

Magnum Powers, LLC

Installation Instruction

MPx90 Supercharger Kit for
For the 2000-2006 Jeep Wrangler (TJ)

Important Information

Product warning

Installation of Magnum Powers supercharger kit on your Jeep vehicle may void all or parts of your Jeep Warranty. Customers should consult their Jeep dealer for details.

Magnum Powers makes no representation that the installation and use of the Magnum Powers supercharger kit is legal on public roads. Customers should check that the installation of Magnum Powers supercharger kit is legal in their jurisdiction prior to use on public roads.

Please read the entire instruction manual before beginning installation, this will make the installation process go as smoothly as possible.

Magnum Powers recommends checking the fuel system and replacing the fuel filter prior to beginning the installation. Also check the exhaust catalytic converter to insure it is not plugged or damaged.

Magnum Powers will not be liable for any loss, damage, payment, cost expenses or other liability not expressly stated in this document.

Installation should be carried out in a workshop that is safe and wear adequate hearing, eye protection during the installation.

Before starting project make sure the fuel tank has premium fuel (91 octane USA) as when the engine is next started it will be supercharged.

Tools and consumables required to complete the installation:

- 1.) SAE Socket and wrench set.
- 2.) SAE Allen Keys (3/8" square drive preferred).
- 3.) Phillips screw drivers
- 4.) Pliers and wire cutters
- 5.) 1/2" breaker bar
- 6.) T40 Torx Bit
- 7.) 8mm swivel Allen bit
- 8.) 6mm swivel Allen bit
- 9.) Solder and Soldering gun

- 10.) Electrical Tape
- 11.) Cable Ties
- 12.) Sealant (Permatex anaerobic gasket maker 51813)
- 13.) Loctite Blue 243
- 14.) Radiator Coolant
- 15.) Autolite 5224 copper sparkplugs gapped to .027".

Torque Specifications:

Insure all system bolts are tight and secure.
M8 cap screws torque should be 8 foot pounds.
5/16" cap screws 20 foot pounds (grade 8)
3/8" cap screws 25 foot pounds
Bolts securing pulleys should have blue Loctite applied to threads and torque to specification.

Disconnect battery

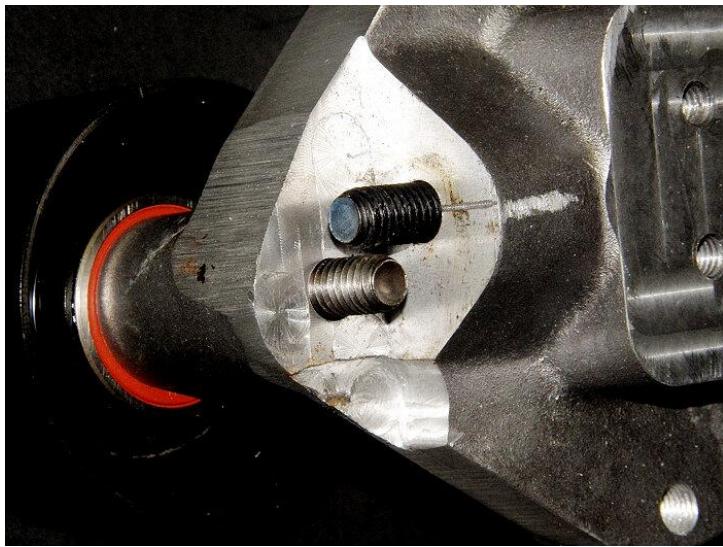
Remove Air Cleaner box and air intake tube

Remove Alternator & Mounting Bracket

Install front supercharger mounting bracket:

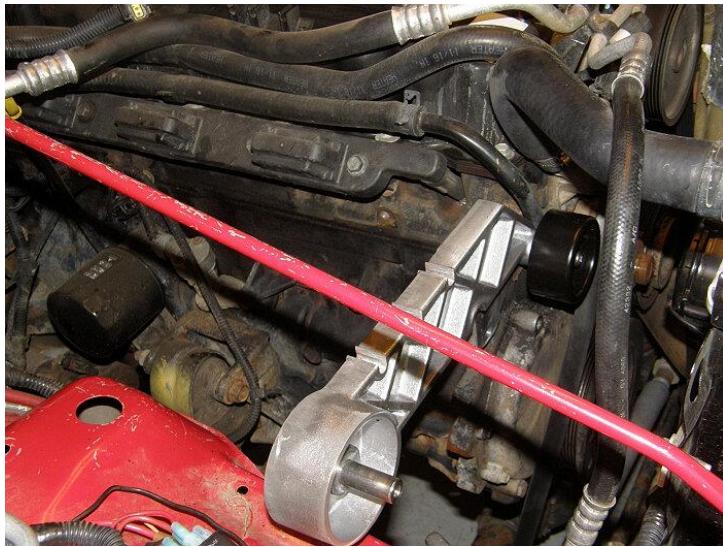


The picture above is the corner of the cylinder head where the front supercharger mounting bracket bolts to.



Pictured above is the mounting bracket detail that bolts to the cylinder head using the two bolts provided.

Below is a picture of the mounting bracket installed.



Install the Alternator Mounting Bracket:

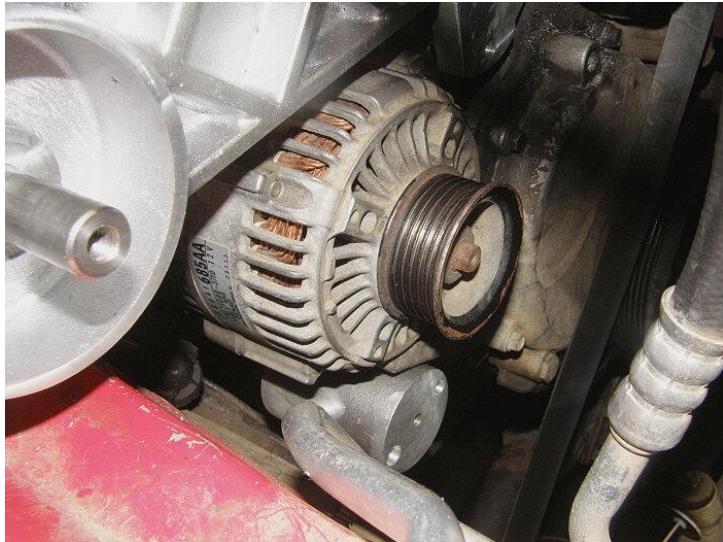
Install alternator mounting bracket using three bolts provided and then install the stock belt tensioner to the front of the alternator bracket.



Alternator re-installed to its new position below the supercharger pictured below.



Now would be a good time to replace the spark plugs, Autolite 5224 gapped to .027".



The belt tensioner mounts to the alternator bracket, you can see the bracket just below the alternator in the picture above.

Install the rear supercharger mounting bracket:

Install rear supercharger bracket using 2 mounting bolts provided.



Install the Intercooler system heat exchanger:

Drain engine coolant into container

Remove radiator fan

Remove radiator

Unbolt the A/C condenser and swing back to allow room to install the heatexchanger.

Install the heat exchanger with the 4 brackets provided ensuring the top of the heatexchanger is below the hood latch.

Rear view below.

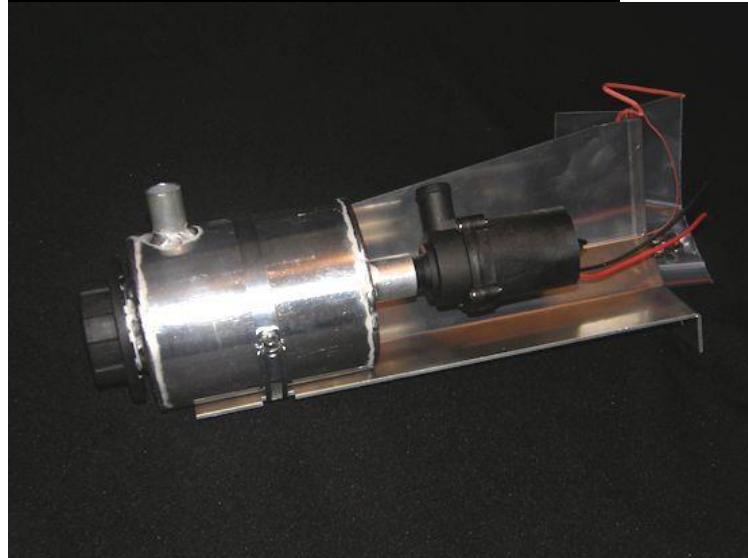


Front View



Install the intercooler expansion tank and electric water pump:

Expansion Tank and water pump assembly



Expansion Tanks and water pump assembly installed. Depending on year and model your engine bay may look differently.

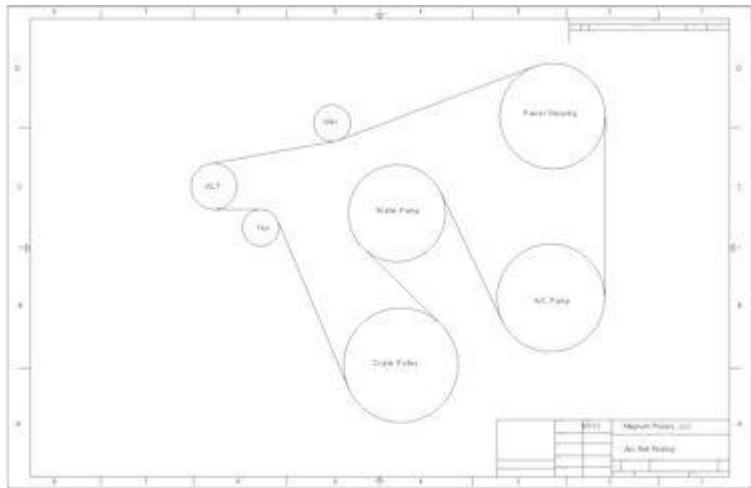


Install circulation pump mounting position below the expansion tank.

Install coolant hoses

Refer to Cooler-Hose-Routing-TJ.pdf document for routing details. It is important that the hoses are connected as shown.

Install accessory belt part number 850k6 provided per the diagram below. The accessory belt is a 6 rib 85 inch poly-v belt.



Install the supercharger drive system:

Aluminum piggy back supercharger drive crank pulley, rear view. Note the centering inter ring, this mates with the inter pulley damper flange it bolts to. Before tightening the bolts ensure the centering flange is engaged with the inter recess in the pulley damper.

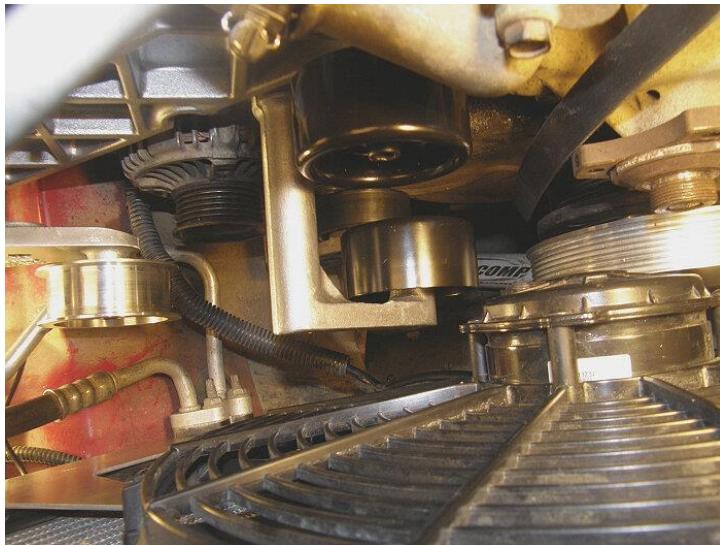


Piggy Back crank pulley mounted to the engine damper/pulley.



The Locite 243 to the three 5/16" Grade 8 bolts mounting cap screws and torque to 20ft-pds making sure the pulley is centered and flush with the pulley damper.

Install Belt Length Adjuster seen between the engine and electric fan above the alternator.



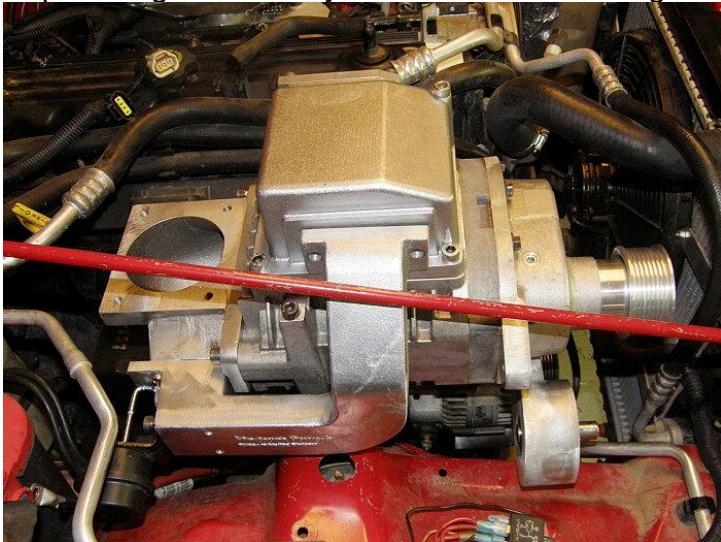
Install supercharger assembly with intake plenum, bypass and exit hat attached

The supercharger assembly below comes from the factory pre-assembled.



Note above there are 3 mounting studs that hold the front of the supercharger in place. Tighten these nuts then put a straight edge between the supercharger pulley and the tensioner pulley. You will be able to move the rear of the supercharger up and down slightly, with the rear bracket bolts slightly loose. The tensioner pulley is the reference for aligning the pulleys with the crankshaft, move the supercharger rear up and down so it matches the tensioner pulley and then tighten the rear bracket mounting bolts to the engine block.

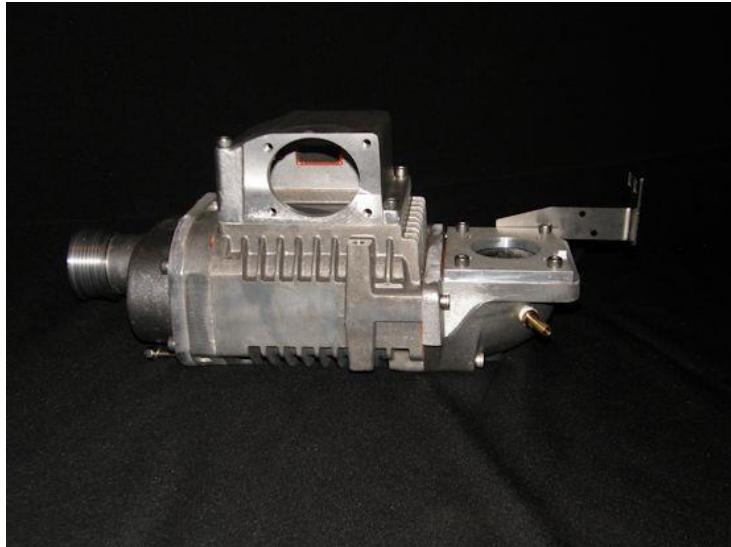
Supercharger assembly bolted to the mounting brackets.



Install supercharger belt part number 585K8 provided that is a 8 rib belt that is 58.5 inches long.

PVC Valve and cranks case vent installation.

Locate and disconnect the crank case vent line coming from the PVC valve located at the rear of the valve cover and connect to the brass hose barb shown in the picture below.



If using the standard intake tube and air filter you should connect an air breather to the front valve cover vent hole. If you have an upgraded air intake connect the front valve cover vent to the nipple provided on the intake tube.

Install Intercooler with charge tube:

Intercooler and charge tube assembly.



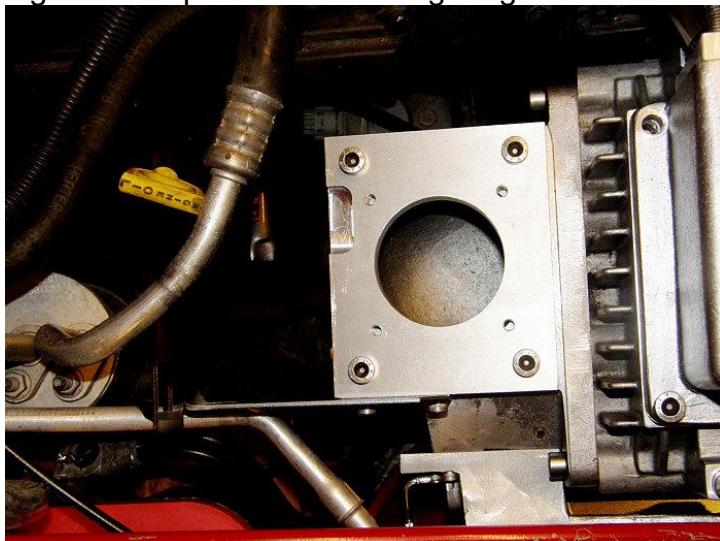
Remove the stock throttle body marking the connectors to identify them. Mount the intercooler to where the throttle body was using the gasket provided.

The supercharger mounted to the mounting brackets with the charge tube reaching over the intercooler can be seen in the picture below. The flange connecting the hose adapter to the supercharger assembly is sealed with gasket maker. We recommend Permatex Anaerobic Gasket Maker.



Install throttle body on MPx90 intake plenum

Below is the intake plenum to stock throttle body adapter. This adapter is not needed for higher horsepower levels using Magnum Powers' 85mm throttle body.



In the photo above you can see the A/C line is close to the throttle cable bracket, the line may need to bend slightly to provide clearance for the throttle cable bracket.

Stock throttle body installed below.



Before mounting the throttle body to its new position cap off the vacuum nipple coming out of the throttle body with the rubber cap provided. You can see the black cap in the picture above that is pointing toward the supercharger. Mount the throttle body to the adapter flange using the gasket provided.

Extend the throttle position sensor (TPS) and Idle Air Control Valve (IAC) wiring to reach the new throttle body position with the wires provided. When extending the cable insure wires are not cross connected and soldered and taped with electrical tape.

Install air intake and filter.

Install new fuel injectors

6 each 42 pound per hour fuel injectors are provided for 4.0L and 50 pound for 4.6L stroker engines. A small amount of engine oil can be applied to the fuel injector o-rings to ease installation of the injectors and fuel rail. Insure no oil enters the fuel injector fuel passages.

Install radiator

Radiator re-installed below.



Reconnect radiator hoses

Install Electric Cooling Fan

Cooling fan and brackets below.

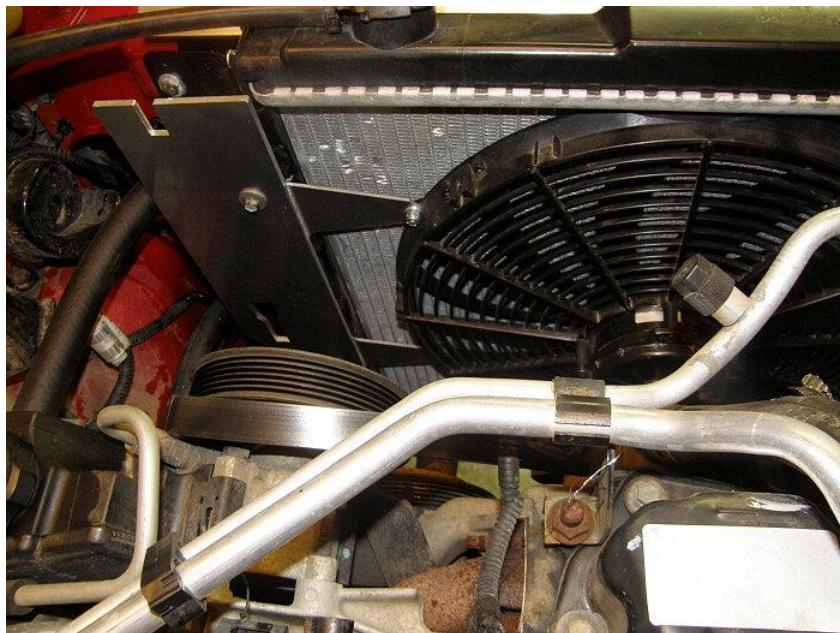


Note notch in the right hand bracket above, the notch is required to clear the A/C lines.

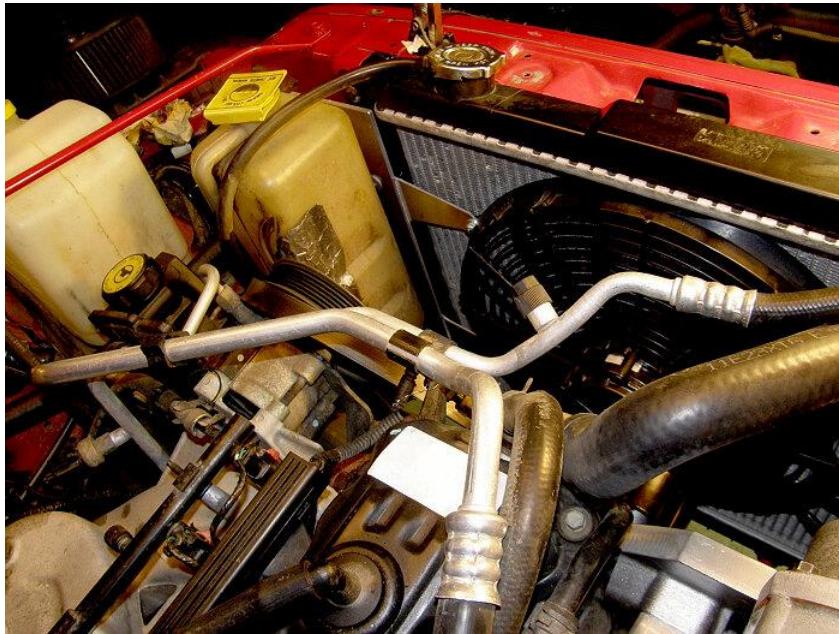
Electric fan mounted to radiator support bracket.



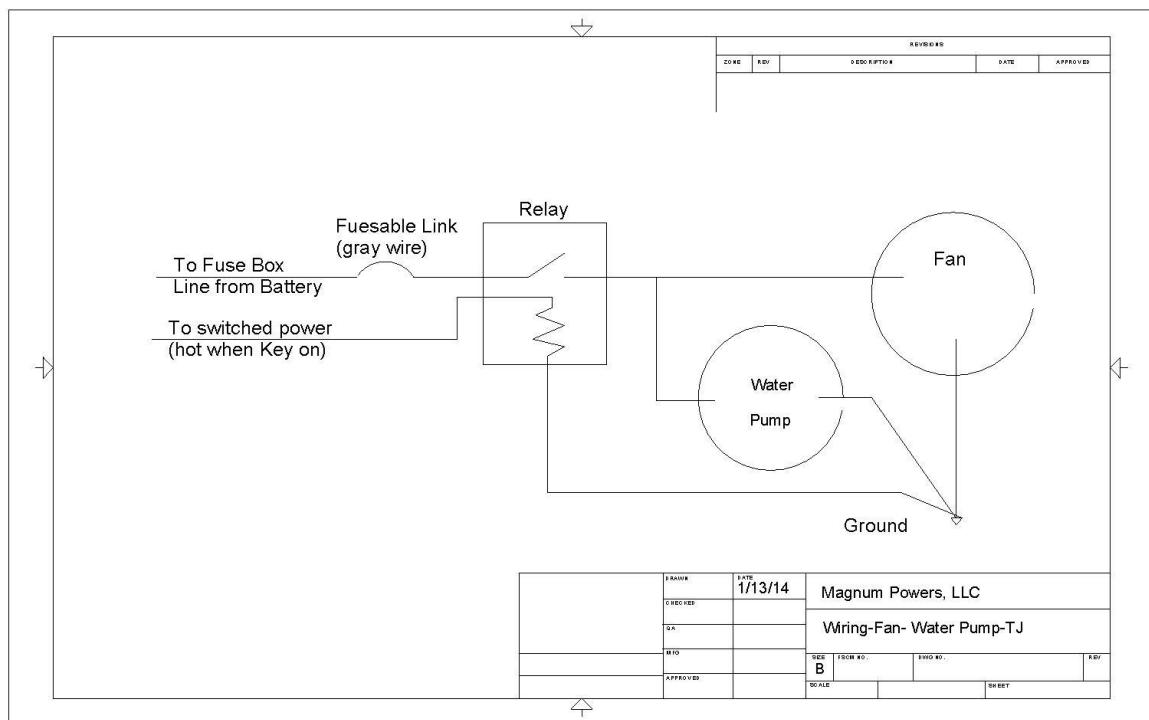
Install Overflow bracket as seen below.



Overflow tank mounted to bracket.



Cooling fan and electric intercooler water pump wiring;



Installing the 2.5 bar MAP sensor.

The stock 1 bar stock map sensor was disconnected from the throttle body in an earlier step.

The new 2-bar sensor will plug right into the stock wiring only requiring removing one of the sensor's guides. Connect the 2-bar vacuum port directly to the intake manifold with no other lines connected to it using a $\frac{1}{2}$ " rubber hose.

Install the Supercharger Belt

Wrap the supercharger belt around all the pulleys and rotate the belt length adjuster to it is tight against the belt and tighten its two bolts. Then place a $\frac{1}{2}$ " breaker bar in the belt tensioner's square hole and rotate the tensioner arm clockwise to relieve pressure from the retaining pin, then remove the pin and let the arm rotate counterclockwise to tighten the belt.

Fill the intercooler system and cooling system with coolant.

Unichip Installation

Wire in the Unichip box to the Jeep's wiring harness following the Unichip instructions or if you purchased the optional plug and play harness connect it as instructed.

Reconnect battery

Check over the installation making sure all is properly installed, all bolts are tight and no tools are left in the engine compartment.

Start the engine and inspect for proper operation of the system making sure there are no gas, coolant or vacuum leaks and that the belts are running properly. The cooling fan should be running and coolant should be seen flowing in the expansion tank when the cap is removed.

After the engine has ran for a period turn off and carefully check that the radiator and intercooler expansion tanks are at their proper full levels. Do not open the radiator cap when the engine is hot or serious injury can occur.

If all looks to be in proper running order take the vehicle for a short drive and upon return recheck everything as before. If all looks good the vehicle should be good to go.