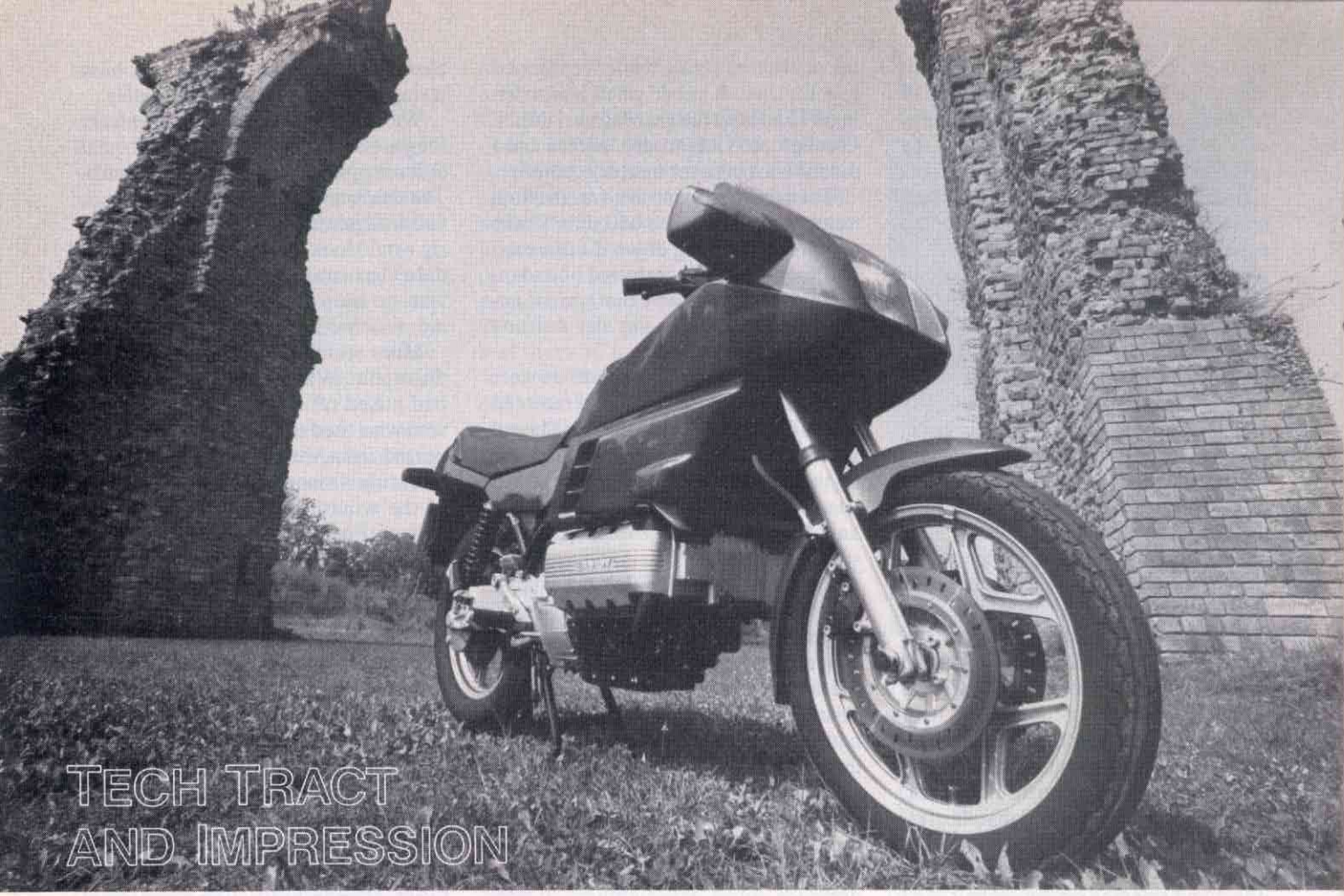



# The New BMW Four

## *Explaining the K-100 — Riding the K-100*

**by JIM WOLCOTT**

Most motorcyclists think of specific bikes in terms of their engines, and categorize the machines according to how those engines behave. That's especially true in the case of the BMW K-100, as the engine is the long-awaited centerpiece of the bike — rumors of the new four-cylinder engine have been circulating the ranks of beemer-buffs for a good deal of the time. The K-100 isn't the least bit disappointing in this regard: the engine is an integral and interesting part of the motorcycle.

The engine configuration is almost disguised by the styling of the bike. In the simplest terms, the K-100 has an in-line, four-cylinder, liquid-cooled engine. It's the *way* BMW installed the engine in the frame that's interesting. Picture a contemporary in-line four, such as a Suzuki GS1100 or the Kawasaki KZ-1100. Imagine turning the engine in the frame so that it's positioned lengthwise rather than crosswise. Now lay the engine on its side, so that the cylinders point to the left, parallel to the ground. Add liquid cooling, fuel injection, a five-speed gearbox with shaft drive and you've treated your mind's eye to a look at the K-100.

If that description sounds overly simplistic, you're right. After all, BMW hasn't introduced (by their own admission) a new engine design in 60 years! Auto enthusiasts have become well acquainted with the engineering brilliance that is typical of BMW. Motorcyclists have made do with the occasional refinements to the aged boxer twin. It would only make sense that if the company were to apply some of their engineering might to motorcycle design, the results would be interesting, to say the least.

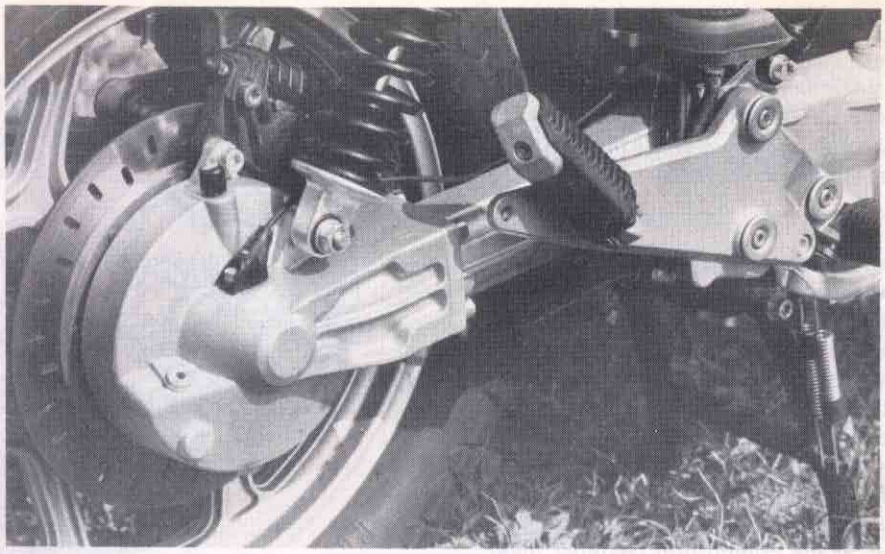
When walking my way through a new engine design, I tend to think in terms of the powerplant from the bottom up: starting from the crankshaft and working towards the cylinder head. In the case of the K-100, the crank is on the right side of the motorcycle, so I'll start on the right and work my way left.

The crankshaft is a one-piece, forged steel affair, solidly supported by five main bearings. Locating a bearing between every cylinder (and one on each end) means the crank is a bit on the long side, making it particularly susceptible to vibration. BMW controlled this with no less than *seven* counterbalance weights, located on the crankshaft webs. This is a downright sturdy design — capable of smoothly handling a good deal more horsepower than is produced by the first-year K-100.

Connecting rods are similar to those

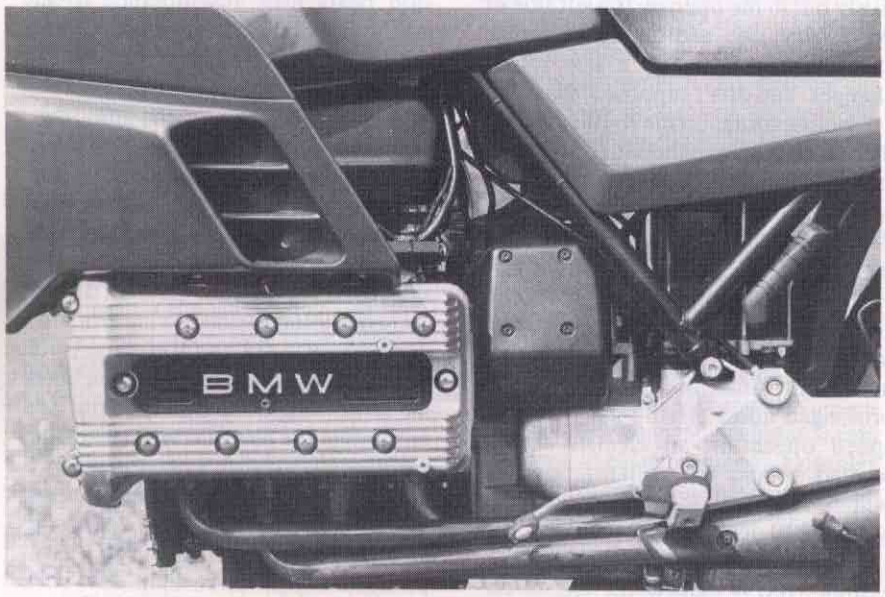
on the boxer twin; two-piece in design to permit servicing the big-end bearings. As to servicing those bearings, since the crank is located on the right side of the engine the rods (and the crankshaft, for that matter) are accessible by simply removing the right side engine cover!

The engine block itself is a massive, one-piece aluminum casting. As with the latest generation boxer twins, there are no separate cylinder liners. The pistons run directly on aluminim cylinder bores which have been coated with BMW's Scanimet (nickle-silicon carbide) process, claimed to reduce friction, improve heat dissipation and be highly abrasion resistant. This coating provides durability without the weight of the traditional cast-iron cylinder liners. On the other hand, this coating precludes the possibility of fitting oversize pistons. A complete engine rebuild would consist of replacing the entire engine block — an expensive proposition. Also, should the engine digest some foreign matter through the intake tract (such as a rock, a misplaced screw or like that) the damage that would result to even a single cylinder bore would turn the engine into scrap. What's curious about this state of affairs is that the K-100 powerplant is probably the most easily serviceable engine in motorcycling's history: the crankshaft, connecting rods, pistons and cylinder head (complete with valves and camshafts) can all be removed/serviced/overhauled/replaced without removing the engine from the motorcycle. A word for K-100 owners: make sure the engine is properly broken-in, and that no damage occurs to the cylinder walls.



*Drive shaft and final drive gears are housed in the massive, cast swing arm. Note rear disc brake is mounted inboard to make tire changes easy. Black tube which exits just above axle center is the electronic sender for the speedometer.*

The next consideration to the K-100 is the relationship of the pistons to the crankshaft. With the exception of the rotary engine, any internal combustion engine will have a ratio of piston size (how big they are in diameter) to crankshaft stroke (how far they move up and down). If the stroke is shorter than the diameter of the pistons, the engine is considered to be "oversquare," and will buzz quickly and easily to the higher revs. If the crankshaft stroke is longer than the diameter of the pistons, the term used to describe the design is "undersquare," which will move the preferred powerband down the scale to give the engine more bottom end pull. In the case of the K-100 the pistons are 67 mm in diameter, and have a stroke of 70 mm. Not only does this gift the bike with a pleasant "rideability", the pistons can be placed closer together to make the engine more compact. Sort of a have-your-cake-and-eat-it-too design. While short-stroke oversquare engines can produce greater amounts of power, they lack the low end torque and pulling capabilities of the undersquare designs. In the scheme of things, a 1,000 cc engine produces enough power for any reasonable need, even in the slightly less efficient undersquare configuration. The trade off is more than fair.

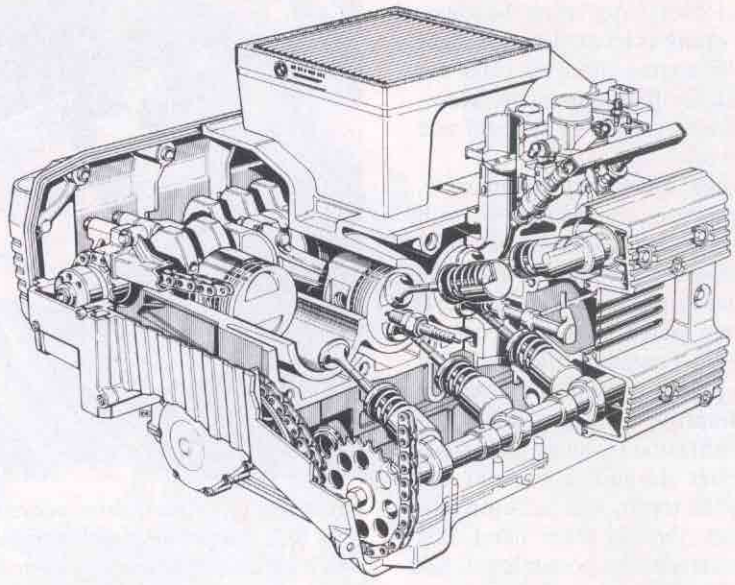



*Left side of the K-100 engine shows cover for double overhead cams. Spark plugs (and wires) are concealed by the black "BMW" cover in the center. Radiator heat is routed to the outside of the fairing; rider's legs stay cool.*

Which brings us to the cylinder head, Technically speaking, the head is a double overhead camshaft design (one cam controlling the intake valves, the other the exhaust) with the cams operating the traditional two valves per cylinder. The latest engineering trend in motocycling is toward the better breathing four valve per cylinder configuration, but BMW claims to have discounted that configuration based on the added weight and complexity of the extra valves. The cams are supported by five bearings each: the bearings are replacable for a long service life. Speaking of service, the valves are adjusted via interchangable shims. A special tool is required to remove and replace the shims, though the procedure can be carried out with the camshafts in place.

The valves (both intake and exhaust) are positioned a mere 19 degrees from the cylinder axis, which promotes efficient movement of gases through the engine. An interesting feature of the

*The K-100 promises to be one of the most easily serviced powerplants in all of motorcycling. Crankshaft, pistons, camshafts and cylinder head can all be removed while the engine is installed in the frame.*



valve layout is that the valves aren't in perfect vertical alignment (viewed from the side, the intake valves are positioned slightly forward of the exhaust valves). Aligning the valves in slightly different planes promotes a swirling effect within the cylinder and enhances combustion effieciency. This swirl to the intake mixture, combined with the spark plug mounted almost in the center of the combustion chamber make the engine very resistant to detonation or "ping," resistant enough to allow for a lofty 10.2:1 compression ratio.

Now onto the hardware which controls the combustion: the microprocessor ignition and electronic dual injection systems. The fuel injection employed on the K-100 is a variant of the proven Bosch LE-Jetronic system used on many automobiles. The system is reliable and requires no adjustment beyond synchronizing the idle setting. Gone are the ritual "balance your Bings" sessions familiar to the owners of the old boxer-twins. It does however require a fuel pump, which in the case of the K-100 is located *within* the gas tank — a clever spot, as excess fuel from the system can simply drain back into the tank. Of course, should the pump fail it can be removed from the tank through a service opening near the gas cap.

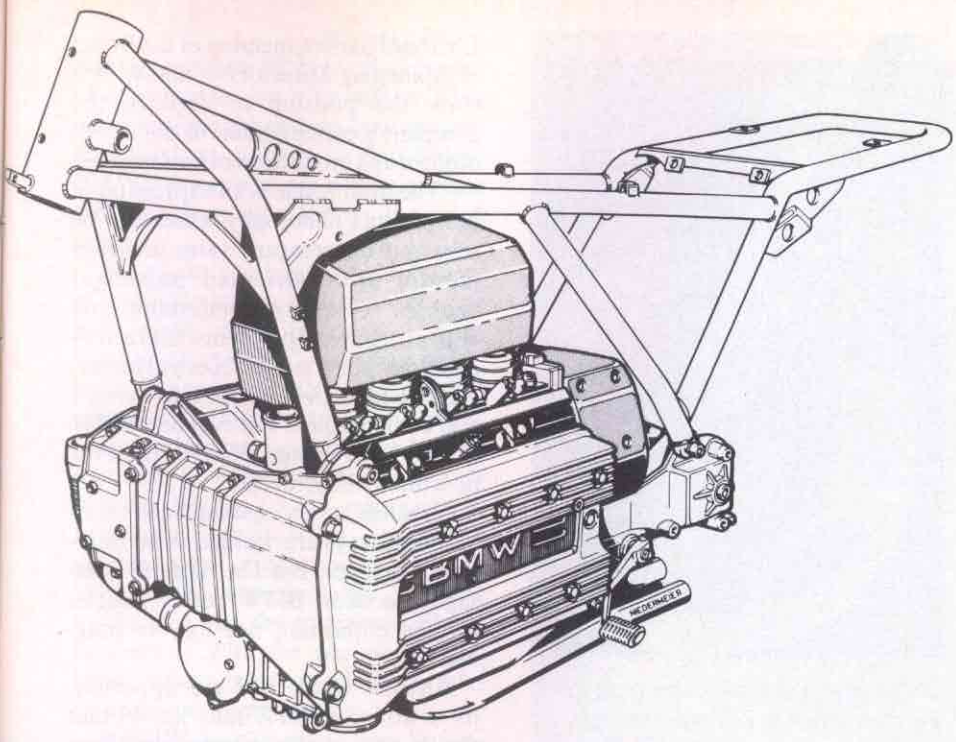
The fuel injection process is a bit more complex than the carburetors from the days of yore. Both systems are responsible for combining gasoline with air to produce a combustible mixture. Carburetors take advantage of what's known as the Venturi effect — without getting overly scientific, the movement of air creates a vacuum which causes gasoline to be sprayed into the airstream. The more air that moves through a carburetor, the greater the vacuum and the greater the quantity of gasoline which is mixed with the air. The fuel injection system uses sensors to determine the temperature of the intake air, temperature of the engine, quantity (volume) of the intake air, and last but not least the speed of the engine. This information is fed into a black box which determines, with great precision, how much fuel to *inject* into the airstream. A nifty by-product of this system is that since the injection computer always monitors engine speed, the computer is programmed to interrupt the fuel flow at 8,750 rpm — thus preventing the engine from running into the never-never land of the tachometer. Nicely done.

Looking downstream from the intake side of things, the exhaust is routed through a four-into-one system which is mounted on the left side of the motorcycle. Nothing remarkable about the design, except that the entire system is constructed of stainless steel, which should outlast the motorcycle. Looking to the future, with a fuel injection, and since the intake and exhaust are relatively out in the open on the left side of the engine, the addition of a turbocharger would require a few minor changes. You don't suppose..? Naw!

Cooling chores on the K-100 are handled with a conventional (by today's standards) liquid cooling system. The coolant pump is located at the front of the engine, and its housing also contains the engine oil pump. Coolant is circulated throughout the engine block and then routed to an aluminum alloy radiator mounted below the steering head. For situations which call for prolonged idling (traffic jams) or low speed operation an electric fan is located behind the radiator housing, which switches on automatically at around 220 degrees.

The power produced by the new four-cylinder BMW exits to the rear of the engine block, and is transmitted to the clutch-housing/flywheel via a pair of large, straight-cut gears. Since this assembly (as well as the generator) rotate in the opposite direction of the crankshaft, the torque reaction (that familiar BMW characteristic of the bike-to-the-right when the throttle is blipped) is neutralized. The clutch is a single disc dry clutch, which has been increased in diameter from its flat-twin counterpart to handle the extra horsepower. The clutch is controlled with a single large diaphragm spring which provides smooth, progressive engagement and the lightest clutch-lever pull in the industry. The clutch feeds into a three-shaft, five-speed gearbox mounted behind the engine. This new transmission bears little resemblance to the crashbox of the old boxer-twin. Gone is the clunk, stick and imprecise feel of rowing through the gears: the gearbox of the K-100 is one of the smoothest and most easily shifted units that I've had the pleasure to nudge with my toe.

Located between the transmission and the rear wheel is a feature synonymous with the BMW marque: the shaft drive. In this case the shaft drive is housed in a single-sided swing arm, similar to the R80GS and R80ST. (A side note here for the technically inclined: the term "single-sided swing arm" is a misnomer. the new BMW K-100 is actually equipped with a *swing arm* for its rear suspension, as compared to most motorcycles equipped with a *swinging fork*. *Fork* is used to describe a two-pronged suspension component — like the front fork. This distinction will become important as more motorcycles adopt a design similar to the BMW.




*Engine is bolted to the frame and acts as the bottom half of that component. Note that there's actually very little to the frame — the aluminum casting of the engine is far stiffer than any welded combination of tubes.*

Gossip from the best spies in Europe seems to indicate that the *swing arm* design will become standard...at both ends of the motorcycle!)

In order to cope with the higher horsepower of the new engine, the swingarm is a massive cast-aluminum assembly. Suspension travel is controlled with a single inclined shock absorber with spring. Spring *rate* is progressive — rather than mechanically progressive as with other monoshock arrangements. This simply means that the further the spring is compressed, the greater the weight (or bump, or pothole) required to compress it. The spring is adjustable for preload only —no damping adjustment was provided on the models shown to the press. And yes, BMW's Nivomat shocks will be available as an option for the K series bikes.

Another interesting feature of the rear suspension is the positioning of the rear disc brake — in this case, mounted between the rear wheel and the bevel gears of the final drive. Since the wheel is mounted on the very outside of the assembly, wheel removal is a matter of removing a single nut at the hub center and rolling the wheel out from behind the motorcycle. Gone are the roadside nightmares of pounding axles out with rocks and screwdrivers, dropping wheel spacers into the mud, bobbling around with disc brake calipers only to leave them dangling by their hose — and even more unspeakable horrors.

Not so obvious to this new rear suspension design is the manner in which it attaches to the motorcycle. Conventional motorcycle chassis design calls for mounting the engine in a frame, and mounting the ancillary bits (like the rear suspension) onto the frame. The K-100 is a bit different. For the new Beemer, the engine is bolted solidly onto the transmission, and the rear of the transmission is machined to directly accept the swingarm! Thus the entire drive train is a single unit fabricated entirely from cast aluminum — an arrangement which not only contributes to the strength of the assembly, but guarantees precise alignment of the rear wheel. If the drive components of a motorcycle are an integral assembly, the need for a separate frame is greatly reduced. In fact, all that's required is something to support the seat, the gas tank, and to locate and support the steering head for the front suspension. As a result, the frame of the K-100 is sort of a four-legged thing which crouches over the top of the drive line, bolted to the front of the engine and the rear of the transmission near the pivot for the swing arm. Since a large aluminum casting (like an engine, for instance) is much more difficult to flex or bend than a length of tubing, this design is far stronger than any tubular frame — as well as being lighter and simpler in design. In fact, requirements for the frame were abbreviated to where the tubular structure that remains weighs less than 25 pounds!

Another benefit to the simplified frame is for servicing, as the engine no longer needs to be lifted from within a frame to be completely removed from the motorcycle. In the case of the K-100, the entire drive train can be unbolted and lowered to the floor!

The front suspension remains similar to the R-series bikes, with changes made primarily to strengthen the assembly and improve the handling. The front forks pivot (as before) on tapered roller bearings, and are held in alignment with lower and (finally!) upper triple clamps. Suspension damping remains as before with a double-acting (up and down) hydraulic damping with progressive rate springs. The springs are noticeably beefier than those of previous Beemers: aggresive application of the front brakes results in a mere dip of the front suspension rather than total collapse. The fork tubes are a robust 41.4 mm diameter which should be highly resistant to flexing. The front suspension lacks the current-fad fork brace (or even fender brace, for that matter), and instead makes use of an oversize front axle. This oversize axle gives the front suspension the same degree of rigidity as would be afforded by a top-of-the-sliders brace, in addition to placing that rigidity at the point where the flex originates, the axle.

As long as we're poking around the front suspension, a lovely detail touch is that the front brake line is routed through the steering stem, which eliminates the usually serpentine hydraulic system found on the front of most motorcycles. This makes changing the handlebars (yes, *real* handlebars, not cast component-grips) simply a matter of replacing the length of hose between the master cylinder and the steering stem. Curious omissions to the design of the front suspension are the lack of either air adjustment and any form of anti-dive system. One engineer I chatted with claimed the reason for this conservative approach is that none of the contemporary anti-dive systems seem to contribute to the safety or stability of the motorcycle — and that the designs that BMW had tested merely added weight, complexity and expense to the machine. Time will tell if BMW has something under development along these lines to appear at a later date.

Well, what we've got here is a completely new motorcycle. I'd like to say that the most interesting and controversial part of the new BMW K-100 is the engine; after all, the liquid-cooled four is a far cry from the old boxer-twin. This is partly true, as the engine is indeed interesting. Controversial? No. Good, solid, well thought-out engineering is hardly controversial. Consistant with the goals of the engineering department, BMW has created a vehicle for pleasure, a vehicle for the enthusiast. BMW makes no pretense as to having built a motorcycle to appeal to the pimple-faced rocket jock who does his touring in quarter-mile increments. The K-100 is destined to be a refined (and expensive) gentleman's motorcycle — as were the R-series machines that preceeded it. The telling difference is that now, the gentlemen who are fortunate enough to own the new generation BMW can ride for pleasure...and won't have to make any excuses come Sunday morning on that favorite mountain road.

*Single-piston Brembo calipers apply the slow-down to 285 mm stainless-steel discs. Tires are Pirelli Phantoms mounted as tubeless on cast rims.*

## RIDING THE K-100

The press conference looked more like a meeting of the United Nations than an assemblage of motorcycle journalists. Reporters from all over the world strained into stethoscope-style earphones to hear translations of the speeches offered by BMW officials. Dr. Eberhard Sarfert, member of the Board of Managing Directors of BMW AG took the podium to explain the company's committment to the development and production of motorcycles.

"The motorcycle is an expression of our product philosophy which can be seen from our company's aim: to manufacture driver-oriented passenger vehicles — sporty, comfortable and with no technical problems. And a very important point: automobiles and motorcycles which are a pleasure to drive. I don't believe there will ever be a BMW truck. And I'm sure BMW will never be without motorcycles."

Needless to say, spontaneous translations always are worded in an interesting manner. But Dr. Sarfert's message was clear: BMW builds vehicles for the enthusiast, not for the pragmatist.

Anyone who's had the opportunity to attend a BMW rally knows that the owners of this marque are about the most enthusiastic enthusiats in all of motorcycling. There are not one, but two national owner's clubs for the fabled boxer-twin, the BMWRA (BMW Rider's Association) and the BMWMOA (BMW Motorcycle Owner's of America). This latter organization publishes a monthly newsletter

that's more than 60 pages thick; more of a magazine that a newsletter. This same group publishes an "anonymous directory" as a guide to find fellow BMW owners who are willing to offer aid and assistance for on the road trouble.

For all the goodness and helpfulness of this organization, their contributions have made one point clear. A hefty portion of the club's monthly newsletter/magazine deals with how to improve certain features of BMW motorcycles. Various swing arm braces, methods of stiffening the front suspension, beefing up the triple clamps, lowering compression, installing double spark plugs, improving the clutch, fitting larger batteries...all point to the fact that the traditional BMW motorcycle with the traditional flat-twin engine had considerable possibilities for improvement.

If BMW were to retain their "sporting profile" in the motorcycle industry, there would have to be some serious updating done to the aged boxer-twin. What was required was a re-think of the entire motorcycle, rather than an improvement to any specific component.

It comes as no surprise that the primary design consideration to this new machine would be to increase the horsepower of the engine. Late model 1,000 cc BMW's have rather dismal power figures — in fact, on a par with other motorcycles with engines half their size. BMW's experimentation with the one-liter flat-twin had proven that 70 horsepower was the upper limit for reliable operation; 60 horsepower being more realistic in view of future noise and emissions regulations. With these limitations in mind, BMW abandonded the flat-twin configuration in the pursuit of horsepower, and decided to design an entirely new powerplant for the next generation motorcycle.

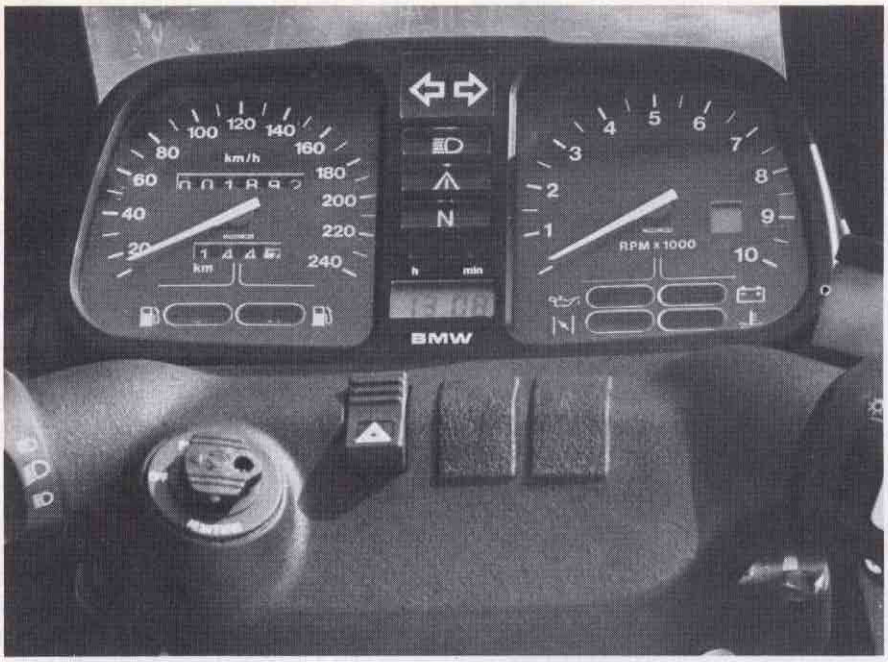
This decision meant that the engineering department had a blank sheet of paper with regard to engine configuration. On the way to selecting the in-line four layout, BMW experimented with a flat-four (like a Gold Wing), a V-four (similar to the Yamaha Venture), a transverse-four (univerisal Japanese configuration) and even an H-four (like the old Ariel Square Four and the current road-racing engines). Why did BMW expend the design effort in the direction of four-cylider engines rather than two? A four-cylinder engine is more conducive to the power levels desired for the new model. Six cylinders would be even better in terms of sheer power, but the complexity of the six-cylinder design extracts a penalty in weight and serviceability. BMW was after power — in a common sense sort of way.

In spite of the blank-sheet origins of the K-100 series, it's interesting to note that the BMW had other motives for selecting the lay-down four. In the words of Karl Gerlinger, marketing manager for BMW Motorrad GMBH:

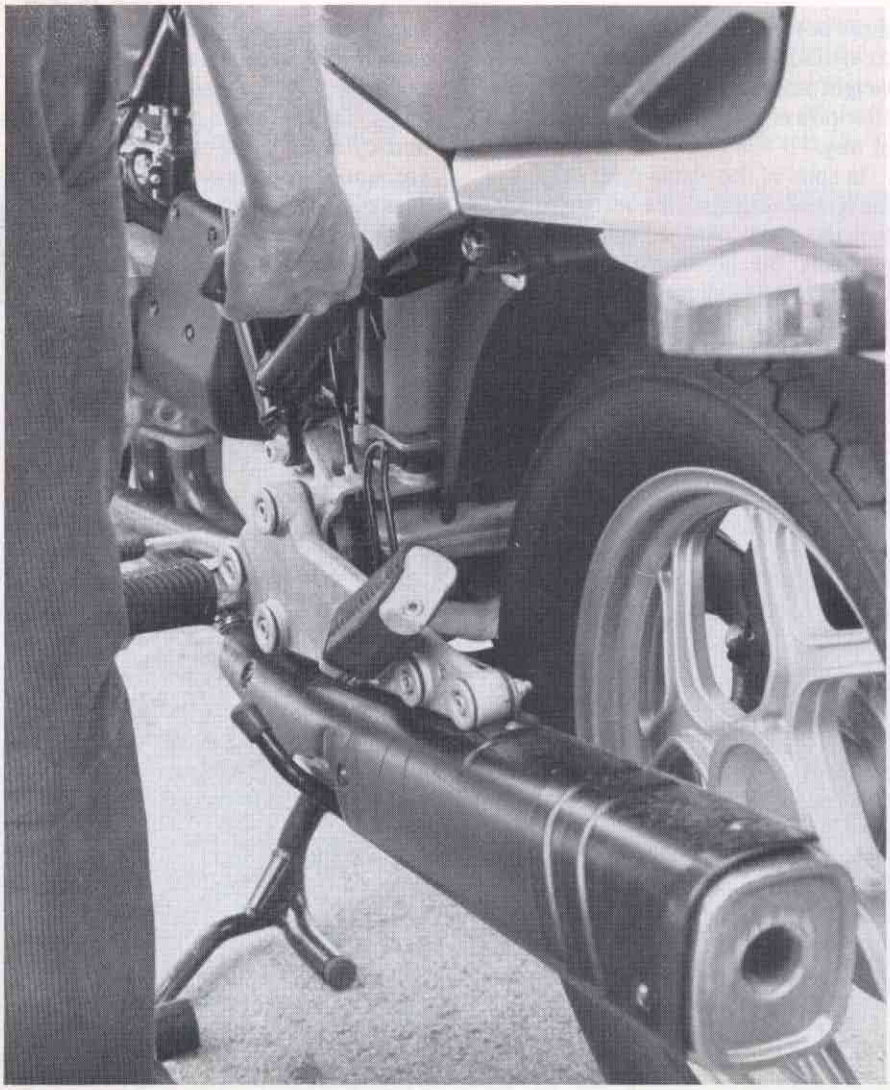
"...BMW's success depends to a certain extent on its exclusiveness. It is clear that a manufacturer is no longer exclusive with a transversely mounted, four-cylinder, in-line engine, or with a four-cylinder V-engine. These designs are among the mass producers' standard offerings."

It's therefore clear that a good part of the final decision as to engine configuration was based on how the motorcycling world would view the new engine. BMW went perhaps out of the


*New Generation Strange Switches: Push for left turn, lift to honk! Headlight switch probably will be omitted on U.S. models. Choke level on top is the same as current BMWs.*




*Warning lights abound but instrumentation remains easy to read at a glance. Note hazard flasher switch on padded dash; extra space is provided for two accessory switches.*



*Frame-mounted handle and improved pivot placement make hoisting the K-100 onto the centerstand an easy task.*

way to be sure nobody would mistake the K-100 as a "me-too" effort. In addition, the liquid-cooled in-line four allowed BMW to draw on their experience with automotive engines — both in passenger vehicle and racing applications.

All of this background is well and good, but says little about what it's like to actually ride the fruits of their efforts, the K-100. The good folks at BMW had (at considerable expense) arranged for that by assembling a group from the international motorcycle press at La Napoule, a resort town on the southern coast of France.

It was at this meeting, bright and early on a Friday morning that I had my first ride on the K-100 BMW.

The first feature of the new bike that made an impact on me was the styling. The machine has as appearance that's, well, sort of appliance-like: a chunky, blocky, utilitarian look. Since the machine is equipped with a radiator (for the liquid cooling system), the design team chose to have that item styled to reflect BMW's distinctive automotive "double kidney" motif. I can't forget that the last automobile to use this grill embellishment was the Edsel ...but that was a long time ago.

Climbing onto the bike revealed the first surprise: the new bike is actually a few pounds heavier that the old boxer-twin, but feels much lighter! The new engine's low center of gravity is responsible for this, and gives the rider an eerie optical-illusion sense of "this *can't* be a 1,000 cc motorcycle."

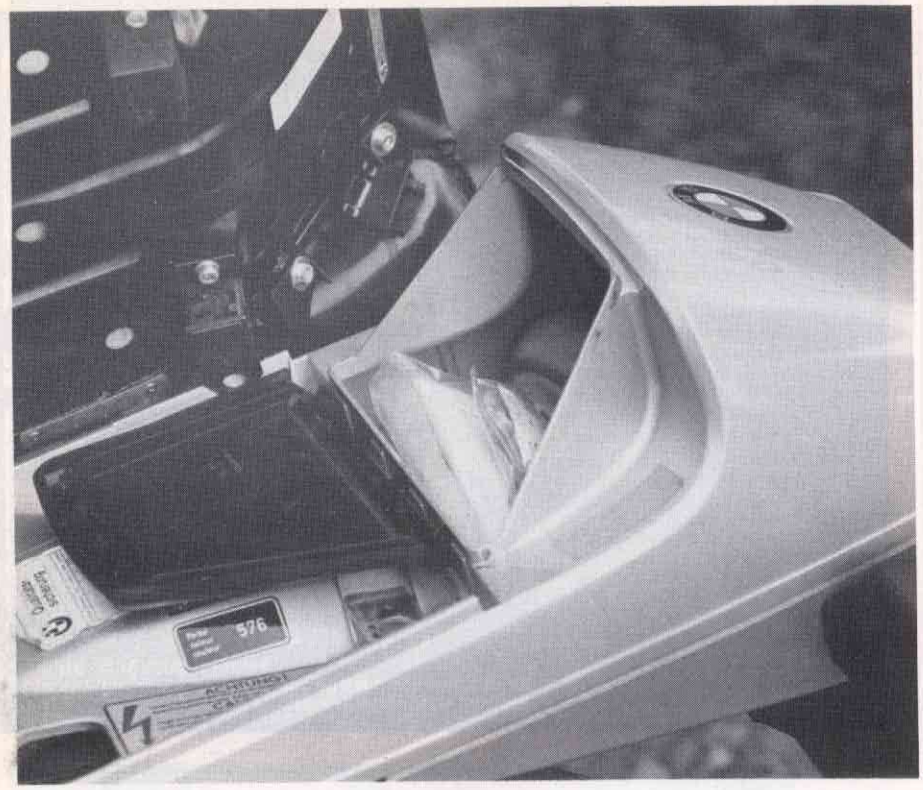
The bikes had been warmed up prior to our arrival, so that I had no way of knowing the cold-starting behavior of the fuel injection system. The engine lit immediately with a jab of the starter, and did so for each of the dozen or so occasions I had to start one. There is no provision for a kickstarter.

Which brings us to the topic of buttons. A few years ago, folks would mercilessly tease BMW about their odd handlebar switches. To be polite about it, they were different from everything else on the road. At the insistance of puzzled dealers, the motorcycle press and probably anybody else who could bend BMW's ear, the switches were changed to conform to what has become nearly an international standard (save Harley and Moto Guzzi). Curiously, the K-100 introduces "second generation" of weird buttons and switches. The starter is a push button, mounted high on the right side cluster, with the engine kill switch located concentrically above and around it.

Below that is an odd side-to-side switch that I never did figure out the purpose of. On the left cluster, high and to the left is the headlight dip switch. Below that a side-to-side headlight on-off switch (which we may not see here in the U.S.). Now things get downright strange. The turn indicators are similar to the HarleyDavidson in layout: push a switch on the right to turn right, a switch on the left to turn left. Unlike Harley's switches, the new BMW has a self-canceling system that's coupled to a time/speed/distance circuit with the electronic (yes, electronic) speedometer. The canceling feature is a bit on the long side for most turns, and I found the flashers to blink well beyond any turn or lane change maneuver I could manage. A switch is provided to cancel the signals in such an over-blink situation, but the switch is arranged to be activated by *lifting your thumb!* This placement was described as being ergonomically designed for optimum ease of operation, but you couldn't prove it by me. The horn? The same lift-up switch as the turn canceler, only positioned on the left handlebar. I'm in the habit of pushing something to honk a horn, whether it's the center of the steering wheel in a car or a pushbutton of a motorcycle. The lift-to-honk idea is counter to that instinct, as well as making the switch awkward to reach.

Instrumentation features the standard dial gauges for speedometer and tachometer (though both are triggered electronically), and warning lights for neutral, oil level, engine temperature, battery, as well as a handy light to alert that the choke is still engaged. Since that gas tank isn't equipped with a reserve tap (which would be tough with the electric fuel pump), there are two lights mounted in the speedometer which warn respectively of seven liters and four liters of fuel remaining. The only digital features which made their way onto the first-year K-100 are a clock and gear position indicator, both of the liquid-crystal variety.

With the control features of the motorcycle figured out, the folks from BMW waved us on our way over a course which included tight twisty mountain roads, rough pavement, smooth pavement, and a high speed-freeway stretch. The first bit, the tight twisty part, revealed the most conspicuous part of the K-100's character. It loves to charge through roads like that. The feeling of corners is light, precise and eager to change from left to right turn. If there's any "jacking" to the rear suspension (the tendency of the

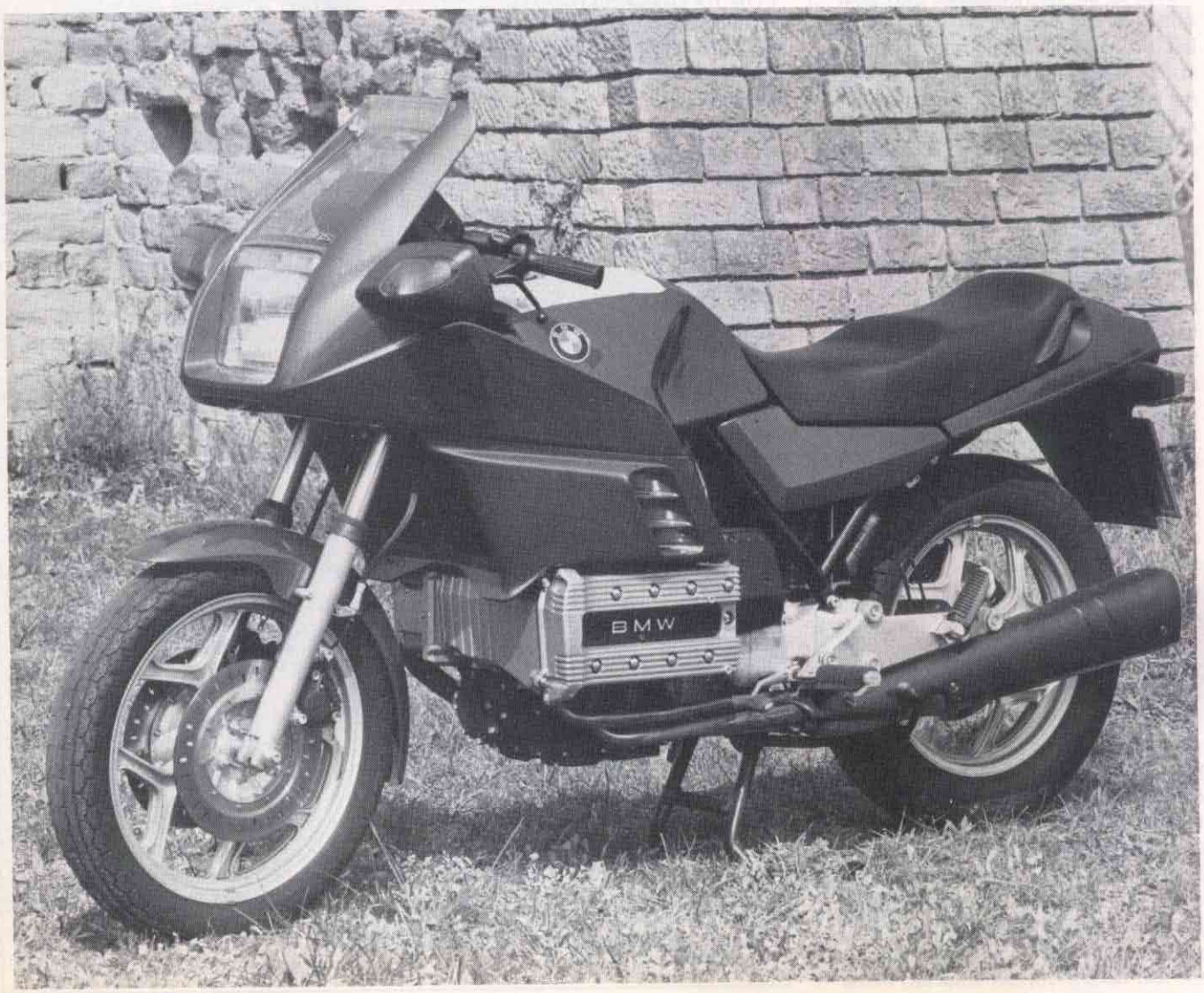


rear end of the bike to crank up and down with changes in the throttle) I couldn't detect it. Stability in a corner whether smooth or choppy pavement, was exemplary. I'm well aware that I'm not the fastest rider in the world, but running the bike as hard as I could — right up to my absolute threshold of fear —didn't promote any corner wobble whatsoever. The frame and suspension work well on the new BMW.

The next bit of riding was smooth,

*Seat is hinged and opens to the right to reveal storage for tools and first-aid kit.*

*RS version of the K-100 shows smooth lines despite chunky-looking engine. Front turn signals are integrated into the rear view mirrors. Just visible is air spoiler fitted to the top of the windshield.*



high speed pavement. It was never made clear to me what sort of speed limits were in effect along this stretch, but I decided to run the bike up to speed when a couple of other K-100's passed me as if I was parked. I nudged the throttle, the speedometer climbed as the bike accelerated with an almost eerie smoothness, I chickened out when the speedo passed 190 kph — somewhere around 110 miles-per-hour —though the bike was completely stable and willing to go a good deal faster (BMW claims a top speed of 215 kph for the standard model: about 130 mph). I'm not anxious to repeat that sort of speed here in the U S of A for fear of going directly to jail, but it's nice to know that the machine is capable of it in case you're ever pursued by spacemen or monsters.

I had the chance to make a second circuit of the prescribed course, exchanging a standard model for the RS version of the K-100. On this model, the engine, frame and driveline are the same: the changes being to the handlebars, seating position and the addition of an integrated sport fairing. Though it bears the same RS designation as BMW's previous sport offering, the old and new machines look entirely different from one another. The new RS is the end result of considerable wind-tunnel experimentation, and (get this) affords greater wind protection for the rider, superior aerodynamics *and* a smaller frontal area with less drag than the old fairing! A remarkable achievement.

All of the claims made for the new fairing seemed to be true for the brief session I had with the bike. The rear-view mirrors are positioned considerably lower than before, and are in direct line to spill air away from the rider's hands. The top of the windscreen has a spoiler (small, clear plastic flap) that actually *changes positions* according to air speed. The effect of this is to smooth the column of air over the rider's helmet -- which is exactly what it does. Both models seem to channel the heated air from the radiator away from the rider's legs, and should be comfortable to ride in hot weather.

If this report sounds like a rave review, allow me to clarify a couple of things. First of all, I had spent the three weeks prior to riding the K-100 touring around Europe — riding a 1983 R100RS BMW. In comparison to the old boxer-twins, there is no comparison. The new bike is faster, has more torque, better throttle response, superior handling, better brakes...just about anything having to do with motorcycle performance has been improved for the K-100. It should also be pointed out that I spent less than 100 miles aboard the new bike, and those miles were ridden solo, without passenger or any luggage. The roads were unfamiliar, as were the roadsigns and other points of reference — all of which meant more concentration as to what was going on around me, and less concentration on the bike.

I have no reason to suspect that I would be disappointed with the K-100 if ridden a great distance over a long period of time. The engine is new, but is based on engineering which BMW has proven in their automobiles. Add to these considerations that BMW has never participated in the new-design-every-year-game, and intends to produce the K-100 for years to come (and has in fact built an entirely new factory and new production line specifically for this model). Every instinct tells me that the K-100 is a worthy successor to the BMW name, and will earn the respect and generate the loyalty and enthusiasm that the boxer-twin established over the past 60 years.

Want to know what's really disappointing about the BMW K-100? We're going to have to wait until they're introduced in this country to find out. And that day is still some 10 months away.

## BMW K-100
### TECH STUFF

| | |
|---|---|
| Dry Weight | 491 lb. |
| GVWR | 990 lb. |
| Saddle Height | 31.9 in. |
| Wheelbase | 59.6 in. |
| Overall Length | 87.4 in. |
| Suspension Travel: front | 7.28 in. |
| rear | 4.3 in. |
| Brakes: front | Dual 285 mm disc |
| rear | Single 285 mm disc |
| Engine | 987 cc in-line four |
| Bore and Stroke | 67 mm/70 mm |
| Compression Ratio | 10.2:1 |
| Valves | 2 per cylinder |
| Intake/Exhaust Dia. | 34 mm/28 mm |
| Claimed Horsepower | 90 @ 8,000 rpm |
| Gas Tank | 5.8 gal. |
| Pump Octane | NA |
| Average MPG | NA |
| Generator | 460 W |
| Headlight | 55/60 quartz |
| Front Tire | 100/90 V 18 tubeless |
| Rear Tire | 120/90 V 17 tubeless |