JUNE 1976 30p

MOTOR CYCLE MECHANICS

SEVEN BIKE TRAIL TEST

500 TRIUMPH BLUEPRINT

MZ 150/250 SERVICE

ON TEST YAMAHA RD400 MZ TS125

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WHAT'S BLUE AND...

YAMAHA RD400

ROAD TEST

By John Robinson

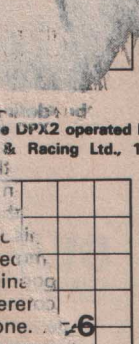
Yamaha's latest middleweight, the RD400, comes over as a very nice, logical extension of the 350 twin. Considering the range already has two very similar machines it could easily have been a superfluous addition but with or without alloy wheels, the 400 is far from that. Its development from the 350 is obvious and typical of Yamaha's line which goes back to the YR5 and beyond, yet the new twin has a distinct identity.

It represents development in the right direction. It has the same performance and nature of last year's RD350 with more flexibility, better fuel consumption and detail design that has been neatly tidied up. The reed-valve motor is as lively as ever with a vicious, full-throttle pick-up reminiscent of the earlier Kawasaki triples. The bike is small and light to handle, sometimes too light, letting the motor's thrust make the front wheel skim along the surface.

There are two distinct power regions, though. Above 6000 rpm it all comes in very rapidly, at lower speeds it is mild and docile but still usable. Unlike most peaky motors which give away their wild porting with a sudden rush of power, the Yamaha comes into its power band progressively with no great surge trying to snatch the machine away from you. At 4000 the exhausts start to crackle, at 5000 it is coming on strong and then picks up quickly so that the tacho never actually reads 6000. One minute the needle is sweeping up the scale, the next it is flying on towards the 8500 limit.

Helped by the six-speed gearbox the Yamaha gets more power down than you realise and quickly shrieks up to a cruising speed of 80 or more if you let it sing on in fourth and fifth gears. Then the light handling and lively suspension make it feel fast and the rider certainly doesn't lose out on any impressions of speed.

The surprising thing a[bout] revvy engine is its w[ide] power. On the road t[est] from well below 300[0] throttle from not mu[ch] without fluffing or gas[ping] tests showed the torque [curve] 5000 to 8000 and we c[ould] up well below this range.



...e DPX2 operated by ... & Racing Ltd., 10

Our measured performanc[e] down on the RD350 we teste[d] but the difference is margina[l] have been caused by the differe[nce] and the high handlebars alone. [We] that our 400 had only just been r[un] was still loosening up. On accelera[tion] nature of the lively motor combined [with] light clutch and low first gear also [made] standing starts interesting. To be cons[istent] it had to be taken gently off the line, ot[her]wise it was quite likely to leap away in [a] shrieking wheelie. With power and clutc[h] finely balanced the Yamaha would surge forward pushing the front wheel off the ground and holding it there on pure acceleration.

Once it had got over second gear it was more stable and easy to manage but like the 350 it would often tend to get the front wheel hopping up on acceleration from a slow bend. This could come as a nasty surprise to an owner looking for a medium-

sized, run of the mill, go-to-work machine.

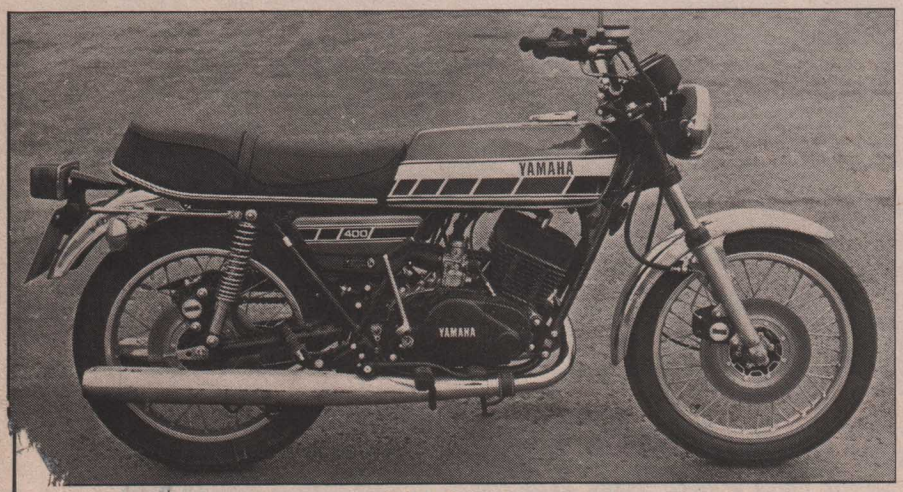
At the top end the motor seemed to flatten off earlier than the 350 and we got best acceleration by changing up at an indicated 7500, by which time the motor was obviously over its peak. In fact the tacho was reading more than 500 rpm slow and the dyno said that it peaked at a true 7500. This could have been a bit premature as the motor was leaning off at the top and the fuel flow had flattened right off. Whether this is due to some restriction designed in, possibly to squeeze through silencing regulations or whether the carburation wasn't quite right, we don't know. Certainly, the plugs looked a bit on the weak side after the full throttle runs, so we could probably credit the 400 with a bit more power at the top end — the potential is certainly there.

POWER STEP

The other interesting thing about the performance curves is that they show the step in power quite clearly at (a true) 6000 rpm. The torque and bhp curves seem to peak briefly and then carry on up — presumably is top gear only. This last run got the Yamaha up to 90 mph, while it would hold 80 mph apparently without regard for hills or wind. At 80 mph the motor is just coming on to its torque peak, yet the twin is turning slowly enough for either fifth or fourth gears to be used.

The raw figures don't show a real improvement over the 350 but despite this and its tourer styling, the RD400 is a sports machine to the core. If you've had any experience of 350, the 400 is much the same but with low-down power spread more thickly and better fuel consumption. The worst we got at the track was 37 mpg while on the road it varied from 39 to 51 mpg depending on how it was used. Over a period in which it was treated fairly gently, the oil consumption also seemed to be considerably better than earlier Yamahas, giving us something approaching 300 mpp.

Considering its performance and the kind of rider that would be attracted to this machine, the layout and riding position could be better. The handlebar was the worst offender, as well as restricting high-speed performance it aggravated the han-



b[illegible] definitely touring lines of the RD400 don't give away its sporty nature.

the reed valves preventing a n power at low rpm while the the porting takes a hold above is point they seem a bit unde- motor is passing a lot of gas with ponding jump in power. The spe- consumption curve shows a peak ere ought to be a valley and in road performance it would be more mical to run at either 5000 or 7000!

n the road the only noticeable effects n the engine are an occasional stuttering hen the motor is held at low speeds on a olled-off throttle and some popping and erking on the overrun.

Maximum speed on the track was a shade under 100 mph with the rider wearing leathers and using full revs in all the gears. On the road speed graph we've marked off three points, labelled A, B and C; A is maximum maximum. The others are max speeds at the end of a one-mile run up with the rider sitting up and wearing an oversuit, starting from 60 mph. For run B the appropriate gears are used, while run C

dling which already tended to be light and a bit bouncy. The Yam was all too ready to twitch the front end over bumps in the road and would weave in fast corners. The upright riding position was fine in town but much less comfortable on the open road. After a day's riding, covering more than 300 miles the machine was generally getting uncomfortable and tiring to ride.

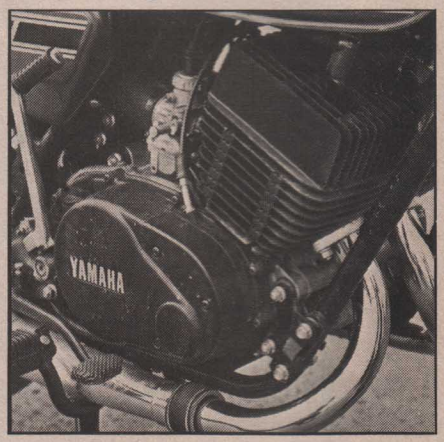
RIDING POSITION

A low sports riding position, with short narrow bars and footrests to suit would make the bike a lot better and almost certainly improve its performance. I may be wrong, but I think that a larger tank, a short seat with a big hump on it and a great big powerful headlamp would make the Yamaha a lot more attractive and a lot more usable.

Those who envisage fitting clip-ons might run into problems if the vibration from our machine is typical. At first it was only getting through to the pillion footrests, later it could be felt through the seat as well. A look underneath the bike revealed Yamaha's comprehensive rubber mountings, so maybe our bike isn't unusual. The success of these mountings is that virtually nothing was affected by vibration but when I took a foot off the rest and tried to hold it on the engine casing, the motor shook it right off again.

Apart from the bigger engine and detail design changes, the RD400 is distinguished by having a hydraulic disc fitted to the rear wheel. I had my doubts about the wisdom of this, having experienced several losses of braking when discs have got wet. It didn't take long to find out that both brakes worked very well indeed in the wet. The front one didn't show any difference to its

The new motor is crisp and flexible with better fuel consumption than the 350 and more mid-range power.



A reasonable tool-kit is packed neatly into a compartment under the tail of the seat.

normal, powerful, dry-weather performance, except that I was treating it a good deal more gently. The rear one was a bit slow to bite but as it didn't need any great pressure to dry it out this wasn't a bad thing — it just meant that the brake came on more gently which, on a greasy road, is about what you want.

In the dry, where the brakes could be used good and hard, I found they were not only powerful but very well balanced too, needing the minimum of effort and co-ordination to pin the bike down and stop in a dead straight line. If the feel to the handling had only been a shade heavier and that

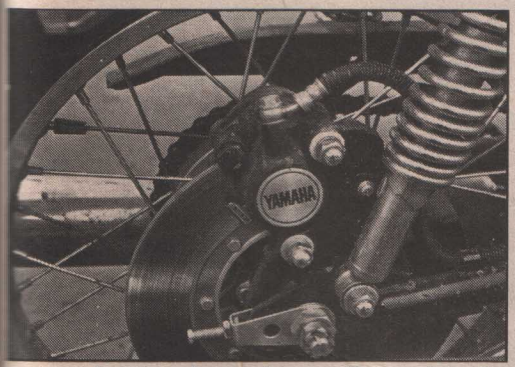
much more positive, then brakes, gears and motor would all have blended into an efficient package the like of which isn't usually found outside the race track. I can see these machines running quite happily around the 500s in this season's PR class.

INTO PLACE

The finish is good, everything clicks neatly into place and the controls don't have to be searched out. The oil warning lamp appeared to be connected to the neutral indicator — whether this was a crossed wire or just a reminder every time you switch on remains a secret. When the oil level was about a pint below full, the light would flicker on as the oil swilled forward under braking, so the light must have been connected to the sensor as well. (No, the neutral light didn't come on too.)

Self-cancelling indicators seemed a silly idea until I discovered that they could be cancelled manually and, because you only have to hit the switch in vaguely the right direction, they actually proved a lot more useful than the normal kind.

The RD400 always started up reliably although it usually took about five swings on



Another change from earlier models, the new disc brake. Both brakes worked well in wet conditions.

the starter and then spluttered about on choke for a while. Sometimes it would suddenly sulk and go flat instead of responding to the throttle but once it had picked up and remembered how to screech away on both cylinders it didn't need any more nursing around.

In all it's a well finished sports bike with all the traditional Yamaha performance and better flexibility. By many standards the fuel consumption isn't good but it's a whole lot better than it might have been; considering what you get for the gas you burn and the current accepted levels from bikes in general, it isn't bad either. The Yamaha is a very civilised machine, too, with no rough edges, a fairly subdued exhaust with a little of the sporty crackle breaking through. I'd like to see it dressed up to look and behave more like a sports bike instead of the more mundane compromise. But as it is you can howl through the lanes as fast as you like, or keep it rolled off and you can still take your mother for a ride on the pillion.

Our thanks to Len Manchester Motorcycles, Melton Mowbray, Leicester, for loaning us this road test machine.

PERFORMANCE AND SPECIFICATION

TEST CONDITIONS

Dry, 5mph tail wind,
ambient 56 deg. F.

PERFORMANCE

Maximum speed	99mph
Braking from 30mph	28ft
Fuel consumption:	
hard riding	37mpg
average	43mpg
best	51mpg
standing start ¼ mile 14.8 sec at 83mph.	
minimum speeds in gears:	
1st	5mph
2nd	7mph
3rd	10mph
4th	12mph
5th	14mph
6th	16mph
mph/1000 rpm in top gear 11.75	
speedo error: 2mph fast at 70mph.	
tacho error: 600 rpm slow at 8,000 rpm	
Test weight:	366-lb
Front/rear weight distribution:	
Front	44.5 per cent
Rear	55.5 per cent
Power to weight ratio:	.0943 bhp/lb

TRANSMISSION

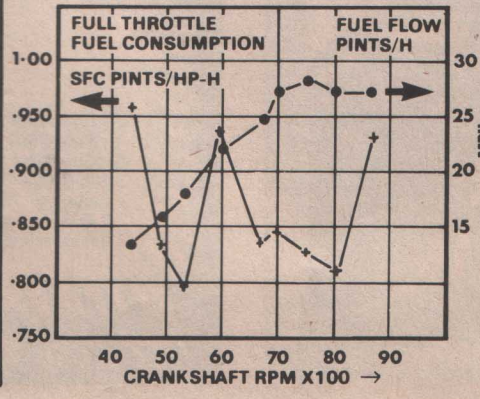
clutch	wet multiplate disc
primary drive	gear 2.87:1
final drive	chain 2.235:1
gear ratios	2.571; 1.77; 1.318; 1.040; 0.888; 0.785

ENGINE

Type	reed-valve two-stroke twin
Displacement	398cc
bore and stroke	64mm x 62mm
compression ratio	6.2:1
claimed output	40bhp (DIN) at 7,000 rpm
lubrication	Yamaha Autolube
carburettors	two 3M28SC Mikuni
charging	Hitachi 12v AC generator

HOW IT COMPARES

MODEL	PRICE INC VAT	MAXIMUM SPEED	AVERAGE MPG	SS ¼ MILE	DRY WEIGHT
YAMAHA RD400	£599	99	43	14.8	346
HONDA CB400	£699	103	49	15.2	397
KAWASAKI KH400	£629	100	37	13.5	353
MORINI 350 3½ STRADA	£795	100	66	15.2	320
SUZUKI GT380A	£629	102	45	14.4	373
KAWASAKI Z400	£619	90	54	16.4	375



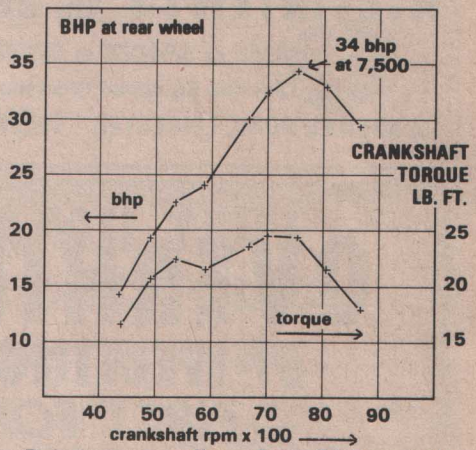
CHASSIS

front tyre	3.00 x 18in
rear tyre	3.50 x 18in
front suspension	telescopic fork
rear suspension	swinging arm, oil damped coil spring
front brake	hydraulic disc
rear brake	hydraulic disc
overall length	79.9 inches (2030mm)
overall width	43 inches (1085mm)
ground clearance	6 inches (150mm)
wheelbase	52 inches (1325mm)
dry weight	346lb (157 kgs)
castor	62.5 degrees
trail	4.3 inches (109mm)
fuel tank	3.6 gals (16.5 litres)
oil tank	3.15 pints (1.8 litres)

PARTS PRICES inc VAT

front mudguard	£14.81
handlebar	£5.34
speedo cable	£1.63
exhaust system	£26.08
pistons and rings	£14.65
list price	£599.00

Warranty: 6 months or 4,000 miles inc parts and labour.



Engine tests run on a Heenan Froude DPX2 operated by Lincolnshire Engine Developments & Racing Ltd., 10 School Lane, Baston, Peterborough.