

## **Korman BMW Engine Rebuilding Program**

On the road or track, we can put you up front. Since 1965 Korman has built successful BMW engines and cars for street, on-track club events, rallies, and racing. Our customers have won races in Japan, Thailand, the Phillipines, Indonesia, Australia, New Zealand, Mexico, Puerto Rico, Jamaica, Bolivia, San Salvador, Guatamala, Columbia, Argentina, Chile, Canada and throughout the United States. Join the winners.

### *Stock and Performance Rebuilding*

Customers from around the world ship their engines to Korman for rebuilding. Below are some of the reasons why.

#### *Expertise*

More than 55 years of BMW street, rally, autocross and racing engine experience goes into each Korman engine. Our R & D on the track results in improvements that add reliability on the street as well.

#### *Reliability*

Quality parts, precision machining, exact blueprinting and expert craftsmanship are our key ingredients for reliability. Where we add extra power, we build in additional strength. Our customers offer the best testimony as to the reliability of our engines, just ask one!

#### *Value*

Our Engine Plus program provides you with additional parts which are usually needed at the time of rebuild. Our inclusion of these parts is meant to save you time and inconvenience when reinstalling your engine. You will find our stock rebuild pricing comparable to that of BMW reman units even with the inclusion of Engine Plus parts. Additionally, we clean and reinstall external engine parts (intake and exhaust manifolds, injectors, wiring harnesses, pulleys, brackets, ignition system, coolant hoses, air hoses, vacuum hoses, thermostat housings, etc.) saving you even more time and money. This can represent more than 8 hours of additional labor savings over purchasing a bare long block

#### *Craftsmanship*

Our engines are hand assembled one at a time by dedicated, experienced technicians. The same technician who builds our full race engines is responsible for the assembly of our most modest stock rebuild, and he takes the same pride in each one. All aluminum external engine components (valve covers, intakes, front engine covers, etc.) are glass peened providing a better than new appearance, and all hardware and brackets are zinc plated with a gold tone finish which also helps prevent rust and corrosion. Blocks are finished in Korman blue or black if you prefer the original BMW color. Your Korman engine will be almost as attractive on the outside as it is on the inside!

#### *Warranty*

Korman engines come with a 2 year/24,000 mile warranty. *This warranty does not extend to engines and parts used in competition in on track events. Also excluded are failure due to abuse, neglect, or normal wear items. Full warranty terms are provided on the back of each invoice.*

#### *Added Value*

If you should choose to part with your BMW in the future you'll enjoy the respect and recognition "Engine built by Korman" brings to your vehicle.

### *Machine Work*

#### *Boring and Honing with Torque Plates*

Cylinder walls are slightly distorted by the tension of head bolts. Boring and honing with the cylinder head off will produce a block with round bores when un-assembled, but slightly out of round when assembled. In serious race engine preparation solid torque plates are bolted onto the block at factory torque specs to simulate the cylinder head bolt distortion. Boring and honing is performed with the torque plate installed to produce a bore that will be more perfectly round when the cylinder head is installed. This produces better

ring sealing and longer ring life. All Korman engines, from stock to full race, are machined using a torque plate.

#### Valves and valve seats

Valve seat grinders in common use are not appropriate for BMW cylinder heads. BMW valve seats are so hard that they spoil the surface of the grinding stones causing rough and imprecise seat surfaces. We use special valve seat equipment which cuts rather than grinds the seats. Very smooth and precisely machined seats are obtained. We use three or more angles to improve flow on high performance heads. Valves are also "cut" in a similar manner, providing two completely new mating surfaces.

#### Blueprinting

We carefully check clearances and tolerances throughout each engine to ensure that all will be within BMW factory specifications, or in certain high performance engines, within our tested, proven specs for these applications. The strength and durability of BMW engines comes from the excellence of their design, from the exactness that BMW demands in the size tolerances of the parts used, the precision of their machining processes, and diligence in measuring and assembling to very precise specs. This extraordinary attention to detail is what distinguishes BMW engines. It is why they were able to win a Grand Prix Formula One Championship with a production block. It is the secret of their success in their Formula 2 and Group A M3 engines. This is the reason BMW engines produce more horsepower per cubic inch than most other production engines and why you can drive them harder and longer. Our engine building success comes from our thorough understanding of the technical requirements of BMW engines and our diligence in applying this expertise in our inspection, machining, and assembly of your engine.

#### "Engine Plus" Program

From our many years of experience building BMW engines we offer our "Engine Plus" program. Our quoted engine prices represent much more than just the essential internal parts that other businesses quote. We also include the external parts which are usually in need of replacement. Typically, these tune-up and maintenance parts represent over \$300.00 of our package prices. All of our rebuilds include these NEW parts where applicable;

- Pistons, rings, pins and clips
- Rocker Shafts
- Rocker Arms
- Valve Guides
- Main Bearings
- Rod Bearings
- Timing Chain or Belt
- Slide Rail
- Tension Rail
- Upper and lower gasket sets
- Oil pump
- Oil pump chain
- Water pump
- Thermostat
- Fuel pump\*
- Freeze plugs
- Gaskets and seals
- Ignition wire set
- Oil filter
- Fuel filter
- Spark plugs
- Distributor cap and rotor
- Points, condenser
- Alternator V-Belt
- Cylinder head bolts
- Connecting Rod bolts
- Main bearing cap bolts

\*included only on stock rebuilds of carbureted engines. Fuel injection pumps not included.

In the event that you have just replaced one or more of the above items which are included in your rebuild and prefer to re-use the part, it will be deducted from your invoice. In engines subject to extreme wear it may be necessary to replace some of the following additional parts. The cost of these parts is not included in our engine prices unless specifically noted:

- Valves, valve springs, locks, eccentrics
- Camshaft and crankshaft gears
- Fuel injection components
- Piston pin bushings
- Flywheel pulley
- Distributor (included on many high performance rebuilds)
- Throttle linkage
- Valve guides
- Front and rear covers

- Tappet shims
- Crankshaft
- Cylinder Head
- Block
- Valve cover
- Connecting Rods

*Our goal is to provide you with an engine that will offer many miles of driving pleasure with no unwanted surprises.*

## **Korman Engines**

M10  
M20  
M30  
M42 M44  
S14  
S38 M88  
M50 M52 M54 S50 S52  
S54  
M70, M73, S70

### **BMW M10 Engines, 1968-1976 BMW 2002**

#### Korman Stock Rebuild

Our stock rebuilds are assembled to BMW specifications by our experienced and dedicated technicians rather than off a mass production assembly line. Korman engines are assembled with meticulous craftsmanship, precise machining, and detailed blueprinting. All of our boring and honing is done with a torque plate for exceptional bore roundness and long engine life.

Korman Stock Rebuild 2002 Carbureted 11002000

Korman Stock Rebuild 2002Tii 110T2010

Korman Stock Rebuild 2002 Turbo 110T2010Turbo

#### Korman Competition Engines

These engines are not designed or intended for use on public highways. They do not meet requirements of the Clean Air Act of 1991 or of the California Air Resources Board. They are offered for track use only.

### **Stage 1 Engine**

A moderate increase in compression ratio, special valve work, programmable distributor, high performance coil, and Korman-Stahl headers combine to extract about 12% increase in power over the stock engine. The stock cam is used resulting in a very fuel efficient, quick engine. Expect about 115HP with the Weber 32/36 conversion.

Stage 1 Engine 11002100

Stage 1 Engine with Weber 32/36 Conversion 11002114

Stage 1 Tii Engine (140 HP) 110T2110

### **Stage 2 Competition Engines**

This is our most popular M10 performance engine. This engine has lots of torque, a smooth idle and rapid acceleration to 7000 RPM. This is a solid 150HP with our standard Korman K300 camshaft, the optional Schrick 292 camshaft yields 160HP, both require our dual Weber 40DCOE kit. With the Weber 32/36 carb conversion output is 140 HP, yet offers the economy of the single two barrel downdraft carb. This engine utilizes the Korman K-300 Camshaft, programmable distributor, Korman-Stahl Header, Dual Valve Springs, Chrome Alloy valve spring retainers, swirl polished valves and Korman Rocker Arms. The connecting rods are lightened and balanced and the cylinder heads are fully ported and polished. The engine is completely balanced and blueprinted. All boring and honing is done with a torque plate for best cylinder roundness and maximum ring sealing.

Stage 2 Competition Engine- 11002200 (add Weber 40DCOE Kit 13404002)

Stage 2 Competition Engine with Weber 32/36 Carburetor 11002220

### **Stage 3 2.0L Competition Engine**

Our hot autocross/rally engine. This is a light competition engine built for power. Don't expect 150,000 miles at 7500RPM, but it is designed to operate at that engine speed. This 170 HP engine includes the Schrick 316 camshaft, two 45 DCOE Weber carburetors, lightweight connecting rods, high compression pistons, titanium valve spring retainers, racing headers, etc. Blueprinted and balanced to competition specifications.

11002300

### **Stage 4 2.2 Liter Competition Engine**

This capacity is available in our otherwise stock spec motor, Stage 1, 2, 3, or Full Race Spec Motor.

The special crankshaft requires a different timing chain/oil pump/crank sprocket, a different front vibration damper/pulley, upgraded front hub assembly, custom light weight forged pistons with light weight pins, custom length competition connecting rods, special machining to the front timing cover, and machining of the block for clearance of the longer stroke assembly. It is characteristic of the dynamics of increasing stroke that there will be frictional and inertia losses at high rpm resulting in a top end increase of only 5-

7%, but producing an impressive 20% or more increase in bottom end torque. The great advantage here is a very substantial increase in acceleration without having to work the engine hard with high revs. Smooth, strong response is coupled with increased durability. *2.2 engine with 316 cam, 45DCOE's, 186HP at 6500 rpm, 179 lb/ft at 5500 rpm 11004000*

## Korman Race Engines

**Korman SCCA Improved Touring Engines**-Our improved touring BMW engines have won several SCCA Championships and have set numerous lap records. We provide meticulously blueprinted, balanced, SCCA legal engines, dyno tuned spot-on for maximum power. Don't waste valuable track time trying to adjust and tune in a few more horsepower. Arrive with a Korman engine already tuned to race and win! Spend your valuable track time tuning your driving skills, not your engine!

SCCA ITA Engine (for Tii injection) 110R020T

SCCA ITB Engine (for Weber 32/36 carb) 110R00020

### Stage 3 2.0L Vintage/Endurance Race Engine

Similar to our Stage 3 2.0L competition engine listed above but designed to be a long lasting "workhorse" engine for vintage and endurance racing. Upgrades over our basic Stage 3 engine are lightweight forged race rods, crank scraper to strip oil off the counterweights, lightweight forged race pistons, 1mm larger diameter intake and exhaust valves, competition oil pan, colder race spark plugs, billet aluminum rocker shaft locks, and larger diameter exhaust headers. Schrick 316 cam and matching valve springs included. *Steel rocker arms strongly recommended.* 110R31010

### **Korman Full Race M10 Engine**

All the extras as in our Vintage/Endurance engines plus Schrick 336 cam, adjustable cam gear, steel rocker arms and more porting to match 48 or 50mm Weber DCOE carbs. Larger diameter race headers. 110R31010336

### **BMW M10 Engines, 1975-1983 320i**

#### **Korman Stock Rebuild-CIS M10**

The skill and craftsmanship of high performance engine building applied to a stock engine produces a clean, tight, exceptionally smooth engine that can be expected to outlast the original. Includes the disassembly, cleaning, testing and reassembly of the fuel injection system. (Components of the injection system may require replacement at an additional cost)

1132010

#### **Korman Stage 1 Rebuild-CIS M10 2.0 Liter 1977-1979**

The early (77-79) 320i engine responds dramatically to Stage 1 tuning, with up to 135 HP from 110 HP stock. We also include our performance distributor to replace the original.

110B2110

#### **Korman Stage 1 Rebuild-CIS M10 1.8 Liter 1980-1983 320i**

The 80+ 320i models come with a 1.8 liter engine. Our Stage 1 performance rebuild on these models includes a 2.0 liter conversions. Special fuel injection tuning is required and included. We reuse the original electronic ignition system and include a special Korman-Stahl header. Torque gains are substantial, and combined with the 3.91 gearing of the 1.8 liter cars provides that acceleration "punch" lacking in the original.

110B2180

*Please see 2002 M10 engine descriptions, above, for Stage 2, 3, 4 E21 Competition engines*

## **BMW M10 Engines, E30 318i 1984-1985**

**Korman Stock Rebuild** 318i 11318010

### **Korman Stage 1 Engine-318i**

As above, but includes 2.0L conversion to provide the "punch" missing from the 1.8L engines. Headers are included (check local laws for legality). High compression pistons, special valve work, and Stage 1 head porting yield 140 horsepower. 110B3180

## **BMW M20 "Small Six" Engines**

*1982-1988 528e*

*1984-1988 325e*

*1987-1991 325i*

*1989-1991 E34 525i*

### **Korman Stock Rebuilds**

Our stock rebuilds are assembled to BMW specifications by our experienced and dedicated technicians rather than off a mass production assembly line. Korman engines are assembled with meticulous craftsmanship, precise machining, and detailed blueprinting. All of our boring is done with a torque plate for exceptional bore roundness and long engine life. These hand built engines are available at prices below factory reman units and ours carry a 24 month/24,000 mile warranty.

325e 11036100

325i 11036200

### **Korman Stage 1-M20 325i**

Our Stage 1 rebuild will provide a strong increase in power through the use of our proven performance techniques. Special valve and valve seat work, increased compression, Korman-Stahl Headers and Stage 1 cylinder head porting will net a gain of 12-25 HP depending on model and exhaust system. Performance computer chip recommended but not required.

325e 11036410

325i 11036510

### **Korman Stage 2 Competition Engine-M20 325i**

Our Stage 2 engines are designed for maximum performance without adversely affecting engine life or driveability. All Stage 2 Engines receive our flow testing porting and polishing, proven 3 angle valve seat work, back cut intake valves, dual valve springs, titanium retainers, Korman Rocker Arms, Korman-Stahl headers, and a Schrick 272 Camshaft (or Schrick 284 or 288). M20 "i" engines receive our aluminum flywheel, while M20 "eta" engines receive our exchange lightweight flywheel. Korman performance computer chip required.

325i 11036350

### **Korman 2.7 Liter Stroker Engines**

The 2.7L 325 eta engine is the ultimate in smooth, very high torque, ultra efficient performance. But the light nodular iron cast crankshaft and light valve spring pressure limit this pleasure to about 4850 rpm. Our special conversions include a high performance 2.7L crankshaft and stronger valve springs which allow safe revs to 6900 rpm. This conversion is available on all of our M20 Stock, Stage 1 and 2 Competition engines.

- 327e Standard Engine 11327100
- 327i Standard Engine 11327200
- 327e Stage 2 Competition Engine 11327370

Our 327e series engines are special versions of the eta 2.7 motors. The 327i series are stroked special versions of the 325i 2.5 motor.

### **Korman 2.9 Liter M20 Engines**

Our latest M20 high performance development project has been highly successful. Super strong, tremendous torque, and very durable, this motor brings your roughly 20 year old car up to today's performance standards. This motor in an E21 323 chassis won numerous CCA Club Racing D Mod races, often finishing ahead of many C Mods, and even winning first overall and regional club racing championships.

#### **Korman 2.9 Liter M20 Motor – Stage 1**

Includes special crankshaft (86mm stroke), custom length competition connecting rods, light weight Mahle pistons, oiling system modifications for more flow to rod bearings, closer piston/wall clearance for better sealing and longer life. Plus all our Stage 1 porting, polishing, lightening, balancing, blueprinting etc and tuned headers and a custom computer chip.

1103690

P/N 110360CA

#### **Korman 2.9 Liter M20 Motor – Stage 2 Competition**

Same as our Stage 1 engine but adds Schrick 288 or 304 cams plus stronger valve springs. Not designed for street/highway use for vehicles subject to EPA or state emissions standards. Includes additional porting for increased flow with Schrick cams. (235HP)

1103692

#### **Korman M20 2.9 Liter Race Motor**

With 56 entries competing nationally in Club D Modified, this motor finished 2nd running a limited 5 weekend schedule. Includes everything in our M20 State 2 motor plus the Schrick 312 cam, stronger valve springs, more porting, oil sprayers to cool the pistons and lube the piston pins, oil pan surge baffles, crankshaft scraper and aluminum flywheel kit.

1103690R

### **Korman Race Engines**

Whatever your series, whatever your specifications, Korman can build you a dependable, long lasting engine engineered for maximum power. Whether you need a more durable engine for low cost club or vintage racing or a 325HP fully modified race winner, call us first!

## **BMW M30 "Big Six" Engines**

*Early Cars, 2500, 2800, 3.0 CS, CSi, Bavaria, E12 528i, 530i*

### **Korman Stock Rebuilds-2.8/3.0 liter**

Our stock rebuilds are assembled to BMW specifications by our experienced and dedicated technicians rather than off a mass production assembly line. Korman engines are assembled with meticulous craftsmanship, precise machining, and detailed blueprinting. All of our boring is done with a torque plate for exceptional bore roundness and long engine life. These hand built engines are available at prices comparable to a factory reman units which offer only 12 month/12,000 mile warranties.

2.8/3.0 liter carbureted 11006000

2.8/3.0 liter fuel injected 11006010

### **Korman Stage 1 Fuel Injected Engine-2.8/3.0 liter**

Our Stage 1 rebuild will provide a moderate increase in power through the use of our proven performance techniques. Special valve and valve seat work, increased compression, Korman-Stahl Headers and Stage 1 cylinder head porting will net a gain of 20-25 HP depending on model.

2.8/3.0 liter 11006110

### **Stage 1 Engine-Carbureted-2.8/3.0 liter**

We utilize a moderate increase in compression ratio, special valve and valve seat work, a special distributor, sport coil and Stahl headers to obtain maximum efficiency and performance from the stock camshaft. Horsepower is up from 170-180 (depending on model) to 205 HP. If you have had some of the usual headaches with the Solex (euro 5,6,7 series) or Zenith (2800, 3.0, Bavaria, CS models) you may wish to fit our Weber 32/36 downdraft conversion. The package includes all necessary linkage, hoses, fittings, and air cleaners. Single carb Solex models will require a different intake manifold and additional linkage pieces. Please specify year and model.

Stage 1 Carbureted (original carb) 11006100

With Weber 32/36 DGAV Conversion 11006114

With Weber 32/36 DGAV Conversion (with manifolds and special linkage) 11006115

### **Stage 2 Engine-Fuel Injected-2.8/3.0 liter**

These engines include the Schrick 284 camshaft for power ratings of 235-250 horsepower depending on model. Stage 2 porting and polishing, Korman Rocker Arms, dual valve springs, chrome alloy valve spring retainers, oiling system modifications and stage 2 connecting rods also included.

2.8/3.0 liters P/N 1106220

### **Stage 2 Engine-Carbureted 2.8/3.0 liter**

Our most popular performance rebuild for carbureted M30 engines. Produces 250 smooth, reliable horsepower (3.5 liters).

Parts Include:

- Triple Weber 40 DCOE carburetor kit with Korman 1 piece intake manifold
- Korman K-300 Camshaft
- Mahle High Compression Pistons
- Korman Rocker Arms
- Stahl Headers
- Performance Distributor (where applicable)
- Bosch Sport Coil

These engines also receive our Stage 2 cylinder head porting and polishing, Stage 2 connecting rods, and engine oiling system modifications. Substituting the Schrick 284 cam yields 240 HP (3.0 liter), 250 HP (3.3 liter), and 260 HP (3.5 liter).

2.8/3.0 liter 11006200



### **Strokers/Conversions**

Another way of gaining horsepower and torque without affecting emissions is to increase the displacement of the M30 engine. This option is available with all of our rebuilds, please call us with your needs.

Required main components:

- 2.5/2.8 to 3.3-block and crankshaft
- 3.0 to 3.3-crankshaft
- 3.3 to 3.5-block and crankshaft
- 3.5 to 3.7-crankshaft and conversion parts

### **M30 Engine Rebuilds 3.3/3.5 Liter**

*1982-1988 533i, 535i*

*1978-1989 633, 635csi*

### **Korman Stock Rebuilds M30 Fuel Injected Engine**

Our stock rebuilds are assembled to BMW specifications by our experienced and dedicated technicians rather than off a mass production assembly line. Korman engines are assembled with meticulous craftsmanship, precise machining, and detailed blueprinting. All of our boring and honing is done with a torque plate for exceptional bore roundness and long engine life. 2 year/24,000 mile warranty.

3.3 liter fuel injected 11033010

3.5 liter fuel injected 11056010

1988/89 635csi 11056020

### **Korman Stage 1 3.3L Fuel Injected Engine**

Our Stage 1 rebuild will provide a moderate increase in power through the use of our proven performance techniques. Special valve and valve seat work, increased compression, Korman-Stahl Headers and Stage 1 cylinder head porting will net a gain of 20-25 HP depending on model. Performance computer chip suggested, not required.

3.3 liter 11033110

### **Korman Stage 1 Fuel Injected Engine (85-88 635)**

These engines feature increased compression, Stage 1 cylinder head porting and polishing, increased valve spring pressure and a special computer chip to take full advantage of the engine's potential. Horsepower is increased from 182 to 215, and torque climbs from 214 lb/ft to 230 lb/ft. Engine Plus Parts Included.

11056110

### **Korman Stage 1 3.5L Fuel Injected Engine-Late (88-89 635csi)**

Stage 1 porting and polishing, balanced connecting rods, light weight piston pins, increased valve spring pressure, and a performance computer chip increase horsepower from 208 to 222, and torque goes from 223 lb/ft to 237 lb/ft.

11056120

### **Korman Stage 2 Fuel Injected Engine (85-87 635csi)**

These engines feature increased compression, Stage 2 cylinder head porting and polishing, dual valve springs with chrome alloy retainers, lightened Stage 2 connecting rods, BIG intake valves, Korman Rocker Arms, and a special computer chip. Horsepower is increased from 182 to 230, and torque climbs

from 214 lb/ft to 244 lb/ft. This engine is emissions legal and as smooth as the original. Engine Plus Parts Included.  
11056220

### **Korman Stage 2 3.5L Fuel Injected Engine-Late** (88-89 635csi)

Our Stage 2 for the late 3.5L includes our Stage 2 cylinder head porting and polishing, dual valve springs with chrome alloy retainers, lightened Stage 2 connecting rods, Korman Rocker Arms, and a special computer chip. Horsepower is increased from 208 to 230, and torque climbs from 223 lb/ft to 244 lb/ft. This engine is emissions legal.  
11056320

### **Strokers/Conversions**

Another way of gaining horsepower and torque without affecting emissions is to increase the displacement of the M30 engine. This option is available with all of our rebuilds, please call us with your needs.

Required main components:

- 3.3 to 3.5-block and crankshaft
- 3.5 to 3.8-crankshaft and conversion parts

### **M42, M44 4 Cylinder 16V**

*E30 318is 1989-1991*

*E36 318i/is/ic 1989-1992*

*Z3 1.9 M44 1995-1998*

Stock Rebuild 1988-1991 318is 11318012

M42 Stage 2 1988-1991 318is 11318022

Stock M42 E36 318i, is 9/93-1995 11318014

Stock Rebuild Z3 1.9 1996>11318015

### **S14**

*1987-1991 E30 M3*

*Our experience with the E30 M3 began with chassis numbers 001 and 002 campaigned under contract with BMW NA in the IMSA Endurance Series. Our best day was our 1-2 finish in a 98 car field in the 1987 IMSA Firehawk Watkins Glen 6 hour race. Also set a new track record! Today we continue our tradition of innovation, performance and reliability by modifying these cars for use in club racing, driver's schools, and "exciting" daily transportation.*

### **Korman S14 2.3L Stock Rebuild**

The high quality parts and rebuilding techniques we offer in our performance engines are also available in our stock rebuilds. All parts are meticulously cleaned and inspected, the block is bored and precision honed with a torque plate for more exact cylinder roundness, and pistons, bearings, oil pump, seals, etc. are replaced with OE parts. A careful hand assembly and blueprinting gives you an engine we expect to outlast the original, and at a substantial savings over a factory exchange engine. Engine Plus parts included.

11028500

### **Korman S14 2.3L Stage 1 Rebuild**

Includes our Stage 1 Performance Kit (high flow Evolution 2 air intake system, K&N air filter, computer chip, and offset exhaust cam gear) and 5 angle performance valve seat/valve work, radius and contour the intake and exhaust ports, and our modified oil pan baffle. Engine Plus parts included.

11028500A

### **Korman S14 2.3L Stage 2 Rebuild**

Includes all of Stage 1 plus BMW Motorsport intake cam (264 deg, 10.55mm lift), high performance valve springs, lightweight flywheel, lightened and balanced connecting rods, light weight piston pins, titanium valve spring retainers, and additional port and combustion chamber work. Engine Plus parts included.

11028500B

### **Korman 2.5 Liter Engines**

Our 2.5 Liter "stroker" engines are built around genuine BMW Motorsport pistons and crankshafts, not cheap imitations. The benefits of using these original parts are improved power and longevity, and reduced oil consumption.

### **Korman S14 2.5L Stage 1 Engine**

Very substantial low and mid-range torque increase pulling rapidly to top end. Includes special alloy 87mm crankshaft with radiused, lightened counterweights, hollowed throws, and hardened, stronger front pulley bolt. Special 95mm pistons, 95mm head gasket. Also includes our Stage 1 Performance Kit (Evolution air box kit, K&N Filtercharger, exhaust cam gear), and a custom 2.5 computer chip, oil pan baffle kit. Cylinder head ported to Stage 1 specifications. Completely balanced and blueprinted. Engine Plus Parts included.

11028510

### **Korman S14 2.5L Stage 2 Engine**

All the features of our Stage 1 above plus Evolution intake cam, Motorsport valve springs, Motorsport lightweight flywheel, Stage 2 cylinder head porting and polishing, lightened connecting rods, light weight piston pins, and larger (38.5mm) intake valves. The reduced reciprocating weight of this package allows the engine to rev very quickly. Engine Plus parts included. *247HP at 7000RPM, 216 LB/FT at 5000 RPM.*

11028520

### **Korman S14 2.5L Tracksport Engine**

Built to competition specifications for long lasting reliable club event on track driving. Not emissions legal for street/highway use. Significantly extended top end power, topping out at 250HP. Includes all of our

Stage 2 features plus Schrick 284 and 276 degree cams, titanium valve spring retainers, and big bore throttle bodies. Engine Plus parts included.

Our goal is to build a club/racing type engine that maintains the strength, durability, and smoothness of a street engine. In other words, we use our high tech racing tricks and parts for a winning power increase, and build to last over 100,000 miles, not just a few races. Output is increased to 265 HP with special pistons and a 12:1 compression ratio. We strongly suggest upgraded suspension, brakes and wheels/tires to accompany this engine package. Also available with Schrick 292/284 cams for even more power

P/N 11028530

#### Other S14 Engines

We also build many other S14 variants which are too numerous to list here. All stages of the engines above are available in 2.0 liter, 2.3 liter, and 2.5 liter configurations. Full Group A engines and hybrids utilizing similar components, programmable fuel injection and ignition or carburetion are available depending on your series specifications. Contact us with specific performance goals and series rules for an engine quote.

### **S38 and M88 Engines**

1980-1981 E26 M1

1987-1988 E24 M6, 1988 E28 M5 (S38B35)

Euro E28 M5, M6 (M88)

E34 M5 (S38B36 and S38B38)

#### **Korman S38 Stock Rebuilds**

The high quality parts and rebuilding techniques we offer in our performance engines are applied in our stock rebuilds. All parts are meticulously cleaned and inspected, the block is bored and precision honed with a torque plate for complete cylinder roundness, and pistons, bearings, oil pump, seals, etc. are replaced with OE parts. A careful hand assembly and blueprinting gives you an engine we expect to outlast the original, and at a substantial savings over a factory exchange engine. Since valve guides on the S38 engines can not be replaced, valves with oversized stems must be used in cases where wear exceeds factory specifications. These are not included in our rebuild pricing since we must inspect the old valves at teardown. 1100M560

#### **Korman S38 Stage 1 Rebuild**

In addition to the parts included in our Stock Rebuild, our Stage 1 Rebuild adds our offset exhaust cam gear and a performance computer chip. The cylinder head is ported to Stage 1 specifications, including unshrouding of the intake and exhaust valves. Connecting rods are precisely balanced. *Stage 1 3.5 liter 295HP, 301 lb/ft torque. Stage 1 3.6 liter 340HP, 306 lb/ft torque.* 1101M560

#### **Korman S38 Stage 2 Rebuild**

This engine pulls *hard* to redline, yet is well behaved for daily driving. Special parts include a Schrick 272° cam, offset exhaust cam gear, BMW Motorsport performance valve springs, titanium valve spring retainers, and BIG intake *and* exhaust valves. The cylinder head is ported to Stage 2 specifications and valve seats are enlarged to take full advantage of the larger valves. The valves are also unshrouded, further improving flow. Connecting rods are both lightened and balanced, and we apply our oiling system modifications for additional high RPM durability. *Stage 2 3.5 liter 365HP, 322 lb/ft torque. Stage 2 3.6 liter 373HP, 331 lb/ft torque.* 1102M560

#### **Korman S38 Stroker Engines**

3.6 Liter-Converting your S38 3.5 liter s38 to 3.6 yields an additional 15HP/15 lb/ft with no other changes.

3.8 Liter-These special engines are based on a BMW Motorsport crankshaft yielding a displacement of 3.8 liters. This conversion can be applied to *any* of our S38 rebuilds. All necessary hardware is supplied including our competition connecting rods. *S38 B36 Stage 2 Rebuild, 3.8 liter 385hp, 343lb/ft torque*

S38 3.6 Stroker Kit *add to engine rebuild 1100M360*

S38 3.8 Stroker Kit *add to engine rebuild 1100M538*

## **M50 M52 M54 S50 S52**

*M50 2.5, M52TU 2.5 & 2.8, M52 2.8, M54 3.0, S50 3.0, S52 3.2*

*1992-1999 E36 325i, 328i, M3*

*1991-1995 E34 525i, 528i, 530i*

*2000-2005 E46 325i, 328i, 330i*

### **Korman Stock Rebuilds M50/M52/M54/S50/S52**

Building these engines for professional and amateur race series since their introduction gives us unique insight into what makes a reliable, powerful engine. Hours on the dyno and on the track has let us build engines for our customers that have put them in the winner's circle time after time.

Even our stock rebuilds benefit from our competition experience. Our engines are hand-assembled in-house to factory tolerances or better. Where applicable, components are updated for improved performance and durability. We prefer OE pistons for best service life, and as with all our engines a torque plate is employed during machining for the best bore possible. Our comprehensive packages include many internal and external components not found in cheaper rebuilds, and we always return your engine ready to install, not stripped down.

1995 M3 3.0 Liter 110S50001

1995 M3 Stage 2 3.0 liter 110S50002

1995 M3 3.0 to 3.2 Conversion 110S500232

1996-1999 M3 3.2 Liter 1100S5002

1996-1999 M3 Stage 2 3.2 Liter 110S500232

2.5 Non-Vanos 110M50001

2.5, 2.8 Vanos 110M50002

M54 3.0 Alum Block Stock Rebuild 110M54000A

## **S54**

*2000-2006 M3, 2001-2002 Z3M*

### E46 M3 S54 Stock Rebuild

The high quality parts and rebuilding techniques we offer in our performance engines are also used in our stock rebuilds. All parts are meticulously cleaned and inspected, the block is bored and precision honed with a torque plate for more exact cylinder roundness, and pistons, bearings, oil pump, seals, etc. are replaced with OE parts. A careful hand assembly and blueprinting gives you an engine we expect to outlast the original, and at a substantial savings over a factory exchange engine. Bearings, cam gear bolts and other parts updated during production by BMW are incorporated into our S54 rebuilds.  
1100S54001

### **E46 M3 S54 Stage 2 Rebuild**

1100S54002

## **M70, M73,S70 V12**

*1987-1994 750iL, 1989-1997 850Ci, 1993-1995 850CSi*

Our previously advertised 5.6 liter BMW V12 motors have been discontinued as the parts we used from Germany are no longer in production. To continue our high performance V12 engines we have had larger stroke custom crankshafts made. The engine is capable of 6 liters and as the cost is the same for a crank to produce 6 liters as it would be for 5.6 our new program is for 6 liter engines in a 'stock', or Stage 1, 2, or 3 configuration. The bore is increased from 84mm to 86 mm and the stroke from 75 to 86.

The US Dollar has climbed so much against the Euro that our new 6 liter motors cost less than the previous 5.6 BMW Motorsport engines. Our base engine parts, water pump, oil pump, bearings, etc are still BMW original parts. The aluminum blocks cannot be honed or bored as this destroys the hardened coating. We install high quality steel sleeves which enable us to use conventional type rings and pistons. Where we use American products, crankshaft, pistons, and connecting rods, they are all race quality, precision parts. For more than forty years our philosophy for our Korman street performance engines is to design and build them to out perform and outlast the factory original parts. We have won many championships with our race engines but we do not believe in 'extreme' solutions for daily driving.

### **Korman V12 6 Ltr 'Super Stock' Spec Engine 405 HP and 425 Torque**

All stock BMW components plus sleeved block to 86mm, 86mm custom crankshaft, forged 10:1 pistons, special head gaskets, custom computer chips. Includes tune-up and service parts such as ignition wire sets, distributors caps and rotors, thermostat, air intake boots, serpentine belt, and spark plugs, etc.  
1107000

### **Korman V12 6 Ltr Stage 1 Engine 415 HP 435 ft lbs Torque**

All the above plus multi- angle valve seat machining, intake and exhaust ports matched to manifolds, exhaust manifolds ported and ceramic thermal barrier coated, intake manifold extrude honed and matched, custom computer chips, and high flow air intake system with K&N air filters. Fully balanced and blueprinted, engine run in, tuned, and tested on dyno. 1107010

### **Korman V12 6 Ltr Stage 2 Engine 440 HP 450 ft lbs torque**

All above Stage 1 modifications plus Schrick 264 intake and exhaust cams, higher flow fuel injectors, con rods lightened, peened, and balanced, cylinder heads fully ported and polished, big bore throttle bodies, tuned exhaust headers with ceramic thermal barrier coating. Fully balanced and blueprinted. Engines are run-in, tuned, and tested on our dyno. 1107020

### **Korman V12 6 Ltr Stage 3 Engine 485 HP 465 ft lbs torque**

All of above plus custom longer, lighter weight steel connecting rods, 10.5:1 compression ratio, special roller cams, roller cam valve train parts, heavy duty valve springs, titanium valve spring retainers, heavy duty sport clutch assembly, larger mass air flow meters, filter box modified for increased flow air filters. 1107030

### **Other Available Upgrades**

Custom Manifolds with Individual Down-Draft Throttle Bodies and Electromotive TEC 3 Engine Management System with direct fire coils. Twelve big 40 mm air horns standing straight up.

-All Korman engines are priced using your good core-

### **Korman Engine Dyno Testing and Break-In**

Our engines are based on designs tested and proven on our in-house engine dynamometer. It is not necessary to Dyno subsequent engines of the same design. However, there are advantages to having your own engine Dyno tuned.

A Dyno tuned engine is fully run in before testing under load. You are not only assured of precise tuning for maximum performance, but your engine is delivered ready for immediate high performance use. You have no further break-in period.

Korman Autoworks Dyno tuning procedures include a lengthy run-in time. During this break-in period the cylinder head is retorqued, valves adjusted, compression tested, oil pressure monitored, and temperatures closely controlled. Then under close observation, engine speed and load are gradually increased until the engine is ready for full load testing. One more cycle of adjustment and compression checks and we begin power runs. After satisfactorily completing all power runs, valve adjustments and compression are again checked and recorded. Customers are provided a detailed Dyno chart showing engine specifications, tuning specifications, and full horsepower and torque curves. Each Dyno sheet is certified by Ray Korman.