

SUPERCHARGER SYSTEM INSTALLATION INSTRUCTIONS

**Porsche 911 (1998-2008)
STAGE 2 TRACK SPORT UPGRADE
VFK94-01**

**NOT CARB APPROVED
OFF ROAD USE ONLY**

WARNING:

- **CONSUMER AGREES TO ALL VF-ENGINEERING TERMS AND CONDITIONS. VF-ENGINEERING IS NOT RESPONSIBLE FOR PROPERTY DAMAGE, BODILY INJURY OR CONSEQUENTIAL LOSSES.**
- **INJECTORS MUST BE INSTALLED PRIOR TO THE SUPERCHARGER.**
- **READ OUT YOUR ECU AND SUBMIT YOUR SOFTWARE REQUEST BEFORE STARTING INSTALLATION.**

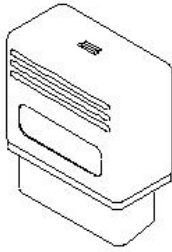
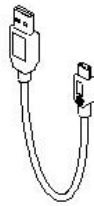


Figure 1



Software

- Download ECU programming instructions and program application from <http://vfengineering.com/hexflashdownloads/>
- Use the Hex Flash tool purchased with the kit to read out the stock file
- Email your stock file to technical@vf-engineering.com
- If the Hex Flash tool shown in (Figure 1) was not purchased, fill out the ECU return form and send the form with the ECU to VF-Engineering.

Fuel Injectors

Warning: The following steps require working on fuel systems and it is not advisable for the inexperienced DIY person. Always follow national safety standards for working on flammable liquids and health and safety laws. VF-Engineering is not responsible for incorrectly fitted parts or consequential loss and/or damages. A DIY installer is responsible for using their own discretion to determine their level of ability and not VF-Engineering. Always use appropriately rated safety goggles and use fans to ventilate working space and avoid fume inhalation.

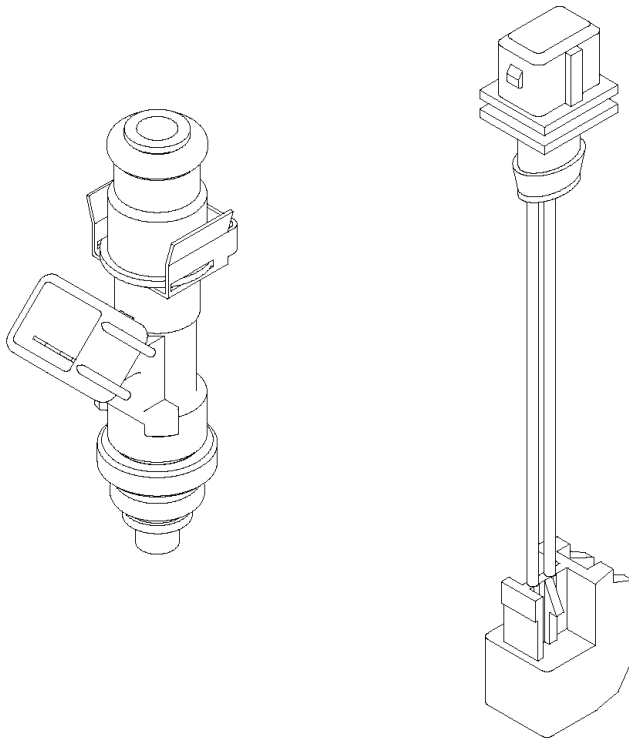


Figure 2

- Remove the fuel rail bolts and pull the fuel rail up to gain access to injectors.
- Remove the fuel injector connectors.
 - Be sure to keep track of which cylinder each connector is associated with.
 Note orientation of clips before removal.
- Remove the OEM injectors from the fuel rail.
- Install the VF injectors supplied in kit.
 - Make sure injectors seat in the fuel rail properly.
 - Reinstall the retaining clips the same orientation as they were removed.
- Remount fuel rail onto the engine.
 - Make sure each injector is properly seated within injector port of the cylinder head.
- Reconnect fuel injector connectors.
 - Be sure that fuel injector connectors plug into the same cylinder as the came out of.
 - Listen for an audible 'click' sound when connecting to ensure a proper connection is made.
- Repeat this step for remaining injector bank.



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1. Software, Supercharger, Turbocharger are Products. Hex Flash refers to the software tuning Product manufactured by Hex Tuning. Supercharger refers to the Vortech Supercharger V-Series unit Product manufactured by Vortech Engineering Inc. The turbocharger unit refers to the GT28 or GT35 series unit Product manufactured by Garrett Turbos/Honeywell. Each manufacturer is the ultimate manufacturer of each Product. The warranty for the Product is underwritten by the ultimate manufacturer and VF-Engineering forwards Product warranty queries directly to the respective Product manufacturer or representative. VF-Engineering does not open or repair either brands of unit. All manufacturers terms available upon request from them directly or from VF-Engineering.
2. If you complete and return the Warranty Registration Form for the Supercharger or Turbocharger along with a copy of Your original receipt within thirty days of Your purchase of a VF-Engineering supercharger/turbocharger kit, the compressor unit manufacturer warrants to you that the supercharger or turbocharger 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 or Honeywell HTT Products (Rev 2008-02-29) terms and conditions. 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/turbocharger 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/turbocharger 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/Honeywell serial number tag must not be removed, altered or replaced.
 - v. You must change the engine oil and oil filter at least every 3-5000 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 feed 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 (supercharger) must not be excessively tensioned see belt tensioning instructions.
 - ix. The Supercharger/turbocharger 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 collision.
 - xi. Improper installation, not following installation instructions provided, or installation by an unskilled person.
 - xii. Over-speeding the supercharger/turbocharger by any method including under-drive accessory pulleys or larger crank pulley or over-clocking the turbocharger with an Electronic or Mechanical Boost Controller or tampering with the wastegate signal line.
 - xiii. Damage resulting from entry of foreign particles.
 - xiv. If the supercharged/turbocharged 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 PERFORMANCE SOFTWARE**
 - i. Liability is limited to the original purchase price of the merchandise to the original purchaser only.
 - ii. All performance software including performance software from Hex Flash is for "OFF ROAD USE ONLY". Software has not been tested or approved by any federal or local governing agency and are not approved or recommended for street use. Understanding the legal requirements or legal limitations regarding the use of this product is the sole responsibility of the user.
 - iii. It is the users responsibility to ensure their vehicle is operating in good condition before installing Hex Flash and not to install it if they have any doubt.
 - iv. Pre-existing functional issues will not be resolved by installing Hex
 - v. Improving the performance of an engine by altering the engine's computer software may cause the engine to "work harder" and could result in premature wear of ignition components and or cause damage to the car. The user assumes these risks. VF-Engineering, Hex Tuning is not responsible for damage to a car of this kind.
 - vi. Hex Flash is tested on stock vehicles. It is not tested to work in compatibility with other modifications or products.
 - vii. All performance data quoted was obtained by testing a group of test cars in specific conditions on specific measuring equipment. No guarantee is given that all cars will produce the same results.
 - viii. Performance software is dependent upon the use of a minimum 91 octane rated fuel. Use of inferior fuels will cause detonation and possible engine damage or failure. Vehicles should not be driven with the occurrence of a check engine light or other issues.
 - ix. It is not the responsibility of Hex Tuning or VF-Engineering to correct compatibility or operational issues arising from the use of Hex Flash.
 - x. Users of performance software are strongly recommended to perform a full read of their ECU before programming with the Hex Flash performance file. This enables the user to return their ECU to its original condition. VF-Engineering is not responsible for maintaining a copy the original read of the ECU.
 - xi. VF-Engineering is not responsible for any losses or damages occurring as a result of the use of performance software.

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5. ONE YEAR LIMITED WARRANTY ON VF-ENGINEERING SUPERCHARGER/TURBOCHARGER KIT ANCILLARIES AS BELOW:

- i. Mounting brackets and hardware
- ii. Supercharger drive pulleys and components.
- iii. Idler pulleys.
- iv. Air inlet and discharge systems.
- v. Air valves
- vi. GIAC software

6. NINETY DAY LIMITED WARRANTY ON VF-ENGINEERING SUPERCHARGER/TURBOCHARGER KIT ANCILLARIES AS BELOW:

- i. Air filters.
- ii. Oil feed and oil drain components.
- iii. Serpentine belts.
- iv. Injectors, regulators and fuel components

WARRANTY COVER FOR THE SUPERCHARGER/TURBOCHARGER KIT IS EXCLUDED BUT NOT LIMITED TO THE FOLLOWING CONDITIONS.

7. 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;
8. 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;
9. These warranties do not cover any costs incurred for towing or downtime of the vehicle, any labour 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.;
10. 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:
 - i. Any disassembly or attempted disassembly of any VF-Engineering assembled parts;
 - ii. Any disassembly or attempted disassembly of the supercharger/turbocharger, cartridge/hotside/coldside, volute, gearcase or other components;
 - iii. Damage resulting from ingestion of debris by the supercharger/turbocharger;
 - iv. Improper supercharger/turbocharger installation.
 - v. Improper drive pulley/belt combination on supercharger;
 - vi. Excess belt tension on the supercharger belt drive;
 - vii. Over-speeding the supercharger/turbocharger by any method including under-drive accessory pulleys or larger crank pulley or tampering with the wastegate signal line or use of electronic or mechanical boost controller.
 - viii. Restricted or blocked supercharger/turbocharger air intake resulting in excessive negative pressure at the air inlet;
 - ix. Free revving of the engine with the drive belt driving the supercharger/turbocharger in place;
 - x. Incomplete fitment of all the parts supplied in the VF-Engineering kit.
 - xi. Restricted or lack of oil supply to the supercharger/turbocharger;
 - xii. Improper installation of, or blocked or restricted oil drain line;
 - xiii. Excessive engine crankcase pressures;
 - xiv. Dirty or contaminated engine oil;
 - xv. Removing or defacing the original Vortech/Honeywell serial number tag;
 - xvi. Improper installation, not following installation instructions provided, or installation by an unskilled person;
 - xvii. If the supercharged car is driven after an uncorrected fault has been detected; or
 - xviii. Any faults/irregular noises are not advised to your vendor.
11. Power increases with Zurich Engineering, Inc. Supercharger/turbocharger Kits are based on unmodified engines and quoted from results obtained from dynamometer tests using the Dynojet 248C 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

12. 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.
13. 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

14. 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

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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

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

16. WARRANTY CLAIM PROCEDURE

- i. If a VF-Engineering product is within the warranty period and You wish to make a claim, please follow the procedure as follows:
 - ii. Contact VF-Engineering on (+1)714-528-0066 asking for the service department and have the following information available:
 - iii. Supercharger/turbocharger serial number
 - iv. Copy of original invoice on which the product was purchased (must be dated and show retail store name);
 - v. Year, make, model, vehicle mileage, and engine specifications of the vehicle;
 - vi. Number of miles on the VF-Engineering product; and
 - vii. Perceived problem
17. 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;
18. 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.

19. INCLUDE IN THE SHIPPING BOX THE FOLLOWING ITEMS:

- i. Serial number if applicable;
 - ii. Copy of original invoice on which the product was purchased (must be dated and show retail store name);
 - iii. Year, make, model, vehicle mileage, and engine specifications of the vehicle;
 - iv. Number of miles on the VF-Engineering product; and
 - v. Perceived problem
 - vi. A copy of the original Three Year Warranty Registration, if applicable;
 - vii. Return authorization number; and
 - viii. Address to which the product is to be shipped after inspection.
20. 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 _____

21. 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.
22. 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.

MAINTENANCE INSTRUCTIONS FOR THE SUPERCHARGER/TURBOCHARGER KIT and SUPERCHARGER/TURBOCHARGER UNIT

Caring for your kit (mandatory procedures)

23. After fitting, the new supercharger/turbocharger 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.
24. The supercharger/turbocharger kit should be routinely inspected and maintained as below:
- i. Air filters – Use the air filter system provided in your VF-Engineering system.
 - ii. Air Intake / Air Discharge – Must be in good condition and properly secured. If equipped with flex hose, this must be free of damage / leaks.

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- iii. 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.
- iv. 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.
- 25. Computer Chips – Use the computer chip provided in your VF-Engineering supercharger/turbocharger kit. The use of an aftermarket chip is not recommended as they would not be calibrated for use with a supercharger/turbocharger and can cause detonation. VF-Engineering supplies a computer chip/flash software with each kit which is specifically developed, and calibrated to maximize performance to VF-Engineering's specifications and hardware specifications.
- 26. 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.
- 27. Pulleys – 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.
- 28. 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.
- 29. 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.
- 30. Do not use engine oil additives as they may contain solid particulates which can clog the supercharger/turbocharger feed line where applicable.

MAINTENANCE OF YOUR SUPERCHARGED VEHICLE

- 31. 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.
- 32. 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.
- 33. 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.
- 34. 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.
- 35. Ensure the spark plug gap is correct for a supercharged application.
- 36. We recommend using manufacturer recommended service components or taking the advice from our dealers specializing in the different makes of cars.
- 37. Spark Plugs need to be changed at intervals of 8-10,000 miles or sooner. Eg. for Volkswagen models, in hot countries we recommend Bosch F6DTC copper electrode plugs.
- 38. 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.
- 39. Engine oil should be changed every 3-5,000 miles. We recommend OE oil. Do not mix different grades of oil qualities.

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PRODUCT REGISTRATION FOR WARRANTY ON KITS ONLY**THIS DOCUMENT MUST BE RETURNED COMPLETED TO VALIDATE WARRANTY.**

Please retain a copy for your records.

() 1 YEAR WARRANTY**Complete and mail form to:**

VF-ENGINEERING

1365 N DYNAMICS STREET, SUITE (E),

ANAHEIM, CA 92806 USA.

www.vf-engineering.com

SUPERCHARGER/TURBOCHARGER SERIAL# (see tag on supercharger/turbocharger unit) :

PRODUCT PURCHASE DATE (also warranty start date) :

CUSTOMER NAME :

CUSTOMER ADDRESS :

CUSTOMER TEL# :

Name of dealer / outlet where you purchased your VF-Eng product :

Did you install the supercharger/turbocharger system yourself? Yes / No

VEHICLE KIT FITTED TO :

MAKE / MODEL / YEAR

MILEAGE OF VEHICLE :

CUSTOMER COMMENTS :