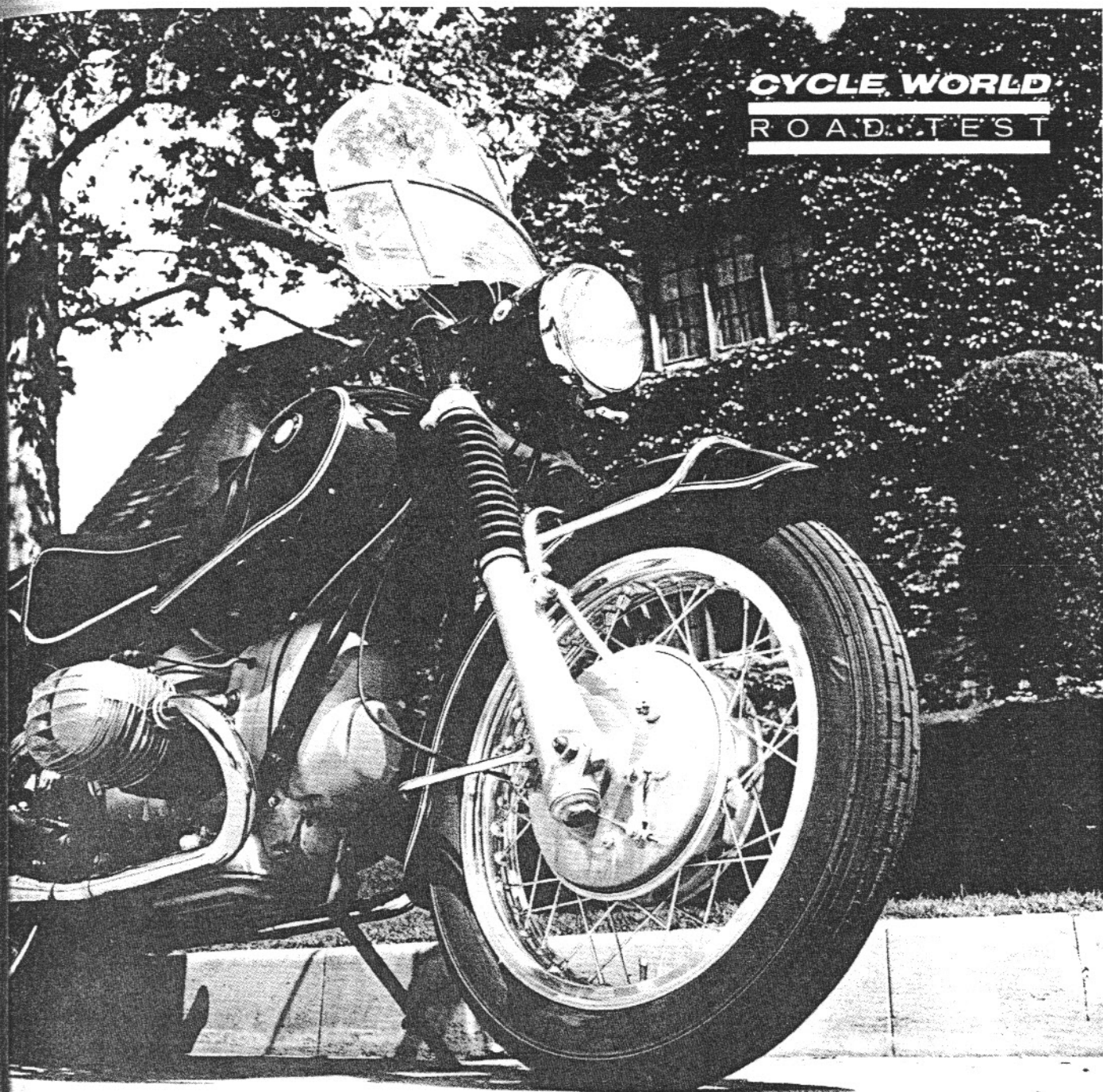




BMW R 60 U.S.

A TEST RIDE on a new BMW reveals a strange and, to some, unwelcome sensation. The front wheel actually dips under braking! For years BMW owners have boasted of the way the Earles type front fork has enabled their bikes to remain level despite the weight transfer that occurs when a motorcycle's brakes are used fiercely. Now the factory has made a departure from tradition by offering three machines with telescopic forks fitted as standard.

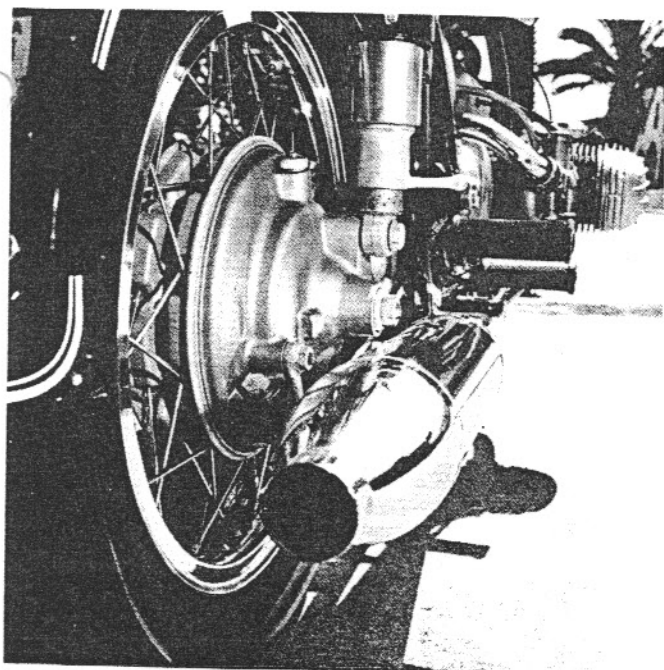
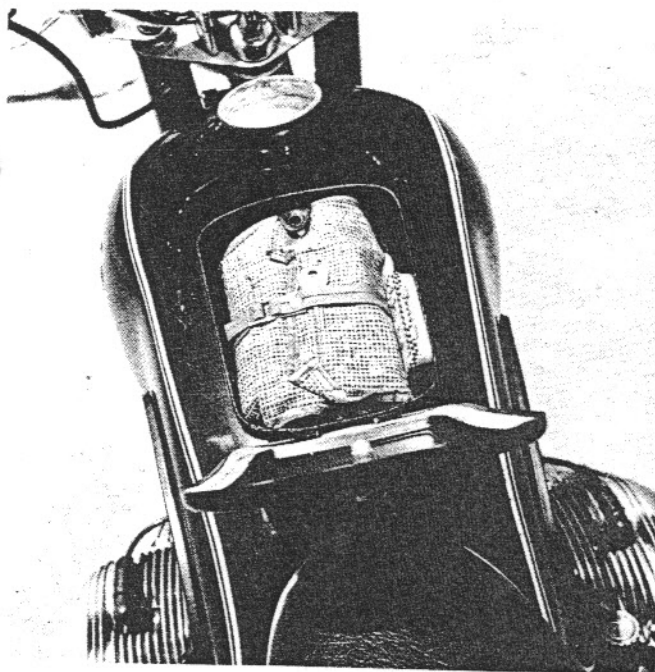
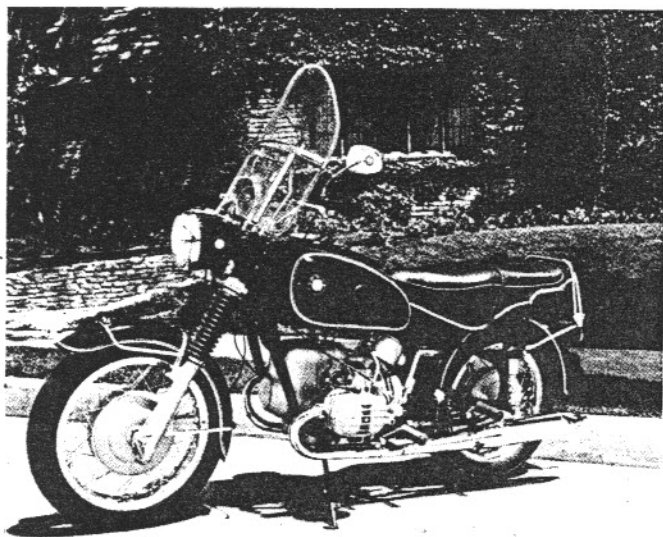
The reason is that BMW has recognized the growing tendency for American riders to take their machines off the freeways, throughways, and city streets, and onto dirt roads and rough byways. The new light alloy front fork will cope with this type of riding more adequately than the Earles usually associated with "Bee-Ms."

The Telescopic Tourer

Yes, the new fork does allow the nose of the machine to dive under braking, but this is a feature of all telescopic units. Otherwise, the fork offers a smooth and luxurious ride that is always associated with the German bikes.

The new machines are the R 50 US, R 60 US and R 69 US. The only difference between these and the established models lies in the front forks—engines and other specifications are identical. CYCLE WORLD's test machine was the 593-cc R 60 US, a 457-lb. tourer that develops peak power of 30 bhp at a leisurely 5800 rpm. It is a close relation to the R 69, which uses a similar engine tuned to develop 42 bhp.

The R 60 US, like all large BMWs, offers a unique form of motorcycling. What other machine could be so silent, so free from vibration, so effortless at cruising speeds? Even its appearance is unusual. It stands high and proud, and offers few



concessions to modern styling. No bright colors distinguish its bodywork—fenders, tank, and frame are painted a gleaming black.

Chief characteristics of the BMW are its opposed Twin engine, and shaft drive, features which also contribute most to its uniqueness. Both have been retained ever since the factory started manufacture of motorcycles 45 years ago. BMW goes to great lengths to insure that its machines offer reliability and smoothness, and the engine layout plays a great part in this. An opposed Twin has excellent inherent balance, with the motion of one piston automatically counteracting the motion of the other.

The crankpins are set at 180 degrees to each other, and another feature which aids smooth running is the dynamically balanced crankshaft. The forged steel crank is carried in two ball bearings, while roller bearings carry the oval section connecting rods. A bushing is used at the piston pins. A massive alloy cover houses the engine and transmission, apart from the cylinders.

Three-ring, alloy pistons run in cast iron barrels, which also house the upper ends of the pushrod guides. These guides are rubber-seated against the engine cover. Gray cast iron is used for the intake valves, and heat resistant steel for the exhaust valves, which have to cope with far higher temperatures.

The single camshaft is mounted above the crankshaft, and turns in ball bearings. It is driven at half engine speed by a pair of helical gears for quietness.

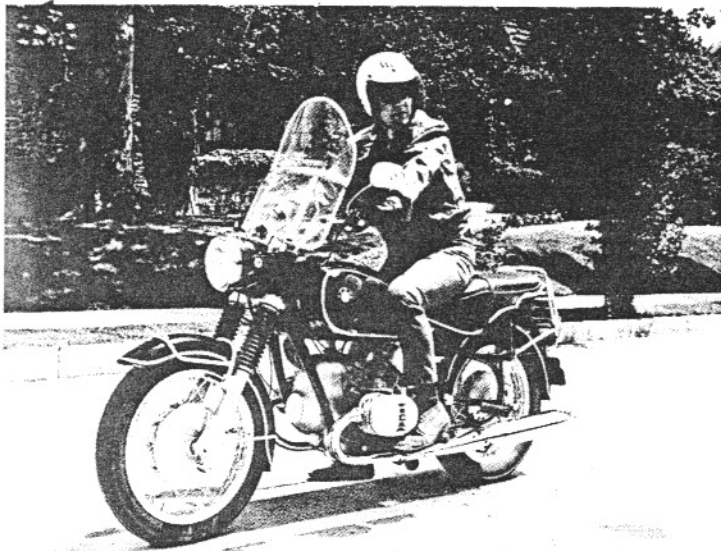
Like several other features on the R 60 US, the lubrication is similar to automobile oiling systems. There is no separate oil tank. Instead, the engine lubricant is contained in a sump under the crankshaft. A gear type pump draws oil from the sump, and feeds it along the crankshaft. After the oil has been fed to the cylinders, connecting rods, and valve gear, it drains through borings in the cylinder heads, through an oil passage press-fitted into the underside of each cylinder, and back into the sump.

The same rather massive, unstinting design appears in the clutch mechanism, which also is very similar to those found in cars. In place of a multi-disc clutch, a single plate, spline-coupled to the gearbox input shaft, is used. When the clutch lever is operated, the pressure plate is forced off the clutch plate, and drive from the crankshaft to the gearbox is then interrupted.

The heavy flywheel is the cause of the slow gear change action for which BMWs are infamous. This large mass of metal keeps the engine turning quickly even when the clutch lever is operated. The result is an evil-sounding crunch if changes are made hastily or awkwardly. There is only one way to make a noiseless change; be patient, and take it slowly. Even then, the gear pedal must be eased very gently and accurately. Gear action on the test machine was probably the noisiest test riders had encountered on BMWs, and became acutely embarrassing in city riding. Uninitiated car drivers tend to think the hideous crunching sounds are the rider's fault!

Even worse are times when vivid acceleration is required in city traffic. Then the BMW rider has a choice; he can rush the change and endure the accompanying graunching sounds, or he can wait for a couple of time devouring seconds before easing the pedal through.

From the gearbox, power is taken by the shaft drive system to the rear axle. The shaft runs in its own oil bath inside the right swinging arm, and is linked to the transmission by means of a universal joint running in needle bearings. The entire assembly at the rear is carried in a series of ball and needle bearings, and the crown gear and drive pinion are both spiral bevel gears which run noiselessly in an oil bath.



The shaft drive causes no problem with rear wheel removal. The folding rear fender is swung upward, two nuts, one on each side of the wheel, are undone, the axle spindle is withdrawn...and out comes the wheel, leaving the bevel housing and brake intact.

The R 60 has one more major disadvantage, in addition to its outdated gearbox. The combination of a meager 30 bhp, and the hefty weight, makes it distinctly underpowered in comparison with more modern machines. Many 250-cc machines are blessed with an equal amount of horsepower, and have the advantage of far less weight. The result is that the R 60 is no champion of the Greenlight Grand Prix. On other machines of similar engine size, full throttle acceleration is an exciting, hustling sensation as the bike rushes to 70 mph in a few seconds. The R 60 takes things in a far more deliberate manner.

Even with this handicap, BMWs have gained a fanatical following. Clearly, its supporters look for something else in a motorcycle than dragster style power. What they admire is the BMW's smoothness and ability to travel long distances with minimum fuss. BMW's careful construction has insured that the engine runs quietly, and this is complemented by an excellent exhaust system.

A vast dual seat contributes much to the comfort of rider and passenger. The seat is a generous 13.8 in. at its widest point, and is so long that two bulky humans have plenty of room. The R 60's capabilities as a touring machine were excellently demonstrated during the test period when it was taken for a 300-mile round trip which involved a climb from sea level to 4255 ft. Total weight of the bike, its two passengers, and their gear was around 840 lb., yet it cruised easily at 75 to 80 mph in a zone with no speed limit. A cruising speed of around 4400 rpm in fourth gear, equivalent to 65 to 70 mph, can be held indefinitely.

A handlebar screen fitted to the test bike was no handicap in windless conditions, but crosswinds of 25 mph treated it like a sail, and made hard work of high speed riding. No screen at all, or a full fairing, would probably have been better. But the way the R 60 hauled a heavy load at high speed over an arduous route was magnificent.

A pair of two-position springs and telescopic hydraulic shock absorbers comprise the BMW rear suspension. Adjustment from one position to another is achieved simply by

turning a handle cast onto the suspension units. No tool is required for this task.

The frame is a duplex unit of rolled steel tubing, which actually changes diameter and shape as it passes from a highly loaded area to an area which is more lightly stressed. At the steering head, for example, very sturdy oval tubing is used, but this becomes circular, and of smaller diameter, farther down the front tubes. Top and lower frame members extend much farther to the rear of the machine than on most motorcycles. Another unusual practice is that rear suspension units are not pivoted at their upper ends. Instead, they are attached to the seat mounting, and to the rear of the frame.

Seat height of 33.3 in. means that shorter riders make a long stretch when placing their feet on the road. Hand and foot controls are located so that they are immediately accessible. Handlebar on the test machine was the optional type that BMW calls "Cross-Country." It entails an upright riding position that is comfortable enough for the longest journey.

A twin leading shoe brake is fitted at the front, and a single leading unit is used at the rear, in keeping with modern practice. Both are housed in large alloy hubs, and can slow the machine from high speed, even in the two-up situation, with a minimum of fuss. There is no jarring or shuddering of the front end under fierce braking, merely the aforementioned dipping of the fork. The R 60 equipped with an Earles fork actually costs \$12 less than its stablemate with the telescopic unit. An additional, but less important, advantage with the new component is that it considerably cleans up the front end appearance of the bike.

Handling and cornering is safe and predictable. There is the danger that a cylinder could be badly mauled if the rider cornered too fast and the machine slid away, but BMW offers a "cylinder guard," a sort of small crash bar, as an optional extra. These bars are controversial items, because it is easy to dig them into the ground on corners and cause a spill. The BMW rider also must exercise care not to crunch the heads against high curbs. Width from the outside of one head to the outer edge of the opposite one is 27.75 in., approximately the same width as the handlebars.

Two 24-mm Bing carburetors are mounted one each side of the machine, behind the cylinders. They are fed through a single air cleaner which is one of the most efficient ever fitted to a motorcycle. In common with several other BMW features, it is based on automotive practice. The circular paper dry element is accommodated in an alloy housing. Air passes through the filter into an inner plenum chamber, and then along feed pipes to the carburetors. This system also eliminates induction roar.

A magneto supplies the sparks on the R 60, while a battery and generator form a completely separate electrical system which provides power for the lights and horn. All electrical components, apart from the battery, are housed under an alloy cover in front of the crankcase. This location protects them from water, yet allows easy access for maintenance. The headlight is fully adequate for night riding.

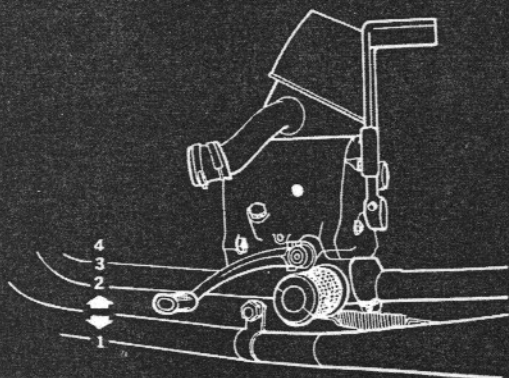
The BMW also offers its owner several less obvious pleasures, such as a lockable tool box mounted in the top of the optional 6.5-gal. fuel tank, and an excellent tool kit. This kit contains a variety of equipment ranging from wrenches and screwdrivers to a pair of pliers and a full tube puncture repair kit. Engine oil must be changed every 2000 miles, but transmission, rear wheel drive and right swinging arm oil must be replaced only at 16,000-mile intervals.

The German factory seems able to sell with no difficulty all the machines it can produce. Undoubtedly, the BMW is a great bike, with a charm it shares with no other motorcycle. ■

BMW R 60 U.S.

SPECIFICATIONS

List price	\$1376
Suspension, front	telescopic fork
Suspension, rear	swinging arm
Tire, front	3.50-18
Tire, rear	4.00-18
Brake, front, diameter x width, in.	7.8 x 1.4
Brake, rear, diameter x width, in.	7.8 x 1.4
Total brake swept area, sq. in.	68.5
Brake loading (test weight/swept area)	
lb./sq. in.	9.16
Engine type	ohv opposed Twin
Bore x stroke, in., mm.	2.81 x 2.85, 72 x 73
Displacement, cu. in., cc	36, 593
Compression ratio	7.5:1
Carburetion	(2) 24-mm Bing
Ignition	Bosch magneto
Claimed bhp @ rpm	30 @ 5800
Oil system	wet sump
Oil capacity, pt.	4.1
Fuel capacity, gal.	6.5
Starting system	kick
Lighting system	battery, generator
Air filtration	paper element
Clutch	single plate, dry
Primary drive	none
Final drive	(3.13:1) shaft and bevel gear
Gear ratios, overall:1	
5th	none
4th	4.81
3rd	6.05
2nd	8.52
1st	13.05
Wheelbase, in.	58.6
Seat height, in.	33.3
Seat width, in.	13.8
Footpeg height, in.	10.0
Ground clearance, in.	7.1
Curb weight (w/half-tank fuel), lb.	457
Test weight (fuel and rider), lb.	627



PERFORMANCE

Top speed (actual), mph	97.5
Calculated top speed in gears (@6400 rpm), mph	
5th	none
4th	100.0
3rd	79.5
2nd	56.4
1st	36.8
Mph per 1000 rpm, top gear	15.6
Speedometer error:	
50 mph indicated, actually	46.10
60 mph indicated, actually	54.81
70 mph indicated, actually	63.78
Acceleration, zero to:	
30 mph, sec.	2.8
40	4.0
50	5.3
60	7.6
70	10.9
80	16.2
90	22.6
100	
Standing 1/8th mile, sec.	9.83
terminal speed, mph	67.36
Standing 1/4th mile, sec.	16.03
terminal speed, mph	79.85

