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Suzuki RM250Z



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SUZUKI RM250Z

You want everything and you want it now?

Then try Suzuki's newest liquid-cooled RM Full Floater.

It has 125 agility and open-class punch—the best of both worlds.

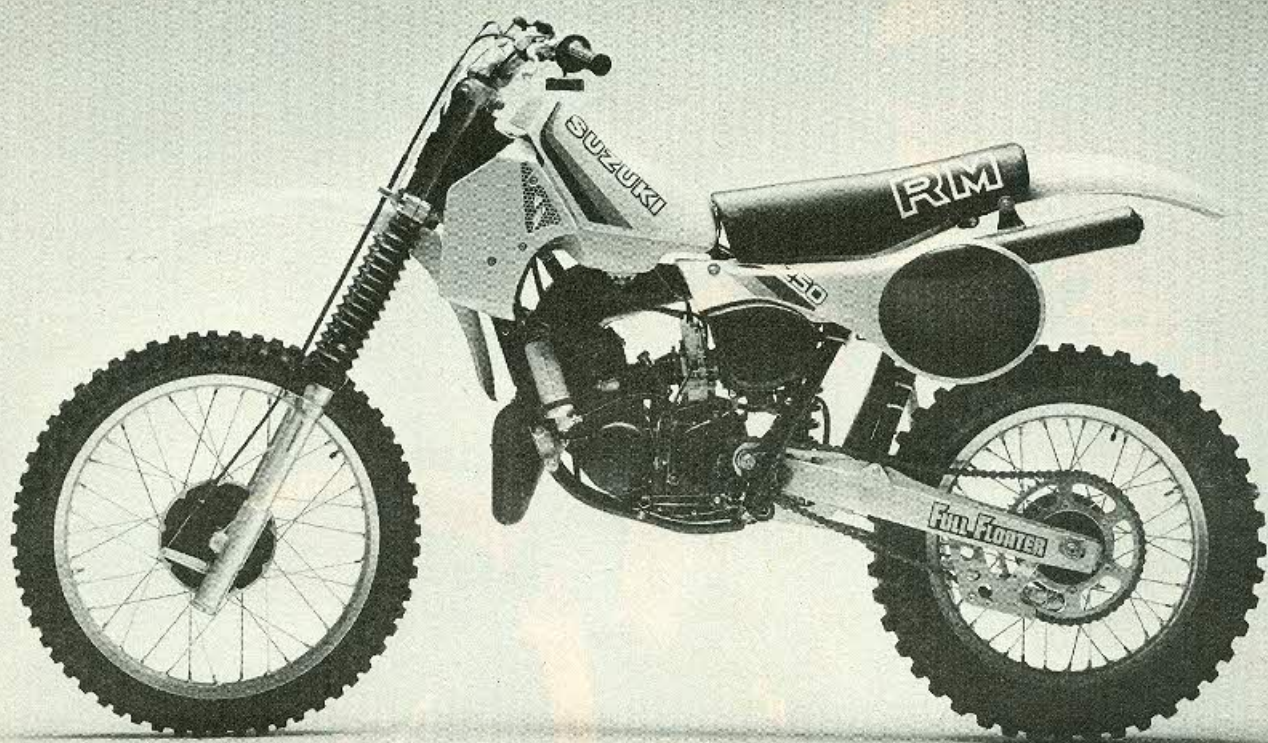
● SUZUKI HAS NARROWED THE GAP. NO longer is there a chasm between the factory machinery at the racetrack and the bikes you see on the dealer's floor. Last year Suzuki and the other major manufacturers released production water-cooled, single-shock race bikes that were near-replicas of the National riders' Untouchables. Not surprisingly, Honda, Yamaha and Suzuki all liquid-cooled their

125s; in the ongoing struggle for supremacy in the eighth-liter class, one or two horsepower can mean the difference between drinking champagne and eating a roast.

Honda was the sole manufacturer to produce a mid-sized water pumper, and they proved that horsepower was anything but a dead issue in the 250 class; the impressive CR250R earned the title

of All-Time Strongest 250 by churning out 34.92 horses on the *Cycle* dyno. This year Suzuki is heating up the horsepower battle in the quarter-liter division by introducing its second water-cooled motocrosser, the RM250Z. And while we have yet to test the other 1982 250s, Suzuki stands a very good chance of coming out on top in the 250 class wars.

The new 250 engine is much more than



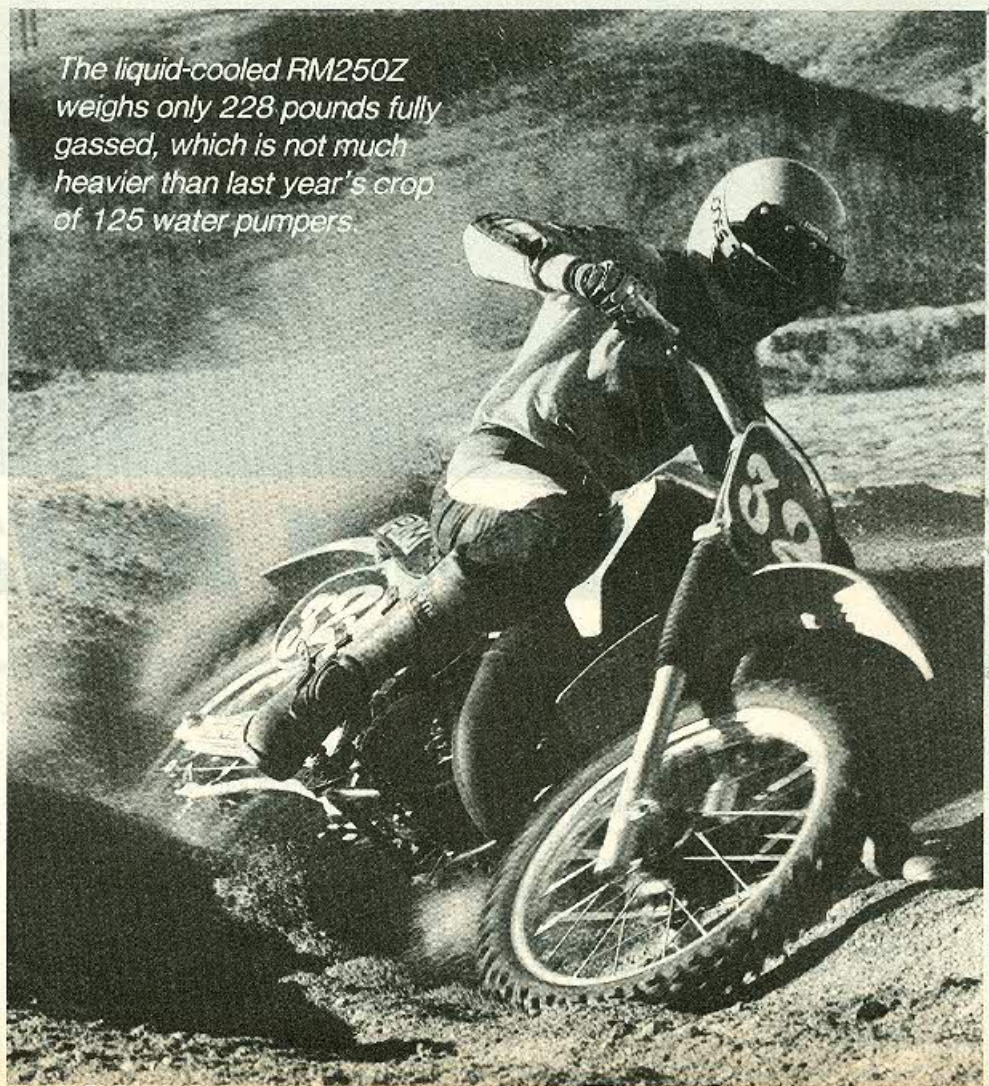
SUZUKI RM250Z

last year's powerplant with a water jacket transplant; the RM-Z's 70 x 64mm bore and stroke differ from the 67 x 70mm dimensions of the 1981 RM250X. These latest dimensions are not new to Suzuki; the RM250A had a 70mm bore, and Suzuki's history shows both big-bore and long-stroke engines.

Although the primary reason for liquid-cooling an engine is to minimize horsepower loss from heat buildup, there are a number of other sound reasons for adding water jackets and a radiator. With water-cooled powerplants, careful and knowledgeable tuners can dial in nearly spot-on carburetion settings, which can provide an edge in power and throttle response over an air-cooled engine. Also, since they stay considerably cooler, a water pumper's rings are less likely to stick or wear. And since the cylinder is in little danger of overheating and distorting, the bore stays round and allows the rings to seat properly, reducing the possibility of power-robbing blow-by.

A crank-driven seven-blade impeller pumps the 250's coolant; it's a scaled-up version of the RM125 water pump. Twin frame-mounted radiators nestle forward of the plastic gas tank, and plastic shields fend errant knees off the radiators. Up front, wire screens protect the radiators from rocks without impeding airflow. To protect the screens and radiators from becoming caked with mud,

The liquid-cooled RM250Z weighs only 228 pounds fully gassed, which is not much heavier than last year's crop of 125 water pumpers.



Suzuki supplies a set of mud flaps. Since they do restrict airflow, you must remove them on dry days.

Suzuki recommends a 50-50 mix of antifreeze and water for the cooling system. Use only distilled water; tap water contains minerals that can eventually clog the radiators' narrow passageways. You should select antifreeze designed specifically for use in aluminum-block engines, and Suzuki recommends adding a small amount of Bars Leak Radiator Sealant to prevent or minimize leakage.

Like last year's RMs, the new 250 uses Suzuki's Full-Reed intake setup—a hybrid piston-port-reed and case-reed induction system (though there are no longer reeds in the case). In conventional reed-inducted two-stroke engines with the reed valve between the carburetor

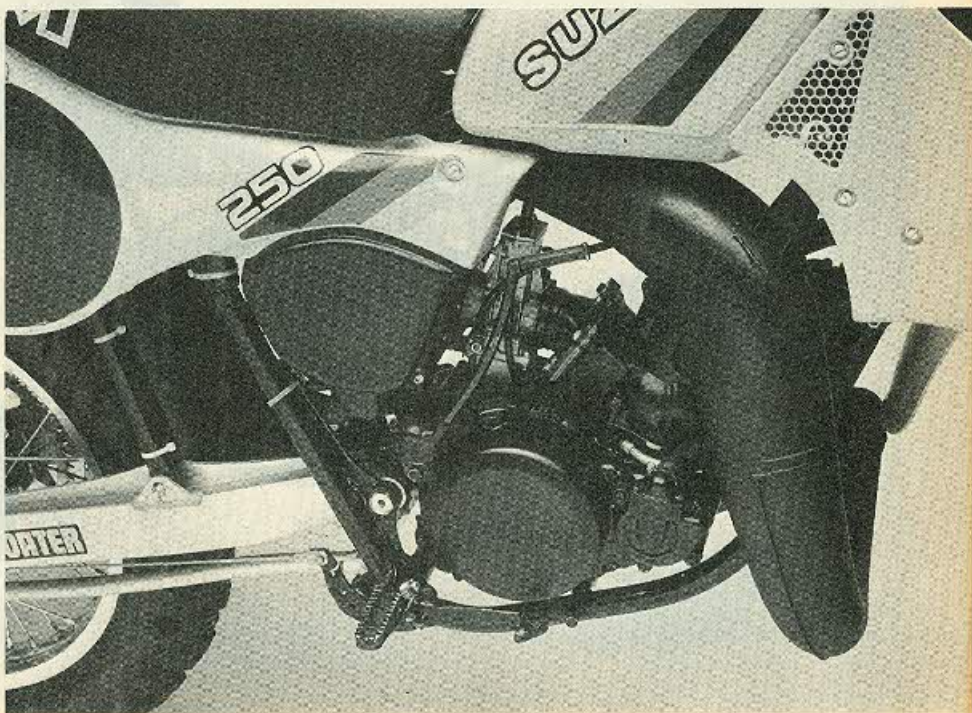
and cylinder, there is fast crankcase filling and the piston skirt controls intake timing. In contrast, case-reed designs provide long-duration but slower case filling. Suzuki uses a variation of both: an eight-petal reed valve in the manifold directs the intake charge to the crankcase through intake ports controlled by the piston skirt and through a rectangular case port (positioned roughly where previous RMs have their case-reeds mounted). With this setup Suzuki hopes to take advantage of both systems.

The exhaust port, now centrally located rather than offset, promotes more symmetrical scavenging in the cylinder. Unlike the bridged intake port, the exhaust port is unbridged.

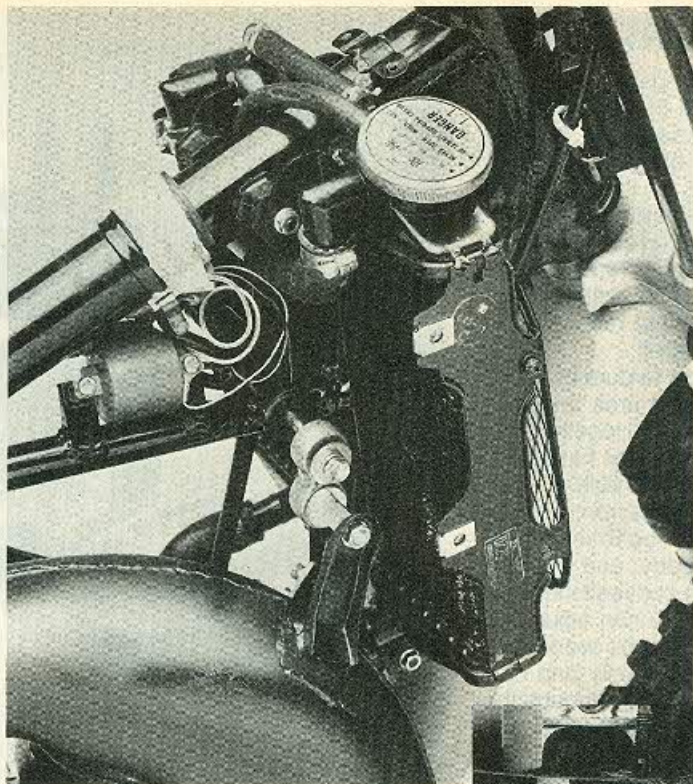
Our RM-Z proved to be an easy starter, usually firing up within the third kick,

hot or cold. Suzuki recommends at least a three-minute warm-up; liquid-cooled engines require a longer warm-up than air-cooled engines to allow engine parts to heat and "grow" equally. The relatively cold cylinder expands much more slowly than the piston, which is bearing the brunt of the thermal load. Full-throttle blasts and heavy loads inflicted on a cold engine can lead to metal-to-metal scuffing and cold seizure. After warm-up, the 250 must be wound out a few times before the engine runs cleanly.

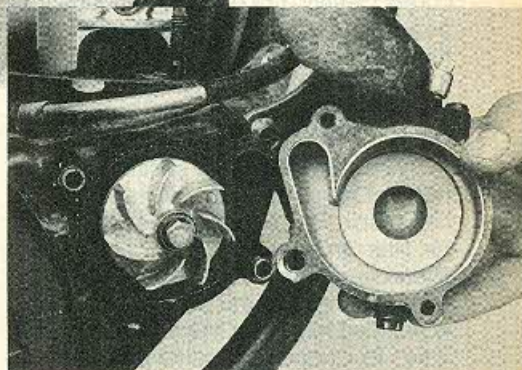
Once it's ready, be prepared. The RM250Z is one of the strongest 250 motocrossers we've tested. The low-end feels healthy, but power punches in-credibly through the mid-range. The RM stays strong all through its free-revving power range. We drag-raced the RM







The 250's cooling system employs twin frame-mounted radiators and a scaled-up version of the RM125's crank-driven seven-blade impeller. Wire screens protect the aluminum radiators from rock-filled roosts.



SUZUKI RM250Z

against a 1982 Yamaha YZ250 and a new Honda CR250R; given sufficient traction the Suzuki pulled a decisive lead over both. The RM runs side-by-side with some open-class bikes, and it yanks out of corners like a big-bore. Although this is a welcome bonus for expert riders, less experienced pilots may take a while learning to keep up with the strong Suzuki. The snappy powerband is less forgiving than that of other current 250s, and a far-forward riding position is mandatory in high-traction starts: the 250 lofts the front end easily even when you're pressed against the tank and leaning over the handlebar.

The RM-Z reclaimed the title of 250 Horsepower King for Suzuki by pumping out a record-high 35.10 ponies on the dyno. Serious students of *Cycle* motocross tests will point out that the Suzuki barely outpowered the 1981 Honda CR250, and then only at the 8000-rpm power peak. But as is often the case, figures alone do not tell the whole story.

Our RM250Z was exceptionally reluctant to run on the dyno; it seized once, and we rescued it a number of times from potential disaster while gathering our mid-range and high-rpm horsepower

readings. Twice we had to retard the ignition timing to keep the engine from detonating, and that certainly put a sag in the power curve. Even though these problems made life miserable in the dyno room, we never had a hint of trouble in real-world motocross testing conditions. The RM could conceivably show similar symptoms after running at full-throttle over miles of Baja silt beds, but the vast majority of owners will join us in praising the 250cc powerplant.

Suzuki is introducing a new feature on the RM250Z and the RM465Z—the Mikuni flat-slide carburetor. As the name suggests, the main difference between the 38mm carb and a conventional round-slide Mikuni is slide shape—the slide resembles a flattened I-beam. Although in many ways the flat-slide version also resembles the Lectron carbs so familiar to the road-racing crowd, it is functionally superior to the Lectron and all past versions from Mikuni.

Conventional Mikuni round-slides are shaped a little like a plumber's T-fitting and are not well streamlined where the throttle slide joins the carb throat. Recesses (which accommodate the slide's round shape) in the sides and floor of the throat disrupt the passage of air through the carburetor. This can reduce total

flow, and at part-throttle openings it can reduce flow velocity enough to upset air/fuel mixing and cause imprecise throttle response.

Mikuni eliminates these disruptions in the throat of its round-slide smooth-bore carbs by filling in the recesses. This requires special hollow slides to clear the filled-in areas. Instead of big divots, the carb throat and floor have only a couple of narrow grooves to guide the slide, and they interfere little with airflow. While this system improves full-throttle carburetor flow, part-throttle fuel metering suffers: the air velocity drops as the air flows up and into the hollow slide.

The throat/floor area of the new flat-slide Mikuni is filled in about as well as the smooth-bore's, but its performance at part-throttle is better. Being shaped like an I-beam, the flat slide doesn't need to be hollow. The center portion of the slide forms a small chamber at the bottom of the carb throat. At small throttle openings this chamber ensures high air speed in the crucial area around the fuel-nozzle discharge opening. High-velocity airflow improves fuel metering and atomization, which in turn improves throttle response.

The relatively complex Mikuni fuel metering system is superior to the Lectron circuits that adjust fuel mixture at

SUZUKI RM250Z

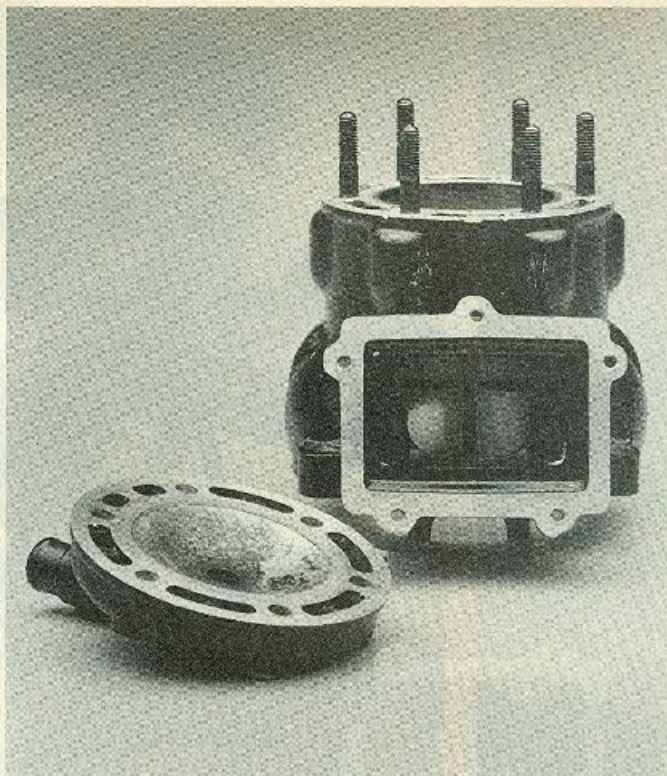
various throttle openings. The Lectron carb allows a smooth flow of air at full throttle openings because it, like the smooth-bore Mikuni, has a streamlined throat area, thanks to the Lectron's bladelike slide. But at part throttle openings, the bladelike slide (in contrast to the flat-slide Mikuni's chamber-forming slide) disrupts airflow. The air flows around and behind the slide, and that reduces flow velocity in the venturi area.

The flat-slide Mikunis feature bolted-in filler blocks in the throat area and two-piece carb bodies fastened together with special machine screws that have tamper-proof heads; it's a sensible precaution to keep curious fingers from dismantling things needlessly. You'll never need to get into the carb body, and the float bowl is fastened with conventional Phillips-head screws so you can adjust the jetting. The flat-slide carbs work very well; the RM250 starts easily and carburetors cleanly, hot or cold. Although the powerplant has no carburetion glitches, there is one small irritation: like many MX bikes the 250 has no idle screw. After-market kits are available, but a modification is called for at the factory.

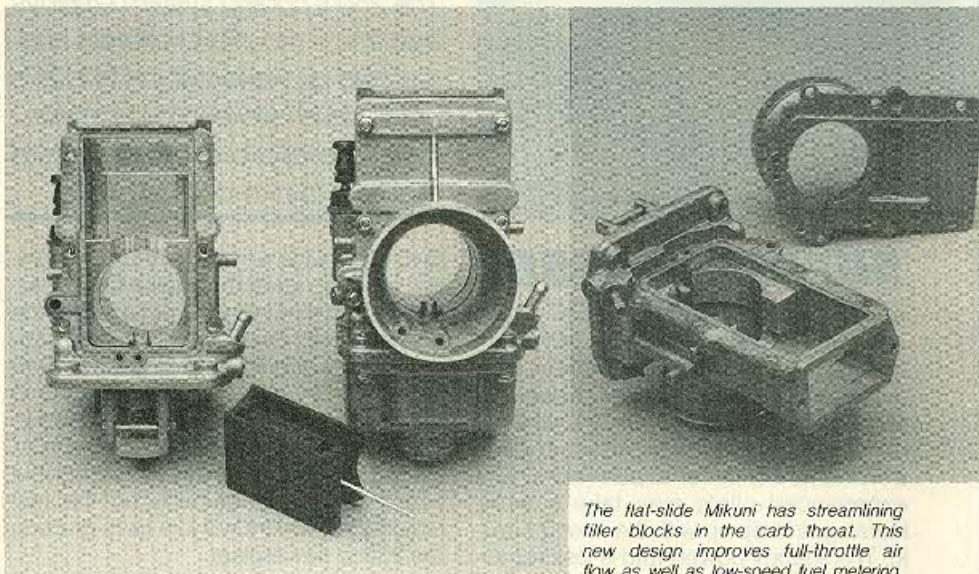
Since the Full Floater shock occupies much of the space ordinarily reserved for the airbox, Suzuki uses a U-shaped twin air filter arrangement. Each of the two filters uses coarse and fine dual foam elements to trap dirt and dust. Maintenance is doubled too—two filters to clean each time. To complicate matters, access involves removing the side number plates, which use slot-head screws with loose spacers and washers, then switching to a Phillips screwdriver to remove the airbox covers and open the filter-retaining system. It would be simple to standardize the screw heads, and Suzuki could consolidate some of the washers and spacers to eliminate some of the loose hardware.

The RM's five gear ratios are well matched to the powerband, and shift action is crisp and sure. The gearbox/clutch layout is identical to that of last year's RM, and the gearing has been altered little. Second gear is slightly taller in the new 250, and fifth slightly lower. One tooth fewer on the rear-wheel sprocket raises the overall gearing a touch, but all other ratios remain unchanged. Second, third and fourth gears are each a half millimeter wider for added strength, and the dogs on the gears have wider radii to facilitate shifting. The clutch plates remain unchanged, and clutch action is good; the 250 requires moderate lever pressure and the clutch is not prone to overheating.

The 1982 RM uses the basic Full Floater chassis, but it's substantially modified and improved. The chrome-moly chassis has been lightened, and the two engine cradle tubes meet higher up the frame's front downtube to accommodate the new



Suzuki's Full-Reed intake system is a hybrid piston-port-reed/case-reed design that features both a bridged intake port and a rectangular case port.



The flat-slide Mikuni has streamlining filler blocks in the carb throat. This new design improves full-throttle air flow as well as low-speed fuel metering.

center-port exhaust system. Otherwise, the frame is unchanged.

Suzuki has combined long rake and trail (29.3 degrees and 122mm) with a relatively short 57.5-inch wheelbase to produce a responsive but stable handling package. The RM steers neutrally, and the forward-sloping seat and contoured seat/tank junction allow you to slide forward easily and weight the front end in corners. In fact, the seat slopes too much; at times you must work to stay back on it.

The Suzuki rewards aggressive riding in the corners; our slower test riders found the front end pushing in some turns; our faster riders kept the gas on and reported no problems. For all, the 250's front end stuck best when they

used a berm or small lip for cornering. Deep sand and sandy whoops don't faze the 250; it tracks straight and true, never shaking its head or wagging its tail as long as you're on the gas. If you chop the throttle suddenly, the front end dives and wags a bit, which is standard with long-travel suspension and only shows the value of staying on the gas. The 250 is remarkably stable at speed over deep whoops; even if you lose your rhythm the bike stays straight without side-hopping.

Much of the credit for the RM-Z's excellent handling must go to the Kayaba suspension components. The 38mm fork produces 11.2 inches travel; although 38mm tubes seem slender in this age of 40mm-plus, Suzuki representatives tell us they use thicker-walled tubing to add

