Cycle World Road Test

■ IN THE PAST few months, we at CYCLE WORLD have heard a lot about Yamaha's new DT400B. It's been acclaimed by several in the industry as the best big-bore Japanese dual-purpose bike on the market. And backing this up are owners who swear by the virtues of the machine in situations ranging from highway cruising to casual enduro riding.

Well, when confronted with advance information like this, our approach is predetermined. We push the bike to its limit in every possible situation. Next we enter it in enduro competition, just to make sure we haven't overlooked any type of terrain, and then we make our judgment in each area.

Break-in miles were put on on the street. We didn't take any extended trips with the 400. We just rode it back and forth to work ... the kind of riding most owners would do with the machine. And we were surprised at how well the big Yamaha fits into the world of the automobile. Acceleration is as good or better than many of the small (250cc and under) street bikes' and the noise level is not objectionable at all. The machine, in fact, is considerably quieter mechanically than last year's 360, mainly due to the lack of detonation under load in the mid-rpm range.

Also unusual for machines of this type is the lack of shifting necessary in city traffic. The engine pulls strongly from 2000 rpm right up to around 6000 rpm, at which point power falls off drastically. What's more, power builds progressively, much like it does in a four-stroke Multi.

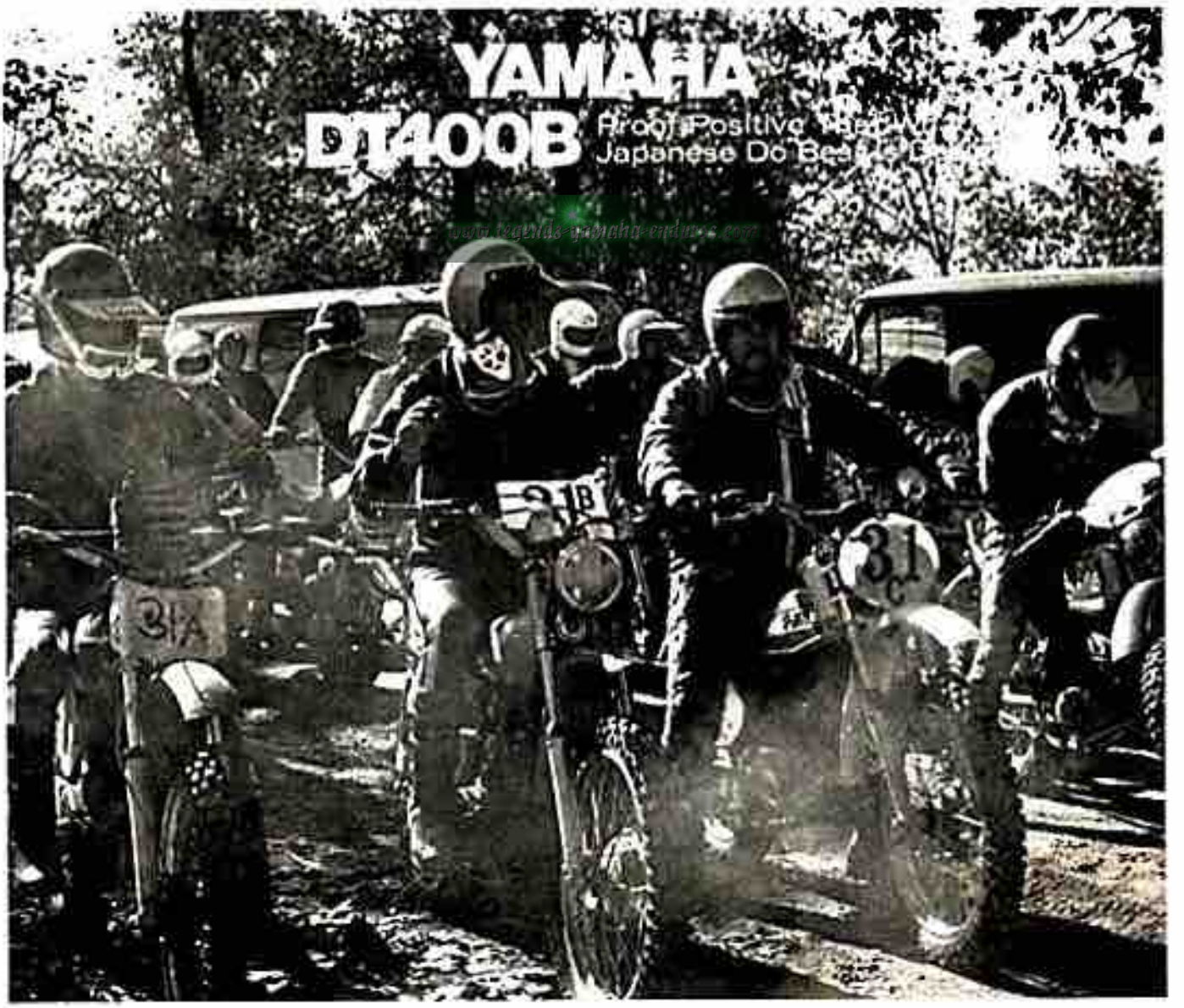
With the stock 14-tooth countershaft sprocket, 80 mph is possible. The standard trials universal tires offer marginal traction at that speed, especially when braking or in the wet, but it's nice to have the power for passing. Engine vibration at 55 mph is as good as that of most street machines. The engine balance/gearing combination on this bike couldn't be better.

Unlike some compromise machines, brakes on the big Yamaha work well on the street. The front unit is new this year. It is slightly larger and instead of being housed in a full-width hub, the new design is conical. It's doubtful whether any weight was saved with the conical design, but it looks a lot lighter and that's all the marketing boys need to up sales.

The rear brake is unchanged and required only light pedal pressure for wheel lock-up. This is fine for the street, but can present problems off-road – especially on off-camber downhills.

Since most dual-purpose purchasers spend most of their>

Cycle World Staff ready to go at the Annual Turkey Enduro in N. Calif. Yamaha DT400B is second from left.



off-road hours on fireroads, that's where we took the DT400 next. With a wheelbase approaching 56 inches and a relatively low chassis borrowed from a previous motocross model, power slides should be a breeze. But they aren't. You can't pitch it into a turn because the thing weighs almost 300 pounds. And all that weight trying to go straight creates too much inertia for the traction offered by the front tire, a 3.00-21. Front-end wash-out is the result.

A better approach is to go in slow and roll on the power (there's plenty) until the rear tire breaks traction. This gets you into a slide all right, but not a very stable one. The reason is a high center of gravity (in spite of the low engine-mounting point). Full instrumentation, turn signals, a steel gas tank, and a steel rear fender all contribute and the majority of this equipment is necessary if you want to ride on the street.

So with the Yamaha, you must make up time between the turns and go into corners with some caution. Otherwise there's going to be a hole in the landscape to the outside that you could drive your van through.

Suspension on fireroads is adequate, but not sensational. On the positive side, damping in the rear shocks is good, and the front forks don't let the front end dive too much when braking for turns. Hit a lengthy washboard section, though, and front fork action deteriorates. At one point, the units on our DT400 locked hydraulically in the extended position. They wouldn't move up or down. Apparently some work on the valving is in order. Ride is on the harsh side due to the inability of the forks to react to small ground irregularities and because the springing on the rear shocks is too stiff.

Frazier Park, a popular cow trailing area in Southern California, was the machine's next challenge. Frazier consists of several trail loops, some of which are narrow, rocky, and steep. You can't do much sliding on these trails and they aren't overly rough, so the Yamaha did quite well here. Even at high as 6000 feet, the engine performs well. Power delivery remained so smooth and predictable that we're pretty certain most novices could mount up and feel confident right off.

Because of the constant turning and short straights, speeds are low. . in the 20-mph range if you're really hauling. And with the speed down, steering characteristics are completely different. It still isn't as precise as some racers we've tested, but the DT400 goes around all slow corners without much

YAMAHA DT400B

work on the rider's part. It also responds well to shifts in rider weight and this is a great aid in tight spots with overhanging brush.

The 80-mph gearing is ridiculous at Frazier. A smaller 13-tooth countershaft would be much better and would also ease the strain on the clutch, which is no longer strong enough. The weak clutch is the result of a trade-off that Yamaha felt was worthwhile. They narrowed the cases slightly, which in turn forced them to remove one clutch plate and thin the others. Under normal use this change won't be noticed, but if you ever have to slip the clutch, it over heats quickly and loses all of its adjustment. Adjustment comes back when the engine cools, but it can cost you some time on the trail.

Suspension faired better in the cow trading session than at any other time off-road. Broadly-spaced whoop-de-doos and infrequent rock ledges present no problem at all. In fact, if this is the only kind of riding encountered, a spring change in the rear and damping modifications up front wouldn't get you down the trail any faster at all. As long as you don't require the suspension to react too fast or too often, it works just fine.

If we had stopped analyzing the Yamaha at this point, we would have had to say that it lived up to everything we'd heard about it. But we entered it in a couple of enduros (one was a two-day event), and under the strain of competition, the bike leaves a lot to be desired.

Our preparation for the first event consisted of removing the turn signals and changing to knobby tires; a 3.50-21 up front and a 4.50-18 rear. On the 260, a 4.00-18 is the biggest tire that will clear the exhaust, but this year there's more room. A 4.50 will fit, but to avoid rubbing in the event of a bent rim, we dented the exhaust slightly for additional clearance.

So much for preparation. After all, it was a family enduro with an easy first loop. It was easy for the bike, but not the rider. With a 24-mph average and open desert to cover, fork bottoming was frequent. More progressive springing would probably help. That would allow freer movement for the small stuff and at the same time would make bottoming less frequent. Damping remained consistent for the rear shocks, but their oversprung condition makes the rear try to swap ends every time you try to get it on. In whoop-de-doos you can get yourself into a tank-slapper pretty easy. >

After a hundred miles of this you have a rider with sore shoulders, aching back, and swollen hands. And if you think this is necessary to compete in all enduros, you are wrong. Other staff members rode the event on lighter bikes with better suspension, and they could have easily ridden the course twice with less fatigue!

The following weekend, we entered a two-day event and unlike the first one we subjected the 400 to, it bore little resemblance to a forced trail ride. It was a challenging combination of lava rock beds, boulders, sand, and open desert.

We'd installed a Number One Products Fork Kit and it was worth it. The forks still bottomed, but they gave a smooth ride. Danger marks offered little warning and our staffer found himself in several tank-slappers. All were caused by the over-sprung condition at the rear and were induced by everything from rocks to drop-offs to whoops.

Midway through the first day, the seat had settled. Padding isn't thick enough. And that forced an uncomfortable standing position. . .the handlebars are too low. Also, the rear fender began to crack—eventually in half!

Hills are absolutely no problem at all for the motor. You can torque it up muddy ones or horsepower it on sandy ones. But get on a lava hill that works the chassis and motor at the same time and it's not so easy. If you take it slow, the rear wheel spins. Dial it on a bit and the bike won't track straight. The rear end will suddenly skate to the side (poor suspension), often resulting in a near 90-degree turn that's too radical to compensate for with such a heavy bike.

Downhills are a lot easier. Brakes are sensitive, but are controllable, and the 400 tracks straight. Bulldogging it down a ledge is tough, but only because it's a heavy bike to begin with.

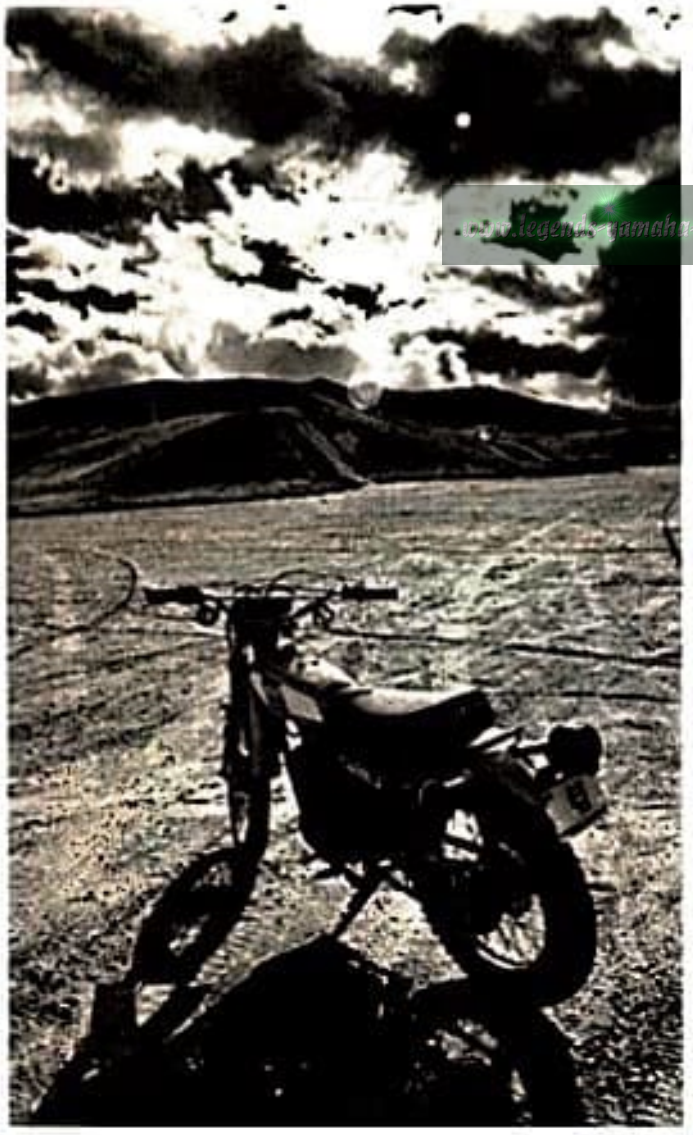
On most bikes (especially heavy ones), you look forward to a sand wash since they offer a place to rest. But not on this bike. Even with a 3.50-21 the 400 tracks in bike ruts with a vengeance, changing direction seemingly at will. Go slow and the front wheel knifes in. Go fast and it wobbles so much you wonder why you haven't been pitched off.

It's a bike you can finish an enduro on, but finishing turns out to be so much work, so demanding in places it shouldn't be, that it's questionable whether it's worth it!

If only they'd put this engine in another frame. It would be fantastic. Even as it is, the big Single makes the DT400 more appealing than the rest of its components warrant.

In this case, you can't even worry about buying a first year engine because of possible bugs that it might have. . .because it isn't. It's merely last year's 360 with a radial cylinder head, larger bore, and a 2mm larger carburetor.

The radial head reduces the weight somewhat, improves the appearance greatly, and perhaps aids in cooling. Certainly the biggest improvement is in the appearance. Other changes have made for questionable improvements. Both crankcase side >



YAMAHA DT400B

SPECIFICATIONS

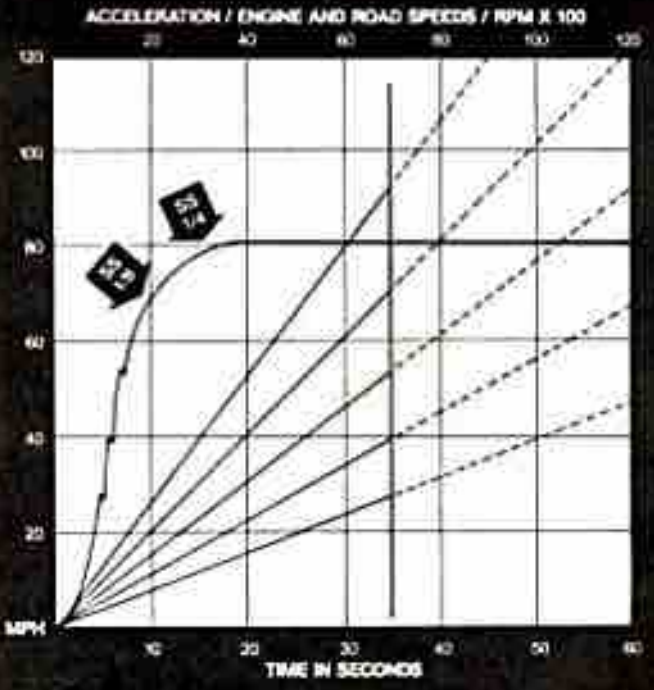
List price	$1371
Suspension, front	telescopic fork
Suspension, rear	swinging arm
Tire, front	3.00-21
Tire, rear	4.00-18
Brake, front, diameter x width, in.	6.3 x 1.0
Brake, rear, diameter x width, in.	5.9 x 1.075
Total brake swept area, sq. in.	39.7
Brake loading, lb./sq. in. (160-lb. rider)	11.7
Engine, type	single-cylinder, two-stroke
Bore x stroke, in., mm	3.35 x 2.76, 85 x 70
Piston displacement, cu.in., cc	24.22, 397
Compression ratio	6.4:1
Claimed bhp @ rpm	27 @ 5000
Claimed torque @ rpm, lb.-ft.	27.5 @ 5000
Carburetion	(1) 32mm Mikuni
Ignition	CD magneto
Oil system	Autolube
Oil tank capacity, pt.	3.2
Transmission oil capacity, pt.	2.4
Fuel capacity, U.S. gal.	2.4
Recommended fuel	low or unleaded
Starting system	kick; folding crank
Lighting system	6V alternator
Air filtration	oil-wetted foam
Clutch	multi-disc, wet
Primary drive	helical gear
Final drive	520 single-row chain
Gear ratios, overall:1	
5th	5.8
4th	7.6
3rd	9.9
2nd	13.6
1st	19.3
Wheelbase, in.	55.5
Seat height, in.	32.1
Seat width, in.	9.8
Handlebar width, in.	32.5
Footpeg height, in.	9.5
Ground clearance, in.	8.7
Front fork rake angle, degrees	30.5
Trail, in.	5.3
Curb weight (w/half-tank fuel), lb.	289.5
Weight bias, front/rear, percent	45/55
Test weight (fuel and rider), lb.	464
Mileage at completion of test	678

TEST CONDITIONS

Air temperature, degrees F	66
Humidity, percent	71
Barometric pressure, in. hg.	29.90
Altitude above mean sea level, ft.	383
Wind velocity, mph	3-5

PERFORMANCE

Top speed (actual @ 6096 rpm), mph	81
Computed top speed in gears (@ 7000 rpm), mph	
5th	93
4th	71
3rd	54
2nd	40
1st	28
Mph/1000 rpm, top gear	13.2
Engine revolutions/mile, top gear	4561
Piston speed (@ 7000 rpm), ft./min.	3220
Lb/hp (160-lb. rider)	17
Fuel consumption, mpg	35
Speedometer error:	
50 mph indicated, actually	48
60 mph indicated, actually	58
70 mph indicated, actually	67
Braking distance:	
from 30 mph, ft.	39
from 60 mph, ft.	138
Acceleration, zero to:	
30 mph, sec.	5.1
40 mph, sec.	6.0
50 mph, sec.	6.7
60 mph, sec.	8.0
70 mph, sec.	9.8
80 mph, sec.	17.8
Standing one-eighth mile, sec.	9.456
terminal speed, mph	69.12
Standing one-quarter mile, sec.	15.848
terminal speed, mph	79.71



covers are now made from magnesium instead of aluminum. This sounds exotic, but in reality just causes the price to go up with very little savings in weight. The right side has been narrowed, as mentioned earlier, resulting in the weaker clutch.

As before, the crankshaft rides on ball bearing main bearings, with the connecting rod supported by needle bearings top and bottom. The windowed piston, necessary for the reed-valve induction system, sports two rings, the top one of the Keystone variety to insure a positive seal against the cylinder wall.

The reed-valve in the path of the incoming fuel charge, in addition to the porting, is what gives the 400 all of its stump-pulling power. The reed is made from a special flexible stainless steel. What it amounts to is a flapper valve that regulates the flow of fuel and air into the lower end. The valve is pulled open by the pressure differential between the crankcase and the atmosphere. As the piston moves, the pressure is changed, opening and closing the valve.

To aid in starting, a decompression device attached to the exhaust side of the cylinder allows some compression pressure to drain off as the kick lever is depressed. This bled-off pressure is then routed to the exhaust port. The compression ratio of 6.4:1 is the same as that of last year's 360.

Spark is produced by a magneto CDI. The external flywheel helps to keep the crankshaft turning at lower rpm in addition to producing the current necessary to run the headlight.

We have heard from several different sources that the 400 and its CDI system suffer from all sorts of problems relating to stalling at low rpm and poor starting. This was not the case with our test bike. We found, however, that starting is best accomplished by leaving the key off, and then kicking the engine through two or three times. Then turn the key on and give the lever one more stab. Result: instant start. This is not necessary when the engine is warm.

Also unchanged is the five-speed transmission that receives power from the crankshaft via helical-cut primary gears, and the Autolube system that precludes mixing of gas and oil.

Taken in total, the DT400 is without question superior in every respect to the 360 it replaces. It has more power. It has a flatter power curve. The detonation is gone. Brakes are better. And for our money, styling with the new gas tank has improved.

As a play bike that can be ridden on the street, it is a good buy. It is just as heavy and handles no better than its competition, but it does have an engine with the best possible power characteristics. . .an engine that lifts the total motorcycle from mediocrity to the head of its class.

As for turning it into a serious enduro machine, it would be more work and money than it would be worth. You'd be better off buying less of a compromise from the start. ■

YAMAHA DT400B

PARTS PRICING

Warranty	6 mo./4000 mi.
Piston	$19.00
(1) Set Rings	8.64
Rear Shocks (each)	33.18
Wheel Rims (bare each)	15.00
Drive Chain (standard)	25.00
Front Fender	14.62
Rear Fender	26.40
Clutch & Brake Levers (each)	3.25
Clutch Cable	3.95
Throttle Cable	top section 3.92
	complete assy. 10.90
Brake Cables	4.30
Ignition Parts	
Coil	14.46
Magneto Assembly	175.00
Air Filter Element	7.92
Rear Tire (standard)	27.37
Headlight Bulb or Sealed Beam	13.76
Taillight Lens	6.80
Battery	10.95

Photography: Walt Fulton, D. Randy Riggs