

SPECIAL TESTS 12 SEAT BAGS • 3 UNUSUAL SIDECARS

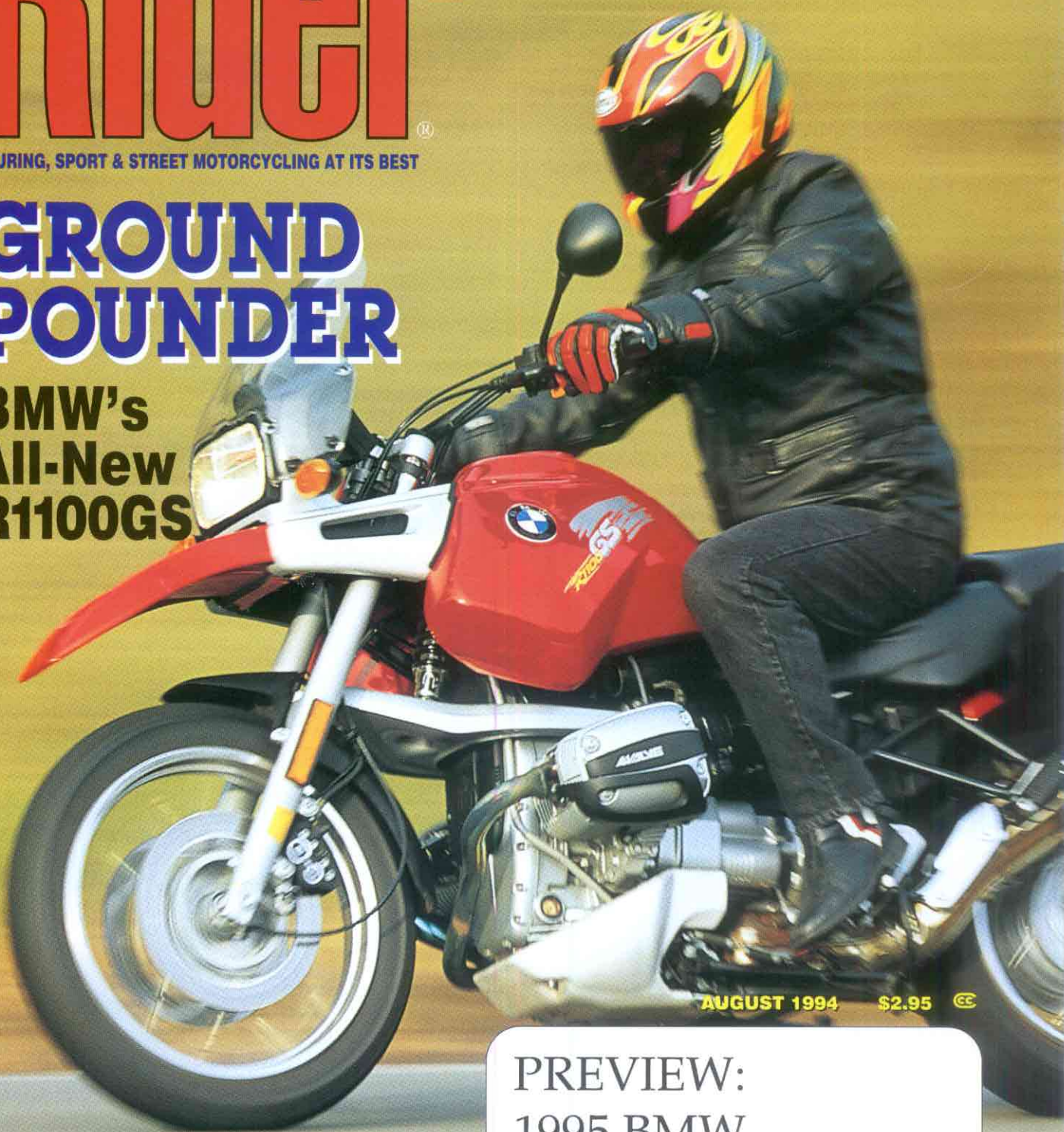
Rider[®]

TOURING, SPORT & STREET MOTORCYCLING AT ITS BEST

GROUND POUNDER

**BMW's
All-New
R1100GS**

★ **Exclusive First Ride
Russian Ural Sidecar**



AUGUST 1994 \$2.95 ©

Both Sides of Daytona 1994

PREVIEW:
1995 BMW
R1100GS

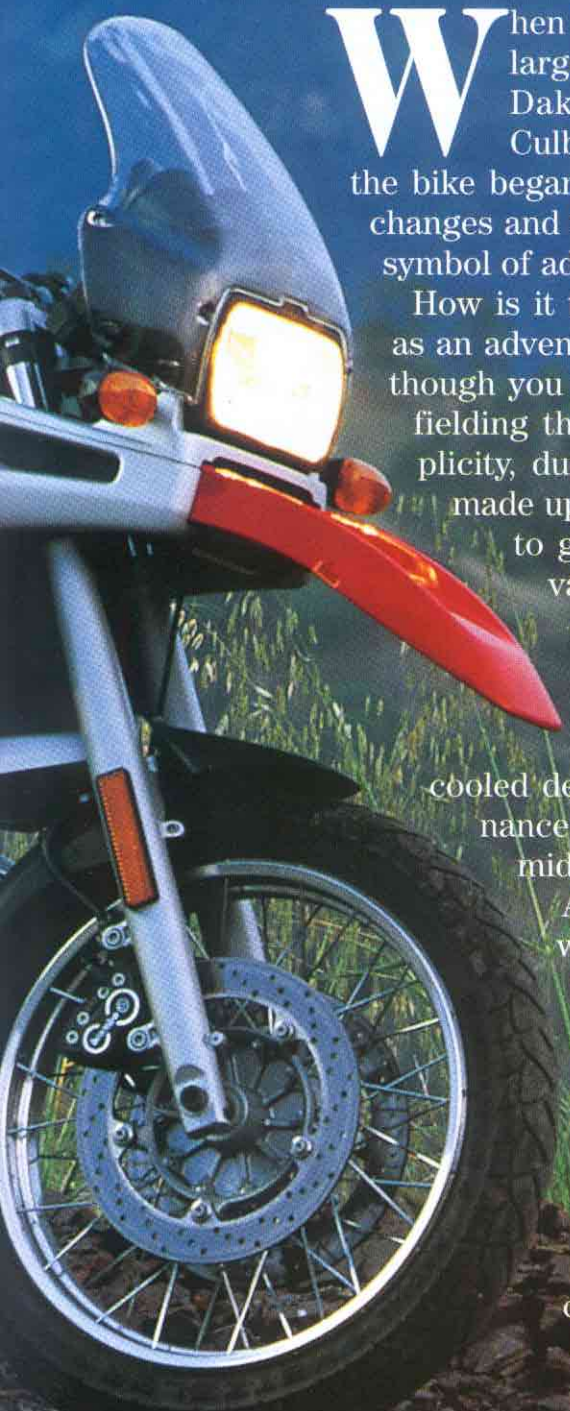


Conquistador

1995 BMW R1100GS.

BY MARK TUTTLE JR.

PHOTOGRAPHY BY DAVID DEWHURST



When BMW introduced the unusual R80G/S in 1980, it was largely misunderstood. But after a string of four Paris-Dakar Rally wins and adventurous types such as Ed Culberson and Helge Pederson rode GSs to hell and gone the bike began to acquire a strong following. Several major model changes and more than 64,000 units later, the GS has become the symbol of adventure touring in the hearts and minds of many.

How is it that a 500-pound opposed twin can function so well as an adventure touring machine? Well, even though you won't find any Supercross teams fielding the big Boxer, in the past its simplicity, durability and unusually high load capacity more than

Rider Test

made up for any deficiencies the GS had off-road. So you had to go a little slower in the dirt—the point was distance, vast distance, like Alaska to Argentina or across Africa. Since much of that was often flat, smooth or even paved, the extra displacement of the loping twin meant high cruising speeds and big loads took less of a toll on bike and rider. The simple OHV, air-cooled design was hard to break, but also meant that maintenance and repairs could be performed by the rider in the middle of the Sahara if necessary.

Although I'm sure there are many BMW GS fans who would like to try, it's been said that you can't sit on the lid of progress, for it will blow you to pieces. To that end the 1995 BMW R1100GS thunders in bristling with modern technology such as computer-controlled fuel injection and ignition, BMW's second-generation anti-lock brakes, Telelever front and single-sided Paralever rear suspension. While its radical Robo-Boxer styling still gives it an all-conquering look, with all of that complication tacked on, can the new R1100GS still take it?

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Clockwise from left: Sans saddlebags the R1100GS's unusual, aerodynamic two-part rear fender is plain to see. The empty spot to the right of the instruments is for the optional Rider Information Display. Another two-part fender system is used in front; the larger upper piece helps direct air into the oil cooler.



The small fairing is frame mounted, and the windscreen tilts forth and back 13 degrees.

The short answer is a resounding...probably. Although we racked up about 1,500 serious on- and off-road miles on our R1100GS test bike in roughly three weeks, no one here is loopy enough to make any sweeping comparisons to the previous machine's reliability or durability—yet. We do know that this is one of the best handling, most well-equipped and sheer *fun* motorcycles—certainly the best BMW—to ever put a wheel to dirt or pavement.

Boxer fans will recognize the air-cooled, flat opposed twin of the R1100GS as the Type 259, introduced last year in the R1100RS sport-tourer (see *Rider*, August 1993). Four valves per cylinder are actuated by a chain-driven, cam-in-head arrangement still sporting the Boxer's traditional screw-and-locknut adjusters. A multitude of sensors—including an oxygen sensor in a closed loop catalytic converter system—help the Bosch Motronic combined fuel injection and ignition deliver fuel and fire precisely. To minimize wear and oil consumption, the cylinder bores are plated with a high-strength, nickel-silicon coating called Gilnasil. Twin oil pumps divide the tasks of cooling and lubrication, an oil cooler is standard and extra oil galleries around the exhaust valve seats take over when air circulation over the cylinders is low.

For use in the R1100GS ground-pounder, new cam profiles, slightly less compression, a modified two-

into-one exhaust and corresponding changes to the Bosch Motronic MA 2.2 system give the engine slightly more peak torque at a lower engine speed than that of the R1100RS. Maximum horsepower comes in at a lower engine speed as well, and was reportedly reduced about 11 percent, from 90 to 80. An overseas publication's dyno testing and my seat-of-the-pants assessment say the reduction is closer to five percent, a rare case of a manufacturer underestimating one of its bike's abilities.

Not so with the R1100GS's chassis. BMW is justifiably proud of being the first to offer a production motorcycle that is essentially frameless. The Type 259 Boxer engine and gearbox unit doesn't merely serve as a stressed member in the chassis; it *is* the chassis, or its backbone anyway. Subframes bolted to it support the upper shock absorber mounts and steering head in front, the tailsection in back.

BMW's rigid, responsive Telelever front suspension first seen on the R1100RS is similarly employed on the R1100GS. Although both have a fork, its only purpose is to steer and locate the wheel; there are no damper rods or springs inside, only thin lubricating oil. On the R1100GS the fork is located on top by the steering head tower and upper crossbrace, with a standard roller bearing in between. A

strong, forged- and stamped-steel control arm shaped like the letter V runs from pivots cast into either side of the engine forward to a ball joint on top of a crossbrace between the sliders. Suspension duties are fulfilled by a shock absorber vertically mounted between the steering head tower and the control arm.

Without springs or damping rods in the fork legs to bind, the sliding action of the Telelever fork can be smooth and stictionless. The widely separated pivot points—about three times the length of a typical steering head—oval-shaped sliders and over a foot of slider/stanchion overlap make it quite stiff in spite of only having 35mm stanchions. The design is inherently anti-dive as well, and fork compression and extension have much less



affect on the bike's steering geometry than a conventional fork.

The vertex of the Telelever's control arm does describe a slight arc as it moves up and down, so the fork must be able to move forth and back slightly. On the R1100RS this is permitted by a ball joint between the top crossbrace and steering head. The motion is undetectable at the handgrips thanks to the RS's relatively short front suspension travel and narrow, rubber-mounted handlebar. With its long-travel suspension, this would not be the case at the ends of the R1100GS's wide, solid-mounted handlebar. So BMW moved the pivot point to bonded rubber bushings between the top of each fork tube and the underside of the crossbrace.

The Telelever design allows the

shock to be placed in the same vertical plane as the fork, making it relatively easy to set up well. Unlike the R1100RS the R1100GS's front shock has adjustable spring preload, a plus in rough terrain. Finally, the only service required by the Telelever is a ball-joint inspection every 60,000 miles, and the R1100GS has one less ball joint to worry about than the R1100RS.

Since we've written reams about it in the past, I won't dwell nearly as long on BMW's familiar Paralever shaft drive. As its double-jointed design eliminates the torque reaction of conventional shafts, changes in throttle position have little or no effect on the rear suspension. Ground clearance is

maintained at the entrance to corners, and the shock can be set up properly for the type of bike instead of the shaft reaction. This is a huge plus on a shaft-driven road bike, but absolutely essential on a dual-sport shafty where the rear shock must also deal with whoops, ruts and rocks on a regular basis. A bonus is that the Paralever design also creates a fully floating rear brake, which helps eliminate brake chatter on rough terrain.

On the new R1100GS, the shock is relocated to a central position for more consistent action. A side benefit is that the shock is more protected from spills. BMW has thoughtfully included an easily accessed handwheel for spring preload adjustment, and a set screw for the infinitely

adjustable rebound damping. Special cross-spoked wheels—which allow the use of tubeless tires—were mounted with wide, premium Metzeler Enduro radial tires on our test bike, though I noted the use of Michelins on others. Braking is accomplished by triple discs, a pair of floating rotors up front pinched by balanced, opposed four-piston calipers, and a single rotor in back grabbed by a balanced two-piston caliper. A convenient thumbwheel adjuster has been provided for the front brake lever, though the toothed rear brake pedal is in a somewhat awkward position.

Experienced off-road riders need to be able to lock or partially lock a wheel occasionally, so unlike the R1100RS the R1100GS's optional ABS II can be switched off at will. The button on the dash that cancels the ABS-fault warning light also prevents the ABS from activating when it is held down before turning on the ignition. Turning the ignition off and then back on again resets the ABS. Those who like to spin the back wheel and wheelie a lot off-road will also find that canceling the ABS beforehand will prevent it from going into fault mode, which sometimes must be reset by a BMW dealer.

The R1100GS is impressively well-equipped for the road, even for an adventure touring machine. The rider's seat adjusts to positions at 33.1 and 33.8 inches high, and like the old GS the rear seat can be removed entirely, revealing the flat locking top to the well-equipped tool case and a substantial platform for luggage. The luggage rack in back is standard, and the windscreen on the frame-mounted fairing in front tilts forth and back about 13 degrees. The headlight adjuster is easy to use and access, and since the motocross-style handlebar attaches with traditional clamps, it can be rotated several inches.

Although the R1100GS weighs 568 pounds fully fueled and probably shouldn't be considered for serious trail riding, it handles the average rutted, rocky dirt access-road well enough. To that end an aluminum bash guard protects the engine sump, and a set of plastic panels shield the valve covers. A low, fork-mounted mudguard follows the wheel and

reduces spray thrown onto the engine and rider, while the upper frame-mounted fender cuts down on spray thrown forward, into the rider's vision, and scoops air into the oil cooler. Another pair of fenders in the rear—one rather odd-looking but functional—minimize spray as well as aerodynamic drag.

Our R1100GS started immediately when warm but required a few more cranks than normal with full choke when cold. In addition, if left on its sidestand overnight it would smoke for a few seconds on startup, not terribly unusual for the old Boxer but odd here, as the new Type 259 engine has valve guide seals. In 1,500 miles it used about ½-quart of oil. Fully warm the new four-valve engine makes terrific torque, enough to pick up the R1100GS's front wheel in second gear simply by cracking the throttle. The bike is fairly smooth in the strongest part of its powerband, dead smooth at cruising speeds, and only gets buzzy near redline long after you're likely to have shifted. The gearbox has been modified for quieter operation since the R1100RS was introduced, but remains notchy at times. The dry clutch is strong and its engagement point in the new tranny feels broader than in the past.

Loaded to the limit with passengers and cargo the revitalized Boxer engine can still quickly get around a truck, power up a steep hill or haul *derriere* over a winding road, usually without having to shift. Wind protection from the fairing and windscreen is surprisingly good for their size, and the windscreen adjustment helps in fine tuning the coverage. This is a tall, top-heavy motorcycle; even with the seat in the lowest position riders with inseams shorter than 30 inches will find the R1100GS a handful, even when you're not bogged down off-road. It does have excellent low-speed manners, however, a reasonably comfy seat and plenty of legroom. The wide handlebar's bend positions the cozy handgrips in a natural, comfortable spot, and the sidestand is easy to reach and deploy from the saddle.

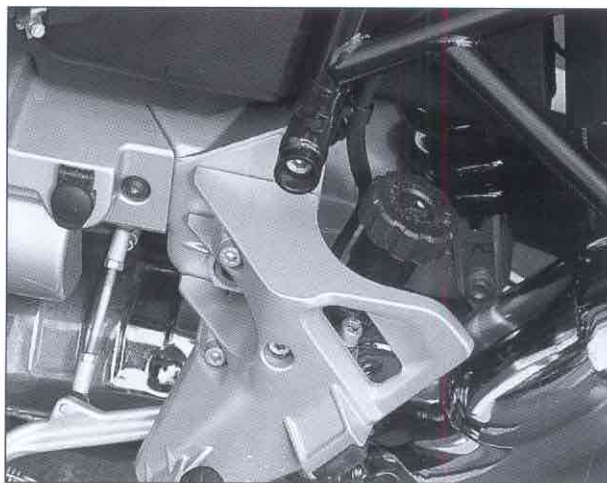
Tall riders may feel cramped by the step between the seats, but passengers universally praised the



R1100GS's roomy accommodations, and fully loaded my worst fuel economy was 41.0 mpg. Using BMW's claimed fuel capacity of 6.6 gallons, an average of 42.0 mpg gives the big Boxer a theoretical range of 277 miles, though I ran the bike flat out of gas once at 252 and could only squeeze 6.2 gallons into the plastic tank. There is no manual reserve petcock, just an annoyingly bright warning light that comes on way too early.

The suspension and brakes on the R1100GS are some of the finest in motorcycling. Changing settings is a snap, and both front and rear soak up all you can throw at them on road and most you can off. Ground clearance is ample on the street and adequate off-road, though BMW's ad-on-the-rocks for the R1100GS is a bit fanciful. Plenty of leverage at the wide handlebar and room to move around add to the bike's fantastic handling, and there's little doubt I can ride this bike faster in the corners than most. As in the past, BMW's ABS II works exceptionally well without compromising brake feel or strength front or rear (I know because I tried a R1100GS without ABS as well) and little or no lock-and-release feeling. I still think the mild *ching-ching-ching* noise it makes resetting itself when starting out from stops sounds like something is wrong, but the noise does have its reassuring side.

Our R1100GS test bike was equipped with optional hard saddlebags that add \$674 to the bike's



Above: The shock in the Telelever front end is adjustable for spring preload. **Middle right:** Pulling the rear seat reveals a large platform for luggage which is also the lockable lid of the well-equipped tool case.

price. As on the old GS the left bag is relieved for the upswept exhaust, significantly reducing its capacity. The bags' mechanisms are quite easy to use and the larger one capacious, but their finish scratches easily and neither will hold a large full-face helmet. Fortunately, a fully functional helmet lock is standard. Other options that will have you dreaming of lottery wins include a top trunk, heated grips, hand protectors, an anti-theft warning system and the Rider Information Display, which has a fuel gauge, gear indicator, digital clock and an oil-temperature gauge. Personally, I'd blow off the latter. The oil temp and fuel gauges are the useless bar variety, you should know what gear you're in and stick-on clocks are much cheaper.

Which begs the question, is \$11,890 with ABS too much for a dual-sport machine you're going to thrash and bash about on? The key is BMW's strict avoidance of the phrase dual-sport; this is an adventure-touring machine, the ultimate *compadre* when the chips are down

Tough, easily operated saddlebags are a worthy option, but accommodating the upswept muffler robbed the left one of some volume.

or there are miles of godforsaken road to go before you sleep. Other machines may be cheaper and have better off-road manners, but none sold in the U.S. will take and dish out all that a stock R1100GS will without spending about the same money on bike and accessories. And you still won't have ABS.

The R1100GS isn't merely a motorcycle; it's an expedition kit with a three-year warranty. It also happens to have excellent, uncompromised street handling, performance and comfort, rarities in what many view as a class full of compromises.

Not this conquistador, my friends. No way. ☹

A convenient handwheel allows quick rear shock spring preload adjustments. Rebound damping adjusts via the set screw just visible on the bottom of the shock.

1995 BMW R1100GS

RETAIL PRICE \$10,690/\$11,890 W/ ABS

WARRANTY 3 YEARS, UNLMTD. MILES

SERVICE INTERVAL 600, THEN EVERY 6,000 MILES

VALVE ADJ. INTERVAL EVERY 6,000 MILES

ENGINE

TYPE AIR-COOLED, TRANSVERSE FLAT OPPOSED TWIN

DISPLACEMENT 1,085cc

COMPRESSION RATIO 10.3:1

BORE & STROKE 99.0 x 70.5MM

VALVE TRAIN CAM-IN-HEAD OHV, 4 VALVES PER CYL.

CARBURETION BOSCH MOTRONIC FUEL INJ.

LUBRICATION SYSTEM WET SUMP, 4-QT. CAP.

TRANSMISSION 5-SPEED, CABLE-OPERATED DRY CLUTCH

ELECTRICAL

FINAL DRIVE SHAFT, 3.00:1

IGNITION BOSCH MOTRONIC ELECTRONIC

CHARGING OUTPUT 700 WATTS MAX.

BATTERY 12V 19.5AH

CHASSIS

FRAME 2 SUBFRAMES W/ ENGINE & GEARBOX AS STRESSED MEMBERS

WHEELBASE 59.0 IN.

RAKE/TRAIL 26 DEGREES/4.4 IN.

SEAT HEIGHT 33.1 IN./33.8 IN.

SUSPENSION, FRONT TELELEVER W/ CENTRAL SPRING STRUT & 35MM STANCHIONS, ADJ. FOR SPRING PRELOAD

REAR SINGLE SHOCK, ADJ. FOR SPRING PRELOAD & REBOUND DAMPING

BRAKES, FRONT DUAL FLOATING DISCS W/ BALANCED 4-PISTON OPPOSED CALIPERS & ABS II

REAR SINGLE DISC W/ BALANCED TWIN-PISTON CALIPER & ABS II

WHEELS, FRONT SPOKED, 2.50 x 19 IN.

REAR SPOKED, 4.00 x 17 IN.

TIRES, FRONT 110/80-H19 TUBELESS

REAR 150/70-H17 TUBELESS

WET WEIGHT 568 LBS.

LOAD CAPACITY 422 LBS.

GVWR 990 LBS.

TOURING PERFORMANCE

FUEL CAPACITY 6.6 GALS. INCL. 1.0 GAL. RES.

AVERAGE MPG 42.0

THEORETICAL RANGE 277 MILES

INDICATED RPM AT 60 MPH 3,250