

ZURICH ENGINEERING, INC.
VW GOLF / CORRADO / PASSAT / JETTA / VENTO

SUPERCHARGER KIT PRODUCT DOCUMENTATION

NOTE TO VENDOR:
THIS DOCUMENT MUST BE BROUGHT TO THE ATTENTION OF THE CONSUMER

NOTE TO CONSUMER:
PLEASE READ CAREFULLY
COMPLETE THE PRODUCT REGISTRATION AT THE END OF THIS BOOKLET
CHECK OUR WEBSITE FOR PRODUCTS UPDATES AND NEW INFORMATION www.z-engineeringUSA.com

VW MK3 / Corrado / Passat / Vento Supercharger kit

PARTS LIST

- ZR1 Supercharger unit with VR6 mounting bracket attached
- Triangle flange plate
- 2x M8 studs, 2x M8 nuts, 1x M8 bolt, 3x M8 spring washers for above flange plate.
- Black non return valve
- Sachet of thread lock: Loctite
- 7 groove double-sided alternator belt
- Bosch 4.0 bar fuel pressure regulator
- Replacement silicon vacuum hose for fuel pressure regulator
- K&N induction cone filter (Corrado uses smaller size filter)
- K&N Smog pump filter for OBD2
- FILTER to S/C, silicon duct with 3 hose clamps
- S/C to MAF, silicon duct with 2 hose clamps
- MAF to TB, silicon duct with 2 hose clamps
- OBD2 end cap fitted to above duct
- OBD1 connector sleeve for MAF to TB silicon duct.
- charcoal canister relocation kit: 2 piece fuel emission line with extension connectors and 4 cable ties.
- 10cm strip edge protector
- ECU chip
- Alternator bracket with replacement alternator bolts and idler pulley mechanism
- License plate holder (USA)
- Assorted stickers (when available)

WHEN FITTING TO A CORRADO, THE RECIRCULATION KIT IS REQUIRED. THIS CONTAINS

- Bosch pressure recirculation valve
- Silicon vacuum line with T-piece
- 6x 3inch dia Steel tube with T fitting
- 50mm x 15mm dia Silicon hose to connect recirc valve to tube with hose clamps
- Silicon elbow from maf to filter with hose clamps
- Wiring extension harness for MAF with heat shrink
(see separate fitting instructions at end)

ABBREVIATIONS

(ECU) Electronic Control Unit
 (MAF) Mass Air Flow sensor
 (S/C) Supercharger unit
 (TB) Throttle body
 (CH) Cylinder Head
 (IPM) Idler Pulley Mechanism

RECOMMENDED Extras

A boost gauge is a must.
 Bosch Spark Plug F6DTC in hot climates, platinum plugs for cooler climates.
 8mm Spark Plug Wires or new stock wires.
 Oil change VAG semi synthetic oil OE recommended.
 Spare silicon vacuum hose to replace old original vacuum lines.

TOOLS REQUIRED

Trolley jack to lift engine
 10mm, 13mm, 17mm open end (spanner)
 17mm socket on extension arm with ratchet drive
 13mm socket on small ratchet drive
 No.6 hex on ratchet / Allen key
 cross head and flat screw driver
 Equipment to replace ECU chip

Estimated fitting time: 4 hours

Compatibility:

Fits US models:

Golf3 VR6-GTI 91>98
 Jetta3 VR6-GLX >98
 Corrado VR6-SLC all yrs
 Passat B4 VR6-GLX

Fits Euro models:

Golf3 VR6 91>98
 Golf3 VR6 Syncro 2.9
 Vento VR6 95>98
 Corrado VR6 2.9
 Passat B4 VR6

Stage1:

power increased from 172 to 250 bhp
 Torque increased from 170 to 225 lbs/ft

Stage 2 for +25hp

Upated Fuel Pressure regulator
 Stage 2 chip
 DSR 256 cams.
 Cams supplied by www.dynospotracing.com

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	REGULARLY CHECK THE WEBSITE FOR LATEST PRODUCT UPDATES AND CHANGES.	
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DRAWN	MFG ENG	
QUAL ENG	FINISH	REVISION: 28-DEC-01

VR6 engine variations

- 1991>95 OBD1 Distributor ignition. Mechanical throttle body with external idle stabilization. ECU uses a 28 pin EPROM memory chip. Euro versions may come without air conditioning.
- 1995 Mixed OBD systems, but has OBD1 specs. Euro versions may come without air conditioning.
- 1996-98 OBD2 Ignition coil pack. Idle stabilization built into throttle body. ECU use a 44 pin PLCC chip. All fitted with Air conditioning.
- Corrado VR6 (does not apply to EURO Corrado) The S/C same kit fits, but the S/C snail housing must be rotated by one bolt hole in a clockwise rotation in order to clear the US style AC lines. All the silicon hoses must also be cut down carefully for tighter fit against inner wing (fender) by intake and to account for rotating S/C snail.

Supercharger kit variations.

- You must specify if your car does not have air conditioning, as the supercharger idler bracket is different. The supercharger kit for non-a/c comes with idler bracket consisting of 2 pulleys whereas the kit for the a/c comes with an idler bracket with 1 idler pulley only.
- Automatic transmission No change to fitting method (see notes on Auto transmission)
- Aftermarket air-conditioning check the pump and alternator will accept s/c kit brackets
- Left Hand Drive (LHD) or Right Hand Drive (RHD) No change to fitting method
- The rest of the kit is the same for all year of VR6 1991-1998

PRIOR TO FITTING

It is recommended that the engine is service components are checked and cleaned and if possible the ECU error codes be checked and cleared.

Check following parts:

- Distributor Cap and Rotor arm
- Lambda (O2) sensor connection
- MAF sensor plug terminals and connection
- Vacuum hoses tend to harden and crack

These instruction we written for fitment to a stock engine.

This kit will fit a modified motor, but software may not provide optimum performance due to other modifications you may have already made.

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FITTING PROCEDURE

Assume fitting is for engine variation: *OBD1 & OBD2*.
Additional notes are provided for other variations.
FIRST: Disconnect the battery.

Removing air box intake system.

Unscrew the MAF sensor from the air box. Unclip and remove the complete air box (disconnecting the smog pump snorkel, US OBD2 version). Loosen complete intake duct and remove from throttle body and keep MAF sitting in engine bay.

The crankcase breather hose and oil catch tank, connects between the cam cover and the air intake duct. Gently separate leaving the oil catch tank (diaphragm on OBD2) connected to the cam cover breather.

Re-locating the charcoal filter

The purpose of relocating this filter is to improve airflow into the engine bay and the intake filter. It is not a necessary procedure.

Remove the charcoal filter canister by unhooking it from underneath the passenger side (for left hand drive cars) chassis leg. Cut both the hoses connected to it about 10cm from the canister and using extension hoses supplied extend the fitment of the canister to the opposite chassis leg and secure with cable ties. Carefully route the extension hoses along under the front panel and secure with cable ties supplied. Ensure the hoses are not pinched and not slack. Ensure the hoses do not come into the path of the fans or any constrictions.

In some later models of VR6 the charcoal canister has been superseded with a plastic pump mechanism which does not need to be extended and can be secured by cable ties to one side.

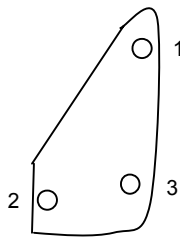
Removing the VAG alternator belt idler pulley mechanism (IPM)

Screw an 8mm bolt; into the IPM to depresses the internal spring to slacken the alternator belt. Remove belt. Remove the IPM by removing all 3 bolts holding it to the cylinder head.

Fitting the S/C triangular mounting plate

The triangular flange plate should be bolted to the place where factory belt tensioner was located as per diagram to the left.
In this order: Bolt the plate to the cylinder head in this upright position using the bolt and spring washer provided (do not tighten fully)

Fit both shouldered studs with Loctite through holes 2 and 3 until they are locked in. Then tighten bolt 1.



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Fitting the new belt idler bracket to the alternator

Ensure parking brake is activated and first gear is selected. Completely remove the front engine mount bolt from the top and store in safe place.

Use trolley jack to raise engine by approx 2 inches to provide sufficient access to both bolts securing the alternator to its bracket. Completely remove the 2 bolts holding the alternator.

Fit the new idler bracket over face of alternator. Secure bracket to the alternator firmly using 2 longer bolts supplied with new bracket. Lower the engine to original position and re-secure the front engine mount. Note: the idler pulley mechanism is supplied slack and needs to be tightened when making final tension adjustment on new alternator belt. The stud provided is not locked into the support bolt. In some cases the when applying final alternator belt tension the stud may be protrude too much and as such can be threaded back into the support bolt before securing.

Fuel pressure regulator (FPR)

The FPR must be upgraded to 4.0 bar. The kit is supplied with a direct replacement Bosch FPR, which is an exact swap. The FPR is a small silver item found fitted into the right end of the injector rail. It is held in place by a sprung C-clip, which must be carefully prized without damaging the housing on the rail. Remove the vacuum connection to the regulator. Once the C-clip is removed the regulator must be removed upwards and is only held in place by 2 rubber o-rings. Remove original FPR (NOTE: Fuel that is sitting in the injector rail may gush out: place a dry clean cloth around the regulator to absorb the fuel that will escape.) Dispose of this cloth appropriately. Re-fit the new regulator and clip. (Note: be careful not to damage the thin connection neck on the regulator, as it is delicate.) The factory vacuum line that connects to the FPR damages easily, so a replacement piece of silicon hose is provided with the kit for this purpose.

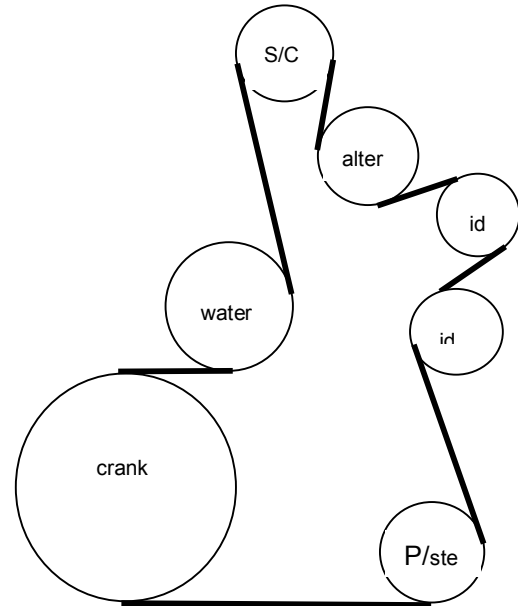
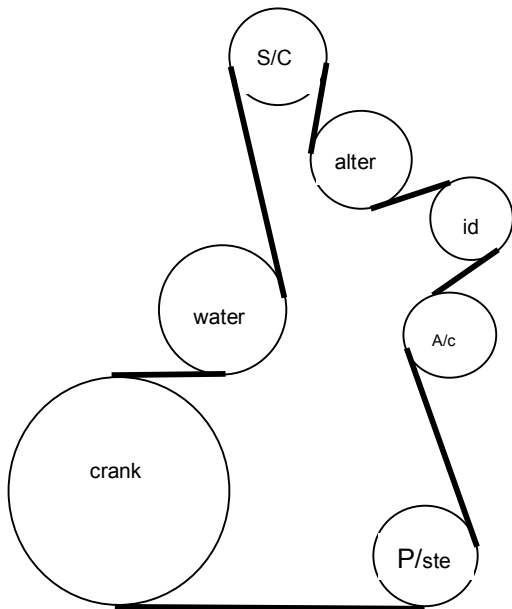
Non-return valve (NRV)

This is a small black plastic check valve and has a flow direction arrow on it. The NRV must be fitted in line with the vacuum connection that runs between the charcoal canister which is mounted on the passenger side inner wing (just beneath the air box) to the side of the neck of the inlet manifold where the throttle body connected.

Locate this vacuum hose and about 5 cm from where it connects to the side of the inlet manifold cut it and fit the NRV inline, pointing in the direction of the Inlet Manifold. Position this vacuum line so that it does not sit on the exhaust shield and is clear from other moving parts.

Fitting the alternator belt

The Alternator belt should be fitted as per this diagram. Ensure that the belt is fitted over all the grooves in all the Pulleys to ensure correct belt alignment. PULL on the belt to ensure it clicks into all the grooves in all the pulleys. The belt is double sided and can be fitted either way around. It may be easier to fit the belt from the top of the engine bay and use a long screwdriver to guide the belt over the pulleys.



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Fitting the supercharger

For ease of fitting, place the cone air filter behind the headlamp before securing the s/c.



Main Bracket assembly

The main C bracket is fitted onto the supercharger as shown in the pic on the left.

Note, once the supercharger is fitted remove the black adhesive label on the collar of the impeller housing. This exposes the oil breather vent.

The supercharger is correctly configured with the mounting bracket attached. Position the supercharger over the studs and at the same time loop the new alternator belt over the supercharger pulley. The supercharger bracket should fit on to the 2 studs in holes 2 and 3. Place a spring washer over each protruding stud and hand tighten. One of the holes on the supercharger bracket is slotted and this allows you to angulate the supercharger so that it clears the fuel rail. Once in position (usually half way along the slot) tighten the 2 nuts. Check all parts are secured. REMOVE THE BLACK ADHESIVE STICKER NEAR THE SMALL IMPELLER PULLEY. THIS EXPOSES THE OIL BREATHER VENT.

Fitting the supercharger intake duct and oil breather (shortened version of duct)

Fit the protective edged strip to the exposed edge on the chassis rail to prevent the filter from chaffing against it. Remove the protective cap from the intake of the supercharger unit. Remove the clamps and filter collar ring from the intake duct. Squeeze the intake duct sufficiently to push it into the space between the supercharger and behind the headlamp. Fit the intake duct to the s/c intake and secure with hose clamp. Put the filter collar back into the duct intake opening and slide the filter over the silicon intake and secure over the collar with the hose clamp. Ensure that the filter is positioned with adequate clearance all around to prevent chaffing during engine movement.

Feed the breather spout under the supercharger discharge and connect to the crankcase breather snorkel. On the US versions, connect to and retain the integrated heater. Ensure this oil breather does not kink or chafe against anything. If necessary, make adjustments to suit. (NOTE: It is vital that the breather does not kink as restricted flow can cause long term damage)

Fitting the supercharger link ducts for all cars except Corrado

The elbow from the s/c discharge to the MAF can be identified as a single piece with no connections running off it. Position onto supercharger and connect to the MAF ensuring that the MAF is pointed in the correct direction (a directional of flow is marked on it, which should point towards the TB). Position the second silicon duct on the MAF and connect to the TB. Note this duct has a spout. If fitting to an OBD1 connect the idle stabilization valve to this using the straight fitting supplied. If fitting to an OBD2, push fit the block cap supplied, all the way in.

Inspect and adjust duct as necessary to avoid chaffing against the underside of the hood. Then finally secure all hose clamps.

Fitting the ducts when working on a Corrado VR6 (pictures provided with this kit)

The AC line retaining bracket on the chassis turret has to be removed and bent to elongate, hence moving the AC line in a parallel direction to the left. The intake silicon duct must be greatly cut down to allow it to fit without rubbing against the left inner fender wall. After fitting the intake duct, connect the MAF to it ensuring its direction is correct and then connect special elbow provided. This will be visible from underneath and the filter should be attached to the elbow from below. It may be easier to attach the filter to the elbow and then feed it up to the MAF from under the car and securing the hose clamp from the top.

The second duct should be fitted to the SC discharge and clamped onto the Steel tube, with the re-circulation valve in rotated in a clear space. The spout from the silicon intake hose should be routed to the re-circ valve and the final duct connect between the steel tube and the throttle body. Connect the vacuum line between the re-circ valve and the vacuum line coming from the intake manifold using the T piece.

Inspect and adjust duct as necessary to avoid chaffing against the underside of the hood. Then finally secure all hose clamps.

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Fitting the chip

The ECU (Electronic control unit) is located in beneath a black 2-piece plastic rain guard at the bottom of the front windshield. Looking from the front. On a Right Hand Drive car the ECU is the right corner but on a Left hand drive car it is found in the left corner.

Disconnect the battery and ensure the connections are isolated. Remove the appropriate rain guard by removing the 4 black plastic screws. (Care: the guard is quite easy to break so do not forcibly remove it) The ECU is a black plastic box with a rectangular plug connector. The ECU is mounted on a bracket that is secured to the car by a 10mm head nut and bolt. Remove both of these. Disconnect the ECU by carefully sliding the head of the plug to the side. Carefully examine the plug (use a light torch if necessary) and study which direction to slide the plug. DO NOT forcibly remove the plug but it is usually a tight connection.

Remove the ECU together with its bracket. Separate the ECU from the bracket. Place the ECU on an earthed mat on a workbench in a clean environment. Open the ECU by removing 4 screws and gently slide the circuit board out. It may be seized with corrosion, so use care! The chip to swap can be found on the printed circuit board already mounted inside a socket. Note the position of LEG #1 of the chip. Using a chip removal tool, replace with the new chip, ensuring the notch on the chip is in the same position. Close the ECU and refit back into the vehicle. Then re-connect the battery.

NOTE: IF YOU ARE NOT PROPERLY EARTHED AND THE WORKBENCH IS NOT EARTHED, YOU MAY CAUSE PERMANENT DAMAGE TO THE ECU. Z-ENGINEERING RECOMMENDS THAT ONLY TRAINED OR EXPERIENCED PERSONNEL CARRY OUT THIS PROCEDURE, OR TAKE THE ADVISE FROM YOU DEALER ON HOW TO FIT.

BEFORE DRIVING YOUR CAR WITH THE NEW SUPERCHARGER

Before starting your vehicle check that you have not left any parts loose or any parts/tools in the engine bay. Note: when first starting the vehicle, allow it to self adjust and idle for 15 minutes before driving for the first time. Do not over rev the engine and after idling, switch off engine and conduct a thorough second inspection of the fitment before driving the car. After and initial drive, recheck all parts and bolts fitted.

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NOTES

RUNNING IN

Note: The new alternator belt will stretch for the first 500 miles. As it stretches the supercharger will not run efficiently and you will notice a small drop in power. If you do notice a drop in power, check the tension on the main alternator belt. You should be able to twist it by 30 degrees on the longest run. If it needs to be tensioned, slacken the idler pulley on the alternator bracket and increase alternator belt tension by tightening the nut on the tensioner stud. Do not over tighten and to keep a control, do not tighten more than 1-2 full turns per attempt. Re-tighten the idler pulley and drive vehicle. This process may need to be iterated (Note: a loss in power may not be solely attributed to a loose alternator belt).

MAINTENANCE INSTRUCTIONS OF KIT

We recommend you go over the system every 4 weeks or 1200 miles whichever ever comes sooner. Keep a close check on the air filter when you perform your routine maintenance, ensure that it is clean and if necessary replace. Check that no parts have loosened off, and that the charcoal canister extension pipes are in good condition, they must not pinch and be clear from the cooling fans. Check the oil breather and ensure it is not kinked or damaged. Check that the ducting and intake ducting are all secure. It is recommended to loosen the intake duct from the supercharger every 3 months and visually check the inside and clean using a dry cloth to remove excess oil breathed through the system. Keep the supercharger clean. You may notice a slight build up of rubber on the surface around the shaft neck on the supercharger. This is sprayed off the belt and should be cleaned off from time to time.

VEHICLE CARE INSTRUCTIONS

You should always use the highest-grade octane of fuel available. Where possible, try to use the same fuel supplier and brand of fuel. Avoid running your vehicle when low on fuel. Try to keep at least a quarter tank at all times.

- Spark plugs must be changed every 5000 - 7500 miles.
- Spark plug leads must be changed every 10-12000 miles.
- Engine oil must be changed every 3,000 - 5000 miles.

We recommend the use of original equipment, available from your local VW dealer. We suggest Synta semi-synthetic oil as supplied by VW, or something comparable. In Europe, Platinum spark plugs are suggested in combination with high-octane fuel.

CRITICAL ADVISE

A supercharged engine should never be driven hard when the engine is cold. Hard driving a cold engine is a certain way to damage the engine and gearbox. This rule actually is common sense and applies to non-supercharged cars too. If this is ignored and engine failure occurs, upon rebuild, reason for failure can be identified.

PROBLEM SOLVING

Air leaks are very rare and can be identified by spraying a mist of oil over sleeve connections. Check all jubilee clips are correctly aligned and adjusted.

ECU errors occur if you start your supercharged car without changing the chip first errors will be generated. Try to fit the kit by disturbing as few parts and connections as possible.

Vacuum leaks are common on older VR6s. The cloth covering on the factory vacuum lines tends to hide cracks in the rubber lines which arise due to heat. All these lines should be replaced with correctly rated hose and matched inner diameter.

Car does not start with new chip fitted this is usually down to poor chip connections. Both the 28 pin EPROM and the 44 pin 16 bit chips tend to form an oxide coat on the pins. They should be cleaned prior to fitment. The poor connection could be down to the fitment of the chip socket. If the joints are dry then problems will arise. Also make SURE the socket and chip is fitted in the right way round (failure to check this will cause the chip to lose its information).

Clunk sound when accelerating this is usually the air mass meter. As it is fitted quite close to the front suspension turret, the positioning of the silicon ducts may need to be adjusted to give more clearance with turret. If the front engine mount is replaced with an uprated mount, the engine lift under acceleration would be reduced and the air mass meter would not knock against the suspension turret.

Loss in power: the supercharger is probably not boosting. This would be because the input drive (alternator belt) may be slipping, as it is loose. Side effects of this problem are, screeching noise of belt slipping, power dips above 4000 rpm, strong smell of gas (petrol). This is the extra fuel provided for the boost at the top end, but as boost is not delivered, fuel is not burnt. Hence smell. If the alternator belt is not loose, the integrated supercharger pulley belt may be loose, contact your dealer for instructions if this happens.

Problems with initial start up The supercharged car should run and idle cleanly on the stock chip. But do not drive hard or over 400 rpm on stock chip. If the engine does not idle properly on the stock chip, this indicates a fault. Check above points.

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DRIVING YOUR CAR WITHOUT THE MODIFIED CHIP

The modified chip changes ignition timing and fuel delivery and other aspects of engine management. By driving your supercharged car without this chip, you run the chance of detonation and fuel starvation when driving above 4000 rpm. It is safe to move the car about, but not to drive hard.

ACCESSORIES

Boost gauges are a visual aid to keeping check that your supercharger system is performing correctly. This is easy to fit. The ideal position to measure vacuum from is a factory nib on the vacuum connection to the brake servo.

Dump valves are not a critical fitment and are not required with the Z-Engineering superchargers. Dump valves are used to bleed off boost when the throttle body is closed (when the car runs onto vacuum). But the Z-Engineering supercharger is designed to work with backpressure when the throttle body is shut.

TRANSPONDER SECURITY

1996 onwards VW vehicles were mostly fitted with transponder security systems. This code is not kept in the engine management chip. Therefore the chip we provide you with, will not affect the transponder system.

AUTO TRANSMISSION

The VR6 automatic gearbox is controlled by a self-learning ECU. In the early cars the ECU is separate to the main engine ECU and could be found under the rear set. For the late cars the electronics are integrated into the main ECU. This has no bearing on supercharging.

If driven in AUTO mode, the gearbox changes gears automatically at the RPMs it has either:

- 1) learnt from the first 5mins of driving from morning start up.
- 2) Programmed manually in the first 5mins of driving that morning by shifting the gears manually.

Our customers experience has been to shift the gears manually all the time. To experience the fun.

AIR CONDITIONING/CLIMATE CONTROL

Both of these systems operate the same mechanical mechanisms, however the only difference is the control units. This has no bearing on supercharger conversions. However there is one area for variation. This is the shape of the casting of the alternator casing. This may become an area requiring modification. In Europe we have found that vanes on the face of the alternator on the side of the pulley, get in the way of the s/c alternator idler bracket. This may require you to modify the vanes by removing 2-3mm off the obstructing vane. (very rare)

AFTERMARKET AIR CONDITIONING.

We have noticed a stalling problem when supercharging cars fitted with aftermarket air conditioning. We believe this was related to the fact that when a/c is retro fitted, a larger alternator should be fitted. This is usually overlooked by most a/c companies and not regarded as necessary, but it does become an issue when supercharging such a car.

SMOG DEVICE

The emissions control device for smog reduction as fitted on the front of the motor on all US factory VR6s needs to be removed and re-fitted. This takes about an extra half hour labor and bracket must be made to mount it to the front panel. This must be moved as it obstructs the fitment of the s/c alternator idler bracket. Please speak to your dealer definitive information.

SUPERCHARGING A TRANSPLANTED ENGINE

If you are fitting a supercharger kit to an engine, which has been retro fitted into a chassis, then there are several issues to consider.

- 1. Charcoal filter. This is not usually retro fitted and therefore the Non Return Valve supplied in the kit need not be fitted.
- 2. Fuel pump is this usually not uprated and an original (same pump as before conv.) pump is likely to fail after some months. This should be checked and the fuel pressure of the pump must be verified. A rising rate fuel pressure regulator is sometimes a cure to fuelling problems on such conversions. But we do not recommend fitting such a device.
- 3. Drive shafts: Please check the condition of the ball joints if you are still using mk2 drive shafts (G60 shafts are recommended.)
- 4. The exhaust if not at least a 16v model would restrict the supercharged engine and therefore must be examined.
- 5. On the Golf 2, in the front inner wing, there is a panel, which can be pushed out to feed the air intake through.

TERMS AND CONDITIONS

Z-Engineering, USA and its supercharger kits are void if the product was not installed by a certified auto mechanic, improperly serviced, modified, or used in a way not intended by Z-Engineering.

No liability is accepted for improper use or if any of our parts are modified, incorrectly fitted, or substituted.

Not all guidelines given are deemed to be definitive and only to be used as a guide.

Opinions, quoted facts and advises that are given should not be treated as definitive statement

NOTE: IF IN DOUBT ALWAYS REFER TO YOUR DEALER. NEVER FORCE FIT A PART

Thank you for purchasing our kit and choosing Z-Engineering.

Z-Engineering promotes safe and courteous driving at all times on public roads.

SEE ATTACHED DOCUMENTS: KIT WARRANTY / SUPERCHARGER WARRANTY / PRODUCT REGISTRATION / OIL RE-FILLING NOTES

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SUPERCHARGER KIT LIMITED WARRANTY

1. The term Supercharger Kit refers to the products described under the Applications listings on the Z-Engineering website.
2. The Supercharger Kit consists of the ZR01 unit, brackets, hardware, ducting and ECU upgrade software.
3. This warranty is provided to the original purchaser of the Supercharger Kit for the parts in the Supercharger Kit only.
4. The supercharger unit terms are subject to the *ZR Supercharger Warranty*. ECU upgrade software provided by GIAC USA is subject to their terms and conditions.
5. Co-existing conditions of this warranty include website terms and conditions notice
6. The terms of this warranty specify that the Supercharger Kit shall remain free from material and operational defect for the period of 12 months or 36,000 miles, whichever occurs sooner, subject to the terms set below:
7. warranty cover for the Supercharger Kit is excluded under the following conditions.

- i. You are not the original purchaser. See term 8.
- ii. The supercharger must not be modified, disassembled, tampered in part or whole.
- iii. The ZR01 drive pulley, the step pulley must not be changed and the original pulley seals must remain intact.
- iv. The conversion must be allowed to 'break in' for a period of 300-500 miles and inspected as per maintenance instructions below.
- v. The main serpentine belt must not be excessively tensioned.
- vi. The Supercharger Kit must be maintained according the minimum service requirements as listed under the maintenance schedule below.
- vii. Acts of God, normal wear and tear, rust damage, damage to vehicle or engine caused by backfire, engine failure, accident collision.
- viii. Improper installation, not following installation instructions provided, or installation by an unskilled person.
- ix. Over-speeding the supercharger by any method including under-drive accessory pulleys.
- x. Damage resulting from entry of foreign particles.
- xi. If the supercharged car is driven after an uncorrected fault has been detected.
- xii. Any faults/irregular noises are not advised to your vendor.

8. An exception to term 7.i.) may be granted at the discretion of Zurich Engineering, Inc. Subject to submitting an application with proof of date of original purchase and bill of sale to second owner.
9. 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 and no guarantee is given that every car will achieve the same results as pre-existing conditions may effect results.
10. All incidental and consequential damages are hereby excluded unless specified otherwise.
11. This warranty does not cover costs incurred for towing, car hire, labor costs for replacement, loss of use, or any other subsequent loss.

MAINTENANCE INSTRUCTIONS FOR THE SUPERCHARGER KIT

Caring for your kit (mandatory procedures)

12. After fitting, the new supercharger kit should be allowed to bed in for a run-in period of 300-500 miles during which the engine should not be driven over 4500 rpm.
13. The Supercharger unit, should be maintained in accordance with the instructions provided under its warranty schedule.
14. The supercharger kit as fitted, should be routinely inspected. Items to check are

- i. Check all bolts fitted remain correctly tensioned
- ii. Correct serpentine belt tension
- iii. Air Filter should be free from damage / blockage and replaced if necessary
- iv. Supercharger integrated belt and main serpentine belt must be kept clean of small embedded particles, and replaced at recommended intervals.
- v. Ducting should be secure and not chaffing other components
- vi. Oil Breather ducting must be free from kinks / blocked path

15. In case of recurring mis-firing or detonation / pinging you should contact your vendor. By following these procedures you will ensure long term durability and reliability from your conversion.

ALWAYS DOUBLE CHECK FITMENT AND MAINTAIN PRODUCT AT REGULAR INTERVALS	CHECKED	Zurich Engineering, Inc. www.z-engineeringUSA.com
	REGULARLY CHECK THE WEBSITE FOR LATEST PRODUCT UPDATES AND CHANGES.	
TOLERANCE		1991-1999 VW VR6 SUPERCHARGER
DRAWN	MFG ENG	
QUAL ENG	FINISH	REVISION: 28-DEC-01

THE PRODUCT AND INFORMATION SUPPLIED IS THE SOLE PROPERTY OF ZURICH ENGINEERING, INC. ANY REPRODUCTION IN PART OR WHOLE WITHOUT THE WRITTEN PERMISSION OF ZURICH ENGINEERING, INC. IS PROHIBITED.

MAINTENANCE OF YOUR SUPERCHARGED VEHICLE

- 16. 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 leads, ignition coil, and air mass sensor should be inspected and replaced where needed.
- 17. 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 driving hard. Full operating temperature is generally achieved only after the engine water temperature has reached the 'normal' indicated operating range for 2-3 minutes.
- 18. Always use the highest grade of fuel available 92 Octane (USA), 98 octane (Europe) Super Plus Unleaded. Where possible try to use the same brand of fuel. Where possible do not use fuels sold at supermarket service stations.

We recommend using manufacturer recommended service components or taking the advise from our dealers specializing in the different makes of cars.

- 19. Spark Plugs need to be changed at intervals of 15,000 miles or sooner. Eg. for Volkswagen models, in hot countries we recommend Bosch W6DTC copper electrode plugs. In cooler climates we recommend Bosch Platinum.
- 20. 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.
- 21. Engine oil should be changed every 3-5,000 miles. Eg. for Volkswagen models we recommend the use of Volkswagen approved Synta Oil only part no.115VAG406. Do not mix different grades of Synta Oil.

ZR01 SUPERCHARGER UNIT LIMITED WARRANTY

- 22. A WARRANTY is provided to the original purchaser of the ZR01 supercharger for the ZR01 supercharger unit only, by the manufacturer: Z-Engineering GmbH, a firm of Switzerland.
- 23. Co-existing conditions of this WARRANTY include the website terms and conditions notice and the terms supercharger kit WARRANTY
- 24. The terms of this warranty specify that the ZR01 shall remain free from material and operational defect for the period of 12 months or 36,000 miles, whichever occurs sooner, subject to the terms set below:
- 25. WARRANTY cover for the ZR01 is excluded under the following conditions:

- i. You are not the original purchaser. See term 26)
- ii. The supercharger must not be modified, disassembled, tampered in part or whole.
- iii. The ZR01 drive pulley, the step pulley must not be changed and the original pulley seals must remain intact.
- iv. The original Zurich Engineering, Inc. Stamped serial number must not be obscured or defaced.
- v. Excessive belt tension on the step pulley.
- vi. The supercharger must be maintained according the minimum service requirements as listed under the maintenance schedule below.
- vii. The supercharger integrated belts must be correctly tensioned. See maintenance schedule below for information on setting correct tension.
- viii. Acts of God, normal wear and tear, damage to a vehicle or engine caused by backfire, engine failure or accident collision.
- ix. Improper installation.
- x. Over-speeding the supercharger by any method including under-drive accessory pulleys.
- xi. Damage resulting from entry of foreign particles.

- 26. An exception to term 25.i.) may be granted at the discretion of Zurich Engineering, Inc. Subject to submitting an application with proof of date of original purchase and bill of sale to second owner.
- 27. All incidental and consequential damages are hereby excluded unless specified otherwise.
- 28. This WARRANTY does not cover costs incurred for towing, car hire, labor costs for replacement, loss of use, or any other subsequent loss.

Version 2.0 Effective 31-Jul-2001

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ALWAYS DOUBLE CHECK FITMENT AND MAINTAIN PRODUCT AT REGULAR INTERVALS	CHECKED	Zurich Engineering, Inc. www.z-engineeringUSA.com
	REGULARLY CHECK THE WEBSITE FOR LATEST PRODUCT UPDATES AND CHANGES.	
TOLERANCE		1991-1999 VW VR6 SUPERCHARGER
DRAWN	MFG ENG	
QUAL ENG	FINISH	REVISION: 28-DEC-01

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RE-FILLING SUPERCHARGER OIL

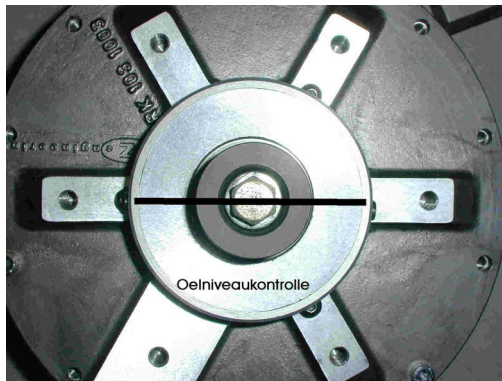
Every 15,000 miles the oil level must be topped up. Remove one level screw and fill to half level. Refit level screw.

2

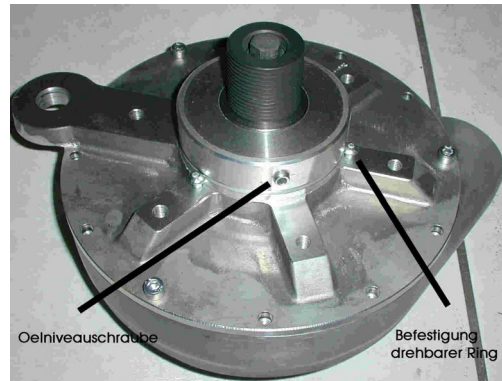
Use oil supplied by Z-Engineering only.

Replace twin supercharger belt every 20,000 miles.

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TOLERANCE		1991-1999 VW VR6 SUPERCHARGER
DRAWN	MFG ENG	
QUAL ENG	FINISH	REVISION: 28-DEC-01

PRODUCT REGISTRATION.

Please mail to

Zurich Engineering, Inc.
1350 N Hundley Street,
Anaheim, CA 92806

SUPERCHARGER SERIAL#

SUPERCHARGER APPLICATION:

CONSUMERS NAME:

DATE OF PURCHASE:

PRODUCT PURCHASED FROM:

DATE FITTED:

VEHICLE KIT FITTED TO:

MAKE / MODEL / YEAR

MILEAGE OF VEHICLE:

DUCTING COLOUR

CUSTOMER COMMENTS: