

All-New Triumphs! ● Touring the West

Rider®

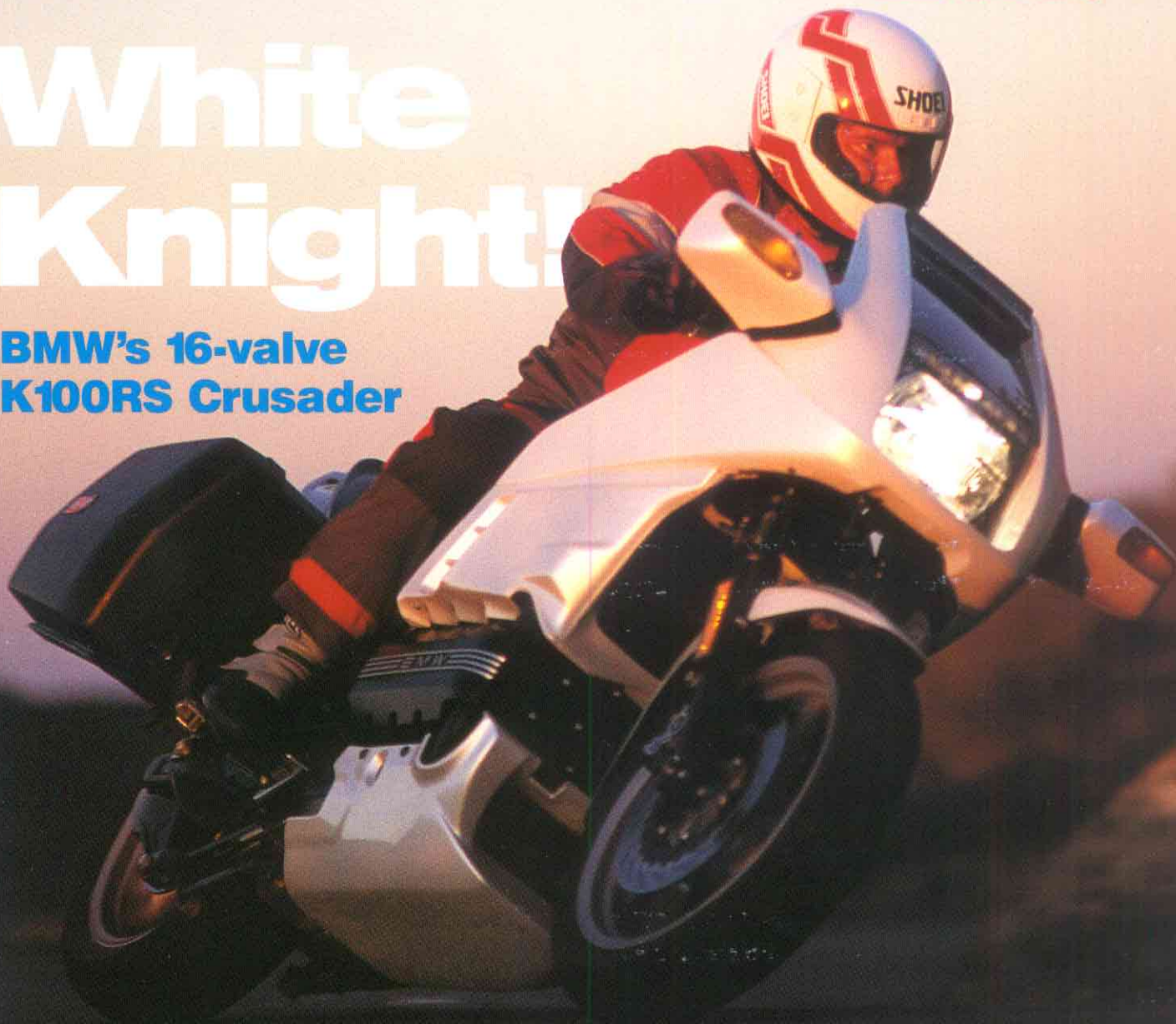
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Rider Gets Dirty

White Knight!

BMW's 16-valve
K100RS Crusader



Fear and Loathing in Orlando:
Motorcycle Safety Meeting of the Decade



1991 BMW K100RS

*Sweet 16.
Valves, that is.*

by Mark Tuttle Jr.

Depending on who you speak with from BMW, its wild and woolly K1—introduced in America in late 1989—is either the ultimate sportbike or sport-touring bike. Yet when we recognized the BMW K1 by judging it 1990 Bike of the Year in *Rider's* first annual Touring's Top Ten awards, it wasn't primarily for the machine's performance or liberal use of cutting-edge technology. What pushed the K1 over the top was the chutzpah BMW exhibited by temporarily setting aside tradition to try something, well, a little daring. It was high time for the focused German company to exhibit a little unpredictability, and with the K1 it clearly succeeded. If we had judged the machine solely on its performance as a sportbike or sport-tourer, the K1 wouldn't have made the cut. Because it doesn't really excel at being either.



PHOTOGRAPHY BY ROBIN RIGGS

The sport-touring aim of the new 1991 16-valve K100RS, however—which is based primarily on the K1—is as straight and true as a cannon shot. And that's a relief to this writer, because in retrospect, 1989's and '90's eight-valve K100RS-ABS Special possessed a somewhat ambiguous personality, much like the K1's. While its 82-horsepower engine was happiest pulling stumps down low like a touring machine, the bike had a stiff seat and suspension like a high-revving sportbike. And though its wheelbase was tourer long, its handlebar was sportbike narrow. The new 16-valve K100RS had the potential to be similarly confused since we knew it would be a blend of sporty K1 (see *Rider*, February 1990) and eight-valve K100RS (see *Rider*, November 1988) components. Fortunately, the bike's intent is clear. Although BMW simply bolted last

year's K100RS sport-touring fairing, lower cowling and front fender to the K1 frame, drivetrain and running gear, the addition of some transition components, such as an all-new dual seat and handlebar as well as revised footpeg brackets, kept the '91 K100RS from becoming just another big sport-touring bike with a He-Man sportbike riding position.

Two or three additional refinements were made to help blend the components of each bike, but underneath the '91 K100RS plastic there sits an essentially unmolested K1. That engine's most evident break with the original K100 design is its DOHC cylinder head, which uses direct actuation to open its 16 valves. Valve lash adjustment shims have been eliminated by simply gauging the replaceable bucket-type tappets, which should prove to be quite long-wearing. The new head is bolted to the familiar K100 liquid-cooled, 987cc, inline-four cylinder bank. While the bore and stroke of each cylinder remains unchanged at 67.0 by 70.0mm, compression is upped to 11:1 from 10.2:1. The engine's new lightened pistons and connecting rods and a lightened, forged crankshaft also allow the mill to rev more quickly now, though redline remains at 8,500 rpm. Interestingly, in both the K1 and '91 K100RS 16-valve engines the valve timing is also unchanged from earlier K100 specification, in spite of a completely new Bosch Motronic combined ignition/fuel injection system replacing the previous separate

13-horsepower, giving the formerly sluggish four 95 ponies at 7,500 rpm—within shooting range of its Japanese competition. While the 82-horsepower eight-valve engine—still used in the K100LT luxutourer—makes adequate power for two-up touring, it is just that—adequate. For the sometimes brisk pace and hard acceleration desired of a contemporary sport-touring machine, more power was needed, and the 16-valve powerplant delivers.

At a stop, it's hard to detect any real difference between the old and new engines from the rider's seat; the new K100RS starts, idles and sounds just like the eight-valve K100RS, which is to say easily and smoothly. Once underway, however, it becomes swiftly apparent that the new engine is breathing better, and in the bottom and mid-range of the zero to 8,500-rpm powerband the revs still build slowly but with more authority. It was easy to motor away from a stop in third gear with the old K100RS; it's even easier with the new bike. Once you're speeding past the 5,500-rpm mark the flywheel no longer seems to hold the engine back and the revs build very quickly. The K100RS's power boost won't make anything in its class from the Orient turn tail and run, but for sport-touring most of those bikes are like driving a thumbtack with a sledgehammer anyway. The new Beemer, on the other hand, makes easily controlled, seamless power from down low to mid-range just right for Mr. and Mrs. Average, with enough excitement leftover on



L-Jetronic fuel injection and transistorized breakerless ignition (see *K1 Tech, Rider*, February 1990). The Motronic system is the same one BMW uses on its cars, and Ferrari will reportedly use the system to up the awesome Testarossa's horsepower from 370 to 420.

According to BMW, the changes to the K100 mill are good for an additional

top for Walter Mitty.

Despite the power increase BMW opted to use the lower 2.81:1 final-drive gearing of the earlier K100RS instead of the K1's 2.75:1 ratio, though it retained the higher top (fifth) gear ratio of the K1. Since their wet weights are very close and the '91 K100RS wheels and tires are identical to the K1's, the result is

K100RS

slightly better bottom-end grunt in the lower gears to help get the fully laden touring bike underway from low speeds or a stop. In spite of all the engine changes, the 16-valve in-line four is still pretty buzzy above 4,500 rpm or so, and the new K100RS's lower final drive gearing means that buzziness begins to reach the rider at a lower road speed than on the K1. Fortunately for touring riders, that speed is an indicated 76 mph in top gear on our '91 K100RS test bike, and below that the bike is reasonably smooth and the mirrors are clear. Although the beefy K1 frame was otherwise unchanged for use on the '91 K100RS, BMW went to the trouble of

welding on and boring out larger frame lugs on the ends of the front downtubes in order to accommodate a pair of rubber spacers. That must mean that with a solid-mounted engine like the K1's the '91 K100RS would vibrate intolerably, because now I can't really feel much difference between the two bikes' levels of vibration.

As with the K1, power is fed to the rear wheel of the '91 K100RS via BMW's Paralever shaft drive. First seen on its R100GS dual-sport bike, the Paralever effectively feeds the torque reaction of the shaft drive back into the bike's frame so that the rear ride height of the new K100RS is unaffected by its throttle position. I wasn't very impressed with the shifting on our test bike; the dry clutch has a narrow engagement point almost at the end of the lever travel, and moving through the gears

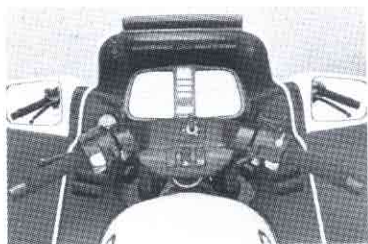
can be rather notchy at times. What is gained with the Paralever is often lost with a botched shift.

For a more comfortable ride on the '91 K100RS, BMW has substituted the comparably softly sprung K75S shock absorber for the overly stiff K1 unit. The 41.7mm braced Marzocchi fork is identical to the K1's, though the rebound damping in the fork has been slightly decreased this year for use in both the K1 and new K100RS. The shock has three spring preload stops, but the fork has no external adjustments.

Other changes exclusive to the '91 K100RS include a 24-inch wide handlebar, which falls between the mammoth 26-inch unit on the K1 and the old 22-inch K100RS bar. Subsequently, to retain rearward visibility and the envelope of still air the mirrors create for the hands, one-inch spacers were added

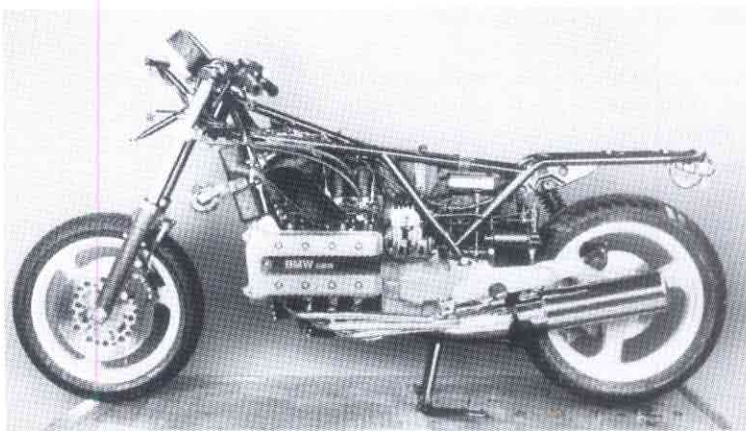


PHOTO BY THE AUTHOR



Above: BMW's gorgeous K100RS white knight will also be available in red or black. Left: Instruments are identical to K1's.

This BMW photo of a stripped, preproduction K1 is fairly representative of what the K100RS looks like in the raw.



between the new bike's mirrors and the fairing. A more comfortably padded dual seat with a shape similar to the old K100RS's puts the '91 model's seat height at 31.5 inches, about one-half-inch lower than the old K100RS. Finally, the new K100RS gets all of the K1 instrumentation and its integrated ignition steering lock.

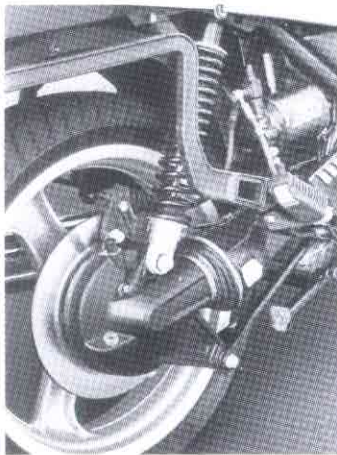
BMW claims that the electronic/hydraulic ABS system installed on our test bike—a \$1,000 option for the '91 K100RS—adds about 26 pounds. Our bike was also equipped with the optional saddlebags (\$461), which brought the weight of the bike up to 628 pounds fully gassed. That's about 16 pounds more than the K1 with its standard ABS, and 31 pounds heavier than the earlier K100RS-ABS Special.

Despite the extra weight, the 16-valve K100RS is vastly superior to its eight-

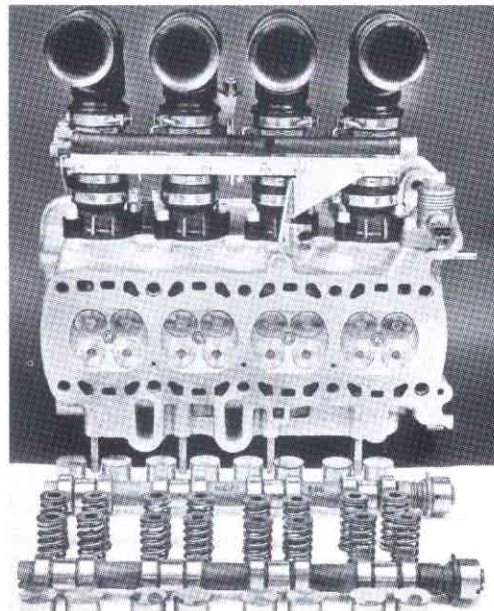
valve predecessor in almost every respect. Though its wheelbase is almost two inches longer, the new K100RS's stiffer chassis, wider handlebar, wider 17-inch front and 18-inch rear wheels and compliant suspension give it much more predictable handling. The bike requires a lot less effort to steer and no longer has to be muscled from corner to corner. It's so much easier, in fact, I was surprised to find the steering damper from the K1 in place on the new K100RS. Like the K1, the new K100RS doesn't possess anything remotely like the nimble handling of a 600 sportbike, but it should more than meet the expectations of sport-touring riders unwilling to push an expensive motorcycle beyond prudent limits. We didn't have the opportunity to try the Pirelli and Metzeler Z-rated radials that will also be OEM equipment, but the excellent

Z-rated Michelin radial tires fitted to our test bike remain neutral, soak up bumps and stick like flypaper.

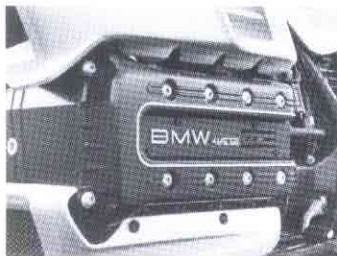
Up front the Marzocchi fork does an admirable job of steering and suspending the big K-bike, and is near perfectly sprung for sport touring. Most riders will find it more than adequately controlled; for myself I'd like just a touch more rebound damping. Same with the shock; while the ride is quite comfortable in touring mode with the shock set in the lowest preload position, the back of the bike gets ever so slightly out of shape when you wick it up on twisting



BMW's Paralever-controlled shaft drive is transplanted from the R100GS and K1; shock is a K75S unit.



Cam lobes in the new 16-valve K100RS head act directly on replaceable bucket-type tappets.

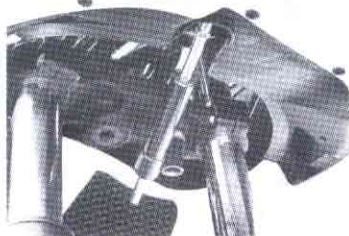


New cylinder head and Motronic control eliminate the need for a special California K100RS model.

Bosch Digital Motor Electronics (DME/Motronic) control box resides under seat on top of battery, ABS black box directly in back of battery.



Higher top speed and revised chassis/steering geometry of the 16-valve Beemers required the addition of a steering damper.



1991 BMW K100RS

| | |
|-------------------------|--|
| RETAIL PRICE | \$11,590; \$13,051 AS TESTED W/ABS AND SADDLEBAGS |
| WARRANTY | 3 YRS., UNLMTD. MILES |
| SERVICE INTERVAL | 600; 4,500; THEN EVERY 4,000 MILES |

ENGINE

| | |
|---------------------------|---|
| TYPE | LIQUID-COOLED, LONGITUDINAL, IN-LINE FLAT FOUR |
| DISPLACEMENT | 987cc |
| BORE & STROKE | 67.0 × 70.0MM |
| VALVE TRAIN | DOHC, 4 VALVES PER CYL. |
| CARBURETION | BOSCH DME (MOTRONIC) |
| LUBRICATION SYSTEM | WET SUMP, 4-QT. CAP. |
| IGNITION | BOSCH DME (MOTRONIC) |
| TRANSMISSION | 5-SPEED, DRY CLUTCH |
| FINAL DRIVE | SHAFT, 2.81:1 |

ELECTRICAL

| | |
|------------------------|----------------|
| CHARGING OUTPUT | 460 WATTS MAX. |
| BATTERY | 12V 24AH |

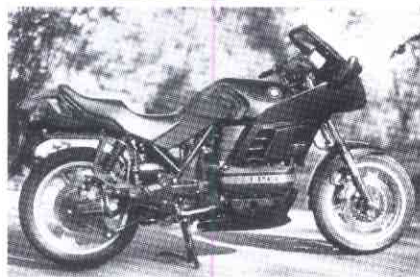
CHASSIS

| | |
|--------------------------|---|
| FRAME | TUBULAR-STEEL SPACE FRAME W/ENGINE AS STRESSED MEMBER |
| SUSPENSION, FRONT | MARZOCCHI TELESCOPIC FORK, 41.7MM STANCHIONS |
| REAR | SINGLE SHOCK, ADJ. FOR SPRING PRELOAD |
| BRAKES, FRONT | DUAL FLOATING DISCS W/4-PISTON OPPOSED CALIPERS (ABS OPTIONAL) |
| REAR | SINGLE DISC W/OPPOSED-PISTON CALIPER (ABS OPTIONAL) |
| WHEELS, FRONT | CAST, 3.50 × 17 IN. |
| REAR | CAST, 4.50 × 18 IN. |
| TIRES, FRONT | 120/70-ZR17 |
| REAR | 160/60-ZR18 |
| WHEELBASE | 61.6 IN. |
| SEAT HEIGHT | 31.5 IN. |
| WET WEIGHT | 628 LBS. (W/ABS) |
| LOAD CAPACITY | 430 LBS. (W/ABS) |
| GVWR | 1,058 LBS. |

TOURING PERFORMANCE

| | |
|--------------------------------|--|
| FUEL CAPACITY | 5.2/NA GALS. (WARNING LIGHT MAIN/RES) AT 1.3 GALS.) |
| AVERAGE MPG | 50.4 |
| RANGE TO WARNING LIGHT | 197 MILES |
| INDICATED RPM AT 60 MPH | 3,600 |

K100RS



The low-seat version of the K100RS – available at no extra cost – drops the seat height two inches to 29.5 inches.

tually soaked the outer layer of treated Cordura but wouldn't pass entirely through the suit, presumably because of the Gore-Tex. Opening the zippers afterward I found the gussets underneath had remained remarkably dry, so we tried soaking the gussets with the zippers open just for fun. No penetration that way, either. Because the Cordura does begin to retain water eventually, it might pay to put a rainsuit on over the Gore-Tex suit in preparation for an all-day ride in a downpour. In any lesser conditions, however, my guess is that it will double quite adequately as a rainsuit.

The Gore-Tex suit is easy to get into and out of as well as zip together, and though I'd like to be able to get to my pants pockets without removing it—I often forgot to take the bike key out of my jeans before putting on the suit—there are plenty of easily accessed pockets on the outside. Although it allows them to be worn separately, the two-piece, bib-overall and jacket design has one drawback when worn together; the entire suit must be removed when it's time to use the facility, regardless of gender and the type of relief required. In addition, the collar material chafed my Adam's apple after a while when zipped up tight; something softer here would be nice. Otherwise the rest of the suit is soft and comfortable, and cut to fit a motorcyclist's requirements instead of a snowmobiler's or skier's.

The BMW Gore-Tex suit is available in ladies' sizes 8 to 16 and men's sizes 36 to 44 Regular for a suggested retail price of \$850. Men's sizes 46 to 50 Regular, 40 to 48 Short and 40 to 46 Long are \$895. The jacket and bib overalls are available separately, as are matching BMW Gore-Tex boots and gloves. For more information contact your BMW motorcycle dealer. ■

Mark Tuttle Jr.

roads. Jacking the preload up a notch improves the bike's cornering clearance a little, but doesn't compensate much for the lack of damping. When ridden two-up, the damping situation makes the bike want to stand up in bumpy curves at speed.

Even though the new K100RS's triple disc brakes are straight off the K1, I had much better luck with them on this machine. The four-piston-opposed Brembo calipers in front have smaller leading pistons and pinch floating discs, are quite powerful and linear and give excellent feedback, unlike the spongy feel of our K1 test machine's front brake. Although I didn't use it much the rear brake provides similar performance, and the anti-lock system on our test machine performed more smoothly than on any BMW motorcycle equipped with ABS we've tried to date.

Between the press intro in Louisiana and an overnight tour on the Left Coast, I put about 1,200 miles on our test bike, and was very pleased with its improved comfort level. With its higher, wider bars and similarly well-placed footpegs, the new K100RS's seating position is still sporty but much better suited to long rides than the old bike. BMW didn't give in entirely—the seat is still pretty hard—but again, much more comfortable, almost enough for an entire tankful. And the K100RS fairing has always been one of my favorites, offering ample hand, chest and leg protection. Its adjustable wing on top of the windscreen doesn't offer much change in the height of the air flow over it, but it does allow you to tune out a whistle in your helmet face shield, or direct the strongest flow to the center of your shield to clear off water droplets.

On the road the '91 K100RS returned great gas mileage; the lowest I could get it to go was 49.4 over a tankful consumed by what the average rider would

consider pretty spirited riding. My high of 52.2 gave the big Beemer a range of over 250 miles from its 5.2-gallon tank. By then I was pretty tired of staring at the warning light, however, which comes on at the 1.3-gallon mark. There is no reserve petcock.

The new latch design on the optional saddlebags allows a single key to be used for all of the bike's locks; now the latches are easy to unlock and difficult to open instead of vice versa. In addition, though still plenty roomy, the bags won't hold most contemporary full-face helmets other than BMW's, and block the bike's helmet lock when installed. For \$461, you should be able to stow another premium helmet brand in the saddlebags.

Still, in daily use the revamped K100RS is much more pleasant to live with than its forerunner. Although the storage box under the seat directly above the battery had to be sacrificed to make way for the Motronic computer, if you opt for it the ABS computer also mounts in the battery area, freeing up the entire tail-section compartment. Even after stowing BMW's excellent tool and flat repair kits within, there's still some space leftover. Of course, now it's a lot tougher to get to the battery to hook up an electric vest or whatever, so BMW has located its remote accessory socket in a convenient spot just under the tank. The slick flip-out centerstand handle returns on the new K100RS, and though the sidestand is free from any of BMW's former automatic retraction devices, now it kills the ignition when deployed. That means you can't warm the bike when it's parked on the sidestand, but you can kill the engine by deploying it. Tit for tat.

And such is life with a BMW. Not only will you pay a lot more money up front than you might be used to—the '91 K100RS starts at \$11,590 without ABS or saddlebags—if you're accustomed to the nearly universal way in which all Japanese motorcycles do things, at first living with a Beemer can be mildly frustrating. With the K100RS, however, BMW has finally set aside some of its most annoying traditions—such as the lack of a compliant suspension, comfortable seat or integrated ignition steering lock—for almost Japaneselike performance in many important areas. Combine this with a high resale value and certain other steadfast traditions that are simply the BMW Way, and the 1991 K100RS remains a unique but very competent sport tourer among an abundance of sameness. ■