

YAMAHA DT360A

■ YAMAHA HAS finally done it. Its infamous endo machines, the 250s and 360s derived from the original dual-purpose DT1, have been replaced in the '74 line-up. Now there is a totally new series of motorcycles...motorcycles that have enough potential to be associated with the term "enduro."

Take the DT360A, the largest of the new breed. Instead of building the bike around an unproven chassis design, Yamaha did a very smart thing. It pulled a production motocross frame off the shelf, welded some additional tabs on it for mounting a battery, turn signals, and the like, and proceeded from there.

Now, if you're a local hotshoe, use of a stock Yamaha motocross frame will not impress you. And it shouldn't, really. After all, the unit is heavy and not as forgiving as a Maico or a Honda CR chassis when the going gets tough. But for trail riding, or enduro work, where the pace is slower, it's more than adequate in both handling potential and strength.

Realizing that it's foolish to compromise a good chassis with bad suspension components, Yamaha engineers visited their parts bin one more time and returned with a set of motocross forks and rear shocks. To these they added stiffer springs to cope with the additional weight of street legal equipment, and then left well enough alone.

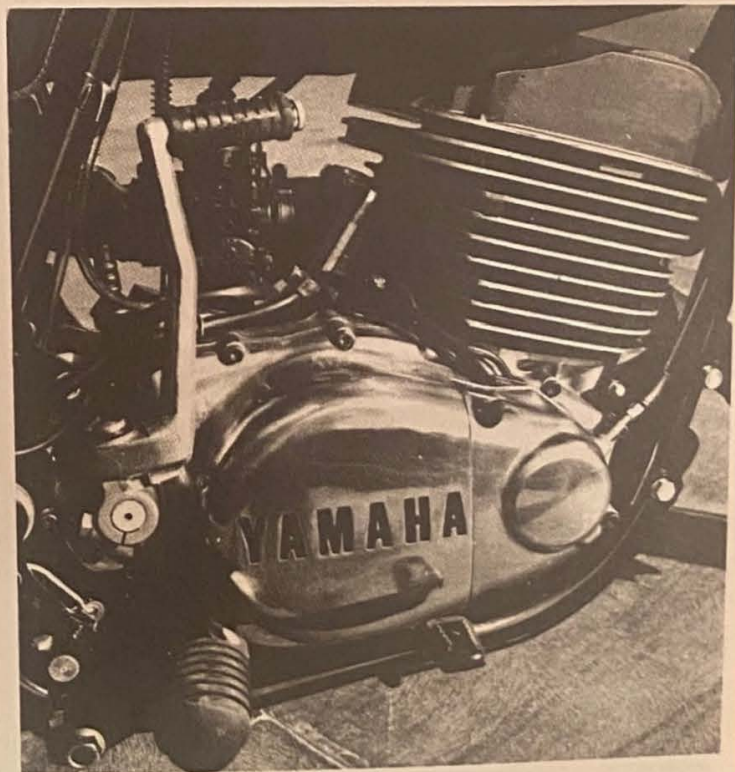
Next came the engine, and here again, exactly the right thing was done. Yamaha began with the motocross versions die-cast aluminum alloy crankcase assembly, decided to leave out the Omni-Phase balancer, and other than that, assembled a lower end of standard design.

The connecting rod has a needle bearing at both the big end and at the wrist pin. Two ball bearing main bearings support the built up crankshaft which drives off the right side via a helical gear primary. The drive is then taken up by a 6-spring clutch with eight steel and eight phenolic friction plates with a cork-like facing. A five-speed transmission with a ratchet type shifting mechanism completes the drivetrain.

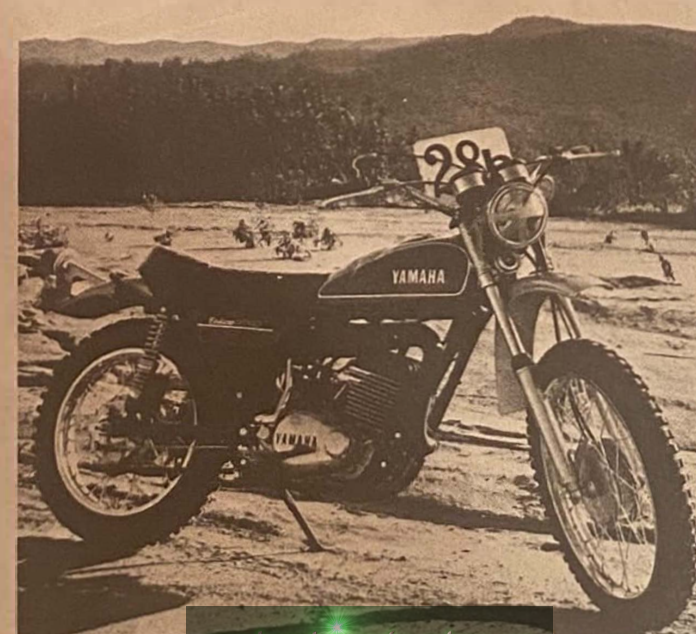
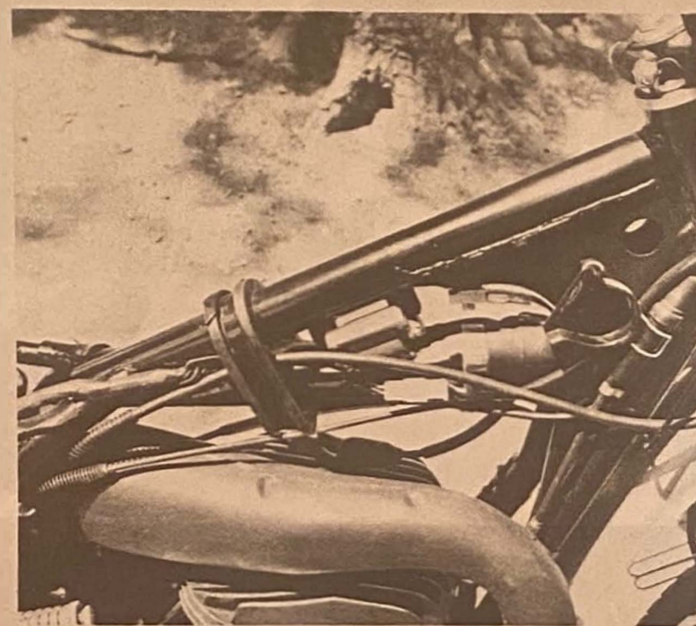
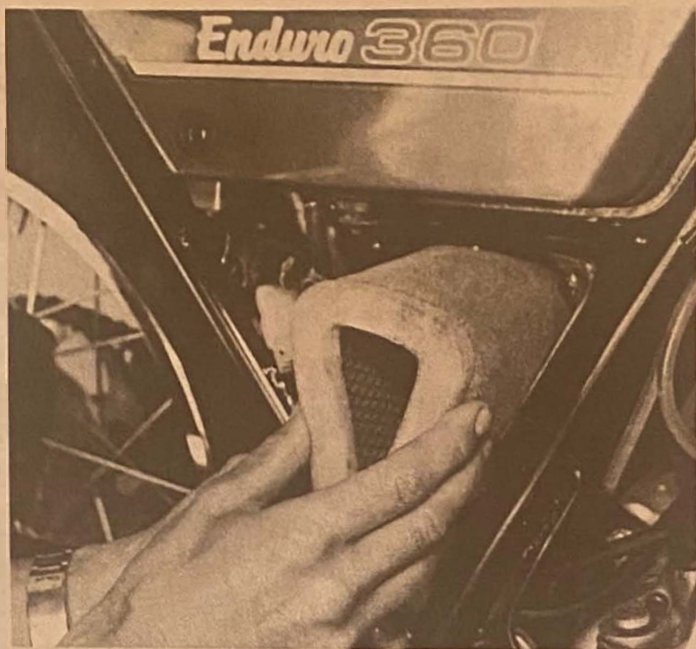
Both cylinder barrel and head appear identical to the 360 MX, but in reality they are different. Intake, exhaust and transfer ports are all smaller and the cylinder head has been reshaped to provide a lower compression ratio.

Torque induction is featured as usual and on the DT360 the system consists of a 6-petal reed valve assembly which works in conjunction with a specially windowed piston. Besides allowing an early intake of the fuel charge through the ports in the piston, the reed prevents the fuel from backing up into the intake tract when crankcase pressure changes from negative to positive. Consequently, more radical port timing can be used without making the engine as temperamental as would normally be the case.

Cycle World Road Test



Outrageously Overweight, Such A Fine Machine Makes One Wonder How Good It Really Could Be.



The piston itself differs from the motocross version in that a second compression ring has been added. The bottom ring is of conventional design, but the top is an L-type Keystone ring which provides better combustion pressure sealing.

Autolube is present as always and, like on other Yamaha Singles, the pump can be removed if the rider so desires. Mixing gas and oil, however, is a bothersome chore and the 4 lb. or so saved by removing the pump and oil tank are really not worth it if the machine is ridden frequently. Incidentally, the pump cover and other engine case castings are secured by allen head bolts which are easier to remove and retighten than the Phillips head type.

Complimenting the chassis, suspension and engine is a really sanitary exhaust system. It is not only high mounted, but also passes right down the center of the chassis, totally out of the rider's way. Unfortunately, there is a clearance problem with the rear tire on early production models, but this isn't as serious as it first seems. The solution is simple. Go down to your Yamaha dealer, buy a 15mm spacer, and install it under the rear exhaust mount bolt. That'll do for tires up to a 4.00-18 knobby. For tires of a bigger size, like a 4.50, you'll have to dent the pipe!

Major components on the DT360 are fantastic. No doubt about it. But when it came time to bolt on the small stuff, Yamaha dropped the ball—at least as far as off-road riders are concerned. Sure, there's a high mounted, flexible plastic front fender, but at the rear there's an overweight steel one. Sure, there's a speedometer with resettable trip odometer, but there's a useless tachometer mounted next to it on a bracket that's difficult to get rid of short of hacksawing and filing it away.

And where are the cleated footpegs? Rubber ones are all but useless when conditions are wet or muddy. And where is that superb motocross front hub? The full width unit no doubt provides a margin of safety for street riders, but the brake is not all that strong anyway and the hub adds too much unsprung weight! And finally, where are the light, strong D.I.D. rims that are becoming commonplace with Japanese dirt bikes? Come on, Yamaha. You're too close for this.

Now for the big question. How have these compromises affected the performance of a potentially great machine? First impressions of the DT360 are perhaps the best. The bike has a slim profile. Nothing gets in the way, not even the kickstart lever as in the past. It's a rangy mount, too. There's plenty of room to spread out and readjust body position for long periods in the saddle. Neat.

Flip out the kickstarter and kick it through. Effort is minimal, thanks to an automatic decompression valve activated by the kickstarter itself. One or two kicks will suffice unless the engine is hot, then several are the rule.

After a brief warm-up period, the Yamaha will move out smartly. Gearing is on the high side for tight trails, but for casual riding or fireroading, it's OK as is. Clutch action is smooth and gearbox feel is typical Yamaha.... Nice.

So much for familiarization. Pick up a little speed and enter a typical trail network. As soon as you begin negotiating turns, the bike feels heavy. There's too much weight up high. The fuel tank is steel. The brackets are steel. Everything is steel. And a good deal of the weight is too far forward. Consequently, you can't get the front end up and that is definitely a speed limiting factor off-road. Also, the front tire is too narrow. It tracks in all the ruts. It makes the bike all but uncontrollable in a sand wash. And it transmits too much shock to the handlebars in rocky sections.

The bike does steer well, however, and as long as you're not in a tremendous hurry, it is very comforting and stable along

YAMAHA DT360A

SPECIFICATIONS

List price	\$1026
Suspension, front	telescopic fork
Suspension, rear	swinging arm
Tire, front	3.00-21
Tire, rear	4.00-18
Brake, front, diameter x width, in.	5.89 x 0.98
Brake, rear, diameter x width, in.	5.89 x 0.98
Total brake swept area, sq. in.	36.24
Brake loading, lb./sq. in. (160-lb. rider)	12.6
Engine, type	two-stroke Single
Bore x stroke, in., mm	3.15 x 2.76, 80 x 70
Piston displacement, cu. in., cc	21.42, 351
Compression ratio	6.4:1 (corrected)
Claimed bhp @ rpm	N.A. @ 6000
Claimed torque @ rpm, lb.-ft.	N.A. @ 5500
Carburetion	Mikuni VM30SS
Ignition	capacitive discharge
Oil system	oil injection
Oil capacity, pt.	3.2
Fuel capacity, U.S. gal.	2.4
Recommended fuel	low-lead
Starting system	kick, folding crank
Lighting system	AC 6V battery
Air filtration	oil-wetted foam
Clutch	multi-plate, wet
Primary drive	helical gear
Final drive	single-row chain
Gear ratios, overall: 1	
5th	5.99
4th	7.82
3rd	10.20
2nd	13.99
1st	19.80
Wheelbase, in.	56.5
Seat height, in.	31.0
Seat width, in.	10.0
Handlebar width, in.	32.5
Footpeg height, in.	11.0
Ground clearance, in.	8.3
Curb weight (w/half-tank fuel), lb.	292
Weight bias, front/rear, percent	42/7
Mileage at completion of test	697

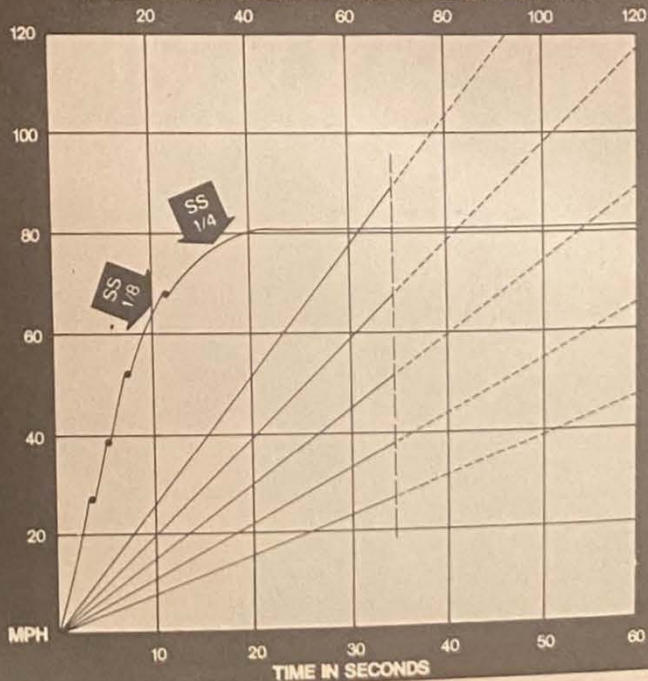
TEST CONDITIONS

Air temperature, degrees F	62
Humidity, percent	41
Barometric pressure, in. hg.	29.99
Altitude above mean sea level, ft.	383
Wind velocity, mph	4-6
Strip alignment, relative wind:	

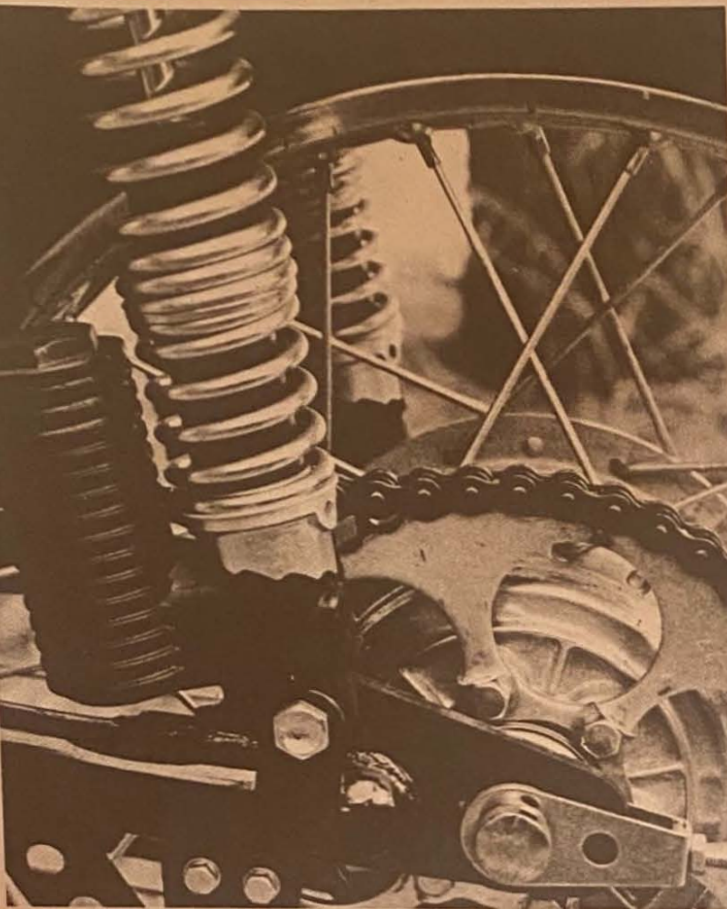
PERFORMANCE

Top speed (actual @ 6390 rpm), mph	81
Computed top speed in gears (@ 7000 rpm), mph:	
5th	89
4th	68
3rd	52
2nd	38
1st	27
Mph/1000 rpm, top gear	12.7
Engine revolutions/mile, top gear	4750
Piston speed (@ 7000 rpm), ft./min.	3220
Lb./hp (160-lb. rider)	N.A.
Fuel consumption, mpg	43
Speedometer error:	
50 mph indicated, actually	48
60 mph indicated, actually	58
70 mph indicated, actually	67
Braking distance:	
from 30 mph, ft.	42
from 60 mph, ft.	159
Acceleration, zero to:	
30 mph, sec.	4.1
40 mph, sec.	5.7
50 mph, sec.	7.0
60 mph, sec.	9.1
70 mph, sec.	12.8
80 mph, sec.	19.1
Standing one-eighth mile, sec.	10.18
terminal speed, mph	64.37
Standing one-quarter mile, sec.	16.32
terminal speed, mph	76.82

ACCELERATION / ENGINE AND ROAD SPEEDS / RPM X 100



YAMAHA



Photography: Randy Papke, D. Randy Riggs

mountain trails. When the terrain is rough, the suspension does an excellent job of soaking up the bumps, too, but the forks top out. And, on a washboard road or cobblestone surface, the ride is harsh. The reason is simple. The bike is oversprung for a 160-lb. rider, so for us a change to lighter springs and/or oil front and rear was necessary.

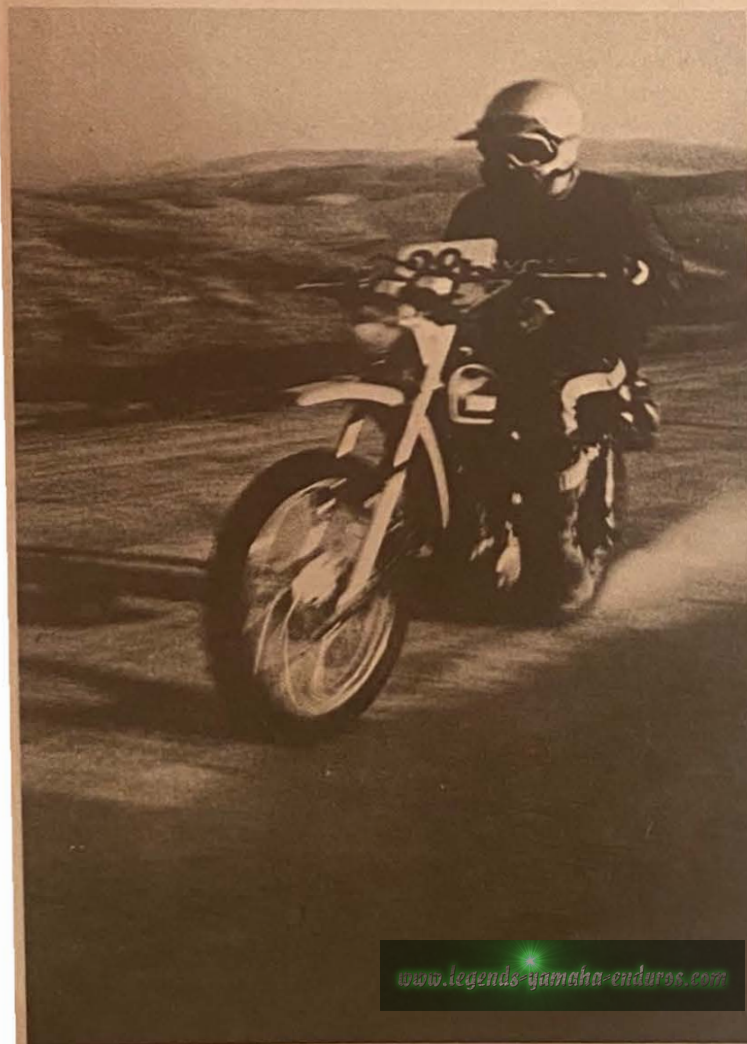
Get on a smooth stretch of fireroad and, turns permitting, you can blast along at over 80 mph. Unreal. And the bike is stable at speed as long as you don't try and slide it. Get on the brakes until the bike slows to 30 mph or so, pitch it sideways, gas it, and some interesting things happen. The power is there to hold a graceful slide, but the Yamaha doesn't want to. Instead of carving a smooth arc, the 360 will break and regain traction repeatedly. We never got pitched over the bars, but it's a possibility, as the Yammie picks itself up in a helluva hurry!

Hillclimbing is a bit of a blow out, too, but this isn't really a design problem. Change the rear trials universal to a knobby, fit a 14 instead of a 15-tooth countershaft sprocket, and the DT360 will climb anything most riders have the courage to try. In fact, it'll climb some hills two-up that the majority of 125s won't go up solo!

Sure we're being hard on the 360. But it could have been an excellent off-roader instead of being a cut above average. And with an excellent off road rating, it would be THE bike because it is fantastic on the street. Vibration is acceptable for commuting. Gas mileage is around 50 mpg. It's fast enough for expressways. There's plenty of power to pass. It's a safe, predictable handler with the stock tires. All this, and quiet too. When Yamaha tested the DT360 for sound, it came up with a respectable 85dbA. No more.

So, for casual trail riding and for light street duty, the DT360A is an excellent buy. It's a lot of motorcycle for \$1026. But for riding enduros or for just plain going fast, it's not quite right...not quite right even though the basics are there.

Perplexed by this conclusion? If so, get right into the next article. We'll show you how to make the big Yammie right. ☒



www.legends-yamaha-enduros.com

PARTS PRICING

Warranty	6 mo./4000 miles
Piston	\$13
(1) Set Rings	\$5.30
Rear Shocks (each)	\$30
Wheel Rims (bare each)	\$12
Drive Chain (standard)	\$26
Front Fender	\$11.90
Rear Fender	\$17
Clutch & Brake Levers (each)	\$2.90
Clutch Cable	\$3.40
Throttle Cable	\$3.72
Brake Cables	\$2.50
Ignition Parts	
Coil	\$10
Air Filter Element	\$8
Rear Tire (standard)	\$24.50
Sealed Beam	\$7.20
Taillight Lens	\$4.98
Battery	\$5.95

OKAY. SO you've gone ahead and bought Yamaha's new 360 dual-purpose machine. You've run it back and forth to work for a month or so; maybe played around in the corner lot on occasion. It's just what you wanted...the perfect instrument for fun and relaxation.

But the corner lot isn't nearly as challenging as it once was, and you have a hankering to do some serious off-road riding, even though you're not really sure what more serious riding entails. That guy down the block with the Bultaco keeps bugging you about going riding in an enduro...whatever that is... and what the heck, this thing's an enduro model, right? Right. But to

compete safely, more comfortably and easily in any enduro event on this particular machine, a few basic changes are in order.


CYCLE WORLD wanted to find out just exactly what it takes to make the new Yamaha "enduro ready." After a thorough road testing evaluation, we were well aware of the 360's shortcomings for more serious off-road riding, so we decided to remedy them and run the bike in several enduros.

WHAT TO DO

It becomes immediately apparent the minute a rider goes off-road that the 360's universal tread tires are not the hot setup. Traction in the dirt is mini-

mal and all that wonderful power and torque from the 360 Single goes up in dust. Hills that should be a pushover turn out to be absolutely unclimbable. A rider can take the 360 just so far and then it digs a hole. Cornering traction is less than desirable, as well, and any rider with even a few brains will take it as easy as possible on fire roads and such.

So step one is simple: change to full knobby tires. Here is an area that is open to a lot of question—which tire to buy? There are plenty of good ones, but we happen to like the Cheng Shin brand; they're priced right, hold up well and offer wall-climbing traction. One thing bothered us, though. There isn't enough space between the rear tire and >



ENDURING THE ENDURO ON YAMAHA'S DT360A

Just The Basics

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exhaust pipe. Even the stock rear tire was rubbing the pipe slightly.

There are two solutions. One is to find the nearest ball peen hammer and dent the pipe slightly where the tire makes contact. This way a 4.00-18 Cheng Shin will fit right in. The other is to fit a 15mm spacer under the rear exhaust mount bolt. The proper spacer should be available at Yamaha dealers shortly. (Later models will come stock with proper exhaust clearance.) While you have the rear wheel off it might be a good idea to blow out the brake drum and shoes with some compressed air. And if the lining surfaces are glazed, now is the time to take a file or sandpaper and rough up the surface. Double check the spokes for tightness and mount the new tire. Do the same at the front, using the 3.50-21 Cheng Shin or whatever your choice of tires may be.

None of us particularly care for stock Yamaha handlebar grips, so we substituted a pair more to our liking. The stock rear view mirror should go as well, being quite vulnerable to damage and in the rider's way. Since most

enduros require street legal equipment, you will still need a mirror. Purchase one of the accessory types that are smaller and mount it as out of the way as possible.

You will not have any use for turn indicators out in the woods, so go ahead and remove the ones fitted on the 360. They come off easily, thanks to plug-in type wiring, and should you ever want to reinstall them, it's no trouble. While we're on the subject of removing unnecessary equipment, let's consider the tachometer and headlight.

Anyone who has the time to look at a tachometer on the trail is riding too slow...a tach is simply an unnecessary frill on this type of machine. If you decide to remove it, you must purchase a plug that fits in the tach drive hole in the engine case. Most Yamaha dealers carry them, they're cheap, and easy to install. But when you remove the tach on the 360, the bracket that holds it has to stay, since it also supports the speedometer and *that* is one item you *do* need in an enduro. A simple solution is to saw the bracket in half with a hacksaw, file the sharp edges and touch it up with some black spray paint.

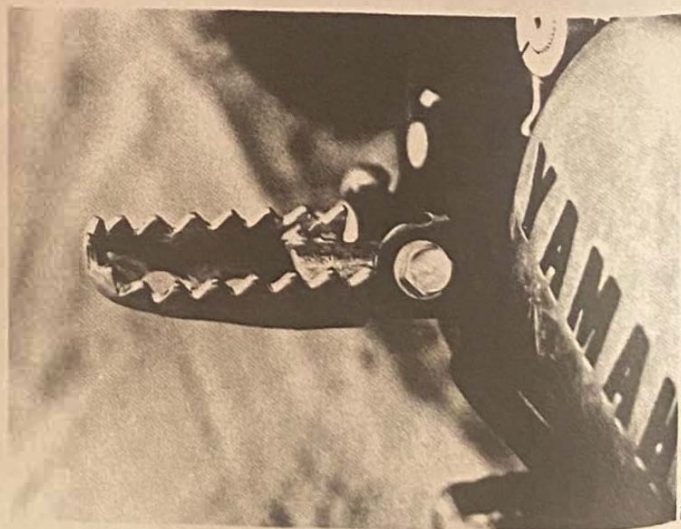
You may also want to remove the headlight, depending on whether or not

your state requires them. With these changes the bike will be a few pounds lighter up high and there is less to damage in a fall.

WHAT'S NEXT?

Some enduros may require a number plate, so for less than a buck you can get one and attach it to the handlebar crossbar. When you get your enduro entry back they will have assigned you a number. While you're at the dealer getting the plate and the stick-on numbers, it might not be a bad idea to pick up a set of cleated footpegs and a 14 or 13-tooth countershaft sprocket. Before you find out the hard way we will tell you that rubber footpegs do not get it off-road; they have to go. When rubber gets wet it's slippery, and boots won't stay on the pegs. Several accessory brands are available; all you have to do is drill out the pins on the stock ones and bolt on the new set. It's a much safer way to go.

The Yamaha 360 Enduro was designed for street riding as well as dirt riding. That's why you'll find the stock gearing on the high side and that is why you'll need a countershaft sprocket with less teeth. We used a 14-tooth sprocket on ours initially, replacing the stock



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Photography: Bob Atkinson, Randy Papke

ENDURING DT360A

15-tooth item, but after the first enduro we decided one less tooth (13) would work better. And it did.

Let's look at the approximate amount we've spent so far:

Cleated Footpegs (2)	\$8.95
Rear View Mirror	\$2.95
Number Plate	.89
Handlebar Grips	\$2.50
Countershaft Sprocket	\$4.95
Cheng Shin Knobbies (ea.)	\$20.00
TOTAL	\$60.24

Now the question is, does \$60 do the trick? Can you now run an enduro without beating yourself to death? Senior Editor Riggs entered the Turkey Enduro put on by the Fresno MC to find out. The Turkey ran around 90 miles in length and terrain varied considerably. There were downhills, uphill, rocks, muddy areas and fast forest roads.

The 360 is definitely happier with knobby tires in the dirt. It becomes much more predictable and any type of low traction situation can be attacked with much more confidence. There is really no comparison with older model Yamahas; the new version has improved that much.

The rider has complete freedom of movement in a stand-up or sit-down

riding position, there's no more of the kick starter and exhaust pipe in the leg routine. But the seat doesn't have nearly enough padding, and if a bump catches a rider sitting off guard he's apt to be chewing on his kidneys.

On narrow trails with numerous switchbacks the heavy machine can wear you down if you're trying to make up time; a more leisurely pace is sometimes necessary for beginning or out of shape riders.

Riggs encountered the most difficulty on a 5-mile stretch of rocky trail that wound its way around the side of a mountain. The suspension system was not responding all that well to the rough pounding; it seemed to remain rigid for all but the big jolts. Maintaining direction was extremely difficult, and in an area where the trail's edge had a straight drop-off down the side of a mountain, riding was no fun at all. Softer springs for the rear shocks would help here. To make matters worse, the lack of sufficient seat padding was taking its toll on our rider. Of course, if a slower pace was taken over this stretch of trail, it was no sweat. But when the rider is running a few minutes late he really has to "hook it." The result is a rough ride.

As far as the engine went, there were no problems at all. The only preparation we undertook was the careful sealing of the magneto cover and spark plug lead with silicone to prevent any wet riding

problems in stream crossings and the like. The 360 has a wonderful powerband and pulls from ultra-low rpm very strongly. We don't think anyone will feel the need to modify the engine for more power. This one works smoothly, quietly and reliably, so why change it? The heart of this machine pounds at a nice clip.

Aside from carefully inspecting the 360 for loose bolts and general overall integrity (servicing chain, air cleaner, cables, etc.), we did nothing. And we proved in the Turkey Enduro that for roughly \$60 an owner of a new 360 Yamaha can compete competitively and fairly easily in this type of event.

If you want to improve on things even more, here's a list of items you may want to consider:

Heavy Duty Skid Plate	\$19.95
Lightweight Lg. Cap. Fuel Tank	\$60.00
D.I.D. Rims (ea.)	\$25-30.00
Yamaha MX Front Hub	\$19.80
Fork Kit	\$39.95
Re-padded Seat	\$20.00
Rear Shocks	\$40-60.00
Wheel Lacing	\$40.00

As you can see, things can get fairly expensive, but the end result would be a considerably improved motorcycle. The choice is yours—\$60 or \$300? Both get the job done, one just a little better. At least you get to start with an excellent basic motorcycle, the Yamaha DT360A. Have fun. 