

Autotech Supercharger - Circa 1986

There is very little information online about the supercharger that **Autotech** sold around 1986. This page will attempt to compile whatever information can be found. If you know anything about it, please [email](#).

Application: A1/A2 8V VW engines

Supercharger made by Magnacharger (Type 80).

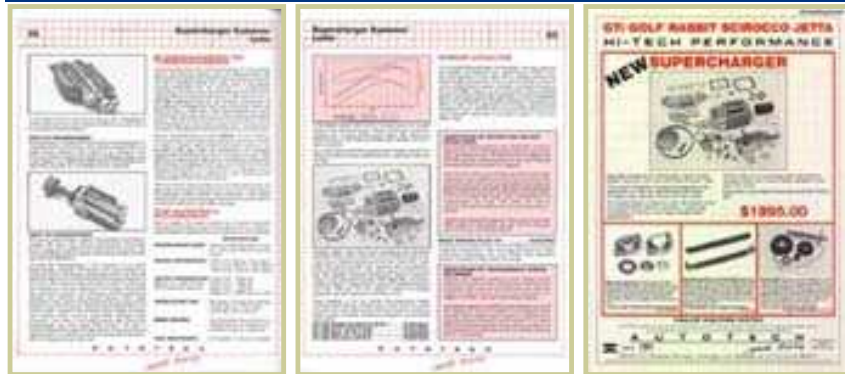


I have been told by other owners of this supercharger that **REMOVED** would be able to rebuild the old Type 80. Upon confirmation of this, I will update this page with more information.

*9/20/04 It has been confirmed that **REMOVED** will work on the MC80. They are very busy, so don't be in a hurry. All parts are available except the rotors. If the rotors are damaged, you have an expensive paperweight.*

1/15/07 Over two years and I still haven't gotten my MC80 back from the people that were supposed to inspect and rebuild it. Did it need rebuilding? Probably not, but my intention was to daily drive it and I figured better safe than sorry. It may go up for sale when I get it back.

Sales Literature For The Autotech Magnacharger Supercharger Kit



Installation Instructions And Supercharger Assembly Drawings



This is a 1 page .PDF document (91kb). It is the assembly drawing from Magnacharger.



This is a 7 page .PDF document (408kb). It is the installation instructions from Autotech.

The Autotech Magnacharger Supercharger Kit

Below are photos of the main components of the kit.

Intake Plenum:



Magnacharger MC80 (Type 80):



Intake Manifold With "Sneeze Valve":



Low Boost Pulley and Stock Cam Pulley:



Supercharger Belt Tensioner:



Magazine Articles



Miscellaneous Photos



This installation was in Arvin Quiros' 1984 Scirocco. He has since sold the supercharger and replaced it with a turbo.



This picture was taken when VWVortex's "AceOvSpadez" was selling his setup. The top pulley is a 36 tooth and the bottom is a 42 tooth.



Links

[Chris Brown equipped his 1982 Scirocco with the Autotech Supercharger - \(Local Copy\)](#)

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**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.

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 carefull 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.

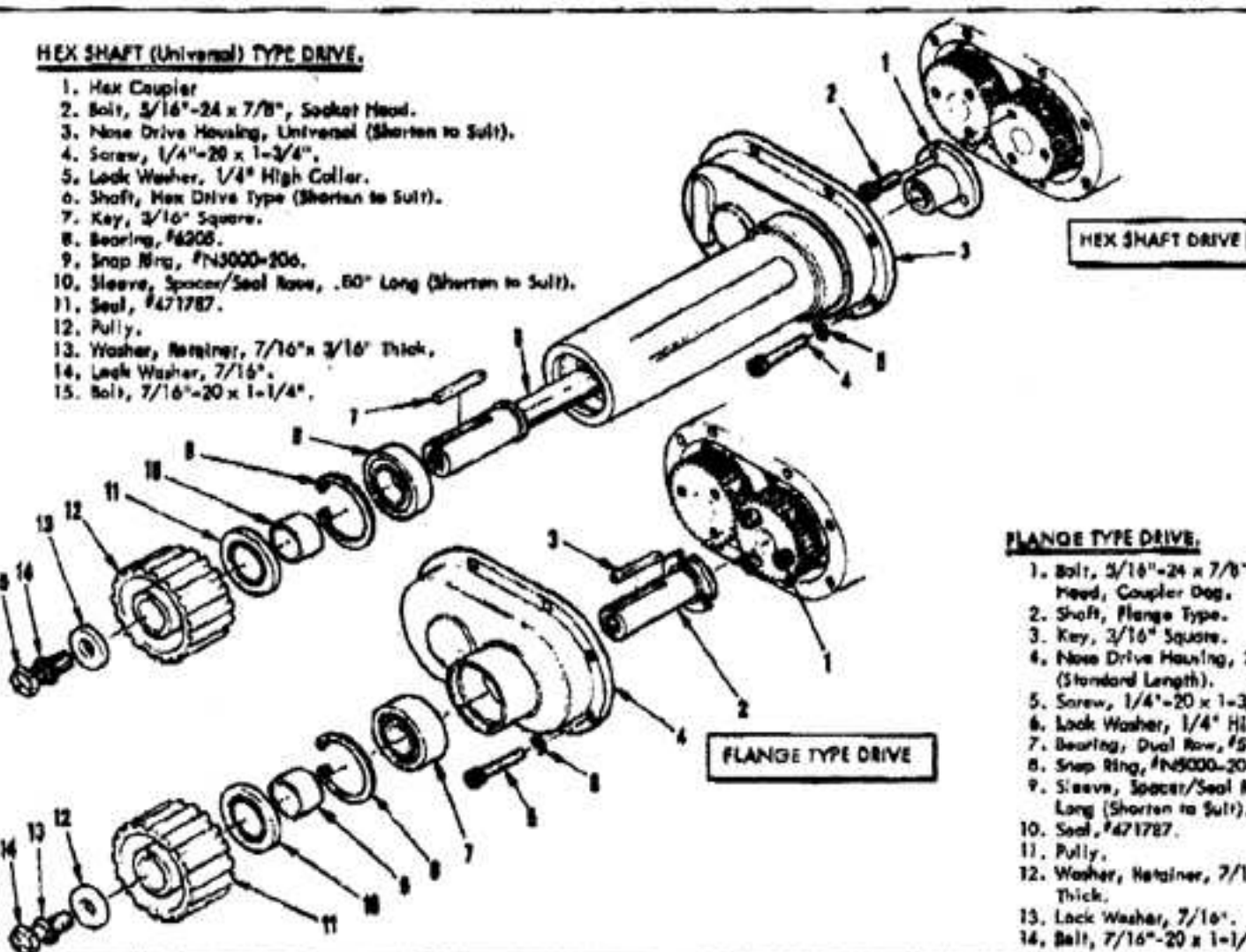
Replacement blower drive belts are available through Autotech, part #10.200.570.

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.

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HEX SHAFT (Universal) TYPE DRIVE.

1. Hex Coupler
2. Bolt, 5/16"-24 x 7/8", Socket Head.
3. Nose Drive Housing, Universal (Shorten to Suit).
4. Screw, 1/4"-20 x 1-3/4".
5. Lock Washer, 1/4" High Collar.
6. Shaft, Hex Drive Type (Shorten to Suit).
7. Key, 3/16" Square.
8. Bearing, #6205.
9. Snap Ring, #N3000-206.
10. Sleeve, Spacer/Seal Race, .80" Long (Shorten to Suit).
11. Seal, #471787.
12. Pulley.
13. Washer, Retainer, 7/16" x 3/16" Thick.
14. Lock Washer, 7/16".
15. Bolt, 7/16"-20 x 1-1/4".



FLANGE TYPE DRIVE.

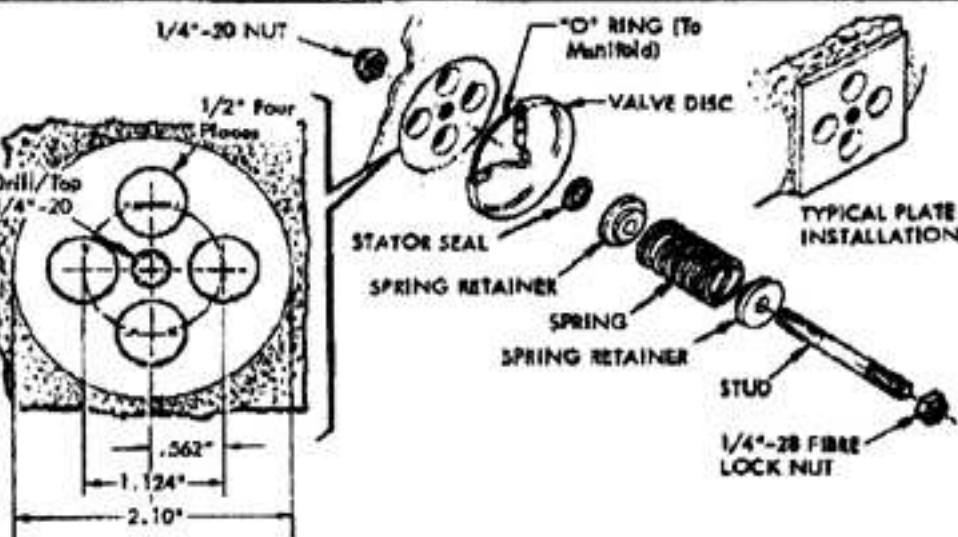
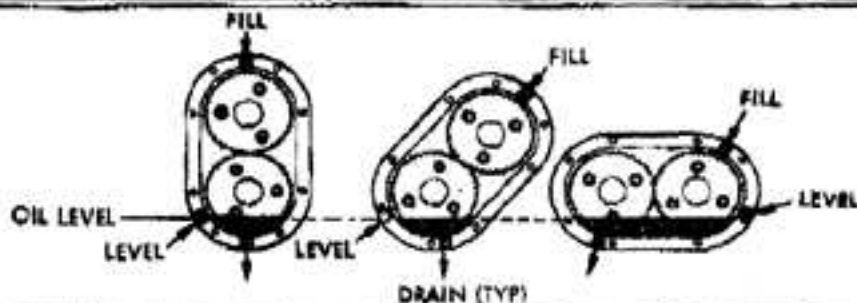
1. Bolt, 5/16"-24 x 7/8", Socket Head, Coupler Dog.
2. Shaft, Flange Type.
3. Key, 3/16" Square.
4. Nose Drive Housing, 2.30" (Standard Length).
5. Screw, 1/4"-20 x 1-3/4".
6. Lock Washer, 1/4" High Collar.
7. Bearing, Dual Row, #5205.
8. Snap Ring, #N3000-206.
9. Sleeve, Spacer/Seal Race, .80" Long (Shorten to Suit).
10. Seal, #471787.
11. Pulley.
12. Washer, Retainer, 7/16" x 3/16" Thick.
13. Lock Washer, 7/16".
14. Bolt, 7/16"-20 x 1-1/4".

MAGNA-CHARGER LUBRICATION INSTRUCTIONS:

Several 1/8" pipe plugs are located around the gear cavity providing access for filling, draining and level checking for various blower mounting positions. It may still be necessary to drill and tap additional holes to accommodate your particular mounting angle.

MAGNA-CHARGER Requires 30W1 motor oil in the nose drive cavity. The level must be maintained so that 3/8" to 1/2" of the gear (or gears) is immersed in oil as shown in illustration.

WARNING: Check oil level periodically. It must be maintained at the level specified. **EXTREME** Damage to the blower will result if the gears are allowed to run with insufficient lubrication.



INSTALLATION INSTRUCTIONS, "SNEEZE" VALVE.

At any convenient location on intake manifold, mill flat an area at least 2.10" in diameter. On center, drill through and tap for a 1/4"-20 thread. On center, at 1.124" diameter, drill through four equally spaced 1/2" holes.

NOTE: If there is no flat surface on manifold large enough to accept "Sneeze" valve installation, weld a piece of 1/4" plate to manifold. Drill and tap as described.

Install 1/4"-20 threaded end of stud into manifold using a suitable locking compound. Tighten until only 2-3 threads show (more may cause damage to rubber "O" ring on gasket seal).

If tapped hole occurs in "thin" area of manifold, install the 1/4"-20 nut (supplied) as a back-up.

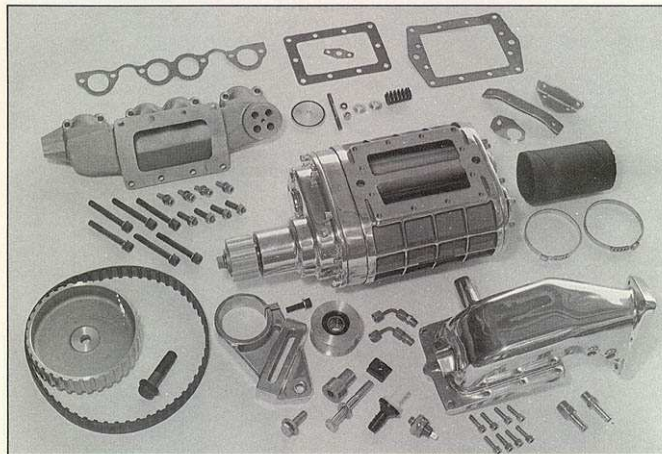
Assemble rest of "Sneeze" valve assembly in order shown. Depending upon amount of "Boost", adjust spring compression to the minimum pressure required to prevent leakage during "On-Boost" operation. If spring pressure is not sufficient, or valve seating surface is not perfectly flat, a vacuum leak will occur.

VOLKSWAGEN

AUTOTECH'S SUPERCHARGER KIT

Quick Horsepower For Water-Cooled VWs

BY GREG RAVEN



After weeks of hearing about AutoTech SportTuning's new supercharger for the Rabbit/Scirocco, we finally had the opportunity to experience one.

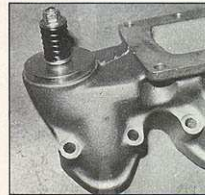
The car, AutoTech's Project Golf (covered at length in the December '85 and February '86 issues of *VW & PORSCHE*), started right up with a twist of the key even though the motor was cold... a good sign. Conscious of the stress that all-out acceleration can place on a cold motor, we cruised around for several minutes, waiting for the engine to reach operating temperature. Sure was quiet. Couldn't hear a thing from the supercharger. When the

temperature needle finally moved off the bottom peg, we headed for a deserted stretch of road and punched the throttle.

Nothing happened.

Nothing out of the ordinary, that is. The car gradually picked up speed at a leisurely pace, apparently oblivious to its duty to impress us with raw power and blinding speed. It looked like we had driven 60 miles on a wild goose chase.

That's when they let us in on the secret: They had purposely left the belt off the supercharger so we could feel the difference between normal performance and supercharged performance.



The manifold incorporates an 18 psi sneeze valve.

POWER KITS

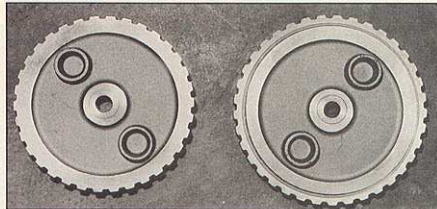
mance. Back at the shop, the belt was installed, and two minutes later we were back on the road.

This time when we punched the throttle, something happened. Autotech's supercharger kicked in as smoothly as a big V-8. There is no huge bump in the horsepower when you hit 4000 rpm as with a turbo; it starts coming in right from the start and continues on to a maximum of 119 horsepower. This translates to better low-end torque, which in turn means quicker standing starts, more effortless cruising, and better acceleration out of the corners.

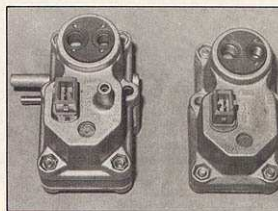
In addition to the excellent drivability, the Autotech supercharger set-up has other things going for it: (1) The ease of installation puts this kit in the "bolt-on horsepower" category. (2) The kit comes with the supercharger sub-assembly pre-oiled and ready to mount. (3) The kit replaces the stock intake manifold, with no disassembly of the motor necessary. (4) The supercharger is very unobtrusive in the engine compartment. (5) The supercharger drive belt can be taken off at any time and the car driven without it.

On the technical side, the supercharger itself is a Magnacharger MC80 with straight Teflon-inset three-lobe rotors, producing 7 pounds of boost at 6000 rpm. The design of the unit is such that the efficiency is within 5 percent of a comparable street turbocharger, and the parasitic drag is extremely low. The supercharger absorbs about .9 horsepower per pound of boost, as compared to the normal vacuum pumping loss of a normally aspirated engine. Because the boost pressure is set with belt sprocket ratios, there is no need for an over-

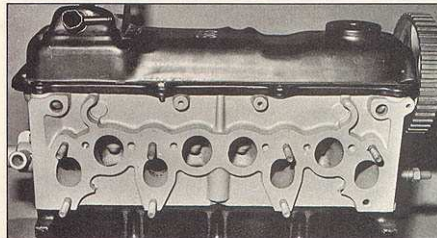
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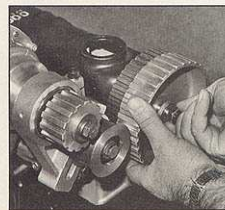
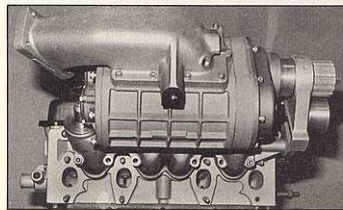
Two sizes of pulleys offer two levels of boost.



The warm-up regulator on the left has the extra fittings required to sense when more fuel is needed.



The supercharger bolts up to the head just like the stock manifold.



The drive pulley is added to the end of the camshaft.

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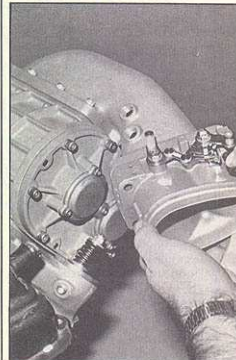
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Bolt on your throttle body, and connect up the rest of the fuel injection.

boost valve, as there would be on a turbocharged engine. There is, however, a "sneeze" valve, that handles excess pressure in the event of a backfire. The nose bearing is lubricated with regular motor oil, which should be changed every 10,000 miles. The rear bearings are lubricated with grease, and go 40,000 to 50,000 miles between services.

As with all supercharged and turbocharged cars, there must be provision for additional fuel. Autotech offers two solutions, one for the Rabbit and one for the Golf. The Rabbit system consists of a specially modified warm-up regulator plumbed into the manifold to sense changes in pressure and vacuum. The Golf version requires replacement of a circuit board in the electronic fuel injection.

The kit is designed with a mind towards the do-it-yourselfer, and with the right tools it would not be unreasonable for the ambitious enthusiast to tackle the project on a weekend. Autotech claims an experienced person can do the installation in four hours, while the novice can expect to take closer to eight hours.

Like most high-performance products, Autotech's supercharger works even better in combination with other motor replacements. In fact, they also offer a Booster Kit that includes a free-flow exhaust, a camshaft, a bigger drive gear, and a throttle body. The

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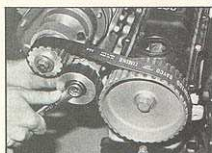
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SUPERCHARGER KIT

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With the drive belt on, you're ready to make some tracks.

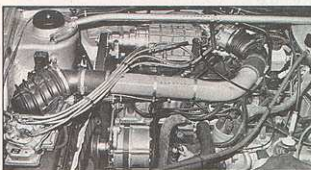
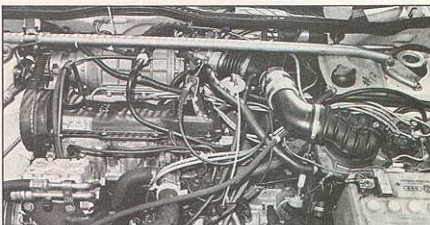


bigger drive spins the supercharger faster, producing 9.5 to 10 pounds of boost at 6000 rpm, for an advantage of 25 additional horsepower.

With the stock kit, Autotech claims 0.60 times of 7.5 seconds for a GTI (up from the stock 9.4 seconds), and 8.6 seconds for a Cabriolet (up from the stock 10.4).

Given the combined simplicity and performance of the supercharger, it would be no surprise to see many of the major manufacturers coming out with supercharged vehicles of their own in the next couple of years. With Autotech's kit, you can beat them all to the punch.

Autotech can be reached at 1800 North Glassell, Dept. VWP, Orange, CA 92665, (714) 974-4600.



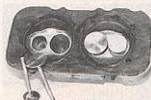
In the Rabbit, the installation is about as subtle as they come.

The Golf requires a little more plumbing, but it fits in beautifully.

Also, 411 & 72 & on VW Bus

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 New 041 Big Valve Racing Head **99.95** each

Counterweighted 914 cranks



1.7 and 1.8 Liter **\$189** Exchange
\$269 Outright
 2.0 Liter **\$199** Exchange
\$399 Outright

HIGH QUALITY LOW PRICE



SM1-BRAND NEW HEAD
 40mm intake 35.5mm exhaust valves comes complete with chrome-moly intake seats and stainless steel intake and exhaust valves, which can be run on unleaded gas. Perfect as bolt-on horsepower for 1600cc - 1800cc engines. **\$119.00 ea.**

REBUILD 914 PARTS	
A. 1700 - 1800cc Crankshaft, exchange	\$39.00
B. 1700 - 1800cc Connecting Rods, exchange, set	\$39.00
C. 1700 - 1800cc Camshaft, exchange	\$34.00
D. 1700 - 1800cc Cam Followers, exchange, set	\$29.00
E. 1700 - 1800cc Cylinder Heads, exchange, each	\$89.00
F. Above Head with sodium filled exhaust valves, exchange, each	\$129.00

914 ENGINE KITS

Includes new German pistons, cylinders, rings, pins, clips, main, rod and cam bearings, all gaskets and seals

1.7 and 1.8 Liter **\$269** Outright
 2.0 Liter **\$319** Outright

914 Clutch Kit

Includes new OEM pressure plate, clutch disc, throw out bearings, flywheel seal, O ring, clutch alignment tool **\$179** outright

We require 25% deposit by VISA, Mastercard or Money order on all orders.

STEPHENS MACHINING
 705 Hampton Dr., Venice, CA 90291
 213/399-9241



AUTOTECH'S SUPERCHARGED,

NITROUS- OXIDE GOLF



Photos by the author and C. Van Tine

Big Fun in a Small Package

BY GREG RAVEN

Back in December 1985 we introduced you to the Autotech SportTuning Project Golf. Project cars are a great way to advertise the parts you sell, and at the time Autotech started out, the 1985 Golf had just become available.

Whenever there is a body change, as there was for Volkswagen in 1985, one of the first things most people want to know is if a body kit will be available.

38/VW © PORSCHE

Autotech answered this question by fitting an air dam, grille, fender flares, rocker extensions, rear skirt and rear spoiler to its new car. To make the car even more visually striking, Autotech opted for a two-tone paint treatment that features silver on top and red on the bottom.

With the more aggressive look, the Golf needed more aggressive tires and wheels to match. Autotech chose 15x7-inch Work wheels from JICA in

Torrance, Calif., wrapping them in 205/50VR15 Goodyear "Gatorback" tires. They then had the center sections of the wheels painted red to match the lower body color.

With the car looking good, they decided to make it feel good as well. So in went the Politecnica electric window lift and power door lock kit.

In the February 1986 issue we continued the story by adding both more interior goodies and a little teeth for

the Project Golf. Inside, Recaro KRS seats in grey and red leather were installed up front, and in the rear Autotech had the seats re-covered to match. A red Momo steering wheel completed the look.

The teeth for this stage of the upgrade came in the form of suspension work. In went a Koni shock/spring combination to lower and firm up the ride. As you might expect, Autotech stress bars were also fitted to

strengthen the chassis. The final touch was the addition of anti-roll bars front and rear.

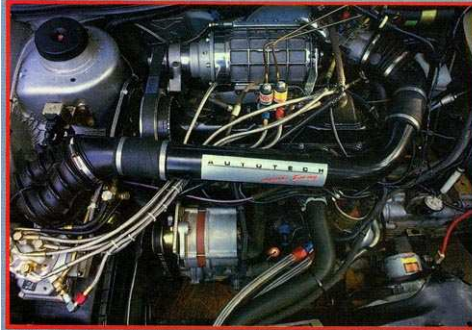
In the June 1986 issue we showed you how Autotech was set to show the world that its car was more than just another pretty face, by bolting on one of the first-ever supercharger kits for the water-cooled Volkswagen. "Bolton" is the right choice of words, as the Autotech unit can be installed by enthusiasts who have only limited mechanical experience.

Autotech spent the next few months refining what they had achieved so far, including a new Tokico suspension and Autotech rear anti-roll bar, which we featured in the April 1987 issue.

Now the Project Golf is completed. But before we bid farewell, there is one more chapter to be written.

The way to get more horsepower out of an engine is to help it breathe better by porting the head and using a free-flow exhaust. To further enhance an engine's breathing potential, you can also force-feed it by using a turbocharger or supercharger, as Autotech has already done. These devices mechanically pack air into the cylinder to achieve an increase in power.

There is, however, another way to



force-feed air to an engine, and that is through the chemical process of nitrous-oxide injection. Nitrous oxide, or N₂O, is 36-percent oxygen by weight, as opposed to the atmosphere, which is 23-percent oxygen by weight. In a hot

combustion chamber, the nitrogen separates from the oxygen, leaving it free to burn.

Up until now nitrous-oxide injection systems for the Volkswagen have had their share of problems. After working

with leading nitrous-oxide system suppliers NOS, Autotech has come up with a system that they feel offers a safe way of helping enthusiasts dip into the massive performance increases possible with nitrous-oxide injection.

So how does a supercharged Volkswagen motor run when you add nitrous oxide? Nice. Very nice. The power curve of the stock motor is enhanced by the supercharger, and again by the nitrous-oxide in much the same way: improved torque on the bottom end with a smooth top end that contains no exaggerated power peaks or surprises. Legal speeds come and go so quickly and effortlessly that even an awareness of your heightened visibility to the authorities is sometimes not enough of a threat to lessen the squeeze of your finger on the nitrous button. This is big fun.

We haven't driven a normally aspirated Volkswagen with nitrous-oxide injection, but all indications are that the difference will be even more pronounced than on Autotech's supercharged Golf. Autotech's kit comes with one nitrous-oxide/gasoline injector nozzle (called a fogger nozzle), but the hot setup would be to run individual fogger nozzles at the base of each manifold runner. This would provide the biggest performance gain, while at the same time ensuring that none of the cylinders would go lean under "boost," which can result in detonation and piston meltdown.

With this project completed, Autotech is looking forward to bigger and better things in the future. That means their Project Golf is on the block for sale to the highest bidder. Whether you want the entire car or just information on the individual pieces, you can reach Autotech at 1800 North Glassell, Dept. VWP, Orange, CA 92665, telephone (714) 974-4600.

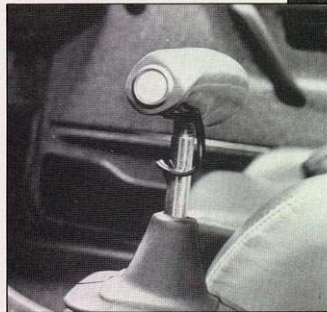
Fogger nozzle is mounted in a sandwich plate that bolts between throttle body and air manifold.



Separate solenoids control delivery of nitrous oxide and fuel to fogger nozzle.



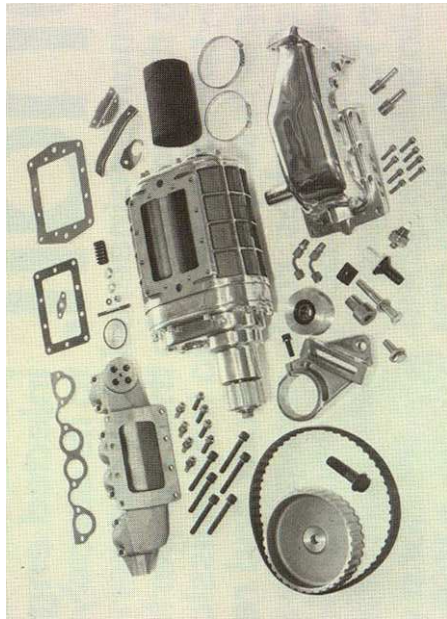
Nitrous oxide bottle mounts in trunk using brackets that are included in kit.



After system is armed, a push on this button starts the party off with a bang.

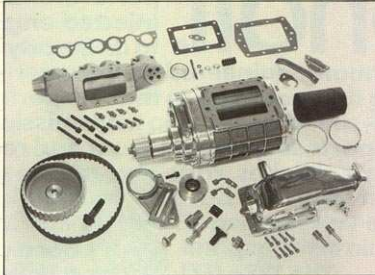


Also new from Autotech is a poly-V drive belt for supercharger in place of cogged belt.



GTi·GOLF·RABBIT·SCIROCCO·JETTA
HI-TECH PERFORMANCE

NEW SUPERCHARGER



Specially designed for Volkswagen water-cooled Rabbit, Scirocco, GTI, Golf and Jetta through 1986. This system instantly increases horsepower with absolutely no "lag" as experienced with turbo-charging; also doubles torque at 8 lbs. boost. The supercharger produces a very flat power curve for exceptionally smooth operation. It gives the impression of being a very large displacement power-plant.

All this adds up to a package with very smooth, useable power and torque, easily installed in less than four hours. Be the first on your block to be blown (and NOT blown off)!!

\$1995.00



Bearings Bashing? The problem ridden factory bonded upper strut bearings can now be replaced with Autotech's severe duty units. Eliminate annoying clunk while improving steering response. Includes special poly-urethane cushion to replace soft rubber stock unit.

10.412.100K H-D Strut Bearing Assembly \$89.95



Smooth and Sexy, Front to Rear! Send your Rabbit to the gym and put him on a diet. Shed the bulky, heavy, ugly U.S. spec bumpers for slim, trim, beautiful European units. Excellent aerodynamics, good looks and very light weight that increases power to weight ratio. And now you can save dollars, too! Includes front turn signals and side clips.

10.809.098RK Euro Rabbit Bumpers \$159.95



Wound Up? You know your Rabbit GTI runs best at high RPM, but do you really want to cruise the highway at 3500 RPM? Of course not! Using Autotech's 7.5 fifth gear conversion (stock is .89) you can reduce RPM by 500 at 55 MPH! Everything you need for driveway installation is included. We use factory German parts. Trans removal not necessary.

10.310.075 5th Gear Conversion Reg. 175.00 NOW \$139.95

DEALER INQUIRIES INVITED

AUTOTECH also carries quality components such as: Recaro, Zender, Momo, Koni, as well as complete engine and suspension systems. For a copy of our Catalog/Tuning Guide, send \$3.00 to:

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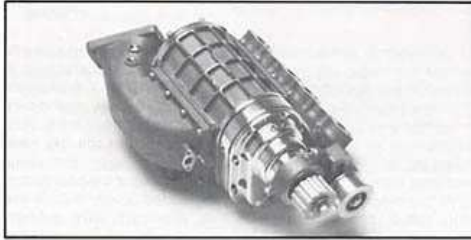


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OFFER GOOD THRU FEB. 26, 1985

1800V N. Glassell Street, Orange, CA 92665 • (714) 974-4600

Certain parts may be considered NOT LEGAL FOR SALE OR USE IN CALIFORNIA ON POLLUTION CONTROLLED MOTOR VEHICLES. Check local laws in your area.



In our quest to find a new way to improve your Volkswagen's performance without sacrificing its reliability, our path led us to the Supercharging solution.

WHAT IS A SUPERCHARGER?

Superchargers increase performance by compressing the air required to fuel combustion, while engine displacement and speed remain constant. This results in an increase in the torque and power output of the engine. The Supercharger used in our system is a mechanical type, driven off the engine by a belt which provides for immediate throttle response.



ABOUT THE MAGNACHARGER

Autotech's Supercharger system incorporates the Magnacharger 80 cubic inch positive displacement Roots-type blower using two impellers, each featuring three vanes. This three vane design does not cause inlet pulsing as seen in other two vane configurations.

We feel the Magnacharger is far superior to any other Supercharger available. Tremendous time and attention to detail was paid in the design and development of this unit. The Magnacharger was one of the first Superchargers designed to be run dry. This means it does not require fuel to run through the impellers to cool and lubricate it. The design dimensions are extremely accurate, with exacting machine tolerances between the impellers and housing. Special Teflon seals provide for a leak-proof interface between the housing and the impeller vane tips. A unique casting process allows the use of hollow-center impellers. This hollow-center design produces less rotating mass allowing quick RPM changes when necessary. Less mass in the rotating parts also means the Supercharger can auto-rotate (free wheel) if the belt is removed. Many other supercharger systems require pressure bypass valves or clutches to aid their cumbersome compressors, the Magnacharger does not.

SUPERCHARGING VS. TURBOCHARGING

Autotech made the switch to Supercharging from turbocharging for the following reasons. First, the Magnacharger unit does not produce the high impeller bearing temperatures that are still a constant burden for turbo units. A hot exhaust housing associated with the bearing in a turbocharger requires you to continually pump oil through the bearing for cooling. This oil causes an extra draw on the factory oil pump, and adds additional heat as well. Another complication of lubricating the impeller bearing is that the oil drain-down line must be free of restriction. High back pressure can cause turbo oil seal blow-out resulting in a turbine failure and costly repairs. The only simple solution for turbo drain-down lines on the Volkswagen is to tap into the engine block. This requires an increase in installation time and very special care while doing it.

Second, Supercharging provides **instant** throttle response. You do not have to contend with waiting for the turbo impeller to reach a certain speed before the power comes on. An example of this was a test we performed in our Autotech project vehicle. While idling along in third gear at under 1500 RPM the throttle pedal was floored, immediately producing 5 PSI of boost on the gauge. We do not recommend this practice because accelerating from low RPM's in a high gear can be harsh to any engine, but it displays the rapid response of this mechanically forced-induction system.

Technical Note: Superchargers do not necessarily input the same volume of inlet charge pound for pound as turbochargers. The exhaust turbine creates back-pressure in the system which is seen by the boost gauge. Factors such as the amount of exhaust restriction also come into play.

THE AUTOTECH PHILOSOPHY

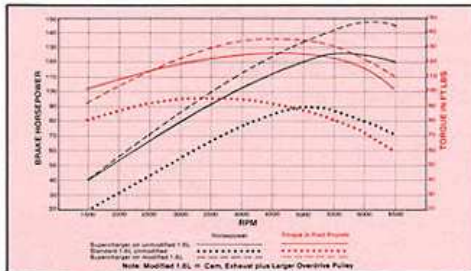
Build a system that easily installs into a vehicle, allows for retention of the factory power options (such as air conditioning), and offers a good balance of performance and reliability.

SPECIFICATIONS

SUPERCHARGER BOOST	Maximum 6.5 PSI preset at red-line. Up to 8.5 PSI with optional drives.
ENGINE PERFORMANCE	145 h.p. for 90 h.p. 1.8L engine 151 h.p. for 100 h.p. 1.8L engine 178 h.p. for 123 h.p. 16V engine
VEHICLE PERFORMANCE (Based on a 1984 Rabbit GTi w/free-flow exhaust)	0-30 m.p.h. 2.89 sec. 0-50 m.p.h. 5.80 sec. 0-60 m.p.h. 7.58 sec. 0-88 m.p.h. 15.88 sec. (¾ mile)
INSTALLATION TIME	Set aside 1 full day (The shortest it was done by a first-time purchaser was 4 hours!)
BOOST CONTROL	Controlled by pulley diameters. A sneeze valve is an integral component in case of a backfire.
FUEL REQUIREMENT	91+octane - Premium unleaded

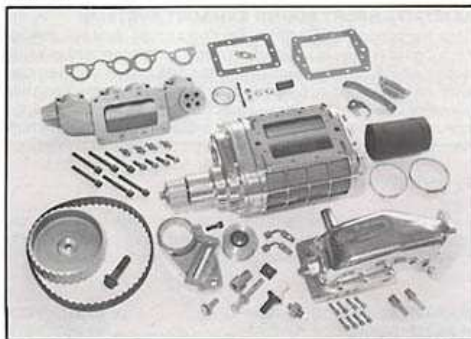
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In the graph above, note that the torque figures far exceed those of the standard engine. Torque is the most important attribute for a street performance engine. The flatter the torque curve is, the more driveable your vehicle will be in road conditions.

The instant power and torque give Supercharged vehicles the ability to make a winning combination for autocross and road courses.



Autotech spent many long hours developing this complete installation kit for your vehicle. The fuel enrichment system is a major key to reliably balancing the air/fuel ratio while under boost. CIS systems benefit from a special warm-up regulator and enriching switch for cats with oxygen sensors. For the new KE injection, Autotech developed a special electronic "plug-in" fuel enrichment system. This "Black Box" accurately measures boost in fractions of a pound of manifold pressure and then instructs the KE injection system to provide additional fuel for a smooth enrichment curve.

Parts supplied in the kit include: Pre-assembled intake manifold/supercharger/intake plenum/nose drive unit, drive pulley for cam, drive belt, fuel enrichment system, connecting hoses, support brackets, installation hardware and complete instructions.

- KIT FOR RABBIT/SCIROCCO/JETTA 1..... 10.200.500K**
- KIT FOR GOLF/JETTA 2 (CIS)..... 10.200.600K**
- KIT FOR GOLF/JETTA 2 (KE) 10.200.650K**
- KIT FOR 16V GOLF/JETTA 2..... 10.200.750K**

POWER UPDATES

The Autotech Supercharger Kit provides a very big boost for the vehicle. To maximize your performance, certain components supplied in other parts of our catalog enhance the Supercharger system even more. A tuned exhaust such as the Leistritz Sport Sound system provides a big boost throughout the entire RPM range. It is not uncommon to see the boost gauge read lower due to less restriction, but the horsepower gain is very beneficial. A camshaft change will also give more power in the mid to upper-end of the power curve (consult Autotech for your vehicle). Recurving your distributor on cars with moderate compression provides a boost in the lower RPM range.

SPORTTUNING TIP: RECURVE AND VACUUM RETARD MODS

For Supercharging, shorten your distributor curve so that you can run a 16 degree initial advance set at idle. (You can measure over 1.3 inches on your flywheel from the TDC mark for making the new timing mark.) The total advance should not exceed 32 degrees.

One trick for making your distributor retard under high boost is to use a retard cannister with two ports. First, take the line off of the side facing the distributor body and plug the hose (leave the metal tube open to atmosphere). Second: Connect the other to the intake manifold where it will be provided with boost under load [between the supercharger and head]. This allows the vacuum advance cannister to retard the timing during pressurization.

These tricks help the horsepower and torque at the lower RPM range for "launching" your car off the line even more than you are already capable.

BOOST UPGRADE PULLEY KIT 10.200.560K

A different size driven pulley is also available for vehicles with moderate compression. This increases the boost for better acceleration throughout the entire RPM range. (Free-flow exhaust mandatory when using this pulley).

SPORTTUNING TIP: ENVIRONMENTAL EFFECTS ON ENGINES

Engines are affected greatly by such factors as air density, air pressure, and air temperature. As with pilots planning a flight, you can also determine how well your engine is going to run on a trip or during a power run based on a factor referred to as density altitude.

The heavier (denser and colder) the ambient air is around the engine, the more air is taken in to the engine, which equals a higher power output. A general rule to follow is that engine power drops by approximately 1% for every 328 feet of altitude gained. A high altitude condition is simulated when the weather is both hot and dry, because the air is less dense.

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