COMPARISON TRACK TEST:

Like it or not, it looks as though you're going to need a 1983 motocross bike. Just look at the new machines to find out why. Even if your old bike isn't worn-out after a season of racing—at best an unlikely prospect—it doesn't seem possible that it can remain competitive when technology changes as rapidly as it does in the motocross world. What was state-of-the-art a year ago is hardly worthy of notice today.

Consider the case of the Honda CR250R and the Suzuki RM250. Last year these two machines rose to the top of CYCLE GUIDE's epic four-way 250 title bout. They were so fast, so light and so trick that it seemed like asking for even more would be asking for too much. But apparently it wasn't. Both machines have returned for this year's rematch and both have been training heavily.

In '82 the Honda was the only machine to go the distance. Suzuki had the horsepower and the light weight, but it was handling, suspension and ridability that put the Honda on top. Barely. In the year that has passed, though,

Honda CR250R
VS.
Suzuki RM250

The fastest, lightest and trickest, one year later.

BY RON LAWSON

refinements have been made. And those refinements are aimed primarily at each bike's weakest points.

Suzuki attacked the RM's power delivery. Last year's machine was so explosive that only an elite minority of very good riders could take full advantage of its horsepower potential. So in an effort to mellow out the yellow rocket, Suzuki went into the heart of the RM and gave it more flywheel inertia. The Honda, on the other hand, had to lose weight. Not much, mind you, just enough to crowd that magic 98-kilogram (216-pound) minimum-weight limit set by the FIM.

Neither company stopped there, however, for the strong points of each machine also were fair game for change. Even though last year's RM and the CR both had good suspension, each received a new front fork and rear shock. And both have different lever ratios for their single-shock rear suspensions.

So at a glance it's obvious that both Honda and Suzuki have filled in all the blanks necessary to create motocrossers that are more than just fast, light and trick. Now those bikes should be nearly perfect. That would seem to be the logical result of taking the two best machines of their day and changing them both. Well . . . there *is* another possible result. And in fact, closer examination just might reveal that some changes weren't for the better.

Continued

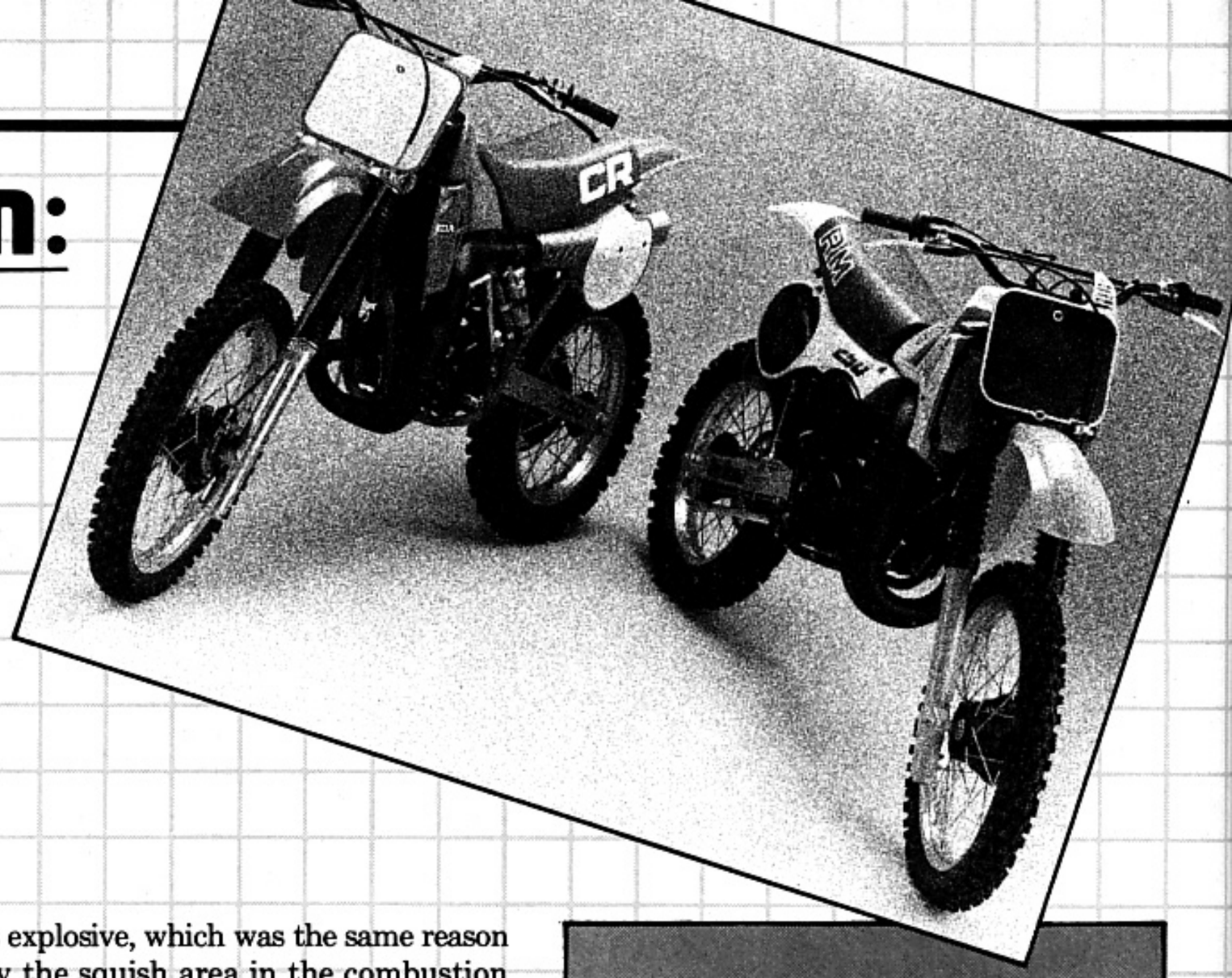
Tech Inspection:

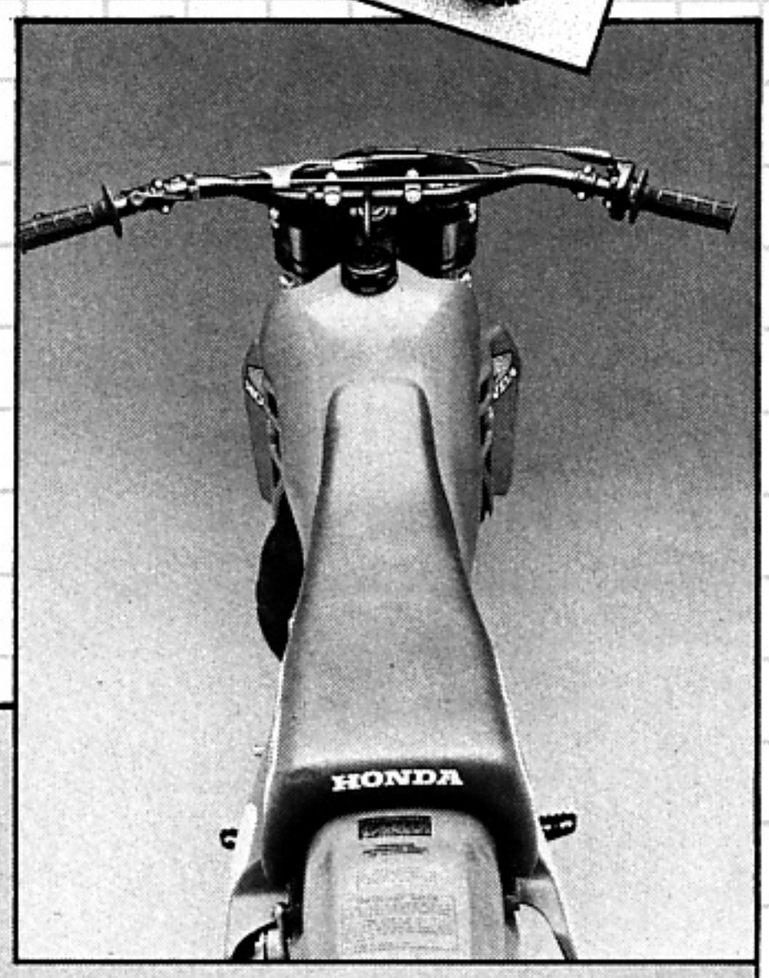
ENGINE:

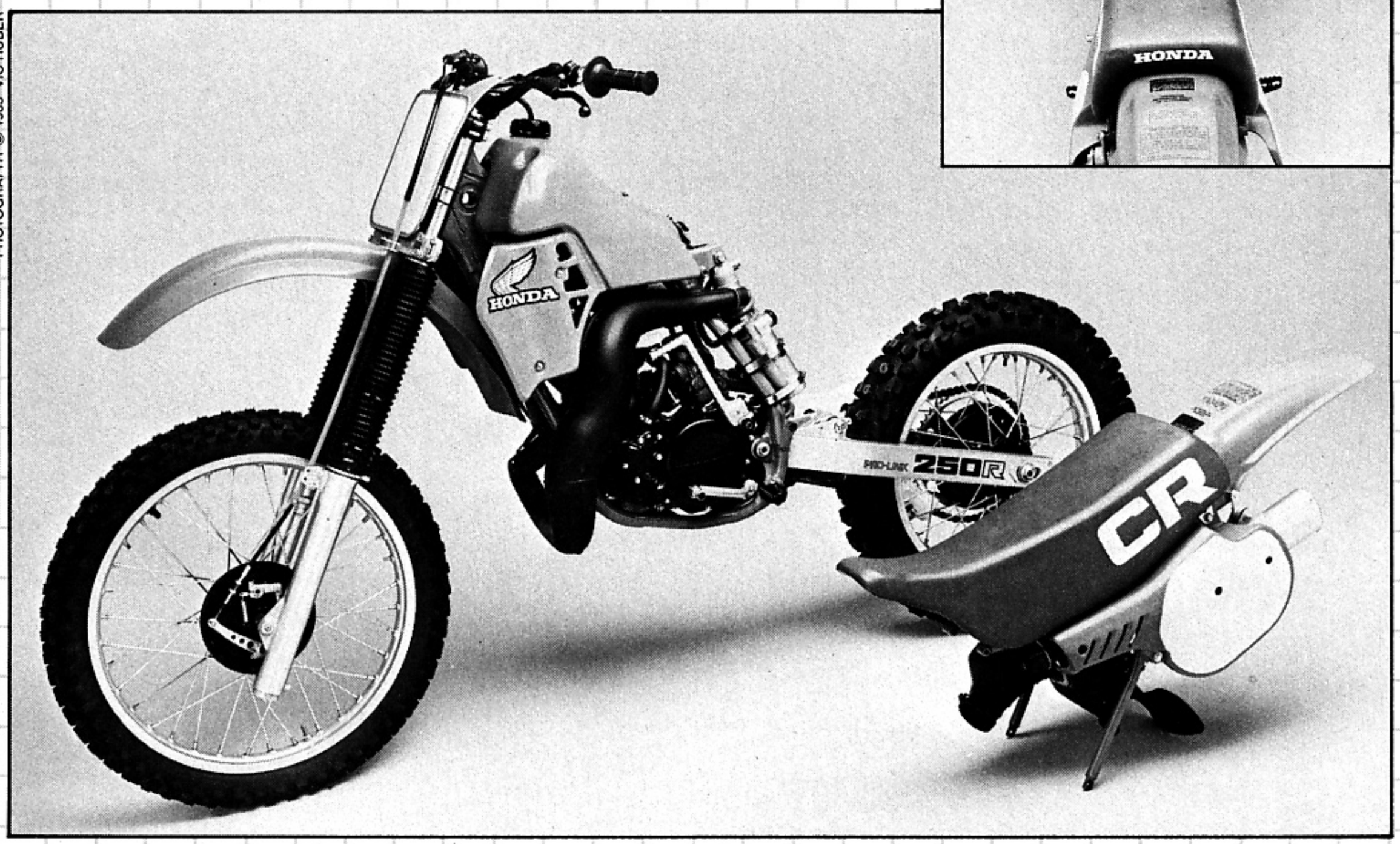
Honda and Suzuki both have taken business-like approaches to refining their engines, concentrating more on improving details than making radical changes. Both the CR and RM still feature liquid-cooling, although the two systems operate differently. The Suzuki's two radiators are connected in tandem; that is, the coolant flows through the left radiator then through the right, while the Honda's plumbing has coolent traveling in parallel flow to both radiators at once.

Suzuki also differs from Honda in bore-and-stroke philosophy. The RM is oversquare, with a 70mm bore and a 64mm stroke, while the CR is undersquare, measuring 66mm by 72mm. Both bikes carry those numbers over from last year. And both use the same carburetors as last year's models—a 36mm Keihin on the Honda and a 38mm flat-side Mikuni for the Suzuki. The RM's biggest change is its seven-percent increase in crankshaft inertia. The crank is larger in diameter, which necessitated cutting material off the piston skirt for clearance at Bottom Dead Center. The idea was to make the engine less explosive, which was the same reason why the squish area in the combustion chamber was made larger. And that change altered the combustion characteristics enough to require a slight advance in ignition timing.

Honda's engineers had much the same goal in mind for the CR250, but their approach was to enlarge the transfer ports and lower the exhaust port, the latter of which resulted in a higher compression ratio. The CR also has a new exhaust system, the header pipe of which, incidentally, is routed way out on the left side of







With the removal of three bolts and two clamps, the tail of the Honda detaches with the seat, airbox and silencer

And the elongated blue seat is nothing for Honda to get all seamed up about.

the machine and can hit the ground in a hard lefthand turn.

To help the CR rev more quickly Honda lightened the piston. But this might cost the CR in durability, because the piston already has developed a reputation for having a short life span—ours shattered after less than 10 hours of riding.

DRIVETRAIN:

Overall gearing on both machines has changed this year. Honda uses the same ratios for all gears except third and fourth, which are lower (numerically higher). Overall gearing also is lower, through a change in the primary-drive ratio. Suzuki has changed most of the gear ratios, as well as the primary and final-drive ratios, to come up with overall gear spacing that is closer than on last year's bike. The Honda clutch hub now has a rubber shock damper in its center, and the drive plates are thicker and are made of an asbestos compound to prevent fade.

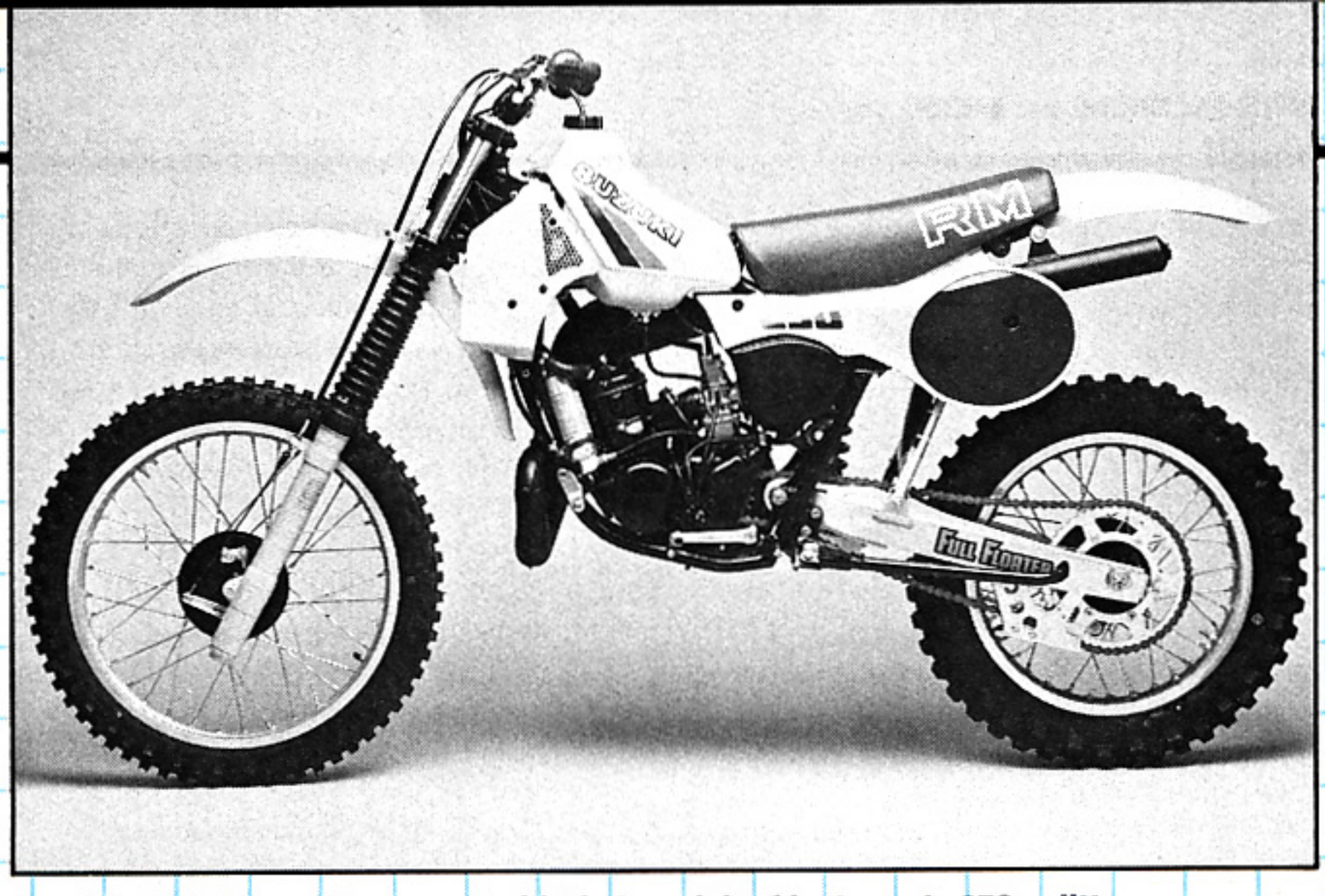
CHASSIS:

Frame: The buzzword for 1983 is lightness, but Suzuki did all of its weight reduction last year and retains basically the same frame. The steering head angle has gone from 29.3 degrees to 29.7 degrees, due primarily to suspension changes.

A completely new frame houses the CR motor this year, and its most noteworthy feature is the removable tail section. With the unscrewing of four bolts and one hose clamp, the tail section detaches, along with the seat, fender, airbox and silencer, making for easy shock access. The Honda's steering-head angle also has been changed and now is one of the steepest in motocross—26.8 degrees. And the radiators were moved down 50mm to lower the center of gravity.

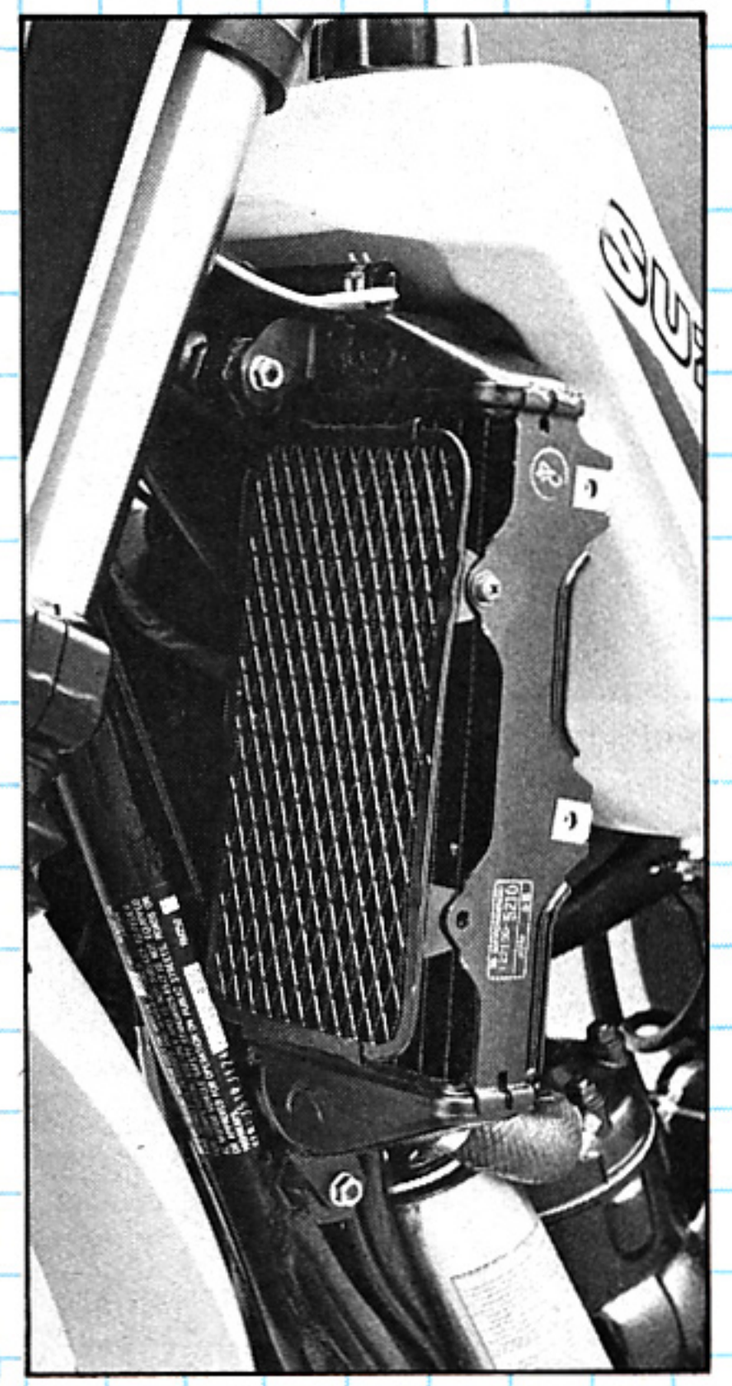
Wheels: Both machines use spokes that have very little bend where they lace to the hub. The Suzuki finally has a double-leading-shoe front brake, similar to what Honda and Yamaha have been using. The Honda's hubs and brakes are slightly narrower than last year's model at both ends. And in the rear, the backing plate has been turned so the brake arm is in front of the axle and therefore protected by the swingarm.

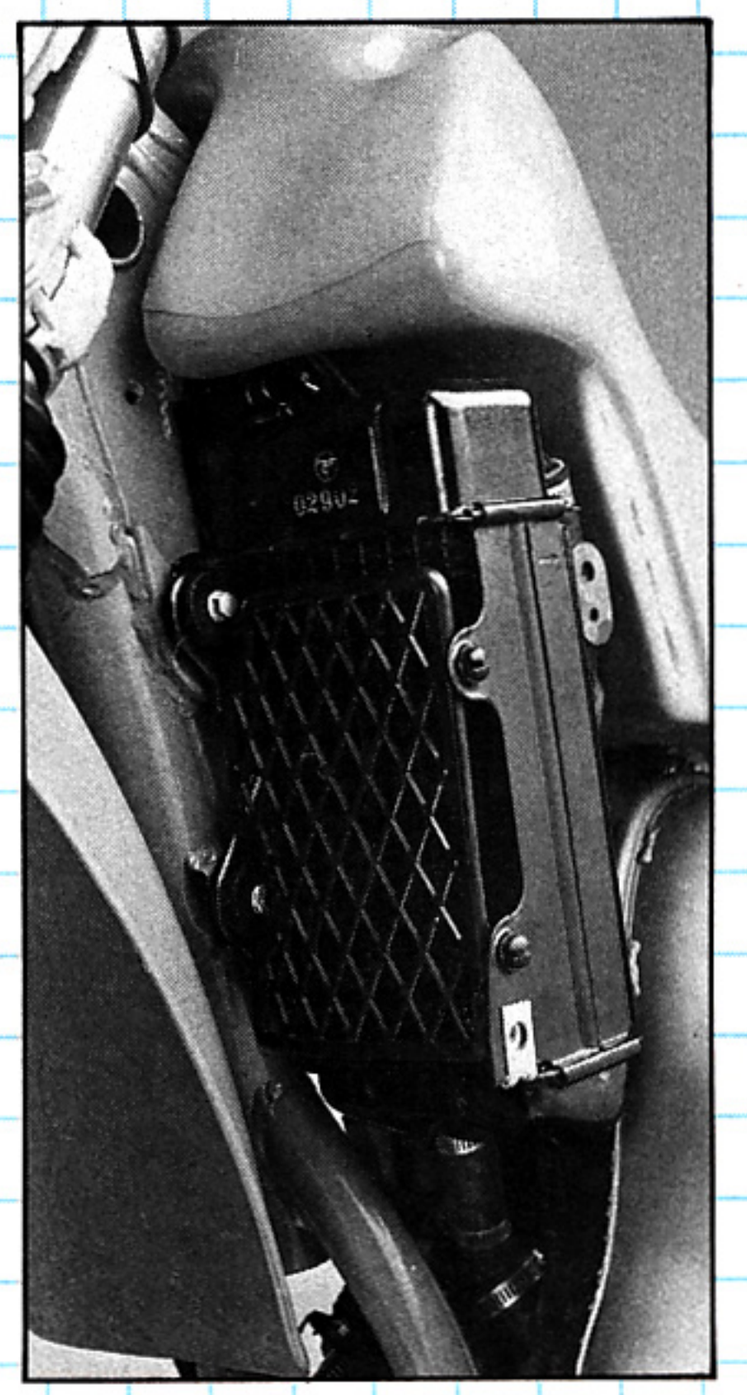
Some Suzukis will be delivered with Dunlop tires, and others with Bridgestones. Either way, Takasago supplies the rims. The Honda uses



Suzuki's RM250 was the expert rider's top pick of last year's 250cc litter

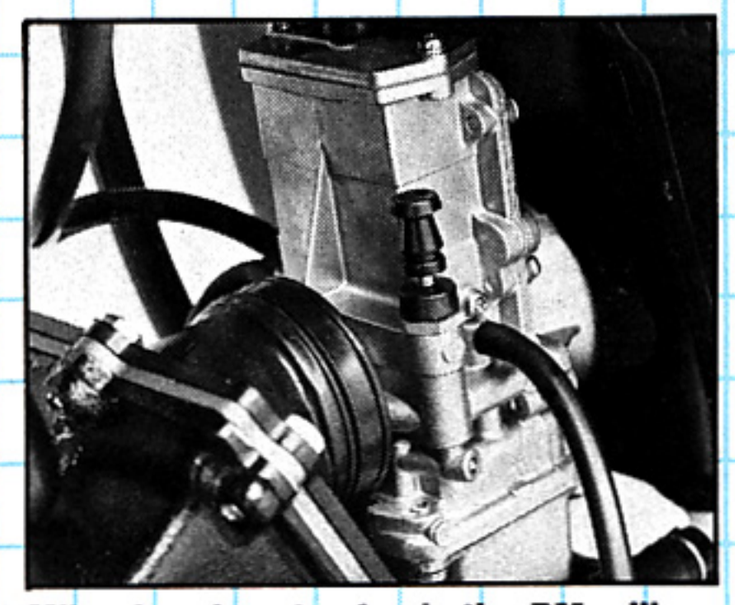
The '83 model has been bred for a much broader range of riders.





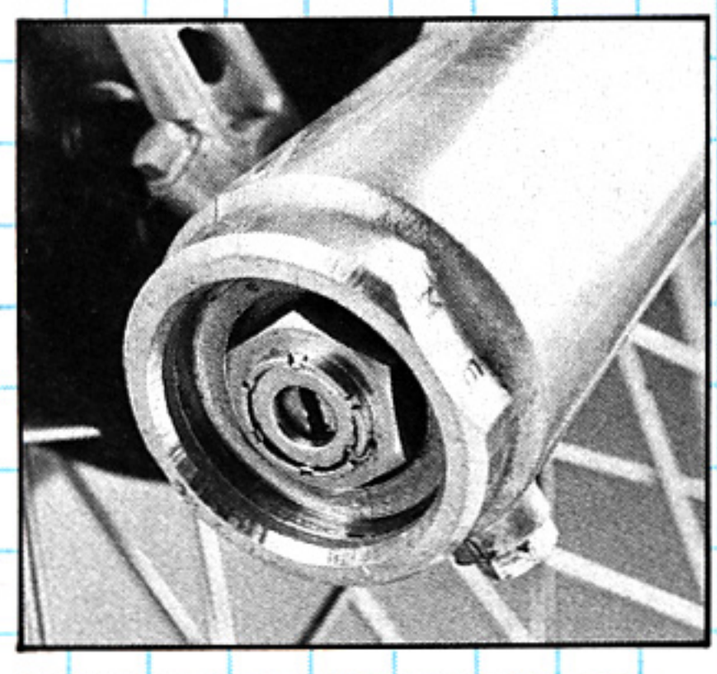
Two approaches to the liquid-cooled two-radiator theme

Suzuki water flows from left to right, Honda likes it from top to bottom.



Mikuni carburetor feeds the RM mill

A flat slide for a fat slice of torque.



Both forks have adjustable damping

For riders with an ear for tuning.

Continued

The RM no longer does unexpected mid-turn wheelstands, but unless you're right on top of the powerband, it also won't wheelie over the rough stuff, either. The CR, however, has instant throttle response and jumps at the opportunity to wheelie through closely spaced whoops.

All that might cost the Suzuki a few seconds a lap, but the RM will be able to make up most of that time where the turns get tight and hard-packed. Again, this is counter to what should be the case. The Honda has one of the steepest steering-head angles of any production motocrosser—26.8 degrees combined with a scant 4.1 inches of trail, compared with the Suzuki's 29.7 degrees and 4.8 inches. With steering geometry numbers like that, you would expect the Honda to be able to slice inside the Suzuki like a Japanese chef. But the Suzuki remains the king of the tight turn with its very precise steering. You can roll into a low-speed first-gear turn and aim the Suzuki at the next straight with minimal effort. The Honda is a gas-on cornerer. You have to enter the turn with the throttle open and then power through it. The nature of the Honda's engine makes this a much easier proposition than it sounds, though. It's easy to break loose the rear end and control it, so the Honda makes what should be a very difficult maneuver easy enough that Novices can at least *look* like Pros. But even though the Honda's big-roost cornering technique is spectacular, the Suzuki's point-and-shoot method is a more efficient way to tackle the tight, twisty sections of a track.

Wider, more sweeping turns give the Honda an advantage. Hit the power early and the CR will find the right exit line almost magically. And it will stick to that line all the way through the turn with incredible stability. If the Suzuki rider attempts to follow the same line, he winds up wobbling and wandering through the corner without any clear direction. So the best approach is to hit the Suzuki's brakes—which now are up to par with any in the business—find a pivot point and exit on a straight trajectory.

Both machines are quite capable of instant line changes, and squaring-off turns is easy because both bikes come precariously close to the FIM limit of 216 pounds. The Suzuki feels slightly smaller (it is), while the Honda feels slightly lighter (it is). Honda has made an effort to keep the weight low, and it's noticeable when you ride the machine. With both bikes the light weight pays off when the track gets rough, allowing the rider to easily stay on course.

Of course, the suspension helps, too. The Suzuki's Full Floater and the Honda's Pro-Link systems represent the state-of-the-art in motocross suspension. But the CR's performance has been marred in the past because Showa, the company that manufactures the Honda's shock, has had a quality-control problem—it seemed like no two shocks were alike. This year, Showa has renewed its commitment to correct the

problem; and if our test bike is any indication, Showa is on the right track. The Pro-Link system works better than ever. We set up our CR250 rear end per Honda's recommendations, putting both compression and rebound damping on the lightest settings and adjusting the preload so the rider's weight compressed the rear of the machine 94mm. The settings were spot-on, because the Honda was downright amazing on small bumps and jolts. The wheel conformed to the track's irregularities as if it were pre-programmed to extend and compress at precisely the right points for that particular track.

Large whoops and gullies are absorbed almost as impressively. As the obstacles get larger, though, the performance of the Honda's rear suspension sinks from outstanding to merely exceptional, and the rear end occasionally kicks or bottoms.

On the other hand, the rougher the track, the better the Full Floater performs. The little bumps on the track seem below the Suzuki's notice, however, so the rear end hops, doing little to soften anything of less than killer-whoop proportions. But when those giant whoops do appear, the Full Floater shows its stuff, saving crash-landings and correcting what might be disastrous mistakes on other machines. But before the bike can do magic, you'll have to work a little magic of your own; setting up the Full Floater will require more time, at least, than Suzukis have called for in the past. As delivered, the new Kayaba shock is over-damped on both compression and rebound, so you'll likely have to go to the lightest settings on both. We also tried to compensate for the RM's rough small-bump manners by letting off the preload, but that made the machine's excessive rebound damping even worse. Even on the lightest setting, the rear end extended too slowly, so that successive bumps caused the suspension to pack down.

The Suzuki's fork has a similar problem. Small irregularities in the track are transmitted straight through the handlebar to the rider, making for some very tired hands at the end of a race. Over-damping, again, is the culprit. Instead of the stock 10-weight oil, we used 5-weight and the lighest compression-damping setting to correct most of the problem. But racing in cold climates with the RM could present a problem in finding oil with a low-enough viscosity.

No such dialing-in problems existed with the Honda's Showa fork. Right out of the box, it's the smoothest unit ever to come on a production machine. Through most of the test we ran it on the ninth-stiffest (stock) position, although on any one of its settings it was capable of outperforming the Suzuki's fork.

So if you're still wondering how that adds up with everything else, you haven't been paying attention. In a race between the RM and the CR, the Honda will win. The Suzuki *might* reach the first turn first—depending on the length of the start chute—but then the Honda will take the lead and disappear. Less-experienced riders might listen to the RM's higher-revving engine and think they're going faster, but each of our test riders, from Novice to Pro, averaged a second a lap faster with the Honda on several different tracks.

It's difficult to crown the CR as the all-time greatest 250 at this point—Yamaha, Kawasaki, Maico and KTM all have promising entries yet to be tried. But we do know this: If any one of these machines can top the CR, it can top anything. *—Ron Lawson*

Ride Review

• If you think Roger De Coster was great as a motocross rider for Suzuki, wait until you see what he's done as a motocross coordinator for Honda. He was the man behind the RC250 factory race bikes that pretty much dominated their class in American professional racing last year; and because he was able to convince Honda to build production bikes that practically are clones of last year's factory machines, the CR250R just might do the same this year at all levels of the sport.

That's why I think that the Suzuki didn't lose this comparison as much as the Honda flat won it. Sure, once the new RM is dialed-in it's actually a little better than the old one, but the '83 CR is a *lot* better than the '82—which already was the best 250 you could buy. Besides, with a born winner like De Coster on Honda's side, the RM never had a chance. *—Paul Dean*

• Let's get something straight right now. When I enter any bike/rider relationship, I want to be the one in charge. When I say double-jump, the motorcycle had better ask how fast and not give any backtalk. That's why you won't find me racing the Suzuki. It has a mind of its own, and when it comes to choosing a line through a turn, there isn't time to ask the machine if it approves.

The Honda, on the other hand, knows who's boss. It goes anywhere you put it without complaint. And it does so with better suspension and better rider positioning than the RM. But even though the CR out-handles anything on the market, it isn't perfect. In stock form, it just doesn't have the beans to pull off a Pro-class holeshot. The Suzuki and the Honda each have their high points, but I'll just wait and see what Yamaha has to offer.

—Vince McMahon

• This year you didn't need a stopwatch to pick the winner between the CR and RM quartercrossers. You only needed to stand behind the CYCLE GUIDE van and listen to some of the reasons given to ride the Honda. One rider wanted to check for shock-fade during a 40-minute ride, while another needed to check for any loss of power during a 30-lap moto. Then they said they needed to try some suspension adjustments and to play with the jetting.

It was almost impossible to find a free lap to ride the CR, so I started making excuses, too. I said I needed to check out the Honda's twistgrip rubber compound. I could have told the truth, and ridden the Honda because it obviously was the better bike, but then they'd have made me ride the Suzuki while they pretended to try and make up their minds about the CR. So I just told more lies.

—David Dewhurst

Continued

CYCLE GUIDE SPECIFICATIONS

Honda CR250R

IMPORTER: American Honda Motor Company Inc.,
100 West Alondra Boulevard, Gardena, California 90247

SUGGESTED RETAIL PRICE: $2240

ENGINE

Type	liquid-cooled two-stroke vertical single
Port arrangement	one reed-valve-controlled intake, four main transfers, one booster transfer, one exhaust
Bore and stroke	66.0mm x 72.0mm
Displacement	246.3cc
Compression ratio (corrected)	8.4:1
Carburetion	one 36mm Keihin slide/needle
Air filter	washable oiled foam element
Lubrication	pre-mixed fuel and oil
Starting system	primary kick
Ignition	internal-rotor magneto CDI
Charging system	none

DRIVETRAIN

Primary drive	straight-cut gears; 2.909:1 ratio
Clutch	wet, multi-plate
Final drive	#520 chain (5/8-in. pitch, 1/4-in. width); 3.857:1 (54/14) ratio

Gear	Internal gear ratio	Overall gear ratio	MPH per 1000 RPM
I	1.800	20.196	3.79
II	1.470	16.493	4.64
III	1.210	13.576	5.64
IV	1.000	11.220	6.82
V	0.833	9.346	8.19

SUSPENSION/WHEEL TRAVEL

Front	Showa air-spring, 43mm stanchion tube diameter, 14-position adjustable compression damping/11.5 in. (291mm)
Rear	single Showa shock, 12-position adjustable compression damping, 20-position adjustable rebound damping, 15mm spring preload range/12.2 in. (310mm)

BRAKES

Front	drum, double-leading shoe
Rear	drum, single-leading shoe, straight-pull cable-operated

TIRES

Front	90/80-21 Bridgestone Motocross M33
Rear	140/80-18 Bridgestone Motocross M32

DIMENSIONS AND CAPACITIES

Weight	217 lbs. (98.4kg)
Weight distribution	48.2% front, 51.8% rear
Wheelbase	57.6 to 59.1 in. (1464 to 1501mm)
Seat height	37.9 in. (962mm)
Handlebar width	32.5 in. (825mm)
Footpeg height	16.7 in. (423mm)
Ground clearance	13.3 in. (337mm), at engine cradle
Steering head angle	26.8 degrees from vertical
Front wheel trail	4.06 in. (103mm)
Frame	tubular chromoly steel, single front downtube
Fuel tank	plastic, 2.2 gal. (8.2*l*), no reserve
Instrumentation	none

PERFORMANCE

Top speed (observed)	75 mph (121 km/h)

WARRANTY: none

AVAILABLE COLOR: red only

Suzuki RM250

IMPORTER: U.S. Suzuki Motor Corporation,
3251 East Imperial Highway, Brea, California 92621

SUGGESTED RETAIL PRICE: $2219

ENGINE

Type	liquid-cooled two-stroke vertical single
Port arrangement	one reed-valve-controlled intake, six transfers, one exhaust
Bore and stroke	70.0mm x 64.0mm
Displacement	246.3cc
Compression ratio (corrected)	8.4:1
Carburetion	one 36mm Mikuni rectangular-slide/needle
Air filter	dual two-stage washable oiled foam elements
Lubrication	pre-mixed fuel and oil
Starting system	primary kick
Ignition	internal-rotor magneto CDI
Charging system	none

DRIVETRAIN

Primary drive	straight-cut gears; 2.565:1 ratio
Clutch	wet, multi-plate
Final drive	#520 chain (5/8-in. pitch, 1/4-in. width); 3.571:1 (50/14) ratio

Gear	Internal gear ratio	Overall gear ratio	MPH per 1000 RPM
I	2.077	19.028	4.02
II	1.722	15.778	4.84
III	1.381	12.652	6.04
IV	1.174	10.756	7.10
V	1.000	9.161	8.34

SUSPENSION/WHEEL TRAVEL

Front	Kayaba air-spring, 43mm stanchion tube diameter, compression damping infinitely variable within 8 turns of adjuster/10.7 in. (271mm)
Rear	single Kayaba shock, 4-position adjustable compression damping, 4-position adjustable rebound damping, 16mm spring preload range/12.4 in. (316mm)

BRAKES

Front	drum, double-leading shoe
Rear	drum, single-leading shoe, straight-pull cable-operated

TIRES

Front	100/80-21 Dunlop Sports K490
Rear	140/80-18 Dunlop Sports K590

DIMENSIONS AND CAPACITIES

Weight	219 lbs. (95.2kg)
Weight distribution	47.9% front, 52.1% rear
Wheelbase	58.1 to 59.2 in. (1476 to 1503mm)
Seat height	37.3 in. (947mm)
Handlebar width	31.9 in. (810mm)
Footpeg height	16.5 in. (420mm)
Ground clearance	14.0 in. (355mm), at engine cradle
Steering head angle	29.7 degrees from vertical
Front wheel trail	4.84 in. (123mm)
Frame	tubular chromoly steel, single front downtube
Fuel tank	plastic, 2.1 gal. (7.8*l*), no reserve
Instrumentation	none

PERFORMANCE

Top speed (observed)	76 mph (122 km/h)

WARRANTY: none

AVAILABLE COLOR: yellow only