

FOR THE JOY OF RIDING

# mOTORCYCLE

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“Let’s find the guy who overdesigned this drive train . . .”

Announcing new models has to be one of the better jobs of work an editor can get. *Everybody* is curious about new models—even the guy who just rode away from his dealer with a brand-new machine. Even the guy who is convinced that he owns the final and most perfect motorcycle—after all, it can’t hurt to review your convictions. Luckily for BMW owners, new models never devalue existing machines. The intrinsic worth of good design is imperishable—ask those guys who tool around on 30, 40, and even 50-year-old BMW’s. Most of them wouldn’t swap you for one of the new -/7 models. But for those of us who are in the market—it’s nice to know the product is still evolving, still staying ahead.

Some critics have been known to suggest that BMW designers are crustily wedded to an archaic concept. The flat twin in an era of watercooled multi’s? They forget that BMW engineers have always produced and continue to produce some of the world’s most sophisticated engines. Among them have been singles, twins, fours, sixes, eights, nines, even sixteens and pistonless turbines. They have built highly successful competition engines for motorcycles, cars, aircraft, even trains. Competing engine concepts for motorcycles are continuously under review at BMW. The flat twin remains because BMW engineers are convinced that today it still offers the most successful combination of such characteristics as power output, weight, simplicity, cooling, reliability, ease of mainte-

nance, and adaptability to the dynamics of a motorcycle chassis.

And speaking of new models, you will notice a very impressive set of cast “mag-type” wheels in the center-spread photo of the new R100RS. These wheels are for real and they are the product of a careful exercise in design and metallurgy. They aren’t standard equipment however; they’re available on a limited basis as an extra-cost option. As soon as production is geared for higher volume, they will become more generally available. Meanwhile the proven light-alloy-rim spoke wheel will continue to do its job.

BMW racing fans who want an update on how the Super Bike Production team has been running this year (very well, thank you) may enjoy the writeup on page seven. We’ve gotten letters asking why the bikes have to be modified so much for

production racing. Didn’t they build them right at the factory? The reason they have to be modified is precisely because they did build them right at the factory. And Butler & Smith sponsors a production team partly to show you (and potential buyers) that they are built right.

The modifications follow from the fact that a properly engineered motorcycle is built as an interdependent system of parts. The parts are attuned to each other; each handles all the demands placed upon it, with a certain amount in reserve. Too much reserve would be wasteful and inefficient. You don’t design a 100-lb. steering crown for the outside chance that you may run off a cliff.

Certainly closed-loop professional roadracing presents an operating environment quite different from that intended for the original motorcycle. A 102-hp 160-mph race-tuned engine may be quickest around the course—but it’s not likely to get you to the other end of the continent. To handle that kind of power, *of course* the chassis must be strengthened, the brakes upgraded, the exhaust plumbing modified. In fact, if BMW’s engineers did their job right the first time, a change in any part should require a corresponding change in almost every other part.

Maybe they should fire the guy who designed the original crankcase so strong that it could take 102 hp! And the guy who designed those forks, and the fuel tank, and the transmission, and the shaft drive, and the axles and bearings. Maybe they should fire all those guys . . .



John P. Covington

Front Cover: *BAJA*  
seascape contributes to  
BMW product development.  
Back Cover: *BMW*  
superbike team makes  
season’s first successful  
showing—at Daytona!

# New Models for 1977— A Preview of the BMW -/7 Series and the Fabulous 1000cc BMW R100RS.



The 1977 BMW R100S

Although the development and improvement of BMW motorcycles is a continuous process untied to the calendar, from time to time a quantum of innovation combines with enough accumulated advances to demark a new model series. For 1977 this is the case—the new machines are known as the BMW -/7 (or “Slash Seven”) Series. Engine displacements of 600cc and 750cc are retained, but the top-of-the-line models have been enlarged to 1000cc. And at the very top is a wholly new high-performance 1000cc sports model with its own integral cockpit fairing—the BMW R100RS.

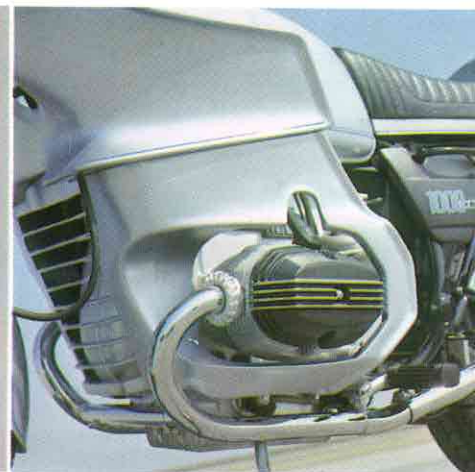
Function and the optimum relationship between a rider and his motorcycle remain BMW’s primary design goals. Appearance is an important complement to this and the new BMW’s have been restyled to smoother, more pleasing lines—re-

flecting the visual qualities of the previous R90S. Engine performance has been improved, and chassis design upgraded proportionately. Controls, footpegs, seating position—all have been re-examined to produce a thoroughly integrated riding machine. BMW’s traditional emphasis on premium materials and exact manufacturing techniques continues to assure unmatched reliability and long-term durability—also that no BMW can be inexpensive. But management is so confident its product is the very best that the new BMW’s will be backed by a full 12-month warranty with no mileage limit.

The engines on the new models feature a number of improvements, some of which had already been tried on the later models of the -/6 series. Crankcase castings are entirely new, with more reinforcement to take the stress of higher performance. Oil

sealing has been improved by the application of “o”-rings at the cylinder base and flywheel. Lighter alloy pushrods, improved rocker-arm location, and a higher starter-gear ratio are included. Cylinder cooling fins and rocker covers have been redesigned. A velocity-reduction chamber has been incorporated into the crankcase ventilation system to separate oil mist and return the oil to the engine.

The entire -/7 series carries redesigned fuel tanks with special recessed safety caps that are lockable, secure under impact, and internally vented to provide breathing and spillage protection. Ignition, steering, and seat locks on the new models are operated by a single key. Wiring harnesses have been redesigned for improved serviceability and batteries have been upgraded from 25 to 28 amp-hour ca- (continued overleaf)



Among many new features: safety gas caps, standard 6.3 gallon tanks, perforated disc brakes, and redesigned valve covers.

capacity. As always in BMW design, chassis improvements accompany improved engine performance: swingarms have been strengthened and the frame braced.

BMW's policy of shared features on its product line continues; the main difference between the R60/7, R75/7 and R100/7 remains cylinder displacement and hence power output and torque characteristics. All three now have a single perforated disc front brake, its disc perforated for lightness and braking consistency under wet-weather conditions. All have black-anodized hand levers, nylon-lined control cables, durable thermoplastic fenders, high-output alternators, improved foot-rests, and new waterproof sparkplug covers. They share the same trouble-free shaft drive, 5-speed gearbox, and long-travel suspension. Rear-drive ratios vary according to engine size, as do carburetor diameter and valve size.

The "S" model of the series also enjoys the larger displacement, but in addition larger intake valves, a higher compression ratio and an all-new 40 mm Bing CV carburetor. The slide valve of this carburetor can't open faster than the engine accepts fuel mixture—so throttle response never stumbles—but remains rapid and smooth. The "S" is equipped with a high-volume trochoidal oil pump and cartridge-type oil filter to keep the lower end fully lubricated. It comes with a special "S" or sports dual seat. Also included on the R100S are the characteristic cockpit fairing and distinctive coloration of metallic red with gold pin-stripes.

Unquestionably the boldest innovation of this year's model series is the new R100RS. This model also carries the high-performance version of the 980cc engine with its oversquare short-stroke engine. The engine has been tuned not so much to increase peak horsepower over the previous "S" but rather to broaden the torque curve—now virtually flat between 3500-6000 rpm. The result is dramatically enhanced throttle response or "roll-on acceleration" that greatly enlivens riding.

An equal contributor to riding enjoyment is the new integral cockpit fairing of the "RS". Painstakingly developed by exhaustive wind-tunnel testing, this fairing reduces the air-resistance to forward motion as well as vulnerability to crosswinds. It protects the rider from wind, rain, and cold, minimizing fatigue and leaving him more alert. Vehicle stability is improved at both high and moderate speeds, sharpening roadholding by reducing aerodynamic lift. Seating is provided by a special racing-style seat or the "S" dual seat.

The BMW R100RS abounds with many other performance, safety, and styling features. It offers a new concept in motorcycling: a luxury, high-performance, and very personal sports bike. Like any other BMW, it cannot be appreciated until it has been seen—and not fully appreciated until it has been ridden.





The 1977 BMW R100RS

# The Baja Bash—or How the BMW Exec Keeps His Hand In

In today's world of mass production, computerized accounting, and the grey-haired, steely-eyed financial expert, a motorcyclist often regards his bike as what has been *saved* from some management-ordered budget cut. But things aren't quite the same at BMW where managers are motorcyclists themselves and they ride what they make. They also like to discover what kind of rigors BMW owners subject their machines to in other parts of the world. A case in point is a recent side-trip by a management team doing market research in the U.S.—to the wilds of Baja, Mexico.

Those present included Horst Spintler, marketing director for motorcycles from the factory in Munich; Volker Beer, BMW factory representative for motorcycles in the U.S.; Dr. Peter Adams, executive vice president of Butler & Smith, Inc.; Helmut Kern, manager of West Coast operations for Butler & Smith; and guest P. Thomas Sargent, publisher of *Cycle* magazine.

In a short weekend the group put over 8,000 miles on five BMWs. The road North from Santa Rosalia crosses the desert only to climb up and over several mountain ridges. Says Beer, the youngest of the group, "I was on the R75, trying to keep up with Horst and Tom on 90's. You won't believe how fast they were going. The tach never fell below 5000 and it was usually closer to 6500. In the mountains the wind was gusty and from the South. Every time you rounded a corner it hit you from a different angle, sometimes driving you two or three feet off your line."

Beer added, "We thought we were going to the desert—and we did. But those mountains rise to over 10,000 feet and it was *cold*. That combination of ocean, desert and mountains was truly spectacular—a whole world we didn't really expect."

The group discovered surprisingly good roads with almost no traffic, and the long-travel BMW suspension could more than handle any bumps

created by frost and truck traffic. The roads were a rider's delight with many sharp turns and quick changes of elevation. In the desert were long stretches of nearly flat-out riding. One deterrent was the fact that cows, donkeys, and even snakes enjoyed sleeping on the pavement, particularly at night when it remained warmer than the surrounding earth.

Determined to wrest the maximum enjoyment from a high-performance cross-country ride, the group traveled with the barest minimum of extra clothing and other gear. "On a three-day trip," said one, "you don't need much more than a toothbrush." But hard-riding did generate vigorous appetites, and they were initially hesitant about Mexican cuisine.

"Everyone was expecting a good dose of Montezuma's Revenge," said Helmut Kern, "but it never happened. We ate everything—salads, soups,—even potted turtle. And we felt fine. Maybe the margaritas were a stabilizing factor." By the trip's end they were enjoying the food immensely.

They stayed in small hotels and motels and were favorably impressed with the friendliness and honesty of the people they met. Although motorcycles were not new to the Mexicans, they were fascinated by the fleet of new BMWs. The riders wished they had more time to explore the riches of Baja. Scuba diving in the crystal-clear Sea of Cortes, fishing, exploring the famous caves of the Sierra—all had to be bypassed on such a short trip.

Although intended as a break in an ongoing business trip, the visit to Baja was fruitful in proving that a region thought to be inaccessible really isn't. And it helped to confirm that motorcycles created on another continent in another climate are equally effective for exploring far-away places. The trip ended with a long ride to a closer world—through San Diego and Los Angeles—and back to business.

Far from 'mahogany row,' BMW executives and guest Tom Sargent (*Cycle* magazine) take to the wilds of Baja, Mexico, to test their product under the same rigors faced by many BMW owners. Left to right: Adams, Kern, Sargent, Spintler.

PHOTOS: VOLKER BEER



# BMW Team Emerges To Dominate Superbike Production Racing

The support of BMW racing by Butler & Smith, Inc., U.S. importers and distributors, dates back as far as 1968, when the company was primarily interested in demonstrating BMW superiority in long-distance endurance competition. Since 1971, however, stress on high performance has been added to durability. The emergence of AMA Superbike Production racing has been a natural target for this effort. In 1976 the BMW team's careful grooming has begun to pay off.

The 1976 Production racers must conform to the basic mechanical design of the original showroom product, with modifications only to suit them for the rigors of the track. In October, 1975, team manager Udo Gietl began to prepare the next season's bikes. His preparation included re-shaped cylinderhead passages for higher-volume breathing, hotter cams, larger cylinderbores, high-compression pistons, larger carburetors, closer transmission ratios, modified exhaust plumbing, and special ignition systems. With all modifications complete, the racing engines produce 102 bhp at the output shaft at 9,000 rpm, and *that* is really spinning a twin!

Perhaps the most visible change was an innovative rear-swingarm modification that permitted either the mounting of conventional dual shock absorbers or of a centrally located monoshock. The monoshock set-up offers slightly greater swing-arm rigidity, especially during cornering at racing speeds with the rider "hung out" from the normal centerline of the bike. Two of the team riders have been using the monoshock set-up, but one still prefers the "feel" of the standard arrangement.

Race results have proven these efforts worthwhile. Three bikes were prepared, two for racing and one as a spare in case a bike broke or crashed in practice. But then Butler & Smith decided to take a chance and signed on three well-known professional riders: Reggie Pridmore (a team veteran), Gary Fisher and

Steve McLaughlin. The first challenge was to be Daytona.

"We were in up to the hilt," says Udo. "We arrived at Daytona with three complete bikes, but very few spares, hardly even an extra piston ring." Perhaps luckily for the team, unexpected humidity combined with high compression created ignition troubles that kept the bikes from too much use during practice. They were fresh for the race and out on the high-speed track they outpowered most of the opposition (see back cover). Fisher built up a commanding lead, only to drop out when a fouled shift lever caused the gearbox to pop out of gear. Fisher over-revved and broke a rocker arm just two laps from the finish. McLaughlin managed to "grab a tow" by slipstreaming Pridmore. Then, just before the finish, he swung out around his teammate to take the flag in the amazing photo finish shown at the right.

Laconia presented an altogether different challenge to the team, for it is a tight, twisting track where cornering, acceleration, and braking count most. Although they had power to spare, the team found that experimental aluminum discs limited braking capacity. During the race McLaughlin missed a shift, over-revved, and sheared a flywheel. Fisher and Pridmore had to settle for second and third respectively.

By Laguna Seca, a faster track, the steel discs were back in place and the machines well run-in. But luck stepped in: Fisher's oil cooler sprang a leak and the engine seized, while McLaughlin crashed at the half-way point. That left Pridmore to carry the colors, which he did, right to the checkered flag!

"You have to think of racing as a perpetual cliff-hanger," says Udo Gietl, but he is understandably proud of the team's record in three out of the season's four races. The last is at Riverside Raceway in early October. "It's a fast track," says Helmut Kern, Butler & Smith's West Coast Manager, "I'd say the prospects look good."

Dramatic photo finish of Superbike Production Race at Daytona 76 shows BMW rider Steve McLaughlin taking the flag after "getting a tow" in the slipstream of teammate Reg Pridmore.

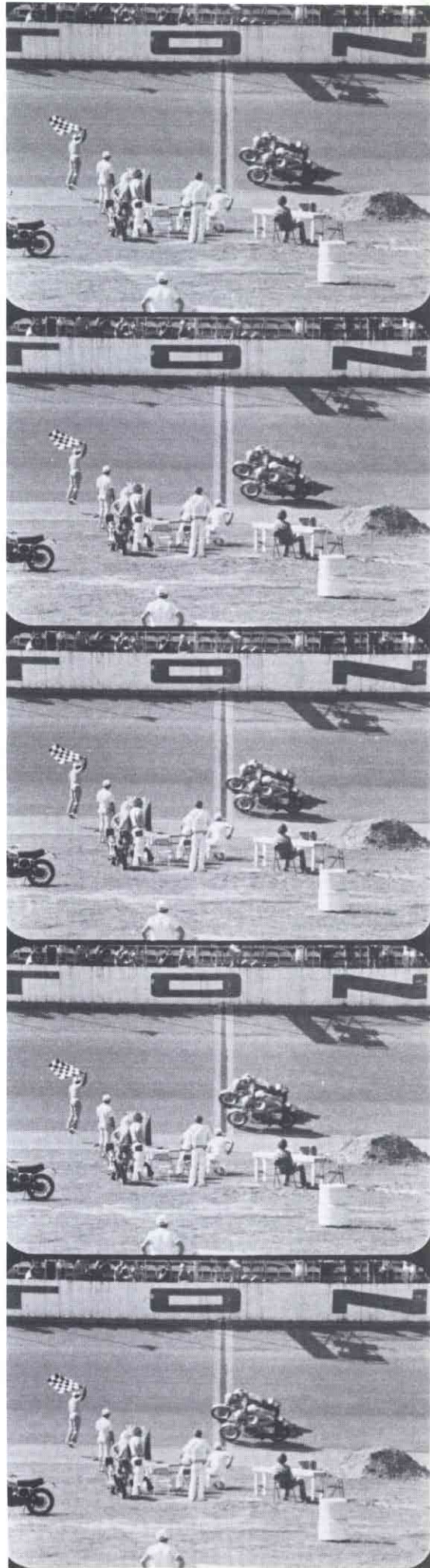




PHOTO: VOLKER RAUCH