

The Yamaha YZ465 had several distinctions when it first appeared for the 1980 season. It was the biggest production motocross racer ever made, was more than a match in terms of suspension travel and adjustments for any of its rivals and, above all, was the first "over the counter" motocrosser to boast over 50 horsepower at the crankshaft! In both chassis and engine departments, the YZ465 was a complete departure from the already-successful YZ400 which it replaced.

It didn't take long for the totally redesigned motocrosser to develop a reputation as the most powerful and, more importantly, the best 500cc-class motocrosser in recorded history. The YZs went on to become a dominant force in motocross competition. Marty Moates even won back-to-back 500cc Motocross World Championship motos in Carlsbad, California aboard a modified YZ465.

He decisively beat the best bikes and riders in the world with a production-based machine. That's something that NEVER happens in world class competition, and it's a tribute to how good the YZ465G was.

But time and motocross technology march on. It was obvious that the other manufacturers weren't going to be content to be outclassed by Yamaha again in 1981. The other three Japanese manufacturers have introduced reworked and, in some cases, totally new machinery. Kawasaki has fiddled with the KX420 in hopes of making it more competitive. Suzuki has shown their new RM465 in Europe; it has an extra helping of

displacement this year, along with Suzuki's new single-shock rear suspension system. And, of course, there's the all-new Honda CR450R. Honda's first production open-classer is equipped with their new Pro-Link rear suspension system, and is claimed to churn out over 50 hp at the crankshaft.



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All action with the Yamaha YZ465. Yellow and black paintwork is strictly for USA market but the bike is otherwise identical to European production models.

The guys at Yamaha knew that their world-beating YZ465 was going to be challenged from all sides for 1981, so they've tried to build enough changes into the new H-model to keep it a wheel ahead of the others, no matter how formidable the motocross competition might be.

Until we get a chance to test the other new open-classers, we won't be able to tell you how they stack up against the YZ465H. But we can tell you that this newest rendition of Yamaha's earth-shattering 465 is a hair faster, easier to ride, and more durable than the original. It's going to be very difficult for the other manufacturers to top this new YZ.

# YAMAHA YZ465

The rip-snortingest, sand-slingingest, knob-rippingest, turf-chunkingest monstercrosser ever to wrinkle the crust of the earth . . . so far



The 1980 Yamaha YZ465 in familiar red and white European trim.

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Guest Test this issue comes to us courtesy of "Motorcyclist"—one of the "big four" bike magazines in the USA and one of the longest-established motorcycle magazines in the world, having been around almost as long as motorcycles themselves. This test report was first published in January, one of the very first complete tests on the 1981 version of the latest Yamaha YZ465 motocrosser. Apart from the "American" yellow and black paintwork, this version of the YZ465H is identical to the European model.

The heart of the biggest YZ has received only a few changes for 1981. The 465cc powerplant still has the same 85 x 82mm bore and stroke dimensions and a 7.0:1 compression ratio. The aluminum two-ring piston strokes in a steel-sleeved cylinder which now has revised port dimension. Mixture still comes through the same six-petal reed cage but is now fed into the cases through a fractionally higher, wider intake port. Spent exhaust gases pass out through a wider exhaust port and into an entirely new exhaust system. Last year, the YZ's head pipe had a bulge built in that was claimed to extend the exhaust cycle's blow-down period. As it turned out, the Yamaha engineers weren't altogether pleased with the bulge's results, so it is gone this year.

Yamaha says that the porting and pipe changes are worth a few extra horsepower this year, but the dyno

shows only a small gain in peak power. Last year the YZ peaked out with 41.92 hp at 7000 rpm, measured at the rear wheel. This new set-up spins out 42.18 at the same rpm, with no less than 52 hp at the crankshaft. The peak torque output is actually down a little this year.

The old motor was good for 34.51 foot-pounds of torque at 6000 rpm, but now that figure has dropped to 33.80. Both engines were run with stock jetting on the dyno. However, the 1980 model was running a hair cleaner at full throttle than our '81 test bike. The power comes on a little differently, too. Both engines will pull cleanly from 2000 rpm, but from there until 4000 rpm the YZ-H has a horsepower and torque advantage. Then from 4500 rpm until 6000 rpm, the tables turn. There, the old G powerplant outpowers the new motor slightly. From 6500 rpm on

up to 8000 rpm, the roles reverse once again, and it's the new engine that pulls the most load.

On the track, the subtle changes in the YZ's powerband actually make the engine more predictable and a little easier to control. It pulls just a tad harder right off the bottom and then comes on a bit more gently than the old motor did at 4500 rpm. When you really want it, there's just a shade more peak power at your disposal. The power builds more gradually now. The difference is slight, but it does make the YZ more controllable in the hands of a novice or intermediate rider.

Besides the changes to power-producing parts, the YZ465's transmission got the once-over to improve durability. First gear now has stronger engagement dogs to prevent the breakage that occurred on some 1980 465s. The gearbox breather has now been relocated to the clutch



# YAMAHA YZ465

## “... best production 500cc class motocrosser in recorded history!”

pushrod actuating shaft. Previously the breather was above the kickstart idler gear, which had a habit of slowly slinging the gearbox oil out through the breather, requiring the level to be checked frequently. The problem should be eliminated with the new location. The clutch-pushrod-actuating cam is shaped differently, too. It provides a lighter lever pull and a somewhat narrower clutch engagement point than the old cam did.

Last year the YZ sometimes proved hard to start, especially for shorter riders. The 465's distinctive backfire while being kicked through became almost as well known as the bike's prowess on the racetrack. To make the bike easier to start, the CDI has been changed to provide a hotter low speed spark. Getting the 465 to fire still takes a little bit of skill, but once you have the knack, two or three hard kicks will normally get it running. If you do everything just wrong, though, it is still possible to rip off an ear-splitting backfire.

The 465cc powerplant bolts into a Japanese chromoly chassis that looks nearly identical to last year's, but actually incorporates a number of changes. It's now welded up out of tubing with thinner wall thickness to reduce weight. The aluminum swing arm is unchanged and still pivots in needle bearings. The folding cleated footpegs are now 10mm higher to give the rider's feet a bit more ground clearance.

Up front, the YZ's steering stem is now hollow but still rides in sturdy tapered Timkin bearings. It's held at a steeper angle, too. The original 465 had slowish steering geometry by current standards. Its stem was set at 30 degrees, and trail was 5.12 inches. Now the rake has been tucked in 1.5 degrees and the trail is a bit shorter at 4.72 inches. These changes are aimed at making the YZ more nimble and precise in the corners.

And to make it work better in the big bumps, there's a completely new fork assembly. The old 38mm dia-

meter stanchion tubes are gone, and now a pair of 43mm tree trunks take their place. A total of eight pinch bolts secure them in the new triple-clamps. Suffice it to say that fork flex is not a problem with the YZ465H. The new fork uses larger diameter springs, and has more compression damping. Near full-extension it's about the same as last year's, but towards full-compression it stiffens up more in comparison to the old fork.

To make sure that the Monoshock is a match for the new fork in the rough stuff, it has received a number of changes, too. The suspension geometry and shock mounting points are still the same, but now the stock has roughly 10 to 15 percent less compression damping in relation to the rebound damping. And the damping can be adjusted over an even wider range. There's a total of 24 usable damping settings on the new shock, as opposed to 18 on the old unit. In addition, the Mono's remote reservoir has increased in size to provide greater oil and nitrogen gas capacity.

The front wheel assembly is essentially the same and still stops with the same excellent double-leading-shoe front brake. The back wheel is still fitted with a fully floating single-action drum, but the drum diameter has been decreased in size 10mm and is now 150mm. This makes for a small reduction in weight, and makes the brake a bit less powerful. It's the same brake used on the YZ250 this year. A bigger rear axle is now used on the 465 also.

Everyone knows that the original YZ465 gave the rest of the open class machinery a thrashing that they won't soon forget. But just how much better is the new version? Quite a bit really. It's a better motocrosser but not really too much faster. The new YZ has made most of its gains in suspension adjustability and general durability. It works just a little better in almost every respect—enough so that the new YZ can cut faster laps in stock form than the

original could. But if you've got a 465G sitting out in your garage, you don't necessarily need to rush out and sell it just yet. A few well-selected modifications to your old bike will make it a match for the new scooter on most courses.

Last year's YZ465 was the best production open-class motocross bike of all time, and now it's even better. The monumental horsepower is still present in full force. The YZ makes so much power over such a wide rpm range that first gear is almost never needed, even in the pits. On most tracks, second is hardly ever necessary either. Even dead slow hairpins can be navigated in third gear, provided you're sharp enough to keep the engine from stalling—just keep the throttle open a hair and the Yamaha simply idles through. Then on the exit, yank the throttle open and there's instant power. It won't spin the rear tire right off the bottom, but if you do want to leave a corner a bit faster, just fan the clutch once or twice. That gives the 465 a chance to get up in the mid-range. Anytime, any place on the track, when the YZ is pulling through the mid-range at full throttle, you will find yourself accelerating VERY quickly with a rooster tail about the height and length of the Great Wall of China trailing behind you. Don't ever ride in front of any of your friends on the YZ465, because after you give them a couple of gravel-blastings they won't be your friends anymore!

On our test tracks, the Yamaha was the most predictable and fastest when kept in third and fourth gear. Those two cogs cover a speed range from about 10 to 60 mph. You might have guessed that the bike doesn't need to be shifted very often. With the tough, predictable clutch and the bike's fearsome power, third gear starts are routine, fourth gear launches practical in some situations, and unbelievable fifth gear blast-offs possible at times—but for amusement purposes only. The YZ465's motor is simply astounding: all the power any semi-sane person could ever want, delivered in a predictable, easy-to-control fashion. The gearbox shifts smoothly with or without the clutch, and the ratios work well with the powerband.

The Yamaha's chassis really does its part to help you put all of that horsepower to use without getting upside down or dead. The new over-size fork is virtually flex-free, and works admirably on almost all types of terrain. It's sensitive to small ripples, and then stiffens up enough to

## YAMAHA YZ465

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handle deep whoopers and hard jump landings. It exhibits just a bit of harshness on hard-baked, square-edged bumps, but the action could be easily smoothed out with minor changes in oil level or viscosity.

The 465H is proof positive that Yamaha has finally ironed out many of the Monoshock's previous problems. We backed the damping adjuster out two clicks from the stock position and were treated to some of the best suspension action we've encountered. The lighter compression damping built into the shock gives it the ability to completely suck up the ripples and stutter-bumps without feeding a lot of harsh jolts to the chassis and rider. You can get on the gas hard on rough ground and the YZ behaves. With the smooth power and supple suspension, the bike is a predictable slider, even through rough corners. Fast charges through knee-deep whoopers pose little problem for the 465. If you keep your weight to the rear, the bike tracks

straight and feels stable—even when you're using up all of the suspension travel at each end.

As delivered, the 465's suspension is set up almost perfectly for a 160-pound beginner or intermediate rider. But if it doesn't suit your tastes, you'll discover another one of the Yamaha's good points: adjustability. The YZ's suspension components are adjustable in so many different ways that the machine can be dialed in perfectly for almost any rider and almost any track. There are the usual air pressure, oil viscosity and oil level adjustments in the fork. And the Mono's damping and preload adjustments cover a tremendous range. You can even fiddle with the Mono's nitrogen pressure if you know what you're doing. And if somehow you can't get your YZ to work the way you want using all of those adjustments, Yamaha offers accessory fork and shock springs that are both softer and firmer than stock.

Given the exquisite suspension action, it's little wonder the YZ handles so well. The new steering geometry gets the bike through the corners quicker and more precisely. The front end sticks better now, thanks to the good tires and steeper head angle. You can turn inside most other

motocrossers and the Yamaha has the versatility to monorail around high-banked berms or slice down on the inside, whichever you choose.

The YZ stops as well as it goes. The brakes are excellent, particularly the double-leading shoe-front stopper. A two-fingered squeeze can lock the wheel, but there's plenty of feedback through the lever to keep you from doing it accidentally. The smaller diameter back brake is an improvement. It's less sensitive now, so it doesn't lock unexpectedly. There's no problem with brake-induced wheel chatter when braking either.

In fact, there's no problem with anything when riding the YZ465H. The bike simply doesn't do anything wrong. Naturally, it's not perfect, but it's closer than any other open-class bike we've ever ridden. The secret to going fast on the Yamaha is learning to use as much as possible of what the bike has to offer.

We'll soon see whether the other manufacturers can come any closer to perfection with their 1981 models than Yamaha did with this latest 465. There's almost no way that any of the other bikes can be MUCH better. The lines are already forming outside of all the Yamaha dealers. We'll save you a spot. □

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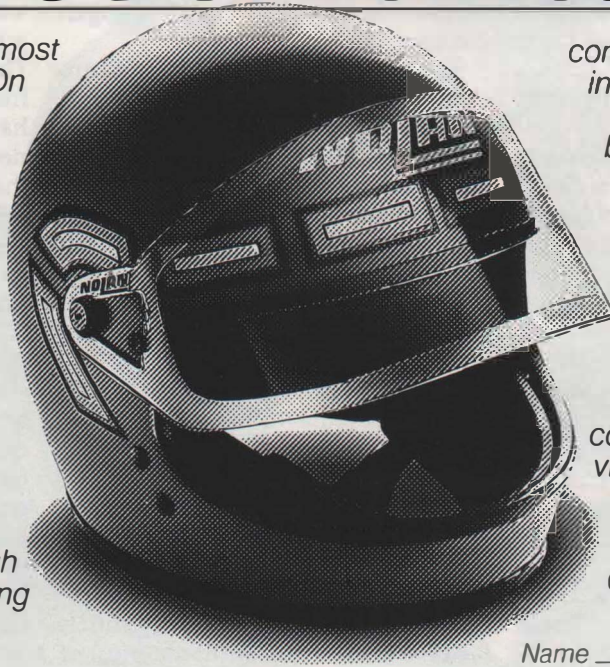
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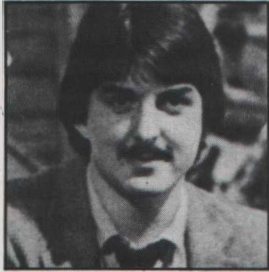
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# Super-smooth, enormously powerful



So said Mark Price in 'T + MX News'. And he wasn't talking about Ronald Reagan.

Testing the new YZ 465 motocross bike in Belgium, he pronounced it "the smoothest open-classer around".

He said it pulled "like a train from way down low in the rev range, right through to maximum power output."

And he threw in lots of nice stuff about "raw horse-power" and the "enormous motor," producing "even more torque."

Mark was not alone. Writing in 'Motor Cycle News', AMCA expert Colin Hill called the YZ 465 "a brilliant advert

for Yamaha's production prowess."

He enthused about the bigger 43mm forks, the new rolling chassis and the revived rear shock that gives thirty adjustment points.

He raved about the brakes, too, calling the front twin leading shoe-stopper "probably the finest motocross brake I've encountered."

All told, Mark and Colin were knocked out by our new 465. And they rushed into print even before we had time to tell them about the free parts kit.

(It's worth £150, and includes spare piston rings, drive and rear sprockets, main jets, head gaskets and Monoshock suspension springs.)

Anyway, a sincere 'thank you' for the report, lads. It wouldn't have sounded half as convincing if we'd said it ourselves.



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