

# **SUPERCHARGER INSTALLATION GUIDE FOR PORSCHE 997 U.S. MODEL (VFK59-01)**

**WARNING: DO NOT BEGIN INSTALLATION PRIOR TO  
READING THE PRE INSTALL NOTES ON PAGES 2-4**

**VF ENGINEERING**

[www.vf-engineering.com](http://www.vf-engineering.com)

M-F 9:00AM – 5:30PM (PST)

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# **IMPORTANT PRE-INSTALL NOTES:**

## **Porsche 997 Stage 1 - SPECIAL INSTALL NOTES**

***\*\*\* This installation guide serves as an outline of the steps needed to install your supercharger system and is not intended to guide a novice through the installation. If you do not have the proper tools, knowledge and experience to carry out the installation, please seek help from a professional.***

- 1) THIS KIT REQUIRES REPROGRAMMING OF THE VEHICLE'S ECU KNOWN AS 'FLASHING' WHICH IS AN ELECTRONIC OVERWRITING OF THE ORIGINAL ENGINE MANAGEMENT SOFTWARE WITH NEW SOFTWARE DESIGNED TO WORK IN CONJUNCTION WITH THE SUPERCHARGER SYSTEM. CONTACT YOUR LOCAL AUTHORIZED VF-ENGINEERING DEALER FOR INFORMATION AS TO HOW TO ACQUIRE THE SOFTWARE FOR YOUR APPLICATION IN THE MOST TIMELY MANNER. THE CAR WILL BE INOPERABLE WITHOUT THIS NEW SOFTWARE AND WHILE THE ECU IS OUT OF THE VEHICLE FOR REPROGRAMMING.
- 2) INSTALLATION OF THIS PRODUCT INVOLVES REPLACING FUEL INJECTORS AND THEIR ELECTRICAL CONNECTORS WITH NEW INJECTORS AND CONNECTORS SUPPLIED WITH THE KIT. BEFORE COMMENCING INSTALLATION ENSURE YOU HAVE TECHNICAL INFORMATION ON REPLACEMENT PROCESS OR SEEK SKILLED / PROFESSIONAL ASSISTANCE.

***\*\*\*Installing high flow rate fuel injectors causes the dashboard instrument cluster fuel consumption and remaining mileage (TRIP) calculations to be incorrect***

- 3) INSTALLATION OF THIS KIT GREATLY INCREASES THE POWER OUTPUT OF YOUR VEHICLE. IT IS IMPERATIVE THAT THE CONDITION OF THE RECIPIENT VEHICLE BE THOROUGHLY INSPECTED PRIOR TO INSTALLATION, AND THAT BRAKES, TIRES, CLUTCH, ENGINE MOUNTS, AND SUSPENSION ARE ALL IN GOOD CONDITION AND ABLE TO HANDLE THE RATED POWER INCREASE. FAILURE TO DO SO MAY RESULT IN DAMAGE TO YOUR VEHICLE AND MAY LEAD TO INJURY AND POSSIBLE DEATH! THE USER AND INSTALLER ASSUMES ALL RISKS ARISING FROM THE USE OF THIS PRODUCT. VF-ENGINEERING OR ITS EMPLOYEES ARE NOT RESPONSIBLE FOR ANY CONSEQUENTIAL LOSSES. THIS SUPERCHARGER SYSTEM IS INTENDED FOR USE ON HEALTHY, WELL MAINTAINED ENGINES. INSTALLATION ON WORN OUT OR DAMAGED ENGINES IS NOT RECOMMENDED AND MAY RESULT IN DAMAGE TO THE ENGINE AND SUPERCHARGER. **VF ENGINEERING IS NOT RESPONSIBLE FOR ENGINE DAMAGE.**

- 4) PLEASE SEE ADDITIONAL PRE-INSTALL NOTES ON NEXT PAGE

**THIS MANUAL PROVIDES INFORMATION ON THE INSTALLATION, MAINTENANCE, AND SERVICE OF THE VF ENGINEERING SUPERCHARGER KIT SPECIFICALLY DESIGNED FOR THE U.S. SPEC PORSCHE 997. THIS DOCUMENT MUST BE GIVEN TO THE END USER BY THE INSTALLER AND THE REGISTRATION FORM (LAST PAGE) MUST BE COMPLETED. PLEASE CONTACT VF ENGINEERING OR YOUR LOCAL AUTHORIZED VF ENGINEERING DEALER FOR ANY ADDITIONAL INFORMATION REGARDING THE INSTALLATION OF THIS KIT. AN UNDERSTANDING OF THE INFORMATION CONTAINED IN THIS MANUAL WILL HELP NOVICES AS WELL AS EXPERIENCED TECHNICIANS. IF YOU BEGIN INSTALLING THIS PRODUCT, IT IS ASSUMED THAT YOU HAVE READ THE ACCOMPANYING TERMS AND CONDITIONS OF USE DOCUMENT AND PRODUCT WARRANTY DOCUMENT. ALL INFORMATION, ILLUSTRATIONS AND SPECIFICATIONS CONTAINED HEREIN ARE BASED ON THE LATEST INFORMATION AVAILABLE AT THE TIME OF THIS PUBLICATION. ALL RIGHTS RESERVED TO MAKE CHANGES AT ANY TIME WITHOUT NOTICE.**

**ECU MODIFICATION REQUIRED**

**\*\*Please print out the ECU return form (see next page) and include in the package along with your ECU!**

This kit requires ECU modification known as "flashing" which is electronic overwriting of the original engine management software with new software designed for to work in conjunction with your supercharging system, and has been included in the price of your kit. Contact your local VF-Engineering dealer for information on how to attain this software in the timeliest manner. Your car will be inoperable while the ECU is out of the vehicle. This process usually takes 2-3 business days. Any delay does not constitute grounds for product return.

If you have performance software pre-installed in your vehicle you should inform your dealer prior to sending the ECU.

VF-Engineering is not responsible for engine or ECU damage due to an improperly installed or mishandled ECU

**DEALER SERVICE / RETURN TO STOCK**

At some point you may take your supercharged car to your Porsche dealership for a service. It is routine for them to update the ECU software from time to time and they may not advise you of this beforehand. Therefore it is imperative that you advise them not to update the ECU or else they may overwrite the supercharger software installed by VF-Engineering or authorized GIAC dealer. **NOTE: If your car is flashed back to stock and you drive the supercharged car with stock software, engine damage will most likely occur due to inappropriate fuel and ignition mapping.**

If you wish to return your car back to stock, VF advises that the ECU be returned to VF or your local GIAC dealer for a flash to stock. This is important because VF reprograms the entire ECU and not just the software file. In effect the ECU is "restored" to its original form.

**For full performance and continued reliability, please heed the following recommendations:**

- **Use only premium grade fuel rated at 91 octane or higher (R+M/2)**
- **The compression ratio of the vehicle must be unaltered prior to the installation of this kit**
- **If your engine has been modified in any way, please contact VF Engineering prior to the installation of this product**
- **Always listen for detonation (pinging) and discontinue hard use (full throttle) until problem is resolved**
- **Perform an oil filter and change upon completion of this installation and prior to the initial test drive. All subsequent oil changes should be at no later than 3,000 miles and high quality synthetic motor oil used. DO NOT ATTEMPT TO EXTEND THE OIL CHANGE INTERVAL REGARDLESS OF OIL MANUFACTURERS CLAIMS AS DAMAGE TO THE SUPERCHARGER MAY OCCUR**
- **Before beginning installation, replace all spark plugs that are older than 1 year or 10,000 miles with original heat range plugs as specified by the manufacturer and make sure stock timing settings are set. DO NOT USE PLATINUM SPARK PLUGS UNLESS THEY ARE ORIGINAL EQUIPMENT ON YOUR VEHICLE. CHANGE SPARK PLUGS EVERY 15,000-MILES AND SPARK PLUG WIRES AT LEAST EVERY 50,000-MILES.**

## **INSTALLATION INSTRUCTIONS**

1. Remove the ground wire connection from the battery located under the plastic cover in the front luggage compartment.
2. Remove the engine ECU located behind the backseat and ship it to the location recommended to you by your authorized VF-Engineering dealer.



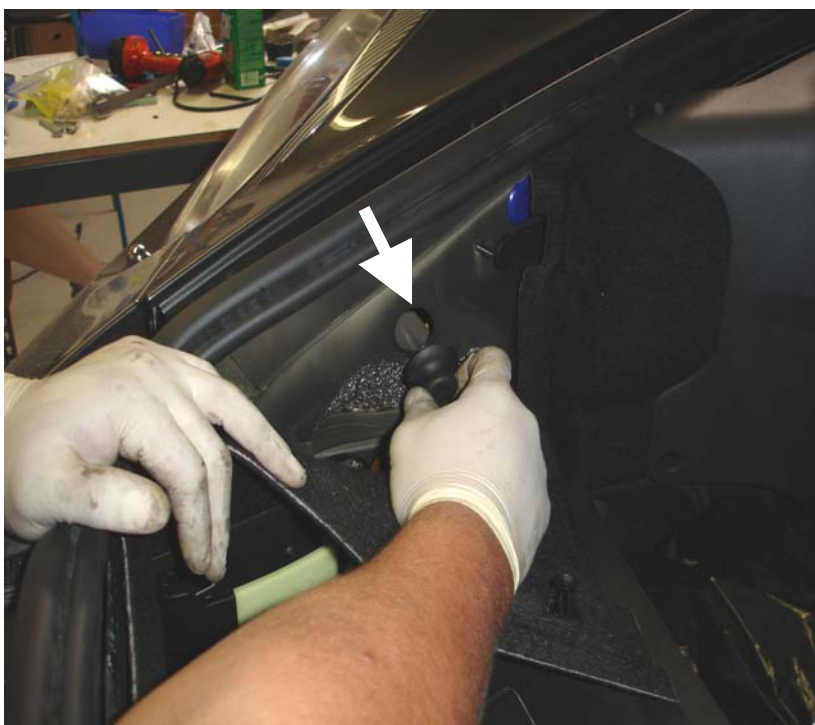
3. Remove the front portion of the hood seal from the front lower valence.



4. Remove the front hood latch cover.

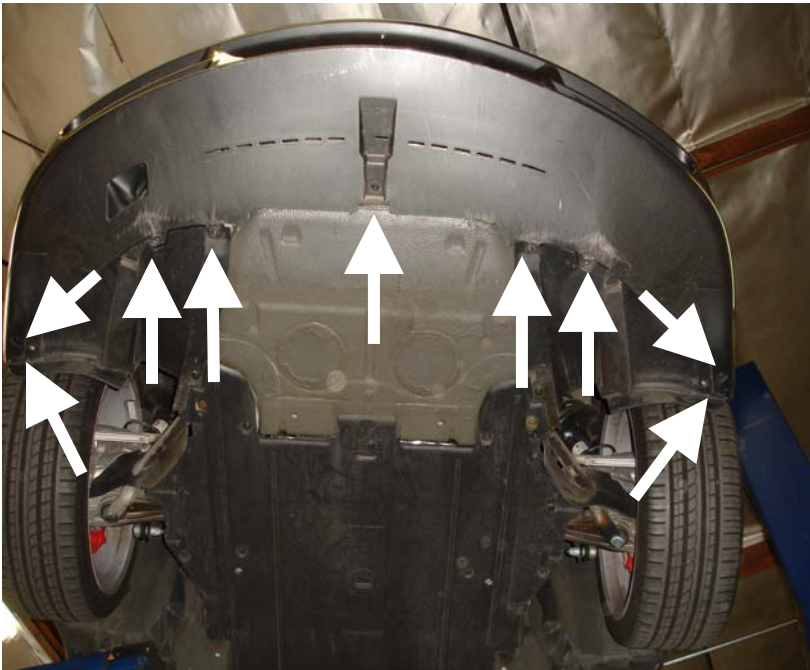
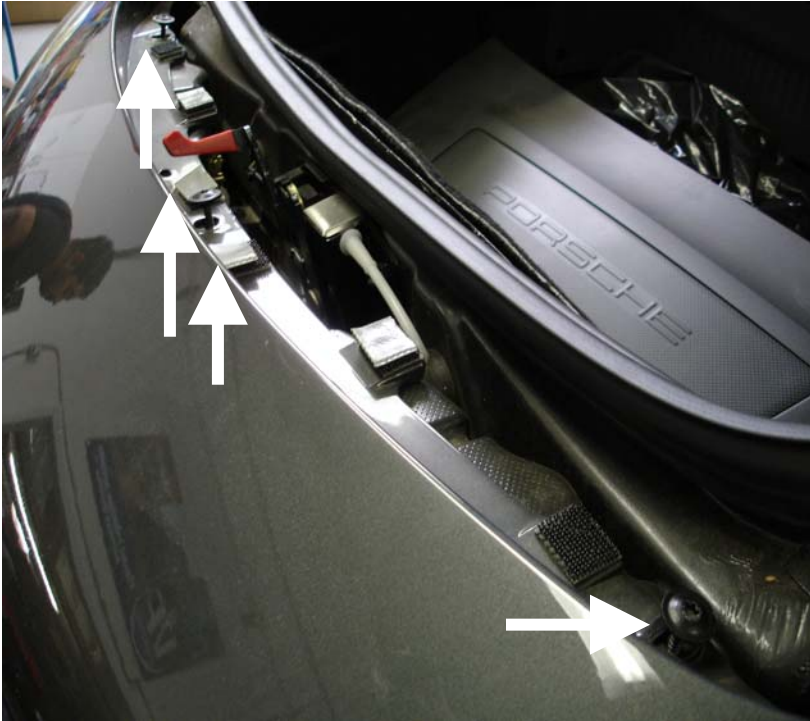


5. Pull back the front carpeting on either side of the luggage area, and remove the rubber grommet located behind each side to gain access to headlight anchor bolt. Remove headlight.



6. Remove front side marker lights, bumper bolts and clips. Remove the front bumper.









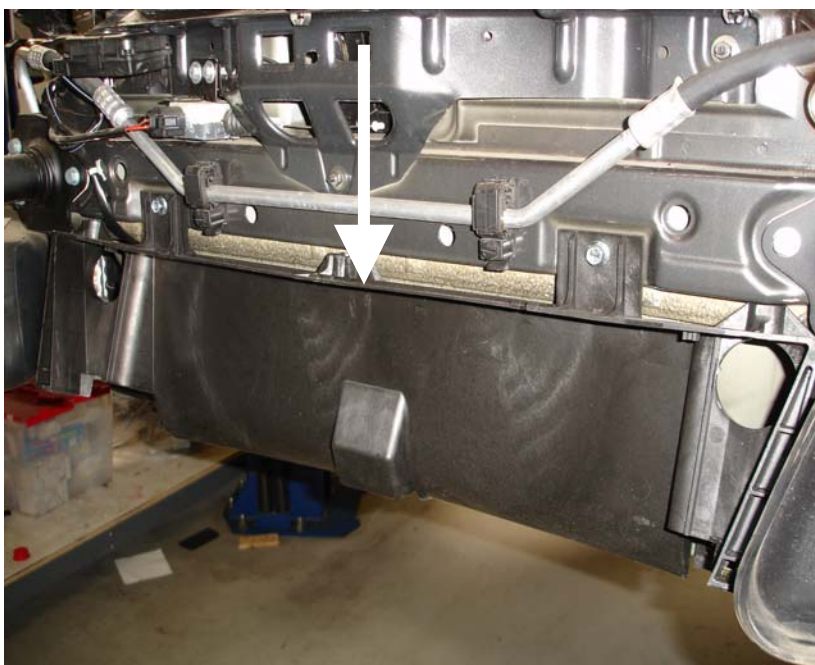
7. Remove the entire factory under covering from the length of the vehicle.



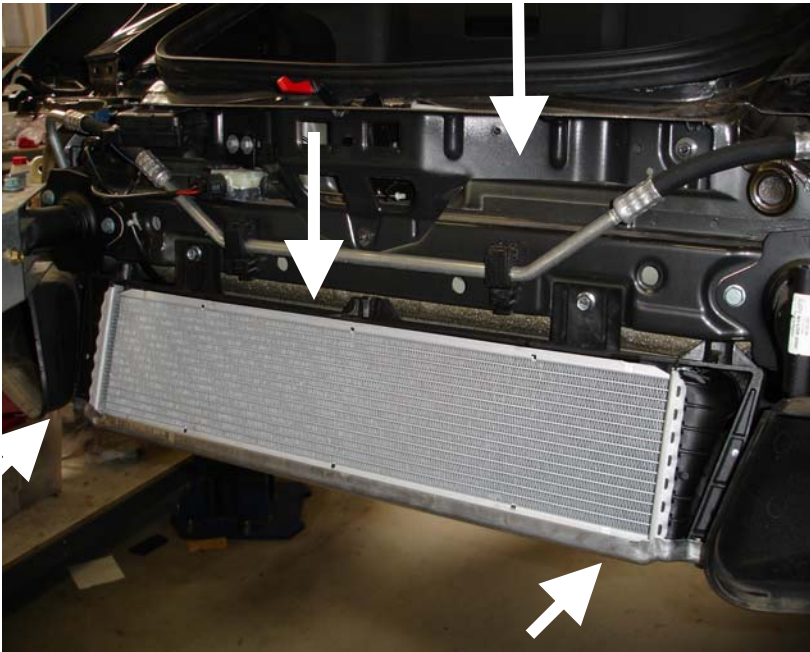
8. Remove the bracket holding the factory installed Porsche homelink box bracket (if equipped) located just above front bumper reinforcement and re install the bolts once the bracket is removed.



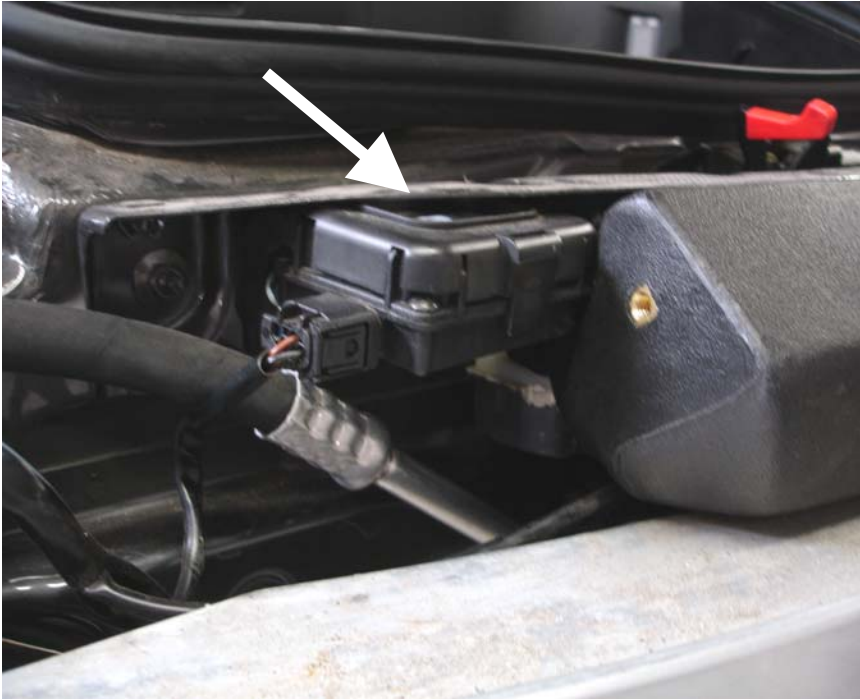
9. Remove driver side bumper rebar bolt and loosen the passenger side. Swing the rebar open and install the VF-Engineering water tank and the Porsche rear radiator ducting supplied in the kit.



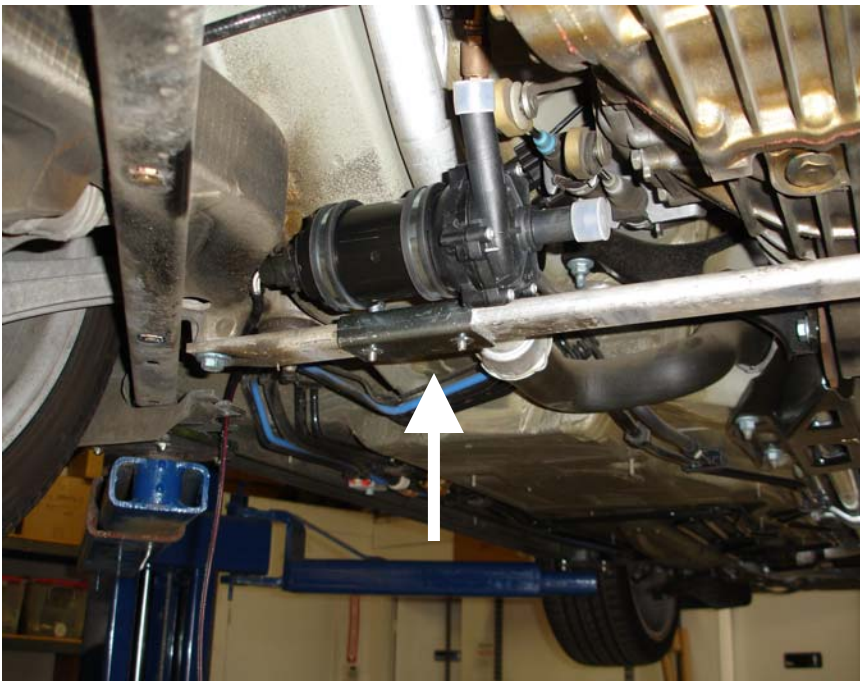
10. Install the new Porsche radiator included in the kit in its location. Install the front radiator shrouding and mount the radiator support bracket included in the kit.



11. Swing the bumper rebar back into place and tighten the OEM bolts to factory specifications. Relocate the homelink bracket (with box) to the passenger side of water tank, using a pre existing hole in the bumper reinforcement.



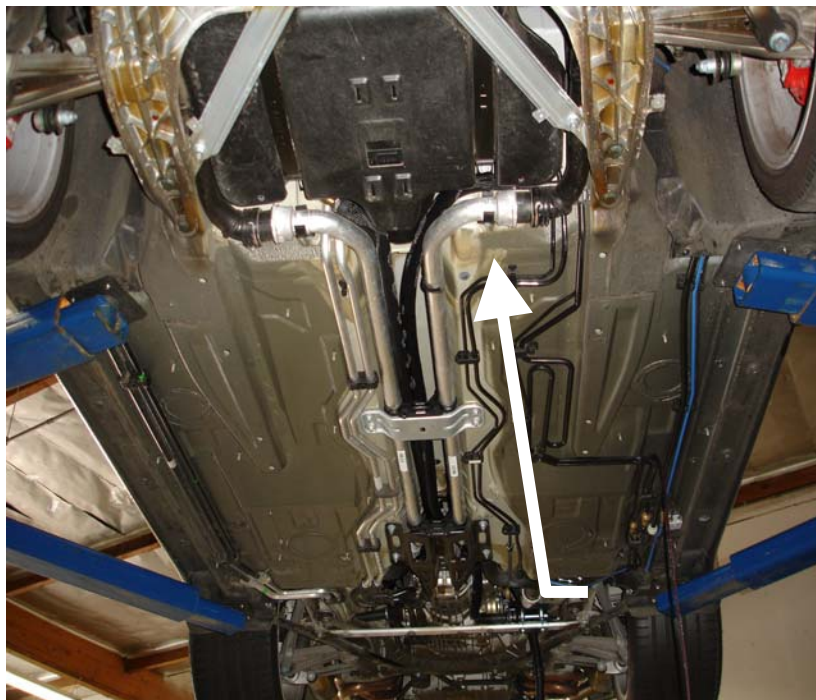
12. Moving to the underside of the car, Mount the Bosch® electric water pump and bracket supplied in your kit to the driver side of the rear chassis crossbar located just below the transmission. Mount the pump as shown below; making sure the pump will not interfere with the shift linkage or suspension components when the car is in use.



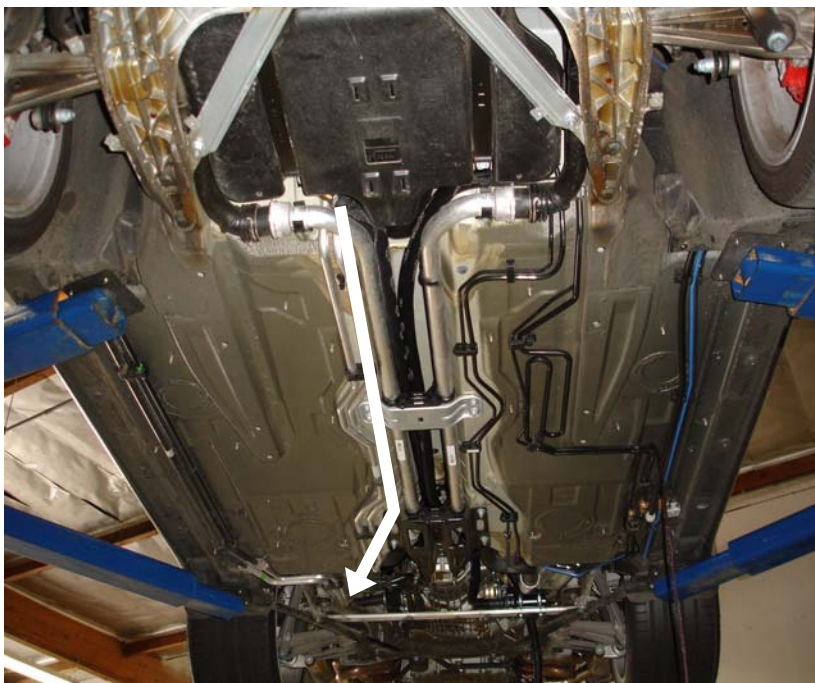
13. Lay out the water lines supplied in the kit (as shown below) to familiarize yourself with their routing.

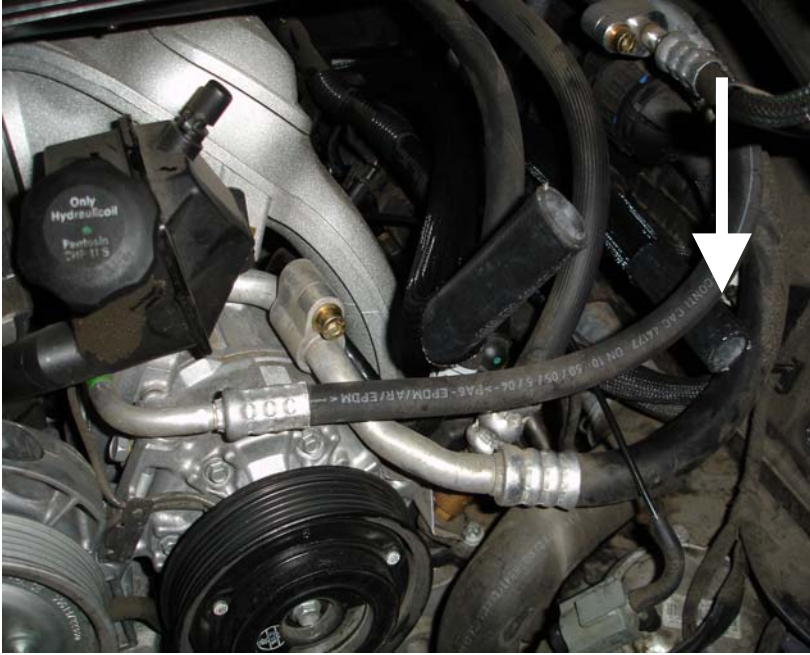


14. Route the driver's side lateral hose from the water pump's output (large connection), through the driveshaft tunnel up towards the front of the vehicle. Make sure the hose will not interfere with any moving parts. Connect the hose to the water pump.



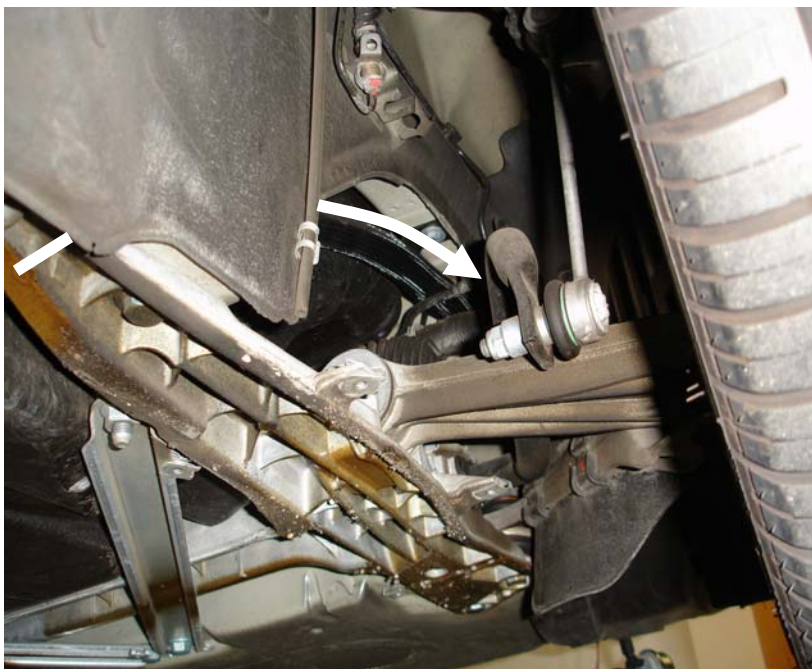
15. Route the passenger side lateral hose through the driveshaft tunnel back towards the rear of the vehicle and into the engine bay. This hose should follow the path of the factory passenger side radiator hose, into the engine bay. Make sure the hose will not interfere with any moving parts.





16. Remove the front passenger side radiator shroud and horn bracket. Route the front passenger side water hose supplied in your kit, starting from the front of the tunnel where the lateral hose ends, along the side of the gas tank, to the front of the vehicle and attach to the passenger side outlet of the new radiator you installed earlier. Make sure the hose does not interfere with any moving parts, especially front suspension components. Replace horn bracket and radiator shroud. Attach the front hose to lateral hose.

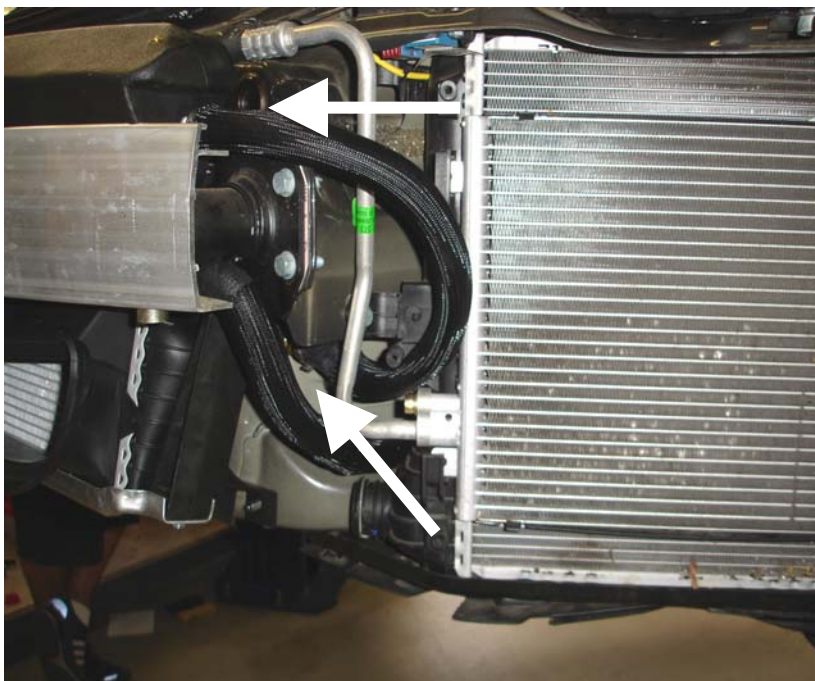




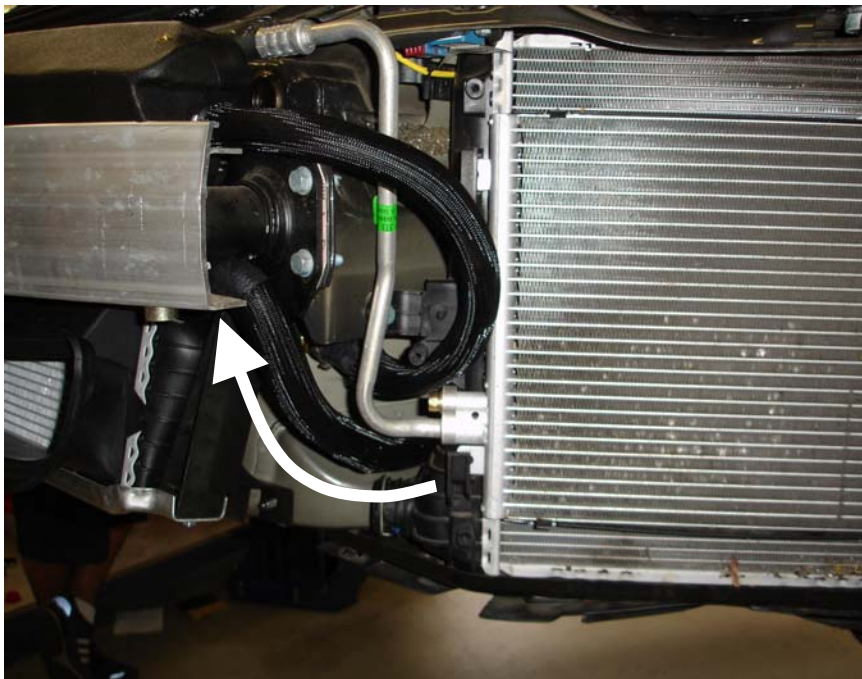




17. Remove the front driver side shroud for the factory radiator. Install the short water hose supplied in your kit connecting the top fitting of your VF-Engineering water tank to the inlet on the driver side of your new radiator.



18. Route the front driver side water hose supplied in your kit, starting from the front of the driveshaft tunnel where the lateral hose ends, along the side of the gas tank, to the front of the vehicle and attach to bottom fitting of the VF-Engineering water tank you installed earlier. Make sure hose does not interfere with any moving parts, especially front suspension components. Replace radiator shroud. Attach front hose to lateral hose.



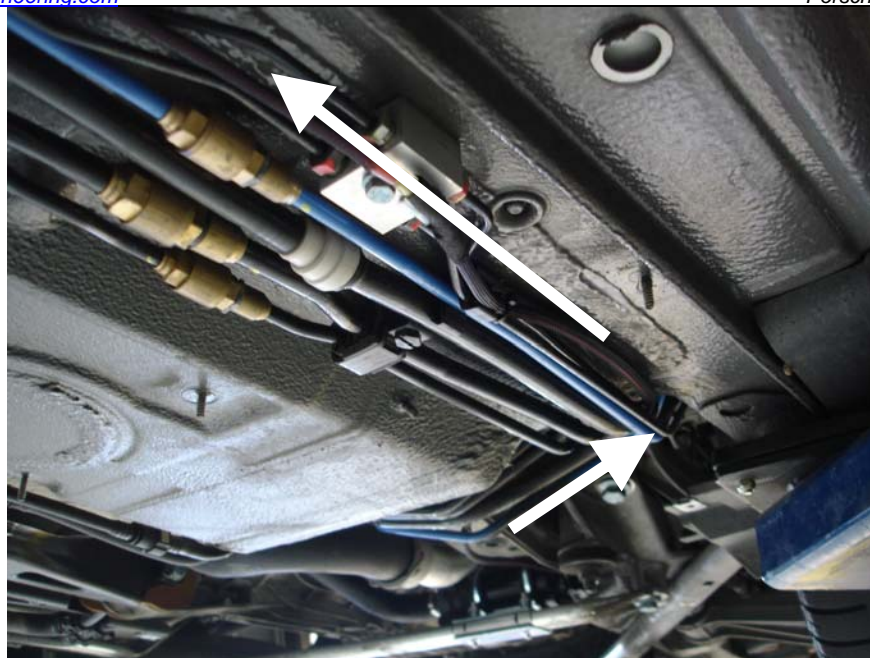
19. Install the water pump relay included with the kit on the small bracket located on the passenger side of the battery.



20. Run the wiring coming from the water pump along the driver's underside of the vehicle, and into the battery compartment via the rubber grommet located behind the front driver side wheel well lining. Wire tie as necessary.

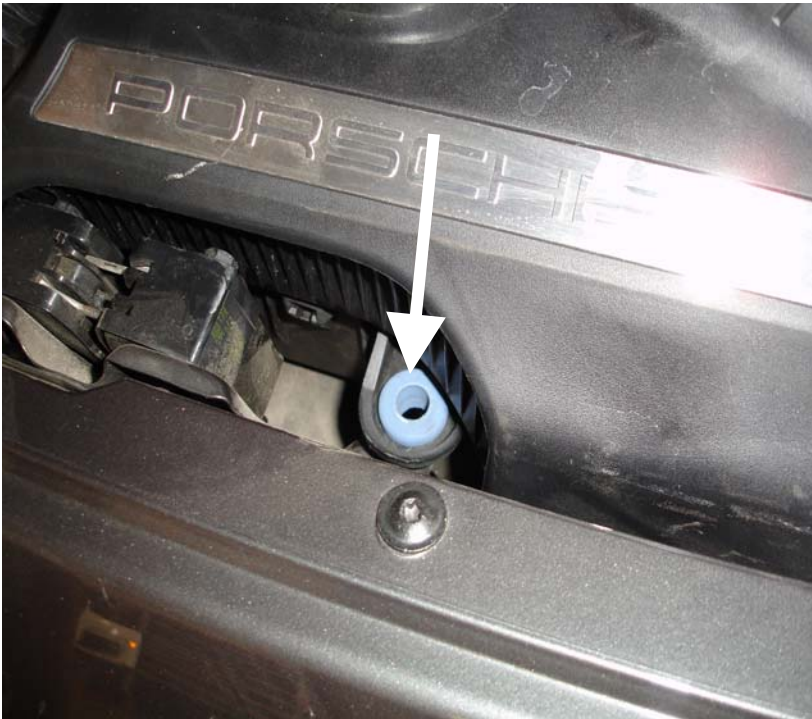
Make the connections at the relay as follows:

- '30' – Water pump positive
- '85' – Positive source when key is in 'ON' position
- '87' – Positive source from battery
- '86' – Ground



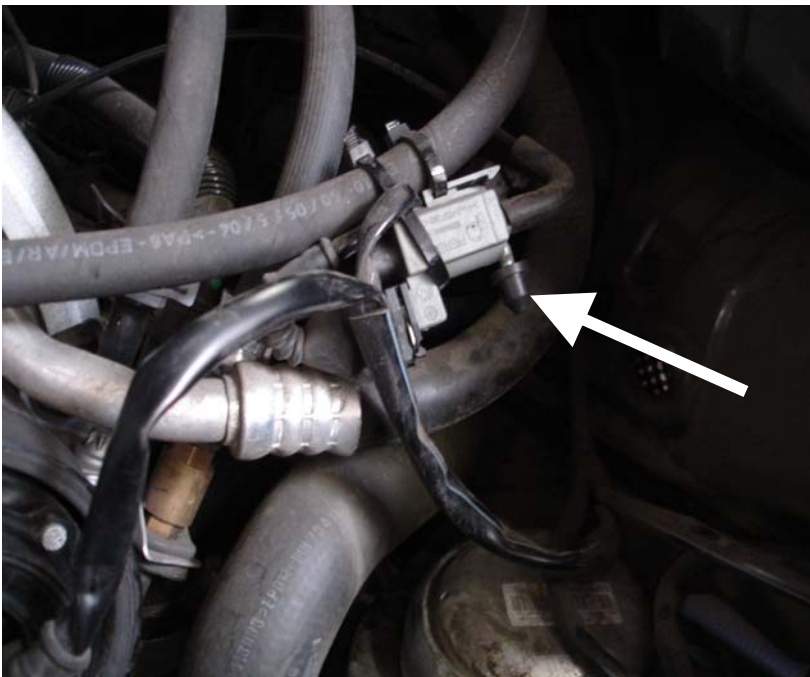
21. Moving to the back of the car, disconnect the MAF sensor connection, vacuum line to the vacuum regulator on the rear side of the air box, and undo the clips on the back of the air box. Remove the throttle body boot and bolt on front anchor point of the air box to remove the air box in its entirety.







22. Remove the entire vacuum line that was connected to the vacuum regulator, and cap the fitting on the vacuum sensor it was connected to.



23. Remove the engine serpentine belt using a large wrench on the tensioner pulley bolt, and turning clockwise to de-tensioning the belt.



24. Disconnect and remove the main vacuum line running across the bottom of the engine bay.







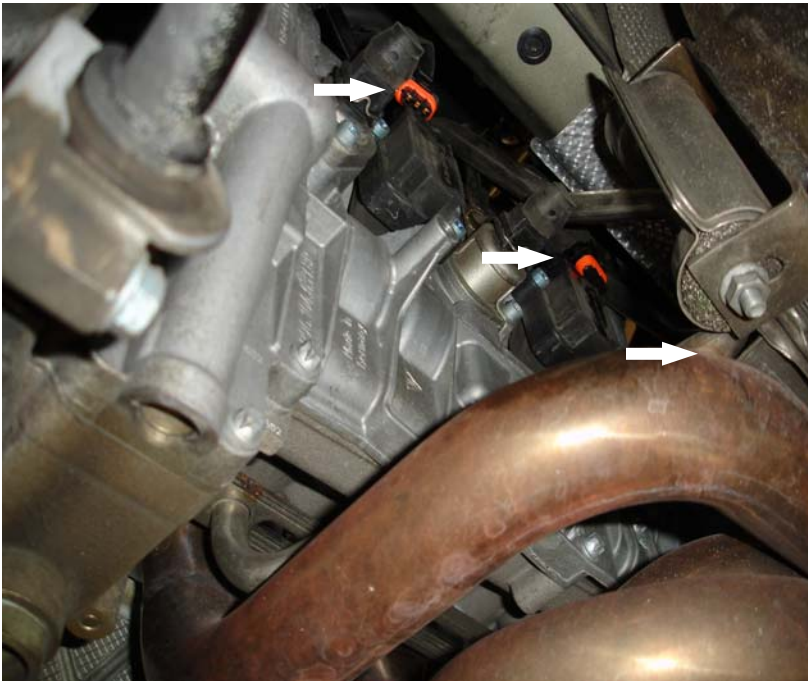
25. Remove the plastic coolant hose bracket on the left side of the engine.



26. Disconnect the smog pump connection on the upper right side of engine.

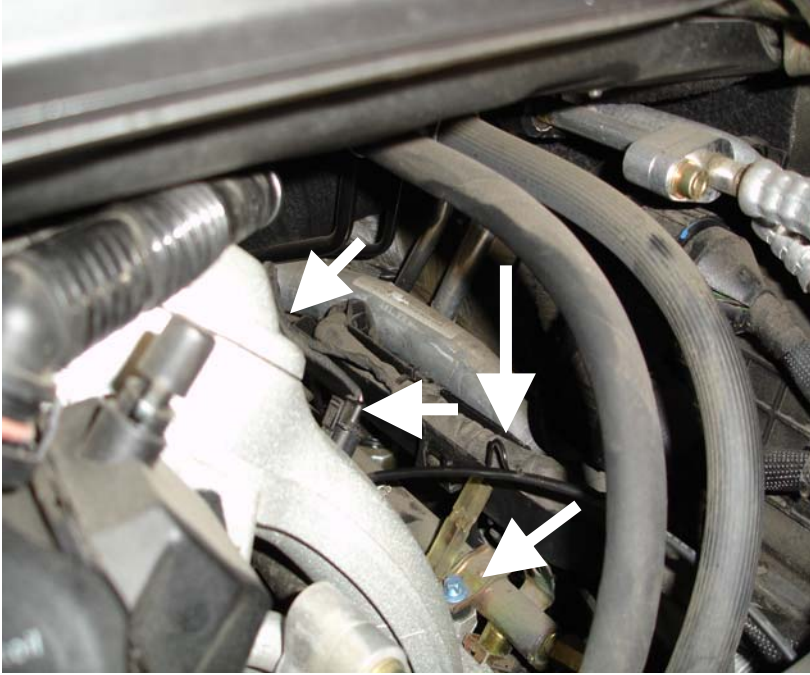


27. Remove the heat shields from both valve covers to gain access to the coil pack connectors. Disconnect the coil pack connections.



28. On the passenger side of the engine bay, disconnect the intake air temperature sensor and plastic engine wire harness casing from the fuel rail and move out of the way to gain access to the two fuel rail bolts on each side of the vehicle. Remove the fuel rail bolts and pull the fuel rail slightly

up to gain access to the fuel injector connections. Remove the fuel injector connections, noting which cylinder each connection is associated with.



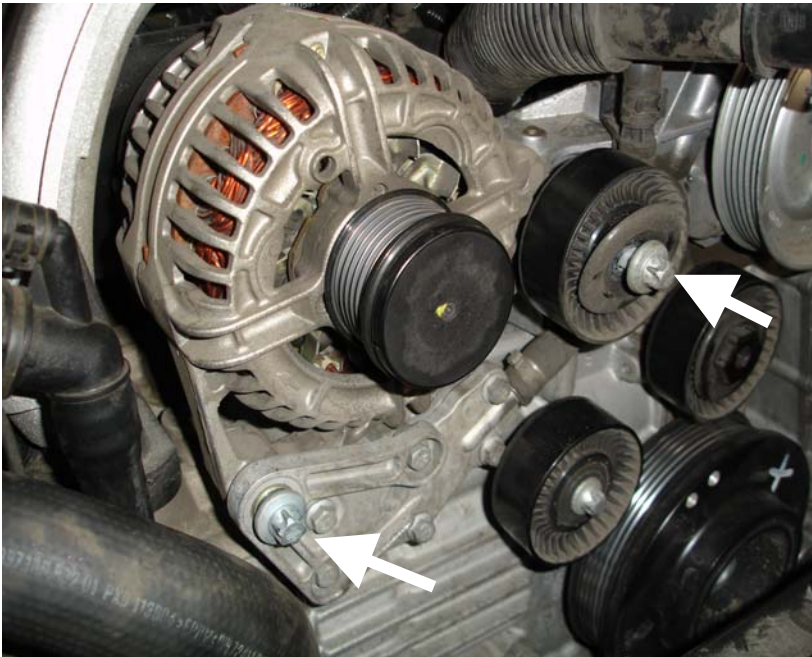
29. Remove the retaining clip from the top seat of the fuel injectors, and remove the injectors from the fuel rail.

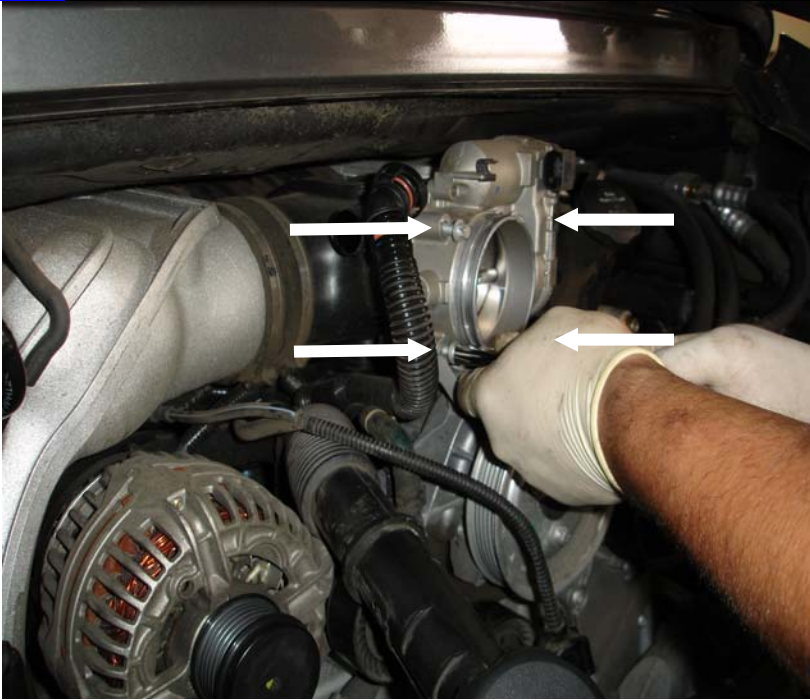


30. Replace the fuel injectors with the new injectors supplied in the kit. Reinstall the retaining clip in the same orientation from which they were removed.
31. Reinstall the fuel rail and fuel rail bolts, making sure that all three injectors seat properly in the head.
32. Reconnect the fuel injector electrical connections, making sure they are connected to the same cylinder from which they were removed. Be sure an audible 'click' is heard when connecting the fuel injectors to ensure a proper connection has been made.
33. Reconnect the intake air temperature sensor and remount the plastic engine wire harness casing to the fuel rail.
34. Moving to the driver side, disconnect the cam position sensor, vacuum solenoid connection, plastic engine wire harness casing from fuel rail, and vacuum line clip to gain access to the fuel rail bolts. Remove the fuel rail bolts and pull the fuel rail up slightly to gain access to the fuel injector connections. Remove the fuel injector connections, noting which cylinder each connection is associated with.



35. Repeat steps 28-31, this time, on the driver side.
36. Reconnect the cam position sensor, vacuum connections and clips, and remount the plastic fuel injector wiring casing.
37. Remove the alternator (with pulley), throttle body, and oil fill tube to gain access to the rear crankcase ventilation tube fitting.

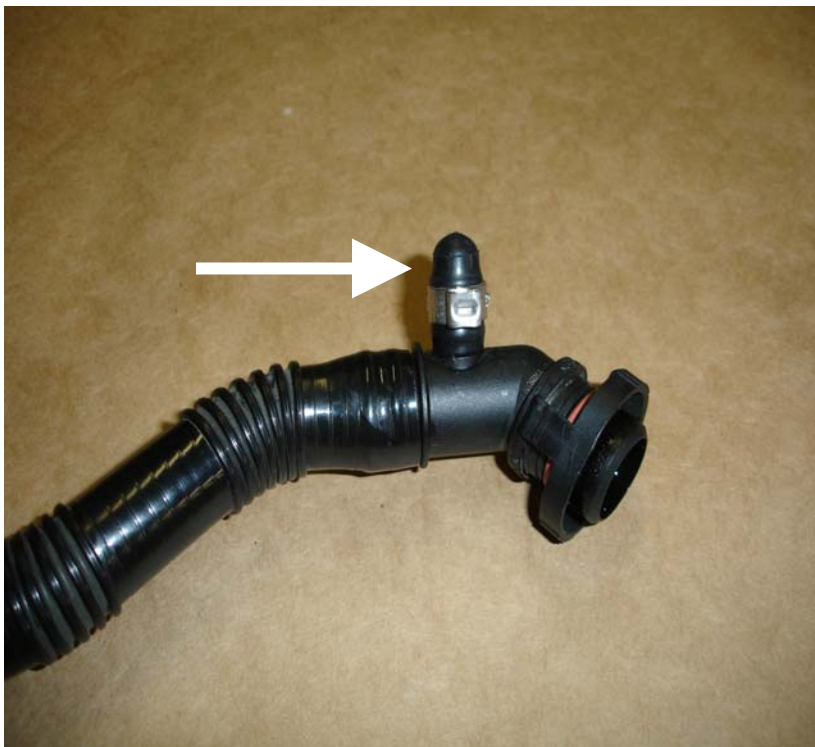




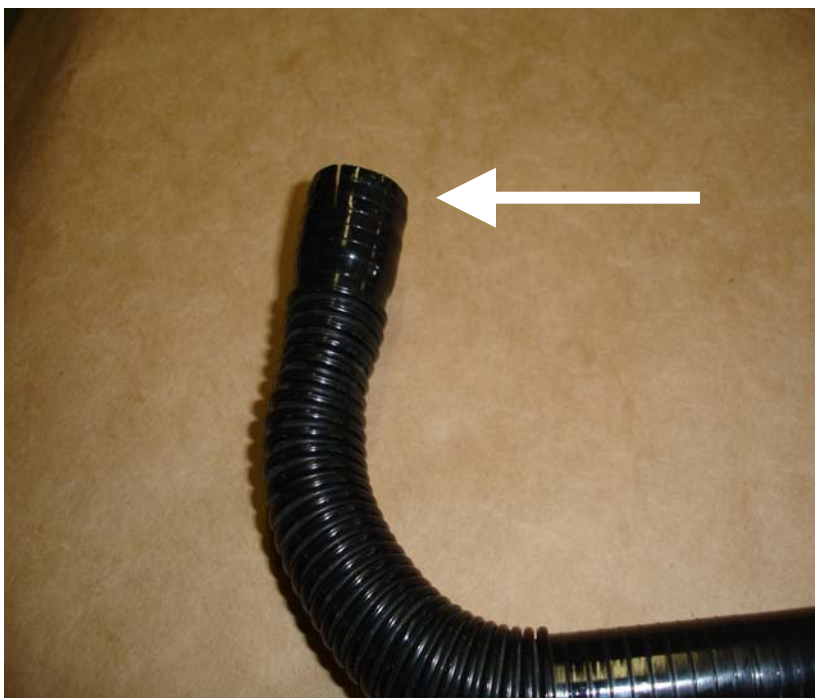
38. Remove the plastic crankcase vent tube from the rear fitting and remove the tube from the vehicle, leaving the small rubber hose connected to it in the vehicle.



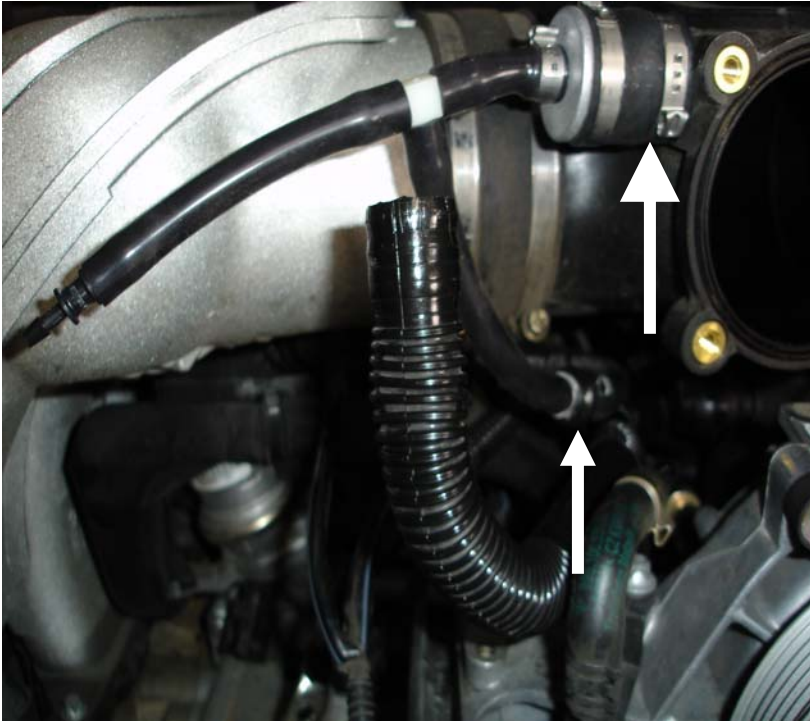
39. Using the small rubber plug supplied in your kit, plug the small fitting on the rear connection of the plastic crankcase tube.



40. Remove the entire fitting from the other end (front connection) of the crankcase hose. Reinstall the crankcase tube in the car.

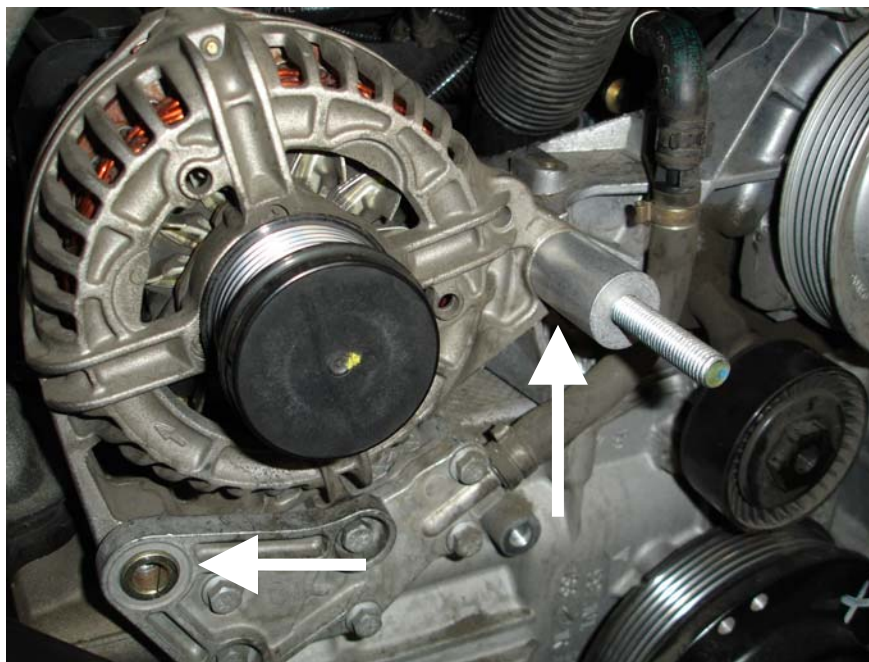


41. Attach the throttle body vacuum adapter (with fittings) supplied in the kit to the throttle body. Connect the small rubber hose that was once connected to the plastic crankcase hose to the lower fitting of the adapter.



42. Reinstall the oil fill tube.
43. Loosely reinstall alternator, omitting the driver side alternator bolt for the time being. Install the new threaded shaft and spacer included in your kit in the passenger side alternator bolt's mounting point. Do not reinstall the pulley and spacer that was originally on the passenger side alternator bolt. You will be using them elsewhere at a later time.  
**\*\*\*TIP: When refitting the alternator, make sure the alternator bolt does not pierce or chafe the positive wire leading to the back of to the alternator.**





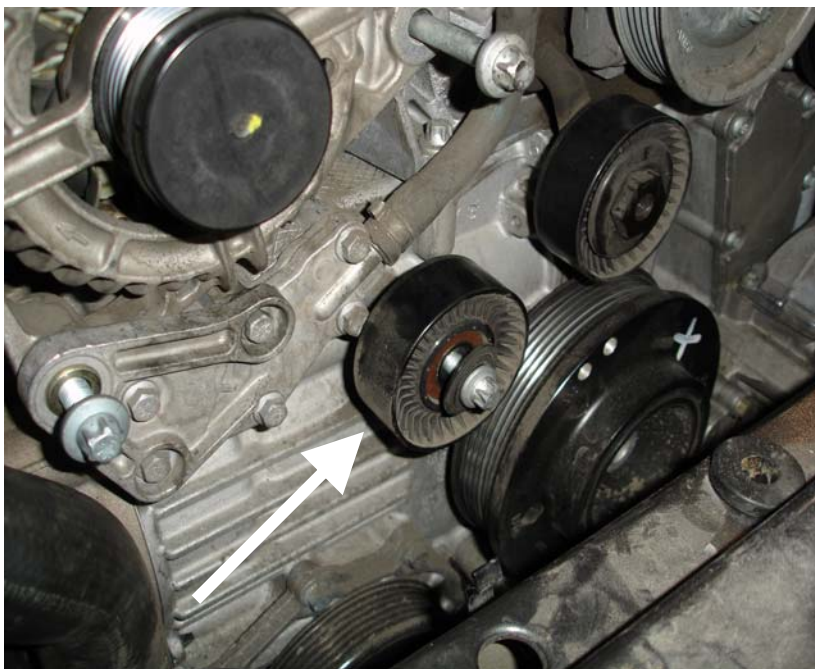
44. Remove the plug from the driver side oil supply galley, located near coolant tank.



45. Install the brass oil supply fitting (with rubber o-ring) supplied with your kit, then attach the supercharger oil feed line to this fitting and route as shown.



46. Remove the serpentine idler pulley from the driver's side of the engine and set aside for later use.



47. Loosely install the replacement serpentine belt included in the kit, as show in the picture below.



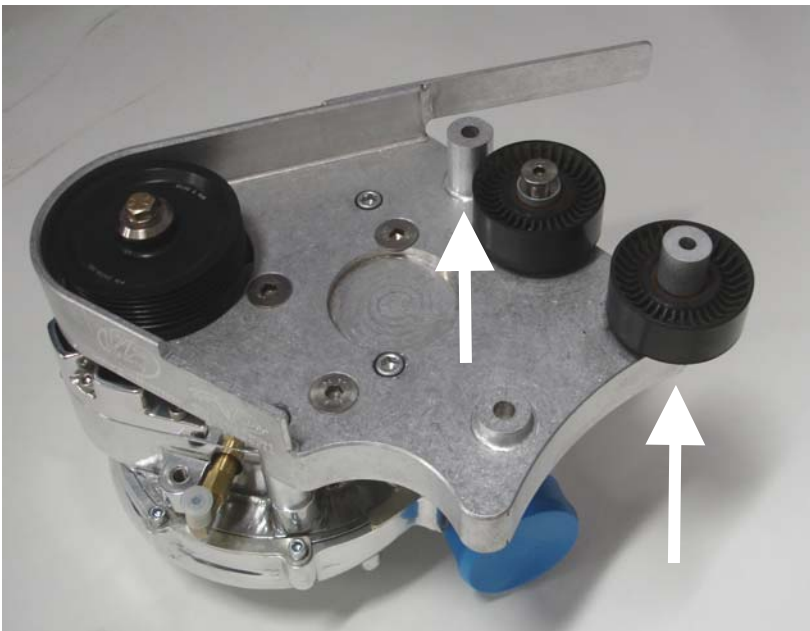
48. Install the replacement main vacuum line included in your kit, running across the bottom of the engine bay, to the same locations from which you removed the original line.



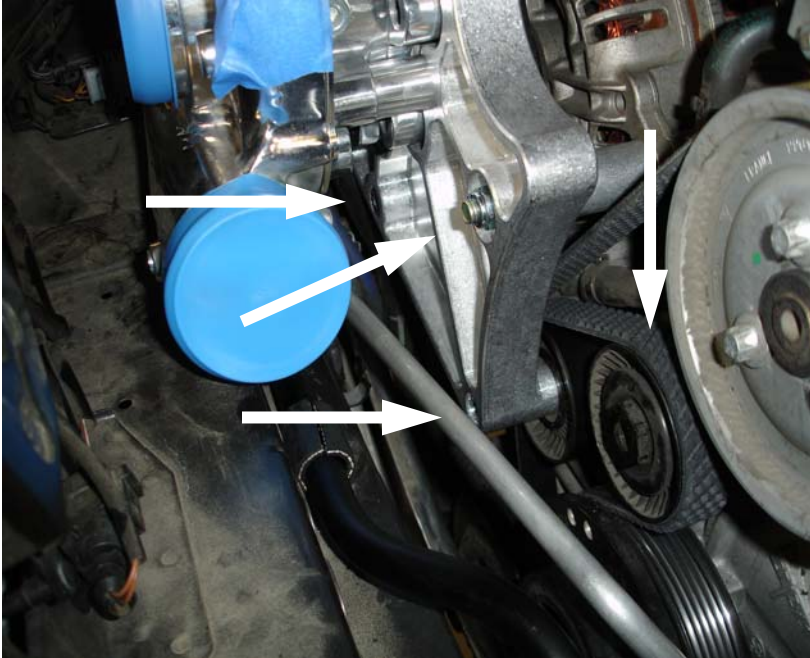
49. Install the two serpentine pulleys you have previously removed from the vehicle onto the supercharger bracket as shown in the picture below. The pulleys are identical so they can be installed in either position. Make sure to install the aluminum spacer and conical bolt seat as shown in the picture. Torque the central serpentine pulley bolt to 18 ft. lbs.



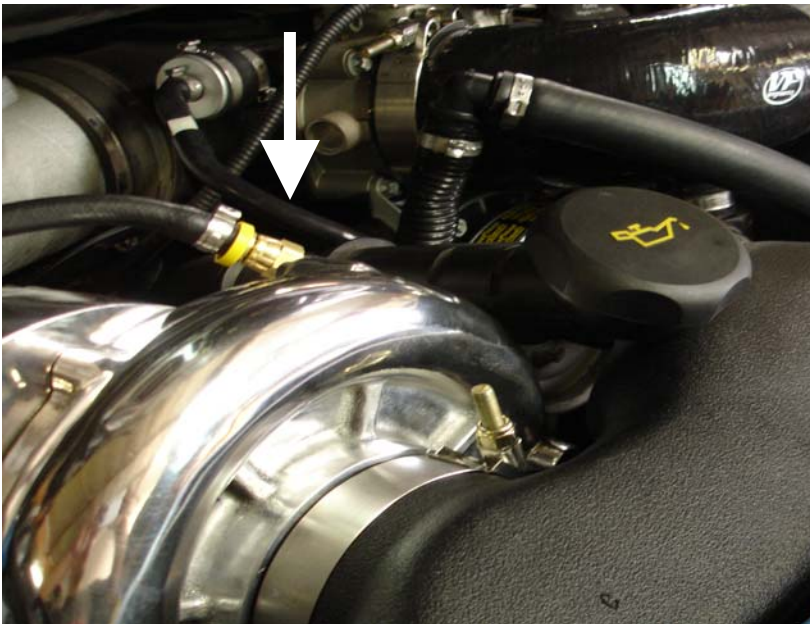
50. Loosely install the two mounting bolts included in your kit, through the supercharger bracket mounting points highlighted below.



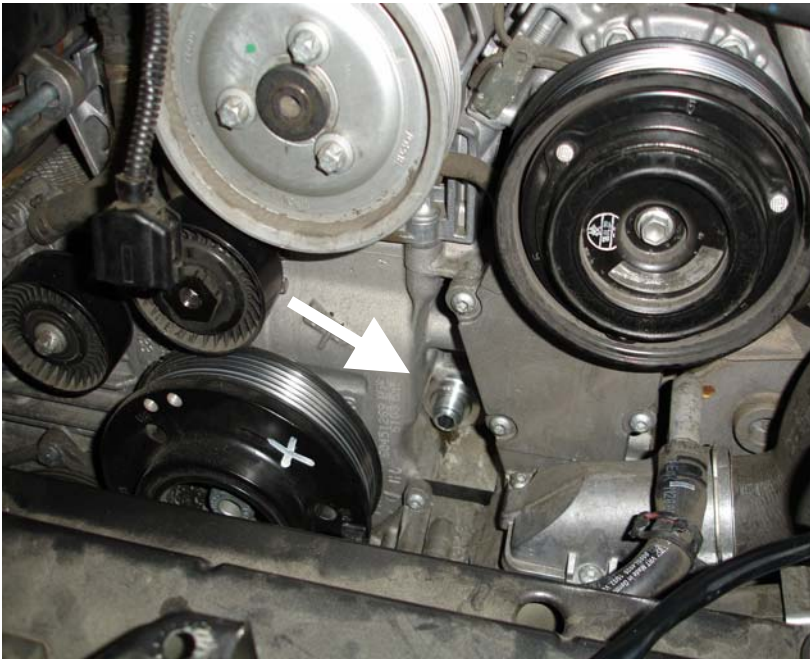
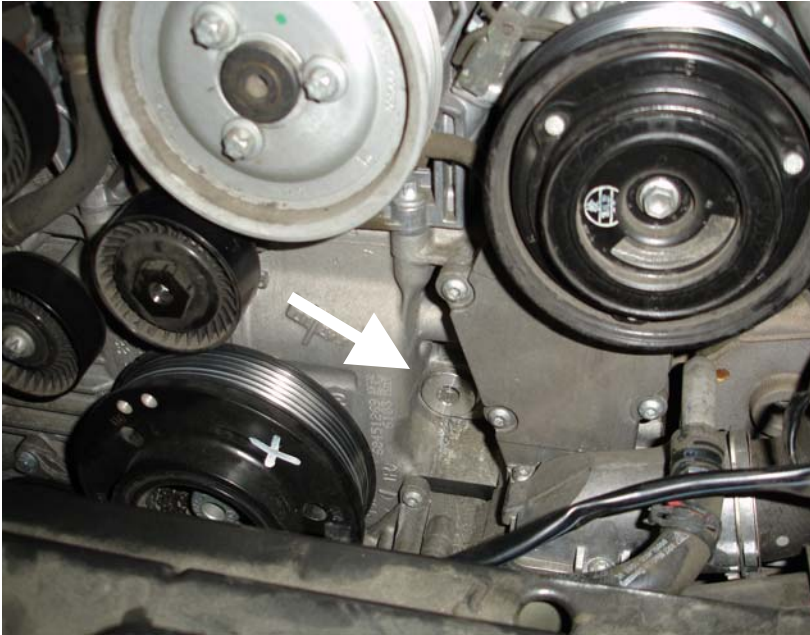
51. Install the supercharger assembly onto the engine, making sure the serpentine belt is routed properly. You will need to remove the belt from around the original serpentine tensioner pulley to allow adequate slack to install the belt around the supercharger pulley. **(\*\*TIP: a small mirror will be helpful to ensure the belt is routed properly and seated correctly on each pulley).** Start by placing the bracket onto the passenger side alternator mounting point's threaded shaft. Then begin threading the driver side alternator mounting bolt, followed by the bolt running through the bracket to the original serpentine belt idler pulley location. Install the nylock® nut included in the kit onto the thread shaft on the passenger side alternator mounting point, and torque all three supercharger mounting bolts to 20 ft. lbs.



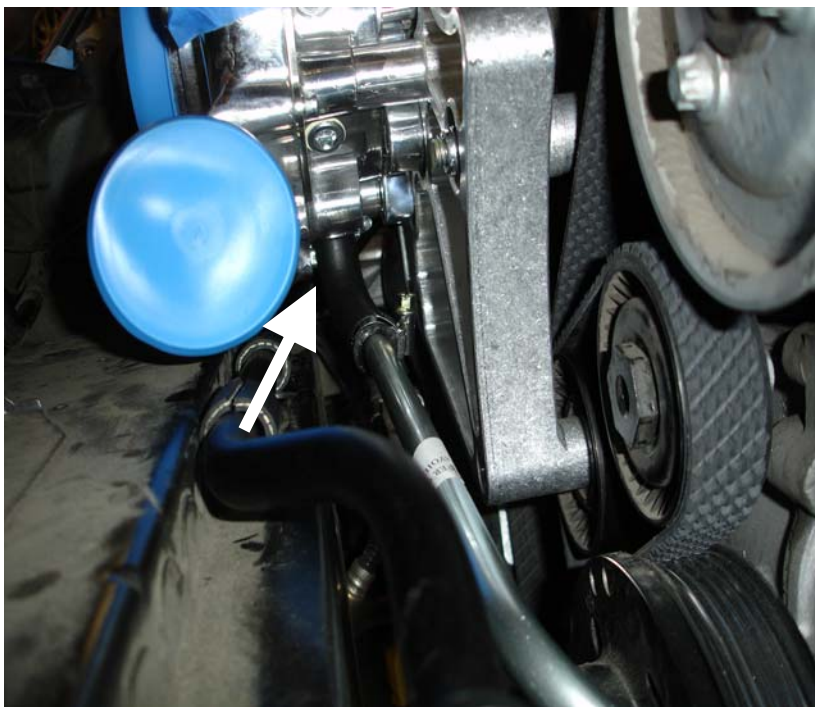
52. Remount the serpentine belt onto tensioner.  
53. Connect the oil feed line to the top of supercharger.



54. Remove the plug from passenger side oil drain galley, and install the oil drain fitting included in the kit.



55. Install the oil drain line included in the kit between the supercharger oil outlet and the fitting on the passenger side of the engine, making sure the hose is positioned for optimum gravitational drain of oil from the supercharger.



56. Remove about 4" of the protective wiring loom from the end of the factory MAF connection. Solder the resistor capsule included with the kit inline with the WHITE (with BLUE line) wire. Use heatshrink tubing on all solders. Re-wrap the MAF wiring with loom (or equivalent) when finished.



57. Unplug the two main engine wire harness plugs located on the passenger side of the engine bay.





58. Unscrew the retaining nuts holding the plugs to the plastic bracket, and remove the bracket from the vehicle. Reconnect the engine harness plugs and tuck them up against body. Use cable ties to ensure safe positioning of the wire harness, as shifting may occur during driving.



59. Remove the oxygen sensor wiring bracket from the passenger side of the engine bay. Bundle the wires together and place them behind the passenger side engine mount.



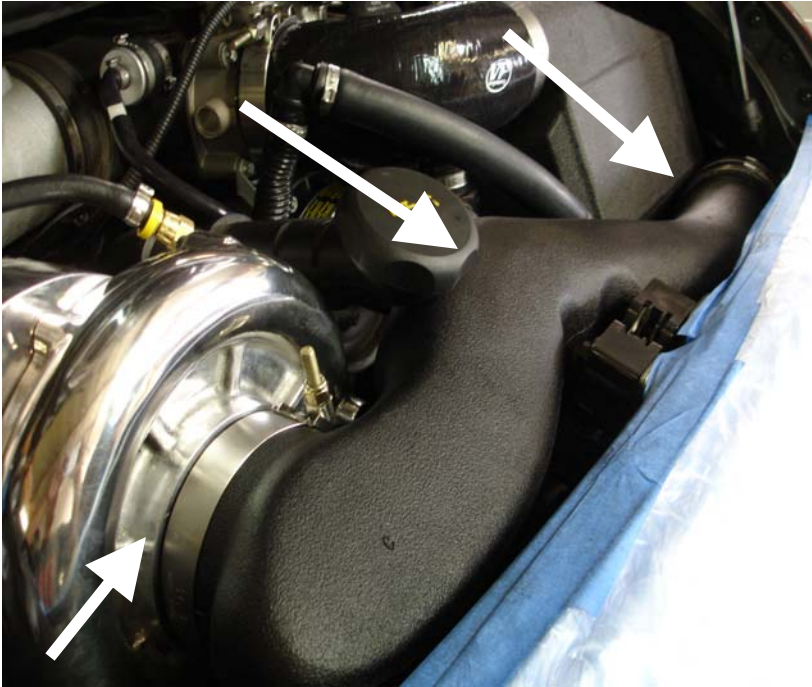
60. Remove the MAF sensor from your OEM Porsche airbox and install it in the new MAF housing supplied with your kit. CARE SHOULD BE TAKEN WHEN HANDLING THE MAF. Install the K&N filter supplied in your kit to the MAF housing.



61. Install the 90 degree air intake pipe included in the kit to the other end of the MAF housing, using the supplied clamps. Install these pieces as a unit into the passenger side of the engine bay as shown below. Connect the MAF to its respective plug.



62. Install the supercharger intake pipe along the bottom of the engine bay, connecting it to the supercharger and the intake assembly in the corner of the engine bay.



63. Attach the silicone charge cooler outlet pipe to the charger cooler and install the assembly into the vehicle as shown below.

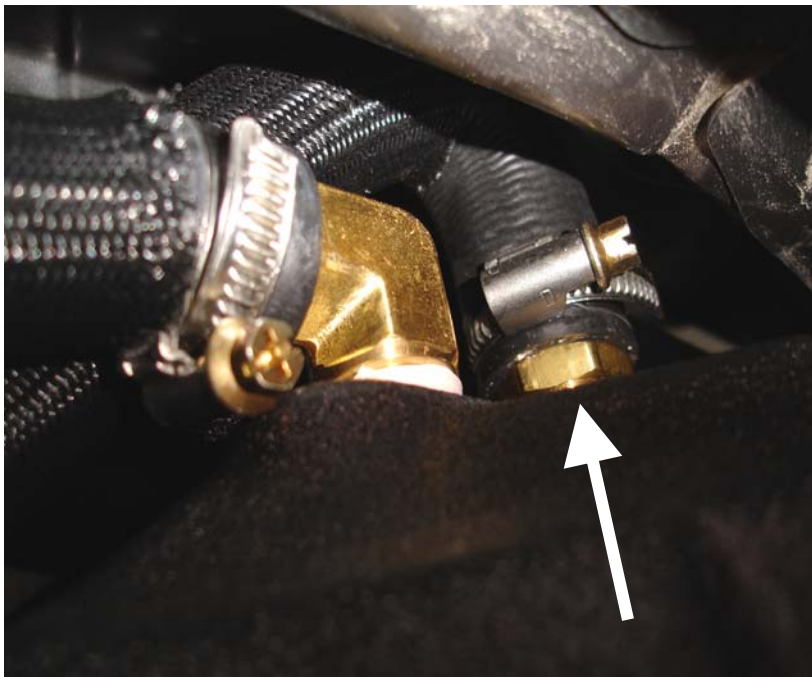
**\*\*TIP: The charge cooler outlet pipe may need to be trimmed to allow for adequate clearance of the charge cooler when hood is shut.**



64. Install the purge tank with bracket and spacer supplied with your kit in the passenger side of the engine bay as shown below. Connect the bottom connection of the purge tank to the water hose that runs from the electric water pump to the engine bay. Using the small length of hose supplied in your kit, connect the top outlet of the purge tank to the top connection on the passenger side of the charge cooler.



65. Connect the water hose running from the front of the vehicle to the lower connection on the passenger side of the charge cooler.



66. Connect the rubber crankcase adapter hose included in the kit, between the small port on the rear of supercharger intake pipe, and the plastic crankcase ventilation pipe you modified earlier near the throttle body.



67. Connect the bypass valve included in the kit between the large port on the rear of the supercharger intake pipe, and the port on the bottom of the charge cooler outlet pipe. Connect the vacuum line of the bypass valve to the extra vacuum lead coming from the throttle body vacuum adapter.

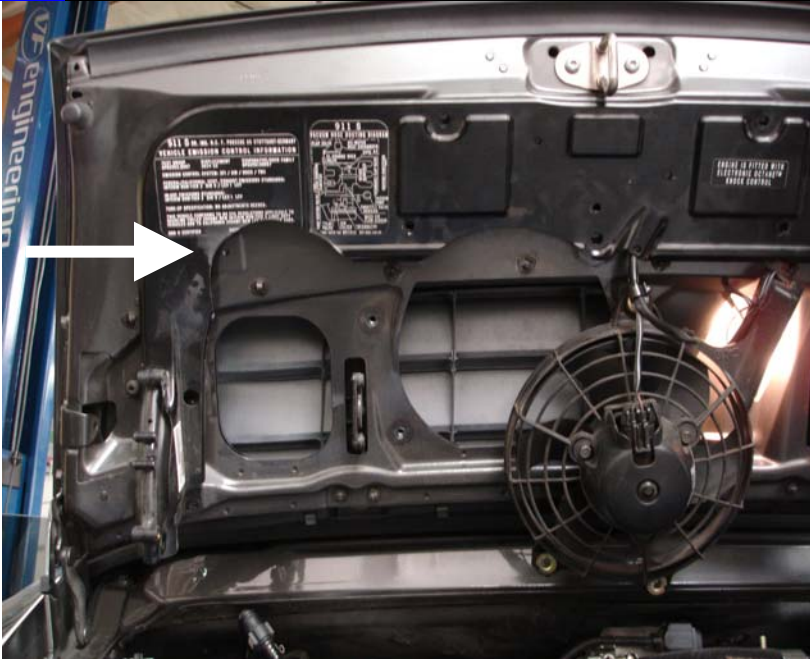


68. Fill the supercharger cooling system with a 50/50 mix of distilled water and phosphate free coolant via the purge tank. Make sure any air has been evacuated from the system when you are finished filling to ensure an accurate water level. Check for leaks.
69. While the bumper is still off of the vehicle, replace the factory installed center grill in the lower portion of the bumper with the OEM replacement pieces supplied in the kit.



70. Remove the tin covering the underside of the engine cover (hood) and outline (as shown below) the area that will need to be trimmed for clearance of the supercharger. Trim with care while the cover is off of the vehicle, and treat any exposed metal left after cutting with paint or primer to prevent rust. Reinstall the tin covering when finished.





71. Reinstall the factory vehicle under covering. A slight trim may be necessary on the rearmost cover to clear the new water pump.



72. Check over your installation and follow the instructions from the beginning to re-trace each step for thoroughness. Re-connect battery and start the car. Verify there are no fuel leaks from the injectors and check all oil and water line connections at both ends. Check under car and verify all work. Bleed engine coolant system. Once certain all systems are verified you can re-install the front bumper. VF suggests you inspect the installation and check that no parts are chaffing after 10-20 miles.

### **PREVENTITIVE MEASURES**

Change spark plugs to 1 range cooler for extreme driving and hot climates.  
Clean or replace supercharger oil feed nozzle (contains metal mesh screen) with solvent every 6 -12,000 miles.  
Change engine coolant temp sensor whilst installing the supercharger kit (often a cause of fuelling issues on cars of any age).  
A gravity oil drain path for the supercharger drain line is critical for the life of the supercharger.  
DO NOT use Teflon paste or tape as it blocks the SC oil feed nozzle and voids warranty  
When disconnecting OEM electrical connectors, label them to avoid potential confusion when re-assembling.

### **TROUBLE SHOOTING & MAINTENANCE TIPS AFTER INSTALLING SUPERCHARGER KITS**

Injector wiring on older cars can be brittle –check for proper connection  
Contact pins inside injector electrical connectors can bend back if the connector is ever mis-fitted and lead to intermittent connection and cylinder misfire.  
Loose crankcase vent tube is considered a vacuum leak and will cause poor fuel trimming.  
Loose crankcase vent tube to oil separator is a common cause of vacuum leak.  
Vacuum leak at hoses around silicon couplers may not be visible but is a simple mistake.  
Weak OEM crankcase vent tube (Melts with age) will cause vacuum leak.  
Clean crankcase vent tube and inside of supercharger intake duct every 20K miles and inspect for leaks and kinks and possibly replace.

### **SYMPTOMS AND POSSIBLE CAUSES**

Hunting idle – major vacuum leak – check silicon couplers especially on throttle body and idle stabilizer.  
Smell of fuel – incorrectly fitted fuel injectors.  
Misfiring – bad electrical connections to fuel injectors or spark plugs  
Oil leak – check oil feed banjo – check redundant oil drain plugs on supercharger – check oil drain line.  
Overheating – air lock in coolant system  
Very erratic idle – verify Mass Air Flow sensor may be fitted oriented in incorrect direction  
MAF signal CEL – check wiring harness extension and electrical continuity in extension harness

**Please read VF product warranty and maintenance/terms of use documents before using this product.**





### **VF-ENGINEERING SUPERCHARGER KIT LIMITED WARRANTY**

Subject to all the terms, conditions and exclusions set forth in this document, Zurich Engineering, Inc. ("VF-Engineering") provides the following warranties to the original purchaser of certain VF-Engineering products. For reference purposes, "you" and "your" mean only the original purchaser of the warranted VF-Engineering product. YOU MUST ALSO READ OWNERS MANUAL.

1. The supercharger unit refers to the Vortech Supercharger V-Series unit manufactured by Vortech Engineering Inc.
2. If you complete and return the Warranty Registration Form along with a copy of Your original receipt within thirty days of Your purchase of a VF-Engineering supercharger kit, VF-Engineering warrants to you that the V-1, V-2, V-5 and V-9 supercharger in the kit will be free from defects in materials and/or workmanship in accordance with the Vortech Engineering, Inc. Warranties Program effective March 1, 2000. The balance of the kit will be free from defects in materials and/or workmanship for one-year/90 days as specified in sections (4), (5) from the date of your purchase of the kit. If you do not return the Warranty Registration Form and proof of purchase within thirty days then VF-Engineering warrants that the supercharger in the kit will be free from defects in materials and/or workmanship for a maximum of one year from the date of purchase of your kit.
3. **REQUIREMENTS AND EXCLUSIONS:**
  - i. You must be the original purchaser.
  - ii. The supercharger must NOT be modified, disassembled, tampered in any way.
  - iii. The supercharger drive pulley must not be changed and the original pulley seal must remain intact.
  - iv. The original Vortech serial number tag must not be removed, altered or replaced.
  - v. You must change the engine oil and oil filter at least every 3000 miles using a SH rated oil or synthetic lubricant, regardless of the vehicle, filter or oil manufacturers recommendations of oil change intervals.
  - vi. You must remove, inspect, and clean the oil inlet fitting (oil inlet nozzle) to the supercharger every 3000 miles.
  - vii. The conversion must be allowed to 'break in' for a period of 300 miles and inspected as per maintenance instructions.
  - viii. The main serpentine belt must not be excessively tensioned see belt tensioning instructions.
  - ix. The Supercharger Kit must be maintained according to the minimum service requirements as listed under the maintenance schedule.
  - x. Acts of God, normal wear and tear, rust damage, damage to vehicle or engine caused by backfire, engine failure, accident, or collision.
  - xi. Improper installation, not following installation instructions provided, or installation by an unskilled person.
  - xii. Over-speeding the supercharger by any method including under-drive accessory pulleys or larger crank pulley.
  - xiii. Damage resulting from entry of foreign particles.
  - xiv. If the supercharged car is driven after an uncorrected fault has been detected.
  - xv. Any faults/irregularities are not advised to your vendor.
4. **ONE YEAR LIMITED WARRANTY ON VF-ENGINEERING SUPERCHARGER KIT ANCILLARIES AS BELOW:**
  - xvi. Mounting brackets and hardware
  - xvii. Supercharger drive pulleys and components.
  - xviii. Idler pulleys.
  - xix. Air inlet and discharge systems.
  - xx. Air valves
  - xxi. GIAC software
5. **NINETY DAY LIMITED WARRANTY ON VF-ENGINEERING SUPERCHARGER KIT CONSUMABLES AS BELOW:**
  - xxii. Air filters.
  - xxiii. Oil feed and oil drain components.
  - xxiv. Serpentine belts.
  - xxv. Injectors, regulators and fuel components

### **WARRANTY COVERAGE FOR THE SUPERCHARGER KIT IS EXCLUDED BUT NOT LIMITED TO THE FOLLOWING CONDITIONS:**

6. VF-Engineering does not provide any warranty to You for damages to and/or failure of any non-VF-Engineering component or equipment on a vehicle, including but not limited to the engine, electrical systems, transmission and differentials;
7. The warranties do not protect You from Acts of God, normal wear and tear, or damage to a vehicle or engine caused by backfire, collision and or engine failure;
8. These warranties do not cover any costs incurred for towing or downtime of the vehicle, any labor costs to diagnose problems, to remove or replace the VF-Engineering products, or any damage caused by the use of another company's fittings or pulleys.
9. The following non-VF-Engineering occurrences, uses and modifications are considered misuse of the VF-Engineering product and invalidate all Your VF-Engineering Warranties, including but not limited to:
  - xxvi. Any disassembly or attempted disassembly of any VF-Engineering assembled parts;
  - xxvii. Any disassembly or attempted disassembly of the supercharger, volute, gearcase or other components;
  - xxviii. Damage resulting from ingestion of debris by the supercharger;
  - xxix. Improper supercharger installation.
  - xxx. Improper drive pulley/belt combination on supercharger;
  - xxxi. Excess belt tension on the supercharger belt drive;
  - xxxii. Over-speeding the supercharger by any method including under-drive accessory pulleys or larger crank pulley.
  - xxxiii. Restricted or blocked supercharger air intake resulting in excessive negative pressure at the air inlet;
  - xxxiv. Free revving of the engine with the drive belt driving the supercharger in place;
  - xxxv. Incomplete fitment of all the parts supplied in the VF-Engineering kit.
  - xxxvi. Restricted or lack of oil supply to the supercharger;
  - xxxvii. Improper installation of, or blocked or restricted oil drain line;
  - xxxviii. Excessive engine crankcase pressures;
  - xxxix. Dirty or contaminated engine oil;

- xi. Removing or defacing the original Vortech serial number tag;
  - xli. Improper installation, not following installation instructions provided, or installation by an unskilled person;
  - xlii. If the supercharged car is driven after an uncorrected fault has been detected; or
  - xliii. Any faults/irregular noises are not advised to your vendor.
10. Power increases with Zurich Engineering, Inc. Supercharger Kits are based on unmodified engines and quoted from results obtained from dynamometer tests using the Dynojet 248C & 224XLC and no guarantee is given that every car will achieve the same results as pre-existing conditions may affect results.

#### **EXTENT OF WARRANTY- ADDITIONAL EXCLUSIONS AND LIMITATIONS**

11. The duration of any and all warranties is limited to the duration of this express warranty. All incidental and consequential damages are hereby excluded. Some US states do not allow limitations on how long an implied warranty lasts, or exclusion or limitations of incidental or consequential damages, so the above limitations or exclusions may not apply to you. This warranty gives you specific legal rights, and you may have other rights that vary from state to state (USA) only.
12. No warranties of merchantability of fitness for particular purpose, or affirmation of fact, of the warranty, expressed or implied, other than any available manufacturer's warranties are extended or granted by VF-Engineering.

#### **DISCLAIMER**

13. Motor racing is extremely hazardous, and death may occur. VF-Engineering products have no warranty or representations made with ability to protect against injury or death. Motor racing, aggressive driving, including driving for any period of time at full throttle, and car modifications of any kind that facilitate aggressive driving may reduce the useful life of the car and or any of its wearable parts. Improving the performance of an engine by altering the engine's computer software may cause the engine to "work harder" and could result in damage to the car. The user assumes these risks.

#### **REMEDIES**

14. Your sole remedy for the above warranties is the repair or replacement of the defective product only, at VF-Engineering's discretion.

#### **15. WARRANTY CLAIM PROCEDURE**

- xliv. If a VF-Engineering product is within the warranty period and You wish to make a claim, please follow the procedure as follows:
- xlvi. Contact VF-Engineering on (+1)714-528-0066 asking for the service department and have the following information available:
  - xlvi. Supercharger serial number
  - xlvi. Copy of original invoice on which the product was purchased (must be dated and show retail store name);
  - xlvi. Year, make, model, vehicle mileage, and engine specifications of the vehicle;
  - xlvi. Number of miles on the VF-Engineering product; and
- I. Perceived problem
16. VF-Engineering will then offer suggestions to help you in troubleshooting or will issue a return authorization (R.A.) number to return the product for warranty evaluation;
17. If you have been issued an R.A. number, you must "safety package" each product, which means You must place the product(s) within a shipping box strong enough to hold the weight of the product(s) and to maintain its shape during shipping with adequate packing material so that the product(s) will not hit other product(s), component(s), or the side of the box during shipping. You want to use a professional company. Clearly mark the R.A. number in large (approximately 2") alphanumeric characters in two locations on the outside of the box with a bold marker. Returned items in transit remain the responsibility until signed for by a member of VF-Engineering shipping dept.

#### **18. INCLUDE IN THE SHIPPING BOX THE FOLLOWING ITEMS:**

- li. Serial number if applicable;
  - lii. Copy of original invoice on which the product was purchased (must be dated and show retail store name);
  - liii. Year, make, model, vehicle mileage, and engine specifications of the vehicle;
  - liiv. Number of miles on the VF-Engineering product; and
  - liiv. Perceived problem
  - livi. A copy of the original Three Year Warranty Registration, if applicable;
  - liivii. Return authorization number; and
  - liiviii. Address to which the product is to be shipped after inspection.
19. Ship the properly safety packaged and marked box via UPS or other carrier, prepaid and insured for the retail value of the product being returned to:
- VF-Engineering  
Service department  
1365 North Dynamics Street, Suite E.  
Anaheim, CA 92806 USA  
R.A. number\_\_\_\_\_
20. If a VF-Engineering warranty applies, Your product will be repaired or replaced at VF-Engineering's option and returned to you, freight prepaid excluding any international shipping, taxes, tariffs, customs and/or duties, etc which must be paid by You), via UPS/Fedex/DHL ground service. If a VF-Engineering Limited Warranty does not apply, we will advise you of the specific reason for denial and explain to you the costs involved in repair or replacement of your product. After relaying this information we will, at your option, either proceed with the repairs as quoted or return your products(s) to you in the condition it/they are in at the time of inspection of the warranty evaluation by VF-Engineering. Timing is not of the essence in delivery or turn around. If the warranty does not apply and you do not want VF-Engineering to repair or replace your product, you will be charged the disassembly and inspection charges for the product and return shipping with insurance by means of UPS COD.
21. This warranty cannot be amended orally or in writing by any VF-Engineering employee, representative or agent, and any promises inconsistent with this warranty are void and unenforceable against VF-Engineering.



### **VF-ENGINEERING SUPERCHARGER KIT OWNERS MANUAL**

The following information and recommendations are designed to promote years of trouble free service for your supercharger. Care recommendations have also been outlined for your vehicle and maintenance of your supercharger kit.

## **MAINTENANCE INSTRUCTIONS FOR THE SUPERCHARGER KIT and SUPERCHARGER UNIT**

Caring for your kit (mandatory procedures)

1. After fitting, the new supercharger kit should be allowed to bed in for a run-in period of 300 miles during which the engine should not be driven over 4500 rpm.
2. The supercharger kit should be routinely inspected and maintained as below:
  - ii. Air filters – Use the air filter system provided in your VF-Engineering system.
  - iii. Air Intake / Air Discharge – Must be in good condition and properly secured. If equipped with flex hose, this must be free of damage / leaks.
  - iv. Belt Tension – Excessive belt tension can lead to supercharger or crankshaft bearing failure. Do not use a non-slipping or cog-type belt on a supercharger designed to be driven with a serpentine belt. Replacement belts for your application, are available from VF-Engineering.
  - v. Air Assist – The air assist system on certain Vortech superchargers must be kept free from kinks and leaks. Spare parts are available from VF-Engineering.
3. Computer Chips – Use the computer chip or serial flash provided by VF-Engineering for this supercharger system. The use of an aftermarket chip is not recommended as they would not be calibrated for use with a supercharger and can cause detonation. VF Engineering supplies a computer chip or serial flash with each kit that is specifically developed and calibrated to maximize performance.
4. Crankcase Ventilation System – You must use the system provided in your VF-Engineering kit to prevent excessive crank case pressures and possible engine damage. We recommend you clean or replace this every 6000 miles.
5. Pullies – If your supercharger drive belt comes off it may be due to misalignment of the supercharger pulley cause by installation issues or movement of the mounting plate. Misalignment can also be caused by over-tightening (and failure) of the supercharger belt. For years of trouble free operation when used for street applications, we recommend the drive ratios not be changed from the standard specification.
6. In case of recurring miss-firing or detonation / pinging you should contact your vendor. By following these procedures you will ensure long term durability and reliability from your conversion.
7. Clean the supercharger oil inlet fitting every 3-6000 miles. When the vehicle is cold, remove the oil inlet fitting at the supercharger and clean it thoroughly utilizing high pressure air to blow the orifice clean before reinstallation. Do not attempt to remove the screen/filter inside the oil feed fitting. This oil inlet fitting is designed with a very small orifice, which provides a mist of oil directly onto the gears. Never use Teflon tape or other sealants on any oil feed line fitting. Do not over-tighten fittings.
8. Do not use engine oil additives as they may contain solid particulates which can clog the supercharger feed line.

## **MAINTENANCE OF YOUR SUPERCHARGED VEHICLE**

9. Before supercharging your vehicle we recommend you service and inspect your vehicle. Ideally the fault codes should be reset. This would highlight any existing conditions that may need attention. The condition of consumables, such as oil, filters, spark plugs, HT (plug wires) leads, ignition coil, and air mass sensor should be inspected and replaced where needed.
10. Never operate your engine at full throttle when the engine is cold. When starting the engine each day, always allow plenty of time for the oil to reach full operating temperature before running above 2500 RPM. Full operating temperature is generally achieved only after the engine water temperature has reached the 'normal' indicated operating range for 2-3 minutes.
11. Always utilize the highest octane super (premium) unleaded fuel available in your area. Where possible try to use the same brand of fuel. Where possible do not use fuels sold at low cost service stations and preferably use national brands whenever possible.
12. After filling up with fuel from a source other than the one you use regularly, carefully listen for engine detonation. If any detonation is audible, you may have a fuel problem. Cease utilizing heavy-throttle and drive with greater care until the fuel is consumed. If detonation is still evident, inspect for other causes such as:
  - i. Faulty fuel pump(s). Check fuel pressure when detonation is occurring.
  - ii. Dirty injector(s), clogged fuel filter or pinched fuel line.
  - iii. Faulty spark plug(s) or spark plug wires with too much resistance. Consult your factory vehicle service manual. Most wires should not exceed 10 Ohms of resistance.
  - iv. Faulty ignition coil / distributor. Ask VF-Engineering for diagnostic info specific to your vehicle.
  - v. Cooling system not functioning properly. Check for a faulty thermostat, faulty or improper calibration of the thermostatic fan switch, water pump belt slippage, a plugged radiator or bad fan clutch.
  - vi. Dirty air filter / cleaner.
    13. Ensure the spark plug gap is correct for a supercharged application.
    14. We recommend using manufacturer recommended service components or taking the advice from our dealers specializing in the different makes of cars.
    15. Spark Plugs need to be changed at intervals of 8-10,000 miles or sooner.
    16. Spark plug leads (wires) must be checked for condition. When reaching the end of their life, they become hard and must be replaced as a complete set. Check the condition of your coil pack and test for resistance according to OE spec. Check the condition of the distributor cap (where applicable) and replace if worn or heavily corroded. Replace rotor every 15,000 miles and cap every 50,000 or as condition warrant.
    17. Engine oil should be changed every 3-5,000 miles. We recommend OE oil. Do not mix different grades of oil qualities.