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DIRT BIKE

JUNE 1977 VOLUME SEVEN NUMBER SIX

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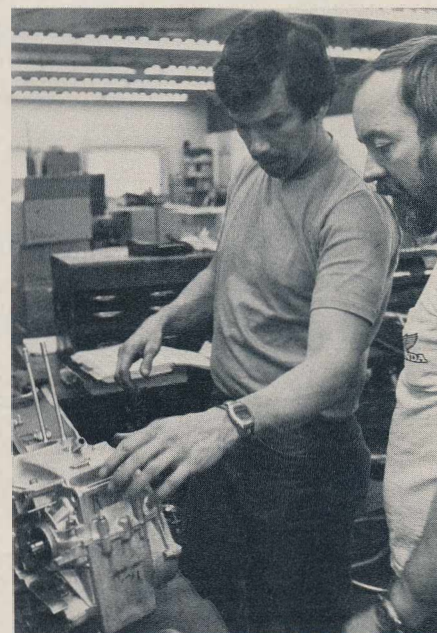
The pain of it . . .



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ON THE COVER:
What's a Sidewinder? See page 18.
Woods shot it.

NEXT ISSUE ON SALE JUNE 21

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Come one, come all... Hurry, hurry, step right up. Do not be afraid... See, touch, feel and ride an exact production line replica of the 250cc machine that Bob "Hurricane" Hannah rode to victory in the Florida Winter-Series. That young whipper-snapper buzzed through that series like the veritable Hurricane that he is, sweeping eight — I said eight — out of eight motos. You heard it right, on a '77 YZ250D stocker, just like this stunning black and yellow beauty you see here beside me. Feast your eyes on its functional elegance. Gaze in awe at its 240mm (9.5-plus inches) of easily adjustable suspension travel. Get some real excitement. Wrap your legs around one of these honeys. Don't wait, take advantage of this special Florida Winter Hurricane Sale. Just fill out the handy form and be sure to sign at the bottom. Be the first on your block. Be the first under the checkered on Sunday.

We can hardly think of a better way of introducing a new motocrosser. Just how "stock" Hannah's bike was is debatable. Certainly, as would be the case with any serious rider on the National circuit, each part in the engine was probably brought to the exact dimensions intended by the factory. Blueprinting is surely worth the time and effort spent, especially when the competition is on a National level. Regardless of the amount of tuning and dialing that went into his bike, it was basically quite stock. Whatever the bike's condition, Hannah is definitely hot. It will be interesting to watch his progress this coming season.

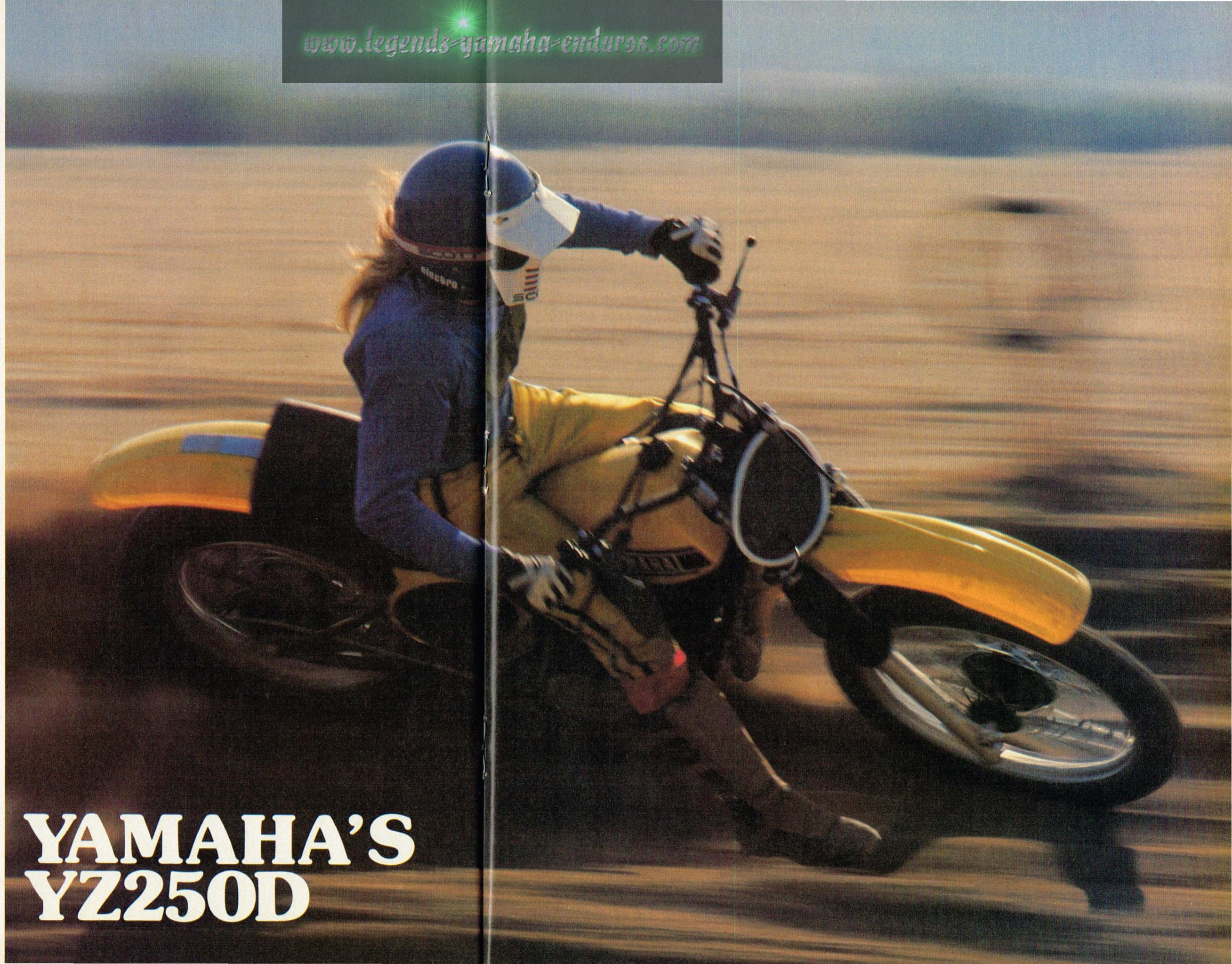
Clearly, Yamaha has decided to get with the current program of selling what it races, or something close to it. Even to the point of racing what they sell. This YZD looks very similar to the works 250s that first appeared at the Hangtown National opener last year. And now, just a year later, Yamaha has come out with a whole new bunch of bananas.

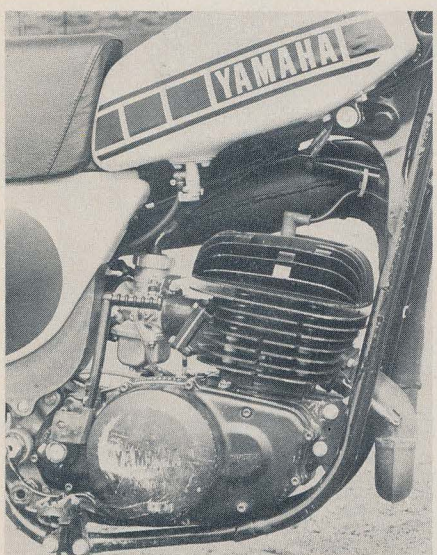
With the exception of the wheels, crank and piston, the bike has been completely redesigned. In gunning for the role of top motocrosser these days, you've got to be on the gas. If there is room for improvement in your product, you change it. Your next chance to do so may be a whole year away. Even a quick once-over will give you the clear impression that Yamaha has decided to go for it.

The battle to build the best production MXer rolls on...

by The Staff of DIRT BIKE

YAMAHA'S YZ250D





At last, good usable power from a YZ. Carb angles off to left and breathes through a single large air box behind the right number plate. Super-tough plastic fuel tank is definitely the way to go.

GIVING HER THE EYE

Unless you can easily straddle a yardstick flat footed, you're bound to feel a bit out of place on the YZ.

Perhaps the biggest changes have been made to the suspension. Staring at her face-to-face, you'll get an eyeful of the new Kayaba spring/air forks with a full 246mm of travel. They allow adjustment in a number of ways.

First of all, the bike's steering characteristics can be easily set to your personal requirements by slipping the legs up and down in the crowns. We found that 50mm from the top of the tubes to the top crowns was a good average. Compression and rebound dampening can of course be changed by varying weights of oil. Twenty-weight was a big improvement over the stock 15-weight which had given the front end a sloppy, under-dampened feel. Springing can be adjusted to a degree by adding or subtracting a bit of air.

One kilogram or 14 pounds was acceptable to all of our testers, but it was best suited for those of us in the 175- to 180-pound range. If you're on the lighter side, you can always go down on the air and cut down on the spring preload. The idea is to spend some time with these forks and get them working as well as possible. The adjustability is there, the rest is up to you. Of course, you'll need a special gauge for adjusting pressures precisely as on any air-suspended bike.

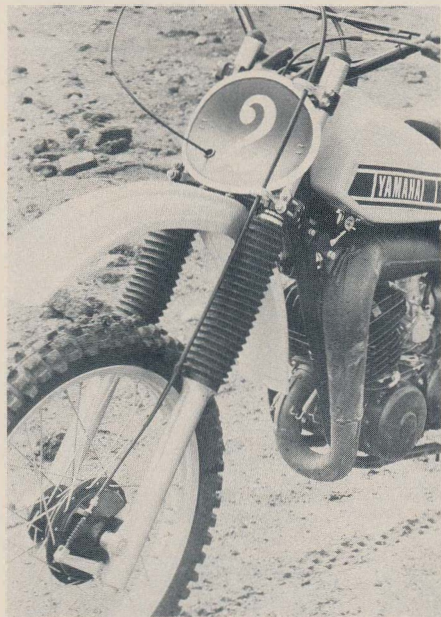
Coming at the YZ from behind, you'll note the absence of the large diaphragmed monoshock unit. For '77

Yamaha has gone to the more conventional DeCarbon-designed, nitrogen-pressurized shock that now lives within two pressed steel halves of the frame's main backbone. A much more efficient use of space. Actual axle travel was measured at 243mm. Compression and rebound dampening are adjusted in unison by inserting a flat-bladed screwdriver into the frame backbone through a hole just ahead of the tank, and moving a slotted collar around the shock shaft to another detented position. Turning it clockwise threads a tapered pin, much like your carb needle, farther into an orifice and restricts the oil flow to provide more dampening. Less dampening is had by clicking it in a counterclockwise direction. Each click produces a noticeable difference. After experimenting, we ended up back at the stock setting. And get this, the dampening loss is minimized as the shock gets hotter and the oil thins out by making the metering pin of a special alloy that expands with the rise in temperature to close off more of the orifice, thus increasing dampening. Your basic thermostatically controlled dampening orifice. Talk about trick!

By removing a bolt up front and a pin in the rear, the entire shock can be pulled out the rear and the spring preload ring can be set at an infinite number of positions. Again, the stock position was generally acceptable.

All of these tunable suspension pieces pivot off of an entirely new frame that's a combination of steel tubing, pressed steel, as well as some hefty aluminum plate that serves as the rear engine mount, swingarm pivot, and a main frame gusset. This flat center design allows the use of a single and larger air filter and still air box than before. Nice to see.

Last year's wheels are bolted to



You won't find more travel or adjustment possibilities on any other 250 MXer.

either end of the suspension components with matching lugs on the backing plates that fit into the swingarm and left fork leg to eliminate the need for torque stays. As the YZ motors have gained a bit of flywheel weight, their rear brakes have in turn become less touchy. But any good points it may have are partially overshadowed by the deficiencies in the front unit. It was by far the touchiest brake we've ever laid a finger on. Some modifications clearly necessary here. The hub, spoke and wheel components have proven themselves time and again on previous test units.

A fine new set of plastics round out the list of chassis components. Both fenders are wide, long, and a long way from the tires. The lightweight, plastic-based seat is very comfortable and makes sitting down almost worth it. To finish off the works zootness appearance of the YZ, you get a super-tough plastic fuel tank that's easy to fill and nearly impossible to dent. The list of goodies goes on . . .

Continued on page 55

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YAMAHA'S YZ250D

Continued from page 49



Yamaha has finally decided to design the peakiness out of their YZers. In going milder on the four main transfers and intake porting and more radical on the exhaust side, they've come up with power characteristics that are very deceptive as far as a seat-of-the-pants impression goes. The transition from low to midrange is fairly gradual. From there, the midrange power progresses smoothly and predictably to a healthy 31.3 hp at 8000 rpm where it runs out of breath. This transformation from wild to mild is aided by a smaller carb and a new exhaust system design. Usable and mellow, yes. Fastest? It's hard to realize fully till you run it against another competitive 250.

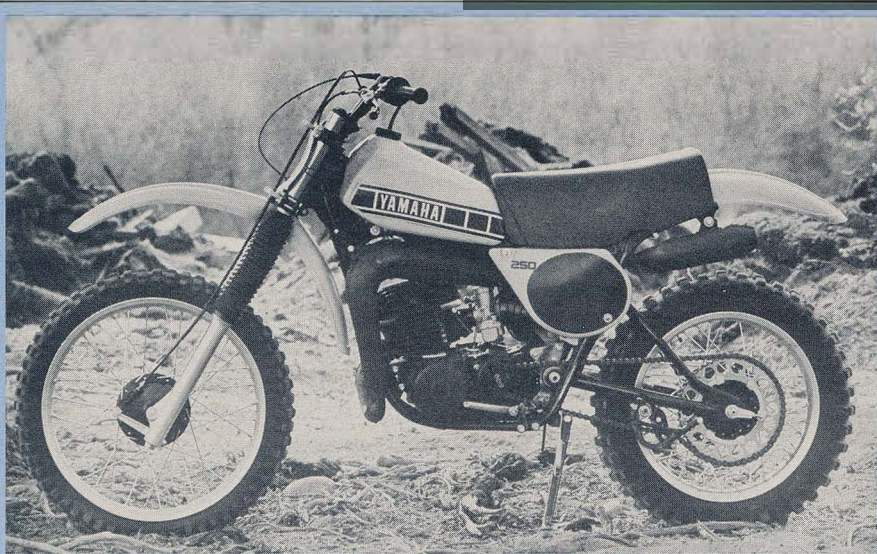
The all-new gearbox and drive line are wrapped in a freshly designed set of aluminum and magnesium alloy cases in order to save weight and add

strength. While the primary ratio has been raised, the overall gear ratios have been lowered. The result is a set of gears which would feel a bit too tall overall. Also, one each drive and driven plate was removed from the clutch to narrow down the case width. It doesn't seem to miss them.

We have come to an age where motorcycle ignition systems are taken for granted and commonly ignored. The YZ's internal rotor CDI is no exception. For sure it is good. Just try to remember that it does indeed exist and keep its parts firmly attached to the bike.

MOVING DIRT

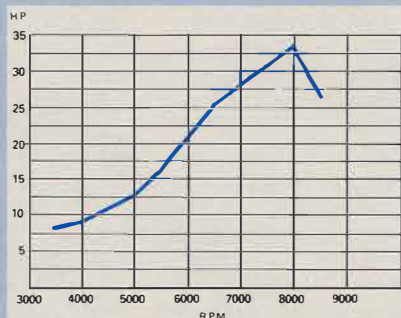
After the initial shock of tallness settles in, you'll find yourself perched atop a very works-ish-type racer. The bar, peg, seat relationship is just fine for riders around five feet ten inches



YAMAHA YZ250D

Price (approx. retail, West Coast) . . . \$1398
 Engine . . . Two-stroke, piston-port single with reed valve
 Displacement 246cc
 Bore & Stroke 70mm x 64
 Compression Ratio 7.8:1
 Carburetion 36mm Mikuni VM36 SC
 Standard Jetting:
 Air screw 1 1/2 turns out, starter jet 80, pilot 60, slide cutaway 2.0, needle 6F 15-2, needle-jet P-6, main 360
 Horsepower 31.3 hp at 8000 rpm, measured via chain from countershaft
 Clutch Wet, multiplate
 Primary Drive:
 Helical gear 2.666:1
 Transmission Ratios:
 1) 2.066
 2) 1.555
 3) 1.238
 4) 1.000
 5) 0.857
 Final Drive DK 520TR
 13-tooth countershaft
 54-tooth rear sprocket
 Air Filtration Single oiled foam element
 Electrics CDI
 (Capacitor Discharge Ignition) M100-21
 Lubrication Pre-mix 20:1
 Recommended Fuel Premium
 Recommended Oil Yamalube R
 Fuel Tank Capacity 7.6 liters (2.1 gallons)
 Frame Double loop, double cradle
 Suspension:
 Front: Kayaba air/spring forks
 Rear: Single DeCarbon shock (monocross) . . . 9.8 inches of axle travel
 Starting Primary kick
 Wheels & Spokes:
 Front: D.I.D. 1.60 x 21 with

cross-3 spokes
 Rear: D.I.D. 2.15 x 18 with cross-2 and cross-3 spokes
 Tires:
 Front: 3.00 x 21 Bridgestone Motocross 7
 Rear: 4.50 x 18 IRC Motocross GS-56F
 Dimensions:
 Wheelbase:
 143.0 cm (56.3 inches) + 2.5cm
 Swingarm length 44.0cm (17.3 inches)
 Ground clearance 28.0 (11.0 inches)
 Bars, height 113.5cm (44.7 inches)
 width 86.4cm (34.0 inches)
 Pegs, height 36.0cm (14.2 inches)
 width 47.0cm (18.5 inches)
 Seat height 93.5cm (36.8 inches)
 Fork angle 30.5 degrees
 Weight:
 230 pounds without fuel; 46.3 percent on front, 53.7 percent on rear
 Brakes:
 Front: Conical, cable-operated drum
 Rear: Conical, rod-operated drum
 Silencer Yes; MX only
 Spark Arrestor None
 Warranty None
 Parts prices N/A

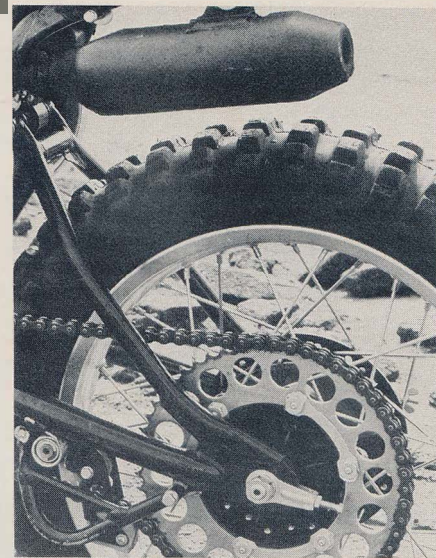


tall and upwards. The throttle and clutch springs are on the stiff side and the shift lever is a bit longer than most, but nothing outrageous. Smaller riders may want to lop an inch or so off of the ends of the bars. All in all, it's quite comfortable for standing or sitting.

We found that it was necessary to use the clutch, back off on the throttle, or use a combination of both in order to pull off quick shifts. It was not overly

annoying, but something else to think about nonetheless.

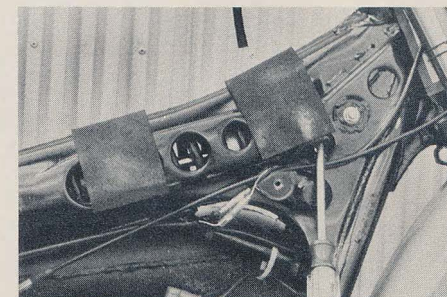
With the YZ's evil pipeyness out of the way, it is now much easier to evaluate the bike's basic handling characteristics. The 250 seems to share one of its little brother's handling traits which affects the bike's performance in a number of situations. Namely swingarm flex. It's not to the same degree as on the one-two-five, but it is there to be felt. Surely this is a



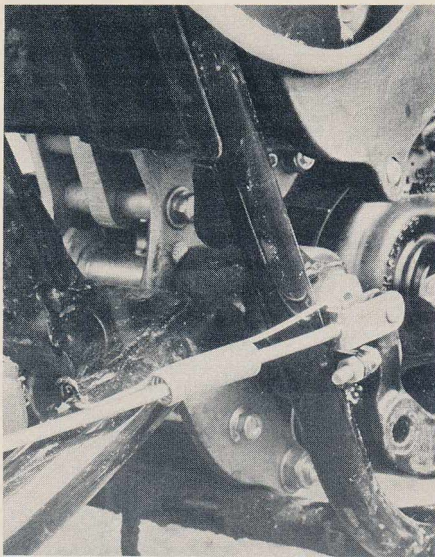
A softer plastic rubbing block is in order for the chain guide tensioner, as ours quickly wore flat spots on the chain links. Silencing pickle makes the YZ a bit quieter than most 250s.

product of the new-generation swingarm. Don't get us wrong. This bike has come a very long way and is no doubt capable of winning, but it would be so much easier to ride if it would track better.

During our initial testing, the Yamaha was quite a handful to turn. We were able to improve on two of the contributing factors by adjusting out some of the rake and going to 20-weight Bel-Ray in the forks. The forks stopped their sliding and hopping from hole to hole and decided to follow the ground. They now do a fine job of sucking up the bumps, whatever type they may be. Adjusting the position of the crowns on the fork tubes enabled us to go pretty much where we pleased in the turns, but still not without noticeable effort. The third problem up front was the front brake. With the stock oil in the forks, maintaining traction with the front tire under even the slightest braking was most difficult. It would lock repeatedly and almost without warning. There is virtually no "feel" to it no matter what type of surface you're on. It's the closest



New DeCarbon shock lives inside this pressed steel backbone. Compression and rebound dampening are adjusted in unison by moving an adjusting ring to various detented positions with a screwdriver.



Massive stamped aluminum alloy plates are used as engine mounts and frame gusset combination. Rear brake rod pivots directly in front of swingarm pivot to maintain a good pedal feel throughout suspension travel.

thing to an on-off switch we've seen. On the other end, the rear binder was near perfect in both progression and strength.

In the words of one of our test riders and as a general opinion of all of us, "It takes more effort than should be necessary as well as your undivided attention to get it around a corner on a set line." In other words, you don't merely point it and go. When entering a berm, you have to throw the bike over and sort of waltz it through waiting for unexpected changes in direction in order to reach your desired exit point. This is due to the weight of shock high up in the frame and the lack of rigidity in the rear end. It won't track precisely through a turn, no matter what the course is like. You have to muscle it through. When you hit a berm and twist on the throttle, the arm tweaks a bit spitting you toward the outside of the turn and tries to put you over the berm. The more throttle you give it, the more the arm moves.

Over whoops, down bumpy straights, off jumps and in slides, it's the same story. You just wait for it to do its little wiggle and screw it on, hoping to be able to catch each quirk on each lap. It's very frustrating when you figure that it could be remedied quite easily. It's not a major flex, just enough to keep you aware of it.

Yamaha has been experimenting with some swingarms made by Peter Wilkins at Profab. The are made of 6061 aluminum alloy with rectangular box tubing for the conventional section and round tubes for the uprights. Arms for the 400 have been ordered up to 35mm longer than stock.

Slides are especially unpredictable.

Continued on page 87

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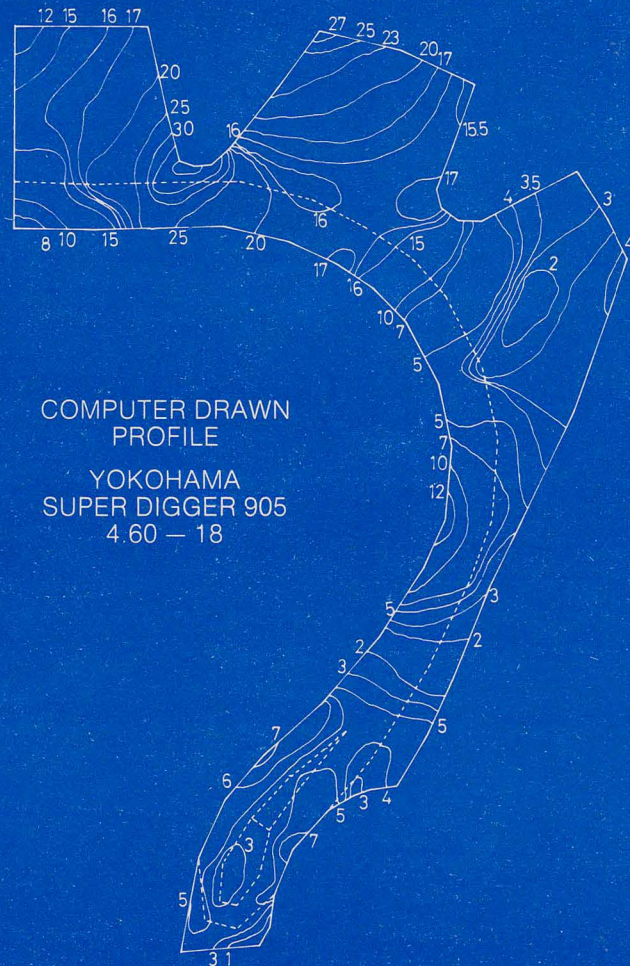
The computer also played a key role in our new SD-900 motocross front tire. A 23" diameter provides substantial ease of traversing ruts and ledges.

The Super Digger 905 and the SD-900. Just two examples of Yokohama's computer skills keeping you first across the finish line.



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Custom Van's Magazine - Feb. 77

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Cycle News - Jan. 19, 77

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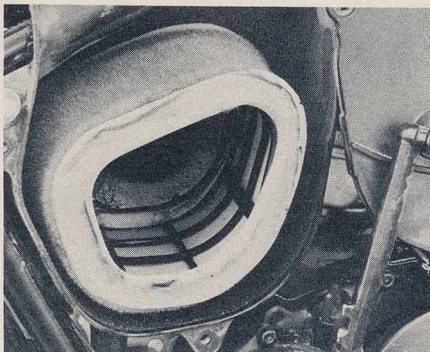
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YZ 250

Continued from page 57

Not that bikes are generally getting easier to slide with longer and longer suspension travel, but this is a special case.

The YZ does land off of large jumps onto smooth ground very well. Without a thought, you're on the gas and headed for the next turn. Both ends are very absorbing and the dampening remained fairly constant. The wheels followed the ground very well and the rear tire was always anxious to hook up with the earth.



One larger filter is much better than two little ones.

AS WE SEE IT FROM HERE

Yamaha has come a long way to fall slightly short of their obvious goal of building the best mass-produced motocrosser. Their new suspension systems offer enough adjustability that they can be well suited to anyone with little effort and some time well-spent. The engine is a complete turnaround for a YZ and is only the slightest bit pipey at around 6500. Certainly a long-overdue step in the right direction. The bike has been improved in many ways to give you a more durable package that's much simpler to maintain and therefore easier to live with. With a more rigid swingarm assembly and a better front brake, they may have met their goal. They've come a long way to end up so painfully close.

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Circle Number 38 on Page 88



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