



# NEW HANDLE, NEW BLADE, SAME AXE

Keeping tabs on the mono evolution

Time is catching up with the mono-shock design. A year ago, all of the YZs were perched at the top of their respective heaps, suspension-wise. Kawasaki was still sorting out the Uni-Trak, Suzuki was getting ready to abandon the dual-shock approach and Honda was busy trying to understand why no one cared for Showa shocks.

The G-model monos were adjustable to the moon and back, took most bumps in a reasonable manner, and most of all, were reliable.

Bikes came out in 1981 and the rules of the suspension game were rather crudely rewritten. Now, the message was Pro-Link from Honda, a revised Uni-Trak from Kawasaki and the Fabulous Floaters from Suzuki.

Yamaha dutifully updated their monoshock, making it a bit better than the previous effort, as per usual practice. More adjustment available, greater capacity in the reservoir and small refinements in general.

Our job here, as we see it, is to determine if what they did was enough, and how it compares with the other hardware available; namely, the other 250 racers.

The bike in question is the Yamaha YZ250H, perhaps the most evolved and finely honed single concept in dirt bikes beside the Harley flattrackers.

#### Obvious changes/improvements

It's called the *H* and is one year newer and more advanced than the G model. A casual observer might pick up on only cosmetic changes, like the gold rims and 1981 decals; but, the important changes are up front.

A set of 43mm forks is the big news. Travel remains the same as last year at 11.8 inches. We sort of liked the action of the G forks and don't find the bump-absorbing ability of the H forks superior. However, the G forks would wobble around some if the tire was stuffed into deep sand or mud. Not a hint of flex can be detected in the 43's.

When we say that the action of the newer forks is no better than the older forks, this is not a criticism. The G forks were superb. In fact, now that the H forks have been beefed up, they must be considered just about the state of the art on production bikes. Only the 40mm forks on the new Husqvarnas work as well.

#### Not-so-obvious changes and some questionable improvements

A longer swingarm is on the new YZ250H. This slows down some of the side-to-side hop occasionally encountered with monos. Adjusting the rebound damping is still a simple job. Merely reach under the rear fender and turn the adjuster knob until you get what you want.

Riders who are not sensitive to what is happening are advised to leave the rebound damping in the standard position. This can be identified by two small punch marks on the knob. Line them up with the matching mark on the shock eye, and you're in the ballpark. Before you decide to play Mad Scientist with the damping, it's a good idea to read the well-written manual and make sure you understand what

you're doing.

Preload adjustment is almost as simple. A set of large (32mm) nuts are located right behind the damping adjuster knob. Merely loosen the jam nut and crank down on the other to stiffen things up.

This year, the YZ250 has a five-speed gearbox instead of a six-speeder. We bemoan the loss of the extra gear; it takes away from the versatility of the YZ. However, there were some reliability problems with the six-speed box (we're told), and the new five-speeder is heavily beefed up. Our 1980 YZ250 was ridden mercilessly for 11 months and we had no hassle whatsoever with the gearbox. In fact, it was probably the most reliable racing machine tested in the last five years at *Dirt Bike*. We had one rear hub crack during more than forty races; and that was it. The same top end was used for the duration.

Yamaha tells us that the new H bike should be even more reliable, as the rear hub is improved and the gearbox is about 40 percent stronger. A spot-check of the rear hub showed it to be identical to a 1979 F hub. A step back proves to be a step forward, in this case.





*This will probably be the last year you'll see the traditional Yamaha Monoshock design. The factories are playing with a progressive setup similar to the Honda Pro-Links.*

Other changes: There's a new YEIS system on the inlet tract. The *Dirt Bike* testers kept referring to it as a "boost bottle," causing Yamaha's Ed Scheidler to beat his head repeatedly into a handy post until we ceased our blasphemy. Anyway, the boos... that is the YEIS... stands for Yamaha Energy Induction System. It's nothing more than a chamber between the carb and the reed valve that lets incoming gasses have a storage place between pulses.

Its prime function is to improve throttle response at low and midrange at partial throttle conditions. At full throttle, it doesn't do anything.

To check out its effectiveness, we asked Scheidler to block off the hose going to the boo... the YEIS bottle. With tears in his eyes, Ed crimped the hose shut and let us blubber around the track for a few laps. He was right. The YZ ran like a dog. Ed told us he *could* jet the blubbering out with the YEIS detached, but we'd end up with a clean running bike with less response. It convinced us. That system, while not yielding earth-shattering gains, does work.

Overall, the 1981 engine has more snap right off the bottom and will pull with more punch early in the midrange. Gear ratios have been juggled around to take advantage of this. Or, to make up for losing a gear, depending on how you look at it. Here are the actual numbers:

1980 YZ250G		1981 YZ250H	
Ratios		Ratios	
1	.....2.142	1	.....2.142
2	.....1.812	2	.....1.812
3	.....1.411	3	.....1.411
4	.....1.142	4	.....1.142
5	.....0.956	5	.....0.956
6	.....0.875		

As you can see, the ratios are the same in the first five gears. No internal ratios are changed; the only difference being a 14-tooth countershaft on the new bike and a 13-fanger on the old bike.

What this means to the rider is that first gear on the H model is almost as tall as second gear on the 1980 machine. Most riders used to start the G bike in second gear anyway, so this will prove to be no handicap in a motocross start.

Where the change will be noticed is in cross-country or Grand Prix conditions. The old G bike is faster on top

# YAMAHA YZ250H MOTOCROSSER

end by about five to seven mph over the new bike.

We had a chance to drag race the two bikes side by side. When both bikes were started in low, the H would pull the G every time. When both were started in second gear, the G would win the race every time. With the G in second and the H starting in low, the G would win on hard-packed ground every time. With decent traction, the H would ease slightly ahead.

One interesting side note: We dragged the G, the H and a new Suzuki RM250X side by side, under a variety of conditions. Both the G and the H beat the Suzuki out of the gate by a few lengths, then held the distance until all of the bikes peaked out. The old G bike beat them both on top end, with stock gearing.

## On the track

While all this drag racing is fun and serves as a measuring stick of sorts, it's the lap times that are the most important thing. We found the responsive low-end power of the YZ to be an asset. The test riders could chop the throttle, when necessary, then snap it back on and rocket out of a turn—almost like an Open class bike.

The bike could be shifted fairly early on dry and bumpy tracks and the power could be rolled on for maximum control. This contrasted greatly with the Suzuki, which had to be screamed like a 125 for best lap times.

It didn't take a great deal of riding skill to pilot the YZ. The power had a decent spread, came on with no surprises and proved to be the most flexible powerplant of any 250 YZ ever built. It's safe to say that just about anyone could sling a leg over the YZ and get along with it right away. Much more so than the 1980 glavor YZ250.

## Bumps and grinds

Most of our testing on the newest YZ took place at Sunrise Cycle Park, which is rapidly becoming one of our favorite test beds for suspensions. It's a brutal track, laced with medium-speed whoopers and several stadium jumps. If a suspension works decently here, it'll be fine anywhere else.

None of our test riders liked the YZ with the standard mono spring, even with appreciable amounts of preload dialed in. The rear end simply wallowed too much, letting steering accuracy suffer. We slipped on the optional heavier spring and returned to a

standard preload setting. Much better; even for lighter riders. Not only did the Mono-X rear end resist bottoming now, but steering improved, too.

We eventually ended up raising the oil level in the forks by 10mm over stock. Our forks worked well under all conditions. We had two test bikes at our disposal. One of them had only a little time on it; the other was broken in. The forks on the broken-in bike felt much plusher than the fresh bike. You can expect this to happen to your new YZ, if you get one.

By the end of the day we had the YZ working as well as it was ever going to, in stock configuration. No doubt, you are asking the burning question as to how it compares to the Suzuki Floater rear end. Well, the Suzy single-shock works better, no argument there. However, the YZ is not that far off base. Just about the only place where the YZ suffers is on the killer, hold-the-bars-and-grit-your-teeth bumps.



The "H" engine is now a 5-speed, and with the YEIS induction there's a noticeable improvement in the bottom end performance.



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# YAMAHA YZ250H MOTOCROSSER



## YAMAHA YZ250H

Name and model	Yamaha YZ250H	Wheelbase	1480mm (58.3 inches)
Engine type	Single-cylinder, reed-valved two-stroke	Ground clearance	320mm (12.6 inches)
Bore and stroke	70mmx44mm	Seat height	950mm (37.4 inches)
Displacement	246cc (15.0 cubic inches)	Steering head angle	28.5 degrees
Horsepower	N/A	Trail	120mm (4.72 inches)
Carburetion	38mm Mikuni	Weight with one gallon gas	132 pounds (dry, 218 pounds) Aluminum alloy
Factory recommended jetting:			
Main jet	380	Rim material	Aluminum alloy
Needle jet	Q-0	Tire size and type:	
Jet needle	GF-14	Front	3.00x21 knobby
Pilot jet	90	Rear	5.10x18 knobby
Pilot jet	90	Suspension, type and travel:	
Slide number	Premium 3.0	Front	Air/oil KYB telescopic 300mm (11.8 inches)
Recommended gasoline	90 plus octane	Rear	Monocross, single-shock 310mm (12.2 inches)
Fuel tank capacity	7.8 liters (2.0 gallons)	Intended use	Motocross, off-road racing
Fuel tank material	Plastic	Country of origin	Japan
Lubrication	Oil in gas, pre-mix, 16:1 (NOTE: We run 32:1)	Approx. retail price	\$2029
Recommended oil	Yamalube "R"	Distributor:	
Oil capacity	N/A	Yamaha Motor Corporation	
Air filtration	Oiled foam, two-stage	6255 Katella Avenue	
Clutch type	Wet, multi-plate	Cypress, California 90630	
Transmission	Five-speed, constant mesh	Parts prices, high-wear items:	
Gear box ratios:		Piston assembly, complete	\$39.80
1	30/14 (2.142)	Rings only	14.60
2	29/16 (1.812)	Cylinder	216.60
3	24/17 (1.411)	Shock lever	10.29
4	24/21 (1.142)	Brake pedal	20.60
5	22/23 (0.956)	Front sprocket	69.52
Gearing, front/rear	14/48	Overall rating, 0 to 100, various categories, keeping intended use of machine in mind:	
Ignition	Hitachi CDI (M-100-27)	Handling	96
Primary kick system?	Yes	Suspension	(front, 98; rear, 93)
Recommended spark plug	Champion N-2G	Power	96
Silencer/spark arrester/quality	Silencer only, average noise level	Cost	95
Exhaust system	High pipe, through frame	Attention to detail	96
Frame, type	Single downtube, split cradle	Effectiveness, stone stock	96

These, the RM almost ignores, while the YZ will take them under protest, with a shudder going through the chassis. One place the YZ rear end works better than the RM is with the throttle shut off. Here, the RM waggles its head and feels like the frame has a hinge in the middle; the YZ still tracks straight under the no-load conditions.

### Point it and go

This year, the YZ line (125 through 465, at least) has less rake and trail; and they all turn better. There's a slight trade-off in stability at very high speeds over rough ground. In fact, some of the Baja and SCORE riders

are using 1980 frames with '81 motors and suspension.

On hard, flat corners, our test 250H proved to be very agile. Even with the stock tires, the front end wouldn't push out as long as the rider was slightly forward on the tank.

We found the best cornering technique was to leave the bike in the highest useable gear and slip the clutch when exiting turns. Naturally, this had to be accompanied by a forward weight shift. Once the bike was straightened out, the rider could slide back a bit, gain rear wheel traction and forget the clutch.



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This technique requires an aggressive approach, but will work quite well once the rider gets used to it. When riding this year's YZ, you are not aware of any high-up weight. It's only when you ride another single-shock bike, like a Pro-Link or a Full Floater, that you can notice the shock's weight. Then, after a few hard laps, you forget it and merely concentrate on riding.

The YZ250H is not all that happy when forced to slide. Oh sure, the rider can weight the outside peg, crank on the throttle and break the rear end loose. But, to maintain a long, workable slide is beyond the skill levels of the average racer. More often than not, the YZ wants to stand upright half way through the slide. It's best to cut and thrust most tracks and forget the spectaculars.

#### Bits and pieces

You'll find an improved air box this year, with a smoother sealing surface and more room in the box itself. This means you can now get an average-sized hand in behind to check if the filter is seated.

A folding shifter is now stock—a welcome change.

Pegs are back a fraction and up a bit more than last year. This makes it very easy to wheelie the new YZ. A bit too easy, until you get used to the bike. A few of our riders almost looped the bike out when accelerating up a grade.

A sano straight-pull throttle with a clear window top is standard. Split-perch lever mounts make changing easy. Good grips are hung on the end of the bars.

We felt the bars were too high and too wide for comfort. After cutting them down to 32 inches, the feel was improved. We slipped on a set of O'Neal OW low bars after the first few rides. This let us go forward easier.

Clutch pull is smoother and easier this year.

The left side panel will show melt marks from the pipe. Another rubber side plate plug, or a piece of asbestos will prevent this. Do it before you ride the bike.

Nice guides route top-quality cables. There's no danger of snagging things up front.

Brakes were strong at both ends. Perhaps too strong at the rear. We bent the brake rod slightly for some "give" and the occasional inadvertent stalling ceased.

(continued on page 65)

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Once again the front forks are excellent. The truly massive 43mm units combined with the strong front brake give the Yamaha one of the best packages available.

#### One more time?

Here's the deal. This year, the YZ works. It has a great motor, superb forks and a good rear suspension. Detailing and adjustability are all top-level. But, quite frankly, the mono-shock concept as we see it now appears to be at the end of the line.

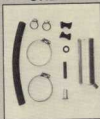
Yamaha simply must come up with some sort of rising rate suspension next year. The mono has been a faithful design that's served them well. The end result in 1981 represents a close to a decade of hard work and engineering refinement. Now, it's a very good bike. Next year, even if it gets refined a bit more, it'll be just average. □

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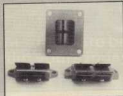


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