on the air filter with a 5/16" nut driver.
- 2 Slide the air filter assembly onto the supercharger inlet. Once in the proper location, tighten the hose clamp.



Air Inlet Installed

✓ **Tech Tip:** For vehicles where space will not allow the filter to be mounted directly to the supercharger, a variety of elbows/ couplers/ tubes are available separately. Contact ATI's technical service department for help.



## ELECTRIC FAN

- 1 Install the provided electric fan onto the radiator using the provided zip-tie fan mount kit.
- 2 Re-install the factory fan shroud.
- 3 Install the adjustable fan controller following the manufacturers instructions.

# FINISHING UP

- 1 Carefully review the entire installation. Examine 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 Check and correct all fluid levels (oil, power steering and radiator). It is important that you performed an oil and filter change after the oil drain setup (for non-SC applications). If you did not do so, it should be performed now before proceeding further.
  - 3 Start the engine and let it idle for a few minutes. Shut off the engine and check for fluid leakage, signs of rubbing parts, and other potential problems.
  - 4 Be sure you have purchased and properly 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.
  - 5 Your vehicle should display a significant, detonation free increase in performance when you step into the throttle, yet maintain its previous drive ability during daily driving. If this is not so, review your installation, then contact your dealer or ATI's technicians for assistance.
  - 6 Please review the maintenance and warranty sections within this owner's manual for additional information.
-  **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.
-  **Warning:** Your supercharged Ford must always be run on 91 octane or better gas.



**CONGRATULATIONS! YOU HAVE COMPLETED THE INSTALLATION OF YOUR NEW PROCHARGER SUPERCHARGER SYSTEM. READ THE FOLLOWING PAGES CAREFULLY FOR OPERATION AND MAINTENANCE INSTRUCTIONS, AS WELL AS WARRANTY INFORMATION.**

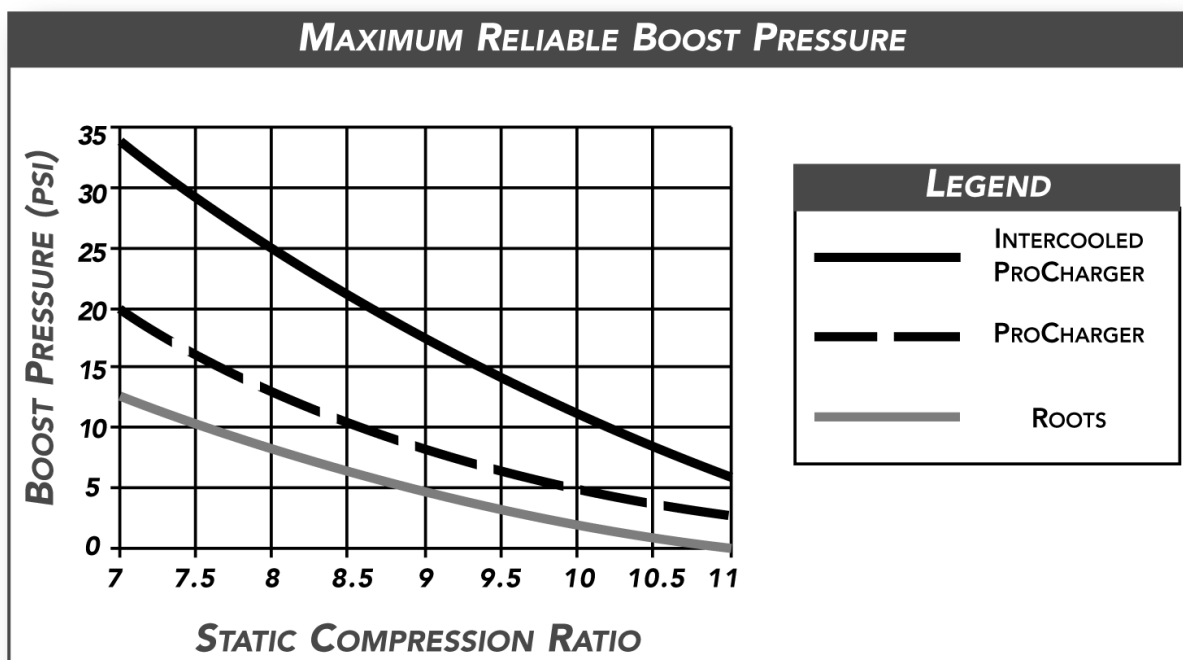


# TUNING

## Compression Ratio

The amount of boost you can safely run is determined primarily by your engine's compression ratio and the quality of fuel you will be running. For street applications (i.e. pump gasoline) with a compression ratio between 8:1 and 10:1, boost levels are typically in the 8-14 psi range, and will generate approximately 40-80% more horsepower. Compression ratios below 8:1 can usually handle 14+ psi of boost on pump gasoline, and will generate up to 100% more horsepower. Compression ratios above 10:1 are often used, but generally only at lower boost levels on pump gas, or with the addition of racing fuel or intercooling (see chart below).

When considering the potential reliability of your supercharged engine, you should be most concerned with detonation, which can result in blown head gaskets and engine damage. For applications which will run boost levels above those previously mentioned, the use of intercooling, ignition retard, water injection, racing fuel and other solutions may significantly reduce or eliminate the risk of detonation.



## Fuel Pressure and Jetting

On a carbureted engine, maintaining adequate fuel pressure and having the carburetor jetted correctly are the primary determining factors of your engine's air-fuel ratio. When supercharging an engine, the amount of air taken in is increased. To maintain a proper air to fuel ratio, additional fuel must be supplied.

When blowing through the carburetor, it is also necessary to increase the fuel pressure to ensure that a correct relative pressure is maintained (pressure which exceeds the boost level by a constant amount). For example, when your engine is idling and making no boost, the pressure should be 6-8 psi. As boost rises, the fuel pressure should rise accordingly. If your ProCharger was generating 10 psi of boost, you would need a fuel pressure increase of 10 psi to sustain proper operation (this would result in a gauge reading of 16-18 psi). In order to accomplish this, it is necessary to boost reference your fuel system. This is done by using a boost sensing regulator or a mechanical fuel pump with a boost reference port.

In addition to increased pressure, it will also be necessary to supply additional fuel to your engine. This is done by increasing the size of your carburetor's jets. A good starting point is to increase each corner jet size by 8-10 sizes (example 70 to 78). **Never run a ProCharged engine with factory jets!** Doing so will inevitably result in your engine running too lean a mixture and likely result in severe engine damage. Please contact your dealer or an ATI technician for jetting recommendations. An engine running 10 psi of boost consumes roughly 60% more air than an un-boosted engine, and requires a comparable increase in the amount of fuel delivered to the cylinders.

## Timing

Determining the appropriate amount of spark

advance (timing) is a necessity if your engine is to operate at it's peak. Different engines may require slightly different amounts of spark advance in order to achieve optimum performance. However, as most engines respond similarly, the following general guidelines should serve as a good starting point.

Usage of a "locked out" race type distributor will deliver the best wide open throttle performance, but may affect part throttle driveability, and cause hard cranking/starting. Many street driven vehicles will benefit from the use of a centrifugal advance distributor. The timing curve should be such that full advance occurs by the time the engine reaches 40% of it's peak RPM (typically between 2,400 and 3,200 RPM).

When setting total advance on big block engines, it is best to start low (around 24° total) and gradually increase (2° at a time) until a total of roughly 32° is reached. Small block engines usually respond favorably to more timing, so it may be better to start around 28-30° and work up to roughly 36° total spark advance. If any detonation occurs, timing should be decreased until no detonation is present. The usage of an aftermarket knock sensor usually simplifies this procedure.

Non-intercooled applications may benefit from the use of a device that retards timing in proportion to the level of boost present. In some cases it may be acceptable to advance timing beyond the recommended totals, but it is generally best to keep timing at these levels to provide insurance against detonation induced by a lean air-fuel ratio, or poor fuel quality. Once timing is optimized, it may be necessary to re-jet the carburetor to fully realize your engine's maximum power potential.

### Spark Plugs

The most common method of determining whether your carburetor is properly jetted is to "read" the spark plugs. By examining your engine's spark plugs, you may gain insight into what is going on in the combustion chamber.

When reading plugs, it is generally advantageous to examine the plugs farthest from the carburetor, as these will be the leanest running cylinders. By reading the plugs at the four corners, you can usually get a good idea of what is necessary in the way of jet changes.

Shut the engine down immediately after making a full length, full throttle pass (allowing the engine to idle will allow soot to form on the plugs of an engine which may actually be running lean at wide open throttle, and falsely indicate that the air fuel mixture is correct). Generally, the appearance of the end of the plug's threaded portion is a good indicator of what the combustion chamber looks like.

Ideally, the thread end should be lightly and uniformly blackened with soot. If only a portion is blackened, additional enrichment is necessary. If this area of the plug is heavily coated or wetted, the mixture is excessively rich and should be de-jetted. If the plugs have been used in this state for a prolonged period, it may be necessary to clean or replace them in order to obtain accurate readings.

The absence of deposits, or discoloration of the ground electrode, is an indication that the engine is running too lean, and will require an increase in jet sizes. The presence of small metallic deposits on the insulator, or any distortion of the ground electrode indicates that the mixture is excessively lean and/or detonating. If this is the case, you may have a fuel delivery problem and/or be running excessive timing.

If your engine seems insensitive to jetting changes, your fuel system may be maxed out,

and should be inspected for proper operation and installation (refer to the fuel pressure and jetting section). Usage of an air/fuel ratio meter, or EGT (Exhaust Gas Temperature) probes may also prove helpful when determining your engine's optimal jetting combination. Tuning on a chassis dyno with a "Wide Band" O<sub>2</sub> meter is a very good way to achieve a safe, reliable combination of timing and jetting.

**If you require technical support, please contact us at (913) 338-3086 , or contact technical service via e-mail at [techserv@procharger.com](mailto:techserv@procharger.com).**



# 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/or personal injury!

## Belt Replacement

The serpentine belt, which turns your ProCharger supercharger, will stretch after initial run-in, and should be re-tightened 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.

## ProCharger Oil Change Intervals

The first oil change should be performed at 500 miles and at 6,000 mile intervals thereafter. Clean the drain plug after every oil change. Drain the oil by removing the drain plug. Clean off the drain plug before re-installing.

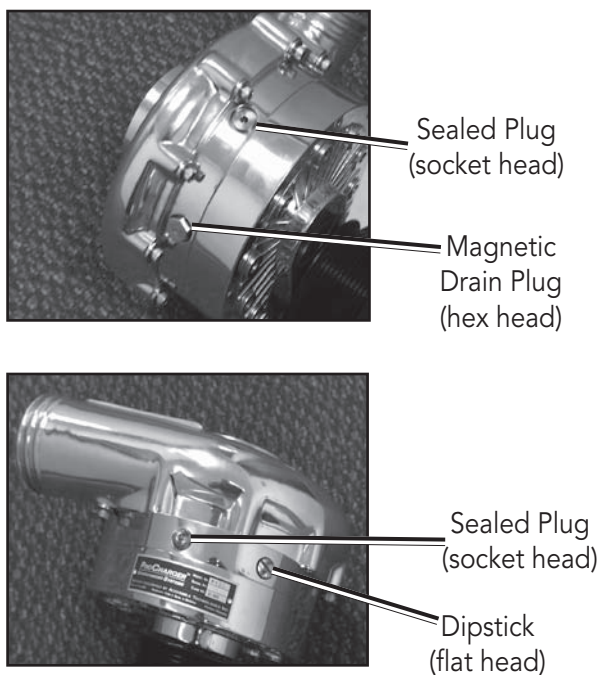
### ProCharger Oil Level

The ProCharger supercharger's oil level must be checked periodically to ensure the proper lubrication. The dipstick can be loosened using a flat blade screwdriver or a coin. When installed, the oil level should remain between the minimum (MIN) and maximum (MAX) indicators at all times.

**Warning:** Filling the ProCharger higher than the maximum level on the dipstick can lead to bearing and seal damage. The supercharger is a sealed unit and should not normally require the addition of oil between service intervals. If excessive usage is noted, the unit should be sent to ATI for inspection and repair. The dipstick fitting should be firmly tightened after changing or checking the oil level.

### Oil Change Intervals

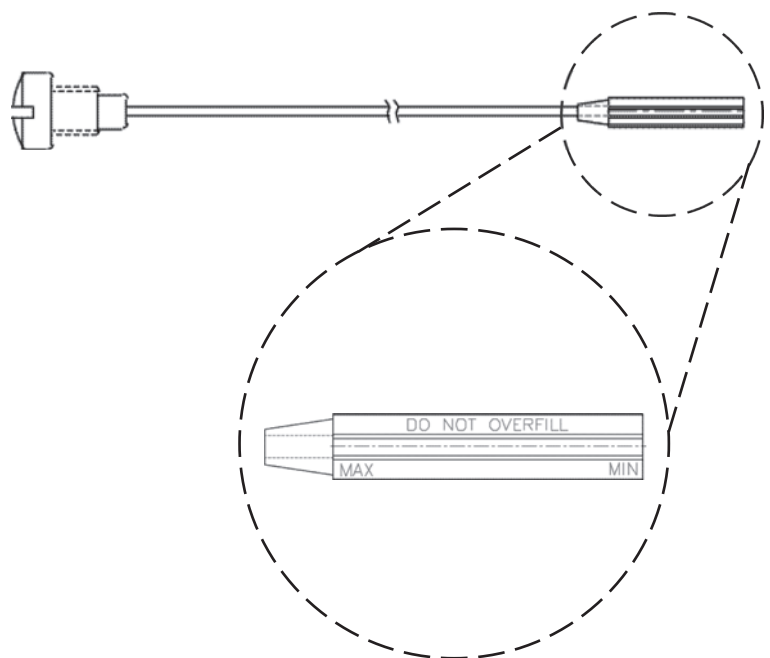
The first oil change should be performed at 500 miles and at 6,000 mile intervals thereafter. Drain oil by removing the drain plug. Clean drain plug after every oil change. **The drain plug should be firmly tightened after changing the oil.**



### General

When removing the dipstick, be sure to retain the nylon washer. A spare nylon washer and o-ring is included. Use only the ATI supplied nylon washer and o-ring when servicing the oil dipstick and drain plug. A discoloration of the oil and residue on the drain plug may occur during the initial oil changes. This is normal and will gradually decrease. For the proper positioning of the ProCharger supercharger, the serial tag should be pointing upwards. Installing the ProCharger supercharger in another position will cause inadequate oiling and supercharger failure. If you have any questions about the maintenance of your supercharger, contact ATI.

**Warning:** The supercharger contains no oil from the factory. The unit must be filled prior to use. Use only ATI supplied oil in your 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.



## LIMITED WARRANTY

Accessible Technologies, Inc. (ATI) provides a limited twelve (12) month warranty on the ProCharger supercharger 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**



# PROCHARGER EXTENDED COVERAGE

The ProCharger Extended Coverage Program extends the ProCharger warranty coverage for your supercharger an additional twenty-four (24) months, for a total of thirty-six (36) months or three years of coverage. This extended coverage applies to parts for the ProCharger supercharger head unit only and does not include other system components. With your extended coverage registration, you will receive two (2) additional boxes of ProCharger Supercharger oil.

Under the extended coverage program, Accessible Technologies, Inc. (ATI) will repair or replace any component within the supercharger head unit which is found to be defective. Only the supercharger head unit itself is included in the extended coverage.

Service under the extended coverage program is obtained through the same process as described in the Limited Warranty.

Race kits are not eligible for the ProCharger Extended Coverage Plan.

### To qualify for the ProCharger Extended Coverage:

- Only the original owner of the ProCharger supercharger is eligible.
- Completion of the Extended Coverage Registration Form is required, along with a \$99 registration fee. 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.
- Participants must have a ProCharger P-1SC, P-1SC-1, P1-X, C1, or C2 supercharger head unit using the maximum warranted boost level. All terms and conditions within "The Limited Warranty" apply. Acts resulting in disqualification include but are not limited to the following:
  - Disassembly or modification of the ProCharger supercharger.
  - Removal or attempted removal of the ProCharger drive pulley(s).
  - Removal or attempted removal of the ProCharger supercharger serial number plate.
  - Removal or attempted removal of the compressor housing or transmission case.
- Participants agree to properly maintain the ProCharger supercharger and provide proof of compliance with the following recommended maintenance:
  - Change the ProCharger supercharger oil after the initial break-in period of 500 miles (automotive) or 15 hours (marine).
  - Change the ProCharger supercharger oil every 6,000 miles after the initial break-in period.
  - Use only the specified amount of ProCharger Supercharger oil in the ProCharger supercharger.
  - Inspect and clean the magnetic drain plug at every ProCharger supercharger oil change.
  - Check the ProCharger supercharger oil level frequently.

# ProCharger Extended Coverage Program Registration Form

Return this completed form and a \$99 check within 30 days of original purchase.

Name: \_\_\_\_\_

Date of Purchase: \_\_\_\_\_

Address: \_\_\_\_\_

Purchased From: \_\_\_\_\_

City: \_\_\_\_\_

ProCharger Serial #: \_\_\_\_\_

State: \_\_\_\_\_ Zip: \_\_\_\_\_

Vehicle Year: \_\_\_\_\_

Daytime phone: \_\_\_\_\_

Vehicle Make: \_\_\_\_\_

Evening phone: \_\_\_\_\_

Vehicle Model: \_\_\_\_\_

E-mail: \_\_\_\_\_

Please rank in order of importance starting with 1 being most important.

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

Which information sources most influenced your decision to purchase a ProCharger system?

- ☐ 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 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
- ☐ Super Chevy
- ☐ Truckin'
- ☐ Street Truck

What most influenced your decision to purchase a ProCharger system?

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

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

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

If yes:

Supercharger: Brand(s) \_\_\_\_\_ Vehicle(s) \_\_\_\_\_

Turbocharger: Brand(s) \_\_\_\_\_ Vehicle(s) \_\_\_\_\_

I have read and understand the policy for the ProCharger Extended Coverage Program. I have not and will not modify my ProCharger supercharger in any way during my participation in the extended coverage program. I have read and answered all questions on this form. I have enclosed my check for \$99, payable to ATI, for enrolling my ProCharger supercharger (serial number indicated above) in the extended coverage program for an additional twenty-four (24) months beyond the standard limited warranty period of twelve (12) months.

Signature \_\_\_\_\_ Date \_\_\_\_\_

Mail this completed registration form with a \$99 check to ATI at: 14801 West 114th Terrace, Lenexa, KS 66215. If you have any questions, contact us at techserv@procharger.com or (913) 338-2886 8:30 AM - 5:30 PM CST, Monday - Friday.

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**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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**Part Number PMFA1A-009 Rev. A**

