



YELLOW PERILS

320/250/200 MAJESTY YAMAHAS

Yamaha's 250cc trials machine has been in production now for seven years. And in that time it's virtually been unchanged. But in that period other manufacturers have marched on and the design of the Yamaha is really too long-in-the-tooth to cope with the tasks required in modern trials events.

Yet in 1974 Yamaha had won the Scottish Six Days Trial two years on the trot thanks to the able development of their machines by Mick Andrews. Without doubt the Yamaha was as good as anything in its class. That had been the direct result of a concerted effort by the factory to put trials on the map as far as Japan was concerned. Three years earlier, Yamaha, as now, were dominant in road racing and moto cross. But there was nothing to show on the trials front.

At this time Great Britain had the world riding talent. And Yamaha had the money. So they literally, bought the talents of Mick Andrews who had been developing the Spanish Ossas to championship-winning pitch.

He came up with the goods. And eager to flood the market, Yamaha set up production of the Andrews-developed machine soon after. But while you'll find them being happily used by clubmen pleased with its ruggedness and obliviousness to abuse, those in the top echelons of the sport have long regarded the TY250 as a non-starter for national trials in its standard trim.

For a start, the chassis is out of date. While fork travel is adequate the damping is poor and rear-wheel movement is far too limited. Worse still, the ground clearance is far too tight for the demanding sections you find in today's trials.

But the basic components are excellent. The wheels and brakes are still the best in the business. And the 246cc reed-valve two-stroke engine had ample power with good mid-range torque though the reed sometimes limited revving out when you couldn't change up. The five-speed gearbox had three useful lower ratios and, very important for



Japan's only trials machines in production, Yamaha's TY models, are underpowered and out-of-date for the national class riders. *Charlie Harris* rides competitive conversions developed from Mick Andrews' works bike. *Photography by Tim Leighton-Boyce.*

most riders, the kick-start lever spun the motor through the primary gears.

Fashion, however, is as influential in the trials bike world as anywhere else. And as soon as the world-championship class riders started to take advantage of the powerful but demanding 325cc engines in their machines, then the ripples ran all the way through the sport. Despite them being more than a handful for Joe Soap, everyone wanted a 325.

Although the lessons learnt by Yamaha failed to reach the production line, Mick Andrews was still massaging his Amsterdam-based works bike to competitive trim two years ago before his move back to Ossa.

Ex-speedway and motocross rider John Shirt, a close friend of Mick, saw that there would be a market for such a machine, and asked if he could copy the last works Yamaha and put it into production. He had a ready-made demand and soon had so many enquiries that John and Mick started their own enterprise called Trial-Moto, based at Matlock, Derbyshire.

Nearby is Hawks Nest, the set of sections made famous by the Bemrose trial and the ideal location for testing.

You wouldn't recognise John Shirt's 320 Majesty Yamaha as being a modified TY250 when you ride it and the same goes for the appearance.

The tremendous torque from the motor is astounding. Hawks Nest, a deep water gully carved through a hillside with big boulders and ruts, was taken in the first three gears comfortably. The Majesty makes its finesse very obvious, but violent action will make you know it's the jumbo model that you're riding although the weight is much the same as the TY at around 192lb.

The extra power is provided by upping the capacity to 322cc by using an 80mm bore instead of the stock 70mm. Shirt presses in a new liner but retains the original 26mm Mikuni carburettor and reed-valve.



The chassis has received as much attention as the engine in the change. To increase the ground clearance to a useful 13½ inches two inches is cut out of the front down tube and out of the tubes behind the engine. The ensemble is then welded back together along with a massive alloy bash plate that fits like a body stocking around the crankcases.

The front fork is modified by altering the damping characteristics to prevent pogoing and now allows the rider to attack boulders confidently. The rear dampers are dumped in favour of Girling Gas Shocks which are located over the rear wheel spindle and offer the rider markedly improved sensitivity to the grip of the rear wheel. Tyres are changed to Pirellis (in the usual 2.75 x 21 in. and 4.00 x 18 in. sizes) running at 4psi and 7psi front and rear to give excellent traction.



Sprung loaded gear lever and footrest, relocated dampers and heavier chain typify attention to detail on the Majesty 320 Yamaha.



The bike's handling can't be faulted. It goes where you point it and the 320 seems to find grip where there isn't any. The original wheels and brakes are up to scratch, and after stream riding just a few revolutions are needed to dry out. Wheel bearings are sealed with a life expectancy of two seasons.

Like a lot of fine-handling machines the Yamaha has a way of instilling confidence in its rider. Nothing happens unexpectedly, and its light weight combined with a built-in agility dispels any fear that it might get out of hand.

Useful features are the shortened sprung loaded gearchange and brake levers neither of which are now vulnerable to rocks and prangs. The oil pump supplying the motor is removed in favour of petrol mixture, improving the carburetion and saving a few ounces. Vital however, is the use of heavy duty chains and sprockets to replace the quickly worn out originals.

Crucial to the development of a large bore trials motor is to retain a degree of manageability, and in this John Shirt has succeeded in offering a machine that both the expert and junior rider alike

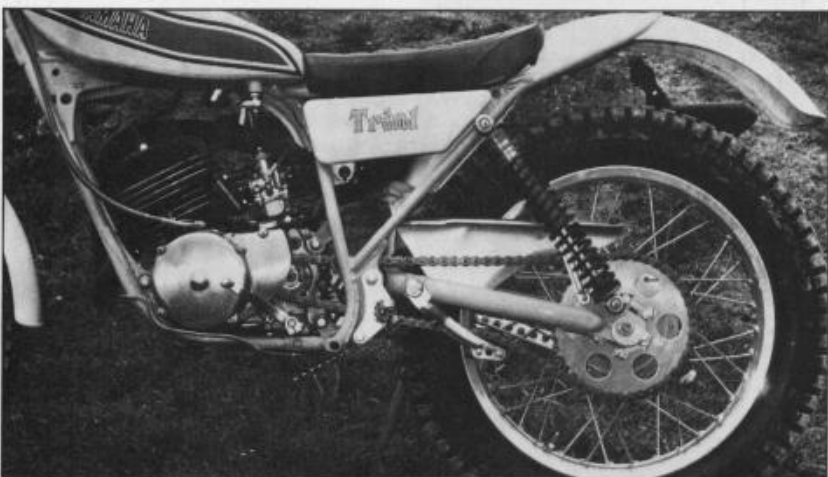
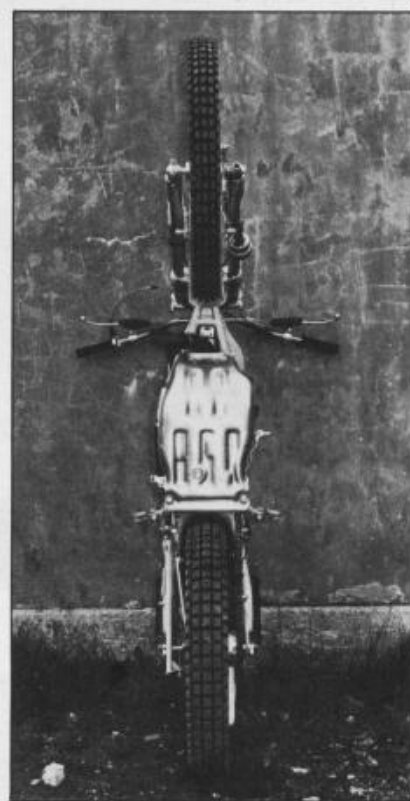


could find satisfactory. The 320 impresses for its clean carburetion and smooth running, thanks to the use of a larger outside flywheel, which makes full lock turns with the clutch engaged a lot less hairy without the usual jerkiness and resultant front-wheel washouts.

The 320 Majesty would otherwise be very sensitive in this way because the steering geometry has been altered by reducing the rake to quicken the directional stability. On the 320 you can wrong slot and still have time to correct yourself. High speed steering is still adequately taut however.

Big bore trials bikes can still be a handful for the less experienced rider, mainly because of the amount of torque they can generate. They can really catch the rider unawares at the wrong moment unless he is tuned into the type of urge needed by the top flight competitors.

Therefore, the 250 version of the Majesty offered by John Shirt makes a better proposition for a starter. It's the same in every way as the 320 with the modified frame and suspension and handles in the same manner. The only difference is that the 250 has less power and is less overwhelming. In addition, Shirt has fitted the same heavier flywheel to the 250 in a bid to improve rear wheel traction.

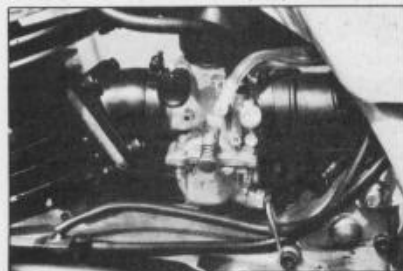




ON THE ROUGH



Rear brake lever (above) is shortened to protect it from rocks but makes brake less sensitive. 26mm carburettor (below) is set up for trials work with easily adjustable pilot screw with plastic cover and drain plug for float chamber.



While it has marginally given the bike more bite it has also killed the throttle response. Grab a handful to lift the front wheel over a log and the engine takes too much time to react. And when you want to back off the engine tends to run on.

The 250 Yamaha has always had a traction problem it's true but the increased power of the 320 overcomes it.

A far easier way to get better grip on the 250 is to move the footrests an inch or so to the rear. This raises the amount of rider's weight on the rear wheel and effectively improves the leverage the engine has to overcome when the rider wants to lift the front wheel.

It was a mod I added to a Brian Leask-supplied TY250 on which I clinched the South Eastern Centre Championship so it must have had a measure of success.

John Shirt also offers modifications for the small TY175 Yamaha. As it stands, there's very little to criticise in the stock bike, except that it begins to run out of puff when hauling bigger-than-average schoolboys or anyone over



ten stone. The zippy little six-speeder has such a short wheelbase and light weight that if anything, it has more grip than necessary. The engine buzzes well and you can easily loop the bike if you're not careful.

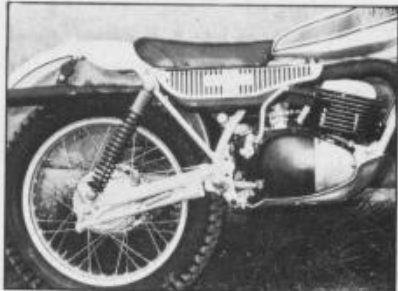
So you might expect a 200 version to be even more exaggerated in this respect. And it is. Shirt replaces the cylinder liner and opens up the bore size from the standard 66mm to 60mm giving a capacity of 195cc.

When you're not expecting it the motor can put you on your ear and it feels far too snappy in the middle rev ranges. The power surges in even coming off idle, a characteristic which can lead to very embarrassing moments. When riding small bikes like this, you tend to run either shut off or flat out, but the 200 sometimes gives an extra measure of poke that you could well do without.

It may be because the reed-valve is unchanged and there is more capacity in the engine than it can handle. Certainly the antics of the bike could be tamed by the addition of an inch to the wheelbase, bringing it up to the more conven-



Fork rake is reduced to improve low-speed steering control. Rear suspension has units laid down to give better feel for grip. Dampers are Girling Gas Shocks.



tional 51 inches found on most full-size bikes.

The autolube system is also dispensed with on the 200, a mod that most stock TY175 Yamahas would benefit from. For best response to the throttle when using the idle jet in fiddling little sections, the engine must carburete perfectly. But with the autolube, there tends to be too much oil for the slightly lean mixtures needed and the engine runs hesitantly. It's much easier just to junk the lubricating pump and run on petroil.

Completing the picture, the 200 has a new-style tank and the same yellow and red paintwork as the 320 Majesty. It makes one of the best prospects for the schoolboys.

One of the greatest virtues of the Yamaha is that they are virtually bullet-proof. You can't break them. With competitive edge applied by Mick Andrews and John Shirt, they're machines really worth considering if you're after the sort of civilised equipment that only the Japs can offer.

Our thanks to Kett for supplying the trials clothing.

320/250/200 Majesty Yamahas

Price inc. VAT	(320) £1,168 (250) £1,057 (200) £980
Engine	Reed-valve, 2-str. single
Capacity	322cc (80x64mm) 246cc (70x64mm) 195cc (70x50mm)
Lubrication	Petroil
Comp. Ratio	8.5 to 1
Carburetion	26mm Mikuni (200, 24mm Mikuni)
Primary Drive	Gear
Clutch	Wet multiplate
Gearbox	Five speed (200, six-speed)
Final drive	520 roller chain
Fuel capacity	One gallon
Frame	modified Yamaha
Suspension	Pirelli 2.75 x 21 (f) 4.00 x 18 (r)
Brakes	Yamaha drum (f and r)

DIMENSIONS

Wheelbase	51in (200, 50in)
Grnd Clrnce	13½in (12¾in, 200)
Weight	192lb (200, na)
Manufacturer/Supplier	John E Shirt, The Workshop, Stable Lane, off Leek Road, Buxton, Derbyshire