

BMW R60/5

A Beautifully Engineered (If Not Exactly Beautiful) Traveling Man's Machine.

■ IN THE December 1970 issue of CYCLE WORLD we raved on about the new BMW R75/5, the German factory's answer to the onslaught of Superbikes from Japan, England and America. The staid BMW had taken on the character of a wolf in sheep's clothing.

Now everyone knows that a BMW is a quiet, docile *gentleman's* motorcycle: extremely dependable, practically silent in operation, and meticulously well-finished. We got a number of letters from the purists complaining about our analogy of a BMW to a Rolls Royce. We retracted our statement somewhat in the Letters column and now have to compare the BMW to a *grosser* Mercedes sedan, even in view of the fact that the BMW automobile firm makes some of the most refined and luxurious touring cars available.

In contrast to earlier BMW motorcycles, the R75/5 was starting a trend away from the stigma BMWs had carried for years. It was a very refined and cleverly disguised Superbike. No bones were made about it: BMW was out after the Superbike market.

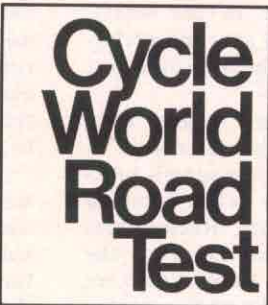
But the R75/5 is the top of the line. The largest, fastest and most expensive model. So appealing is it to many riders that the two smaller models are often forgotten about. But after spending some time with the 500cc R50/5 and the subject of our road test, the R60/5, you won't be inclined to forget either for some time.

The words "quality" and "precision" go together even though, strictly speaking, they aren't synonyms. A precision product suggests quality, but somehow the reverse isn't always true. However, in the case of the 1972 BMW R60/5, the words might as well mean exactly the same thing. It's seldom that we see such a pleasantly integrated package as the BMW. Of course, it's not perfect, but for the purpose it was designed for, it comes as close as any motorcycle we've sampled lately.

If there was ever an ergonomically sound motorcycle, the BMW has got to be it. Everything fits the rider in such a way as to be truly comfortable. There are minor annoyances here and there according to how big or small you are, but the majority of our staffers (who range from 5 ft. 7 in. to over 6 ft. tall and vary in weight from 125 lb. to close to 195 lb.) found the R60/5 very comfortable.

It finally occurred to us after all these years why many BMW riders favor the cuff-inside-the-boot costume. It doesn't have much to do with their Teutonic bent, or with a love for things military. Rather, it is to avoid fouling the pant legs with the Bing carburetors. If you are inclined to bells or flares, beware. It's easy to catch the fuel tickler with the cuff and flood the bowls.

The view from the saddle is much like BMWs of years past. An instrument cluster in a single glass face contains the speedometer, tachometer and a myriad of idiot lights to keep the rider informed of what's happening. A single green light to the left of the combination ignition/lighting switch signals



when one of the turn indicators is in operation, and yes Virginia, the speedometer and tachometer needles are still a little on the jumpy side.

Of medium rise and width, the handlebars are adorned with some of the nicest controls we've ever seen. The stiffness and crabby operation of a few on the R75/5 test machine we had just weren't there. Back to the ergonomic thing: the aluminum alloy clutch and brake levers have indentations for the rider's fingers to rest in. Each lever has a teflon bushing at its pivot point and there are spring washers between the lever and its body to keep it from jumping up and down under vibration.

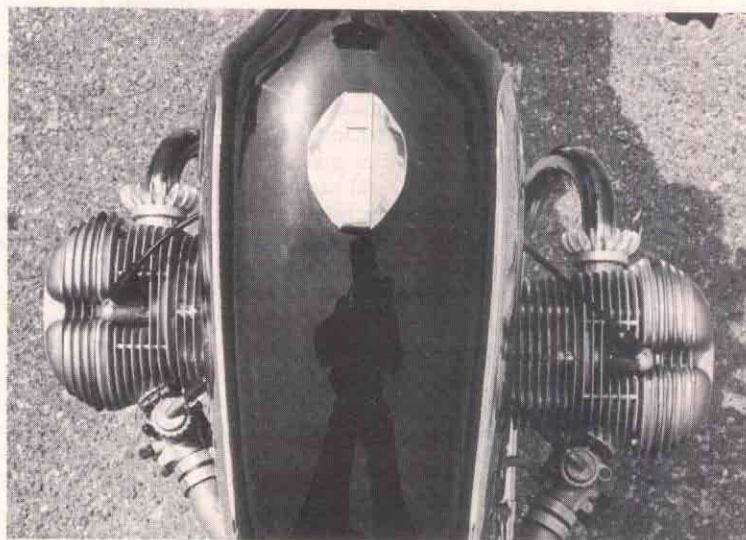
A nice touch is that the levers don't have slots for cable removal (and catching dirt to wear out the cable). Rather, they have a fitting that must be pulled out before the cable and there are felt washers inside to keep dirt *out* and lubricant *in*.

In spite of the two carburetor return springs the throttle effort is only moderate, due in part to the slow throttle grip ratio which makes grabbing a second handful mandatory when accelerating to pass traffic.

A flip switch on the left hand handlebar is a three-way affair which rides in the middle position for the headlight low beam, the highest position for high beam, and is spring loaded so that it can be pushed down to flash the high beam for passing or greeting another rider. Press the switch in and the horn blows.

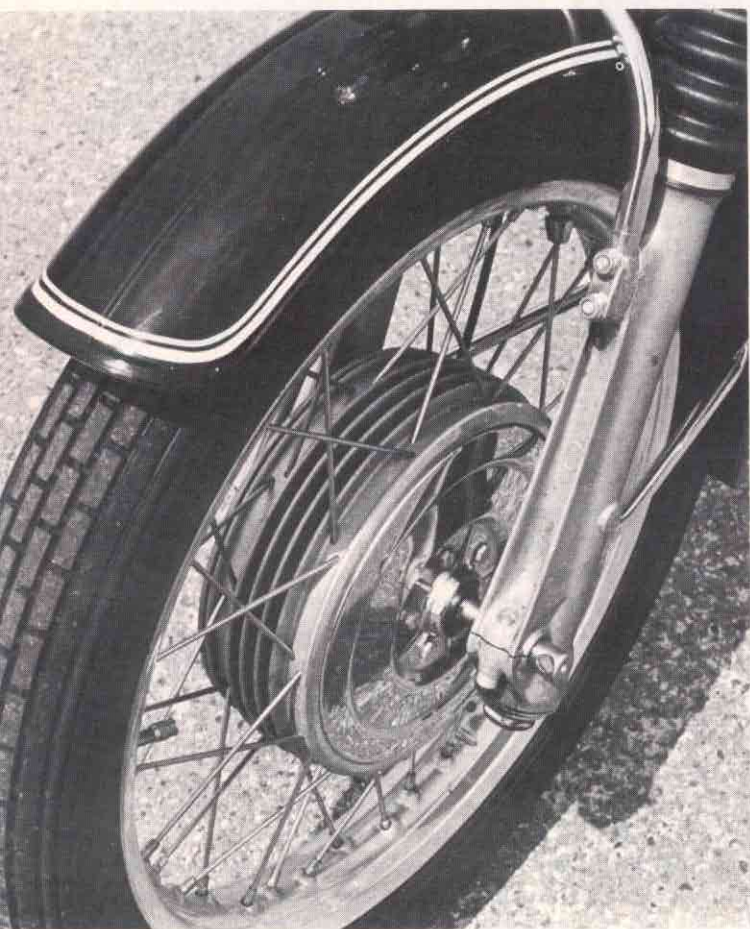
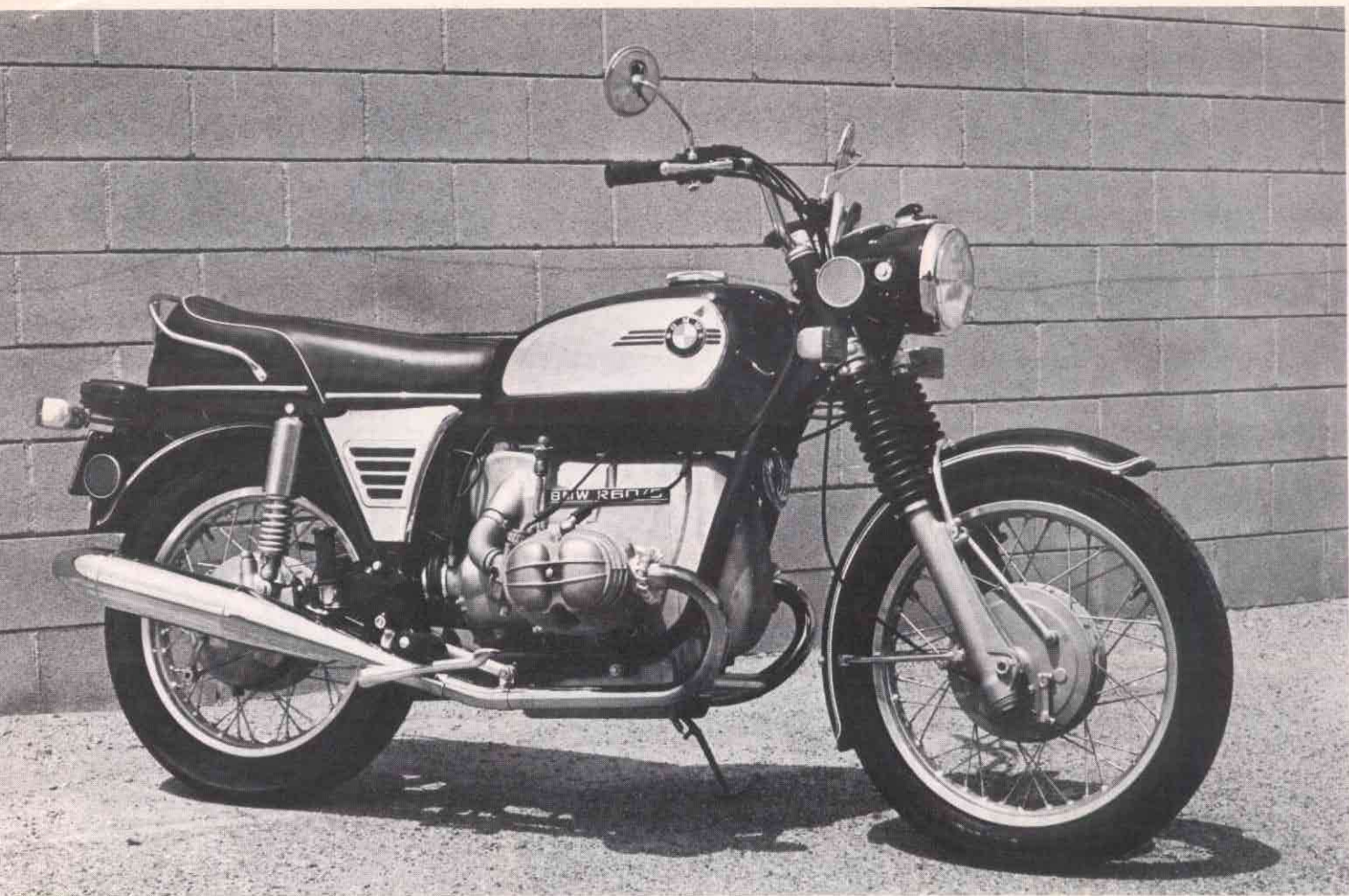
A similar switch on the other side controls the turn signals and pressing it activates the electric starter.

The starting system increases the weight of the motorcycle by about 50 lb. because of the weight of the automotive-type starter motor, the larger battery and the associated paraphernalia necessary. BMW engineers have found ways to help cut the motorcycle's weight, however, and the starter has a circuit



which is fed from the alternator to prevent accidental engagement of the starter when the engine is running. Even though the R60/5 was usually absurdly easy to get running by using the kick starter, the electric unit is so neat in operation it's *almost* worth 50 lb.

Being just a little on the traditional side, a couple of our staff members turned up their noses at the 1972 styling scheme. Very un-BMW chromed gas tank panels and battery covers set the bike off in a crowd, but we're not sure whether that was the way to do it. Somehow it just doesn't look like something a German would do on his own accord and we were informed that the change was made because the stylists said it



would sell more motorcycles. We wonder!

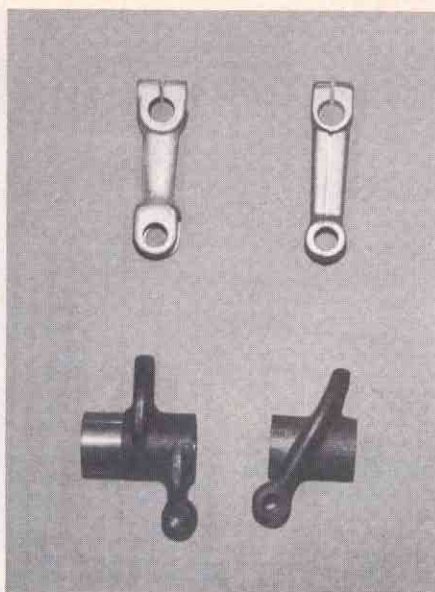
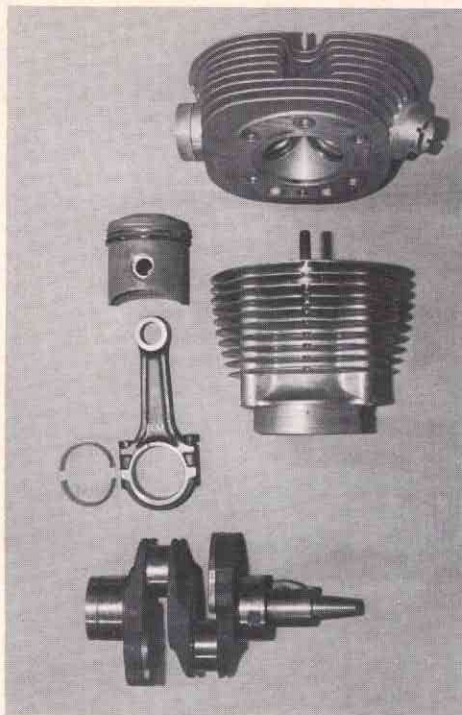
Extensive use of aluminum alloy for castings and the reduction in bulk of many steel castings have helped keep the weight down to a respectable 440 lb. w/half-tank of fuel, electric starter and all. This moderate (for BMW) weight and excellent steering geometry make the machine easy to handle around town and very stable at speed on the road.

You look at the engine and say to yourself that it's mighty tall, in spite of the low cylinders. That's true, but the bulk of the top half of the main engine casting is used as a compartment to house the starter motor and the dry treated-paper air filter element which is hidden at the end of a baffled chamber to reduce the intake noise under hard acceleration and fast running.

Additional weight reduction has been realized by the use of aluminum alloy cylinder barrels instead of the older cast iron ones. These barrels feature a perlitic cast-in steel liner which gives superior heat transfer to the cooling fins and excellent wear characteristics. Because of uniform expansion rates, very close piston/cylinder wall clearances can be used, which result in more power and quieter running.

Steel connecting rods with three-layer plain bearings at the bottom and a plain bush at the top transfer the movement of the pistons to the crankshaft. In order to shorten the engine somewhat there could be a complicated system of divided connecting rods, but BMW engineers preferred to do things symmetrically downstairs and have a forged steel crankshaft with two separate throws.

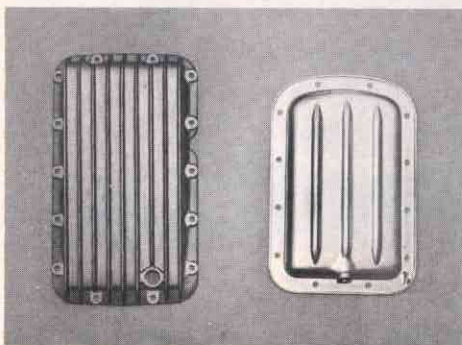
Looking down on the engine from the top is a little strange at first: the left hand cylinder is slightly more forward than the right! At the extreme outside, the cylinder heads have >



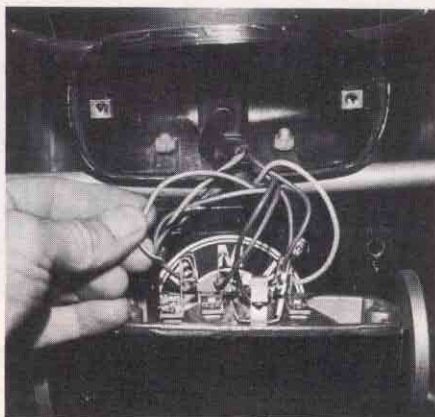
Old style brake pivot arm and rocker arms (left top and bottom) are larger in mass and weight than the latest ones.



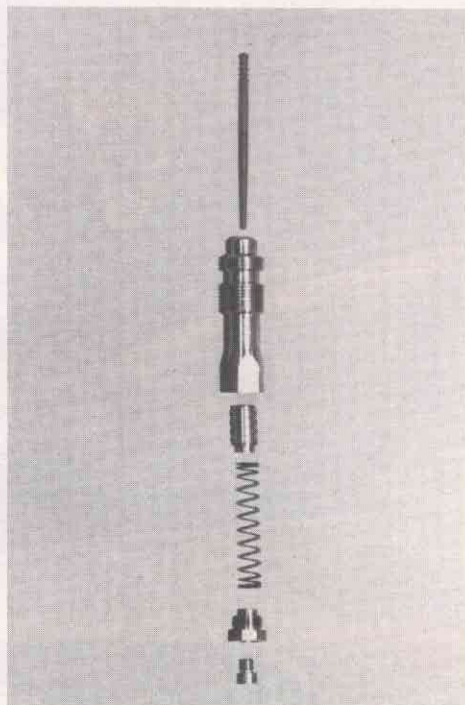
The Eaton system oil pump featuring hypotrochoid teeth.



The cast aluminum sump cover on left has more bolts holding it on and is more rigid than the older, pressed steel unit on the right.



Sanitary wiring layout features spring-type connectors which eliminate solder joints.



The carburetor's jet needle and accelerator pump assembly is simple and works without fault.

benefited from a redesigned combustion chamber with a shallower valve angle (63 degrees instead of 80). With this design a piston with a smaller dome can be used to get the required compression ratio and still get good breathing characteristics. Tiny steel rods go between the cylinder head fins to help deaden any valve noise.

Riding a BMW is one of the most delightfully *quiet* things you'll ever do. There is hardly any noise from the closely set-up engine and the rakishly upswept mufflers emit only a murmur, even under full throttle acceleration. A balance tube between the exhaust header pipes aids power output somewhat and helps reduce exhaust noise. Ah ha, you thought the mufflers were upswept for styling and ground clearance. They are, but because they are slanted back down toward the exhaust header pipes, moisture which begins condensing inside almost immediately after stopping the engine can drain back into the headers and evaporate as steam instead of settle and rust out the mufflers.

Some of the engine's quietness and smoothness comes from the duplex-type chain which drives the camshaft and features a tensioner blade which helps damp out vibration too. If you remember the older BMW with the camshaft *above* the crankshaft and driven by a gear you might think that the engine is higher. It is, but there are a couple of reasons: the higher cylinders raise the ground clearance for improved

cornering speeds made possible by today's better tires, and the camshaft receives better lubrication being down near the oil supply.

Oil which lubricates, cleans and cools the engine is circulated by a four-bladed impeller which rotates in a five-bladed chamber. This is the well-known Eaton-type pump which supplies more than enough lubricant to carry away heat generated by the plain bearings in the engine. A large-capacity full flow oil filter is easily accessible for replacement, and oil mist which is present in any four-cycle engine is separated back into oil and air by an anti-turbulence chamber. This air is sucked back into the inlet manifolds and burned with the incoming fuel/air charge.

The traditional automotive-type single plate dry clutch of earlier BMWs is retained and is relatively light and very smooth in operation. Wheelies weren't possible when shifting into second gear at the drag strip on the R60/5, however, and we got quite a bit of clutch slip after the third quarter-mile run and an accompanying increase in clutch lever free play. On the way home from the strip the clutch cooled and the adjustment returned to normal. The clutch on the R75/5 we last tested seemed much more resistant to heat and slippage.

All BMW /5 series machines have lighter flywheels than their predecessors, which makes shifting an easier task. Waiting for the revs to unwind between shifts to permit the engine/ >

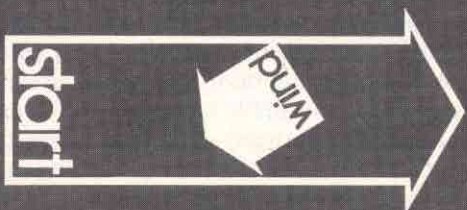
BMW R60/5

SPECIFICATIONS

List price	\$1808
Suspension, front	telescopic fork
Suspension, rear	swinging arm
Tire, front	3.25-19
Tire, rear	4.00-18
Brake, front, diameter x width, in.	7.9 x 1.2
Brake, rear, diameter x width, in.	7.9 x 1.2
Total brake swept area, sq. in.	59.5
Brake loading, lb./sq. in. (at test weight)	10
Engine, type	ohv opposed Twin
Bore x stroke, in., mm	3.07 x 2.9, 73.5 x 70.6
Piston displacement, cu. in., cc	36.6, 599
Compression ratio	9.2:1
Claimed bhp @ rpm	46 @ 6600
Claimed torque @ rpm, lb.-ft.	35.5 @ 5000
Carburetion	(2) 26mm Bing concentric
Ignition	coil and battery
Oil system	gear pump, wet sump
Oil capacity, pt.	4.75
Fuel capacity, U.S. gal.	5.0
Recommended fuel	premium
Starting system	electric, kick
Lighting system	12V alternator
Air filtration	treated paper element
Clutch	single-plate, dry
Primary drive	none
Final drive	(3.36) shaft and bevel gear
Gear ratios, overall: 1	
5th	none
4th	5.09
3rd	6.31
2nd	8.66
1st	13.09
Wheelbase, in.	55
Seat height, in.	33
Seat width, in.	11
Handlebar width, in.	30
Footpeg height, in.	11.7
Ground clearance, in.	8.2
Curb weight (w/half-tank fuel), lb.	440
Weight bias, front/rear, percent	44/56
Test weight (fuel and rider), lb.	590
Mileage at completion of test	1150

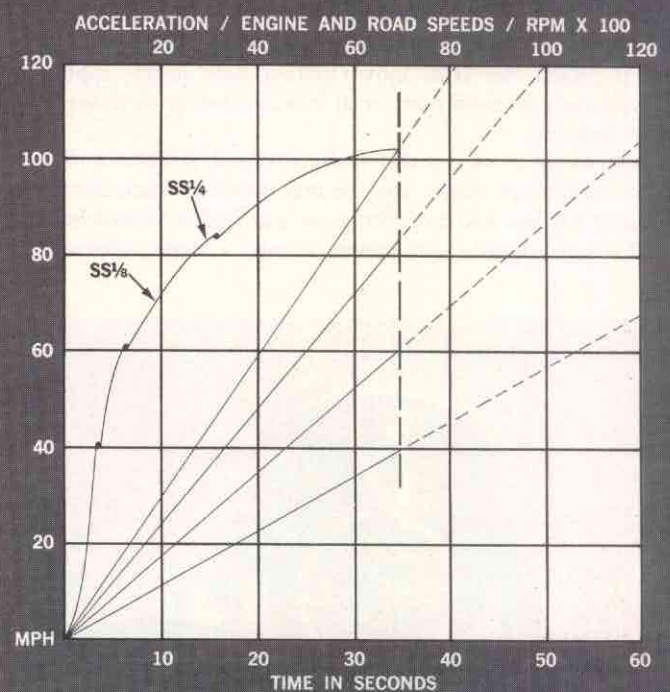
TEST CONDITIONS

Air temperature, degrees F	79
Humidity, percent	42
Barometric pressure, in. hg.	30.04
Altitude above mean sea level, ft.	350
Wind velocity, mph	8-12
Strip alignment, relative wind:	



PERFORMANCE

Top speed (actual @ 6900 rpm), mph	102.70
Computed top speed in gears (@ 7000 rpm), mph:	
5th	none
4th	104
3rd	84
2nd	61
1st	40
Mph/1000 rpm, top gear	14.9
Engine revolutions/mile, top gear	4040
Piston speed (@ 7000 rpm), ft./min.	3195
Lb./hp (test wt.)	12.8
Fuel consumption, mpg	50
Speedometer error:	
50 mph indicated, actually	45
60 mph indicated, actually	56
70 mph indicated, actually	64
Braking distance:	
from 30 mph, ft.	22
from 60 mph, ft.	124
Acceleration, zero to:	
30 mph, sec.	2.9
40 mph, sec.	3.8
50 mph, sec.	4.7
60 mph, sec.	5.9
70 mph, sec.	9.2
80 mph, sec.	13.1
90 mph, sec.	19.5
100 mph, sec.	29.2
Standing one-eighth mile, sec.	9.22
terminal speed, mph	71.51
Standing one-quarter mile, sec.	15.57
terminal speed, mph	83.95



BMW R60/5

transmission speeds to synchronize was annoyingly long; and with a non-synchronized transmission and a clutch that turns at engine speed, this pause was necessary to avoid the dreaded *clunk* when shifting. The *clunk* has been reduced in intensity, and with care in matching the engine/road speeds, practically noiseless shifts can be made. Gear width is substantially greater than in earlier models, assuring long, trouble-free life.

The remainder of the drive train has been synonymous with BMW since the year one. A shaft drive system is preferred by many serious long distance road riders because of its freedom from adjustment and inherent cleanliness. The shaft itself is neatly ensconced within the right hand swinging arm member. Up and down movement of the drive shaft is allowed by an automotive-type universal joint and the driveshaft is splined to permit the slight changes in wheelbase which are attendant to the swinging arm's up and down motions. A hypoid gear in an oil bath translates the longitudinal circulatory movement of the driveshaft to the rear wheel.

The wheels show more evidence of BMW's weight reduction plan. Light alloy rims are used and feature cross indentations in the central portions which prevent the tire's bead from slipping into the bottom of the rim if there is a puncture or blowout. Large cast aluminum brake drums with steel liners feature brake linings that were originally developed for the latest (ca. 1963) drum braked Porsche automobiles which are highly resistant to fade. The latest redesign of the BMW's wheels makes use of narrower brake shoes but with a larger drum diameter.

Not surprisingly, the R60/5 stopped in very nearly the same distance as the R75/5 we last tested, and even when packing double through the mountains where one uses the brakes quite a bit on downhill sections, fade was minimal. Short, straight spokes are chrome-plated and add a touch of class. The straight line pull of the spokes makes for a very strong wheel assembly.

A rather unique method of actuating the front brake's double brake cam pivot arms is employed. Instead of using an adjustable rod between the brake pivot arms, the single brake cable stretches between the two, and when the front brake lever is pulled the arms move toward each other, applying equal pressure to each arm, or at least in theory—a clever and simple method.

Large diameter oval section tubing is used in sections of the duplex cradle type frame, and the rear member which serves as a support for the seat and fiberglass rear fender is detachable. Noted for its rigidity, the frame permits a slight, controlled

flexing in the longitudinal plane, which seems to give the best handling characteristics. Hefty mounting bosses support the engine/transmission package, which is bolted directly to them without benefit of rubber mounts.

Last year we complained slightly about the seemingly wasted movement in the front forks. With a potential of nearly 8 in. of travel, we felt that the forks springs were too soft, allowing too much compression travel to be wasted. Evidently the engineers at BMW agreed, because the 1972 models feature longer and slightly stronger front fork springs. Some minor changes to internal bushing length and rebound damping have also been made.

Whether riding solo or packing a passenger, the front forks are quite good in terms of ride comfort and keeping the front wheel where it should be—in touch with the ground. Even crossing railroad tracks at speed showed little tendency for the forks to bottom out completely, and the enormous reserve of upward movement available wouldn't allow them to top out, either.

The rear suspension units are well up to the job of smoothing out bumps in the road. A large handle at the bottom of each unit permits the shock absorber spring to be adjusted for increased loading imposed by baggage or a passenger without taking the toolkit apart in search of the proper spanner. Damping is a bit on the soft side, which allows the wheel to follow undulations in the road, and isn't quite firm enough for spirited cornering over rough surfaces. With two aboard and the shock springs set in the middle position, the ride was somewhat akin to that of a Cadillac: soft, but not really mushy. After all, the R60/5 is a touring bike, not a racer.

Starting the BMW in the morning is aided in no small way by built-in accelerator pumps. This device is located in the carburetor's mixing tube and is activated automatically by opening the throttle. First the fuel level in the carburetors can be raised by depressing the float plungers, then a couple of blips of the throttle further enriches the fuel/air mixture. There is no choke. Other than a slight amount of leaking after they had been tickled, we had no complaints about the Bing concentric carburetors. Almost perfect adjustment by the shop personnel at the distributors, Butler & Smith, Inc., also aided in obtaining an excellent consumption figure of 50 mpg under normal riding conditions.

Lighting and associated wiring must also be termed excellent. Especially appreciated was the headlight's beam pattern. On low beam a rather sharp cut-off to the left helps keep from blinding oncoming traffic, while on high beam the swath of light is wide and full. Large and bright is the taillight and the turn indicators are easily seen by other traffic.

It would be easy to go on commenting about the BMW R60/5. We could say how much we like the idea of easy accessibility to parts which need adjustment, as well as the extended service intervals. Or we could complain that the peculiar torque reaction you get in the lateral plane when blipping the throttle was at first disturbing, as was the phenomenon of the rear end's rising under hard acceleration and squatting under hard deceleration.

But it's easy to say just how much we appreciate the refinement and quiet operation of this motorcycle. In terms of lack of noise, both exhaust and mechanical (BMW claims a maximum of 75 db at full throttle), and the attention to detail found everywhere, the BMW is tops. If you've outgrown the penchant for seeing how many old ladies you can frighten with your noise, are tired of constantly cleaning an oil-leaking motorcycle and want to ride and be sure you'll get there, try a BMW. Chances are you'll like it! ☐

