

A U T O T E C H

sport tuning

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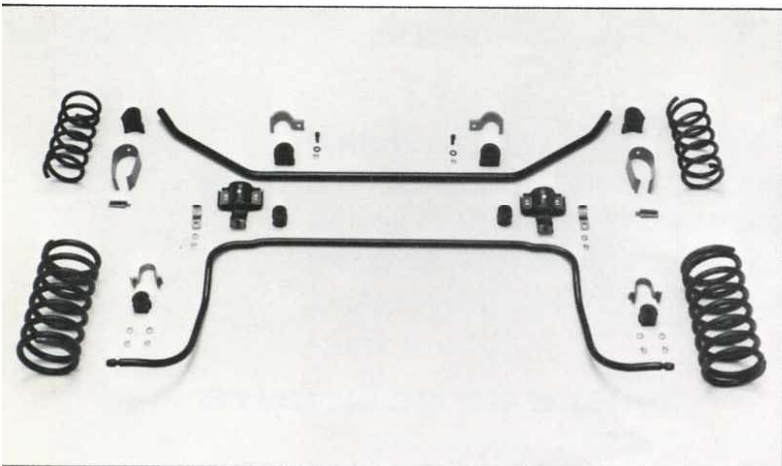
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THE FIRST STEP

A good place to start your own SportTuning program is your car's suspension. The rewards are great: a Rabbit, Scirocco, or Jetta with tuned suspension is a very good handling car. An Autotech suspension package can make day-to-day driving or that special country road a lot more interesting. And, if you're going to have a high performance engine package, then the proper base is essential.

Suspension tuning involves many interrelated components, and takes some work to get it right. We've done that work for you at Autotech. We've tried just about every combination imaginable. Some didn't work. Some were too harsh, too noisy. In trying all the different systems, we identified many problem areas.

Autotech has solved those problems for you. Our suspension components offer you the very best, and are designed to function together, as a balanced set. They offer significant changes for everything from GTI's to grocery getters. The absolute cornering power is very much improved, the responsiveness radically increased, and the comfort level minimally affected. The plain vanilla Rabbit equipped with the Autotech SportTuning suspension will outcorner a GTI — and a GTI becomes downright serious.

STEP 1: STRESS BARS AND ANTIROLL BARS

Easiest to install, and the first big step in improving your handling. This package includes the SportTuning Stress Bars, upper and lower, and Front† and Rear Antiroll Bars.

The stress bars are important components that tie the strut towers and lower control mounting points together, reducing body flex which affects front wheel camber and stability. They include the only independently adjustable length upper stress bar available today, and incorporate vertical, rather than horizontal, locating joints to minimize movement. The result is added precision for your steering inputs. The lower SportTuning stress bars incorporate the mounting points for an optional Torque Control Rod Kit (Part #10.430.103) to help control the torque reaction of the motor without the harshness generated by solid motor mounts. It can be ordered now, or at a later time when you wish to upgrade.

The antiroll bars selected by Autotech offer several advantages. The body lean is significantly reduced, minimizing camber changes. The plowing associated with hard cornering in a front wheel drive car is gone. The ratio of front-to-rear roll stiffness is selected to make the whole chassis work together. That's a new feeling for the average Rabbit owner. The design of the rear antiroll bar included in these packages minimizes rear toe change, which increases stability and enhances driveability. The front bar is the same style as the factory GTI, utilizing integral mounts at the rear of the lower control arm. It's tidy and easy to install. Both of the antiroll bars have high-quality polymer bushings that aid in quick and precise response. The installation of the Step 1 Suspension Kit is straightforward and does not require realigning your suspension. All mounting hardware and complete directions are included.

†GTI does not require the front antiroll bar.

STEP 1 SUSPENSION KITS: ANTIROLL AND STRESS BARS

Includes SportTuning upper and lower Stress Bars, front and rear Antiroll Bar Sets with polymer Bushings, all mounting hardware and complete instructions.

For GTI without Air: **10.498.011**

All Diesel Applications: **10.498.012**

All Other Applications: **10.498.013**

STEP 2 SUSPENSION KITS: CHASSIS SPRINGS AND SHOCK ABSORBERS

The next step in turning your Rabbit, Scirocco, or Jetta into a world-class handler, is the SportTuning Step 2 Suspension Kit, with precision wound Sport chassis springs and Kontrolle gas shock absorbers. The components in the Step 2 Kit are selected to work with the Step 1 Kits to give your car an integrated handling package second to none. The Step 2 Kit gives your car a lower, leaner, more aggressive look, while significantly improving handling. Your car reacts more quickly and precisely to steering inputs with the improved transient and turn-in response that the Sport spring sets give you. You'll appreciate the taughter feel and better looks when your car has the Step 2 Suspension Kit fitted — but you won't be paying any price in lost ride comfort. This is one area where Autotech has done its homework for your benefit. This spring and shock package really works, yet does not generate dental stress. The Sport springs chosen for each model lower the car the correct amount. They do not lower your suspension to an extent that would increase bump steer, or cause a rough ride and shock absorber damage through severely reduced suspension travel. They do reduce body lean in cornering, reduce the ride height to lower the center of gravity, and reduce front end dive under braking, increasing controllability. The Kontrolle shocks included in this package feature the latest twin-tube, low-pressure gas technology. The dampening force is increased over the dampening force of your stock shocks, and is matched to the spring characteristics to improve handling without adding harshness. We've been through many different choices in the suspension game and can confidently offer you the best spring and shock package available. Comfort and performance handling are not mutually exclusive. The Step 2 Suspension Kit

SUSPENSION COMPONENTS

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is proof that an automobile can both "ride" and handle. Even with a stock motor benefit from the added capabilities you've given your car by fitting the Step 2 Suspension Kit. And for GTI owners, the excellent handling of VW's finest, can be made even better with a Step 2 package.

Most garages or alignment shops can install the Step 2 Suspension Kit. A quality wheel alignment should be included at the time that you make this change. Our testing indicates that the stock alignment specs are the ones that perform best for use on the street.

STEP 2 SUSPENSION KIT: CHASSIS SPRINGS AND SHOCK ABSORBERS

Includes precision wound front and rear Sport springs for your application, and Kontrolle gas front strut inserts and rear shock absorbers.

RABBIT AND SCIROCCO, to 1979:	10.498.021
RABBIT AND SCIROCCO, 1980-84:	10.498.022
GTI, 1983-84:	10.498.023
ALL JETTA APPLICATIONS:	10.498.024
DIESEL AND CONVERTIBLE:	10.498.025

Steps 1 and 2 will give your Rabbit, Scirocco, or Jetta close to an ultimate suspension system. The next step up would be the fitting of stiffer polymer chassis bushings to reduce suspension compliance in the control arms and the rear suspension. These bushings are a compromise at best, as they increase transmitted road noise and the "jiggles" caused by small bumps on the road surface. Autotech offers you a choice of bushing with an S-2 moderate stiffness for street applications and a very stiff S-3 bushing for an autocross or track car. Turbos and high power engines benefit greatly from the S-2 bushing set, as heavy power applications cause toe changes which can cause unpredictable handling.

FRONT CONTROL ARM

BUSHING REPLACEMENT SETS:

S-1, Stock Firmness:	10.440.001
S-2, Sport:	10.440.002
S-3, Severe-Duty:	10.440.003

POLYMER BUSHINGS:

For stock GTI Antiroll Bar

Front Set, includes all Bushings:	10.440.004
Rear Set, includes all Bushings:	10.440.005

Replacement polymer bushings for the stock GTI suspension. All Autotech antiroll bars incorporate high quality polymer bushings. Replacing the bushings on your GTI with these bushings will quicken the antiroll bar action and reduce compliance, giving better transient response.

REPLACEMENT BUSHINGS FOR

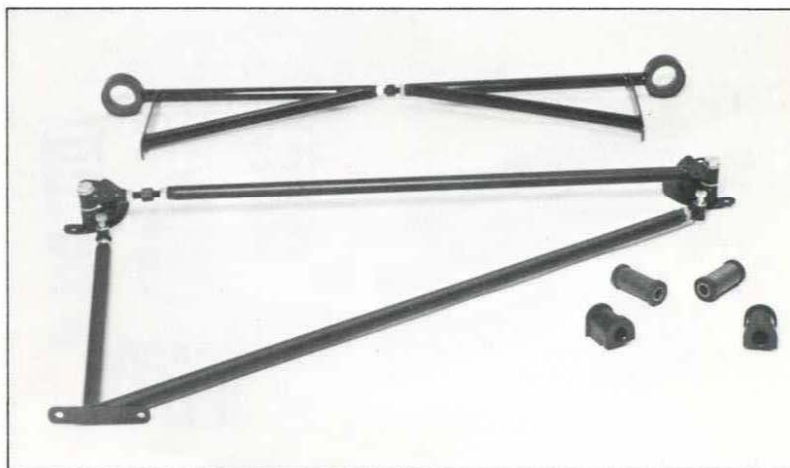
REAR SUSPENSION:

Polymer bushings to replace stock bushings in rear suspension assembly. This is a major installation job, but important on an all-out sport or race suspension.	10.440.006
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LOWER CONTROL ARM

REINFORCEMENT KIT:

This kit is patterned after the factory rally team lower control arm modifications. It consists of precision-cut .100" steel reinforcement plates to be welded to your lower control arms. This reduces flexing and bending that occur under heavy side	10.435.001
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loading, translating into increased cornering stability and precision.

CLOSE RATIO STEERING RACK: 10.435.000

A direct replacement for the stock steering rack in all Rabbit, Sciroccos, and Jettas. This gives a much quicker steering response by reducing the steering one full turn lock-to-lock, translating into much quicker steering at the cost of a slight increase in effort.

FRONT STRESS BARS:

UPPER AND LOWER SET:

For GTI's with air conditioning:	10.430.098
For GTI's without air conditioning:	10.430.198
All Diesel Applications:	10.430.298
All Other Applications:	10.430.398
UPPER, GTI with air:	10.430.004
UPPER, GTI without air:	10.430.003
UPPER, All Diesel Applications:	10.430.002
UPPER, All Other Applications:	10.430.001

HEAVY DUTY STRESS BAR UPGRADE: 10.430.050

Add-on triangular upper front reinforcement bar provides the optimum in front end stability. Specify model. (Pictured above.)

LOWER STRESS BAR, All Applications: 10.430.101

REAR STRESS BAR: 10.430.501

Mounts between upper rear shock towers for added strength and rigidity. Specify model and year.

LOWER TORQUE CONTROL ROD KIT: 10.430.103

Autotech has developed an Engine Torque Control Rod Kit, which may be attached to any of the stress bars which Autotech sells. It consists of an attachment from the chassis to the engine-transmission assembly to reduce the twist of the engine under heavy throttle applications. This improves traction and reduces wheel hop. A must for high power engines.

BASH PLATE ASSEMBLY: 10.430.100

Bash plate of aluminum alloy attaches lower stress bar and front bumper mounting. For engine and gearbox protection, and to add to the torsional rigidity of the front chassis assembly.

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SHOCK ABSORBERS AND STRUT INSERTS

BILSTEIN SHOCK ABSORBERS

Bilstein is famous in both racing circles and on the street for extremely high quality shock absorbers. All of the Bilstein shock absorbers are gas pressure shocks, which reduces foaming of the shock absorber oil and increases shock efficiency. For street high performance, we feel that the "comfort" setting shock is the best choice.

FRONT INSERTS, "Comfort": 10.413.100

REAR SHOCK ABSORBERS, "Comfort": 10.513.100

FRONT INSERTS "Sport": 10.413.101

REAR SHOCK ABSORBERS, "Sport": ... 10.513.101

BILSTEIN GROUP 1 SUSPENSION SET: 10.498.100
FOR AUTOCROSS ONLY. We do not recommend this combination for street use.

KONTROLLE SHOCK ABSORBERS
AND STRUT INSERTS

The Kontrolle [pronounced "control"] shock absorber is an excellent high performance street shock absorber, using the latest twin-lube low-pressure gas technology and 40-60 valving. These are an excellent value, and are part of our SportTuned suspension packages.

FRONT INSERT, All Models: 10.413.201

REAR SHOCKS, All Models: 10.513.201

The **Koni Sport Suspension** is complete and ready to bolt on. It includes the famous Koni shock absorbers and strut assemblies, with special springs already installed. These springs are very trick, and feature three-way progressiveness: The wire diameter is taper ground, the coil spacing varies, and the coil diameter varies. This insures you the softest ride possible while offering excellent cornering. Sold as a set, replacing both springs and shock absorbers. Easy to install, requires no spring compressor or special tools.

KONI SUSPENSION, Complete: 10.498.300

KONI SHOCK ABSORBERS

The best in fully adjustable hydraulic shocks.

FRONT INSERTS, "Street" 10.413.400

REAR SHOCK ABSORBERS, "Street" ... 10.513.400

FRONT INSERTS, "Sport" 10.413.401

REAR SHOCK ABSORBERS, "Sport" 10.513.401

FRONT INSERTS, "Race" 10.413.402

REAR SHOCK ABSORBERS, "Race" 10.513.402

CHASSIS PARTS

FRONT MOTOR MOUNT, Heavy Duty: ... 10.199.001

This motor mount is a must when using the GTI style exhaust system. Included in the Sport exhaust system.

SIDE MOTOR MOUNT, Heavy Duty: 10.199.002

TRANS MOUNT, Heavy Duty: 10.399.001

COMPLETE SET OF MOTOR MOUNTS,
Heavy Duty: 10.199.100

SPORT CHASSIS SPRINGS

FRONT SPRINGS:

Rabbit and Scirocco to 1979: 10.411.001

Rabbit and Scirocco 80-84: 10.411.002

All Jettas: 10.411.003

Diesel and all Convertible: 10.411.004

GTI 83-84: 10.411.005

REAR SPRINGS:

Rabbit and Scirocco to 1979: 10.511.001

Rabbit and Scirocco 80-84: 10.511.002

All Jettas: 10.511.003

Diesel and Convertible: 10.511.004

GTI 83-84: 10.511.005

SUSPENSION COIL

SPRING COMPRESSOR: 10.012.200

Required for changing the front springs and replacing the front shock absorbers. An easy to use, do-it-yourself tool at a reasonable cost, which can provide you with a substantial savings over what your mechanic would charge. Instructions.

ANTIROLL BARS

All antiroll bars are complete kits. The bars are bent from 1144 stress-proof steel and include special polymer bushings and end links, all mounting hardware, and complete instructions.

25 MM AUTOTECH REAR: 10.525.025

22 MM AUTOTECH REAR: 10.525.022

FACTORY STYLE, 16 mm Front: 10.425.016

22 MM FRONT, Rabbit and Jetta 76-84,
and Scirocco, except automatic: 10.425.023

22 MM FRONT, Scirocco 82-84,
except automatic: 10.425.022

BRAKE PADS:

The first step in SportTuning your brakes is to install pads which can handle the heat generated by performance driving. We recommend the Sport pads for a definite improvement over stock braking. The next step up, the vented rotors of the GTI, is seriously recommended for performance driving. We do not recommend the metallic pads for street use.

ATE STOCK REPLACEMENT:

Ate Calipers, Stock Disc: 10.698.010
Ate Calipers, Vented Disc: 10.698.011
Kelsey Hayes Caliper, Stock Disc: 10.698.012
Kelsey Hayes Caliper, Vented Disc: 10.698.013

AUTOTECH SPORT PADS:

Ate Calipers, Stock Disc: 10.698.020
Ate Calipers, Vented Disc: 10.698.021
Kelsey Hayes Caliper, Stock Disc: 10.698.022
Kelsey Hayes Caliper, Vented Disc: 10.698.023

METALLIC PADS (For Severe or Race Usage Only):

Ate Calipers, Stock Disc: 10.698.030
Ate Calipers, Vented Disc: 10.698.031
Kelsey Hayes Caliper, Stock Disc: 10.698.032
Kelsey Hayes Caliper, Vented Disc: 10.698.033

REAR BRAKE LININGS

Seldom a problem area, but sport and stock rear linings are available. Please call for further information.

STOCK REPLACEMENT ROTORS: 10.698.101

GTI REPLACEMENT ROTORS: 10.698.102

BRAKE CONVERSION KITS

For owners of Rabbits, Sciroccos, and Jettas, this kit contains everything you need to convert to the increased braking power of the GTI ventilated front braking system. The brakes on the stock cars are less than adequate with the 76 HP motor, as far as serious driving is concerned, and with an Autotech SportTuned motor you'll soon find yourself easily out-distancing your stopping power. To keep everything working together, this improved braking system is the way to go. Two different kits are offered, one for the early cars, and one for Westmoreland cars fitted with the Kelsey Hayes calipers.

VENTED ROTORS CONVERSION KIT: ... 10.698.001

To convert GTI's with non-vented rotors and 1981 and later Rabbits, Sciroccos, and Jettas (except Kelsey Hayes U.S. Rabbit Brakes) to vented rotors. No caliper change is necessary. Uses GTI brake pads which are included along with retaining pins, clips and complete instructions.

TO CONVERT KELSEY HAYES

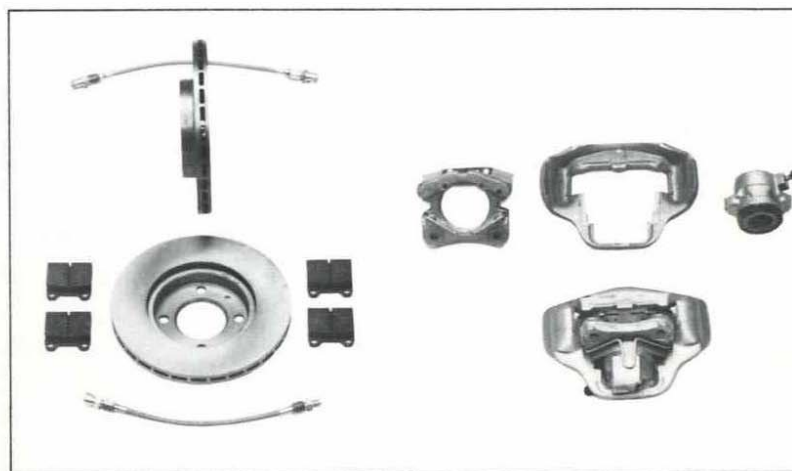
CALIPERS TO VENTILATED: 10.698.002
Contains new axially vented rotors, Sport pads, retaining pins and clips, and complete instructions.

PRECISE BRAKE LINES

Stainless, braided Teflon (reg. T.M.) brake lines, -3 in size, with metric end fittings (no adaptors) provide a non-expandable brake line that promotes quicker, firmer, pedal response. In addition, they are virtually unaffected by age and environment. Full car sets only: unavailable for Girling calipers.

ATE Calipers: 10.611.199

Kelsey Hayes Calipers: 10.611.299



BRAKE FLUIDS

First a few basics. Brake fluid is hygroscopic, meaning that it attracts water when possible. Braking systems are designed to minimize the chances of this happening, but as we touched upon previously, normal deterioration and moisture in the air can still enter the system.

Water detracts from braking performance in two ways. It radically reduces the boiling point of the contaminated fluid, causing easier brake fade, and it causes serious corrosion to the expensive components of your braking system. Rusted steel brake lines, calipers, and wheel cylinders, are not only expensive, they are unsafe as the stopping power is reduced so severely.

Because of this, brake system maintenance is extremely important. The factory warranty books recommend changing the brake fluid every 2 years, due to the possibility of water contamination. Autotech offers you the Castrol LMA Brake Fluid or a quality 100% silicon brake fluid for an ultimate solution.

CASTROL LMA, DOT-4 BRAKE FLUID: .. 10.650.002

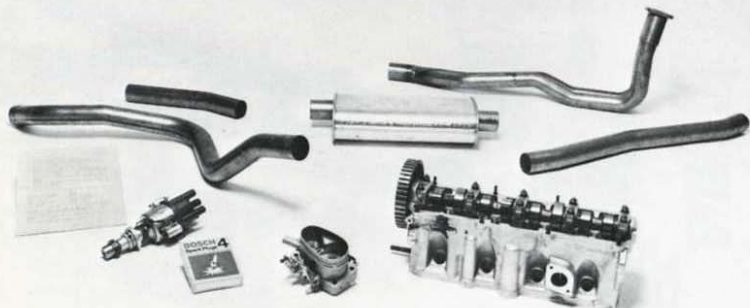
SILICON BRAKE FLUID: 10.650.001

Silicon brake fluid is in a class by itself. Not only is it conservatively rated at DOT-5, the highest rating of any street brake fluid, but it has absolutely no affinity for water, so it prevents corrosion and its high boiling point remains high. Silicon brake fluid is a virtual lifetime product. Racers, professional restorers, and the Dept. of Defense use it for the same reasons you should.

Simply draining and refilling your brake system will give you many of silicon's advantages, but to do the job properly, the system should be flushed with alcohol, to remove any traces of water-bearing fluid left in the lines. It's an easy, though time consuming job, but remember, this is the last time you have to do it. Autotech highly recommends this state-of-the-art product.

PERMATAX BRAKE QUIET: 10.650.003

Squealing brakes can be quieted. This easy-to-use Permatex product is applied to the backs of your brake pads, and the annoying vibrations which cause the squealing are eliminated.



The dyno-proven Sport Exhaust System, complete
 A Recurved Distributor for your application
 L-1 Sports Camshaft
 Adjustable Cam Sprocket
 Performance Spark Plugs
 Instructions and Tuning tips

It's a good idea to make sure that your ignition and fuel system is in good working condition. This is a good time to upgrade your ignition — Silicon plug wires (or for an even more high performance look, our new stainless steel braid covered wires), our Sport Coil, and Breakerless conversion for owners of cars with point-type systems.

LEVEL 1.5 SYSTEM: 10.100.150

The L-1 Plus offers a "hotter" camshaft and SportTuned valve springs — This camshaft provides increased high end performance.

SPORTTUNED SYSTEMS

Volkswagen invested a great deal of engineering in the development of the Rabbit motor, making it one of the finest small car engines available. That same attention also made it one of the best engines available for high performance development.

You probably know that an engine is a complicated system. We offer any or all of what you need to make your system perform. But because an engine is complicated, it takes more than just buying a bunch of parts to make it go. Picking out what it takes to make it perform is what SportTuning is all about. Through long experience and personal testing, we have worked at eliminating the frustrations of mediocre design and bad selection by offering our SportTuned Systems. The performance levels vary to match your demands, or as is often the case, your pocketbook.

There are three advantages to the SportTuned System Levels. We've chosen parts that work together. Each level is a solid base for your next move up. And last, but certainly not least importantly, you realize significant savings in purchasing the SportTuned System packages, compared to the individual component prices.

In addition to the well-engineered SportTuned System Level 1, 2 and 3 packages, we offer our complete SportTuned engines as short and long blocks, precision built to offer solid horsepower at a great price. All brand new, with no core charges. And no delays in getting your machine running. Or, we can build an engine to your specs.

LEVEL 1 SYSTEM: 10.100.100

SportTuned Systems Level 1, to fit your Rabbit, Scirocco, or Jetta. Be sure to specify what year and model. The L-1 kit is for both carbureted and injected systems.

This first step gives you the engineered components to raise your stock 1.5, 1.6, or 1.7 horsepower about 20%, to around 95 horsepower — Real horsepower, with improved torque, drivability, and increased economy. This is a true bolt-on. If you can do a tune-up, the L-1 modification will present no problems to you. The SportTuned Systems Level 1 kit includes:

LEVEL 2 SYSTEM: 10.100.200

The L-2 kit, to fit your Rabbit, Scirocco, or Jetta. Be sure to specify what year and model. The L-2 kit works very comfortably with injected systems, and can give excellent results on carbureted cars if you make the change to one of our dual sidedraft carburetor set-ups.

This next step in a high performance upgrade is designed around the Autotech SportTuned Zylinderkopf. That's a nice German word for **cylinder head**, and this Zylinderkopf is a nice one. There's a complete description in the Cylinder Head section of our catalog for more of the details. The SportTuned System L-2 is a free-reving motor, with a better than stock torque curve and power up to the 7000 RPM mark. Best of all, it's an easy installation, with changing the cylinder head the major part of the job. Here's what the L-2 package consists of:

SportTuned Zylinderkopf, complete with L-2 Sport
 Camshaft, adjusted and ready to bolt on.
 Sport Exhaust System, dyno-proven, complete
 Larger Throttle Body for increased air flow
 Recurved Distributor, for your application
 Adjustable Cam Sprocket
 Performance Spark Plugs
 Instructions and Tuning tips

The performance of the L-2 kit is around 120 horsepower on your stock 1.6 or 1.7 engine. For cars equipped with the Lambda Sensor, our Lambda Power "black box" can up this figure moderately.

LEVEL 3 SYSTEM: 10.100.300

The Level 3 kit is a little more involved as it requires doing the bottom end of the engine as well. But the added torque and horsepower are well worth the effort. Autotech supplies the matched components of the Level 2 kit, with the addition of a forged factory 86.4 mm crankshaft and high compression 83 mm pistons. The result is a smooth running engine that's flexible on the bottom end, comfortable with pump gasoline, yet pulls to the 7000 RPM mark effortlessly.

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ENGINES AND CYLINDER HEADS

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SPORTTUNED PERFORMANCE ENGINES

Autotech offers you complete high performance engines, in our L-3 long- and short-blocks, with no core charges and exchange hassles! No problems shipping your old engine to us. Our performance engines are designed to offer flat torque curves and high performance you can really feel. They're available as either a short block or as a complete engine, to use your accessories and hardware. It's the way to go for dependable, trouble-free, dyno-proven performance.

L-3 PERFORMANCE SHORT BLOCK: 10.101.300

The L-3 short block is 1860 cc, with the forged 86.4 mm crankshaft and 83 mm pistons. The compression ratio is 9.5 to 1 with the standard combustion chambers. The L-3 is made from all new parts and includes a new oil pump and the large 5 qt. oil pan. If you already have a high performance cylinder head, this is a good way to upgrade. Even with a stock cylinder head, there is a significant increase in torque and performance. And you can upgrade later on to a SportTuning L-1, L-1.5, or L-2 kit in order to realize the full potential your L-3 short block offers.

L-3 COMPLETE PERFORMANCE ENGINE: 10.100.003

Includes the L-3 Short Block and the SportTuning Zylinderkopf. All new parts, all precision assembled. A replacement engine ready-to-bolt in, no exchanges, no hassles. This package, with the Sport Exhaust, gives over 120 trouble-free horsepower. The torque is much better than even the GTI, for flexibility. Tune-ups and maintenance are the same as stock.

ENGINE BLOCKS: 10.103.100

New factory engine blocks to replace damaged or worn out units. To replace 1.6 and 1.7 Liter blocks.

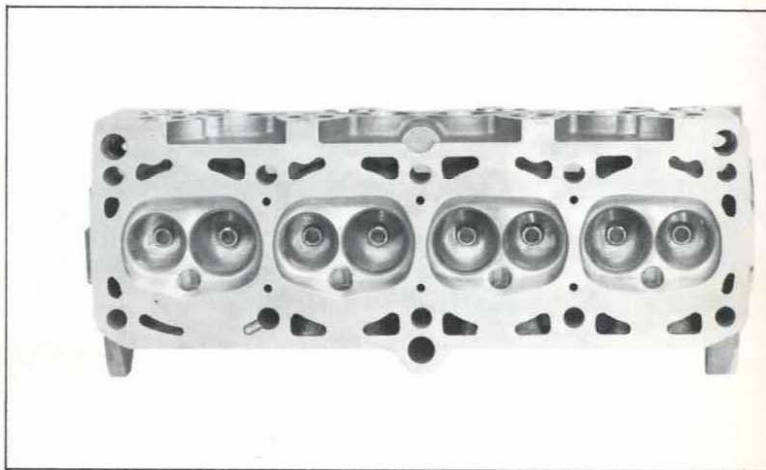
CYLINDER HEAD, CAM SHAFTS, AND VALVE GEAR

SPORTTUNING ZYLINDERKOPF: 10.109.100

The efficiency and the maximum power and torque potential of an engine is determined by how much air-fuel mixture it can get into the cylinder. On many cars this is restricted by the camshaft or carburetion.

The solution to real performance is not just a hotter camshaft, but larger valves and modified porting. Autotech's solution is the Zylinderkopf. In German it means "cylinder head", but here at Autotech it means SportTuned performance. Performance typical of the flat out German heritage of your Rabbit, Scirocco, or Jetta.

The cylinder head is fitted with our Sport valve seats and 40 mm intake valves and 34 mm exhaust valves. Precision guides and stem seals are installed and our SportTuned valve spring set is used, whatever your camshaft choice. Porting is to Autotech's specifications, with careful attention paid to the critical throat area to insure maximum flow. We're proud of the workmanship in our Zylinderkopf. In fact, for a nominal extra cost, Autotech will include Flow Bench certification of your Zylinderkopf. This cylinder head is the heart of the SportTuning System Level 2, when fitted with our L-2 camshaft. This cylinder head also offers improved



performance with just a stock camshaft, if you'd like to build your machine in steps.

The Zylinderkopf is sold complete with a SportTuned headgasket and other required gaskets. To get even more performance, a perfect match is the Sport Exhaust System.

FLOW BENCH CERTIFICATION FOR YOUR ZYLINDERKOPF:

[At time of purchase only] 10.001.102

CAST ALLOY CAM COVER, Black: 10.109.050

CAST ALLOY CAM COVER, Polished: 10.109.051

A precision die-cast sport valve cover of aluminum alloy. Includes special internal baffling for oil control. Uses the stock filler cap, and is available in high polish or black with polished fins. With gasket set, throttle bracket and hardware, oil breather fitting, and all necessary attachment hardware.

NEW HEAD, Carbureted: 10.109.001

NEW HEAD, Injected: 10.109.002

ADJUSTABLE CAM TIMING SPROCKET: 10.109.400

Modified cam drive pulley allows retarding or advancing of the camshaft in 1 degree steps to correctly "zero-in" your camshaft to the recommended setting. When used on a stock engine, advancing the cam timing 4 degrees will increase low-end torque and improve throttle response. Each of our high performance camshafts carries specific recommendations for cam timing setting.

READY TO GRIND CAM BILLET: 10.109.405

Cam billet with bearing surfaces ground. Lobes are ready to grind. To use for your own special grind.

L-1 CAMSHAFT: 10.109.416

As used in SportTuning System Level 1. A mild grind for improved performance with no deterioration of idle or low end performance. .416 inches of lift. Includes instructions, timing card, and cam lube.

L-2 CAMSHAFT, Carbureted: 10.109.442

As used in SportTuning System Levels 1.5 and 2 for carbureted applications. Allows increased top end performance. .442 inches of lift, 238° duration at .050 inches of lift. Includes instructions, timing card, and cam lube. Must be used with SportTuned valve spring set, #10.109.600.

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**L-2 CAMSHAFT, Injected: 10.109.425**

As used in SportTuning System Levels 1.5 and 2 for CIS injected applications. Allows increased top end performance. .425 inches of lift, 220° duration at .050 inches of lift. Includes instructions, timing card, and cam lube. Must be used with SportTuned valve spring set, #10.109.600.

L-2 CAMSHAFT, GTI: 10.109.426

As used in SportTuning System Level 2 for GTI, CIS injected applications. Allows increased top end performance. Correct lobe offset prevents excessive cam follower rotational speeds. .425 inches of lift, 220° duration at .050 inches of lift. Includes instructions, timing card, and cam lube. Must be used with SportTuned valve spring set, #10.109.600.

NEW CAMSHAFT TIMING BELT: 10.109.005**SPORTTUNED VALVE SPRINGS: 10.109.600**

These stiffer valve springs alone will extend the rev capabilities of the valve train to the 8000 RPM mark. In addition, the SportTuned valve spring set will reduce the possibility of coil bind when properly installed. A good idea for any high performance engine.

VALVE SPRING SEATS: 10.109.605

Hardened steel valve spring seats. They keep the valve springs from causing damage to the aluminum cylinder head. Damaged seats should be replaced. Remember: these alloy cylinder heads always require the use of valve spring seats.

VALVE SPRING SHIMS: 10.109.610

Used to adjust the valve spring installed height to the correct figure.

VALVE SPRING RETAINERS: 10.109.650

High quality valve spring retainers.

TITANIUM VALVE SPRING RETAINERS: 10.109.655

The lightest possible valve spring retainers to reduce valve train inertia. Stands up to abuse that aluminum retainers will not.

VALVE KEEPERS, Single-Groove: 10.109.660

Hardened keepers for use with single-groove valves, such as stock intake and exhaust.

VALVE KEEPERS, Triple-Groove: 10.109.661

Hardened keepers for use with triple-groove valves, such as stock GTI intake and exhaust.

CAM FOLLOWER CUPS: 10.109.700

Factory replacement for your worn or damaged cam follower cups. Sold in sets of 8.

STOCK REPLACEMENT VALVES

The factory is very specific about reusing old valves when going through the cylinder head. The intakes should be refaced after inspection only. The exhaust valves should not be refaced — only replaced. These are the correct replacement valves.

STOCK REPLACEMENT VALVE, Intake: .. 10.109.735**STOCK REPLACEMENT, Exhaust: 10.109.733****HIGH PERFORMANCE VALVES**

The performance potential of an engine is limited by its breathing ability, a function of valve size, among other things. We feel that these 40 mm intake and 34 mm exhaust valves represent the optimum for the cylinder bores in use. They're the same high quality we use in our SportTuned Zylinderkopf.

40 MM INTAKE VALVE: 10.109.740**34 MM EXHAUST VALVE: 10.109.735****SPORT VALVE SEATS**

Sport valve seats from a superior high-nickel alloy. Available in Sport and stock sizes. Call for custom applications.

SPORT VALVE SEATS, for 40 mm Valve: 10.109.705**SPORT VALVE SEATS, for 34 mm Valve: 10.109.706****VALVE SEATS, STOCK SIZING, Intake: ... 10.109.707****VALVE SEATS, STOCK SIZING, Exhaust: . 10.109.709****VALVE GUIDES**

Perhaps the biggest failing of the early Volkswagen watercooled design was with the valve guide and seal problems which caused excessive oil consumption. There was a recall to correct this with an improved factory version of the valve stem seals. If you are an owner of one of the early cars with this problem, and haven't had it repaired, be sure to contact the dealer for the free repair. If you're rebuilding your engine, we offer two solutions to this potential problem. Our precision replacement valve guides are available set up for the improved factory valve stem seals, serrated for the U.S. style Teflon valve stem seals. We offer the improved OEM stem seal or the Teflon seal.

PRECISION REPLACEMENT**VALVE GUIDE: 10.109.720****PRECISION REPLACEMENT****VALVE GUIDE PC: 10.109.721****STOCK SILICON VALVE GUIDE SEAL: ... 10.109.725****TEFLON VALVE GUIDE SEAL: 10.109.726****CAMSHAFT ALIGN BORE: 10.001.101**

If your engine has been run without oil, and the cam bearing surfaces in the cylinder head have been ruined, there is a fix! This service includes new forged cam caps (investment cast end cap), and precision align bore to fix your head properly.

CYLINDER HEAD LABOR: 10.001.100

Autotech can meet your additional requirements in cylinder head work.

CYLINDER HEAD AND VALVE TOOLS

DEGREE WHEEL: 10.012.101

Degree wheel and instructions for correctly timing your camshaft.

VALVE STEM SEAL REPLACEMENT TOOLS

These tools allow you to replace worn-out valve seals while the cylinder head is on the engine. A real timesaver, and an easy way to reduce excessive oil consumption. Please see the explanation of the problem in the Valve Guide section.

VALVE STEM SEAL REMOVAL TOOL: ... 10.012.102

VALVE STEM SEAL INSTALLATION TOOL: 10.012.103

VALVE SPRING COMPRESSOR TOOL: ... 10.012.104

CYLINDER HEAD RETAINING PLATE: ... 10.012.114

VALVE GUIDE INSTALLATION TOOL: 10.012.105

Tool used to correctly locate valve guides during installation. Heat treated steel.

VALVE ADJUSTING

Valve adjustment on the Rabbit, Scirocco, or Jetta requires the use of a special tool to hold the cam followers in the down position in order to remove the shims for replacement. The valve adjustment pliers, part #10.102.108, may then be used to remove the shim, or a blast of compressed air sometimes does the trick. Your cam cover will have an illustration of the correct tool, if your car requires the "late" style adjusting tool. The Shim Set works on both early and late style cylinder heads, and contains an assortment of the required shims.

VALVE ADJUSTING TOOL, Early: 10.012.106

VALVE ADJUSTING TOOL, Late: 10.012.107

VALVE ADJUSTING PLIERS: 10.012.108

VALVE ADJUSTING SHIM SET: 10.012.109

CRANKSHAFTS

The crankshafts which we offer are both forged and cast. While we do not recommend the cast cranks for racing or turbo-charged use, they do offer a lot of performance at a bargain price for street use below 7000 RPM. Factory crankshaft offerings are forged with the exception of the late 1500, model YEAR 1978, with 1.6 stamped on the block. It makes an okay base for a bolt-on performance engine, but anyone building a higher performance engine should seriously consider a larger displacement motor.

CRANKSHAFT, 80 mm, Forged: 10.105.800

CRANKSHAFT, 86.4 mm, Forged: 10.105.860

CRANKSHAFT, 90.5 mm, Forged: 10.105.900

CRANKSHAFT, 94.5 mm, Forged: 10.105.940

ENGINE GASKET SET: 10.198.100

Complete engine gasket set includes all gaskets for cylinder head and block assembly. Highest quality, and highly recommended, for all engine rebuilds. Specify year, model, and engine displacement when ordering.



CRANKSHAFT PREPARATION SERVICE: 10.001.010

Any of the forged crankshafts are available in "prepped" form for severe duty, or your own crankshaft can be prepared. Preparation includes:

- Nitriding and Stress relieving
- Oil passages drilled and tapped
- Oiling holes chamfered and blended for improved oiling
- Balancing
- Micropolishing

CONNECTING RODS, NEW: 10.105.000

New connecting rods, with caps, studs and nuts.

SPORTTUNED ROD SET: 10.105.001

Set of new connecting rods, magnafluxed, balanced, and shot-peened. Prepped for severe duty.

POLISHING AND LIGHTENING SERVICE: 10.001.020

For the ultimate in stock rods, they can be lightened, polished, and completely blueprinted.

CONNECTING RODS, SPECIAL FORGED: 10.105.003

Carillo racing connecting rods for severe duty. May be ordered in lengths to suit your application. Call for price and availability.

ROD BEARING SET: 10.104.001

Top quality connecting rod bearing set for stock and high performance use. Specify crankshaft journal size when ordering.

MAIN BEARING SET: 10.104.010

Top quality main bearing set, stock or high performance use. Specify main journal size when ordering.

INTERMEDIATE SHAFT BEARING SET: 10.104.015

Top quality replacements for the intermediate shaft bearings. Often overlooked!

SPORTTUNING

CYLINDER HEAD GASKET: 10.198.010

For street or race applications. With steel reinforcing ring for superior sealing characteristics.

BIG BORE CYLINDER HEAD GASKET: ... 10.198.020

For bore sizes up to 83 mm. A top quality head gasket for performance use.



PISTONS

EARLY 1.5, 75 AND 76, WITH "1.5" STAMPED ON BLOCK:

**STOCK REPLACEMENT, 8.1:1 Compression,
Mahle Cast Piston with Rings:**

.5 mm Oversize:	10.107.151
1.0 mm Oversize:	10.107.152
HIGH COMPRESSION, 9.7:1, Mahle Cast Piston:	
.5 mm Oversize:	10.107.153
1.0 mm Oversize:	10.107.154

FOR LATE 1.5, MODEL YEAR 1978, WITH "1.6" CAST ON SIDE:

**STOCK REPLACEMENT,
8.2:1 Compression, 79.5 mm Bore:**

Standard:	10.107.155
1st Oversize:	10.107.156
2nd Oversize:	10.107.157

FOR 1.6 LITER:

**Mahle Cast Pistons, Standard Compression,
8.1:1, for use with U.S. Carb or CIS Cylinder Head:**

79.5 mm (Standard Size):	10.107.161
80.0 mm (.5 mm Oversize):	10.107.162

**Mahle Cast Pistons, High Compression,
9.7:1, for use with U.S. Carb or CIS Cylinder Head:**

79.5 mm (Standard Size):	10.107.163
1st Oversize:	10.107.164
2nd Oversize:	10.107.165
3rd Oversize:	10.107.166

FOR 1.7 ENGINE:

**Mahle Cast Piston, Standard Compression, 8.1:1, for
use with 86.4 Crank and U.S. Carb or CIS Head:**

79.5 mm:	10.107.171
1st Oversize:	10.107.172

**Overbore Pistons for 1.7, 80.5 mm Bore for use with
86.4 Crank and U.S. Carb or CIS Head:**

Mahle Cast Piston, Over Bore, 8.3:1 Compression:	10.107.173
Mahle Cast Piston, Over Bore, 8.6:1 Compression:	10.107.174
Mahle Cast Piston, Over Bore, 9.2:1 Compression:	10.107.175

EUROSPEC GTI PISTONS: 10.107.176

For 1.8 GTI's, 8.15 mm bore Mahle Cast Piston, 10.1:1 compression. For use with 86.4 mm crank and U.S. GTI head.

VERY BIG BORE HIGH PERFORMANCE PISTONS

Available in 82.5, 82.75, and 83.00 mm bores for the following strokes 86.4, and 90.5.

These "Big Bore" pistons are of the highest quality and allow using the largest bore possible, as well as a compression ratio of 9.5 to 1, in order to get a maximum of torque from your engine. As torque is probably the most important part of the performance picture giving flexibility and pull, a change to these pistons will really make a big improvement. The high compression is not only one of the most significant changes you can make in increasing torque and horsepower, it also increases the efficiency, and improves the fuel economy. The 9.5 to 1 compression ratio of these pistons will run fine with stock timing and stock or more radical camshafts with no pinging problems, even on unleaded premium gas of 91 octane. It works out to be a lot like something for nothing, with improved performance and no increase in fuel consumption. These are the top quality pistons used in Autotech's complete engines and in our SportTuned engine kits.

VBB CAST PISTON, FOR 86.4 MM STROKE, 9.5:1 COMPRESSION:

82.5 mm Bore, Set of 4:	10.107.625
82.75 mm Bore, Set of 4:	10.107.627
83.0 mm Bore, Set of 4:	10.107.630

VBB CAST PISTON, FOR 90.5 MM STROKE, 9.5:1 COMPRESSION:

82.5 mm Bore, Set of 4:	10.107.925
82.75 mm Bore, Set of 4:	10.107.927
83.0 mm Bore, Set of 4:	10.107.930

We offer special duty forged pistons on a custom basis for many applications. Please call if your turbo or other special motor needs the very best. Autotech's experts will be glad to get you what you need.

TOTAL SEAL PISTON RING SETS: 10.107.000

All of the pistons Autotech offers are sold complete with rings. We also offer the Total Seal rings, with their unique 2-piece second ring as an optional extra at extra cost. These rings have no gap like conventional rings have, and offer improved sealing and reduced leakdown. Many enthusiasts feel that they offer improved performance, and this seems to be especially true for diesel applications. Just tell us what pistons you want them for, and we'll be happy to add them to your order.

ENGINE OILING:

FILTERS, SPECIAL OIL SUMPS, OIL PUMPS, OIL COOLERS AND COOLER KITS, AND ACCESSORIES

BLUEPRINTED SYNTHOIL 100 15W/40: 10.150.010

High performance engines need high performance oil. Synthoil 100 is referred to as a "Blueprinted" oil because Synthoil's chemist determined the ideal properties of the oil molecule and then "blueprinted" the oil to give each and every molecule that same property. The difference between this oil and regular oil is like the difference between a laser and a light bulb. On top of the ultra-refined petroleum base-stock, a proprietary synthetic polymer is added which gives Synthoil 100 its extraordinary properties and durability. What all this means to you is vastly extended engine life, cooler running, a 50,000 mile drain interval, and a money-back guarantee if you don't get at least 10% better mileage. When you factor in all the variables, you'll find that Synthoil 100 is one of the cheapest lubricants you can buy.

BLUEPRINTED SYNTHOIL,

100 15w/50: 10.150.020

This Blueprinted Synthoil 100 is 15/50 weight oil for turbocharged and racing applications requiring a heavier weight oil.

OIL FILTERS

Why not just use any cheap oil filter? The answer is a simple one. SAE papers confirm over and over that a major cause of all engine wear is the dirt, metal particles from engine wear or a rebuild, or even the original assembly of your engine at the factory, that are recirculating in your engine's oiling system. In any small, high-revving engine the oiling system is important — in a high performance engine it is even more so. The extended service intervals and high oil pressures of a VW demand the best filtration possible. Autotech offers you the Mann line of oil filters from Germany. They're quality filters at a reasonable price.

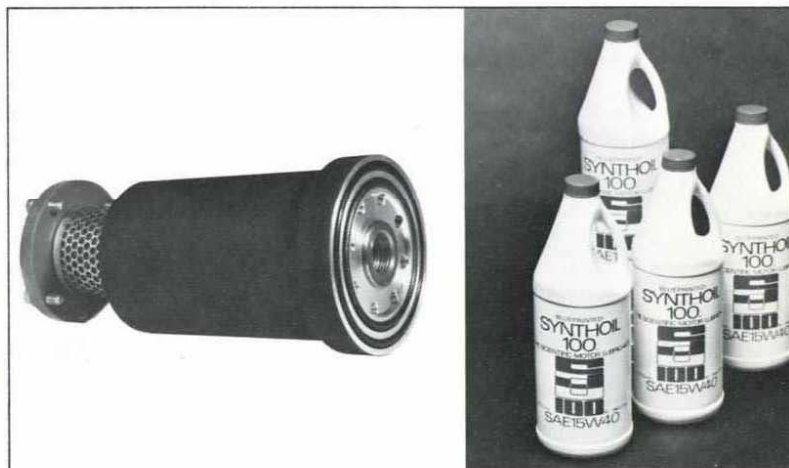
STOCK REPLACEMENT FILTER, Mann, German made

For gasoline engines: 10.115.561

For Diesel: 10.115.562

MECCA HIGH PERFORMANCE OIL FILTER

The cheapest protection an engine can have is good filtration. A filter is extremely necessary, but the stock filter can be improved upon in many ways. Stock filters incorporate bypass valves which always circulate unfiltered oil upon cold starting, and eventually circulate dirty oil as they fill up and as the bypass opens after use. They only filter particles 15 microns in size, or larger. And, they provide a substantial restriction that the oil pump must overcome, eventually costing some power.



For some years, Mecca Development produced a superior filter system for racing applications. Its qualifications:

Filtration down to 8 Microns.

Full filtration, with virtually no restriction, of 45 Gallons per Hour [A flow rate greatly exceeding VW's requirements].

Blow-out proof element and casing.

Replaceable element with a life of approximately 20,000 miles in street usage.

The added feature of take-apart inspection to help determine engine condition.

Mecca has an outstanding reputation in the racing and high performance field with oiling system products. The Mecca EC-45 filter, is extensively used in the severe proving ground of IMSA and FIA racing. Now, with the ECI-45CS, all of these benefits are available to the street driver with a minimum amount of hassle.

Autotech is pleased to carry this new version, that simply spins on, to replace your stock filter. It's that easy to install this racing quality filter system. The combination of the lifetime housing and inspectable 20,000 mile element, make economical sense for your motor — whether it's stock or a real screamer. Autotech stocks replacement elements and seals for you, too, so that replacement parts are easy to get.

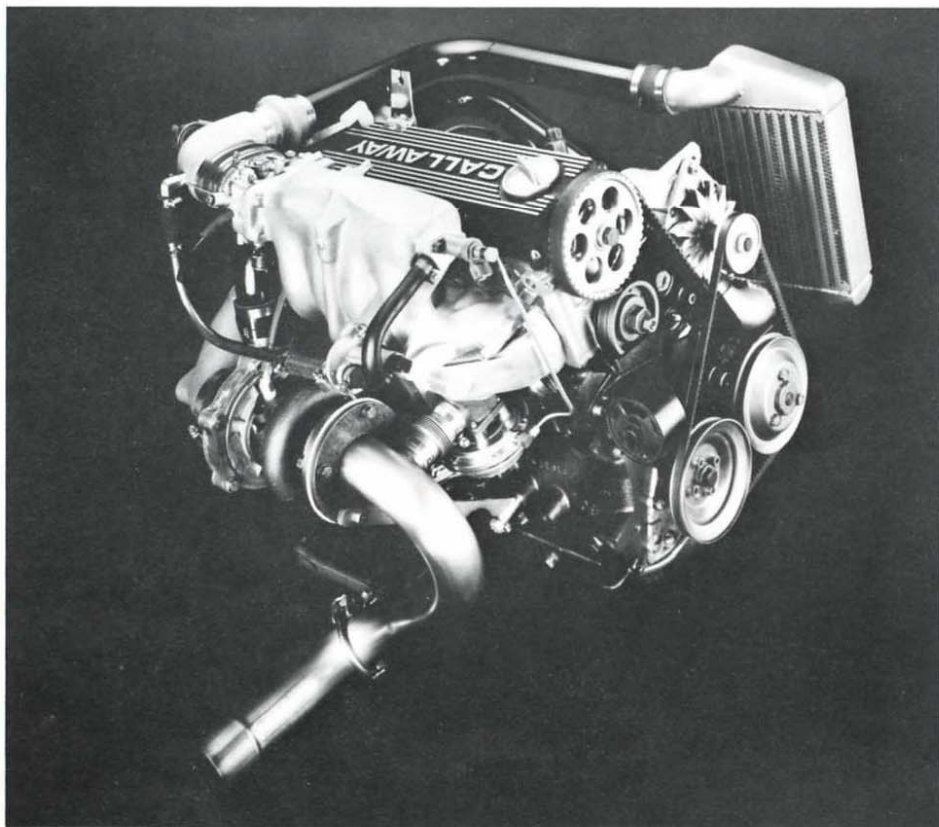
MECCA HIGH PERFORMANCE

OIL FILTER: 10.115.570

REPLACEMENT ELEMENT, for above: 10.115.571

SPARE SEAL KIT,

for above (inc. w/ element): 10.115.572



We at Autotech believe in offering only the finest in Turbocharger Systems. And the finest Turbocharger kit on the market is the Callaway Turbo System.

The proliferation of the VW fuel-injected, water-cooled engine in hundreds of thousands of vehicles worldwide speaks mute testimony to the engine's brilliant design and proven reliability.

Recent applications of the latest version of the engine for Rabbit and Scirocco GTI models is merely a hint of the engine's true capabilities.

The system Callaway has designed to turbocharge this family of engines technically complements the VW design, preserving the reliable nature of the 1.6, 1.7 and 1.8 liter engines and providing, on demand, a serious increase in horsepower.

The Callaway turbosystem places the turbocharger on the rear side of the engine block, carefully nestled in a position that provides short exhaust routing to the turbocharger. This placement solves numerous problems in that it concentrates heat from the turbocharger in an area where it can do no harm to delicate components and is entirely out of the way of all service operations. Our system retains the correct path of air-flow through the Bosch CIS fuel injection system.

Air flow starts by passing through the stock air cleaner, through the Bosch air-flow sensor and is then ducted through an aluminum casting to the compressor inlet of the turbocharger. Compressed air from the turbocharger is then routed through the intercooler (when supplied) and proceeds to the throttle-body through a Callaway aluminum casting and then through the stock intake manifold to the cylinders. The ductile iron exhaust

manifold mounts the turbocharger rigidly at the back of the engine block while an exhaust wastegate controls turbine speed. Attached to the turbine outlet is a complete 2 1/4" free flow exhaust system which continues to the turbo muffler at the back of the car.

Turbo Sizing Fundamental to a properly turbocharged engine is the correct sizing of the turbocharger and the turbo compressor. These are the primary factors affecting response characteristics of a turbocharged engine. After testing virtually every turbocharger available, we have found one turbocharger to be exceptionally well suited to the VW water-cooled engine.

Intercooler (Standard on 1.8 liter cars. Specify as option on other models.)

The stock 1.8's impressive low-end response has been achieved in part through an increased compression ratio. Our turbosystem does not require altering this high compression ratio, but rather through a carefully ducted intercooling system, achieves a 6-10 psi boost level while eliminating the need for water injection and the possibility of detonation. Intercooler installations fit neatly in cars with air conditioning and without, and in every case, the intercooler is placed for optimum ram air intake.

Boost Control Our system uses one of the most advanced wastegate designs available. Many hours of testing have shown our unit to be a reliable and accurate control valve. Exhaust gases are taken from the exhaust manifold ahead of the turbine inlet and when boost control pressure is reached the wastegate opens and routes the overboard exhaust gases back into our free flow exhaust system downstream of turbine outlet. The wastegate overboard system utilizes a stainless steel flexible coupling, borrowed from the Aerospace Industry, to eliminate thermal stress in that area.

A U T O T E C H

sport tuning

Turbo Exhaust Manifold Our design allows the turbocharger to be mounted very close to the exhaust ports for maximum utilization of the exhaust gas velocity and heat energy. It also positions the turbocharger high enough on the engine block so that the oil drain from the turbocharger is not compromised. It is heavily ribbed, much in the same manner as the stock Volkswagen exhaust manifold, and contains the provision for the exhaust wastegate all in one stout, well-finished casting of heat resistant ductile iron.

Free Flow Exhaust System A thorough approach to a properly engineered turbosystem requires exhaust system replacement. In the Callaway turbosystem, exhaust gases flow through an 18 gauge steel, mandrel-bent, constant 2 1/4" diameter system. Our system incorporates a unique Callaway designed steel ball joint flex member to take up the transverse torque from the engine and to eliminate exhaust system hammering in reverse gear. The entire system is positioned in the stock routing and a turbo muffler is included. A 2 1/4" chrome tipped tailpipe is perhaps the only external giveaway to the turbo conversion. A lifetime stainless steel muffler system is available as an option.

Turbocharger Lubrication The turbocharger takes its lubrication through a stainless steel braided line from the clean side of the oil filter. Lubricating oil from the turbocharger is returned to the crankcase through AN mil-spec fittings and a large diameter stainless steel Aeroquip line. This drain line is of particular importance for trouble-free bearing operation. Our positioning of this line provides a constant downhill slope to the crankcase and does not interfere with the front axle movement. A cooler kit is recommended for both normally aspirated and turbocharged engines and is available as an option.

Stage II Option The Stage II option achieves a significant increase of power over the Stage I conversion by using Callaway's own advanced electronic fuel metering device known as the Microfueler. For all Stage II options, a fifth fuel injection nozzle mounted into a modified inlet casting is triggered by the Microfueler and precise amounts of supplemental fuel are delivered as required by high boost conditions. The Callaway wastegate is also modified and boost levels are increased to 10 psi.

Factory Support Autotech has a well qualified staff to answer any technical questions you may have regarding installation or components. We take great pride not only in our product, but also our organization's ability to service our customer's needs.

Instruction Manual The instruction manual of the conversion supplies all of the installation information and is superbly illustrated with diagrams and photographs. These instructions have evolved over many years of use by our customers, and through the use of a computer, we have been able to add refinements to the instructions on a frequent basis. Few understand the importance of a superlative instruction manual to a proper installation.

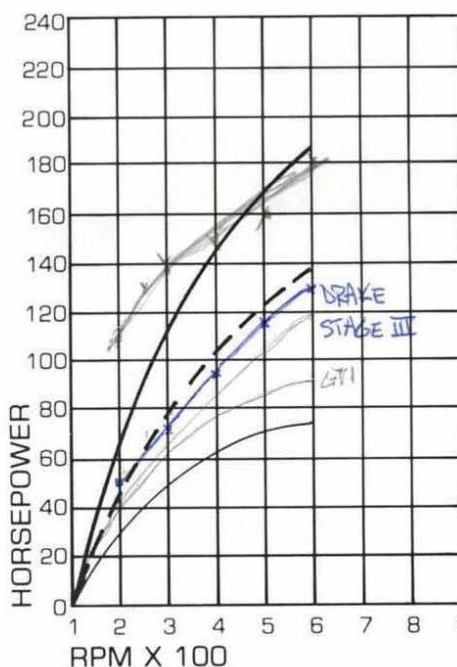
In addition to these components, the Callaway Turbosystem includes Boost gauge, all necessary installation hardware and complete installation instructions. When ordering, please specify VW car model and year.

STAGE I TURBOCHARGER KIT: 10.200.100

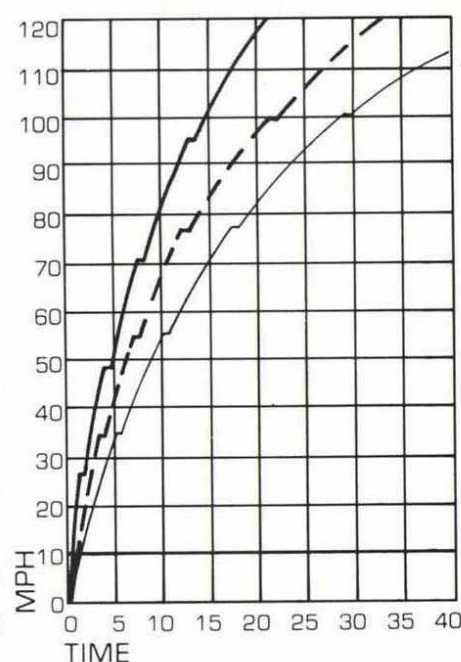
STAGE II TURBOCHARGER KIT: 10.200.200

INTERCOOLER UPGRADE OPTION: 10.200.300

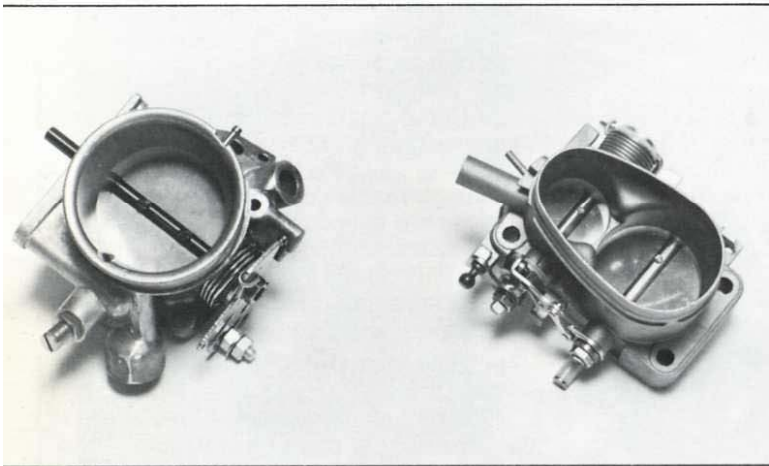
HORSEPOWER CURVE



ACCELERATION CURVE



STAGE II GTI TURBO CONVERSION—185 bhp ———
STAGE I WATER INJECTED SCIROCCO TURBO—130 bhp - - -
STOCK SCIROCCO—76 bhp



INJECTION TWEAKS

CIS injection [also known as K-Jetronic], is one of the simplest and most elegant fuel delivery systems around. It requires next-to-no maintenance, is very flexible and forgiving, and can be easily tweaked. If you increase the size of your engine, it will easily adapt itself. If you burn a valve on a Bonzai run up a long grade, it will still function without tantrums. It is even designed to tolerate moderate levels of particulates in the fuel without gagging. If you are one of those who wants performance without having to tinker with jets, adjustments and linkages, CIS is for you . . . many people simply set it and forget it.

If you are one of those, however, for whom the best isn't nearly good enough, these demon tweaks for the CIS will be just what you're looking for. We offer everything from the simple to the sensational, so you can do as little or as much as you like with your stock system. In the extreme case when your stock CIS set-up becomes inadequate, many of the components are interchangeable from car to car, so you can create a custom system for your special application, and it will all dove-tail perfectly.

SHIM KIT, for adjusting system pressure: 10.215.001

Within the CIS fuel delivery system there are two different pressure levels, system pressure and control pressure. System pressure is essentially dependent upon the thickness of the shims in the fuel distributor. The more shims you have, the more fuel your system can deliver, up to the limit of the system. This kit includes enough shims to give you just about any system pressure you wish, as well as complete instructions for tweaking your CIS.

ADJUSTMENT TOOL, for CIS mixture: . . 10.012.001

With this tool and a pair of fingers, you can make all the necessary adjustments to the fuel mixture and idle speed on your car. Distinctive shape prevents it from becoming "lost" like Allen keys. If your system doesn't have a hole drilled out for an adjustment, we wouldn't recommend changing it or drilling a hole. It will work better as it is.

GAUGE TO ADJUST CIS: 10.012.002

The only special tool needed to thoroughly understand what is going on inside your fuel system is this gauge, and for an involved analysis, a cheap kitchen timer. This gauge measures both system and control pressures, allows complete control over system parameters, and will even tell you when something is not right! Included with this gauge is the Bosch CIS handbook (#10.012.003) listed below.

INJECTOR INSERT REMOVAL TOOL: . . . 10.012.200

INJECTOR NOZZLE REMOVAL TOOL: . . 10.012.205

BOSCH CIS HANDBOOK: 10.012.003

This is the latest word from the people who made your fuel injection. Includes all test procedures, component locations, and test values you need to trouble-shoot (or tweak) your K-Jetronic injection. Comes with Autotech SportTuning pro's hints about CIS that covers the little details the book doesn't mention.

WARM-UP REGULATOR

Warm-up regulators perform two important functions. First, they determine the control pressure your CIS system operates at. When they are cold, they set the control pressure lower, essentially enriching the mixture. As they warm up, they gradually raise the control pressure until, at operating temperature, it remains steady at a pre-set level. Second, they incorporate a check valve that prevents pressure drop when the motor is shut off. If either function fails, it's time to buy a new one. If you have difficulty restarting your car when it's warmed up, the regulator is probably at fault.

You might also want a different warm-up regulator, however, if you wish to change your control pressure. Many of the hot European tuning firms recommend the Euro-Audi 5000 warm-up regulator for high performance usage. For turbo use we have a warm-up regulator that has a boost sensor to enrichen the mixture under boost. It is no substitute for a Micro-Fueler fuel enrichment, but can help throttle response. Because every warm-up regulator has slightly different specs, we stock them all, so the ideal one for your application is a phone-call away.

STOCK REPLACEMENT WARM-UP REGULATOR Specify model and year.

TURBO MODELS: 10.220.010

EURO-AUDI 5000: 10.220.020

TWO STAGE HIGH PERFORMANCE

BOSCH THROTTLE BODY: 10.214.001

There are two ways to get more air past the throttle. The first way is to have one huge throttle plate, and the other is to have two smaller throttle plates that open progressively, so that when both are open, more air flows than with one big throat. For performance as well as all-around driveability, the genuine Bosch high-performance two-stage throttle body is the way to go. It's more civilized around town, and dyno-testing shows more power increase on big motors than with the Big Throat. The progressive design also gives better mileage at part throttle. May require plenum modifications.

WEBER BIG THROAT 10.214.200

The Weber Big Throat is designed as a stock throttle body replacement adding from 6 to 8 horsepower on the dyno. A great addition when used with the big valve cylinder head. Improves throttle response on all CIS injected cars. Comes complete with easy to install instructions.

BIG THROAT LAMBDA MICROSWITCH BRACKET: 10.214.210

Required for Big Throat use on all 1.8L engines by allowing proper placement of Lambda throttle microswitch.

LAMBDA SYSTEM

Although viewed with suspicion, the exhaust gas oxygen sensor (also known as the Lambda sensor) is very high-tech. It's just about as close to having your car tune itself as you can get. Basically, the sensor detects the oxygen count in the exhaust gases that flow past it. If there is too much or too little oxygen, the sensor instructs the frequency valve to adjust the mixture accordingly. It's an excellent system and we recommend keeping it complete.

REPLACEMENT OXYGEN SENSOR: 10.909.001

If your car hurts at idle with the oxy sensor connected, and settles down when the wire is pulled, there's a good chance the oxygen sensor needs to be replaced. It's very easy to change.

LAMBDAPOWER: 10.909.002

The GTI's feature a full throttle cut-out to change the Lambda parameters and increase performance without affecting part-throttle economy. LambdaPower does them one better by offering you a microswitch controller black-box, completely adjustable, that really works. On a modified 1800 with the Lambda system, the increase in power was about 15%. (Pictured above.)

SPORTTUNED INJECTION LINES: 10.201.999

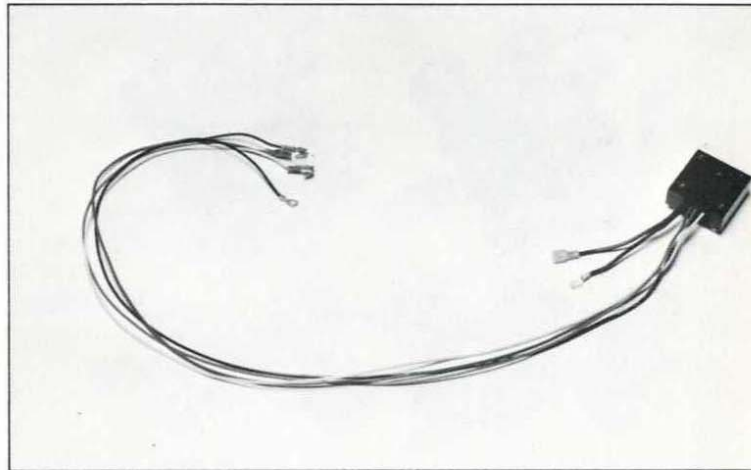
Perhaps the weakest part of the entire injection system is the fuel lines. Even new, they are less than confidence-inspiring, and after a few years, they can be deadly. These lines are the very best available in braided, stainless covered Teflon, (registered trademark), at a better price than the cheap thermoplastic factory lines. We sell a complete set, with swedged-on fittings, ready to be installed. Not only do they work well, they also make your engine compartment look very sharp.

LARGER AIR SENSOR UNIT, for late model cars: 10.215.001

A larger air sensing unit can improve the performance of bigger engines substantially. Please call for information.

AIR FILTERS: 10.205.001

These are top quality German replacement air filters. No tune-up is complete without one.



K&N AIR FILTERS: 10.205.002

Famous K&N air filters are well known in high-performance circles for free air flow, long life, and added performance. They're made of surgical gauze which you oil to insure complete filtration. They are reusable and should last a lifetime.

WATER INJECTION: 10.240.001

As you know, the bane of turbocharged engines is heat. Heat causes component failure, and can lead to damaging pre-detonation (pinging). One trick that helps on both counts is water injection. Injecting water into the air stream along with the gas, cools the incoming air/fuel charge and raises the octane of the fuel (since water doesn't burn, it won't ping). It works so well that you can actually get more power out of water injection than you could from injecting an equal amount of extra fuel. It's not a substitute for an enrichment or intercooler, but certainly helps in marginal situations. The unit we offer is a premium two-stage high-pressure system that works well with any turbo installation. Fully adjustable to maximize your power potential.

FUEL FILTERS: 10.245.001

As trouble-free as CIS fuel injection is, it still needs some maintenance. Most of this is in the form of changing the fuel filter and adding some fuel additive occasionally (see below). These are the factory-type filters, good down to 4 microns. Under normal circumstances, they will easily last the 15,000 miles between major services. It only takes one bad tank of gas to clog one up, and a filter is a lot cheaper than a fuel distributor and a set of injectors.

K-JETRONIC MANUAL: 10.000.002

The Bosch K-Jetronic fuel injection on your Rabbit, Scirocco, or Jetta, is an excellent system for both high performance and economy. And, with this book, it becomes quite simple to maintain and trouble shoot as well. A better book for your fuel injection can't be found.

EXHAUST SYSTEMS

In the quest for more horsepower and better performance, the exhaust system of any car is a good candidate for conversion. In that respect, the Rabbit, Scirocco, and Jetta, are no different from any other automobiles. Unlike many automobiles, however, the transverse mounting of the Volkswagen's engine means that any system chosen must have carefully considered features, to insure that it will function properly with the loading and twisting action of the motor. The addition of sport exhaust components should improve the performance, not just make the car louder and more obnoxious.

Autotech only carries systems that are the result of dynamometer testing and development, and offer performance levels unapproached by other systems. Our selection of different styles prevents making a bad decision. They all work, fit properly, and are complete.

SPORT EXHAUST SYSTEM, COMPLETE

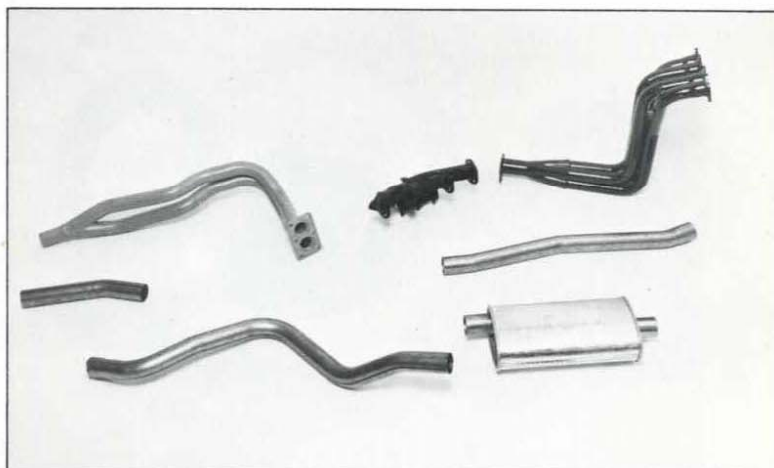
This is a complete tuned exhaust system, with resonator and muffler, all exhaust piping, and 2-tube downpipe, which uses your factory cast exhaust manifold. This system is a 3-into-2-into-1 design, similar to the factory GTI system of the European GTI's. The advantages of the system are a broad torque curve, and free breathing for high RPM operation. The advantage of using the stock manifold is that the system price is reduced, it won't rust out, and it is quieter than a header system. This American-made system comes complete with a stiffer motor mount to reduce transversal rocking which loads the exhaust system. For the GTI's, the stock manifold is of a different, more restrictive design. The Sport System for the GTI includes a cast European GTI manifold and special downpipe. This system makes real horsepower, even on a stocker, and is built to last. All brackets, gaskets, new copper covered exhaust nuts, and hangers, are included.

SPORT EXHAUST SYSTEM, Complete: . . . 10.297.001

**SPORT EXHAUST SYSTEM, Complete,
for U.S. GTI: 10.297.002**

GILLET POWER SOUND EXHAUST SYSTEM: 10.297.003

The Gillet Power Sound Exhaust System is the factory approved rally Group 1 exhaust system, as it is excellently designed, and engineered, as well as being sturdy enough to stand up to the rigors of rallying. It's quieter than the Sport exhaust system, but the power output is identical. The Sport exhaust is less expensive. The Gillet Power Sound requires the use of the Euro-GTI exhaust manifold and downpipe, or the twin-tube downpipe for the U.S. manifold. We recommend a heavier motor mount with each system.



**EURO-GTI MANIFOLD AND DOWNPIPE,
for use with above: 10.251.001**

**TWIN-TUBE DOWNPIPE,
for use with U.S. Manifold: 10.251.002**

LEISTRITZ SPORT SOUND EXHAUST SYSTEM: 10.297.005

This very popular German exhaust system, manufactured of heavy gauge steel, mounts to the standard existing flex coupling. Includes center resonator and rear muffler with a Porsche 924 style exhaust tip. A great addition to our Four-Tube Header for the best gain in power output. Please specify model when ordering.

FOUR-TUBE HEADER: 10.251.100

For those who desire a classic four-tube header, the Autotech header has all of the features that you'll need, and has been proven in dynamometer testing to improve the power output of even stock engines; as well as help the performance of fully modified power plants. Special new anti-reversion design allows the optimum in scavenging effect. The unit includes a flex pipe, to allow for chassis loading, all gaskets and nuts, and allows for the connection of oxygen sensors and EGR devices on engines so equipped. All stock bracketry can be used, which insures that the mounting problems will be minimal.

FOUR-TUBE HEADER, GTI: 10.251.110
Description as above.

BORLA STAINLESS STEEL EXHAUST: . . . 10.297.100

This is a real breakthrough for the Volkswagen owner. It's a first class, free-flow, stainless steel, exhaust system, with a lifetime guarantee. It will improve the performance of your stock VW, or work with a short-tube header to add high-end horsepower. It's got a nice, soft exhaust tone — and don't forget the lifetime guarantee.