Cycle Test

KAWASAKI KX125

With just a few changes to the KX, Honda will no longer dominate the 125 class

PHOTOGRAPHY: DALE BOLLER, LARRY WILLETT

● This one is for motocross only. The Kawasaki KX 125 won't double as a weekend playbike or desert sled because the powerband is far too narrow. Even for motocross you'll need tap dancing lessons to give your feet the speed they need to keep the gearbox in step with the engine. A good rule of thumb is to downshift twice every time you roll the throttle off.

This fancy footwork isn't necessary because the KX 125 is lacking in peak power. All the shifting is required because the KX 125 has a torque band considerably narrower and more feeble than certain other 125s—most notably the DKW and Honda Elsinore. At 6500 rpm the Honda produces 10.0 foot-pounds of torque compared to 6.23 for the Kawasaki. Torque peaks are 10.72 at 8000 for the Elsinore and 9.48 at 8500/9000 for the Kawasaki. Nevertheless, a good rider with a well-oiled left ankle can win with the KX 125, and even beat an Elsinore, but he'll have to work harder.

Anyone with experience on a 125 has long ago built up a crusty callous on his shifting foot, so he'll probably learn to cope with an extra few shifts per lap. Excellent handling—which approaches the best in its class—offsets the Kawasaki's narrow torque range and really helps it win races. Chassis performance easily rivals the 125 Husky and certainly matches an Elsinore or Suzuki. In short Kawasaki has leapt into the 125 class with a bike capable of winning in the hands of a good rider. But why should a good rider use his skills to help the Kawasaki win when a couple of other bikes in the class can help the rider win by offering him a better engine?

Throughout our testing that question kept popping up. It first surfaced when a few little things went wrong; the question loomed awesomely when the big-end bearing self-destructed. Kawasaki may have rushed the release of this bike so it could complement the KX 250 and KX 450 production models this year. Whatever the reason, Kawasaki is in the unique (and to some manufacturers, enviable) position of releasing a bike that is immediately competitive. But the bike needs more work, which of course the giant Japanese conglomerate can afford to give it in short order. It's a shame that next year's models will presumably be perfected at the expense of this year's customers. But consumers end up doing the final R & D on any new product.

An expert can parlay good handling into a win, but the novice is hindered by a pipey engine.

Both the 250 and 450 KX models received extensive prototype development in America and successful testing in actual competition by Jim Weinert and Brad Lackey. Stateside R & D did not help develop the 125 at all. Even the bike which Eddie Cole (Kawasaki's 125 MX teamster) races now is nothing more than a pre-production model that is almost identical to our test machine and the ones customers will be able to buy.

The KX 125 is Japan's baby all the way. In fact Kawasaki's headquarters thought enough of the engine to build an entirely new enduro around it (the KS 125) to replace the old F-6, which was already one of the best in its class. Somehow, the KX lost the real advantage of rotary-valve design: to widen a powerband without losing great percentages of peak power on either side of the maximum power rpm figure. A wide powerband should be inherent with a rotary valve; as the spinning disc closes, the crankcase is sealed tightly and no charge can escape back through the carburetor. A piston-port engine relies on resonating pressure waves in the inlet tract to trap the charge, and since these waves vary in efficiency according to engine speed, rather large amounts of power and torque are lost at other than optimum revs. The KX 125 rotary-valve engine should outpower piston-port designs.

Yet without the advantage of a rotary valve, Honda's Elsinore has more peak horsepower, more peak torque and more torque at every point between 6500 revs and 8500 revs than the Kawasaki ever does. Without its good handling the KX-125 wouldn't stand a chance. Without a good rider to exploit that good handling the bike won't stand a chance. That's why it needs more work.

As soon as Kawasaki sneaks a few more pounds feet of torque into the upper rev range, the KX will be a winner because the rider will be able to concentrate on racing rather than shifting. He might even be able to take an inside line and muscle out of a corner instead of riding the berm just to stay on the pipe. In order to win, it's really important for a rider to be excited about his bike. Right now the little

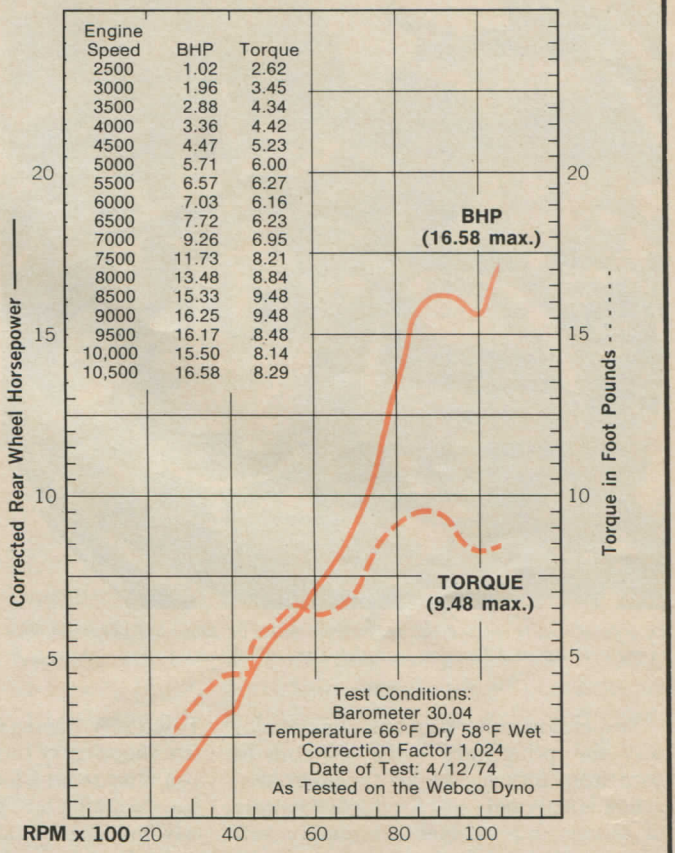
Kawasaki excites only because of its tremendous potential.

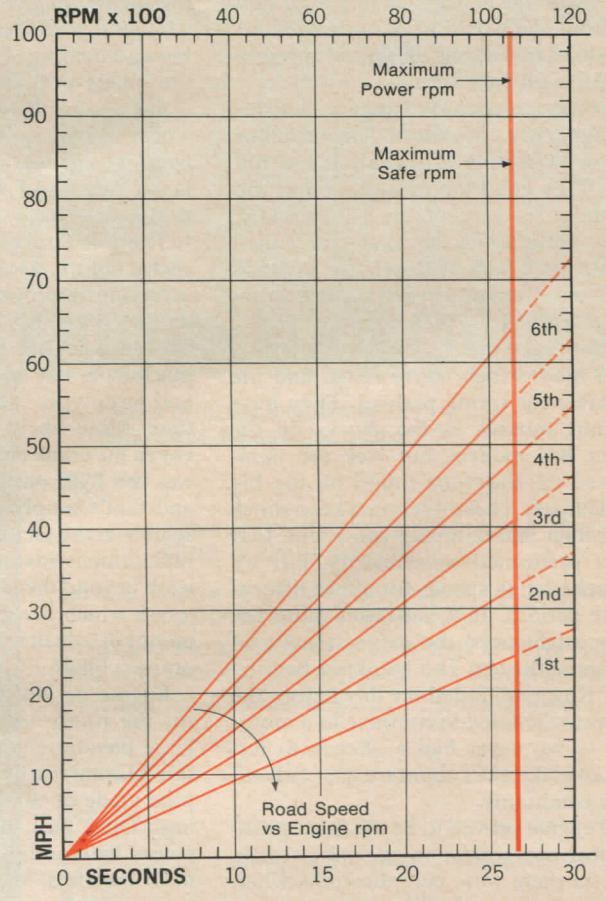
General specifications are extremely straightforward and typical for the category but here and there neat little touches make the Kawasaki different. Take the wheels for example. D.I.D. rims lace to alloy hubs with 36 spokes in a cross-two pattern everywhere except on the right front side which crosses three times. Rim locks clamp the tire beads twice in back and once in front. There isn't a cheapo tire in sight. On the rear is the superb new Dunlop Senior which has knobs half-way around the sidewalls and sticks like a dart in corkboard. Certainly a fair percentage of the bike's fine handling can be attributed to this tire and the way the Senior works in harmony with the standard Dunlop Sports Stud up front.

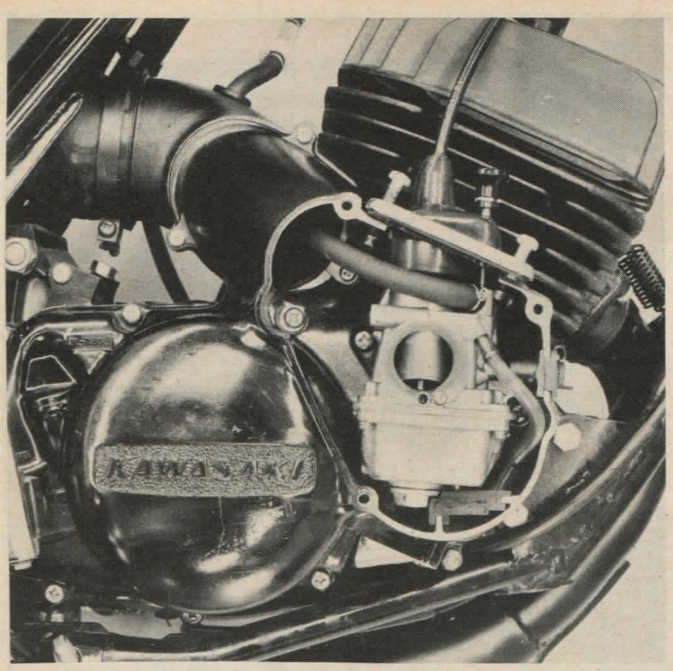
Inside the black anodized hubs are smallish brake shoes which nevertheless do a quick job of slowing the bike. Quickness is all part of the 125 racing experience—you don't settle into a smooth, fluid rhythm as is possible on certain big bikes—you climb on top of a 125 and it flails beneath you for half-an-hour. You click in a million inputs to stop it from doing what it tries to do. The rider with the fastest reactions will avoid trouble more often than the guy who finishes second. A racer needs good brakes for this kind of high-input riding, and so the KX 125's lap times are aided by marvelously strong, quick-acting brakes. Neither hub is water tight, but dragging the brakes burns away water quickly compared to some brake lining compounds which, once soaked, don't recover stopping power for half a lap or more. Finally, the cable operated rear brake provokes minimal hop and clatter at the wheel when applied in bumpy sections even though it is not fully floating.

KAWASAKI KX 125 MOTOCROSS

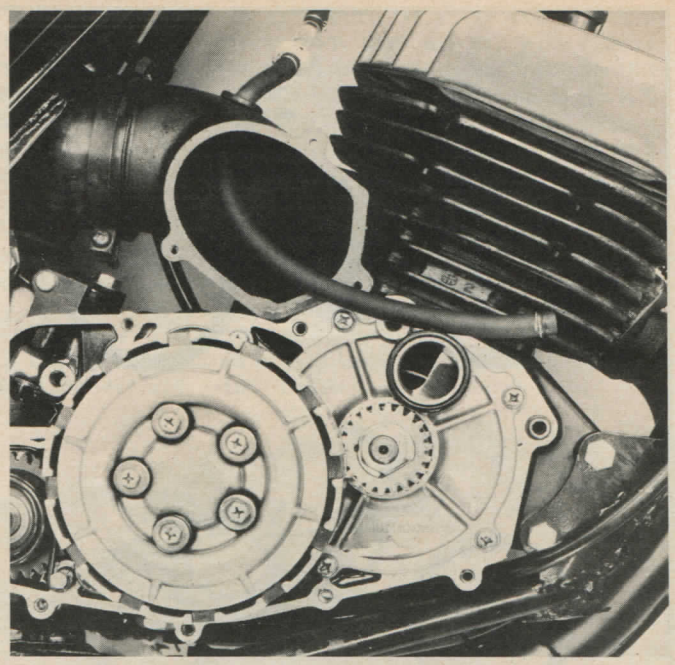
Price, suggested retail	$840
Tire, front	3.00 x 21 Dunlop Sports
rear	4.00 x 18 Dunlop Sports Senior
Brake, front	4.72 in. x 1.1 in. (120 x 28mm)
rear	5.12 in. x 1.1 in. (130 x 28mm)
Brake swept area	33.98 sq. in. (219 sq. cm)
Specific brake loading	10.57 lbs./sq. in., at test weight
Engine type	Two-stroke rotary valve single
Bore and stroke	2.20 x 1.99 in. (56 x 50.6mm)
Piston displacement	124.8cc
Compression ratio	8:1
Carburetion	1; 26mm; Mikuni
Air filtration	Fuzzy polyurethane foam
Ignition	Magneto CDI
Bhp @ rpm	16.58 @ 10,500 rpm; actual
Torque @ rpm	9.48 @ 8500/9000; actual
Rake/Trail	31°/5.09 in. (129.3mm)
Mph/1000 rpm, top gear	9.39 mph (15.1km/h)
Fuel capacity	1.7 gal. (6.5 liter)
Lubrication	32 to 1 Torco 50w Racing
Transmission oil capacity	.71 qt. (.67 liter)
Gear ratios, overall	(1) 32.86 (2) 24.46 (3) 19.25 (4) 16.50 (5) 14.46 (6) 12.88
Primary transmission	Spur gear 3.14:1
Secondary transmission	1/2 x 5/16 D.I.D. chain 60/13 4.6:1
Wheelbase	53-1/2 in. (136cm)
Seat height	29 in. (73.7cm)
Ground clearance	5-1/2 in. (14cm)
Curb weight	199 lbs. (90.27kg.), with a full tank of gas
Test weight	359 lbs. (162.8kg.), with rider
Top speed	63.58 mph







In a rotary valve engine the carburetor must be mounted perpendicular to the cylinder at a location just above the flywheels. A cover protects it.



Removing the clutch cover frees the carburetor and exposes the partially open rotary disc valve. Air reaches the carb through the large metal tube.

Suspension suffers in only one major way—the spring rates of the two coils in each front fork leg are so far apart that action is extremely soft for the first couple of inches and suddenly extremely stiff when the longer, thicker coil comes into play. There is nothing progressive about this transition. Return damping has the same two-stage effect—fast and then slow. The front end would have more even and consistent transitions if it had progressively wound fork springs.

In other respects the highly polished telescopics work as expected on a machine capable of running with Pentons and Bultacos. They don't top or bottom and useable travel is an acceptable 5 inches. Only the most murderous jumps will force them into the sixth inch of travel; for the most part that's a consequence of the stiff spring and rather heavy 5W20 oil.

In the rear the shocks move nicely within their 3-inch travel range and are adjustable for spring preload. They have the same innards as the shocks on the heavier KX models, but lack the hammerhead oil reservoirs found on the big bike dampers. These reservoirs keep shock fluid cooler and damping consistent. Our shocks performed satisfactorily, but we only held racing speeds for about fifteen-minute periods. In a half-hour moto the shocks might need the extra capacity of the hammerheads. The crankpin bearing in our Kawasaki failed the day before the bike was scheduled to compete in a motocross, so we never had a chance to test the Kawasaki 125's shocks under full-tilt racing conditions.

The engine proved to be the most problematical component in the motorcycle. Early on there were complications when Kawasaki instructed us to use nothing but Torco 50W Racing Oil mixed 32 to 1. Very few shops carry this relatively new oil, so you must scout a lot to find a retailer who has the stuff. Once gassed and oiled properly the engine ran beautifully for five tankfuls of fuel—about three races. Then it started to lose its edge. Shortly thereafter came a minor piston seizure, and in pulling off the barrel to survey the damage, we found 3/16-inch of vertical play in the big-end bearing. The flywheel adjacent to the intake port was blue from heat, the thrust washer between the cases and flywheel had disappeared, and the big-end bearing cage was in the extremity of collapse. Shades of Kawasaki's old Centurion and its early problems.

There are several probable causes for such a failure. At worst a design deficiency involving improper bearing speed could destine every KX 125 to a rattling stop. The broken big end on our particular machine is not an isolated instance; several prototypes suffered the same misfortune. More likely the side clearance between the crank cheeks and thrust washers was too tight on this particular machine, and that's simply a case of improper assembly at the factory. Regardless of cause, replacement involves splitting the cases, a job beyond the average motocrosser and a task which involves plenty of time and money at a dealer. There are no warranties on race bikes.

Engine design is unremarkable except for the rotary valve. Air travels from a large plenum chamber under the seat to the Mikuni carburetor through a huge pipe made of three immaculate die castings. Once past the rotary valve, charge enters the combustion chamber through three transfers, one of which occupies the

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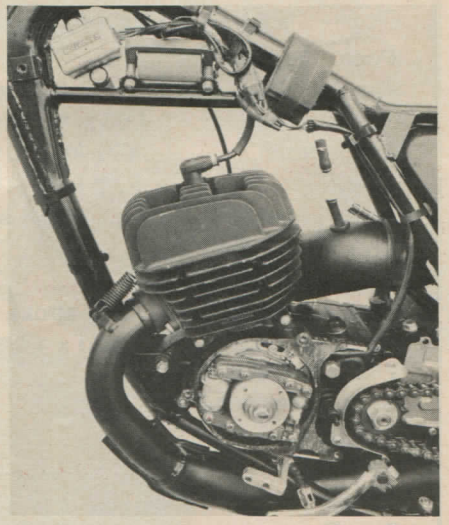
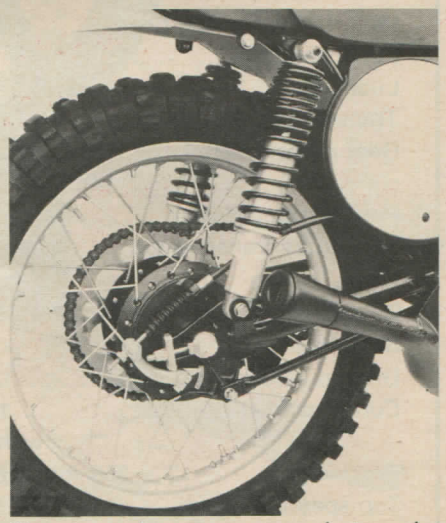


The entire electronic ignition is seen here. Heavy frame gusseting steadies steering head.



There is no advantage to a tapered stinger that we know of, so Kawasaki may be after looks alone.

space normally taken up by an intake port in non-rotary-valve engines. A bridged exhaust port with semi-circular cut-outs at the top (a la Honda Elsinore) completes the porting arrangement.

Rather than employing a steel liner or chrome bore in their cylinder, Kawasaki coats the inside with a thin layer of metal sprayed directly onto the aluminum. Pressures used in application are so high that the process is called "explosion spraying." Advantages are lower costs for Kawasaki—and tighter piston clearances since there is no expansion differential between the spray and aluminum. Unfortunately, a scored cylinder can't be repaired, so every seizure or broken ring could mean replacement. The cylinder costs $63.80. Kawasaki's low slung expansion chamber with its unique flared stinger isn't much of a silencer. The KX spits out an ear-splitting crack seemingly beyond being tamed by muffling. The bike will be banned at any track with a decibel meter. If this happens, don't look for a bolt-on accessory silencer because none will fit the odd-shaped stinger. It's yet another area for further development by Kawasaki.

Power is transmitted through a gear-drive primary to a 10-plate wet clutch controlled by five springs. The clutch meters power in a smooth, clean manner so you can hurtle off the line at near peak revs in first gear and then immediatley shift without ever having let the clutch all the way out. The technique is good for bogless, spinless starts every time if you have a low first-gear ratio and a good clutch, both of which the Kawasaki has. Shifting is lightning fast and always perfect. A rotary drum swaps the six speeds in a left-side, down-for-low pattern. Final drive is by a ½-inch-pitch D.I.D. chain.

So the KX 125 is fast, it handles and it stops. The narrow powerband makes it harder to ride than it should be. At $840, the Kawasaki costs less than the garden-variety 125, and at 199 pounds wet the machine weighs a pinch more than the average 125. The Kawasaki's chassis components are first rate, but the exhaust is too loud.

Concerning the KX 125's reliability factor, two things are especially clear: First, had *Cycle's* test bike found its way instead to a paying customer, the mechanical failures would have left him disappointed, angry and smoking—and understandably so. Second, if past performance is any guide, Kawasaki will have the KX 125's difficulties straightened out in a few months.

After Kawasaki muffles the KX 125's exhaust racket, and after Kawasaki dials a higher, broader torque curve into its new rotary-valve engine, and after Kawasaki fully sorts out any and all mechanical gremlins lurking inside the engine, then—and only then—should you rush out to buy a KX 125. ◉