Team Lojak: Winning's a family affair

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Yamaha YZ250L test:
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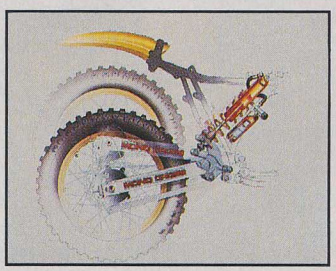
ON THE COVER
The new KDX200 in believe-it-or-not red played "go fish" with Charlie while Petersen photographer Rich Cox stood knee-deep in the stream.

YAMAHA

PHOTO: RICH COX



Rick "The Rockette" Johnson (right) does the ooh-la-la split to give you a better view of his '84 racer—the YZ250L. Though it doesn't appear very different than '83, the "L" embodies a host of changes, including revised leverage ratios.

A factory racer for the masses

Here's the situation: One genie in a lamp with one wish to grant and one wild-eyed motocross racer. Quick now, what's the motocrosser going to ask for? Why, a works bike, of course.

Practically since the sport's inception, the full-on factory ride has been the goal of nearly every MXer to ever banzai into a berm. At the very least, a works bike is the key to breaking out of the local pack and into the limelight. Yet only a chosen few mortals ever gain the privilege of smoothing out the gnarliest straights at warp speeds on the hand-built, outrageously expensive exotica destined to remain the tools of the Baileys, Barnetts and O'Maras.

To let you know just how tough it is to line up a ride on a factory racer, even the *Dirt Rider* staff couldn't swing a stint in the saddle of an '83 factory racer after the finish of last season. It was, of course, our professional intention to relay to you how the works bikes compared to their production-line counterparts; the thought of living out our adolescent fantasies on the ultimate tools of berm warfare never even occured to us (cough, cough).

Fortunately, the new year has brought with it a shift in attitudes and a new crop of scoots to drool over. And *Dirt Rider* is pleased to report that after hours of maddening negotiation, Yamaha agreed to let us evaluate their '84 factory Supercrosser/250cc National bike. As a matter of fact, Yamaha is now willing to sell those bikes to any-

PHOTO: MARK KARIYA

YZ250L

one with $2429.

What's the deal? Well, to bring you up-to-date if you haven't already heard, Yamaha will campaign *production* bikes this year, even for factory team riders like Broc Glover and Rick Johnson. The engine and suspension hop-up mods they prove will be released to Yamaha dealers in the form of Wrench Reports as soon as possible, enabling privateers to compete, theoretically, on an equal footing with the likes of Glover or Johnson. Even they won't have the alleged OW advantage over those on YZ250Ls.

TECHNICALLY SPEAKING

At a glance, the YZ250L appears to be nearly the same as its predecessor, the YZ250K. The right-side pipe with aluminum silencer, yellow radiator scoops and different decals appear to be the only changes to mark the latest 250. Compared to the new Hondas, Huskys and Suzukis, prospective buyers might walk right by the YZ, but it does deserve a closer look. As the saying goes, "There's more to it than meets the eye."

For instance, the basic frame looks like last year's, with a single downtube splitting just above the engine's centrally located exhaust port to form the cradle. Those familiar with the 250K will notice that gussets have been added to the sides of the steering head (doubling as second fork stops), below the head and on the downtube. These gussets should prevent the frame from cracking in that area, a complaint of some "K" racers.

Though Yamaha received few reports of the extruded aluminum swingarm breaking, many wondered why the chain adjusting marks were so often inaccurate. To combat the problem, a different welding procedure is used on "L" swingarms which markedly reduces the heat-induced misalignment. Still, it's best to measure the distance between the swingarm pivot and the rear axle before relying entirely upon the provided marks.

While the swingarm is still suspended on needle bearings, there is no longer a plastic rub roller for the chain. Instead, Yamaha now runs a long plastic pad along the top and bottom at the front of the swingarm. At the rear of the swingarm, the plastic chain guide is also longer, enclosing a portion of the rear sprocket in order to prevent the chain from derailing.

The new YZ does a pretty fair job of keeping its wheels on the ground, aided, no doubt, by some suspension updates and retakes. In front is still a KYB leading-axle air/spring fork with 43mm stanchion tubes and a measured 11.1 inches of travel. What's new is the compression-damping adjuster, a screw at the bottom of each fork leg. Similar to the adjuster on Suzuki's RM250E, there are eight settings, with the standard position a full four turns out from fully cranked in.

In order to shave a bit of weight from the fork (literally), the stanchion tubes were machined a bit between the aluminum triple-clamps. By reducing the stanchion tubes' length, but keeping the same amount of overlap, more weight was pared. Also, aluminum damping rods replace the K-model's steel units.

Each straight-wound fork spring is a 19-lb./in. item, according to Interpart's testing apparatus. Above each spring is a small steel "cap," a 2.9-inch preload spacer and another cap. The caps are included to prevent aluminum slivers from working their way into the damping valves and fouling up fork action. Ten-weight fork oil is recommended by the factory; the oil level on our bike was 8.25 inches from the top with the tube compressed and sans spring. The standard level is 6.3 inches.

There are even more changes to the rear suspension. Yamaha proved many soothsayers wrong by retaining what appears to be the same Monocross system as last year instead of using the one on last year's factory OWs in which the shock ran through a hole in the front portion of the swingarm, effectively lowering the center of gravity.

Again, appearances are deceiving.

Yamaha continues to shorten the remote-reservoir DeCarbon gas/oil shock—now measuring 18.2 inches eye-to-eye with a claimed 4.6 inches of shaft travel—while retaining the same wheel travel (a measured 12.6 inches) for less weight and a lower center of gravity. Naturally, the linkage ratios are different than before—3.9:1 in the first inch of rear wheel travel, jumping to 3.3:1 in the second inch and progressing evenly to 2.2:1 in the final inch. The YZ490K tested last year (which Yamaha said had the same linkage as the 250) exhibited a greater range—4.9:1 to 2.2:1. If you're a regular reader, you may also recall that last year's Hondas compared similarly to the present models—not as great a range of progressiveness. Could it be we've seen the last of the super-progressive linkages?

A straight-wound yellow shock spring is again employed on the L's shock; at a measured 253 lbs./in., it's precisely the same rate as the 490K. At its standard set length of 10.9 inches, there's 118 pounds of preload.

Damping adjustments are available to fine-tune the suspension. Twenty positions for either compression- or rebound-damping adjustments are accomplished by merely turning a knob. You don't have to remove the seat anymore, and you could probably change the settings without getting off the bike. To change the rebound damping, turn the knob at the bottom of the shock; eight clicks out from fully bottomed is standard. The compression-damping adjuster is now located on top of the shock reservoir; disregard what the owner's manual says and set it like the rebound, except for the number of clicks, which should be 15 out as standard. In both instances, turning the knob clockwise produces more damping resistance; turning the knob counter-clockwise produces less damping resistance.

Yamaha is not generally known for being afraid to try different things on their MXers, and their new wheels are testament to this. First seen on prototype TY250 trials bikes in Europe last year, Yamaha employs what they term "Z" spokes. Actually, the spokes are shaped more like a dog-leg bend than a "Z," but that probably wouldn't sound as trick. At any rate, the "Z" spokes are basically longer spokes with a "chicane" in the middle, corresponding to a lug on the wheel's hub. The system is claimed to be stronger, so fewer spokes are necessary, with the front using 15 spokes and the rear a combination of seven "Z" spokes on the brake side and 16 regular straight-pull spokes on the sprocket side. The rims are 0.5mm thicker than last year to combat bending. While we never had trouble with the wheels on our bike, Rick Johnson broke a few front wheel spokes after leaping off a suicidal cliff for the second time during our photo session—he thought it would look neat. Those who hold life near and dear would only attempt it with a parachute.

Quite naturally, updates to the 246cc engine, with its square 68 x 68mm bore and stroke, were implemented in hopes of providing enough power to reckon with other factories' works bikes. However, realizing that there would be far more "average" riders (ability-wise) actually putting the YZs through their paces, Yamaha also sought to make the engine easy to cope with.

To this end, two small auxiliary exhaust ports—one on each side of the main exhaust port—and an auxiliary intake port—to the right of the primary intake port—were added. Yamaha's Power Valve System (YPVS), which alters exhaust port height and, thus, timing, according to rpm in order to provide good low- and high-rpm power, received a slight change. Operating from 5700 to 7000 rpm, the exhaust port height ranges between 35 to 43.9mm, unlike last year when it varied between 33.8 to 42mm.

On the other side of the cylinder, the eight-petal reed uses a narrower cage than the K did, while small "fingers" actually reach into the reed block in order to create more efficient fuel flow. The ex-

PHOTO: MARK KARIYA

YAMAHA YZ250L

Make/model .....Yamaha YZ250L
Serial number .....Engine: 39X 000500
Frame: JA39X006EA000500
Price $2429
Number of dealers (U.S.) .....1700+
Warranty 30-day
Customer service .....Yamaha Motor Corp.
6555 Katella Ave.
Cypress, CA 90630
714/761-7439

ENGINE

Type .....Water-cooled two-stroke single with reed valve and Yamaha Power Valve System (YPVS)
Displacement 246cc
Bore x stroke .....68 x 68mm
Compression ratio 7.8-9.5:1
Horsepower/rpm (measured) .....35.3 @ 8,500
Torque/rpm (measured) .....22.5 @ 8,000
Carburetion .....Mikuni VM38SS
Exhaust .....Single upswept expansion chamber, rebuildable aluminum silencer
Ignition .....CDI
Lubrication .....Pre-mix (24:1 Yamahalube R recommended)
Air filtration .....Single-stage oiled polyurethane foam element

DRIVE TRAIN

Transmission .....Five-speed
Primary drive .....2.625:1 (straight-cut gear)
Final drive 3.692:1 (13/48)
Gear ratios (internal) 1st 2.142:1
2nd 1.750:1
3rd 1.444:1
4th 1.200:1
5th 1.000:1

CHASSIS

Frame .....Semi-double cradle
Rake/trail .....28°/4.69 in.
Front suspension .....KYB leading-axle air/spring fork, 43mm stanchion tubes, eight-position adjustable compression damping, 11.1 in. travel (measured),
Rear suspension .....Monocross suspension with DeCarbon gas/oil shock absorber, 20-position adjustable rebound damping, 20-position adjustable compression damping, infinitely variable spring preload, 12.6 in. travel (measured)
Brakes .....Front: Double-leading shoe drum
Rear: Single-leading shoe drum
Wheels .....Front: 1.60-21 D.I.D aluminum alloy rim, 15 "Z" spokes
Rear: 2.15-18 D.I.D aluminum alloy rim, 7 "Z" spokes, 16 straight-pull spokes
Tires .....Front: 90/90-21 Bridgestone M37
Rear: 130/80-18 Bridgestone M38

MEASUREMENTS

Weight (wet, no fuel) .....216 lbs.
Weight (wet, tank full) .....231 lbs.
Weight distribution .....104/112 lbs. (48/52%) (Fr/rr, wet, no fuel)
Weight distribution .....112.5/118.5 lbs. (49/51%) (Fr/rr, wet, tank full)
Wheelbase .....58.3 in.
Fuel capacity .....2.5 gal.
Reserve capacity .....No reserve
Sound test .....109 dbA
Ground clearance .....13.3 in.
Seat height .....36.5 in.
Swingarm length .....22.5 in.
Swingarm pivot to center of countershaft .....2.8 in.

PARTS/COST

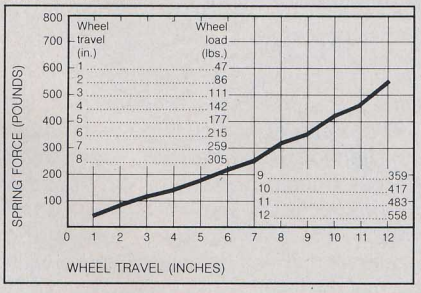
Maintenance manual .....Included with bike replacement $13.95
Carburetor jets .....Main—$2.20
Pilot—$1.80
Needle(set)—$9.00
Needle jet—$11.80
Sprockets .....Front: $9.50
Rear: $32.50
Handlebar levers .....$5.10 ea.
Shift lever $25.00
Piston kit (complete) $51.75
Rings only $15.60
Cylinder $210.50
Head $49.00
Clutch plates .....Friction (7)—$8.00 ea.
Steel (6)—$4.80 ea.
Air filter $16.10
Brake shoes .....Front—$6.80 pr.
Rear—$11.85 pr.
Chain .....*
Seat $79.00
Fenders .....Front—$18.80
Rear—$15.40
Fuel tank $83.60
Cables .....Clutch—$7.90
Front brake—$11.00
Throttle—$10.00

OPTIONS

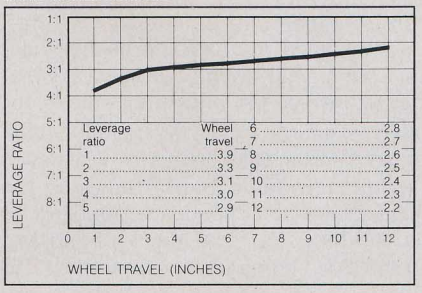
MXS (shock) spring .....Hard—*
Soft—*
Fork Springs .....Hard—$26.70
Soft—$25.35

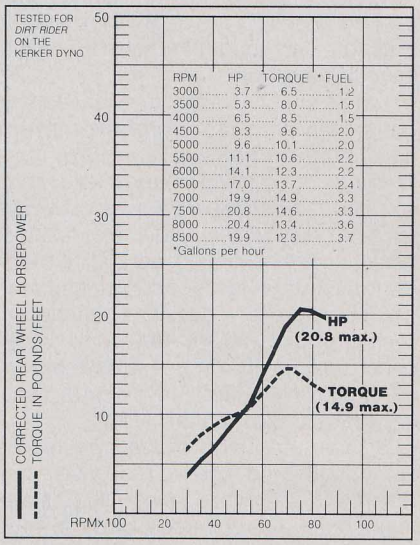
* Price not available at press time

REAR WHEEL LOAD

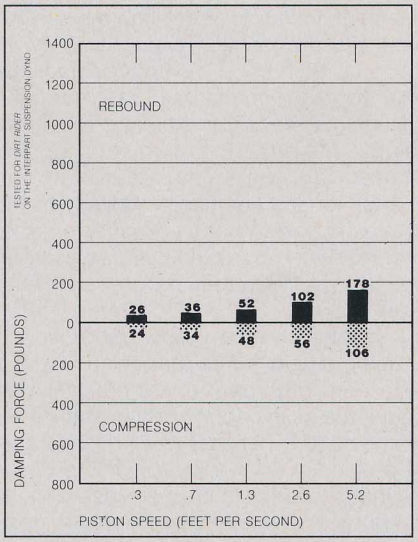


REAR WHEEL LINKAGE

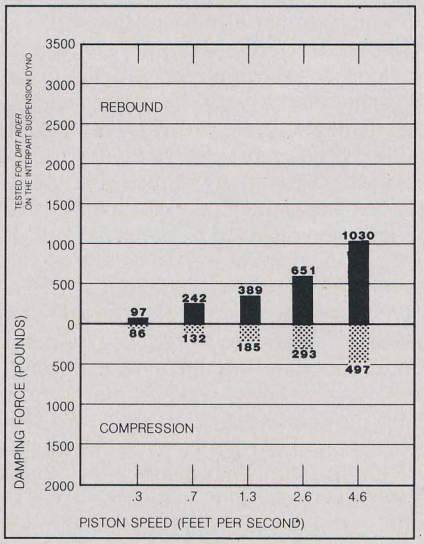


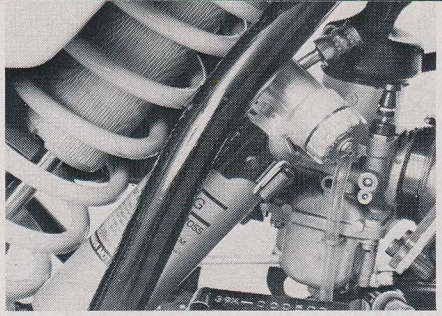


FRONT SUSPENSION DAMPING



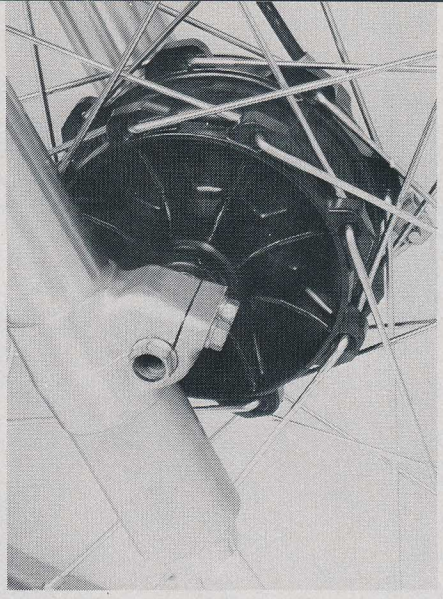
REAR SUSPENSION DAMPING



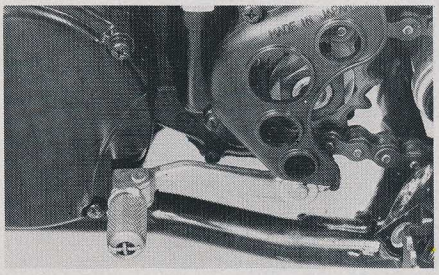


No longer do you have to remove the seat to change the shock's compression damping.

The riding position is comfortable, though some might feel cramped due to peg location.



A new hub and "Z" spokes held up for us. Adjustable fork compression damping is new.



New gearbox ratios are better than before, but they still don't seem spot-on.

haust gasses exit through a pipe that not only is on the right-hand side this year—due to the new air cleaner location—but the pipe's dimensions have also been altered to complement the new power goals. The rear cone is 0.79-inches shorter, while the stinger is 0.63-inches longer.

Last year, riders sometimes complained about the gearbox ratios being too wide, especially in the top gears. First and second gear in the L tranny are the same as before, along with the primary and final-drive ratios, but all three top speeds have been slightly lowered.

A problem on last year's 250 was the head-stay area; more than a few head-stay lugs and frames broke. This year the L uses a pair of straight aluminum stays four-millimeters thick, rather than last year's single, curved six-millimeter stay.

Other changes to improve engine durability include a one-piece primary drive gear, a tougher collar and linkage in the YPVS, a revised wrist pin recess on the piston and a longer shaft with an additional bearing for the water pump. A tubular guard was also placed behind the left-hand radiator to lessen the chances of radiator breakage.

One of the big complaints last year centered on the small air cleaner. This year, the location was changed, making it easier to get to by removing the left side panel (a mere three screws). The single-stage filter itself is approximately three-times larger than before and features an unusual way to remove it. After unscrewing the retaining knob, you must twist the filter clockwise 180 degrees before sliding it out.

Due to the increased airflow and porting changes, the 38mm Mikuni is jetted differently this year. A 290 main jet and 60 pilot are now standard—both richer than their 260 and 50 predecessors. We dropped to a 280 main, one clip up on the needle, and a 55 pilot, though, for most of our near-sea level testing.

One of the hot tips for the 250K was to fit a YZ60K ignition. That shouldn't be necessary this year because the Hitachi CDI has an advance curve that closely resembles the one on last year's mini.

ON THE GAS

What's it like to actually *ride* this year's factory Yamaha 250? Glad you asked. Just sitting in the safety seat is a pleasure for those of shorter stature, thanks to the 36.5-inch seat height. By the way, the mounting system at the front of the seat has been changed since last year, so the seat won't have to be taped to the new tank in case it unfastens.

On the other hand, more than a few testers—and they weren't all tall, either—complained the seat felt too dished near the front, forcing them to sit in one position, and the pegs felt too high. That meant the riders had to expend more energy than necessary to stand. Glover or Johnson couldn't have had input in this area.

The dog-leg aluminum control levers, drilled and recessed as they are for lightness, also felt as if they were designed with smaller hands in mind. They don't create much of a problem, though.

While blipping the throttle, waiting for the liquid-cooled engine to warm up, the unique sound of a Power Valve engine becomes evident. At low rpm, the exhaust note is extremely quiet; open the throttle to the serious side, and the bark is authoritative and healthy, but—at a measured 109 dbA—not offensive.

After running through the gears, more facts came to light. The new transmission ratios seem extremely close in the first three gears, a trait noted in our riding impression of the prototype in the December '83 issue. Second and third gears actually seem too closely spaced in some circumstances, making it a less evil choice to leave the bike in third and slip/fan the clutch instead of downshifting to second and immediately having to shift to third. If the engine revved higher, perhaps it would alleviate the situation; more on that later.

At any rate, what comes after three? That's right, four . . . and then five. The top two gears felt almost like an overdrive; they're definitely for faster parts of the track. There is a slight gap between third and fourth, but it's not as bad as last year. A couple of testers commented negatively on the shifting itself, saying it felt notchy and not as slick as, say, the Honda CR250R. Few faulted the action of the clutch; it engaged progressively and without chattering, slipping or undue effort at the lever for most, though one pro felt it was a bit grabby at times.

When it comes to matching motors with the competition, the YZ is right in there. After rejetting richer to compensate for the increased loads dyno runs induce, the Yamaha produced 35.3 horsepower at 8,500 rpm, and 22.5 lb./ft. of torque at 8,000 rpm. The same Kerker dyno showed the Honda with 38.8 horsepower at 8,500 rpm, and 26.2 lb./ft. of torque at 7,500 rpm. By the seat of the pants, the YZ feels nearly as fast as the CR, but its powerband is lower in the rev range. In fact, more than a few who threw a leg over the Yamaha felt it would make an excellent choice for faster enduros or even trail riding due to its clean and strong bottom-end power.

Though few of our testers believed it to be a problem, if at all noticeable, top-level pros and other speed maniacs sometimes detected that the power slightly flattened out at peak revs. And since it's not always possible to make an upshift at precisely the right spot in the powerband, it's nice to have an engine that'll keep on pulling hard. It's not that the YZ falls flat on its face; it simply tapers a bit.

Again, most of our testers never thought it a bother and concentrated on short-shifting. But if you feel like you have to have that very last bit of *ooomph* at the top, fear not—Yamaha has a Wrench Report that you or your dealer can follow. So, if you race a YZ, keep in touch with your dealer for the latest hot tips.

PHOTOS: RICH COX

OPINIONS

It took me a while before I felt even remotely comfortable with the YZ250L. The seating position is okay; but the pegs and handlebar both felt too high when seated or standing. Overall, the YZ has a light, short, almost tiny feel to it.

The engine felt really weird, like it had a powerband about an inch wide, but it was torquey. It revs so quick that it peaks out instantly. Under tacky conditions, it'd be hard to beat.

Once I got the suspension balanced, the YZ felt like it handled and steered well. Still, I think I prefer the Honda a bit more.

—Bill Jewell

Age/Ht./Wt.: 24/5'10"/173 lbs.
Motorcyle(s) currently raced/ridden:
Can-Am 500 Sonic, Jawa DT500,
Suzuki RM250E
Riding ability: Junior pro motocrosser

So this is what it feels like to ride a works bike, eh? Obviously Yamaha is pinning a lot of hopes onto the YZ250L and, naturally, the competition will be stiff.

I thought the YZ was pretty easy to go fast on; it handled and stopped well, and the engine was really easy to get along with, as well as being quite fast.

However, I'd like to see third gear a little farther from second and closer to fourth. Then I'd concentrate on dialing the rear end because it doesn't seem to soak up the small stuff as well as the Honda. This is probably going to be a better bike for most novices and intermediates, though.

—Mark Kariya

Age/Ht./Wt.: 27/5'10"/160 lbs.
Motorcycle(s) currently raced/ridden:
Honda CR250R, Jawa DT500,
Yamaha RD350H
Riding ability: Intermediate motocrosser

I'm just not as comfortable on the YZ250L as I am on the Suzuki RM250E or the Honda CR250R. The powerband isn't as easy to use, and when the power hits, the bike wants to wheelie. My main complaint, though, is that the low end isn't strong enough. In order to really go fast, you've got to ride the motor on the fine line and that takes energy away from your body and mind. I'd rather go fast without really thinking that I'm going all that fast. With more low end , the bike would shoot out of corners with less effort. Handling-wise, I have to praise the stability of the YZ's front end. It certainly is a lot more confidence-inspiring than the Honda's front end.

—Bob Carpenter

Age/Ht./Wt.: 23/5'9"/185 lbs.
Motrocycle(s) currently raced/ridden:
Honda CR250R, Suzuki RM250E
Riding ability: Pro motocrosser

Both wheels on the Yamaha spend a good deal of time where they're supposed to be—on the ground—which is fine. That means that little things, like being able to accelerate, brake and turn, are possible. With the YZ, though, the rider receives a bit more noticeable feedback over smaller bumps than the Honda, but not as much as the Suzuki RM250E. On our test bike, we set the shock's compression damping two clicks softer (counter-clockwise) and went two clicks stiffer (clockwise) on the rebound damping. We left the preload at the stock setting and also didn't touch the fork's compression-damping adjusters. The front end felt better when we raised the oil level to the 6.3-inch setting. In addition, we dropped the top of the fork tubes flush with the top of the triple clamp. These changes worked well for a wide range of testers, from novices to local pros.

No one faulted the brakes. Both the double-leading shoe front and the cable-operated rear drum (with its taller cam for more power) hauled the YZ from the fastest straights down to speed for the tightest, sloppiest hairpins with great predictability. Neither end locked up unexpectedly, even in slick mud or off-cambers. The Bridgestone tires are the same ones the CR and RM come with, and they worked adequately over a wide range of conditions.

One thing to watch out for is the forged aluminum brake pedal. There is now more clearance between the pedal and the engine case to reduce mud packing, but in deep ruts, the pedal hangs up and bends the six-millimeter pedal stop bolt which leaves the pedal pointing upward. Replace the bolt with a higher-grade item and keep an eye on its mounting tab.

A new D.I.D 520D S-chain is used on the 250L. The big difference is the thickness of the side plates, up to two millimeters from 1.8mm. It performed extremely well, requiring adjustments only when we rode in deep, gooey mud. Despite the slop and all the mud that built up, the chain never derailed, either.

In all our testing and racing around on the YZ, it proved to be durable and easy to maintain. The grips are claimed to be softer this year, but they don't quite match Honda's. The side panel/number plate is more flexible now and should last much longer than last year's brittle bits. Servicing the air cleaner is no problem, and the Power Valve is easy to get to for periodic cleaning or maintenance.

With the stock YZ250, you can probably go just as fast as with a stock Honda, but it seems to require a bit more effort. Shifting it properly and, most of all, keeping it in the robust portion of the powerband is paramount. Dialing in the rear end also ranks highly. Once you've got it sorted, though, it will win races. If you haven't already noticed, Team Yamaha has won a few already on bikes which started life as showroom stockers, not out-of-reach OWs. **DR**

PHOTO: MARK KARIYA