

FOR THE JOY OF RIDING

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Touring a Racer or Racing a Tourer

Touring is the theme for this issue because this is the time most BMW owners set out on long trips to distant places. The Wanderlust seems to sit well with BMW owners; at any motorcycle meeting you'll find at least as many flat-twins with out-of-state tags as with home colors. At the road races in Daytona this spring, there were machines from all over the U.S.—and from Canada.

Out on the track there were more BMWs, special "Grand Prix" racing versions of the same machines ridden by many fans. These weren't the production-class bikes that have been mopping up handily in races from coast to coast during the past few seasons. These were outfitted under the American Motorcycle Association's code for the national road racing title. See the article on page 7 for details on how the GP bikes are prepared.

Ironically, one of the reasons Butler & Smith fields the racing team is to let the world know BMW is a high-performance motorcycle. And there in the stands were BMW touring riders from all over the continent. Some people feel that touring manners and touring durability are contradictory to high-performance. What scenes like that at Daytona show is that they are not mutually exclusive—just a very rare combination.

The group shown on the center-spread of this issue are touring riders from Connecticut passing the Cross River Reservoir in New York State. And the riders opposite are unmistakably in Southern California. More than a few BMW owners take a few weeks in the summer to see both places on the same trip. We know

one BMW rider who makes the round-trip every year. He claims to have actually ridden one hundred miles in one hour "somewhere in Oklahoma." We assume that was before the 55-mph speed limit.

The author of this issue's main touring article, Ben Rhoades, also draws on much riding experience. He is less concerned with equipment and more with a kind of philosophy for touring riders. Although he never mentions his BMW in the article, he has ridden it well over 100,000 miles. As he disappeared on his latest tour (aboard a new R90/6), he was grouching about the gasoline shortage.

"Motorcycling is one of the last strongholds of the individual," Ben complained. "If we don't watch out, this energy crisis may drive the common man to our ranks. Of course, things could be worse. Replace every sedan with a bike and you not only save gas, you free-up some highway space for the serious riders."

Ben might be surprised to learn how many people are turning to motorcycling, at least if BMW sales are any index. Demand for the new models is soaring and sales are well above last year. Some of the newcomers are former sports-car owners who apparently got a little jaded with four wheels. They like the exhilaration of a powerful motorcycle with its much greater performance potential.

A side effect of the energy crisis has been a stronger demand for large fuel tanks. Long-distance riders are increasingly wary of getting caught between pumps. The BMW factory has already upped production of the larger tanks. Riders with standard tanks can take heart in the news that apparently the gasoline supply will be plentiful through the end of the summer.

Another very welcome group of new BMW owners are former motorcyclists returning to the fold. Apparently they were just waiting for something like the energy crisis to give them an excuse to get a new bike. "Yes, dear, I know it's expensive . . . but look at the mileage! And the kids, they'll love it!"

We don't care what you had to say to get it. Now that summer's here, go out and enjoy it. You'll find that motorcycling has come a long way since the bad old days. Electric start, quartz-iodine headlights. They even make touring motorcycles you can race. At least one we can think of . . .



John P. Covington



*Front Cover: Touring riders take advantage of longer days for longer distances.
Rear Cover: Reg Pridmore on the fabulous BMW GP 750 at Daytona.*

Getting the Right Fix on Touring



Some do it wrong, some do it right. Me? I do it right. Give me a few minutes and I'll tell you how to get your money's worth out of touring. To begin, you've got to realize that your trip is not a diversion; it's the result of a resolve to make time count. That takes an attitude adjustment, a new fix on how to proceed with things. A little like Zen: you must not try to control the action as it unfolds—you must let it happen.

I won't talk about the one-day trip, the evening thrash-out or tavern-to-tavern turn-on. It's important but ordinary. We all do that—sprinting, braking, getting it on. Take a rainsuit, a sweater and maybe a picnic. Maybe a woman. That's the

baseline of motorcycling but not what concerns us here. We need more than a day.

A tour doesn't need anyplace to get to. It can end up at some motorcycle happening like the rallies in North Carolina or the Black Hills or the entire state of California. But just as easily it can go nowhere in particular and follow an uncertain path getting there. Sometimes you just follow the most interesting road. When you're a long way from home, *most* roads are interesting.

What marks the touring rider is his gear, which he carries with him. Some guys throw in everything including an inflatable boat, some just a toothbrush. But anybody soon

learns that familiarity with his kit results in a lot more freedom. Do all your homework, experiments with loading and unloading, how to ride a loaded bike, etc., *before* the trip. Do not think of the bike and your gear as distinct from you. Before long, they become you.

You can use a map to keep from riding in a circle, but the sun works just as well. Avoid interstate routes and other expressways as they absolutely repudiate the nature of the motorcycle. Stick to secondary roads, gravel roads, even jeep trails. I once saw on a map where two roads ended near each other in the desert. I figured there must be a way to get from one to the (continued)

“Digressions... are the Soul of Touring...”

other and I was right—only I never could have made it with a sedan. Use expressways only to get through high-traffic areas. Digressions, after all, are the soul of touring.

After awhile you'll find that you develop a kind of rhythm in long-distance riding. Maybe you start off charging, then taper off. Maybe you build up to a crescendo. It's good to vary your pace through the day. Take breaks. Stay aware. Keep changing. Never let the motion become a mindless grind. I knew one guy who liked 600-mile days. Even at night when he was sound asleep you could see his hands and feet moving . . . changing gears.

Two-up riding is—if you'll excuse the expression—a whole 'nuther proposition. Two people with touring gear on a motorcycle top out at well over 300 pounds. But like they say, it takes two to tango. Some couples used to riding together can clip along at a very brisk pace. You try it and, if it feels right, it is right.

At highway speeds conversation is almost impossible, so save that kind of communication for the coffee stops. Who knows, even your foulest humours may pass away benignly in that cross-country rush of alien air. You may even get some sympathy as you huddle over coffee, for your passenger stays somewhat warmer behind you.

As for riding in groups, much depends on your style. Me? I left my Boy-Scout days before I took up touring. Ripping along in a squad of really good riders can't be beat, but for the long haul I'd rather the company of just a few close friends.

Paring your company is just another part of the attitude of traveling light that goes best with touring. The nomad only takes what is essential, we hear. It is a good way to re-define the essential.

But a tour is not life, it is an adventure. It requires leaving most of the baggage of the mind behind. One must vacate one's mind, focus outward. Ingenuity and resourcefulness are your chief devices. Instead of shunning the unfamiliar, you seek it out. The motorcycle, an extraordinary means of travel, is your bridge to extraordinary experience. If you get that, you probably began with the right fix on touring.

—Ben Rhoades





Tips on Long-distance Touring

Murphy's Law can be modified for the touring rider: "If anything can fall off, it will." Nothing is as perverse as a motorcycle for scattering your worldly goods about the countryside. Each item of your pack should have two means of fastening: one positive and one elastic. The positive is like a safety chain on a trailer: you hope it will never be needed. Use cord or wire or webbing strap or a mechanical fastener. The elastic fastener is usually a bungee cord and it does most of the work. Its elasticity moves with the shock and vibration of the bike, yet holds your gear close to the load center.



A properly loaded motorcycle should look clean, compact, and tight. It should present a smooth visual and aerodynamic profile. Nothing should hang loose: no flying strings or flapping bags or odd bulky shapes. Flapping things eventually shred or work loose and they use up energy that might be better spent moving you down the road.

Locate the center of mass of your gear above or in front of the rear axle. Rear luggage racks are primarily for low weight items. Overloading the rear rack will compromise handling. Tank-top bags are an excellent way to locate some of your load forward. Put dense, heavy items such as tools and cooking gear in the bottom of your saddlebags or straddling the rear of your dual-seat.



One of the best maxims for the touring rider is "Don't start with anything new." Make sure that every single piece of your gear has been tried and tested thoroughly before you set off on a long tour. Those new jeans may have a rivet right where you sit down. That little pinch from

those new goggles might produce a staggering headache by days end. That new rainsuit may creep up your legs, exposing your ankles to the downpour. If you know all of your equipment well before you set out—including your bike—you'll be free to enjoy your trip without distractions. And to handle the kind of surprises you're hoping for.



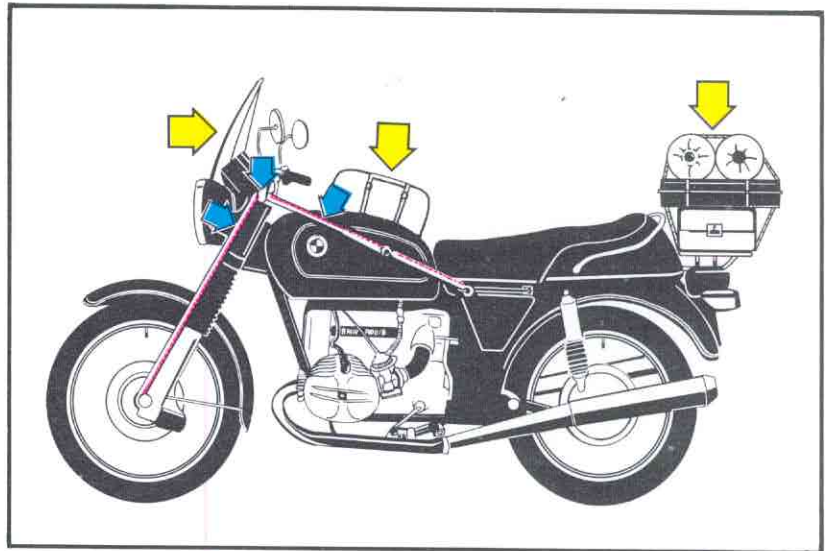
Anything bulky added to your motorcycle will affect its dynamic behavior. Weather protection items such as windshields and handlebar fairings have the greatest effect. Because these accessory items cannot be tested individually, BMW does not offer factory approval for their use.

Aerodynamic lift is the real villain of the piece. Lift can lighten the front end the same way as overloading the rear rack, reducing the size of the front tire's contact patch and compromising control and tracking accuracy. The best fairing has no lift

or even a slight negative lift. To check out your own fairing and/or packing, set-up the test rig illustrated on this page.

Run a flexible piece of wire from the axle over the handlebars. Make a noose in the end and hook a bungee cord into this. Stretch the bungee cord to a convenient fastening point to the rear. Now with the unloaded bike on the centerstand and the forks fully extended, make a mark on the wire where it crosses the handlebars. Then retract the centerstand and pump the forks a few times without sitting on the saddle. Make another mark on the wire in this "fork neutral" position.

Now pack your bike fully and take it up to highway speeds. If the neutral mark disappears over the handlebars, you are getting aerodynamic lift. If it moves toward you, you are getting negative lift and fork compression. Ideally you should remain near the neutral position. If you get lift or much compression, change the angle of your fairing or shift your load. If that doesn't work, it is absolutely essential that you change fairings or leave some of your gear at home.



Front-end lift reduces size of tire contact area and tracking effectiveness. Blue arrows above indicate full fork extension, fork neutral and full fork compression. At highway speeds, forks should remain near neutral mark. Yellow arrows indicate forces from load centers and wind pressure. Heavy rear loads tend to lift bike's front end.

Building a BMW Grand Prix Roadracer

Butler & Smith's racing team refers to the modified BMWs used on the AMA National Roadrace circuit as "Grand Prix" or GP racers. AMA rules require only that the racing version of a street bike use the original crankcase castings, maintain a 750 cc limit (with up to 1 mm overbore), and keep the same "basic design" (eg. no overhead cams on a stock pushrod engine). The GP racers thus differ substantially from the machines used in "production" racing which are only allowed minor departures from showroom-stock. Yet a look at the BMW racers shows a surprising allegiance to the original machine and its parts.

Contributions to the development of the BMW GP bikes came from all team members and from the factory, but primary credit goes to two men: Udo Gietl and Helmut Kern. Udo devotes full time developing and fitting out the racers. Helmut Kern, manager of the West Coast operation, adds considerable technical and mechanical knowledge. They work out of two Butler & Smith offices at opposite ends of the country, yet they have produced some of the most singularly purposeful racing machines in the country.

A look will tell you that the GPs are still horizontally-opposed 750cc twins with shaft drive. It will also tell you that they feature new forks, frames, swingarms, brakes, tanks, seats, wheels, tires, and other running gear. That is because a street bike and a racer have very different jobs of work.

The custom racing frame, for example, is lower and engine position has been moved forward about two inches to permit a balanced riding position in a racing crouch. About two inches is added to swing-arm length to retain the original wheelbase. The fairing and seat are fiberglass and the tank is aluminum to minimize weight. Ceriani racing forks are used in front and Koni or Girling shocks at the rear.

The front and rear wheels of the latest racers are cast magnesium units, ultralight and rigid. Brake

discs, similar to those on Roger Penske's racing Porsches, have been drilled extensively for weight reduction and better cooling. The Lockheed caliper units are double-acting and self-centering: each pad-and-piston moves inward to grip the disc. A stock steering damper has been fitted to the forks, and an oil cooler carries away some extra heat.

inserts. Connecting rod journals have an additional oil supply hole.

High cornering speeds and a lower frame place an additional constraint on the GP powerplant: its width must be reduced as much as possible to reduce aerodynamic drag. Udo achieved this by adapting 10-mm-shorter connecting rods made of titanium and by using a



Unlike a street bike, a racer's engine is tuned for continuous operation at full power. Udo Gietl's meticulously prepared engines are well equipped for just that. At the top end, special rocker assemblies are equipped with needle thrust bearings. After experimenting with aluminum and titanium pushrods, Udo settled on custom steel units that flex less. Ultra lightweight steel cam followers transmit valve timing from custom-ground high-lift camshafts.

The racing engine uses Slash-6 cases because of heavier bearing support, but stock bearings are fitted. All excess metal, internally and externally, has been machined away (eg. the starter enclosure). A stock crankshaft is used, but the forward projection for alternator mounting has been machined away. Some rotational mass is also removed and the crank rebalanced with heavy metal

custom slipper-type racing piston with its wrist pin located 12 mm closer to the crown. The stock Alfinbond cylinders are machined off at the base, resulting in a total overall width reduction of about two inches.

To harmonize all these modifications, Udo designed and assembled a dynamometer stand at his Butler & Smith workshop. With appropriate carburetor and intake and exhaust plumbing, he can select output characteristics for any racecourse.

The finished racer yields 82-85 bhp, weighs only 335 lb ready to go, and has eight final drive ratios from the slash-5 and slash-6 series bikes to suit any speed range. It will pull a large rider over 160 mph on the straight and it handles, brakes and accelerates with the best. Some would say that's not half bad for a high-performance street bike transformed into an all-out racer!





PHOTO: CHARLES PIERRE MARKARIAN