

Tests: Yamaha FJ1100, IT200, XT600
Honda 500 Interceptor, Kawasaki KX125

HOW A GEARBOX WORKS

CYCLE WORLD

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AUGUST 1984

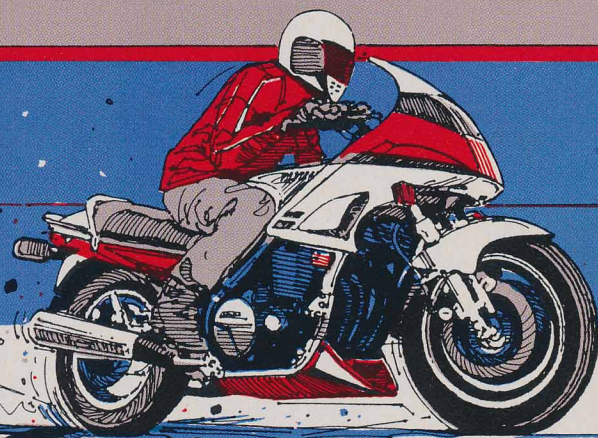
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HOT STUFF!

**YAMAHA'S
FJ1100
STREET
RACER**



For years, Yamaha fans have played a waiting game, hoping for a big bore sportbike. Well, the wait is over, and the FJ1100 is everything they've been asking for.



CYCLE WORLD

AUGUST 1984

VOL. 23 No. 8

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Yamaha's fiery FJ1100 seen from a different angle.

Photographed by Steve Kimball

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ENOUGH TO MAKE THOSE RED AND YELLOW 125s GREEN WITH ENVY.

For the past couple of years, Kawasaki's KX125 has been the bridesmaid of 125 motocross. The KX has been a really good, competent machine, but not quite good enough or competent enough to whip Honda's CR125R, which has been just a bit better.

Has been.

But no more.

This year's KX125, you see, is going to turn the tables on Honda. The '84 KX might not look radically different compared with last year's bike, but mechanically it's quite a bit improved. And on the track, the only place where any of this really counts, the new KX125 is significantly different, mostly in that it no longer has to settle for finishing behind the CR Hondas. This time, Kawasaki got it right.

One of the first things a rider of an '83 KX125 will notice about the '84 is the way the bike fits. KX125s over the past few years have had a decidedly cramped feel, especially for anyone bigger than about 5-foot-7; but no one who rode our '84 test bike, including some 6-footers, complained about the seating position. Physically, the new bike isn't any bigger, but it has a redesigned frame, seat and gas tank that spread out everything the rider comes in contact with.

That new frame bears little resemblance to the old one in design as well as in dimension. The steering head angle is slightly steeper (27.5 degrees compared with 28 degrees on the '83), and the usual rear downtubes that angle forward between the swingarm pivot and the backbone are gone. This is similar to the frame design found on the latest RM125/250 Suzukis (although they still have a rear downtube on one side), and the KX uses it for the same reason: to make room in the cluttered area behind the engine for a single airbox that is big enough to house a large filter element but that won't get in the rider's way. The lack of triangulation caused by the elimination of those downtubes required the use of larger-diameter tubing and increased gusseting in many stressed areas, especially around the swingarm pivot and the steering head.

Cradled amongst those relocated frame tubes is a new engine. Actually, it's not *entirely* new, for the basic design is the same as before; but the '84 engine incorporates a number of significant changes that improve its performance. For one thing, both crankshaft flywheels have been drilled with two 25mm holes to reduce flywheel inertia for quicker revving; and those holes have been plugged with aluminum to maintain the crankcase's compression ratio, which is an important factor in the transfer of fuel from the crankcase to the combustion chamber.

The engine's bore and stroke are unchanged at 50mm and 50.6mm, respectively, and the cylinder still is of the Electrofusion design (Kawasaki's patented process of electrically covering the aluminum bore surface with a hard, .007-inch-thick molybdenum/steel coating), but the state of tune is different. The exhaust port is higher, all of the other ports are wider, and the exhaust system has more volume in its center section. There's also a new capacitive-discharge ignition with slightly less spark advance. A reed valve with six carbon-fiber petals controls the intake breathing, with fuel supplied by a 34mm Mikuni carburetor that uses an unusual flat-bottom slide. This "R-slide" is designed to allow cleaner, crisper running at smaller throttle openings.

Most other areas of the engine have been somehow redesigned as well. The main engine cases are stronger and have wider mating surfaces to provide a better seal. The clutch friction plates have radially grooved surfaces for better oil drainage. The six-speed transmission uses the same ratios as last year's engine, but many of the individual gears either have an improved heat-treatment, wider teeth or are made of a stronger material.

What's surprising, however, is that all of the KX125's tuning modifications combine to increase the claimed horsepower output only by the smallest of margins (32.8 hp at 11,000 rpm, as opposed to 32.5 at the same engine speed on the '83 KX). But increasing peak horsepower wasn't the factory's objective; increasing peak torque, as well as lowering that peak in the rpm range, *was*. The new motor pumps out a claimed 20.98 lb.-ft. of torque at 9500 rpm compared with 15.77 lb.-ft. at 10,500 on the '83 engine. That's a 33-percent increase in torque, which is impressive in itself; but the fact that the increase comes at a 10-percent lower rpm is almost unbelievable.

You become a believer, though, once you ride the KX125. This engine breaks all the rules concerning 125cc motocross bikes. Normally, a 125-class engine can be tuned to deliver strong low-end or healthy mid-range or potent top-end, but not all three. But the KX125 does just that. And what's most amazing is that the KX pulls that trick off without any exhaust-control devices like those used on Honda's or Yamaha's 125 MX bikes.

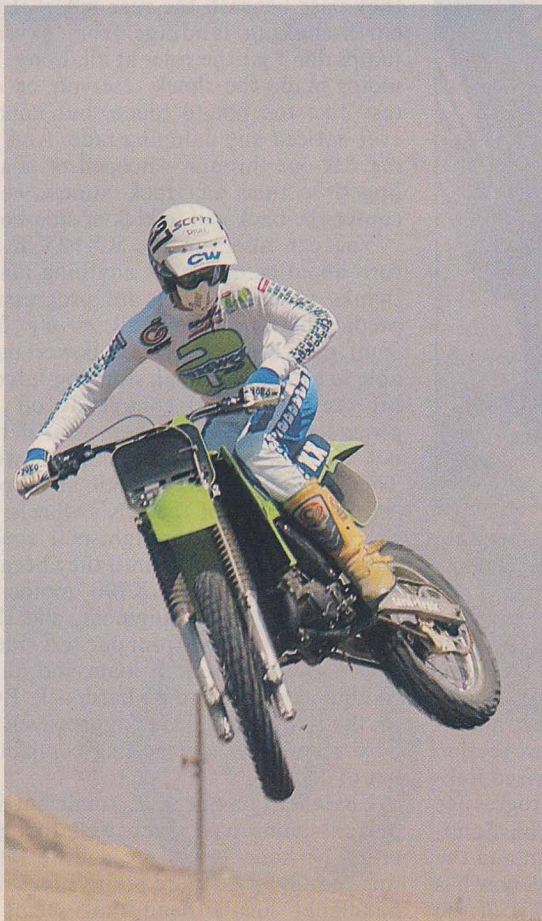
At the racetrack, the KX125's engine superiority is instantly made clear. It pulls well from way, way down low in the rpm range and continues to accelerate hard up past the point where most 125s sign off. As a result, the KX is the undisputed king of the start straights, it lunges out of all kinds of corners—fast or slow—more quickly than anything else in the class, and it powers up hills so fast that you *swear* you're on a 250. That broad powerband is a real advantage, too, that allows a rider to concentrate on the track instead of on engine rpm. And should the engine somehow fall out of the fat part of the powerband, one quick fan of the clutch lever will bring the revs back into the all-business zone.

No wonder, then, that everybody who rode our KX125 test bike—including a few riders who normally dislike 125s because of the effort required to keep an eighth-liter engine in its powerband—thought the Kawasaki was enough fun to be illegal. They weren't as enthusiastic about the design of the aluminum kickstarter, though. The kick lever spins the engine easily enough, but it generally causes the top of the operator's instep to bash into the rear of the footpeg at the bottom of the kick stroke. We soon learned that the painless solution is simply to position your foot fairly far forward on the kick pedal before kicking, which allows your boot sole to hit the top of the peg at the bottom of the stroke.

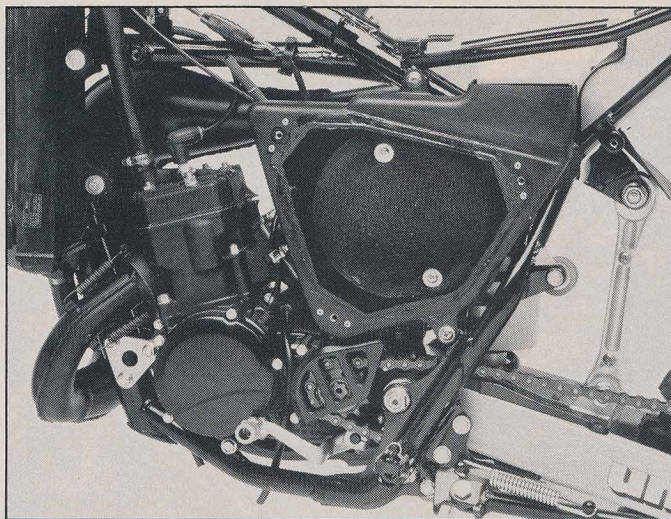
No such problems were encountered with the KX125's suspension, which is almost as wonderful as the engine. Almost. The KYB front fork has 11.8



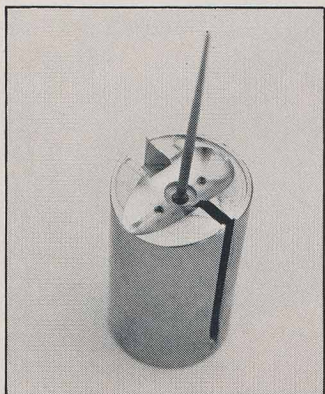
The KX125 is the undisputed king of the start straights. It makes more low-end power, more mid-range power and more top-end power than the competition.



The large airbox is flawed by an ill-fitting cover that lets in water, dirt and other contamination.

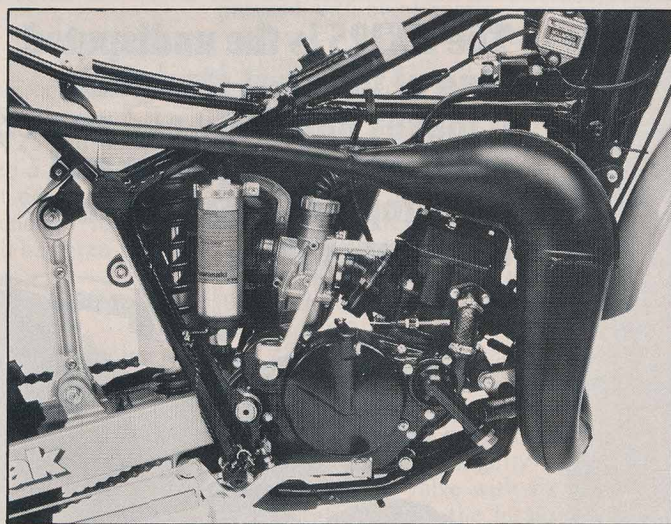


The carburetor's flat-bottom "R-slide" aims incoming air directly across the top of the needle jet, thereby improving engine response at smaller throttle openings.



KYB-built front fork has 43mm stanchions, 11.8 inches of travel and adjustable compression-damping blow-off valves.

Tiny KX125 engine produces more power and has a wider powerband than either Yamaha's YZ125 or Honda's CR125R, and it does so without their exhaust-system trickery. The shock's compression damping is easily adjustable with the knob on the bottom of the reservoir, but the rebound-damping adjuster on the shock body is buried behind the pipe, a frame tube, the sidepanel and a small rubber cover.



inches of travel, 43mm stanchion tubes and a compression-damping blow-off valve in each fork leg. The blow-offs are adjustable to any one of eight detented positions by turning a small screw in the bottom end of each fork slider. We found that the fork transmitted a lot of mid-stroke shock to the rider's arms when adjusted to the standard setting (fourth-stiffest position); so we backed the screws out to the full-soft setting, which helped but didn't eliminate the problem altogether. On smaller or rolling-type bumps the fork action is quite good, so the rider usually doesn't feel any harsh-

ness until he either lands from a big jump or brakes hard going into a choppy, downhill turn.

On the other hand, just about any kind of bump is handled nicely by the rear suspension. The new KX has yet another version of Kawasaki's Uni-Trak single-shock setup, this time with a new, aluminum-bodied KYB shock, a box-section aluminum swingarm, and a revised linkage that gives slightly less-progressive rear-wheel rates than in '83. The aluminum link between the swingarm and the steel rocker arm above the shock now has grease fittings, making that part of the

linkage easier to service, but the rocker itself and the swingarm pivot still require disassembly to be regreased.

This year, the shock's remote reservoir uses a bladder rather than a deCarbon-style piston to separate the pressurized nitrogen from the damping oil. A bladder, Kawasaki explains, can react more quickly to small impacts than can an O-ring-sealed piston, and a bladder also doesn't rub on the reservoir's inner walls and produce heat. A four-position compression-damping adjuster knob is located on the bottom of the reservoir where it's easy to reach. Not so the four-position rebound-damping adjuster atop the shock body, which is hidden under a rubber cover behind a frame tube and a water-splash guard, all of which is behind the right sidepanel. It's kind of a pain to get at, especially when the exhaust system is hot, but at least it doesn't need adjusting often. Likewise, adjusting the shock's spring preload is, as always, difficult on the KX125, but this year's frame design makes the job a bit easier. The owner's manual says that the shock has to be removed to turn up the preload, but it doesn't; a long punch and a hammer will do the job with the shock still bolted in the chassis.

Thankfully, the rear suspension works so well that adjustments shouldn't be a frequent necessity. The rear tire follows the ground almost perfectly, and stutter-bumps and ripples seem to disappear as they pass beneath the rear wheel. Even earth-shaking landings from skyshot jumps don't jar the rider at all. Long, hot motos made the shock reservoir on our test bike too hot to touch, but nobody ever noticed any damping fade. And going flat-out through whooped or sharp-lipped sections of track almost never causes the back end to kick or side-hop.

You can also run the KX125 into a turn about as deeply as anything made, thanks to brakes that are progressive, predictable and, above all, *strong*. The front disc brake is a real powerhouse, able to generate enough stopping force to lift the rear wheel completely off the ground if the rider wishes—and if he's not careful, even if he *doesn't* wish. There's not much to complain about concerning the rest of the KX's wheels, either, although the straight-pull spokes did insist on loosening until they became fully seated. Dunlop K790 motocross tires are standard equipment, and they drew mixed reviews from our test riders. The tires work well on loam and damp soil but skate around on hardpack. Even so, the KX can be ridden aggressively on hard terrain without getting completely out of control.

Elsewhere on the KX, small but important items have been well thought-out. The hand levers are a little fatter this year to give a more positive feel. The handlebar has a bend that seems to

please most riders. The grips have an aggressive pattern but are very soft. There's an easily removed, bolt-on kickstand. The air inlet is under the seat where water can't enter easily, and the foam filter element is quickly accessible by removing the airbox sidecover. All is not perfect in the air-cleaner department, though, because the airbox cover doesn't fit tightly and lets in water, dust and even small objects. The first time we cleaned the filter (just after washing the bike), in fact, we found the drain hole plugged with small pebbles and the airbox half-full of water.

And that wasn't the only problem suffered by our test bike. Our KX125 had insufficient clearance between the

swingarm and the frame rail just above the swingarm-pivot bolt. Consequently, on full compression the front of the arm would hit the frame rail. And the chain often fouled the frame in this same approximate area. Not only that, our bike broke its front exhaust-pipe hanger during only its fourth ride.

At least our KX125 didn't do what some others have done: break the frame just in front of the footpeg gussets. We've seen a few such occurrences, and even Kawasaki admits to the problem on some earlier KX125s ridden on stadium-style courses by pro-level riders. The company claims that later-model '84 frames have been modified to prevent this problem, and that Kawasaki dealers

have been issued gusset kits to be used in the repair of any '84 KX125 that has broken its frame.

A broken frame is nothing to sneeze at, for it's a problem that is annoying at best and expensive at worst. But despite the few problems the KX125 might have, it's still better than any other production 125 motocrosser at one very important thing: winning races. This is the quickest and surest way to a 125-class checkered flag that you can roll out of a showroom in 1984. Which doesn't mean that simply riding one guarantees that you're automatically going to win; it means that whoever does end up in victory circle probably will have gotten there on a green bike . . . just like yours. ☐

SPECIFICATIONS

GENERAL		ENGINE/GEARBOX		SUSPENSION/BRAKES/TIRES		Handlebar width	
List price	\$1799	Engine type	two-stroke Single	Front	KYB telescopic	Footpeg height	32.1 in.
Importer	Kawasaki Motor Corp. P.O. Box 11447 Santa Ana, CA 92705	Bore x stroke	50 x 50.6mm	Wheel travel	11.8 in.	Footpeg to seat top	17.1 in.
Customer service phone	(714) 540-1600	Displacement	124cc	Tube diameter	43mm	Footpeg to shift lever center	20.2 in.
Warranty	none	Compression ratio	8.8:1	Rear	KYB single shock	Footpeg to brake lever center	6.2 in.
		Claimed power	32.8 @ 11,000 rpm	Wheel travel	12.2 in.	Swingarm length	22.7 in.
		Claimed torque	20.98 lb-ft. @ 9500 rpm	Brakes:		Swingarm pivot to drive sprocket center	2.3 in.
		Carburetion	34mm Mikuni	Front	8.3 in. disc	Gas tank filler hole	1.6 in.
		Ignition	CDI	Rear	4.3 in. drum	Ground clearance	14.2 in.
		Lubrication	premix	Tires:		Rake/trail	27.5°/4.57 in.
		Primary drive	straight-cut gear	Front	3.00-21 Dunlop K790	Test weight w/half-tank fuel	208 lb.
		Gear ratios, overall: 1		Rear	4.00-18 Dunlop K790	Weight distribution, front/rear, percent	49.5/50.5
		6th	12.96	Wheel:			
		5th	14.15	Front	1.60-21 D.I.D. aluminum		
		4th	16.05	Rear	1.85-18 D.I.D. aluminum		
		3rd	19.03	CHASSIS			
		2nd	23.78	Fuel capacity	2.1 gal.		
		1st	31.33	Fuel tank material	plastic		
		Oil capacity	1.1 pt.	Swingarm material	aluminum		
		Starter	primary kick	Frame material	steel		
		Air filter	oiled foam	Wheelbase	57.3 in.		
				Seat height	37.3 in.		

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TEST:
KAWASAKI
KX125**

