BMW R65

After creeping dangerously close to being fresh out of middle-displacement models, Bavarian Motor Works is introducing the R65, a scaled-down big-twin. While intended as a trade-up bike, the 650 may find more lasting homes than BMW suspects.

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ring. The top compression ring is chrome and the bottom one is cast iron, as is the oil ring.

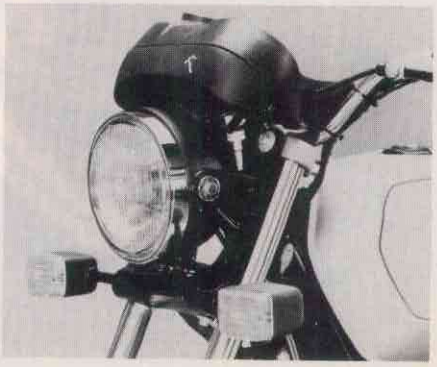
Even though the 82mm-bore barrels themselves are shorter than the big BMWs', the heads are about the same as on the R80/R100 models. Since the 650cc engine is a smaller air pump than the other BMW twins, the R65 has smaller valves downstream from its 32mm CV Bing carburetors. With the R65's 2.6-inch narrower engine, there is much less of that traditional BMW-ish worry of dragging cylinder head covers on the pavement.

The single camshaft resides in the same location it has since the introduction of the /5 models; below the crankshaft, driven by a single-row roller chain. All four steel-capped aluminum pushrods work at somewhat of an angle to transfer motion from the camshaft to the cylinder head-mounted, needle-bearing-suspended rockers. And the narrower R65 engine's pushrods could have had to work at a greater angle, but to avoid adding extra slope to the pushrods, BMW devised new valve lifters. All BMW-model lifters slide through bores in the engine's case; they are positioned directly beside the cam lobes. BMW lifters are normally closed, hollow cylinders and have the cam lobes pushing on one end and the pushrods resting on the other. The lifters are still hollow in the R65, but now the pushrods sit way down inside them, practically beside the cam lobes. Camshaft movement is still transferred through the lifters, but they are, in effect, shorter to let the pushrods be longer and work at a healthier, more acute angle. The lifters are virtually the same overall length, in order to retain the greatest bearing area possible.

No manually adjustable tensioners are utilized to keep the cam chain tight; it is so short that a simple hydraulic tensioner is adequate. This tensioner works by having engine oil pressure press against a lever arm, which in turn presses a rubber pad against the chain.

The 180-degree crankshaft turns a lightweight, single-plate dry clutch; from there the power flows through a spring-

Tach warning light flashes when the 7500-rpm redline is violated. Quartz-halogen headlight is excellent.



ramp cush drive assembly and then into the transmission. The modular R65 gearbox is the exact same unit as found in all 1979 BMWs, and it will bolt onto any of the other engines. Shifting has been smoothed out with the addition of a second cush drive mechanism in the final drive shaft. The R65 has its own 3.44:1 rear axle ratio: lower than that found on the bigger BMWs.

The front and rear wheels are 18-inchers, and both carry Metzeler tires, which have special, high-mileage rubber compounds. Consequently, they are a little slippery on some types of pavements at some speeds. For riding on the moderate side of moderate, they are adequate. If you're contemplating hooking it around corners, you would be well advised to discard the Metzs *post haste* and latch onto some stickier rubber. A standard-issue drum brake is provided at the rear, and it's up to the job of supplementing the very effective front stopper, so long as it isn't called into duty too often without being given adequate cooling-down time between each application. The single-leading-shoe brake is pretty fade-resistant for a drum, but it does have a limit.

BMW feels that a wheel needn't lock up at a moment's notice to provide good stops; a brake that allows this might be considered somewhat of a liability for the neophyte. After trying the perforated-disc front brake on a smooth stretch of road, we discovered that it would only lock up with a great deal of difficulty. Basically, BMW has made the ratio between the area of the master cylinder piston and the caliper pistons greater than normal. True,

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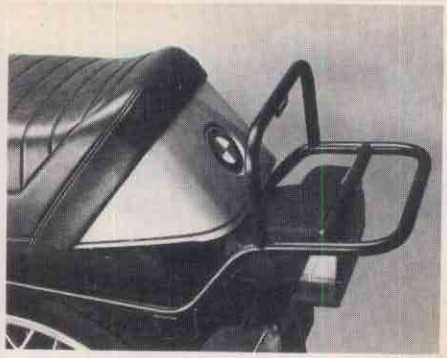
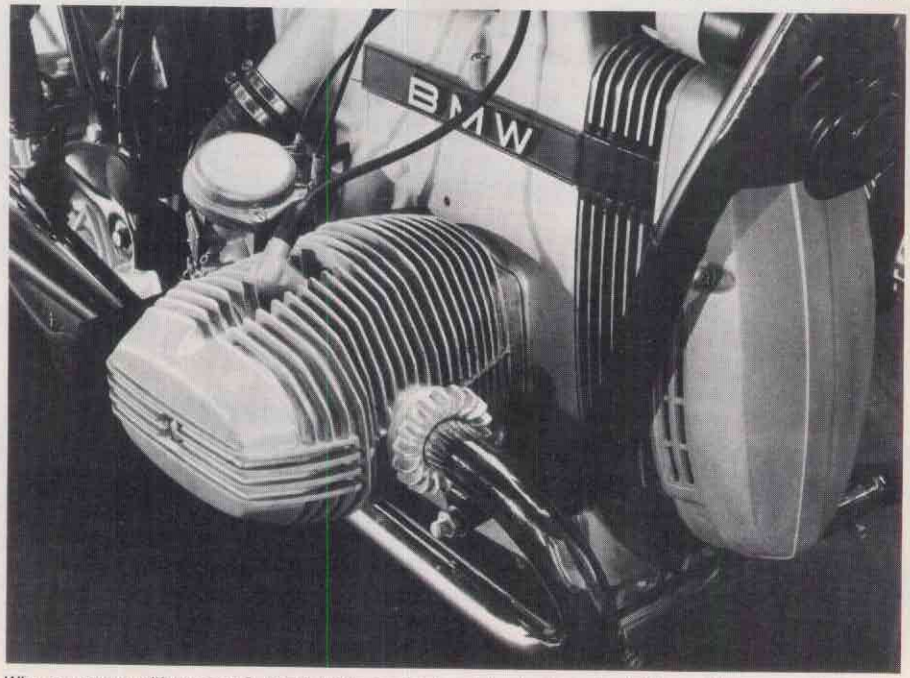
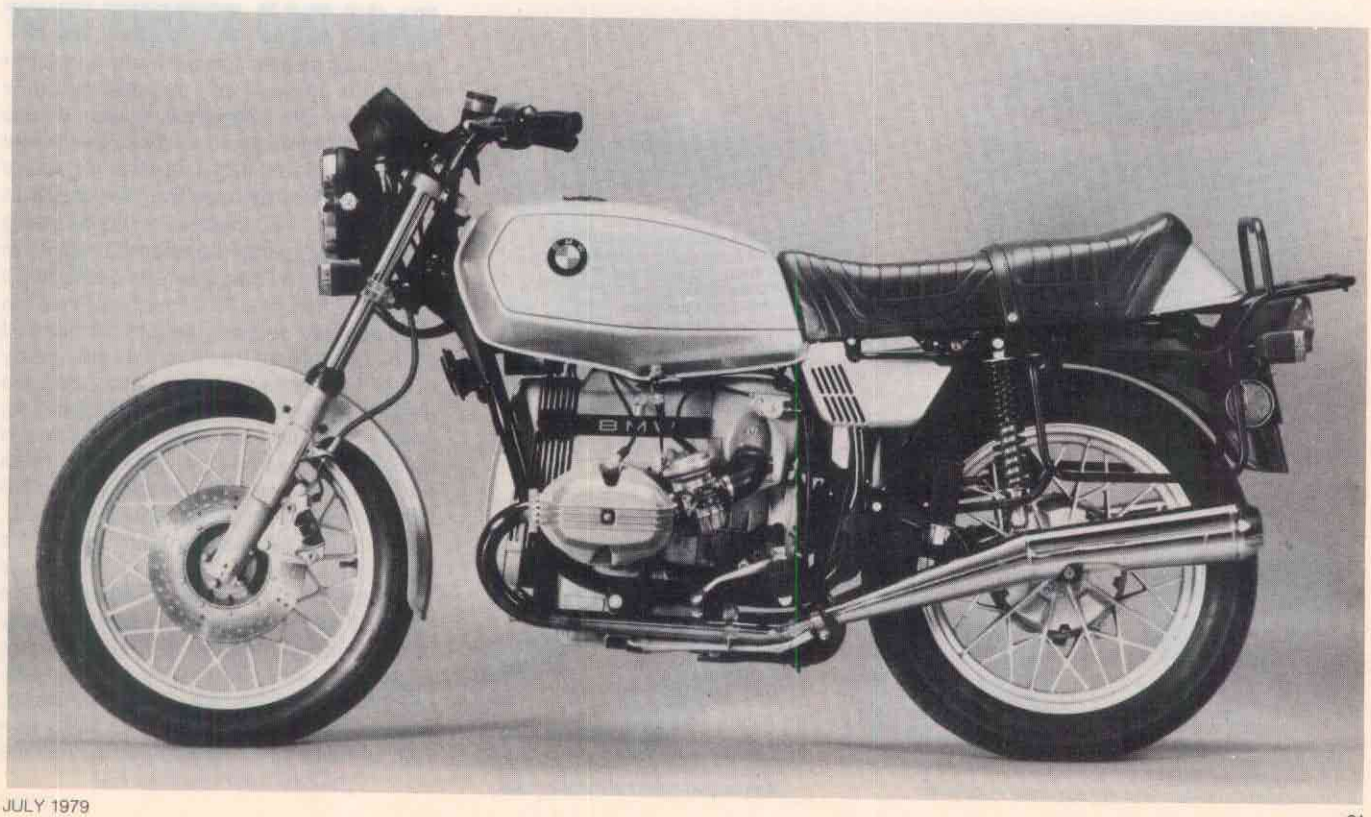


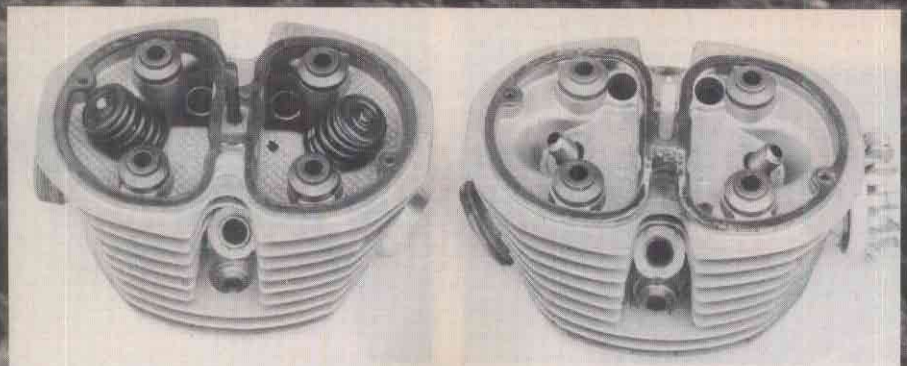
Integrated saddlebag mount and rack provide little load capacity without bags; tail lamp uses two bulbs.

Due to beneath-the-tank space requirements, BMW moved the front brake reservoir atop the handlebar.

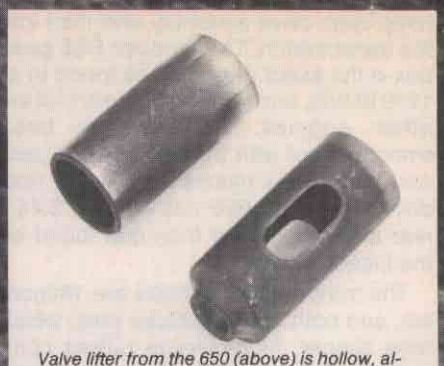


Who can argue with success? The flat-twin engine is quiet, sturdy and reliable, and keeps your feet warm.

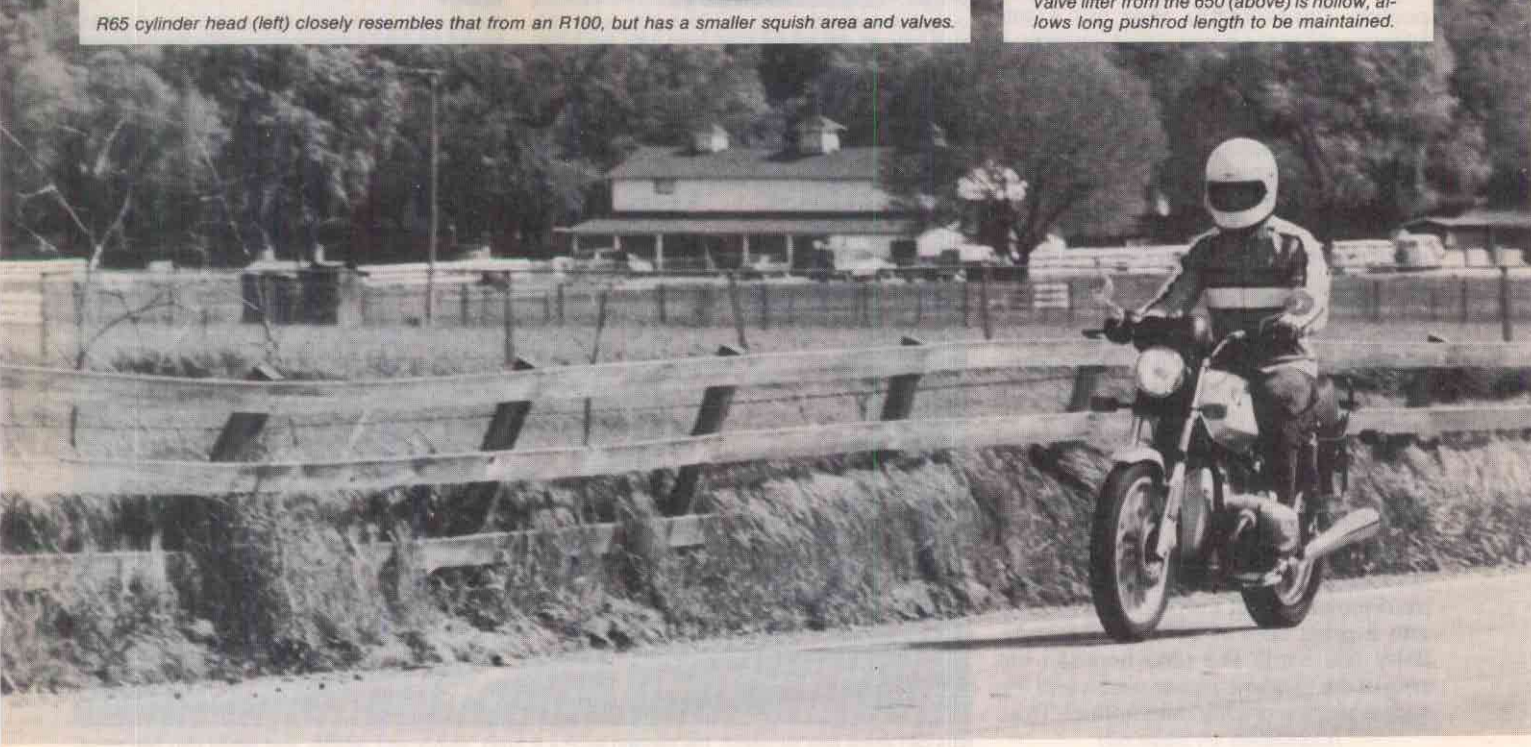


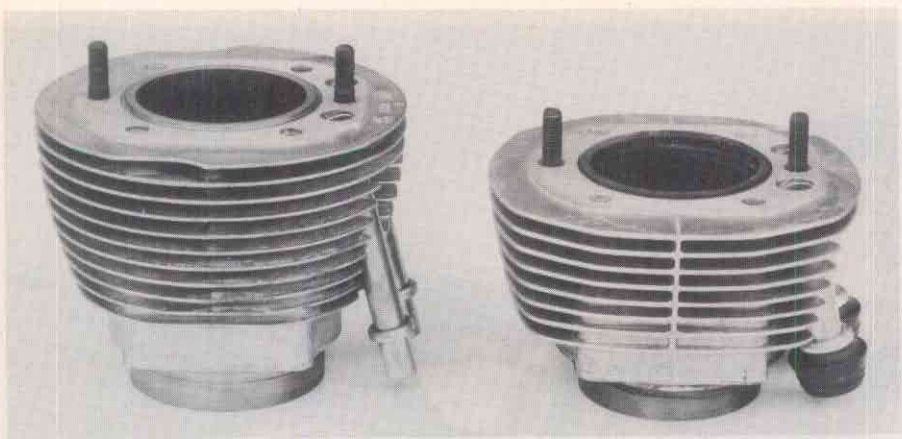


R65 cylinder head (left) closely resembles that from an R100, but has a smaller squish area and valves.



Valve lifter from the 650 (above) is hollow, allows long pushrod length to be maintained.





R65 (right) and R100 cylinders illustrate dramatic "width" difference accounting for much narrower engine.

More subtle size differences are apparent in pistons . . .

. . . and forged steel connecting rods.

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the caliper pistons are normally greater in diameter than is the master cylinder piston, but the *difference* in size is less than is customary. As a result, the wheel cylinder pistons move farther for every unit of distance the master cylinder piston is pushed. This creates a hard-feeling brake, and requires more force to lock the wheel. Enough energy is required to keep any rider short of a 400-pound gorilla from "accidentally" locking up the front tire, but at the same time, short stops are nearly out of the question while using just two fingers on the brake lever. A second disc, caliper and different master cylinder are available at extra cost, although these additions will not necessarily shorten stops; they will increase fade-resistance.

Due to space requirements, the R65's front brake master cylinder is not under the gasoline tank. It is, instead, in the "normal" place atop the handlebar. Many of the wiring harness connections are under the tank, and they utilize fast-disconnect plugs for easy servicing. Also under the gas tank are twin, six-volt, wired-in-series ignition coils. Despite

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the 180-degree crankshaft and alternating power-stroke engine design, both spark plugs fire at the same time; each sparks on the compression stroke and the top of the exhaust stroke. In this manner, one set of ignition points can be used for simplicity and cost-efficiency. BMW does not use electronic ignition in their motorcycles, and this wind of progress will probably not blow by them for too much longer.

Factory-made fork and small-capacity shock absorber components grace the R65, and they work well—to a fault. They are long-travel units, front and rear, and clearly demonstrate this fact. If not underdamped, the suspension pieces at best are *lightly* damped, because the ride is pillow-soft in *all* circumstances. The light damping, coupled with long-travel units, supplies a gentle and somewhat wallowing ride over the bumpiest roads. This swan-like quality only becomes a handicap on twisty roads. If asked to suddenly flip-flop from one side to the other quickly with or without the presence of bumps, the Beemer feels loose-jointed. But not uncertain. Despite its veritable yards of wheel travel, the BMW can be flicked through corners as well as *some* "performance" bikes, although it's a long way from being a road-sports bike. The overall frame geometry is fine; steering is light and precise at all speeds, and the 650 does not have the current, common tendency of some of the tall-centered fours to fall abruptly into corners. With the exception of its skittery tires, handling is more than adequate.

Thanks to the narrower powerplant, ground clearance, that long-time thorn in the sides of BMW go-fasters, is not really a difficulty now. Ground clearance limits are harder to reach, and they are not imposed only by the cylinder heads. The oft-dragged rear brake pedal has been repositioned, and the left side's first drag point is the sidestand; this is far over enough for most, except those who have something to prove, or those who simply like to see their orthopedic surgeon a lot.

Both the front and rear fenders are fiberglass, and the rear one is painted black, although until 1978 it came in the same color as the tank side covers and front fender. The black rear fender helps underplay the apparent immensity of the twins' rear ends—especially if they're equipped with a combination luggage rack/saddlebag mount. The R65 side panels are injection-molded plastic, and the 5.8-gallon gas tank is steel. Only one petcock is used this year, so fuel caught on the "wrong" side of the hump when reserve runs out can be obtained only by tipping the cycle to its left side. "Reserve" holds a half-gallon: enough to get you about 22 miles with the R65's average 43 mpg fuel consumption.

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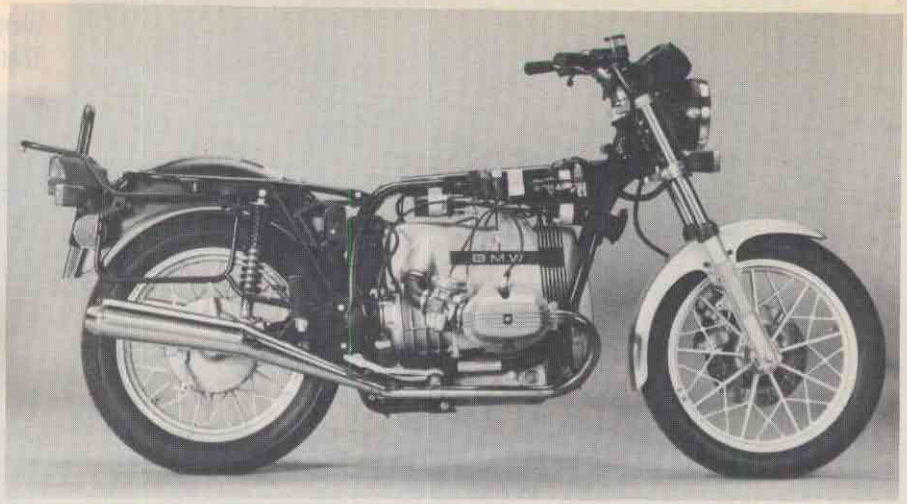
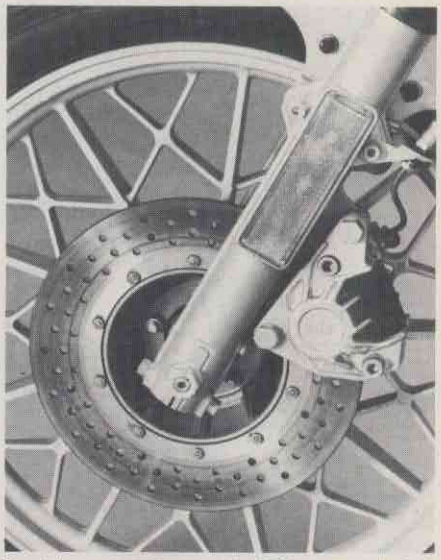
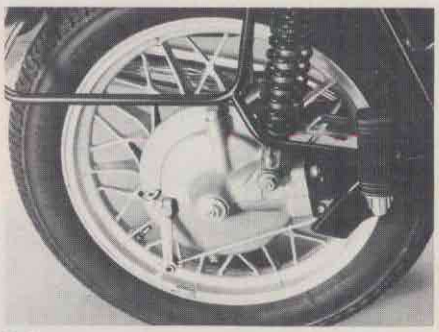
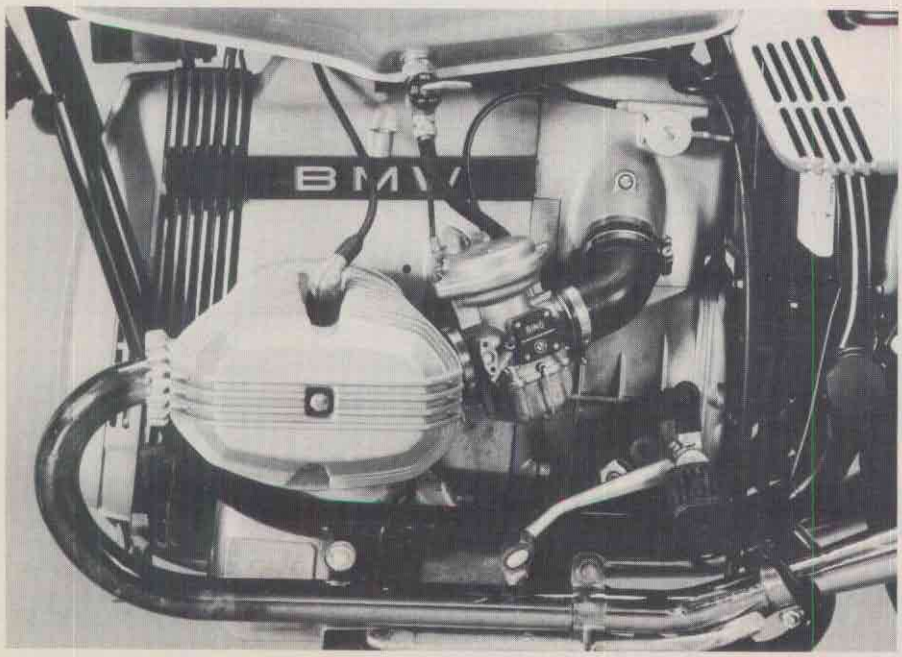




Special components grace the R65: center-axle fork; tiny brake caliper; 18-inch cast alloy front wheel.

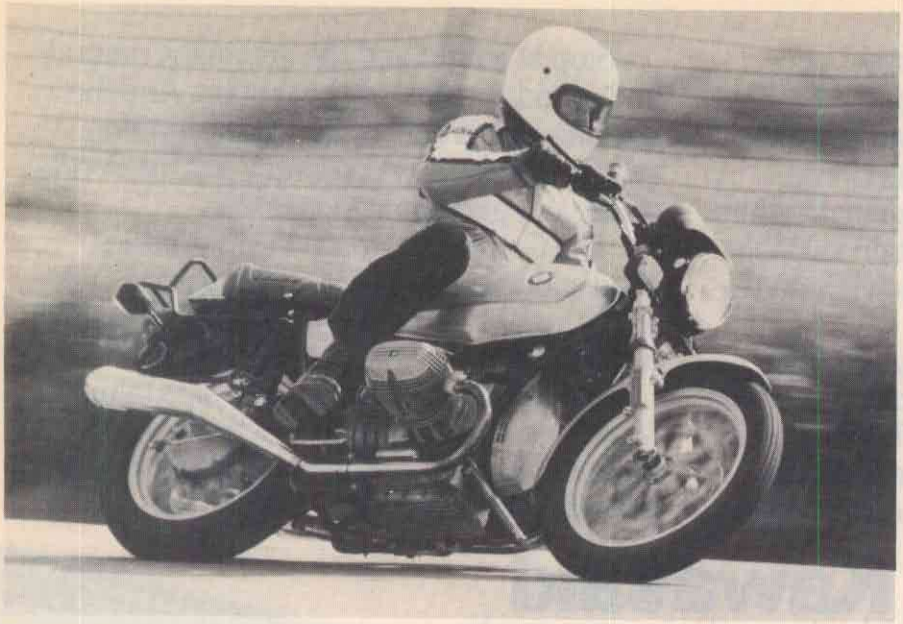


Ordinary rear brake, unique final drive ratio. The R65 has low 3.44:1 gears to help out smaller engine.



The single fuel tap, both-carburetors choke lever and hard-to-reach oil dipstick are all found on the left.

Slightly drippy 32mm slide-butterfly carbs h "649" engine pull from nearly idle — with no



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A double-cradle, mild-steel frame wraps completely under the flat-twin engine; there's little reliance on the engine for chassis rigidity. The entire frame section, from the rear "loop" to the passenger footpeg mounts, is *bolted* onto the main frame. This cuts production costs, as the whole sub-frame can be assembled, complete with rack and lights, before it is attached to the motorcycle.

One ignition key does a number of duties: it locks the ignition, fork, gas cap and seat latch. BMW has not included a kickstarter on their motorcycles since 1974, for good reason. The bikes start quickly, hot or cold. Our test R65 needed no choke at all on mornings when the temperature was above 50 degrees F. A 12-volt electric starter drives the automotive-style clutch flywheel ring gear, and

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Make and model ..... BMW R65
Price, suggested retail (as of 4-23-79) $3445

PERFORMANCE
Standing start ¼-mile ..... 14.37 @ 91.74 mph
Engine rpm @ 60 mph, top gear 4109
Average fuel consumption rate ..... 18.3 km/l (43.1 mpg)
Cruising range, main/reserve ..... 366.0/36.6 km (228.4/21.6 miles)
Load capacity (GVWR less curb weight) ..... 194.1 kg (428 lbs.)
Maximum speed in gears @ engine redline ..... (1) 37.3, (2) 57.4, (3) 79.4, (4) 98.3, (5) 109.5 mph

ENGINE
Type ..... Four-stroke horizontally-opposed twin, air-cooled with pushrod-operated overhead valves and roller-chain timing drive
Bore and stroke ..... 82.0 x 61.5mm (3.23 x 2.42 in.)
Piston displacement ..... 649.2cc (39.6 cu. in.)
Compression ratio 9.2:1
Carburetion ..... (2) 32mm butterfly/slide Bing
Exhaust system ..... Twin-pipe, twin-muffler with connecting crossover pipe
Ignition ..... Battery and coil with mechanical breaker point trigger
Air filtration ..... Dry paper
Oil filtration ..... Disposable paper element
Oil capacity (engine) ..... 2.3 liters (2.4 qts.)
Oil capacity (gearbox) ..... 0.8 liters (0.9 qts.)

TRANSMISSION
Type ..... Five-speed, constant mesh
Primary drive ..... Helical-cut gear
Final drive ..... Shaft and helical-bevel gears, 9/31, 3.44:1
Gear ratios, overall ..... (1) 15.14, (2) 9.84, (3) 7.12, (4) 5.75, (5) 5.16

CHASSIS
Type ..... Dual-downtube, full cradle with bolt-on rear section
Wheelbase ..... 1389mm (54.7 in.)
Brake, front ..... Hydraulic, one 260mm (10.24 in.) disc with dual-piston caliper
rear ..... Rod-actuated, 200mm (7.87 in.) drum, single-leading-shoe
Wheel, front ..... Cast, 1.85 x 18 in.
rear ..... Cast, 2.50 x 18 in.
Tire, front ..... 3.25 S 18 Metzeler Rille 12
rear ..... 4.00 S 18 Metzeler C66 Touring Special
Seat height ..... 805mm (31.7 in.)
Ground clearance ..... 127mm (5.0 in.)
Fuel capacity, main/reserve ..... 20.0/2.0 liters (5.3/0.5 gal.)
Curb weight, full tank ..... 205.4 kg. (453 lbs.)
Test weight ..... 280.3 kg (618 lbs.)

ELECTRICAL
Power source ..... Alternator, 280 watts
Charge control ..... Mechanical voltage regulator
Headlight beams, high/low ..... 60/55 watts
Tail/stop lights ..... 5/21 watts
Battery 12V 16AH

INSTRUMENTS
Includes ..... Speedometer, tachometer, odometer, resettable tripmeter. Indicators for turn signals, "generator," oil pressure, neutral, high beam, redline
Speedometer error, 30 mph indicated, actual 27.15
60 mph indicated, actual 56.49
Odometer error ..... 2% slow

CUSTOMER SERVICE CONTACT
Customer Service Department
Butler & Smith, Inc.
Walnut Street & Hudson Ave.
Norwood, New Jersey 07648
(201) 767-1223

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there are interlocks in the clutch and neutral "circuits," preventing the bike from being started unless it is in neutral or its clutch is pulled in.

An engine "kill" switch is mounted on the right side of the handlebar, near the throttle grip, and when it's turned off, all the tachometer panel-contained lights (oil, neutral, high beam, "generator") go out, reminding you that the kill button has been activated. The standard R65 does not include a clock or voltmeter as standard equipment, although they can be ordered as options. It does have a speedo, tach, the warning lights, an odometer (two per cent slow) and resettable tripmeter. Additionally, the 650 has a warning light on its tachometer face that flashes on whenever the 7500 rpm redline is violated.

Blazing a hole in the night sky is a natural thing to do with the BMW's Bosch H4 quartz-halogen headlight. Its twin-filament bulb and focusing lens put out a nice low-beam cutoff pattern and a dazzling high-beam spread, and it's easily controlled by a three-position switch on the left handlebar. High beam is up on the switch, and low beam is in the middle. If you press the switch down from low beam, the high beam goes on again, but this time you're pushing against a spring that returns the switch to the middle, low-beam position when you release it. This is handy for letting cars know that *yes,* there really *is* somebody there, or subtly hinting "move it or lose it" while cresting mountain passes. This year BMW has discarded the left-hand, down-for-left and up-for-right turn signal in favor of a more industry-standardized left-and-right linear switch. This is a welcome change, since many riders had unhappy relationships with the old-style switches.

Parking lights are standard, front and rear. A separate four-watt lamp shines in the front headlight shell, and at the back the standard running light does the job. As a fail-safe measure, separate single-filament bulbs provide the stop and running lights.

Engine performance, in terms of massive, high-rev horsepower and torque, is something that BMW has not spent a great deal of time pursuing. The company sees its motorcycles as jacks-of-all-trades, not ultimate earth-shakers or jet airplanes. BMW views its motorcycles as pleasant machines with balanced performance.

As a result, the BMWs make conservative amounts of horsepower over broad rpm ranges. Our R65 pulled smoothly, in part because of its CV carburetors, from practically idle up to its redline, with few vibration incidences. Due to the 650's light internal engine components, different cam timing and shorter stroke, it *will* spin past its redline. The 650 has only one powerband segment that is in the least bit

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bothersome, and this range is between 4300 and 5000 rpm. Unfortunately, it interrupts the R65's top gear cruising range: 63 to 73 miles per hour. Usually a downshift will take you out of this range if you're in top gear, and if you're in a lower gear, a downshift or an upshift will do the trick.

If comfort is your bag, the R65 will make you ecstatic. Its 31.7-inch-high seat is incredibly comfortable for practically any amount of time, and it has enough area so you can move around, even while carrying a passenger. The footrests and handgrips are covered with thick rubber that goes a long way towards insulating you from unwanted engine or road vibration. And the R65 is smoother than its bigger brothers, because its engine has less reciprocating weight.

In terms of sheer riding pleasure, the R65 is hard to beat, particularly if you haven't got anywhere you want to go in a great hurry. It offers a superb riding position, good (to a point) handling, smooth-working controls and quiet operation. And the maintenance required is simple to do; with the exception of the ignition points and air filter, all service areas are easy to reach. Should necessity ever call for new top end components, they (and the big end bearings) can be replaced with the engine still in the frame.

There are concessions, as with any motorcycle short of a pure competition model. The R65's twisty-road handling leaves something to be desired and its power output is not impressive. These are the motorcycle's only dissuading features. Except, of course, that its price-tag is still heftier than its 650cc competition's. There aren't any other 650s, of course, that have the same weight/comfort/quality elements that the R65 has. The four-cylinder 650s—the Honda CB650 and Kawasaki KZ650-B3—are aimed at a more sporting clientele that prefers engine performance to luxury-car comfort. The XS650 Yamaha, in its 2F version, is the bargain bike of all 650s, but it's hard to see how it really competes with the BMW and the fours. Of course, you can look at the R65 another way; what does $3445 buy in Oriental tourers? Many things—the Kawasaki KZ1000-A3A, Suzuki GS-1000N, and for five dollars more, a Yamaha XS1100F—to name a few. And in two instances you'd have enough change left over to buy saddlebags or a fairing. On the other hand, you wouldn't have a lightweight 453-pound, shaft drive cycle that's as comfortable as anything on two wheels.

You can devise all sorts of charts and graphs to calculate dollar-to-feature trade-offs, all of which might prove that you could make a better dollar-and-cents buy elsewhere in motorcycling. The guy who wants a BMW probably doesn't care. If affording one has been his problem, the R65 is the solution. ◉