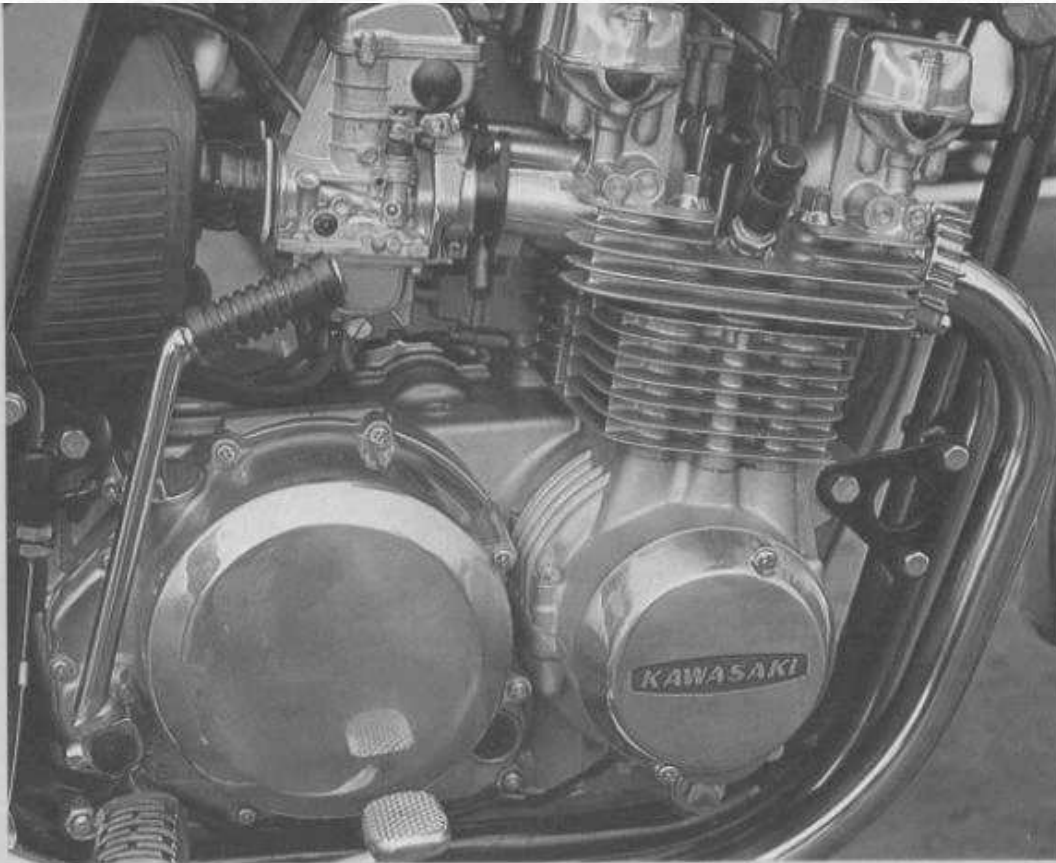


KZ650 Road Test ~ Cycle Guide - December 1976



KAWASAKI KZ650 FOUR

By refining previous innovations and learning from earlier mistakes, Kawasaki has built a really fine new motorcycle without the need for any techno-trickery.



Kawasaki, as a motorcycle brand name, has had at least two big things going for it in its decade-old history: Its reputation for building extremely fast street bikes and the Z-1, motorcycling's most awesome superbike.

Knowing those two things, and then looking at the KZ650's performance figures and price tag, it all starts to make sense. Because you may be wondering like we did when we first heard of this new model, "Why a 650?" or "Why a 650 Four in particular? And why does it look just like a Z-1?"

Kawasaki's reasoning in this case was pretty sound. The idea was to capitalize on the fantastic success of the Z-1 (now called KZ900 or KZ1000) by building a companion bike, a "little brother" that, like the Zee, could outrun anything in its neighboring size range. And the finished product was to look as much like a Z-1 as possible without suppressing its own identity. So if you turned to this test and thought at first you were looking at a Z-1, that was no mistake—at least not by Kawasaki.

The displacement selection is quite another story, however, because instead of emulating the Z-1, originality was the goal. Many companies either had (or could be foreseen to have) a 750 four or three, but no one had a 650 four. So if its engineers could design a 650 that was cheaper but faster than the 750s, Kawasaki would have executed another stroke of high-performance genius. Also, Kawasaki's street line already contained a 750, the KZ750 twin, and the marketing people felt a second 750 would just dilute the potential of both bikes. So a 650 it was.

And indeed, a fast 650, a not-so-mini-superbike, is what Kawasaki has built. But



unlike some previous missiles from the Big Green K, it appears that the chassis has been given near-equal consideration this time. The power/handling balance is far better than that on any of the legendary Kawasaki two-stroke street burners, and it's even a great deal better than on the highly-acclaimed Z-1.

The best news comes in terms of dollars and cents—1995 dollars and no cents, to be exact. That's the suggested list price for the KZ650, which makes it the least expensive of the bikes in its class. That's not the best thing you can say about a motorcycle—that it's cheap—but it's certainly a point in its favor.

THE BIKE: The KZ650 is powered by an air-cooled, four-cylinder, four-stroke, double-overhead cam engine displacing 652 cc. Each 163cc cylinder has a 62mm bore, 54mm stroke and a 9.5:1 compression ratio. And each is fed by its own 24mm Mikuni slide/needle carburetor.

The dual cams are driven in the middle of the transverse engine by an endless chain which threads its way over, under and around a series of roller-type guides and sprockets. The chain tensioner is spring-loaded, but adjustments must be made periodically by the owner or dealer. Of special interest is the method of adjusting the valves, which are operated by the

cam lobes pushing directly on hardened steel tappets atop the valves. This is the same concept used by the Z-1, but the method of adjustment differs. On the Zee, adjusting shims fit into recesses on top of the tappets, but on the KZ650 the shims fit *under* the tappets. Which means the entire cam and tappet must be removed to adjust each valve clearance.

The factory is aware that this will be a harder, longer and more expensive job to perform; but Kawasaki wanted the 650 to meet current noise standards, and felt the new arrangement was necessary to reduce mechanical noise caused by the cams rubbing directly on the shims. They also claim the valves need adjusting less frequently with the new method, since the tappets can handle the load-wear better than the shims.

Actually, there are numerous areas of the 650 which have been engineered for mechanical quietness. The crankshaft, for instance, is a one-piece forging that uses plain main and rod bearings. Not only is this arrangement less clankety than the Zee's roller-bearing, pressed-together crank, it's cheaper to build, to replace and to repair. And for all practical purposes, it's just as reliable.

The primary drive, too, was designed with quietness in mind. The center of the 650's crankshaft drives a quiet Hy-vo primary chain which turns a jackshaft just behind and below the crank. With straight-cut gears, the jackshaft then spins the big wet clutch and five-speed gearbox.

The dual breaker points and spark advance mechanism are out at the right end of the crankshaft and the big AC generator is on the left. A gear-driven oil pump circulates 3.7 quarts of 10w/40 lubricant, and a cartridge-type oil filter on the bot-

PHOTOGRAPHY: ART FREDMAN

tom of the cases cleanses the oil just before it reaches the critical parts.

The KZ650 uses a four-into-two exhaust system which accomplishes many tasks. It is lighter, allows for more muffling and baffling per muffler and heats up quicker, somewhat deterring the corrosion which ruins many four-pipe exhaust systems on bikes used for short trips. It's also cheaper and provides a styling variation other than four pipes or four-into-one.

The KZ650 frame looks much like that of the Z-1. The double front downtubes spread wide to cradle the big engine, with a single main backbone and two lower backbone tubes under the tank. A huge gusset on each side strengthens the steering head and a smaller double-walled gusset reinforces each swingarm pivot. The swingarm itself is similar to the Zee's, but the pivot area is fully boxed for a minimum of flex.

The front suspension units look like the Z-1's, with polished alloy sliders and 6.1 inches of wheel travel. The rear shocks were designed exclusively for this bike and allow the back wheel to go up and down a total of 3.4 inches.

One single-action hydraulic disc brake on the left side of the hub does the front braking chores and a rod-operated single-leading shoe drum brake handles the rear. A 3.25H19 Dunlop ribbed tire sits up front and a 4.00H18 Dunlop K87 holds up the rear.

KZ650s come in two colors: Dark candy red and candy green. The 4.4-gallon gas tank is steel and the rear tailpiece and push-on side panels are plastic. Both fenders are chrome-plated steel. And the dual seat is softly padded and covered with black vinyl.

The instrumentation is quite conventional, including a tach, speedo, resettable tripmeter and bank of warning lights. The ignition key is where it belongs, up on the instrument cluster in front of the handlebar mounts.

The KZ650 is in no way radical, innovative or technologically sophisticated. It is just a plain, straightforward motorcycle that has been well engineered and executed. It is quite attractive in a distinctively Kawasaki-ish way and looks proportionately more lithe and nimble than the bigger Z-1.

ENGINE AND GEARBOX: The KZ650 is fitted with a clutch lever starter interlock, so the electric starter will not function until the lever is squeezed in, even if the gearbox is in neutral. Once you figure that out (nobody ever reads the manual first, right?) the engine will fire up

at the touch of the starter button—if it's warm.

After it's been sitting a while, the KZ650 is one of the most cold-blooded motorcycles we've tested in recent years. It starts easily enough with the "chokes" on, but there is a certain point during warm-up where those starter enrichment circuits on the carbs seem too rich, and where shutting them off makes the mixture too lean. The bike is difficult to ride when it's this way, so you're better off to just sit for a moment or two and let the engine warm up.

The 650 is somewhat unusual for a contemporary large-displacement motorcycle in that the engine feels peaky. Not peaky like a 125 roadracer, but peaky to the extent that there is a certain place in the powerband where things start happening. That place is somewhere around 5000 rpm, depending upon what gear you're in. The engine runs quite agreeably below that rpm, however, although it isn't fond of full throttle below 3000 or 3500. If you whack the twistgrip wide open at that rpm, the engine stumbles badly and usually dies. If you dial the throttle open gently from low rpm, the engine gets a chance to catch its breath and thanks you by responding nicely.

In its maximum power range (5000 to 8500 rpm), however, the KZ650 does business—big business. It revs so quickly in the first two gears that you must be careful not to accidentally exceed the maximum rpm. And the acceleration in that rpm band is

forceful enough to make the bike feel like it's in the superbike class, even though the screech of the engine sounds more like that of a small-bore four like a Honda CB400F.

The 650's dragstrip performances were slightly slower than our initial estimates, but after careful consideration we believe we figured out why. In its powerband, the bike accelerates like it *could* do a high-12 or 13-flat quarter; but it's a little weak right on the bottom, so it doesn't get off the line with a vengeance equal to that of the rest of the acceleration down the strip. The 650 also fades a bit near the top of fourth and fifth; so even though the bike can peak out at 114-115 mph consistently on the top end, the acceleration in the very late stages of the quarter-mile strip is not as aggressive as it is in the middle.

Regardless, the KZ650 feels—and actually is—very fast on the streets and on back roads. You must ride it like a smaller bike, rowing at the gearshift and all, to extract the best performance out of it, but the power is there and fun to use.

The KZ doesn't do top-gear-only passes with exceptional swiftness, which means picking off the four-wheelers on the highway is most hurriedly done with a downshift or two. Packing double will also have you tapping away at the shift lever like a hayseed at a hoedown when there is the need for urgent passing or if a lot of steep hills are in the vicinity.

Despite its meager low-rpm torque, the 650 carburetes well enough to run around city streets happily in fifth gear—provided,





of course, that you don't need any great bursts of power or do any throttle-whacking. The engine is turning only about 3000 rpm at 35 mph, so a quick snap to WFO will bog the engine completely.

Starting off on the 650 is not quite as easy as pulling out on a Z-1 or other big high-torque bikes. The engine will stall unexpectedly if you don't use sufficient throttle and the clutch engagement is just sudden enough to cause a mild lurch if you don't play it right. This isn't a problem as much as it is a characteristic of the bike unless you're riding two-up. Then, pulling out on uphill grades can be a little testy until you get the hang of it.

The KZ650 isn't very loud (81.8 decibels), and it isn't very hungry, either. We averaged 48.6 miles per gallon during our

test, with a high of over 50 mpg on an easy cruise and a low of around 42 mpg on a back-road chase. So a tank of petrol should carry you about 185 miles between fill-ups.

The gear ratios on the KZ650 are spaced to perfection. The ratio gaps are so even that the rpm drops between gear changes are almost dead equal. The way the ratios make optimum use of the engine power is one reason the bike performs so well.

The 650 also shifts with unusual smoothness. A short tug with the left foot seems to engage the next gear almost as soon as the lever begins to move. And a positive stop device built into the selector mechanism makes overshifting (passing through a gear into a false neutral) unheard of on this bike.

HANDLING: Although the KZ650 has the same basic chassis layout as any other four-cylinder bike of its size, it handles better than the others in most ways. The biggest single reason for this is the center of gravity, which feels a little lower on the KZ than on comparable motorcycles, and a lot lower than on the Z-1.

The KZ uses the same wheels, fork, tank, lights, instruments, etc., as the Z-1, so the 41-pound weight difference between the two isn't much. The exhaust system is a bit lighter, but the biggest weight reduction is in the KZ's engine, which is shorter, more compact and considerably lighter than the Z-1 engine. So without such a big, concentrated lump of metal to carry around, the chassis can feel lighter and be lighter. The frame and swingarm also are more rigid on the KZ, so there is less of the flexi-flyer action that bothers the Zee in hard, fast corners.

The KZ650 responds and maneuvers delightfully, fully unaware that it is a wide, tall, 472-pound motorcycle. The steering geometry seems a nice balance of stability and maneuverability, so you can do a full-lock U-turn or tuck in one-handed behind the instruments at over a hundred without feeling like the victim of a design compromise. There's no need to muscle the bars to force the bike into a turn, nor is it required to exert pressure on the grips to keep it from turning *too* much. A very, very slight bit of roll steer pops up now and again but it never amounts to anything worth worrying about.

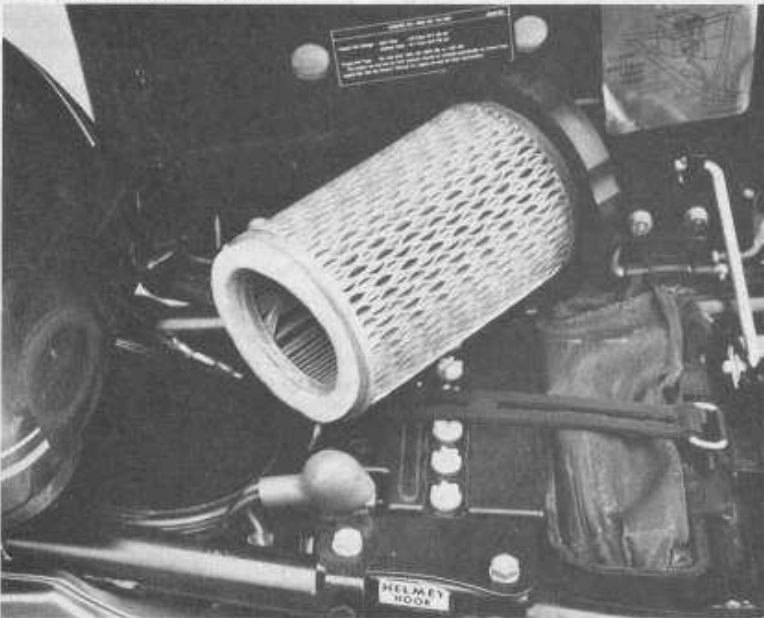
If back-road play racing is your trip, the KZ will surprise you with the ease of lean and accuracy of line it exhibits when you swoop into a demanding turn. There is little tendency for the bike to drastically drop inward or sit up as the throttle is regulated, making it a cinch to hold your chosen line.

We had a chance to spend several hours racing a stone-stock KZ650 around Fuji International Speedway in Japan a month ago and were quite impressed with the cornering angles allowed by the standard Dunlop tires, as well as the cornering angles allowed by the chassis. It took a truly berserk 100-mph right-hand WFO sweeper and a couple dozen laps of practice to drag anything on the right (the footpeg and exhaust pipe shield); and were it not for the centerstand foot bar, the left side would have given equal cornering clearance. On the street, only the centerstand grounding could cause any concern.

The 650 misbehaves only in one or two ways: First, it *will* sometimes wobble if accelerated hard at severe lean angles or



The centerstand foot bar grounds on hard left-handers, often making the rear of the bike skitter around.



To replace the cartridge-type air filter element, raise the seat and twist the element out.

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on very hard high-speed turns, but not every time; and second, the front fork seems a bit flexible, allowing the front wheel to "hunt" when crossing tar strips or pavement transitions at sharp angles, or when using the front brake to its maximum capacity.

Under more mundane circumstances, the 650 behaves in an impeccable fashion. City street corners, freeway on-ramps or curvy roads are all rounded without complaint and with little work on the part of the rider. Even maneuvering through rush-hour traffic or slalom-ing out of a crowded parking lot, you're left wondering where the hell that 472 pounds is because it certainly doesn't feel like you're sitting on it.

The front suspension works nicely on medium-sized bumps and almost as well on the big ones. The small chops are not absorbed very well, so most of their jolting gets plugged right into the chassis.

The rear shocks are decent on the small and medium bumps, but there isn't enough travel back there to fend off the large ones. The biggest gripe with the shocks, though, is their apparent lack of damping, especially in rebound. This is probably the largest single cause of the high-speed wallow we described earlier. Both ends of the bike are at least sprung tautly enough to prevent premature grounding on hard corners due to extreme suspension compression.

The KZ650 does a little wiggle on rain-grooved roads. However, if you watch closely you'll see that the handlebars jiggle back and forth while the rest of the motorcycle goes along unaffected. So the grooves affect the rider psychologically more than they bother the direction of the motorcycle.

Wind gusts hardly affect the 650. Of course, most big motorcycles aren't bothered by wind too much and there's no way the KZ650 could be accurately defined as "small."

COMFORT AND RIDE: The KZ650 has one of the better seats for a bike of its type, and a very smooth engine. Together, they, more than any other factors, make the bike a pleasant one to ride for long periods.

The KZ's seat is stuffed with some unusually supple foam sheathed in an uncommonly thin seat cover. At first it feels too flimsy but later proves to give good support and cushy comfort.

The seat/peg/handlebar relationship is in the ball park for most people even though a couple of our testers felt the bars were too high. We also didn't care for the grips, in terms of shape, pattern and material.

The KZ650 engine is one of the smoothest fours in the business, producing very little in the way of bothersome engine

vibrations. There are some teeny vibes near 4000 rpm and a few bigger ones above 6000. Still, they're nothing to get bent about, since the engine is otherwise very smooth. Oddly enough, though, the left mirror vibrated more intensely and more often than the right one, even when we dampened the left handlebar by grabbing it tightly with a fist.

The KZ650 is delivered without the turn signal beeper that is standard on the 900 (which many people don't like) or the positive-stop neutral finder also found on the 900 and a few other Kawasakis (which most people *loved*). The neutral finder was sorely missed by anyone who had ever spent much time on a Z-1, especially since we occasionally had trouble finding neutral and getting the neutral light to come on once we did.

The 650's ride is pleasant by current standards—partly due to the suspension and partly because of the seat. The suspension offers only a slightly better-than-average ride, and the seat is good enough to iron out most of the bumpings that make it past the fork and shocks. The remainder of the jolts are then the sole property of the rider, who gets them either in the lower back or forearms, depending upon which wheel they came through. Fortunately, not much real punishment reaches the rider, so he can spend quite a number of hours in the seat before getting tired.

BRAKING: The Kawasaki has decent braking systems which can bring the bike to a halt—either screeching or non-screeching—in a competitive span of distance and time.

The front brake squeals and squeaks a lot, but it does the job when you tell it to stop the bike. The brake is responsive to the rider's commands without being overly touchy, so the chances of locking the front wheel are not very great. Abusive hard use will make the front brake fade, but you're still never in danger of running out of brake power.

The rear brake is also pleasingly competent and able to stop the rear Dunlop without skidding along the asphalt—well, usually, anyhow. Like any big street bike that has a rear brake with any reserve braking power, the 650's rear stopper can surely lock the wheel if you're too heavy-footed on it. With a little discretion, the KZ's rear drum will stop you all day long without locking up.

The KZ produced some decent panic stops from 30 and 60 mph; but doing those stops is where we most noticed the fork flex and subsequent front wheel "hunt," especially from 60 mph. We never got out of control, but it felt rather spooky the first few times it happened.

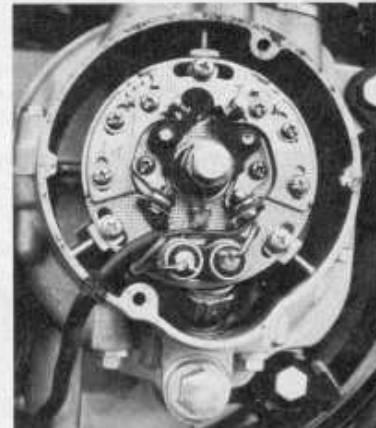
RELIABILITY DURING TEST: Our test KZ650 suffered two problems of a mechanical nature during our test, the first



Replacing the idiot-light bulbs is simple. Just unscrew the plastic ring around the ignition switch and pop the light cover off.



The four 24mm Mikunis carburete crisply when the engine is warm, but the KZ is extremely cold-blooded and reluctant to respond until it reaches full operating temperature.



The oil pressure sending switch is located behind the ignition breaker plate, which means replacing the switch also requires retiming the ignition.



The 652cc engine is powerful for its size in the 3500 to 8500-rpm powerband, although the response is a little weak below that speed.

of which was a seized fuel tap. There our intrepid staffer was, hurtling down the freeway at 55 mph in heavy traffic, when suddenly the engine sputtered. "Uh-oh!" he muttered, "Out of gas." Unworried, he reached down to flip the lever up to Reserve, but it moved about halfway . . . then seized tighter than an old Bultaco running on straight gas.

After dodging skidding automobiles, our tester finally reached the safety of the shoulder, where he then literally forced the lever into Reserve. It would move back down to On or Off quite easily, but getting it up to Reserve was always a two-handed hassle. We have ridden other KZ650s that didn't do this so we assume it was just a quirk of our test bike.

Our 650 (and a few others we've seen) also took fits of blowing billows of smoke out the exhaust pipes. It usually happened at the conclusion of a very hard run, and generally was worst with the crankcase full of oil. As the oil level got lower (the bike used a pint every 200-400 miles) the smoking became less frequent. It doesn't appear to be a disastrous matter, since the dozen or so KZ650s we've seen have also smoked like this, but no problems have arisen because of it.

CONCLUSION: The Kawasaki KZ650 is an impressive motorcycle. It feels big in the areas where bigness is a plus, but it also feels small where lightness and maneuverability count. It's comfortable enough for long rides yet taut enough for decent sporty play racing. It looks expensive but doesn't cost an arm and a leg. And despite its excellent mileage, it goes very fast—much faster than any stock 650 ever did, and about as fast as any '76 750.

Which brings us to an interesting point. Kawasaki has advertised the KZ650 as being able to "out-perform any 750 in the world"—and we presume they mean 750 street bike. Unfortunately for Kawasaki, there are two new 750s—the Suzuki GS750/4 and new Honda CB750F2 Super Sport—which will undoubtedly make that claim obsolete. The Suzuki will for sure; and although no magazine has yet tested the Honda, we've ridden it and are sure it, too, will be faster.

But it's a moot point. All those bikes are so close in performance that three evenly-matched riders would have to race them for miles and miles to get them a few feet apart. How many people do that?

So even if it does prove to be the slowest of the trio, what difference does it make? It's still a damned nice motorcycle that will have extra appeal to many people because it sells for a lot less. No, it's not a Z-1 beater, but for most riders it will be a whole bunch easier and more fun to ride and handle than a Z-1. And it gives the rider the illusion of being *almost* as fast as a Z-1.

We really like the Kawasaki Zees, but in this case we have to agree: Smaller *is* better and less *is* more. **F**



SPECIFICATIONS

Engine type	four-stroke
Cylinder arrangement	in-line vertical four
Valve arrangement	double overhead camshaft
Bore and stroke	62mm x 54mm
Displacement	652.1
Compression ratio	9.5:1
Ignition	battery/dual point/dual coil
Charging system	12-volt alternator, rectifier, voltage regulator
Carburetion	four 24mm Mikuni slide/needle
Air filter	disposable paper element
Lubrication	wet sump, 3.7-qt. (3.5L) sump capacity
Primary drive	Hy-vo chain, 1:17 ratio
Secondary drive	straight-cut gears, 2.17:1 ratio
Clutch	wet, 7 drive plates, 6 driven plates
Starting system	electric and kick-in-neutral
Transmission	5-speed, left-foot shift
Overall drive ratios	(1) 15.62; (2) 10.93; (3) 8.51; (4) 6.97; (5) 5.97
Transmission sprocket	16-tooth
Rear wheel sprocket	42-tooth
Drive chain	5/8-in. pitch, 5/8-in. width (#530)
Front fork	6.1 in. (155mm) travel
Rear shocks	5-way adjustable, 3.4 in. (86mm) rear wheel travel
Front brake	single-action hydraulic caliper, 11.8-in. (300mm) diameter disc
Rear brake	drum, single-leading shoe, rod-operated
Front tire	3.25H19 Dunlop F6
Rear tire	4.00H18 Dunlop K87
Frame	tubular steel, double front downtubes
Steering head angle	27 degrees from vertical
Front wheel trail	4.25 in. (108mm)
Wheelbase	55.8 to 56.8 in. (141.7 to 144.3cm)
Length	85.5 in. (217.2cm)
Weight	472 lb. (214.1kg)
Weight distribution	46.4% front, 53.6% rear
Ground clearance	6.1 in. (155mm), at exhaust pipes
Seat height	32.3 in. (820mm), unladen
Handlebar width	30.4 in. (772mm)
Handlebar grip height	42.4 in. (107.7cm)
Footpeg height	12.4 in. (315mm)
Instrumentation	speedometer, tachometer, odometer, tripmeter resettable in tenths
Speedometer error	30 mph indicated, 29 mph actual 60 mph indicated, 58 mph actual
Gas tank	steel, 4.4 gal. (16.7L)
Gas consumption	48.6 mpg (20.7 km/L)
Best 1/4-mile acceleration	13.45 sec., 97.7 mph
Stopping distance from 30 mph	32 ft. 11 in. (10m)
Stopping distance from 60 mph	133 ft. 6 in. (40.7m)
Sound level per SAE J331a	81.8 db(A)
Suggested retail price	\$2010 East Coast, \$1995 West Coast

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