RATING THE WATER-
HONDA CR125, KAWASAKI KX125,

CYCLE WORLD TEST

■ Getting involved in motocross is a lot easier than getting involved in other types of competition. No need to build the racer, just check out the ones on your dealer's showroom floor. Current production racers are much better than anyone can build in his garage. Plus, you can walk out the door with a new 125 motocrosser and a complete riding outfit for under $2000. That's cheap for a competitive racing anything.

Probably 95 percent of the most popular and easily-bought 125 motocrossers come from Japan, so those are the bikes compared. The names and models are well known at race tracks: Yamaha YZ, Kawasaki KX, Honda CR and Suzuki RM. Although the test bikes all come from Japan and have many similarities, they look different and are different.

ENGINES

All the racers in this group have water-cooled, single cylinder, two-stroke engines. All have reed valve controlled intake tracts and cylinders ported for maximum power. The YZ cylinder is the only one that's really different. It has an exhaust port that changes height automatically. By moving the top of the exhaust port, engine power can be made to match engine speed; torque from a low exhaust port height at low rpm, horsepower from a high port at high rpm. The change is accomplished with centrifugal linkage on the right side of the engine. Sounds simple enough and the engine can be more versatile, in theory anyway. All of the engines are compact little jobs with primary kick starting and six-speed transmissions and all have CDI. The RM has a 32mm Mikuni carb., the YZ and KX have 34mm Mikunis, the CR uses a 34mm Keihin carburetor. All have full-blown racing exhausts with small, noisy, non-repackable silencers.

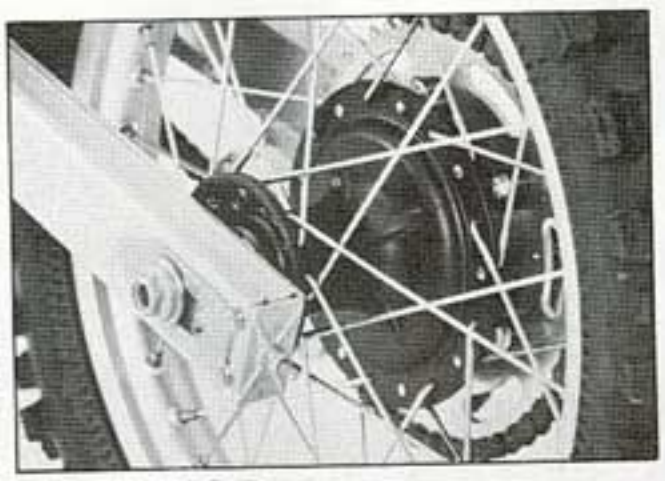
WATERCOOLING

A water and antifreeze solution cools the 125s. A primary-driven gear spins a single impeller and water circulates rapidly through the systems. Radiator placement varies from bike to bike but three of the four have the radiator mounted on the frame downtube. The YZ radiator is on the triple clamps. Thus, the piping of the water is much more>

COOLED WONDERS...
SUZUKI RM125, YAMAHA YZ125

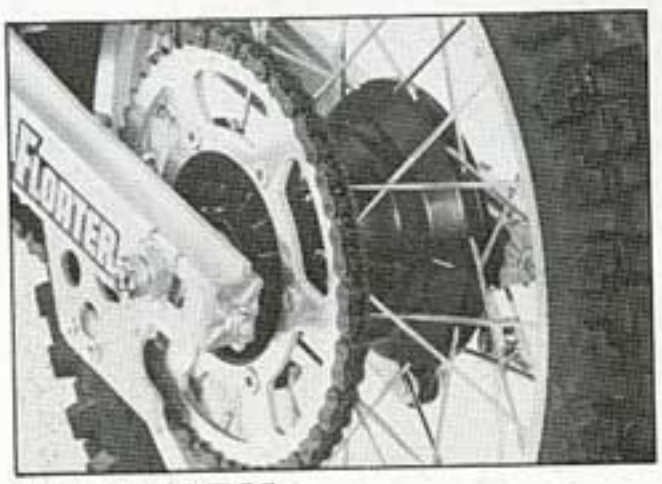
125 MOTOCROSSERS

complex on the YZ than any of the others. In fact, the YZ uses hollow triple clamps, steering stem and frame tubes to help move water from the pump to radiator and back. And it still manages to have the most exposed water hoses of the bunch! Honda's routing isn't much better although coolant isn't pumped through the frame or triple trees. Using two radiators, one on each side of the downtube, necessitates the use of many water lines and several tees. The plumbing on the Kawasaki is simpler because it has a single radiator on the left side of the front downtube. The long and narrow radiator provides plenty of volume and reduces the number and complexity of tubes found on the Honda and Yamaha. Suzuki uses one large radiator placed low and centered behind the downtube. This placement and the routing of water from the pump to the cylinder internally reduces the amount of external hoses and it's by far the least complex. This also means there is less hose to replace when it starts rotting and getting old. Protection for the aluminum radiators varies from an aluminum grill on the RM to steel screens on the CR and KX to a plastic numberplate and grill on the YZ. Plastic air scoops protect the sides of the radiators from crashes.



HONDA CR

KAWASAKI KX



SUZUKI RM

YAMAHA YZ

All have strong rear hubs and large spokes. Honda and Suzuki axle adjusters are less likely to be damaged if the drive chain gets thrown.

FRAMES

Strong steel frames are stock on all of the bikes. All have good triangulation and well thought out gusseting. Picking the strongest looking frame from the lot gives the edge to the Honda which uses larger diameter tubing than the rest of the group. Prop stands also vary greatly between the bikes. The KX and RM have normal kick stands that bolt to the frame via two bolts, making them more convenient to trail ride on. The YZ has a racing prop stand that slides around the lower part of the frame tubes and the CR has a prop stand that plugs into the hollow swing arm pivot bolt. Evaluated as racing parts, and the 125s are racing bikes, prop stands are probably the best as they are easier to put on and remove between motos. As prop stands the YZ's is the best because the CR's falls off easily if the bike is moved.

REAR SUSPENSION

Single shock rear suspensions are standard on all four bikes. All have aluminum-bodied shocks with remote reservoirs, and all have adjustable spring preload functions. Damping adjustments range from the YZ's adjustable compression and rebound damping to adjustable rebound (only) damping on the KX and RM to adjustable compression (only) damping on the CR. Shocks are vertical just behind the engine on the KX, RM and CR, horizontal above the engine on the YZ. Shock linkage is different between the makes: the RM and KX have rocker arms high in the frame above the shock, the CR's rocker is under the shock, the YZ's at the rear of the shock between it and the swing arm. The various configurations of rockers perform an important function, providing progression to rear wheel travel. Thus, the first part of wheel travel is softer than the last part. Small bumps and holes can be smoothed without violent bottoming on

the large ones. Rear wheel travel on the KX is 11.8 in., the YZ, RM and CR have 12.2 inches.

SWING ARMS

All four bikes have extruded aluminum swing arms but beyond that, they're all different. The KX and CR have smooth external finishes, the RM has a stiffener ridge at the top and recessed bottom, the YZ has lips at top and bottom to increase strength. The rear axle mounts through the boxed section of the arm on the Honda and Suzuki, through a welded-in aluminum plate on the Yamaha and Kawasaki. Conventional banjo adjusters are used to adjust axle position on the YZ and KX, an internal block with protruding bolt and end cap allow adjustment on the CR and RM. The internal type on the RM and CR are protected best and probably won't get bent by the chain if it gets thrown during the heat of competition. The exposed banjo bolts on the KX and YZ are more likely to get bent and a spare should be part of the racer's back-up parts kit.

FORKS

Leading-axle KYB forks are standard on all four bikes. Damping rates, spring rates, air caps and bracketry vary, being pretty much the choice of each company, and in many cases researched and developed by that company. Kawasaki and Yamaha lead the distance race with 11.8 inches of travel. Honda is in the middle with 11.6 in. and Suzuki trails with 11.2 in. All have triple trees with double pinch bolts except the Suzuki which has double bolts at the lower clamp and a large single bolt at top.

BRAKES, HUBS AND WHEELS

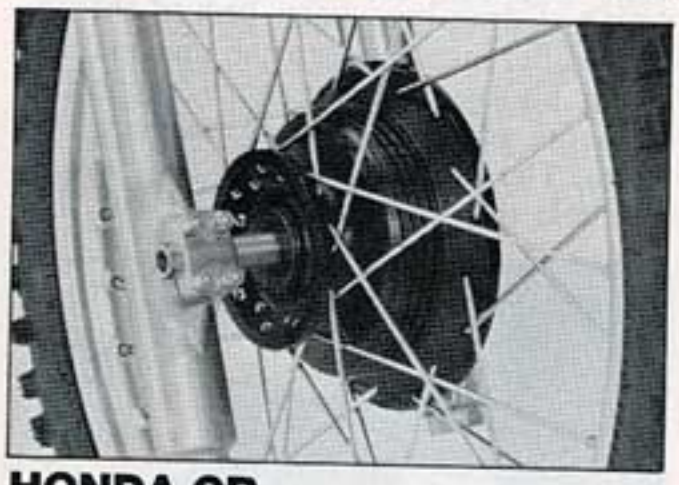
Wheels, spokes and hubs used to be weak spots on 125cc racers. No more. These '82 motocrossers all have small, strong hubs, aluminum rims, adequately sized spokes and strong brakes. The Kawasaki has a hydraulic disc brake in front while the rest of the bikes use a normal, single leading shoe drum brake. All have drum brakes in the rear.

BITS AND PIECES

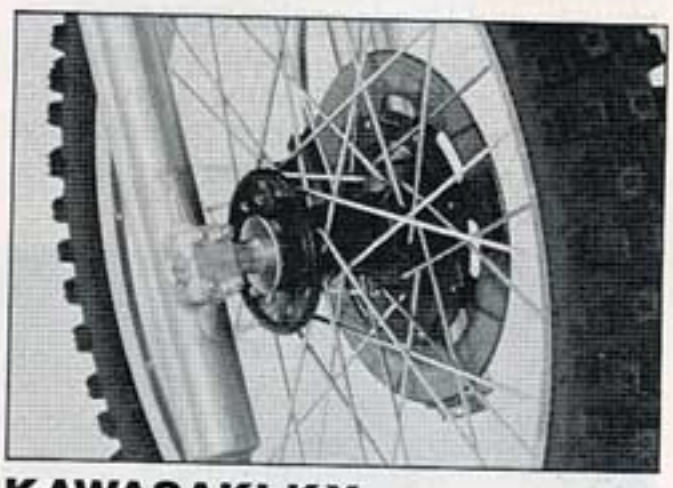
Lots of small parts go into making a motocross bike. They aren't as important as the major parts but still contribute to the overall product. Again, all of the test bikes were well equipped and none of them need parts replaced to make them race ready. Things like grips, cables, cable guides, chain guides, handlebars, shift levers, fenders, seats, air cleaners, fork seals, fork oil, number plates and tires are good. Getting real picky, we'd replace the throttle on the Kawasaki as it's made of too many fragile parts, install a better chain on the Suzuki, cut 2 to 3 in. of foam off the top of the Honda's seat, replace the shift lever and have the shock modified on the Yamaha. Beyond that they all would benefit from Metzeler or Dunlop tires.

TESTING

We rode the four bikes at DeAnza and Arroyo motocross parks. Five riders; one pro, two intermediates, and two novices were used so we could get a broad range of rider input. The best bike for a pro isn't necessarily the best for a novice. Each bike was ridden carefully for the first hour, so engine parts and spokes could seat. The Suzuki's wheels needed the>



HONDA CR



KAWASAKI KX

SUZUKI RM

YAMAHA YZ

Honda, Suzuki and Yamaha have single leading shoe front brakes, the Kawasaki has a hydraulic disc brake. All have a four-bolt axle clamp.

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least amount of attention at the end of the break-in period. Maybe a half turn on each spoke nipple. The spokes in the Kawasaki wheels were slightly looser. The Yamaha and Honda spokes were ready to fall out! The bikes were completely checked over at the same time. The Suzuki chain had stretched considerably more than the others and the Kawasaki's engine bolts had loosened.

One of the first questions asked when we're doing a comparison test is which is fastest. Drag races were our first test after break-in was complete. An hour's worth of drag race starts proved there's little difference between the four makes. Rider ability is by far more important than the power difference between the bikes. The pro tester almost always got the hole shot with whatever he was riding. Motordrive pictures of the starts showed the difference—the pro came off the line straighter and didn't have to shut off to regain control of the bike. With everything else equal the YZ did show a slight edge in performance. Maybe the power valve exhaust helps off the line, who knows, but the advantage is a half a bike length at best. Everyone had trouble getting the Honda off the line. The high seat and short wheelbase (about an inch shorter than the YZ) caused a tendency to loop, or at least raise the front wheel higher than the rest, when gassed from a dead stop. Additionally, shorter riders (those under 6 ft. tall) had difficulty staging the bike perpendicular to the ground. Any lean meant the bike would dart off to one side or the other and the rider would have to shut off momentarily, ending up at the back of the pack.

The hour of starts heated the clutches nicely. The CR was the first to show signs of heating, the RM was next. The KX followed but didn't get hot enough to swell or slip, it just got vague. We couldn't torture the YZ clutch enough to get it to change.

The next couple of hours were spent dialing in suspensions. The Suzuki required the least amount of change. We added 2 psi air to the forks and left the rest alone. Shock rebound damping was best at the #2 position and the spring preload was perfect as delivered. The Yamaha required almost an inch additional

HONDA CR

KAWASAKI KX

SUZUKI RM

YAMAHA YZ

Dogleg levers and straight-pull throttles are standard on all of the bikes. All work well but the KX unit is fragile and made of too many parts. All come with usable grips but the Honda's are by far the best.


SUZUKI RM


YAMAHA YZ

spring preload and still most riders complained about bottoming off large jumps. An additional two clicks on the compression damping knob stopped the bottoming, but all thought the bike really needed a stiffer spring to be completely right. Rebound damping worked best at the stock setting. Four psi in the forks made them perfect. The Kawasaki was just the opposite of the Yamaha. We had to back the rear shock spring preload off nearly an inch to get it working properly. The #2 rebound damping notch worked best on the KX. The Kawasaki forks were the touchiest of the lot to air pressure changes. Two psi wasn't enough, 4 psi was too much. Three psi worked best. No one liked the Honda's suspension as it was delivered. It bounced around, pogoed and kicked. Only the compression damping is adjustable, front and rear, so it takes a little different thinking to dial it properly. The forks were delivered set on the second position stock, so we tried #3 and made it worse. Number 1 was best. Air pressure was about right with 4 psi. The shock's spring preload was backed off about ¼ in. and the compression damping knob was best on the #1 position. Testers swapped bikes the rest of the day.

HOW THEY WORK

After the first day's riding, the crew commented on the bikes, how they work in detail. Fresh from miles of racing on each of the bikes, the riders were most acutely aware how every little part of the bikes worked.

YAMAHA

Good brakes. The clutch is smooth and strong. Footpegs feel too high until the rider is standing, but the rider's feet drag when the bike bottoms after a jump. Return springs are too weak. Shifts easily but the lever is too short and the rider's foot knocks it out of gear on rough ground. Front tire skates; rear okay. Rear suspension isn't as good as the others. When set so it doesn't bottom, it kicks and is harsh on small bumps.

KAWASAKI

Suspension is a little harsh, even when dialed in, but handles well anyway. Shifting smooth and positive. Good brakes, especially the front, which worked better than the disc on the KX250. Front tire fair, rear good. Best low end power of the>


HONDA CR


KAWASAKI KX


SUZUKI RM


YAMAHA YZ

Footpegs on all bikes have aggressive tops. The Honda has an aluminum brake pedal, the others are steel. Kawasaki and Yamaha have a wire guard to keep the rider's boot off the brake rod, the Suzuki and Honda use a cable with no guard.

HONDA CR

KAWASAKI KX

The different approaches to making a watercooled, single shock 125 motocrosser are displayed in these undressed shots. All have strong frames, aluminum swing arms, leading axle forks, compact racing engines and six-speed transmissions.

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group. Clutch is smooth. Seat is hard at first. Steering is precise with the 28° rake and 41mm fork tubes. Footpeg return springs are limp and the pegs bend easily. Riders feel more scrunched-up on the KX, the bars feeling more rear-set. Spokes never did stop loosening.

HONDA

Precise steering. (The 26° rake is the steepest of the group.) Front tire is junk; rear okay. Good top end power, not as much mid-range as the Yamaha and Kawasaki. Feels fast if the revs are kept high. Smooth shifting. Clutch is smooth but won't take much abuse. Good brakes. Rear suspension kicks when hitting a bump going down hills, probably needs more rebound damping. Heavier shock oil might do it, or lower nitrogen pressure, but the rebound damping isn't adjustable. It's not right the way it comes. Hardest bike to ride because of the extremely high (39.2 in.) seat. That's 3 in. higher than the Kawasaki. The CR125 seat is even a half an inch taller than the CR480 seat. Why? The high seat makes the bike loop easily off the starting line and fall over in turns. It's wheelie prone when traction is good exiting turns.

SUZUKI

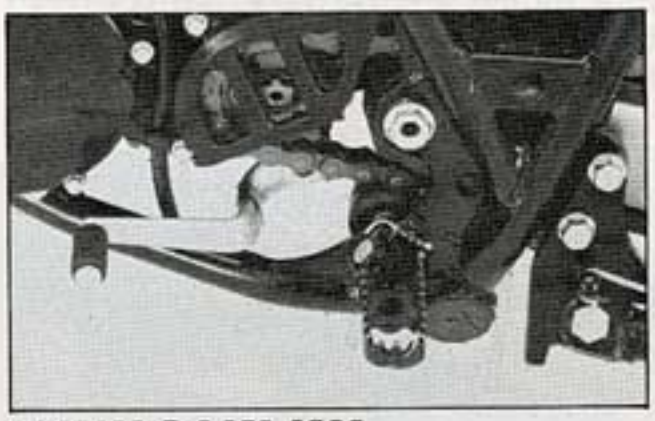
Suspension is closest to right as it comes, only needing a little air in the forks. Engine doesn't feel as strong as the rest, but drag races don't show this. Tires okay. Had to adjust brakes three times the first hour, then they work better than the others. Spokes least troublesome. Mud packs around front fender. Thin seat at the rear allows attaching bolts to hit riders in the butt. Smooth shifting, no missed shifts. Best suspension of the group. Softer and better control almost everyplace on the track. Easiest to ride for extended time due to ease of handling and comfort of suspension. Engine very tight for the first hour then okay.

After the first long day of testing all the riders voted, something we would also do after the last day of testing. The results:

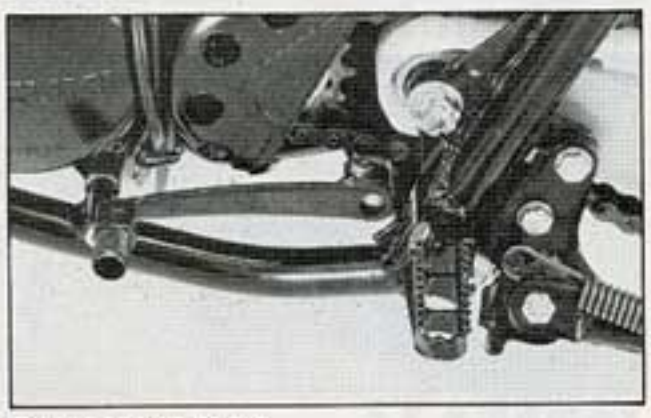
Pro	Suzuki
	Kawasaki
	Honda
	Yamaha
Intermediate 1	Suzuki
	Kawasaki
	Honda
	Yamaha
Intermediate 2	Kawasaki
	Suzuki
	Honda
	Yamaha
Novice 1	Suzuki
	Kawasaki
	Yamaha
	Honda
Novice 2	Kawasaki
	Suzuki
	Yamaha
	Honda

On day two we rode the bikes from sun up to sunset at DeAnza MX Park. The bikes were dialed in from the previous day's testing at Arroyo and worked fine at DeAnza. Riders exchanged bikes all day and some of them changed their minds about which bike was best. After testing each voted again. This time additional questions were on the printed sheet. Best engine power was the first question. The KX got three firsts due to its excellent mid and low end power, Honda got two firsts, the riders liking the mid and top end power of the Honda. The YZ got 3rd on most of the lists and the Suzuki last because it felt less powerful than the others. Best clutch was almost unanimous in favor of the YZ with the KX a close second and the CR last. Best brakes went to the RM with five votes. The KX was second, the CR third and the YZ last. But of special note here, the last place YZ brakes are very good and on a scale of one to 10 they get a nine. Most precise steer-

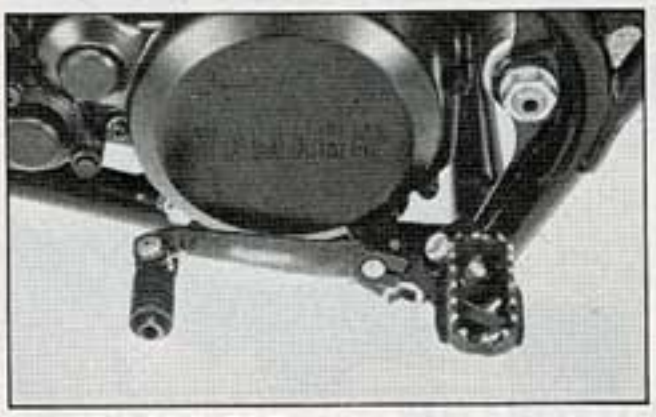
HONDA CR



KAWASAKI KX



SUZUKI RM



YAMAHA YZ

The KX has an aluminum shift lever that doesn't fold, the others have steel levers with folding ends. The YZ lever is too hard and breaks if bent.

SUZUKI RM

YAMAHA YZ

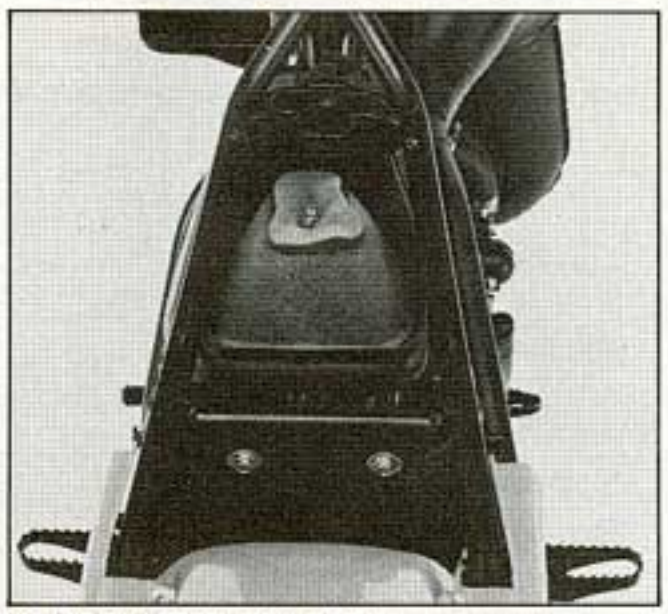
ing went to the RM with four votes, the KX second, the YZ third and the Honda last due mainly to its clumsy seat height. The RM also got first on the best cornering list with four of five riders voting for it. Second wasn't as easy to determine as almost everyone had a different answer depending on what they thought best cornering meant. All agreed the RM's suspension made it easier to get through corners because the bike didn't stray from the rider's intended line on bumpy ground. For best suspension, the RM got five votes. Every rider agreed the RM's suspension was yards ahead of the rest of the bikes. It was hard to find fault with anything the suspension did. The easiest to ride award went to Suzuki, three to two. The three who voted for the RM voiced the suspension and handling as the reason, the two who voted for the KX thought the super torque engine made it easier to ride.

After all the voting and riding and arguing came the final choice for best 125cc motocrosser, no ifs, ands, or buts.

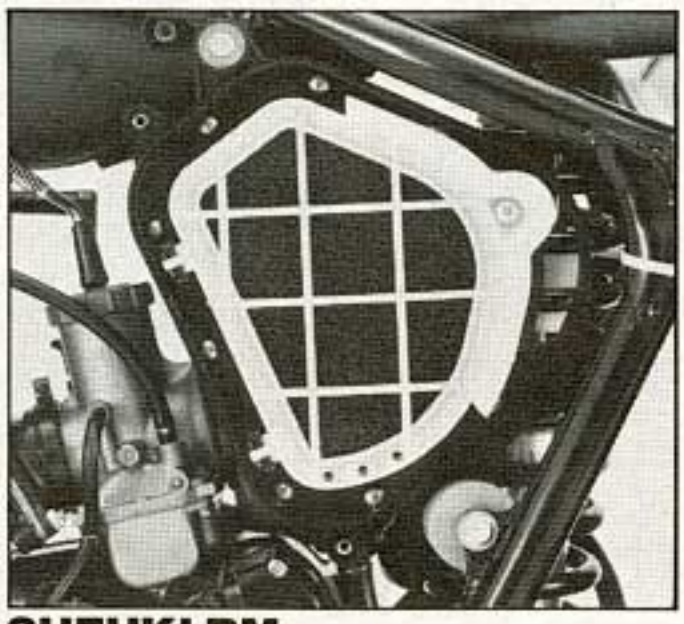
Pro	Suzuki
	Honda
	Kawasaki
	Yamaha
Intermediate 1	Suzuki
	Kawasaki
	Honda
	Yamaha
Intermediate 2	Suzuki
	Kawasaki
	Honda
	Yamaha
Novice 1	Suzuki
	Kawasaki
	Yamaha
	Honda
Novice 2	Suzuki
	Kawasaki
	Yamaha
	Honda

So there it is. The RM is the clear-cut winner. Kawasaki's KX gets second, thanks to a neat engine and good brakes. The other positions are a toss-up. Trying to make sense of all the comments besides the voting forms tells us the Suzuki could be better with a stronger engine but its superior handling, handling that's nearly perfect for pro or novice, will convince anyone who gets the chance to make his own comparisons. The comments also suggest a quick ride on all of the bikes might not give you the right answer. Remember, a couple of our testers picked the KX as best after the first day of testing. It's a good bike, finishing a strong second because of harsh suspension that needs more work on the factory level. Testing also reveals the suspension on the YZ needs more work to be on a par with the RM and that the YPVS exhaust system isn't that beneficial to the racer, and may not add much to the YZ's powerband. But, it may make the bike slightly faster in a drag race. The Honda is handicapped because of a seat height that's stupid. There's no reason for a 39.4 in. seat height on a 125 motocrosser. Most 125 racers are young, few are 6-foot-2. Our shorter riders hated the CR because they couldn't touch the ground. Our taller testers began to like the bike after the second day of testing. With better rebound damping in the rear, and a lower seat it could be a dynamite machine as it has a lot of good parts. Does that mean we wouldn't be caught dead with the Honda or Yamaha? No. It still comes down to a good dealer, one who likes and understands motocross. And one who stocks parts, maybe the most important consideration when buying any racer. A bike that's in the garage more than it's on the track because parts aren't available isn't much good. All of the bikes in this comparison could be winners with the proper set-up. The Suzuki is a winner without any set-up, that's the difference. ◙

HONDA CR



KAWASAKI KX



SUZUKI RM

YAMAHA YZ

The CR, YZ and KX have single foam air cleaners, the RM uses two, one on each side of the bike.

SPECIFICATIONS	Honda CR125	Kawasaki KX125	Suzuki RM125	Yamaha YZ125
List price	$1598	$1629	$1659	$1699
Front wheel travel	11.6 in.	11.8 in.	11.2 in.	11.8 in.
Fork stanchion tube diameter	38mm	41mm	38mm	38mm
Rear wheel travel	12.2 in.	11.8 in.	12.2 in.	12.2 in.
Front tire	3.00-21 Bridgestone M-21	3.00-21 Bridgestone M-21	3.00-21 Bridgestone M-21	3.00-21 IRC
Rear tire	4.00-18 Bridgestone M-22	4.00-18 Bridgestone M-22	4.00-18 Bridgestone M-22	110/90-18 IRC
Engine	two-stroke Single	two-stroke Single	two-stroke Single	two-stroke Single
Bore x stroke	55.5 x 50.7mm	56 x 50.6mm	54 x 54mm	56 x 50 mm
Piston displacement	122cc	124.6cc	123cc	123cc
Compression ratio	8.3:1	8.2:1	8.7:1	7.7–9.8:1
Claimed power	na	na	na	na
Claimed torque	na	na	na	na
Carburetion	34mm Keihin	34mm Mikuni	32mm Mikuni	34mm Mikuni
Ignition	CDI	CDI	CDI	CDI
Lubrication system	premix	premix	premix	premix
Primary drive	straight-cut gear	straight-cut gear	straight-cut gear	helical gear
Gear ratios, overall: 1				
6th	12.99	13.10	12.83	13.20
5th	14.76	14.29	14.02	14.59
4th	17.54	16.22	15.97	16.50
3rd	20.93	19.22	18.94	19.80
2nd	25.98	24.03	23.49	24.51
1st	31.40	31.68	31.31	32.49
Oil capacity	1.5 pt.	1.1 pt.	1.6 pt.	1.8 pt.
Fuel capacity	1.7 gal.	2.0 gal.	1.7 gal.	2.2 gal.
Fuel tank material	plastic	plastic	plastic	plastic
Swing arm material	aluminum	aluminum	aluminum	aluminum
Starter	primary kick	primary kick	primary kick	primary kick
Air filtration	oiled foam	oiled foam	oiled foam	oiled foam
Frame material	chrome-moly steel	chrome-moly steel	chrome-moly steel	steel
Wheelbase	56.5 in.	57.1 in.	57.2 in.	57.5 in.
Seat height	39.2 in.	36.2 in.	37.0 in.	36.4 in.
Seat width	4.8 in.	5.9 in.	5.9 in.	5.3 in.
Seat length	21.1 in.	22.0 in.	21.0 in.	27.7 in.
Seat front to steering stem center	13.8	11.5	14.2	9.0
Handlebar width	32.1 in.	32.8 in.	31.2 in.	32.3 in.
Footpeg height	17.1 in.	16.2 in.	16.1 in.	15.8 in.
Footpeg to seat top	21.8 in.	20.2 in.	20.9 in.	20.4 in.
Footpeg to shift lever center	5.8 in.	5.6 in.	6.0 in.	6.0 in.
Footpeg to brake pedal center	5.0 in.	5.9 in.	5.0 in.	5.2 in.
Swing arm length	22.5 in.	23.0 in.	22.1 in.	21.0 in.
Swing arm pivot to drive sprocket center	2.6 in.	2.4 in.	2.6 in.	2.6 in.
Gas tank filler hole size	1.6 in.	1.6 in.	1.5 in.	1.7 in.
Ground clearance	14.5 in.	13.1 in.	13.1 in.	12.9 in.
Fork rake angle	26°	28°	29.5°	27.5°
Trail	3.9 in.	4.76 in.	4.76 in.	4.65 in.
Test weight w/ half tank fuel	200 lb.	201 lb.	197 lb.	207 lb.
Weight bias, front/ rear percent	48.5/51.5	48.2/51.8	48.2/51.8	48.8/51.2