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YAMAHA YZ250

**Cutting 20 lb. out of the YZ250 wasn't easy...
but it was worth it.**

■ Got a 1982 Yamaha YZ250 you don't want to trade in on a new one? Stop right here. Don't read this test. You'll be happy not knowing about the 1983 version.

Is the coast clear? Fine. It's safe to look back at the '82 YZ250 and remember that at 243 lb. the bike was on the porky side. That year's single shock rear suspension had different control arms to provide a rising rate, but it didn't work well in competition. The '82 YZ250 wasn't bad, made an adequate playbike in fact, but it wasn't as good as the competition when it came to chasing checkered flags.

Well, 1983 is a new year. After several years of minor changes, the YZ has a really different suspension, a different and long-stroke engine and—the best part—has benefited from an all-out program of weight reduction.



Unless you're a Yamaha fanatic, the YZ250 engine doesn't look as new as it is. Still water-cooled and all that. Inside, though, the oversquare bore and stroke of 70 x 64mm have been traded for dimensions of 68 x 68mm. Compression ratios has also been increased, except that because the YZ has a variable exhaust port height, and because compression doesn't begin until the port is closed, the Yamaha doesn't have a usual number and thus is hard to compare.

Raising the exhaust port is an effective way to gain rpm and without peak power. At low revs, a lower exhaust port works better. Yamaha's Power Valve System (YPVS, they call it) has a centrifugal linkage at the end of the crankshaft. The linkage pivots a barrel-shaped exhaust port insert, raising or lowering the top of the port.

This gives the engine a variable compression ratio, from 7.4:1 at maximum rpm to 9.2:1. A two-stroke with fixed ports doesn't have this span, making the YZ a bother when it comes to filling in

All those Yamaha Monoshocks over the years have felt, somehow, different. Now the YZ250 is part of the mainstream. The shock is carried low in the frame and linkage makes it progressive. This year it works great.

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the technical specifications. More to the point, this year's linkage has been strengthened to eliminate problems that showed up when the device was introduced last year.

At the back of the new cylinder is a giant eight-petal reed valve and a cavernous intake port.

Gear ratios in the five-speed transmission have been shuffled to match the greater torque of the new engine. Most of the gears are just slightly lower than the ratios on last year's 250, but first is changed the most, again, to a lower ratio. Overall the ratios spread is slightly wider. Straight-cut primary drive gears spin a clutch with seven fiber and six steel plates. A composite kickstart lever mixes a forged aluminum shaft and pedal with steel used for the clamp-end. Primary kickstarting is, naturally, retained. A folding aluminum shift lever with steel tip moves a modified shift cam this year. A coil spring fastens through the center of the round folding tip where it's protected from damage and is self-centering.

Every part of the new YZ has special attention paid to making it lighter. The '83 frame uses larger diameter chromemoly tubes with thinner wall thickness for less weight. Good triangulation is evident at the steering head and the middle of the frame, just under the seat. The steering head angle has been altered slightly, 27.5° last year, 28° for

'83. Trail is almost the same though. The frame is painted black, over typical sloppy-looking Yamaha welds.

The radiator has been relocated. It's on the front downtube now, eliminating the complexity of routing water through the steering stem and triple clamps. The new system still looks cluttered. There are eight separate water hoses, two Ys, two radiators and 16 hose clamps.

All these changes are nice but the really big news is the first major change in the Monoshock rear suspension. Last year was a partial change that didn't work as well as the engineers anticipated.

This year the rear suspension works great. The aluminum-bodied shock has been moved down behind the engine, at the front of the swing arm where everyone else places single shocks. Forged aluminum levers at the bottom of this spring-shock unit connect it to the front of the swing arm and make the suspension actually progressive. A compression damping knob at the top of the shock has 15 positions, but the seat has to be removed to reach it. A knob on the bottom of the shock controls 25 rebound damping settings. Spring preload is adjustable with a threaded ring and lock nut. No parts of the motorcycle have to be removed to reach the adjuster collar at the bottom of the shock, making this the easiest of the single shock bikes when it comes to adjust preload. A large remote reservoir is mounted on the right of the frame,

nearly parallel with the shock. Because of the mounting position, a very short hose is needed to connect the shock and the reservoir, making the reservoir more effective for cooling shock fluid.

A new extruded aluminum swing arm has thinner walls, making it lighter, while being stronger this year, according to Yamaha. Rear axle adjusters slide through the back of the swing arm where they're protected. The full-floating backing plate is held by an aluminum strap static arm. The rear brake pedal is forged aluminum with a steel claw top. It has proven to be very good on past models. There's a foam pad glued on the frame just below the pedal. It takes up the space where mud would normally collect. The foam doesn't weigh anything and it keeps mud build up from interfering with the pedal action.

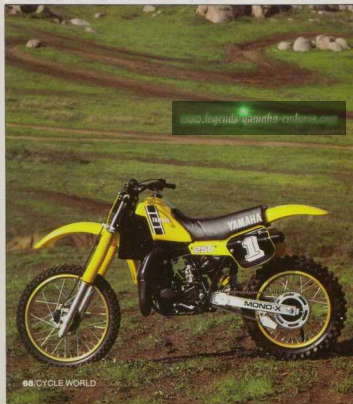
Wheel assemblies haven't been overlooked in this massive weight-savings campaign. At total of 4.4 lb, has been removed—all this unsprung weight—by using hollow-tipped aluminum rims, machined aluminum spoke nipples and die-cast aluminum hubs. This is a lot of unsprung weight to eliminate, and it not only makes the suspension work better, it reduces the front wheel's inertia for easier steering.

Yamaha forks have been excellent for the last couple of years, and the 43mm KYBs on the new YZ250 are no exception. They're firmly held in double bolt forged aluminum triple clamps. Damping isn't adjustable on these forks, but they come with a pop-off valve on the compression damping, what Yamaha calls a linear compression valve. Like the adjustable pop-off valves on the Honda CRs and Suzuki RMs, this valve relieves compression damping on shock loads, enabling the forks to work well on small bumps and large ones. Adjustments are limited to oil volume and weight, air pressure and alternate fork springs. Fork stanchions can also be raised in the triple clamps for quicker steering and lowered in the triple clamps for slower steering.

A slimmer plastic gas tank with a slightly reduced capacity is used. The new shape holds 2.2 gal. of premix. Its top is shaped so a safety seal won't be kicked up too high. The exhaust pipe tucks nicely into the frame and doesn't stick out from under the tank, but the wings for the radiator do. In fact, the first thing a rider notices is the air scoops protruding way out there. They look vulnerable but we didn't break or bend or catch them on anything.

The seat cover is cheap looking and thin, although the seat itself is comfortable and the foam the right hardness. And the silencer is the same old thing. It's steel and can't be repacked. Good for the aftermarket crowd, not so good for the owner who has to buy a new silencer when the stocker becomes too loud,

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Thirty-five or so dollars for a new sintered-steel bit when it's compared to a couple of dollars for a packing kit for a rebuildable unit. Maybe next year.

A quick look at the other small parts on the YZ give good impressions; the cables are great, the bars the correct shape, the grips okay, the chain guides are good, the levers are dog-leg jobs, and the throttle (a new part without a gear drive) works fine. The air cleaner is an oiled foam, two-stage unit and it's in the best YZ airbox to come from Yamaha.

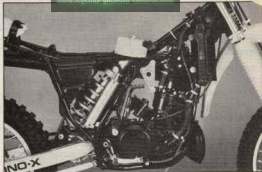
It no longer has to be wrapped around the rear shock so the box can be more normal with a wide top and adequate interior size. The foam filter is held in place by a plastic nut in the filter's rear center. It also comes equipped with a good top which keeps water out.

Giving the new YZ the garage test proves it has one of the lowest seat heights of any long-travel motocrosser. It measures 37.3 in. without a rider. When a rider is aboard both ends sacking and it's possible for all but the very short to touch the floor. Starting the YZ250 is a pleasure. Just jab the kick lever a time or two and it's running. The lever has cast-iron ridges so boot soles don't slip and because the lever is short you don't have to search for something to stand on to get your foot to the top of it. Clutch pull is moderate and the clutch completely disengages when pulled, even when the engine and oil are cold. Blipping the throttle while the waterpumper warms up, the rider is aware the engine has definite power bands. There is a surge in the power as the exhaust port top rises.

Dropping into low or second and riding away, the rider again feels the difference in the engine's power output as the exhaust moves. About a quarter of the way through the revs there's a strong boost in power and it's felt again about halfway up the scale. There's a flat spot right at the top. This engine's tuned for a lot of mid-range power. All of the '83 motocrossers we've ridden have been tuned for mid-range as well. There's a trend away from the ultra-high-revving power-at-the-top motocross engines. Transmission ratios are perfect for the engine's powerband. There's no bog or hesitation as the bike is shifted to the next gear. Engine response is a terrific blat, blat, blat, instantly, with just a little turn of the throttle.

The changing power as the revs climb catches the first-time rider by surprise and it takes a few laps to become comfortable with it. After about a half an hour most testers started to get a feel for the power surge and use it to their advantage exiting turns. Timing the exit so the rear wheel hits the berm as the power valve starts opening let the YZ250 explode out of turns. Hang on the first time you try it, the bike might leave you behind.

Watercooled engine is compact and light. A new eight-petal reed valve lets air into the cylinder with little resistance. Kick pedal is forged aluminum to save weight. New rear shock placement lowers weight in chassis and makes adjustments easy to reach. Radiator has been repositioned to frame's down tube.



Airbox is large and conventional. Foam filter is reached by removing the seat. Good airbox cover is standard.



Forged aluminum shift lever has a folding steel tip with the return spring in its center.



Die-cast aluminum hubs are lighter and stronger.



Eight-petal reed valve is new for '83.

KYB forks have 43mm stanchion tubes and 11.8 in. of travel. Bridgestone tires are great on most terrain. Aluminum rims have hollow lips and the spoke nipples are machined aluminum.

Bike is very narrow except for the radiator scoops.



YAMAHA YZ250

SPECIFICATIONS

List price	\$2269
Front wheel travel	11.8 in.
Fork stanchion tube diameter	43mm
Rear wheel travel	126 in.
Front tire	90/80-21
	Bridgestone M33
Rear tire	140/80-18
	Bridgestone M32

Engine	two-stroke Single
Bore x stroke	68 x 68mm
Piston displacement	246cc
Compression ratio	9.2:1
Claimed power	na
Claimed torque	28.4 lb-ft @ 7500 rpm

Carburetor	38mm Mikuni
Ignition	CDI
Lubrication system	premix
Primary drive	straight-cut gear

Gear ratios, overall:	
5th	8.85
4th	10.61
3rd	13.26
2nd	16.96
1st	20.76

Oil capacity	1.8 pt.
Fuel capacity	2.25 gal.
Fuel tank material	plastic
Swing arm material	aluminum
Starter	primary kick

Air filtration	oiled foam
Frame material	steel
Wheelbase	58.8 in.
Seat height	37.3 in.
Seat width	5.5 in.
Seat length	23.5 in.
Seat front to steering stem center	10.1 in.
Handlebar width	31.9 in.
Footpeg height	16.9 in.

Footpeg seat top	20.8 in.
Footpeg to swing lever center	6.4 in.
Footpeg to brake pedal center	5.4 in.
Swing arm length	22.5 in.
Swing arm pivot to drive sprocket center	2.8 in.

Gas tank filler hole size	1.6 in.
Ground clearance	13.7 in.
Fork rake angle	28°
Trail	4.69 in.
Test weight w/ half tank fuel	.224 lb.
Weight bias, front/rear percent	48.2/51.8



The '83 YZ250 has a 125 feel to it. The fast-revving engine has no noticeable vibration. The quick, agile handling and the light weight provide the fun of a 125. Our scales proved the bike as light as the riders thought. It weighed 224 lb. with a half tank of gas. That's 19 lb. less than last year's 250YZ. Pitching the bike into a bermed turn is as easy as any small bike you've ridden. It reacts instantly to body English and the rider never has to fight the bike to get it to go where he wants.

The '83 rear suspension smiles ahead of anything Yamaha has had before. The YZ's top heavy feel is gone. The low shock and linkage have moved the weight to the bottom of the chassis. Previous YZs have had a tendency to dive when braking into a turn. The '83 doesn't as long as the fork oil level isn't too low. The seat doesn't unload the rear wheel under hard braking either. The back stays down when the brakes are applied hard and it doesn't get loose and skatey

feeling. But best of all, it works well over the bumps and gulleys and when landing from tall jumps. The adjustable compression and rebound damping make the bike easy to set up for different tracks as well as changing track conditions during a long day of racing. If the track gets full of lips and sharp-edged holes, as many do, just stiffen the compression damping a couple of clicks before the second moto.

We fooled around with the rear end's adjustments and found all of them have an effect. Even slight changes in the spring preload made a difference. Take the time to dial it in for your track, riding style and ability. You'll be glad you did. When it's dialed in right, it crosses chatter bumps smoothly, doesn't bounce the rider around, and doesn't bottom land from sky-scraper jumps. The forks are still some of the best production units around. Not riding a new YZ based on dislikes of past Monoshocks is a mistake. They aren't like the old ones. It's no longer necessary to keep the throttle on

when crossing gulleys to keep the suspension working properly. Generally the ride is smooth, comfortable and controlled.

Yamaha's brakes have been good for some time. The '83 is better yet. The double-leading shoe front brake has better feel and less grab than previous models. The rear brake still provides strong, chatter-free stopping.

Moving around on the bike is easy with its new, slimmer shape. Sliding forward doesn't spread the rider's legs and the safety seat lets you get on the tank without fear of injury to vital organs. The seat to footpeg distance is right and the handlebar width and shape is good. Hand and foot levers fall naturally in place and the raised footpegs keep the rider's feet from being knocked off when landing from tall jumps and when the suspension compresses crossing gulleys. Shifting is smooth and accurate and no one remembered missing gully shifts.

Okay, sound good doesn't it? It is! The new YZ250K is a fine bike. Try one. ■