

2010-2014 6.2L Ford Raptor Stage 2 Intercooled System **Installation Guide**



The **ULTIMATE** Power Adder™

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INTRODUCTION

Congratulations on purchasing your ProCharger® 2010-2014 6.2L Ford Raptor Stage 2 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.

Required Tools and Supplies

- 3/8" Socket Set (standard & metric)
- 1/2" Socket Set (standard & metric)
- 1/2" Breaker Bar
- T20 Torx Bit
- Open End Wrench Set (standard & metric)
- 3/8" Hex Bit Set (standard & metric)
- Flat Screwdrivers
- Phillips Screwdrivers
- Plier Set
- Loctite 272
- Drill and 1/2" Drill Bit



Warning: Your supercharged Raptor must always be run on 91 octane or better gas.

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.

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TUNING



Note: This section only applies to full systems, which include a hand-held tuner for tuning. If you do not have a full system, additional tuning will be required before starting the vehicle.

1

Remove the hand-held tuner from its box and review the included instructions.



Note: You will be prompted to turn the key on and off; this is normal, but do not try to start the vehicle.

2

Connect the hand-held tuner to the OBD-II port located under the dash near the driver's door.

3

Your hand-held tuner comes pre-programmed with the appropriate tune for your vehicle. Select **Custom Tune** from the Main Menu and follow the on-screen instructions.



Troubleshooting:

- If the programmer displays an error message, reprogram the vehicle with the "Return to Stock" option rather than the "Custom Tune" before attempting to install the "Custom Tune" again.

- Voltage fluctuations are a common cause of reflashing failure. Be sure your battery is fully charged, remove the cooling fan and fuel pump fuses, keep the stereo off, and do not open or close any doors or windows while reflashing.

- Some vehicles will lock the doors during a reflashing; either stay in the car or open a window prior to reflashing to prevent getting locked out.

- Another common cause of reflashing failure is a computer that has been reflashed by a dealer to an updated calibration. Your vehicle's calibration can be verified by choosing "Read Strategy" from the DTC/Data Menu. If you have persistent tuning issues, read the strategy prior to contacting ATI Technical Support.

GETTING STARTED



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

- (A) Factory Air Filter Box
- (B) Mass Airflow (MAF) Sensor
- (C) Factory Inlet Pipe
- (D) Resonator Box

! 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.

- 1 Disconnect the negative battery cable from the battery using an 8mm socket.
- 2 Disconnect the Mass Airflow Meter (MAF) wiring harness from the intake tube by first pulling out the red locking tab and then pressing in the center of the tab and pulling out.
- 3 Remove the vacuum line that runs from the driver's side of the resonator box to the plastic brake booster check valve near the firewall.
- 4 Unplug and remove the PCV line that connects from the driver's side valve cover to the intake tube. Set this PCV line to the side, it will be re-used in a later step.
- 5 Loosen the (2) hose clamps on the intake tube using a 5/16" socket and remove the intake tube from the vehicle.
- 6 Unclip the (3) retainers surrounding the air box lid and remove the upper portion of the air box and remove the air filter.
- 7 Using a T20 Torx bit, remove the MAF sensor from the air filter box and set aside for reuse later. The rest of the intake system will not be re-installed.

Remove Vacuum Line

Remove PCV Line



Remove Driver's Side Vacuum and PCV Lines



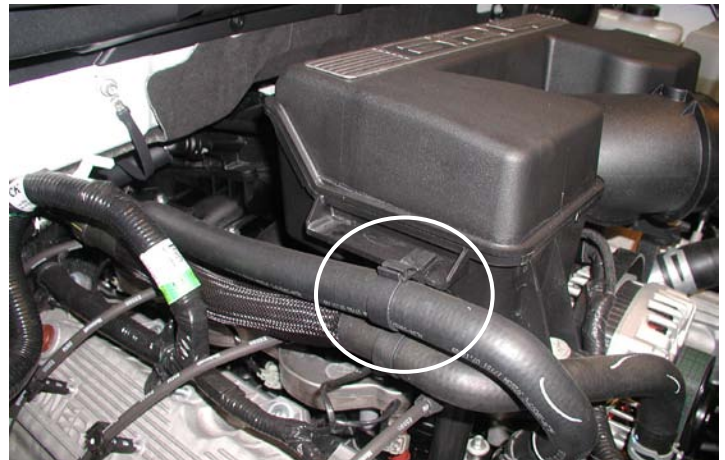
Loosen (2X) Hose Clamps and Remove Intake Tube



Remove MAF Sensor From Air Filter Box

Getting Started

- 8 Unclip the cooling line from the passenger's side of the airbox resonator.



Unclip Coolant Lines From Resonator

- 9 Remove the (2) fasteners securing the airbox resonator to the engine with a 10mm socket. Pull the resonator out and up to remove it from the vehicle.
- 10 Remove the coupler from the throttle body by loosening the 5/16" hose clamp and pulling the coupler off.



Remove (2X) Fasteners Securing Airbox Resonator

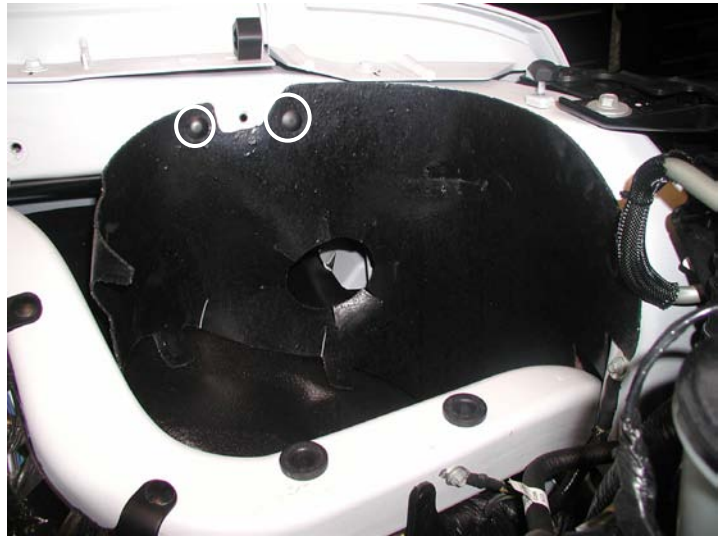
- 11 Disconnect the overflow hose from the coolant reservoir. Replace the coolant hose with a rubber cap to prevent the loss fluid. Remove the (2) mounting bolts using a 13mm socket and remove the air box/coolant reservoir.
- 12 Pour the coolant from the factory overflow tank into the new procharger coolant tank.

Unplug Overflow Hose



Air Filter Box and Coolant Reservoir Removal

- 13** Remove the driver's side air deflector by removing the (6) pins securing it to the vehicle.



Remove Driver's Side Air Deflector

- 14** Remove the wiring harness from the stud holding the power steering reservoir. Remove the power steering reservoir from the radiator shroud by removing the 10mm stud and place it to the side of the radiator.



Remove Power Steering Reservoir
From Radiator

- 15** Using a 13mm socket remove the radiator support bolt shown.



Radiator Support Bolt

Getting Started

- 16 Slide the power steering relocation bracket under the radiator support as shown and reinstall the factory bolt.
- 17 Install the power steering reservoir onto the power steering bracket, securing it using the supplied 1/4" bolt, washers and nut.



Power Steering Reservoir Mounted

- 18 Remove the (1) bolt from the factory idler located on the driver's side of the front cover with a 13mm socket.

Remove Idler Bolt Remove Front Cover Bolts (2x)



Remove of Idler Bolt & Front Cover Bolts

- 19 Remove the (2) front cover bolts specified in the image to the right with a 10mm socket. **2013+ Models** have a threaded stud and sensor in place of (1) of the front cover bolts. Remove the stud and relocate the sensor to the location specified in the image below.



2013+ Sensor Relocation

- 20 Unclip the (2) wire harnesses mounted to the driver's side of the front cover shown in the image to the right.



Unclip Wiring Harnesses From Front Cover

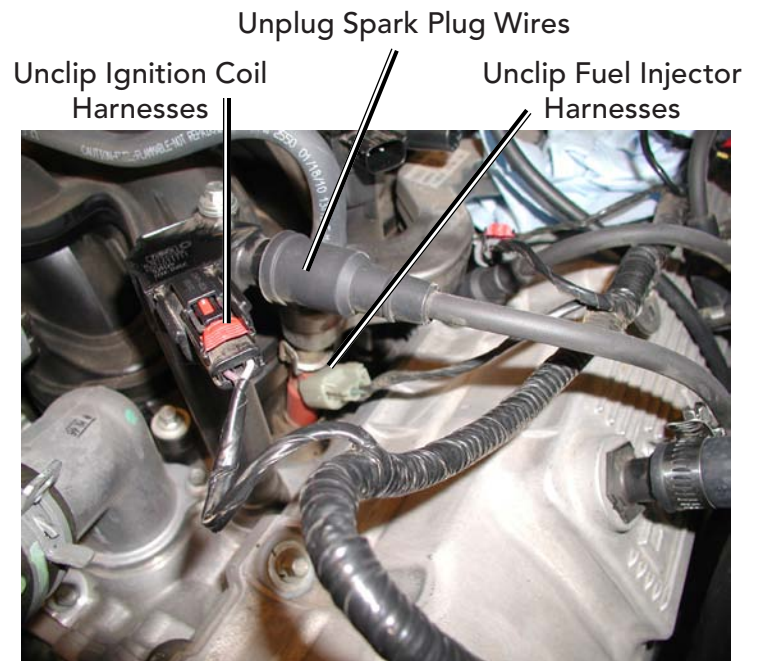
FUEL INJECTOR INSTALLATION



Note: Tuner kits do not include fuel injectors. If you purchased a tuner kit, larger fuel injectors must be installed prior to starting the vehicle or serious damage may occur.



Warning: This is a high pressure fuel system. When working on the fuel system, there will be small amounts of fuel leakage when the injectors are initially removed. Caution should be taken to minimize/contain this leakage. Avoid any exposure of this leakage to spark, flame, or any other potential ignition sources.



Unclip Wiring Harnesses and Unplug Spark Plug Wires

- 1 Verify the negative battery cable is disconnected.
- 2 Unclip the wiring harnesses and unplug spark plug wires from each ignition coil to gain access to the fuel rail. Unclip the fuel injector harnesses from each injector at this time as well. Be sure to mark where each harness and plug is disconnected from for proper reinstallation.
- 3 Locate the fuel line running to the driver's side fuel rail. Unclip the blue safety retainer, push both sides of the retainer in, and slide the fuel line off of the rail. Be cautious pulling the fuel line off, small amounts of fuel will leak during this step. Place a towel or rag under the line to absorb the excess fuel.



Unplug Fuel Line From Driver's Side Fuel Rail

- 4 Using a 10mm socket, remove the (4) bolts securing the fuel rails to the intake (2 on each side of the vehicle). Slowly pull the rails up and out of the vehicle. The fuel rails will stay connected to the bottom of each rail, handle with care.

Warning: The fuel rails will be full of fuel when removed. Pour the fuel into a container through the opening where the fuel line was connected.

- 5 Remove the injector retaining clips from each injector. Remove each injector from the fuel rails by pulling them straight out (8x).

- 6 Replace the factory fuel injectors with the supplied 63 lb/hr units. Re-install the factory retaining clips.

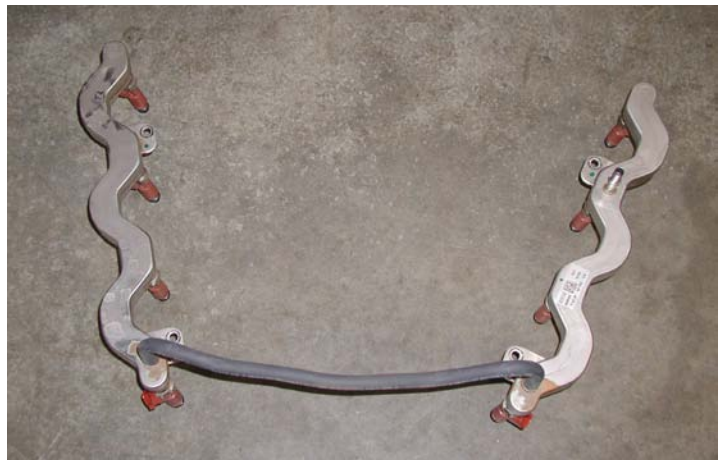
Tech Tip: Lubricate the o-rings with a small amount of fresh engine oil before installing. Install each injector into the fuel rail. Make sure each fuel injector is rotated properly so it does not interfere with the intake manifold or anything else.

- 7 Re-install the fuel rails. With a small amount of force, push the rails down to securely mount each injector in place. Re-install the factory fuel rail bolts with a 10mm socket. Plug the fuel line back in and be sure to clip the blue safety retainer properly back into place.

- 8 Reconnect each fuel injector harness to the proper injector. Also reconnect the ignition coil harnesses and spark plug wires to the proper ignition coils at this time as well.

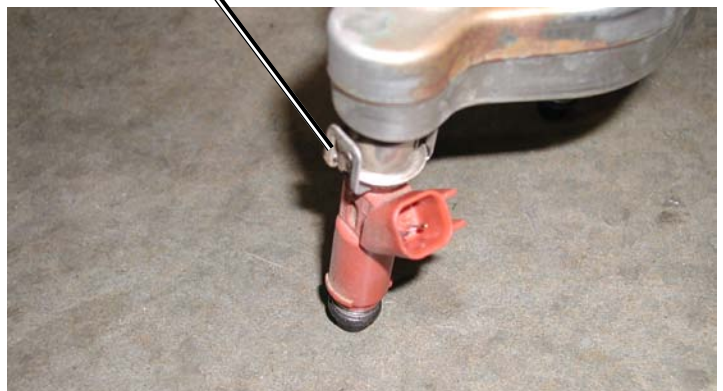


Front Fuel Rail Bolts (4 Total)



Fuel Rail Assembly Removed

Injector Retaining Clip



Closeup of Fuel Injector

CRANK PULLEY

- 1 Identify the transmission access cover, located under the vehicle in front of the transmission. It is secured by (2) bolts. Remove these bolts with a 13mm socket, and set the cover aside. If needed, an alternate access cover is located on the lower driver's side of the engine block covered by a rubber plug.
- 2 Looking inside the transmission access hole, the flywheel should be visible. Using a large flathead screwdriver, place the screwdriver into one of the holes in the flywheel to keep the flywheel from spinning during the crank pulley bolt removal.
- 3 Remove the factory serpentine belt from the crank balancer pulley.
- 4 Remove the factory crank bolt.
- 5 Using a Ford crank balancer removal tool, pull the factory balancer off of the crank and remove it from the vehicle. A new modified balancer is supplied with your kit.
- 6 Using a Ford crank balancer installation tool, install the supplied modified balancer onto the crankshaft. Do not reinstall the crank bolt at this time.



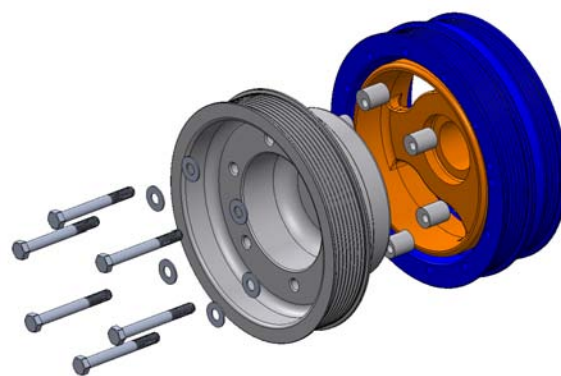
Flywheel Access Locations



Modified Crank Balancer

Installation Using Factory Balancer

- 7 Insert the (6) 5/16 - 18 bolts and washers through the supplied pulley, apply Loctite 272 to the bolts and thread the (6) supplied cam locks onto the threads from behind the pulley. Hand tighten the cam locks.

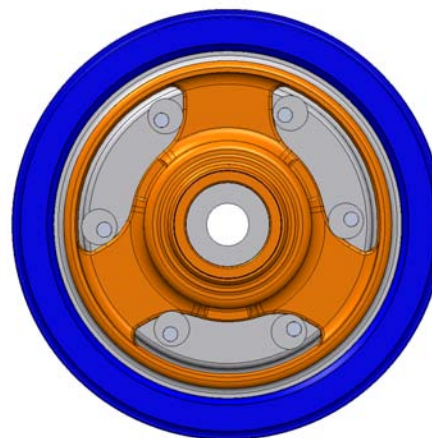


Crank Pulley and Cam Lock Assembly

- 8 Mount the crank pulley and cam locks onto the factory balancer, ensuring (2) cam locks are inserted into each slot on the balancer.

2 CAMLOCKS PER SLOT

- 9 Place the provided hardened washer onto the new crank bolt, insert into the new crank pulley and into the crank. Rotate the assembly until the cam locks stop the pulley. Tighten the crank bolt to 240 ft-lbs. Be sure the flathead that is holding the flywheel stationary is properly positioned for tightening.



Cam Lock Positions From Back Side View

- 10 Activate the cam locks by tightening the (6) bolts to ensure that the crank pulley and balancer spin together.
- 11 Remove the screwdriver from the transmission access hole, replace the access shield, and tighten the bolts.
- 12 Re-install the factory belt.



Crank Pulley Installed

MAIN BRACKET ASSEMBLY

Steps 1- 4

2014 Model Years Only

! **Note:** If this boss has been threaded from the factory, skip to step 5

1 Tape the supplied 17/64 drill bit 1-3/4" from the tip. This will be the drill depth measurement.

2 Locate the non-threaded boss just above the power steering pulley. Place the drill jig over the boss. Insert the drill into the jig.

3 Holding the drill jig firmly against the timing cover, drill the boss, stopping at the edge of the tape. Use compressed air to blow out the hole.

4 Use the supplied M8 x 1.25 tap to thread the hole. Use compressed air to thoroughly clean the hole.



Drill Bit Tape

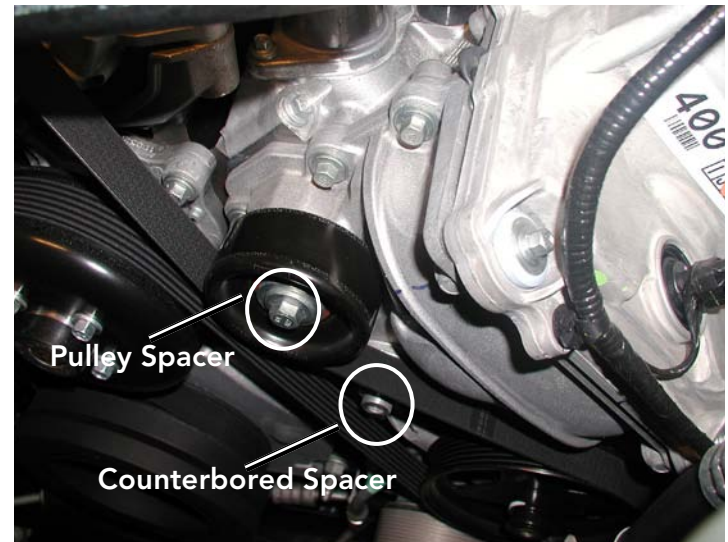


Non-threaded Boss



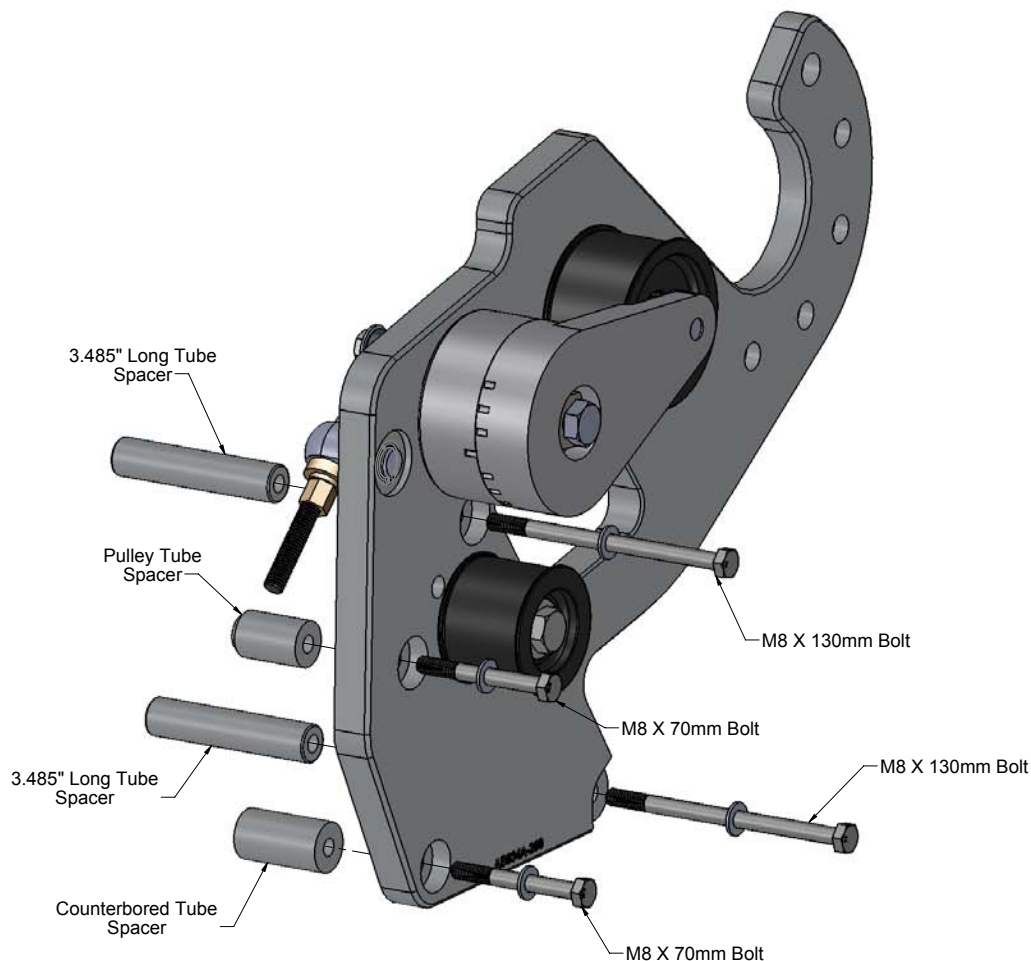
Drill Jig

- 6 Mount the (1) tube spacer that is counterbored over the machined surface on the front cover. Mount the (1) tube spacer that is stepped into the factory idler pulley. Use the (2) supplied M8 X 70mm hex head bolts and washers to secure the bracket in place.
- 5 Connect the bracket to the engine using the (2) supplied M8 X 130mm hex head screws and washers sliding the (2) 3.485" long tube spacers between the bracket assembly and front cover (these will mount where the previously removed front cover bolts were).
- 7 Once assembled, make sure the wire on the ignition coil capacitor is not in the belt path and zip tie it out of the way.



Mounting Location For Short

Main Bracket Assembly Diagram



Main Bracket Assembly

- 8 With the main bracket assembly mounted to the front of the vehicle. Be sure that the (4) mounting bolts are tight.
- 9 Mount the ProCharger onto the main bracket using the supplied (5) 5/16"-18 X 1" and (2) 3/8"-16 X 1" socket head cap screws. Tighten all (7) fasteners.
- 10 Install the belt on the vehicle. Follow the belt routing diagram below.



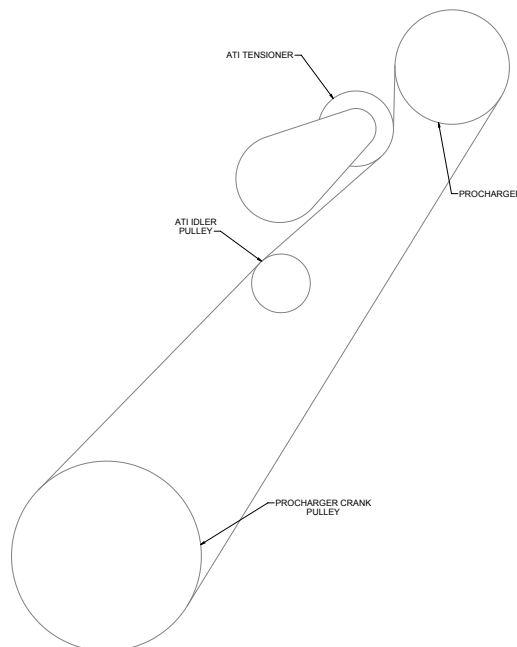
Procharger Mounted

✓ **Tech Tip:** There is also an additional hole to mount the idler pulley to accommodate for different belt lengths.



Main Bracket Assembly Installed

Belt Routing Diagram

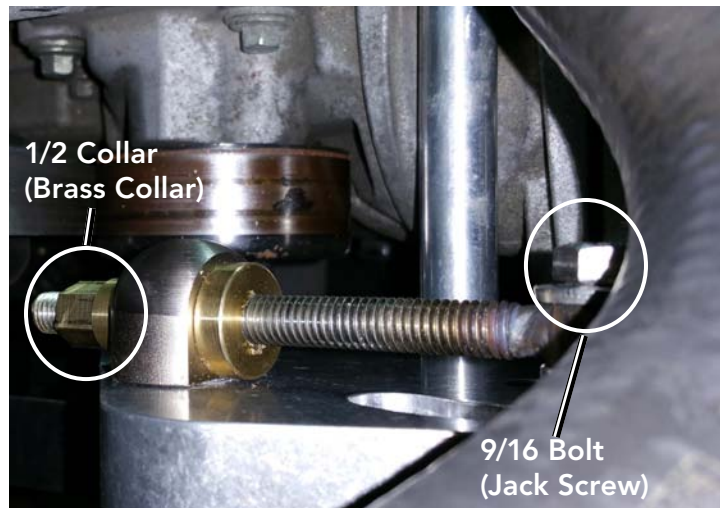


Tensioning the Belt

- 11 Use a 3/4 socket to loosen the pivot bolt.
- 12 Use a 9/16 wrench to loosen the Jackscrew by only 1/2 turn.
- 13 Use a 1/2 deep socket (1/4" drive) to turn the brass collar counterclockwise until the first set of etched marks on the tensioner body align.
- 14 Use a 3/4 to tighten the pivot bolt. Ensure the bolt is tight enough to hold the tensioner from rotating.
- 15 Turn the brass collar clockwise to release tension on the jackscrew.
- 16 Use a 9/16 to tighten the jackscrew mounting bolt.



Warning: Failure to follow the proper belt tensioning steps may result in damage or excessive wear to the tensioner hardware.

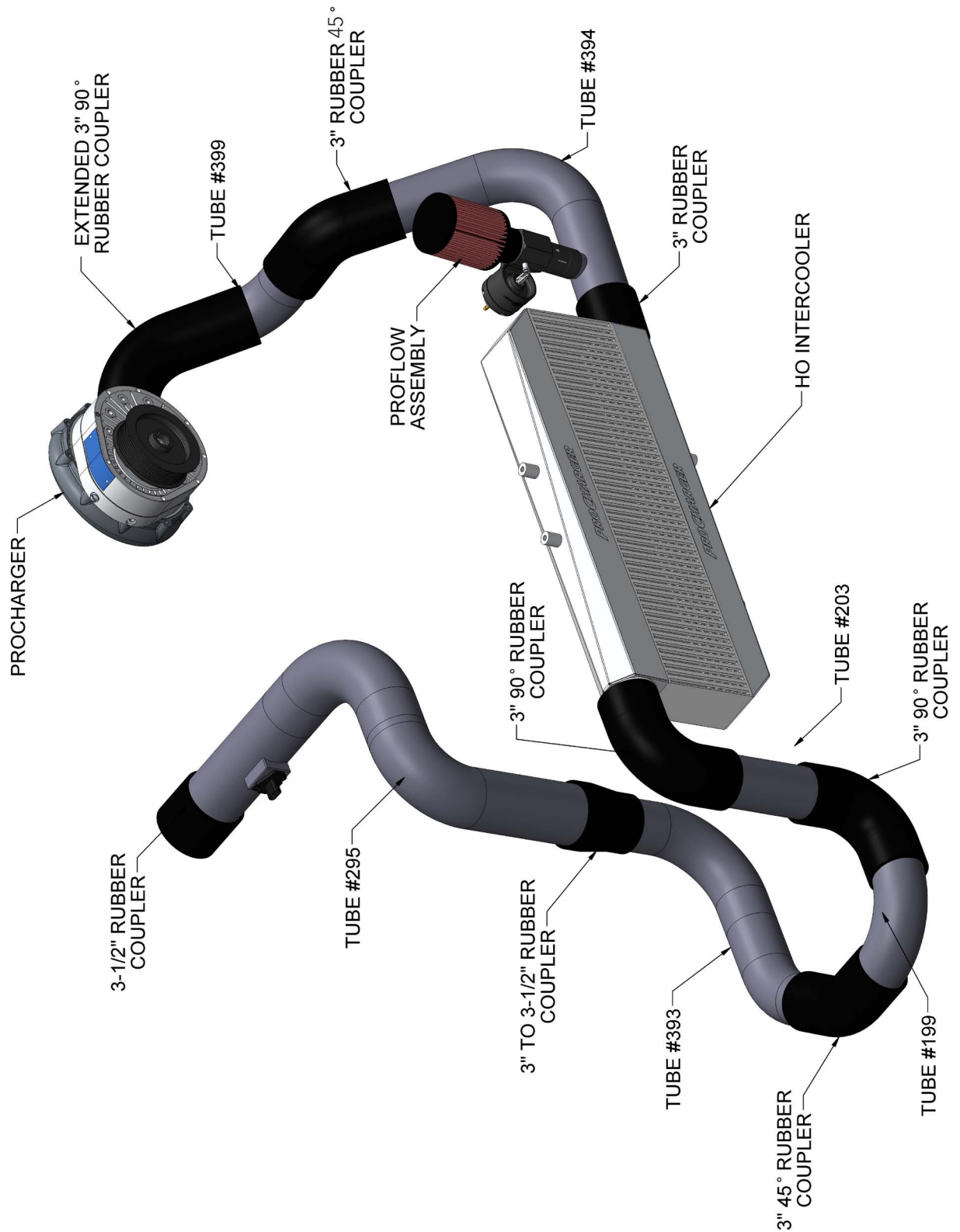


Jack Screw

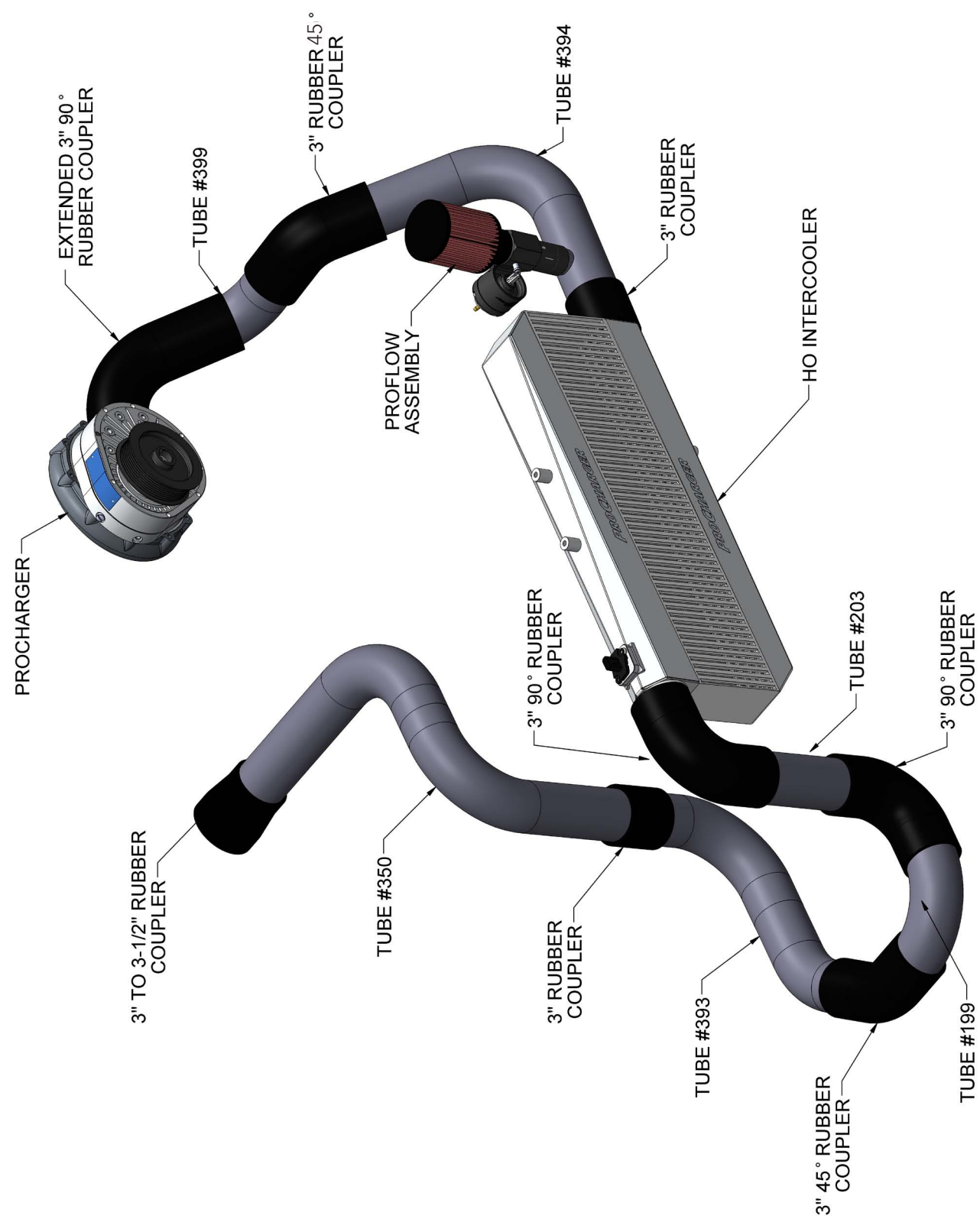


Pivot Bolt

H.O. INTERCOOLER SCHEMATIC ('10-'12 MODEL YEARS)



H.O. INTERCOOLER SCHEMATIC (2013+ MODEL YEARS)



H.O. INTERCOOLER TUBING

SKIP TO NEXT SECTION FOR STAGE 2 INTERCOOLER



Tech Tip: To ease installation, leave hose clamps and brackets loose until all tubes have been positioned. Trim rubber connectors as desired after test fitting all tubing to determine proper length required.

1

Remove the driver's and passenger's side air deflectors by pulling out each push pin, and remove each deflector from the vehicle.



Remove Side Air Deflectors
(Driver's Side Shown)

2

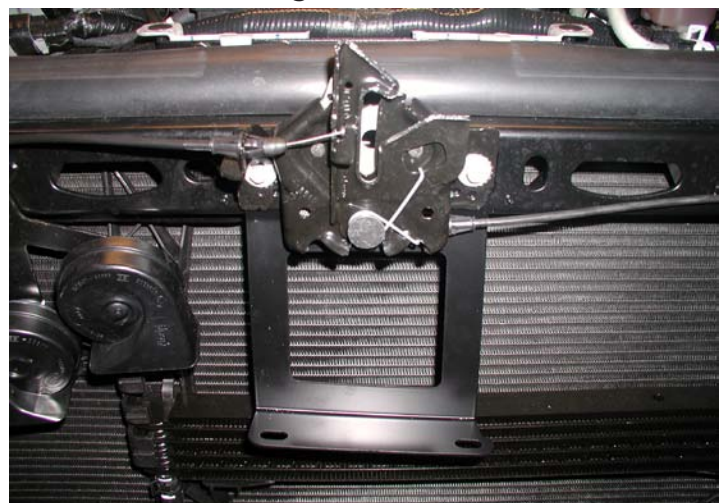
Remove both headlights using a 10mm socket by removing the (3) bolts that secure them to the vehicle. Unplug the wiring harnesses connected to the headlight assembly (3 per side).



Remove Head Lights (Driver's Side Shown)

3

Mark the location of the hood latch bracket. Remove the (2) bolts using a 10mm socket from the hood latch bracket, install the upper intercooler bracket behind the hood latch and re-install the hood latch into it's original location using the (2) bolts removed.



Upper Intercooler Bracket Installed

- 4 Remove the (2) bolts from the front bumper cover tabs using an 8mm socket

- 5 Install the (2) lower intercooler brackets on top of the metal bracket and under the front bumper cover tabs and re-install the (2) bolts removed in the previous step.

✓ **Tech Tip:** The shorter of the (2) lower intercooler brackets goes on the passenger's side.

- 6 Mount the intercooler using the (4) provided 3/8"-16 X 7/8" socket head cap screws and washers.

✓ **Tech Tip:** All hose connections for the intercooler tubing will utilize the #52 hose clamps except all of the 3-1/2" couplers (2010-2012 models use (3) #64 hose clamps for this tube for throttle body tube connection, 2013+ uses (1) on the throttle body connection only).

- 7 Connect the 90° surge tube #394 to the intercooler using the 3" rubber coupler and (2) #52 hose clamps.

✓ **Tech Tip:** Adhesive backed tape has been supplied to mount onto the areas of the vehicle where the tubes may rub. Clean the areas thoroughly and apply the tape. This eliminates noises due to vibration and prevent any unnecessary wear.



Remove Front Bumper Cover Tab Bolts (2X)



Intercooler and Brackets Installed



Surge Tube Installed

- 8 Connect the 45° rubber coupler to the surge tube using a #52 hose clamp.



45° Rubber Coupler Installed

Race Valve Option

Skip to Step 15 If Not Equipped

- 9 Install the supplied o-ring into the groove on tube #391.
- 10 Connect surge valve tube #391 to the intercooler using a rubber coupler.
- 11 Connect (1) of the supplied 90° rubber couplers onto the open end of the surge tube.
- 12 Insert tube #203 into the 90° rubber coupler.
- 13 Connect (1) of the supplied 90° rubber couplers onto the open end of the surge tube.
- 14 Route the supplied 1/4" nylon hose from the push-lock fitting on the vacuum manifold to the fitting on the race valve.



Race Valve Installed

- 15** Connect tube #399 to the 45° rubber coupler using a #52 hose clamp. Position such that it curves upward towards the supercharger.



#399 Tube Installed

- 16** Connect tube #399 to the extended end of the extended 90° rubber coupler using #52 hose clamp. Connect the short end of the extended 90° rubber coupler to the supercharger using #52 hose clamp.



Blower Discharge Tube Installed

- 17** Connect the Proflow valve to the 1-1/2" bung on the surge tube using the 1-1/2" rubber hose and (2) #24 hose clamps. Install the supplied air filter onto the valve and secure with the supplied hose clamp.



Proflow Valve Installed

H.O. Intercooler and Tubing

- 18** Connect the 3" x 7" tube #203 to the intercooler using a 3" 90° rubber coupler and (2) #52 hose clamps.
- 19** Connect the 6" 90° tube #199 to tube #203 using a 3" 90° rubber coupler and (2) #52 hose clamps.
- 20** Connect the twisted 45° & 90° tube #393 to tube #199 using a 3" 45° rubber coupler and (2) #52 hose clamps.



Intercooler Outlet

2010-2012 Models Only

- 21** Connect the throttle body tube #346 to tube #393 using a 3" to 3-1/2" rubber reducer. Tighten with a #52 hose clamp and a #64 hose clamp.
- 22** Connect the throttle body tube #346 to the throttle body using a 3-1/2" silicone coupler and (2) 3.75" T-bolt clamps.



Twisted Tube to Intake Tube (Passenger's Side)

2013+ Models Only

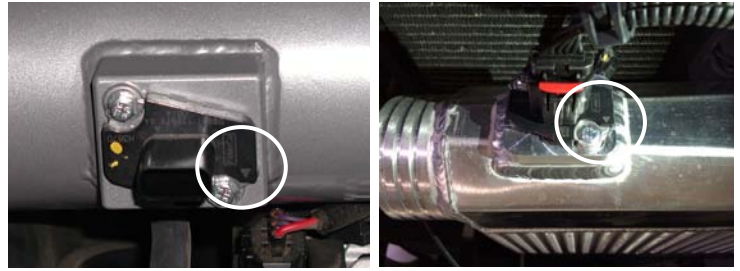
- 23** Connect the throttle body tube #350 to tube #393 using a 3" rubber coupler. Tighten with #52 hose clamps.
- 24** Connect the throttle body tube #350 to the throttle body using a 3-1/2" to 3" silicone reducer. Tighten with a 3.75" and a 3.25" T-bolt clamp.



Throttle Body Tube Installed

All Models

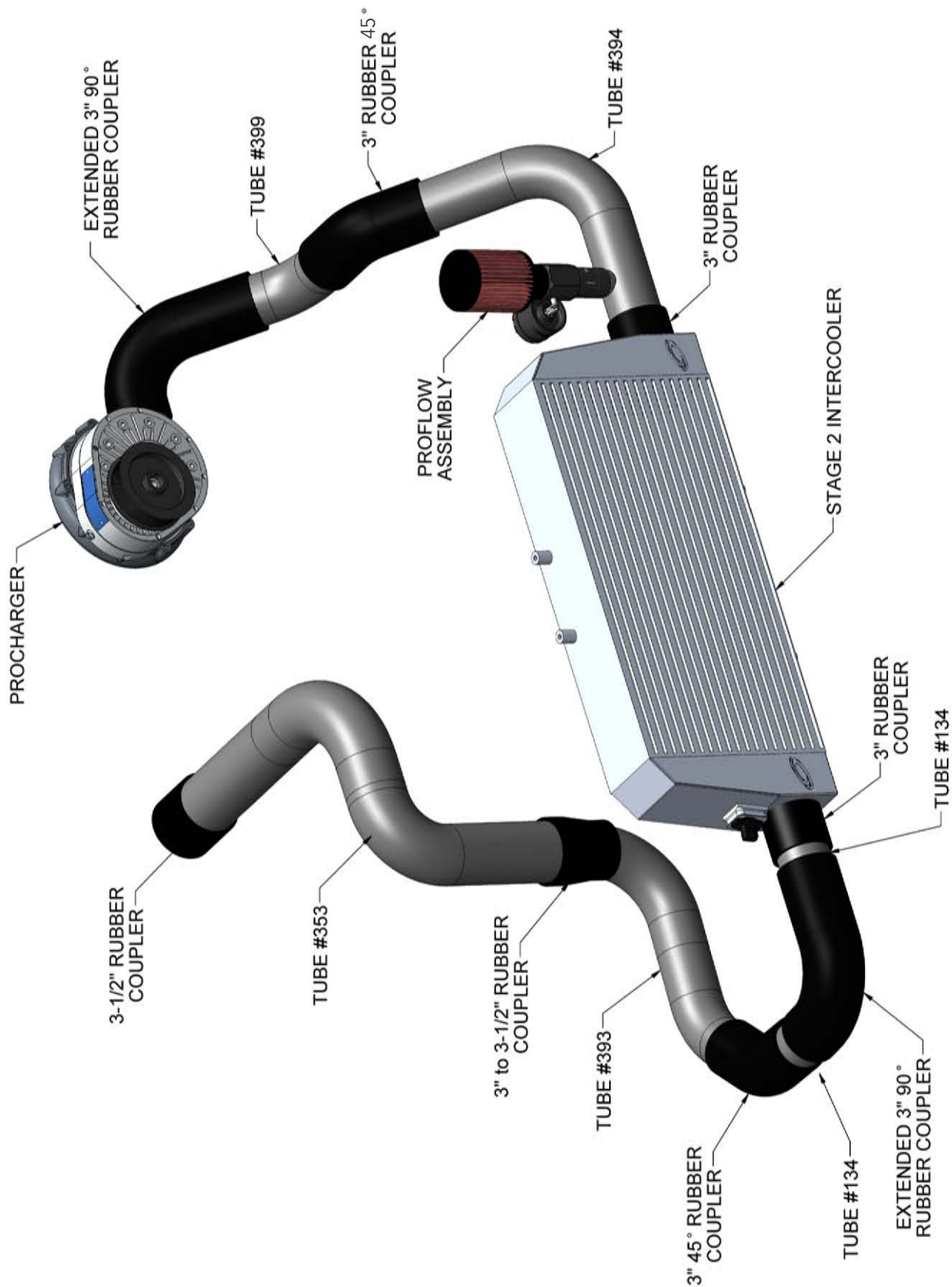
- 25** Mount the factory MAF sensor to the bung located on the supplied throttle body tube, tube #295 for **2010-2012 model years**. Mount the sensor in the intercooler on **2013+ model years** (note orientation in the image). Use the supplied M4 X 12mm hex head cap screw with a 7mm nut driver for installation. Be sure the arrow located on the MAF points towards the ground.



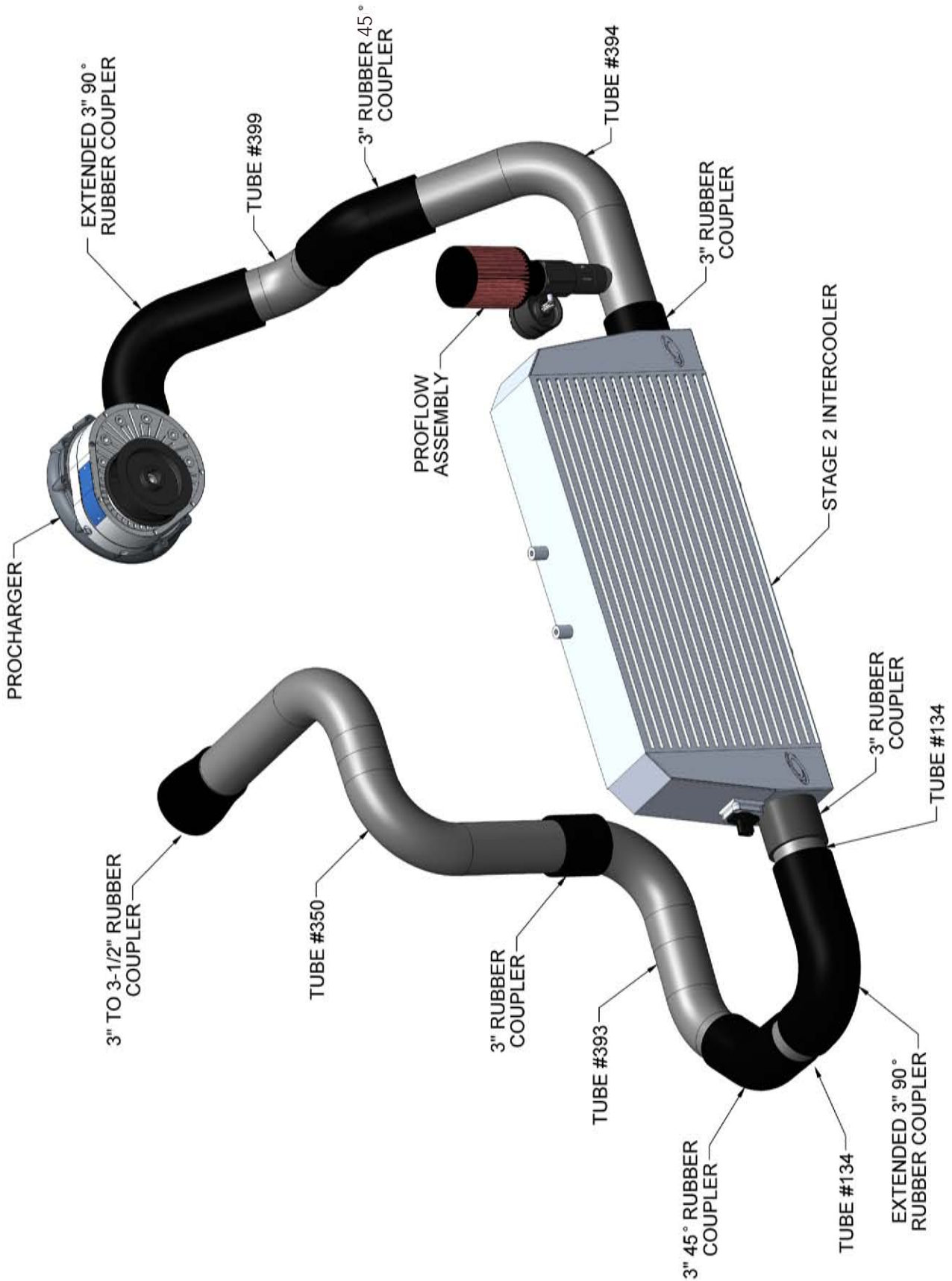
Close Up of Factory MAF Orientation
(Note Arrow, 2010-2012 left, 2013+ right)

- 26** Secure all connections with the provided hose clamps and tighten all intercooler bracket fasteners.
- 27** Re-install the headlights.
- 28** Trim and re-install the air deflectors as desired.
- 29** Plug the supplied 60" MAF extension harness into the MAF and the open end of the MAF harness located on the driver's side of the vehicle. When plugging the harness in, be sure to lock the red tab into place. Secure the wiring harness and extension with the provided zip ties.

STAGE 2 INTERCOOLER SCHEMATIC ('10-'12 MODEL YEARS)



STAGE 2 INTERCOOLER SCHEMATIC (2013+ MODEL YEARS)



STAGE 2 INTERCOOLER TUBING



Tech Tip: To ease installation, leave hose clamps and brackets loose until all tubes have been positioned. Trim rubber connectors as desired after test fitting all tubing to determine proper length required.

1

Remove the driver's and passenger's side air deflectors by pulling out each push pin and removing the deflector from the vehicle.



Remove Side Air Deflectors
(Driver's Side Shown)

2

Remove both headlights using a 10mm socket by removing the (3) bolts that secure them to the vehicle. Unplug the wiring harnesses connected to the headlight assembly (3 per side).



Remove Head Lights (Driver's Side Shown)

3

Mark the location of the hood latch bracket. Remove the (2) bolts using a 10mm socket from the hood latch bracket, install the upper intercooler bracket behind the hood latch and re-install the hood latch into its original location using the (2) bolts removed.



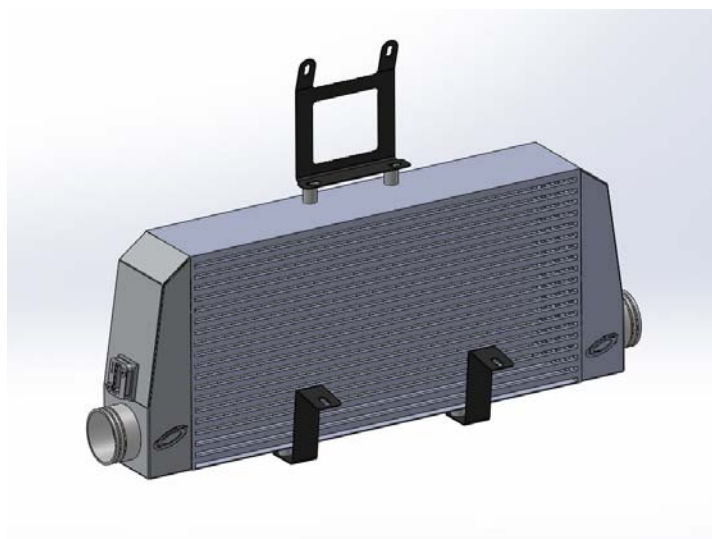
Upper Intercooler Bracket Installed

- 4 Remove the (2) bolts (8mm) from the front bumper cover tabs.
- 5 Install the (2) lower intercooler brackets on top of the metal bracket and under the front bumper cover tabs and re-install the (2) bolts removed in the previous step.



Remove Front Bumper Cover Tab Bolts (2X)

- 6 Mount the intercooler using the (4) provided 3/8"-16 X 7/8" socket head cap screws and washers.



Stage 2 Intercooler Brackets Mounted

- 7 Connect the 90° surge tube #394 to the intercooler using the 3" rubber coupler and (2) #52 hose clamps.

✓ **Tech Tip:** Adhesive backed tape has been supplied to mount onto the areas of the vehicle where the tubes may rub. Clean the areas thoroughly and apply the tape. This eliminates noises due to vibration and prevent any unnecessary wear.



Surge Tube Installed

Stage 2 Intercooler and Tubing

- 8 Connect the 45° rubber coupler to the surge tube using a #52 hose clamp.



45° Rubber Coupler Installed

Race Valve Option

Skip to Step 15 If Not Equipped

- 9 Install the supplied o-ring into the groove on tube #391.
- 10 Connect surge valve tube #391 to the intercooler using a rubber coupler.
- 11 Connect (1) of the supplied 90° rubber couplers onto the open end of the surge tube.
- 12 Insert tube #203 into the 90° rubber coupler.
- 13 Connect (1) of the supplied 90° rubber couplers onto the open end of the surge tube.
- 14 Route the supplied 1/4" nylon hose from the push-lock fitting on the vacuum manifold to the fitting on the race valve.



Race Valve Installed

- 15** Connect tube #399 to the 45° rubber coupler using a #52 hose clamp. Position such that it curves upward towards the supercharger.



#399 Tube Installed

- 16** Connect tube #399 to the extended end of the extended 90° rubber coupler using #52 hose clamp. Connect the short end of the extended 90° rubber coupler to the supercharger using #52 hose clamp.



Blower Discharge Tube Installed

- 17** Connect the ProFlow surge valve to the 1-1/2" bung on the 90° surge tube (#394) using the 1-1/2" rubber hose and (2) #24 hose clamps. Install the supplied air filter onto the ProFlow surge valve and secure with the supplied hose clamp.



Proflow Valve Installed

Stage 2 Intercooler and Tubing

- 18** Connect tube #134 to the intercooler using a 3" rubber coupler and (2) #52 hose clamps.
- 19** Connect the extended 90° rubber elbow to tube #134. Insert the other tube #134 into the other end of the extended 90° rubber elbow. Secure with #52 hose clamps.
- 20** Connect the twisted 45° & 90° tube #393 to the open tube #134 using a 3" 45° rubber coupler and (2) #52 hose clamps.
- 21** Mount the factory MAF sensor to the bung located on the intercooler. Use the supplied M4 x 12mm hex head cap screw with a 7mm nut driver for installation. Be sure the arrow located on the MAF points as shown in the picture.



Intercooler Outlet



MAF Installed

2010-2012 Models Only

- 22** Connect the throttle body tube #353 to tube #393 using a 3" to 3-1/2" rubber reducer. Tighten with a #52 hose clamp and a #64 hose clamp.
- 23** Connect the throttle body tube #353 to the throttle body using a 3-1/2" silicone coupler and two 3.75" T-bolt clamps.

2013+ Models Only

- 24** Connect the throttle body tube #350 to tube #393 using a 3" rubber coupler. Tighten with #52 hose clamps.
- 25** Connect the throttle body tube #350 to the throttle body using a 3-1/2" to 3" silicone reducer. Tighten with a 3.75" and a 3.25" T-bolt clamp.



Tube #393 Installed

All Models

- 26** Secure all connections with the provided hose clamps and tighten all intercooler bracket fasteners.
- 27** Re-install the headlights.
- 28** Trim and re-install the air deflectors as desired.
- 29** Plug the supplied 60" MAF extension harness into the MAF and the open end of the MAF harness located on the driver's side of the vehicle. When plugging the harness in, be sure to lock the red tab into place. Secure the wiring harness and extension with the provided zip ties.



Throttle Body Tube Installed



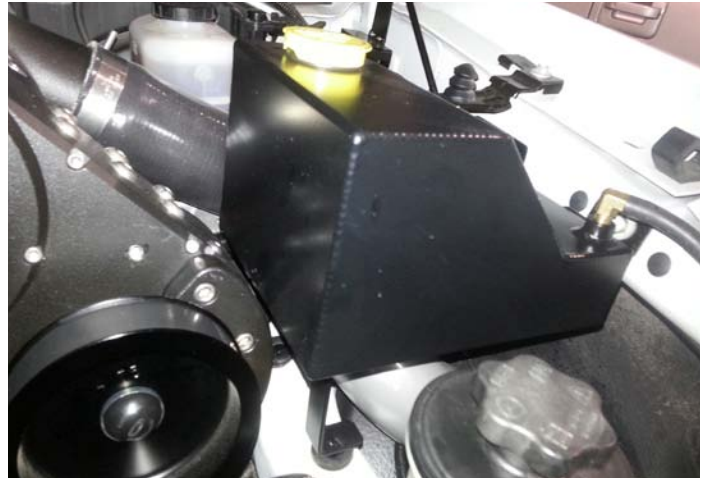
Twisted Tube to Intake Tube (Passenger's Side)

COOLANT TANK

- 1 Place the supplied coolant tank along the driver's side inner fender, inserting the lower mounting pin into the factory rubber bushing.
- 2 Secure the tank to the inner fender using (2) M8 x 20mm bolts with washers.
- 3 Trim the factory overflow hose as required, connect it to the barb fitting on the coolant tank and secure it with a #4 hose clamp.
- 4 If not enough fluid was transferred from the factory tank; refill the coolant system by filling the coolant tank with a 1/2 gallon of a 50/50 blend of Ford approved engine coolant (refer to vehicle's owner's manual) and distilled water.
- 5 Cut the strap near the edge of the factory coolant tank cap and install it onto the new coolant tank.



Tech Tip: Adjust the extended rubber 90° coupler that routes beneath the coolant tank as needed for clearance.



Coolant Tank Installed



Factory Coolant Tank Cap Removal

VACUUM MANIFOLD

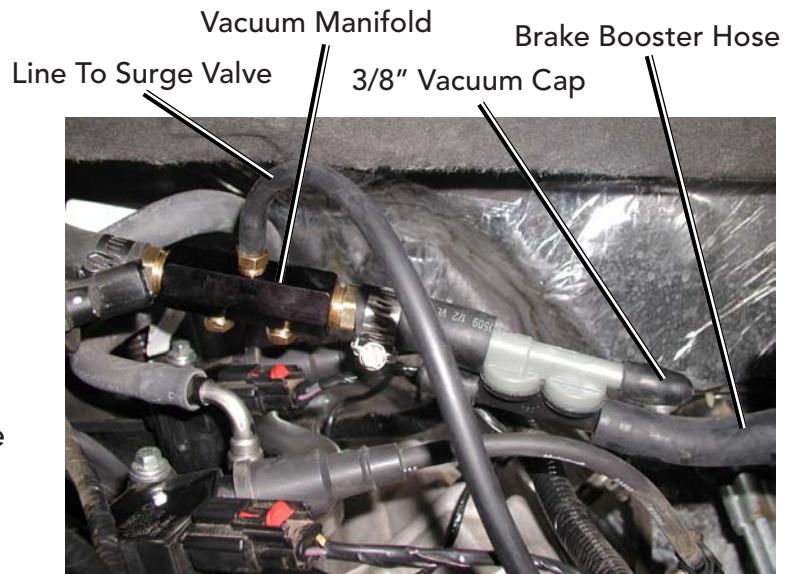
1 Locate the 1/2" ID brake booster hose that runs along the back side of the engine near the firewall. The line is connected to the brake booster located on the driver's side.

2 Using a hose cutter, remove a 3-1/2" long section of the hose.

3 Assemble the vacuum manifold using the provided barb fittings and plugs. Install the supplied vacuum manifold between the cut section of brake booster hose and securely clamp in place using the supplied #8 hose clamps, making sure that there are no vacuum leaks at the splice points.

! **Warning:** Improper clamping of the splice into the brake booster hose could cause a vacuum leak and could cause the power brakes to become inoperable. Use extreme caution in installing the vacuum manifold to prevent any possible leaks.

4 Attach the supplied 3/16" vacuum hose to one of the 3/16" barb fittings on the installed vacuum manifold, then route and attach to the ProFlow anti-surge valve vacuum port. The remaining (2) ports on the vacuum manifold are provided for additional components needing a vacuum source such as a boost gage. Install the supplied barbs if using the additional ports. If you do not need to use them, place the supplied plugs in all open ports.



Vacuum Manifold Installed

5 Secure all vacuum hoses to their fittings with zip ties.

6 Install the supplied 3/8" cap onto the open bung located on the factory check valve (see image below).

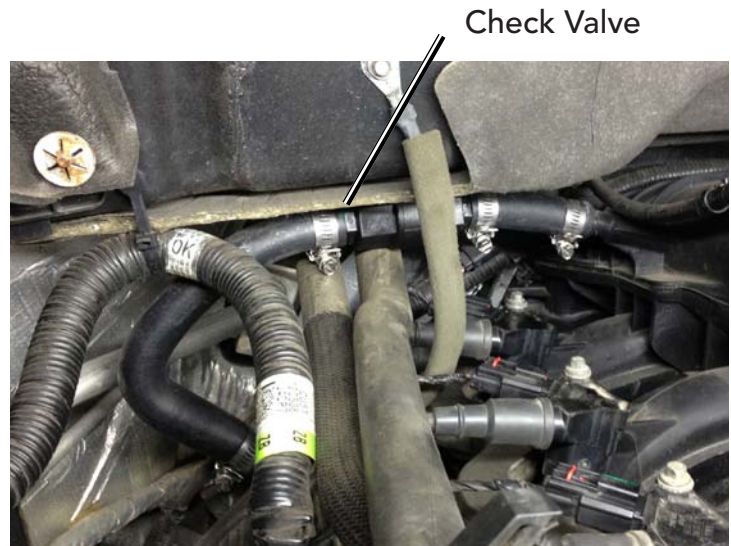
! **Warning:** Ensure the vacuum line is free of kinks and is not pinched by zip ties or the ProFlow will be inoperable, which may result in damage to the ProCharger from surging.

AIR INTAKE AND PCV SYSTEM

- 1 Locate one of the supplied 5/8" molded rubber hoses. Slide the shorter end of the 5/8" rubber hose on to the passenger's side valve cover PCV bung. Connect the opposite end of the hose to the open bung on the intake manifold. Cut the hose as desired, and slide the supplied check valve between the valve cover and the intake manifold. Using the supplied #10 hose clamps, secure all connections.



Note: Position the check valve so the arrow points toward the intake manifold.



Remove Passenger's Side PCV Line and Install Supplied Check Valve

- 2 Remove a fitting from one end of the driver's side PCV line that was removed earlier. This can be done by using a sharp blade to cut the length of the hose where it slides over the fitting. Then pry the fitting loose from the hose. The hose will not be reused.



Driver's Side PCV Line

- 3 Drill a 1/2" hole in the end of the air filter.
- 4 Install the 5/8" 90° barb fitting in the end of the air filter.
- 5 Slide the shorter end of the 5/8" rubber hose into the plastic barb fitting located at the end of the air filter and secure it with a #10 hose clamp. Trim the hose as needed.
- 6 Place the factory PCV hose fitting onto the fitting located on the driver's side valve cover.
- 7 Slide the 5/8" hose from step 5 onto the plastic fitting located on the driver's side valve cover and secure it with a #10 hose clamp.
- 8 Slide the 3.5" rubber coupler onto the blower inlet (trim as needed) and rotate such that it points towards the center of the truck.
- 9 Insert the 3.5" straight tube into the air filter and tighten the hose clamp.
- 10 Slide the 3.5" straight tube with the filter attached into the rubber coupler on the blower inlet. Adjust and tighten all hose clamps as needed.

✓ *Note: The air filter assembly may be in contact with the PCV fitting located on the driver's side valve cover. That is fine as it is in contact with the hard fitting.*



PCV Hose Routed to End of Filter



PCV Fitting in Driver's Side Valve Cover



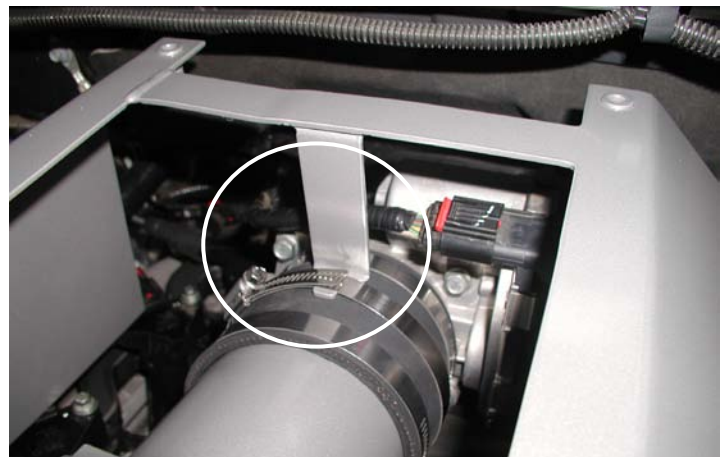
Air Filter Assembly Installed

FINAL ASSEMBLY

- 1 Install the engine cover base by aligning the (2) holes located on the bottom of the base with the (2) holes used to secure the factory resonator box in place. See the image at right for locations. Use the factory hardware to secure the front of the engine cover base.
- 2 Slide the supplied #64 hose clamp around the coupler mounted to the throttle body. Position the bracket protruding from the engine cover base centered on the rubber coupler, slide it under the hose clamp, and secure with the hose clamp. See image at right.
- 3 Slide the top cover into position. Install four 1/4"-20 X 3/4" button head cap screws with rubber washers facing the cover face and tighten all fasteners.
- 4 Reconnect the negative battery cable to the battery.



Engine Cover Base Mounting Locations



Engine Cover Base Coupler Mount Secured



Engine Cover Installed



CONGRATULATIONS! YOU HAVE COMPLETED THE INSTALLATION OF YOUR NEW PROCHARGER SUPERCHARGER SYSTEM. FOR FULL SYSTEMS, TUNING INSTRUCTIONS ARE ON THE FOLLOWING PAGE. IF YOU DO NOT HAVE A FULL SYSTEM, ADDITIONAL TUNING WILL BE REQUIRED BEFORE STARTING THE VEHICLE. READ THE FOLLOWING PAGES CAREFULLY FOR OPERATION AND MAINTENANCE INSTRUCTIONS, AS WELL AS WARRANTY INFORMATION.

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 bought from ATI or from your local parts store.

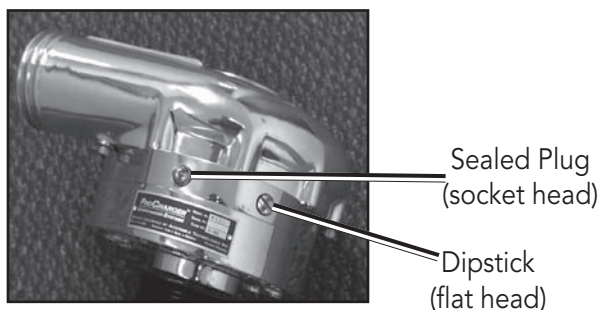
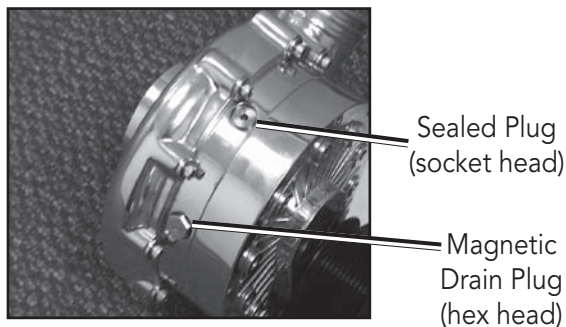
ProCharger Oil Change Intervals

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

ProCharger Oil Level

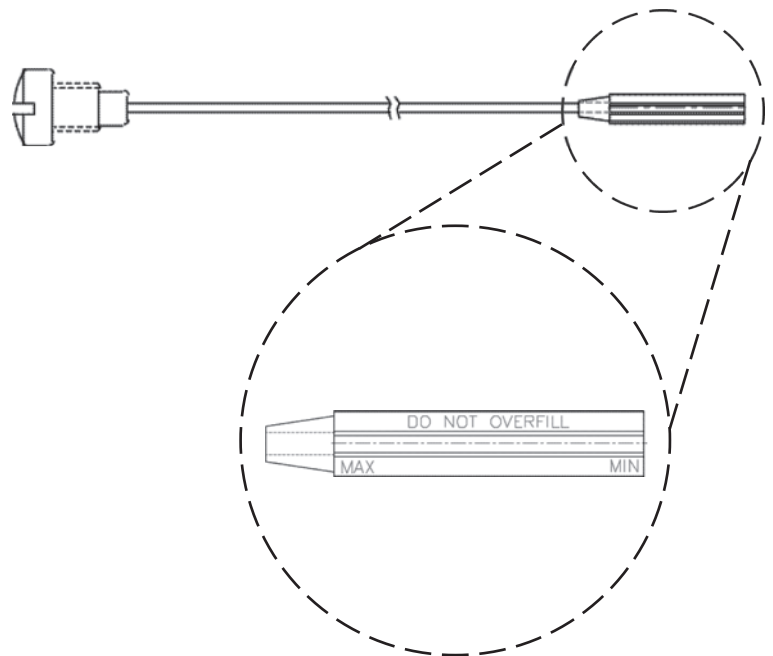
The ProCharger supercharger's oil level must be checked periodically to ensure the proper lubrication. The dipstick can be loosened using a flat blade screwdriver or a coin. When installed, the oil level should remain between the minimum (MIN) and maximum (MAX) indicators at all times.

! **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.



General

When removing the warning tag from 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.



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 number 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 (913-338-3086) 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 pack 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 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, P-1X, 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 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.

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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

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

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

___ 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
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Part Number PMFS1A-003 Rev.B

