

**SUPERCHARGER KIT INSTALLATION II  
FOR RABBIT, SCIROCCO, JETTA I,**

Congratulations on your purchase of the Autotech Supercharger Kit for water-cooled Volkswagens. The kit contains high quality components including a cast intake manifold and air plenum, modified turbo warm-up regulator, boost guage, hoses, hardware, machined pulleys, and the Magnacharger supercharger..

The Magnacharger is an 80 cubic inch version featuring "cam style" impellers with Teflon seals for running the system without a requirement for fuel to cool it. This high-tech design is a step ahead of other blower units and makes it possible for reliable operation on modern fuel injected engines.

This installation will give you the benefit of more power and torque, while retaining driveability.  
(Please read the following instructions prior to installation)

**TOOLS REQUIRED**

6mm hex head driver - for intake manifold & throttle body  
(Snap-On #FAM6A).

Allen wrenches:       6mm - timing belt cover  
                          5mm - warm-up regulator  
                          4.5mm - blower housing cap screws (3/16")  
                          19mm box - cam bolt  
                          14mm box - idler pulley  
                          1/4" drill - for relocating coil  
                          3/8" drill - for vacuum line fitting

Standard screwdrivers, standard metric tools, a good torque wrench, file or grinder, and a hacksaw.

It is also highly recommended that you purchase a Bentley Service Manual for your model & year Volkswagen.

## TORQUE SPECS

Intake manifold	- 18	ft. lbs.
Brace @ intake manifold	- 14	ft. lbs.
Blower housings	- 15	ft. lbs.
Throttle body	- 15	ft. lbs.
Warm-up regulator to block	- 11	ft. lbs.
Warm-up reg./small fuel line	- 7.5	ft. lbs.
Warm-up reg./large fuel line	- 11	ft. lbs.
Cam pulley	- 58	ft. lbs.

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## LUBRICANTS

30 Weight quality petroleum oil - blower drive housing  
(pre-oiled)  
High temp, white Lithium bearing grease - driver's side blower  
housing.  
Fuel - Premium unleaded (preferably a 91 octane or above).

## INSTALLATION

1. Open your hood and label all hose and wire connections.
2. Remove the cam belt pulley cover.
3. Remove the plastic air duct from the air flow sensor to the throttle body.
4. Remove the brace between the intake and exhaust manifolds.
5. Remove the cold start valve from the intake manifold and tape to the firewall.
6. Remove the intake manifold from the cylinderhead and scrape off the old gasket.
7. Remove the auxiliary air regulator from the back of the intake manifold.
8. If your year vehicle is equipped with the air conditioning vacuum relays on the passenger side strut tower, the relays will have to be relocated slightly for supercharger clearance.
9. Move your ignition coil along the firewall so there will not be any interference with the plenum on the air inlet side of the supercharger kit with the throttle body installed.
10. Mount the special 90 degree hose ends on the center two fuel injectors on the cylinder head. The fittings should be canted at an angle toward the driver's side of the vehicle. (This would be a good time to check and make sure your injector seals are in good condition).

11. Bolt your throttle body to the air horn on the blower assembly using the new gasket supplied. (If your vehicle has a microswitch installed, re-adjust it so the detent is triggered as soon as possible). At this time, you should also bolt the air sensor to the blower housing.
12. Install the supercharger assembly into the vehicle and torque the intake manifold bolts to 18 ft. lbs. (It is best to have a friend help flex the top of the firewall back temporarily for easier access).
13. Install the cold start injector rotated 180 degrees so the electrical plug does not make contact with the firewall. This time should also be taken to install the brace between the air plenum and the exhaust manifold. It is very critical that this brace is incorporated in the system to maintain the integrity of the intake manifold. (If your car has a header system, you must fabricate a bracket that will prevent the intake manifold from seeing resonant forces).
14. Cut the black plastic air inlet pipe which connects the air flow sensor to the throttle body so that approximately 3" is removed from the center. This will vary slightly between models. Install the silicon coupling hose and tighten the hose clamps.
15. Drill a small hole on the end of the plastic tube near the throttle body boot facing forward. This can be accomplished using a 3/8" drill and then mount the hose barb fitting for the vacuum connection.
16. Install the plastic connecting tube between the throttle body and the air flow sensor. The steel tube going to the throttle body boot will have to be cut due to the extended length and bend. Use the 9mm vacuum hose and clamps for lengthening.
17. Remove the two fuel lines to the warm-up regulator, and then the stock warm-up regulator. On air conditioned cars, the bracket supporting the air-conditioning unit will have to be moved out of the way for better access to the warm-up regulator.
18. Install the modified turbo warm-up regulator in an inverted position. This allows easier plumbing of the vacuum lines once on. Reinstall the fuel lines routed from the top. Be careful to follow factory torque specs!
19. Using the 7mm vacuum hose and clamps, plumb a line off of the cast port on the passenger's side of the warm-up regulator and route to the tapped port on the intake manifold.

20. Route the 3.5mm vacuum hose and clamps from the small brass tube on the warm-up regulator to the brake booster check valve.
21. Using the remaining 7mm vacuum hose, route a line coming from the port on the face of the warm-up regulator to the hose barb you previously installed in the black plastic air tube which runs between the throttle body and the air flow sensor.
22. Install the throttle cable relocating bracket between the driver's side of the blower housing and the existing throttle bracket on the standard valve cover. (If you have an aftermarket valve cover, you will have to fabricate a good solid support for this bracket).
23. Install your boost gauge line from the driver's side of the intake manifold through the wiring access hole in the firewall. Cockpit installation of the gauge is to your discretion. Many installers choose to locate the boost gauge in the center of the existing gauge console if your vehicle is so equipped.
24. Take your standard timing belt cover and cut as per the diagram supplied in the illustrations. After deburring the rough edge with a file or die grinder, install the beeding supplied to cover up the exposed metal edge.
25. Prior to installing the drive pulley for the supercharger, check your standard timing belt for wear and replace if necessary.
26. Reinstall the cam belt cover.
27. Install the drive pulley for the supercharger in a "stacked" fashion over the cam pulley. (Note: There is a very small raised section on the center of the drive pulley that must fit into the depression in the cam pulley for centering. (If the pulley wobbles while running, it is not centered correctly). The two cast bosses on the back should be touching the trailing side of the holes in the cam pulley during rotation.
28. Using premium unleaded fuel in the engine, start it up and let it run at a fast idle with the belt disconnected for approximately 5 minutes. This will allow you to check for any leaks and lets the impellers on the supercharger to free-up a little bit before direct operation.
29. Install the short blower drive belt and adjust the idler pulley up until the belt can only be twisted approximately 45 degrees from center. (Note: The belt gets tighter when it heats up.) If the belt is not tight enough, the belt will make a chattering noise at the blower (driven pulley), moving back and forth.

30. Re-check all fittings and connections.
31. Start up the car and listen for leaks. The noise in the supercharger will be loud initially until the Teflon seals wear in.

If the car is very hard to start, or will not run, check the timing of the cam belt at the crank in relation to the intermediate shaft and camshaft. A good explanation of timing these components is found in the Bentley manual.

### TUNING

Due to the installation of your new warm-up regulator, it will be necessary to re-set your CO to the factory recommended settings. On cars with oxygen sensors, setting it in the center of the range is optimum. (This will prevent the oxygen sensor from trying to compensate for a mixture that is too rich or lean. By doing so, the idle will consistently hunt up and down.)

Cars without oxygen sensors can be adjusted on the rich side of the stock parameters set forth by the manufacturer.

Retention of your standard cam, or a supercharger cam is highly recommended. Long duration cams on force-fed engines means a premature evacuation of your inlet charge and a potential loss of power.

Distributor timing is best left in the stock location, but you may have to retard it slightly on some vehicles to prevent pinging if it is present. (The pinging condition can arise due to carbon build-up in the engine or too high a compression). **Performance Tip:** A recurved distributor with a shorter curve allows running more initial advance which greatly enhances low rpm response and acceleration!

A good high-grade spark plug should be used, such as the new Bosch Platinum (#WR7DP). Other electrical improvements include a performance spark plug wire set to carry all the current to fire the spark plug in a pressurized environment.

**Performance Tip:** The supercharger system responds very well to power increases, especially in the higher rpm's, when a good free-flow exhaust system is installed. The standard catalytic converter and emissions equipment can be retained with the proper replacement pieces.

## DRIVING

Superchargers are just an air compressing device that does not cause harm to engines with the proper amounts of fuel added and limitations on maximum boost levels.

As with any engine, you should be very deliberate with the cold start procedure. Cold start conditions require extra amounts of fuel added via the cold start injector mounted in the air plenum. During this time, engines are actually running very lean because the fuel pools in the bottom of the manifold and intake ports. The fuel will vaporize once heated to 153 degrees fahrenheit in the manifold. Hard acceleration during the cold start mode will cause the engine to cough due to the lack of fuel, and thus igniting the fuel on the manifold floor. (This can be harmful to the supercharger unit).

Extreme backfire conditions may cause the timing belt to jump a few teeth on the crank sprocket, and thus cause the engine to go out of time between the crank, distributor, and cam.

The only other potential condition for a backfire is if the engine's redline is exceeded and the valves go into a "float" condition. This happens when the rpm's are so high, the valve springs no longer have enough tension to make the valves follow the ramp of the cam during closing. This condition of "lag time" when still open allows the combustion to ignite the incoming fuel and cause a backfire.

Another condition that should be avoided is running the engine hard (in high boost mode) for extended durations. As with any engine, this keeps building up heat in the combustion chamber which could reduce the longevity of your engine.

While driving your vehicle, you should be aware of the extra torque and power developed. This can put more load on your drivetrain components depending upon your driving techniques. It is recommended you run a stronger clutch assembly if you will be accelerating hard off the line.

Get to know the handling of your vehicle in low traction conditions. Having the extra power being delivered smoothly can be an asset when avoiding potentially dangerous situations with the proper driving techniques. It is always good to know your vehicle's capabilities.

Fuel mileage should be very similar to stock unless driven hard. Hard driving will use more fuel than a stock engine, meaning that mileage can vary from as much as 35 mpg to as little as 17 mpg. On the average, you will lose approximately 3 miles per gallon after the initial excitement has settled down.

NOTE: The supercharger unit itself will be noisy for the first 1,000 miles during break-in of the Teflon seals. Soon, the noise will go away and it will only be apparent under acceleration.

### MAINTENANCE

The supercharger is a very reliable unit when properly maintained. The blower housing oil should be changed with the engine oil every 3,000 miles. It is recommended you use a 30 weight petroleum oil in the nose drive. To drain the nose drive, remove the lowest 4.5mm (3/16") allen plug. Replace the lower plug after the contents have drained and then remove both the side plug (fill line), and the top plug for pouring. Pour the oil in until it starts to ooze out of the side plug (fill line), and then replace the plugs.

The end of the blower facing the driver's side of the vehicle should be maintained by removing the 5 allen bolt end-cap and repacking with a high temperature white lithium bearing grease. This interval should be followed every 10,000 miles.

Replacement blower drive belts are available through Autotech, part #10.200.570.

We hope you will have great pleasure in driving your vehicle with this system installed. If you should have any questions regarding the system, don't hesitate to call us or one of our distributors.

Dayco Belts  
Dakota  
270.H/100  
29.9/10  
Power Transmission