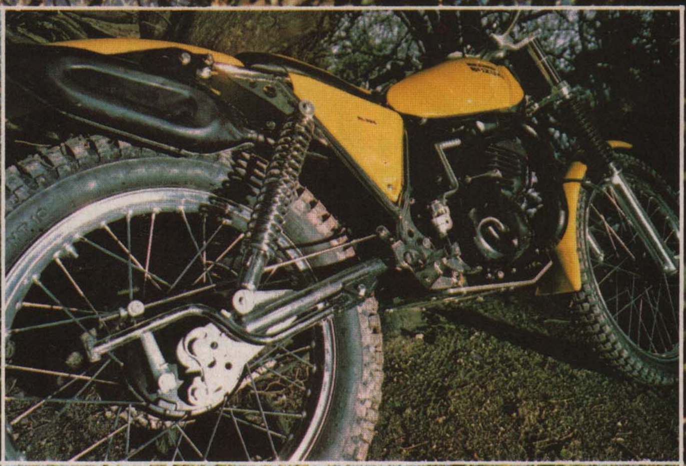





MONTESA

TRIX IN THE STIX

Like most sports, in trials riding it's horses for courses. And as the courses get more difficult, so the machinery gets more specialised. *Rick Kemp* looks at five world-championship level bikes, all potential winners. Charlie Harris and Mick Andrews did the testing. Photographs by *Tim Leighton-Boyce*.

To the untrained eye, most trials bikes look the same, and not without good reason. In recent years the machines have developed to the point where winning formulae are quickly assimilated by different factories.

Much the same goes for the bikes the world class riders use; they're all specialised motorcycles with short wheelbases, yards of ground clearance and roughly 300cc two-stroke engines with mammoth pulling power for the cresting of obstacles that would baulk a mountain goat.

In fact, the world championship class machines are so finely honed in their own class that it takes a rider of the calibre of a world champion to differentiate between them.

And so, in the first ever comparison test of the top notch trials machines, *Which Bike?* enlisted the services of no less than Mick Andrews.

Mick's qualifications for the job bare scrutiny by any standards. He has twice been the European trials champion (equivalent of today's world championship), five times Scottish Six Days winner, several times British trials championship winner, International Six Days Trial British captain and has masterminded trials schools all over the world.

You might imagine that as the current Majesty Yamaha works rider, Mick would be biased in his opinions. But he's been around long enough to realise that there is more than one way of skinning a cat, and that while he has his own preferences, most of which stand out in the Majesty Yamaha, he appreciates the virtues of the other machines being tested here.

Yet the main question probably being asked is: Why a 325 or a 350cc machine? This is pertinent because most of the trials machines sold have 250cc engines. And for most riders this is more than enough.

Bigger engines were developed because the top riders had the skill to take advantage of the more fierce power punched out at lower revs. In fact, engines up to 500cc were tried but it turned out that the best combination of power, torque and weight was provided by a larger capacity two-stroke engine. Only the 360cc four-stroke Honda campaigned by Rob Shepherd in the world championships is the exception. And only a company the size of Honda could justify the expense of developing a specialised engine for trials riding.

In the last decade, the Spanish factories have dominated the trials scene. The Japs had a short flirtation, expecting the sport to take off in the States, but again the numbers of machines used is so relatively small that it's just not worth while making them. Only Yamaha made them in numbers and these are being developed into competitive runners by John Shirt. The Suzukis have engines made in Japan and shipped to England to be mounted in frames built for the Beamish organisation.

The conclusions set out here are based on the findings of Mick Andrews, assisted by Charlie Harris, who as a former centre champion is no mean rider himself. The test sections were typical of the going found in the North Downs; leaf mould covering clay top soil and tree roots over chalk.

Fortunately, for consistency, all the bikes were fitted with Pirelli tyres and the pressures were set the same; 7 psi front and 5 psi rear.

The machines tested are all the top world championship bikes apart from the Honda. All the bikes: SWM's 320TL, Suzuki's RL325T, Montesa's 349 Cota, Bultaco's 325 Sherpa T, were new except for the Majesty Yam which was Mick Andrews' second-string bike after the other was nicked in Belgium.

Therefore, the bikes were as the buyer would find them. This is important because while you might expect the 'replicas' to be exactly the same, they are far from it. Detail changes are made to all the championship machines to cater for the tastes of the riders, sometimes to the extent of changing complete frames. In each case we have outlined the important modifications.

SWM 320TL

SUZUKI RL325T

MONTESA COTA 349

BULTACO 350 SHERPA T

MAJESTY YAMAHA 325

SWM 320TL

The Italian SWM factory are new to trials bike production – but they've learnt fast. After just three years, their 320TL has proved itself a force to be reckoned with in the world championships.

The reasons are twofold. They've spared no expense in the development of a first class frame and suspension. And with the help of the Austrian Rotax factory they've developed an engine that looks as if it could set the mould for trials engines for the next few years.

If the SWM performs well, then it looks the part too. The finish is superb, as is the detail design of all the small but important components used all over the bike.

Every effort has been taken to keep weight and size to a minimum. The bike is extremely slim across the footrests thanks to the use of thin side plates instead of tubing. Like the Bultaco and the Suzuki, there are no bottom tubes; the alloy bash plate takes over that role to provide extra ground clearance.

But the most remarkable feature of the bike is the engine. It's actual capacity is 277cc, having used the larger

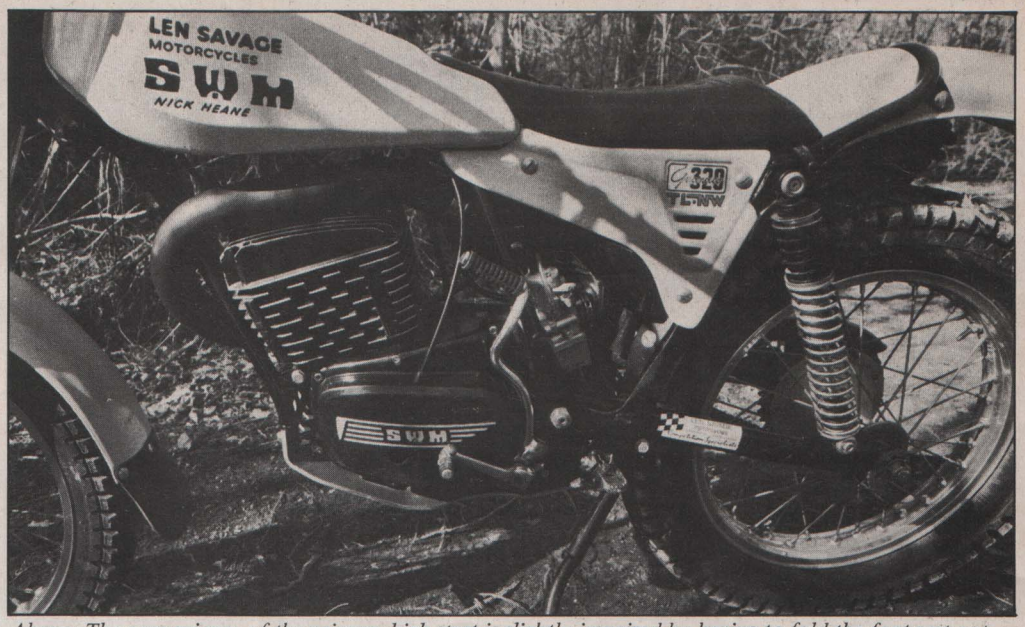
76mm bore of the early 250cc Rotax engines and the longer 61mm stroke of the later ones.

Most important aspect of the engine is that like most of the Rotax units which also power Can-Ams, it uses a disc valve for inlet timing. For trials use the advantage of this might not be immediately apparent since it is more associated with highly strung road racing engines.

Most trials engines use piston porting for the inlet, and at best a reed-valve. At low revs the chances are that as the piston drops from top dead centre the mixture in the crankcase will want to be pumped out back through the carburettor. A reed-valve, which provides one-way flow can prevent this to some extent but at the expense of interrupting flow through the port.

A rotating disc valve mounted on the crankshaft can give the best of both worlds. There's no interference with the flow while the valve is open and it can be timed to close just after the piston starts to fall from TDC.

And the results are obvious when you ride the SWM. The engine delivers massive punch out of all proportion to its capacity at low revs yet can still buzz cleanly at the top end. It's not tremendously powerful in the absolute sense, since it only makes maximum 18bhp at 6,500 rpm but the power is useful throughout the range.



Above: The convenience of the primary kick start is slightly impaired by having to fold the foot rest out of the way. Below: Lots of 'meat' around the spindle on the Marzocchis.

Trials bikes need to have their engines' power delivery smoothed out by the use of extra flywheel weight on the crankshaft. Invariably this can't be done without making the engine much wider because small diameter flywheels have to be used.

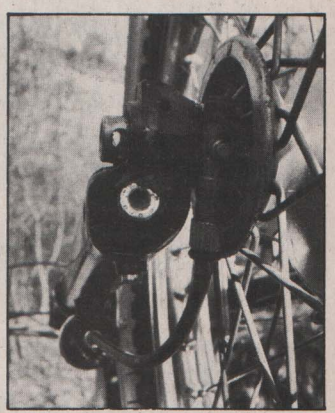
With a clean sheet of paper to design the engine Rotax wisely opted to use a large diameter flywheel, which because of its higher inertia can also be lighter than a small one.

Effect is that the power comes in incredibly smoothly, offering the rider a wide margin of controllability. And enhancing this is an excellent six-speed gearbox with a broad set of ratios for every sort of going.

Overall, gearing is low however, and bottom gear so low that it's almost useless. Where the other bikes were using third gear for climbs, the SWM could get away with fourth gear.

The SWM felt more like the Yamaha in its handling. It's the lightest of the machines at 187lb dry for a start and with a 52 inch wheelbase it has quick steering. It had a tendency to tuck in on full lock. If you were coming down a drop and had to turn at the bottom you had to be very careful. A slightly more shallow steering axis would correct this.

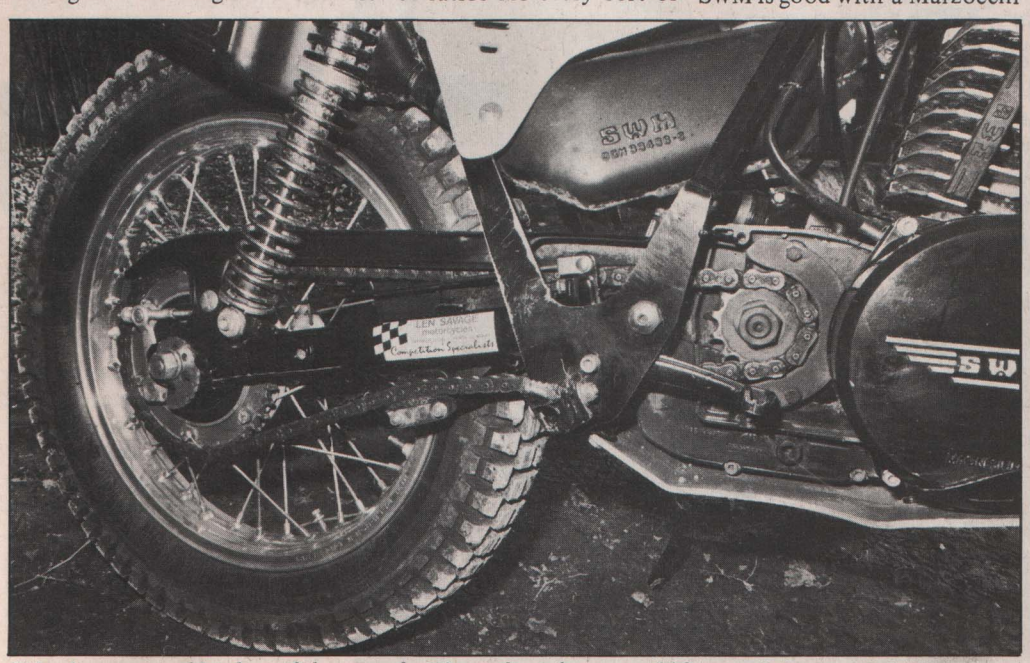
The suspension on the SWM is good with a Marzocchi leading axle front fork and a set of Girling Gas Shocks at the rear. Spring rates are fine with damping well tuned.



Primary kick starting is used on the 320TL so the bike can be started in gear provided the clutch is disengaged. The right hand footrest has to be lifted for this but it is not sprung loaded and so could be knocked up accidentally, causing the rider to lose his footing. The rear chain has a tensioner. But why a decompressor is fitted to the cylinder appears strange on a modern machine when it can upset the jetting so much.

The only trouble apart from those small details is that the SWM is so expensive at £1,299. This makes it £300 more than the equally impressive Suzuki. But that's the price you pay for exclusivity. And a very smartly turned-out machine.

If you value the virtues of one of the best trials motors in the business at the expense of slightly suspect steering then the SWM is a good choice . . . if you can afford it.



Side plates are used in place of the normal tubing to keep foot rest width to a minimum and this gearbox sprocket won't clog up.

BULTACO 350 SHERPA T

When a motorcycle has won as many world championships as the Bultaco has and is the current holder in the hands of American Bernie Schreiber, you can easily think that the bike is the best.

It may of course be possible that the bike Bernie rides has a number of modifications, but from the production 350T that was offered for test by importers Comerfords, we'd think that isn't all that true.

Originally developed by Sammy Miller, the Spanish Bultaco has been gradually changed over the years into a finely tuned machine. But it still suffers from having virtually the same design of two-stroke engine as it had originally. A small factory like Bultaco have obviously always found it difficult to completely update their motors to suit and so you found the same basic unit in moto crossers, trials bikes and road racers from 75cc to 350cc.

Only now when the factory is going through a labour tussle in Barcelona, have they offered a completely new engine in the form of the Mk15 motorcrosser. Whether this will ever reach production is debatable.

Some modifications were made to the 350T for 1979 but the same basic configuration has been used for 1980. The chassis shows much of Miller's work still with a frame using a single front down tube and a full triangulated rear seat loop. Ground clearance is increased by having the engine and the thick bash plate double as the bottom rails.

With a 53 inch wheelbase, the Sherpa T is a longer-than-normal trials machine. It uses Betor suspension front and rear, the front fork being made under licence by Bultaco themselves.

But the most important feature of the bike is its power unit. Compared with the other engines' characteristics it's a monster, punching out great gulps of power at low revs that would easily catch the novice rider unawares. To the engineer this should be no surprise since the engine is little more than a re-

fined but simply punched out 250cc unit. The bore was upped to 83.2mm which with the common Bultaco stroke of 60mm gives 326cc. Primary drive is by a duplex-chain to the wet clutch and beautifully smooth-changing five-speed gearbox.

As such, the motor develops a lusty 20bhp at 6,500 rpm breathing through a 28mm Bing carburettor. This is more than enough to propel the 203 lb machine and its rider through almost any going without difficulty.

Cracking open the throttle at low revs, the engine picks up incredibly quickly, so much so that we think that the engine has too little flywheel to cope with the torque

It means that if you've got the grip, say in rocky sections, you can catapult the bike where you want to very easily. When the going is tougher and stickier in mud, it's very easy to find the rear wheel spinning. This is a characteristic borne out by Shreiber's less impressive results in the muddy Hurst Cup Trial and the Colmore Cup. In rocky Spain he won.

This mighty bottom end appears to suit heavier riders of the Lampkin ilk, too, since this damps out the effects of the power. The carburetion from the Bing is good too and the engine easily revs out in long climbs without running out of steam.

As such, the Bultaco requires great delicacy from the throttle hand to get the best results, but on the test bike the grip was very stiff. A useful mod is to weaken the throttle spring by grinding off its outer edge or pull off a few turns.

Providing you've got the grip under the rear wheel, and this requires the rider to be very discerning on lines through sections, the Bultaco can be controlled as well as anything. Despite the long wheelbase and the relatively forward mounting of the footrests it steers lightly while providing good stability in fast sections.

What spoilt the bike was the suspension. It felt primitive and suffered from stiction in the fork legs. The fork spring rate was soft, though after the initial movement the fork would nearly collapse and bottom on drops. By comparison, the rear suspension felt hard and this obviated a somewhat poor ground clearance of 12 inches.

Starting the Bultaco doesn't endear itself to the first time rider. The left side kick start lever rests forward so you've got to get it over centre with the clutch disengaged. On the best bike the kick lever also fouled the gear lever at the bottom of its stroke. There are provisions for swapping over the brake and gear levers since the rear brake is cable operated.

Bultaco have gone to the trouble of saving weight in the brake drums by using chrome-plated linings. They functioned well and were waterproof, but it is a fact that they need cleaning after every trial to prevent corrosion. The chrome plate also has a tendency to peel.

In very heavy going the Bully can clog up as the front mudguard is too close to the tyre. The chain tensioner and swing arm offer little room at the rear as well and can be equally jammed in mud.

It's not everyone that can ride a Bultaco well. Being able to use all that power and grip without coming to grief is the key. It's deceptive because it feels like an easy bike to ride, first off. Most of the riders who left Bultaco last season haven't done too well so far this year on their new mounts.

The factory have improved their quality control and the old blue paint seems to be staying on better, in fact the whole bike looks better. The new engine got a good cooking and none of its black paint came off and the same was true of the exhaust which is still the large twin box affair. A lot of work has evidently gone into the exhaust at some time because it is obviously well tuned to the engine and manages to be quiet, too.

A 350 Sherpa T will set you back £1,159. This wouldn't be a bad deal if the detailing of the bike was better or the suspension more refined. Most riders would be better off with the 250cc version though. It's just easier to get along with.

MONTESA COTA 349

Though the Montesa 349 Cota made its first appearance at last year's Scottish Six Days Trial, due to labour troubles at the factory, the production machines have only recently started to appear in the dealers'.

Its ancestry goes back a long way to 1968 when Don Smith helped Montesa to produce their first 250cc trials machine. That bike took Don to two European titles and was developed over the years by Rob Edwards and later by Swede Ulf Karlsson.

The inevitable larger version of the 250, a 310cc model, has been around for a few years now. But what Montesa really wanted was a full 350cc engine production model. Yet despite spending several years in its development, the bike lacks the refinement expected of it. Even now we wonder if the 349 Cota was really worth the bother.

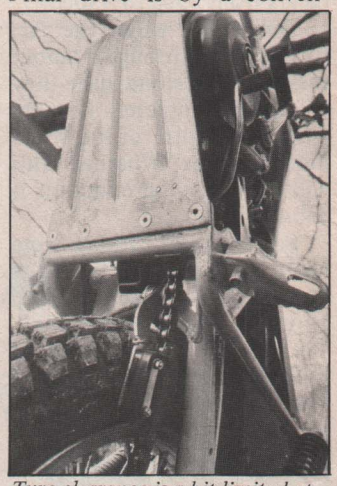
Trouble is that right from the start the Cota 349 feels wrong. With a 33 inch seat it's too tall and if any confirmation of this is needed you only have to look at the works machines which have modified frames and seats to bring them more in line with the rest of the machinery.

Again, the bike was completely new and some allowances have to be made. Despite this we found difficulty in hill climbing because the engine would not rev. There was no lack of bottom end torque, it was simply the fact that richness in the carburation at full throttle seriously hampered the engine's ability to buzz.

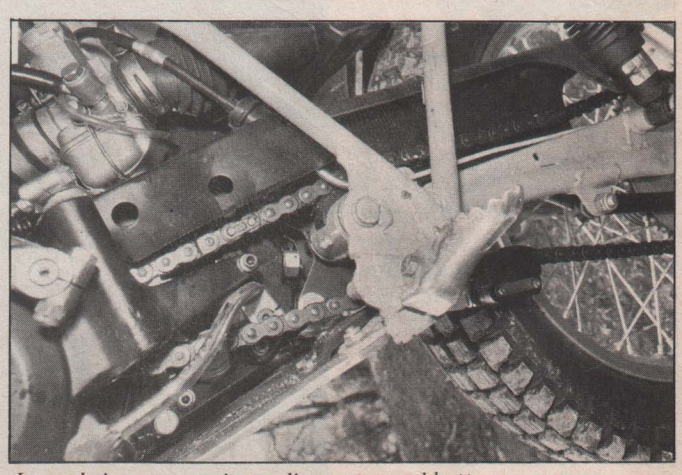
This is inexcusable on a production machine. Naturally if you take the trouble you can modify the carburettor by increasing the slide cutaway by 1/64in. and remove some of the silencer baffling as most of the more knowledgeable dealers do. This restores the top end power and revving capability to what is expected of the machine.

For the 349, the engine is completely new and not just an overbored 348, which in fact displaced 310cc. Bore and stroke are 83.4x64mm and drive is by gears to the clutch and six speed gearbox. Final drive is by a conven-

Triple clamps are good but steering stops need bending to improve look.



Tyre clearance is a bit limited at the back.



Long chain run necessitates slippers top and bottom.

You can't argue with Bultaco's world championship record and Bernie Schreiber's 1979 title. But the 325 Sherpa takes some getting used to, especially when the grip is marginal.

Montesa's production 349 Cota isn't the bike the works boys are so successful on. Its overall size and marginal carburetion make it a difficult bike to get to grips with.

The Suzuki RL325 offers the best value in the big class. For £999 you get great handling and a powerful engine.

tional chain but this cleverly runs in two plastic tubes for the top and bottom runs and extends the life of the chain considerably.

Breathing through a Spanish Amal 26mm carburettor the engine obviously makes enough power; Montesa don't quote a figure.

With such a spread of power, the six ratios provide something for every possible type of section. Generally the gear change is positive but when you engage bottom it's worth making sure the dogs are meshed absolutely by declutching and rocking the bike to ensure that drive isn't lost in a section.

The Cota's controls are beautifully detailed with neat adjusters to keep the weather out. Montesa fit their own type of handlebar which has a larger diameter tubing than normal for strength. But if you want to replace it with a Renthal you're in trouble unless spacers are used.

The twistgrip is a geared type with the cable running parallel to the handlebar. This gets the cable out of the way of the undergrowth and minimises fouling.

Though the Montesa had the same wheelbase (53 inches) and one more inch (13 inches) of ground clearance than the Bultaco it appeared to ground more readily despite a stiffer front fork.

We can only surmise that this is because of a slightly different riding position on the Montesa that places the rider further forward and therefore makes the bike more difficult to lift the front wheel.

Some measure of adjustment to the suspension is provided in the leading axle telescopic fork. It has air valves at the top and by varying the pressure the effective spring rate is modified.

The rear suspension behaved faultlessly though it gave the impression of being cumbersome at the rear. This again might be due to the forward riding position.

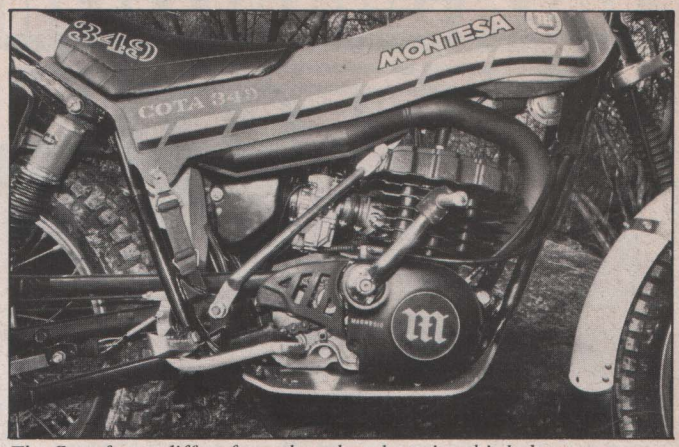
The rear units are Telesco units with gas bags and progressive rate springs.

At 16 inches off the ground unladen the footrests are high and this compounds the feeling that the bike is long for tight turns. Either way it's looked at the Montesa is a big bike. . . and feels it.

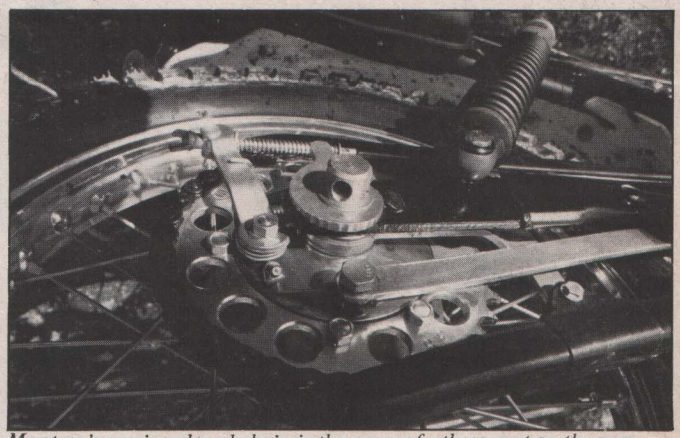
The brakes were nicely controllable though not as water proof as they could be.

Hallmark of the Montesa for several years is the combined seat and 'tank' unit that pulls off in one piece. This reveals the light-alloy fuel tank. It's an unnecessarily complex construction that has been forced on the importers by UK legislation. It contrasts with the simple frame which has no triagulation at the rear. Instead connecting straps run from the swing-arm pivot to the top of the cylinder head. Like the Bultaco and Suzuki the engine forms the bottom half of the frame and is protected by a substantial bash plate.

At £1,150 you would expect the Montesa 349 Cota to be one of the more competantly finished trials machines. It has a good competition record, but not in its production form. So until the factory offers true replicas of the works mounts we can only say that the original 348 was a better prospect.



The Cota frame differs from the others by using this bolt on strap instead of the normal triangulation.



Montesa's semi-enclosed chain is the envy of others, not so the rear brake which takes too long to dry out.

SUZUKI RL325T

Suzuki's RL325 trials machine has been in production for 18 months now and after a few teething problems with the earlier models the latest bike that we had on test proved to be the most ideal machine for our testers because of a superbly sophisticated chassis.

The earlier criticisim of the bike was that the engine didn't have enough power in the mid range and at the top end. These problems have been completely overcome by altering the cylinder head to provide a higher compression ratio and enlarging the down pipe from exhaust port.

Beamish Suzuki's original 250cc trials engines were developed from the Suzuki TS250 trail bike motor. But the RL325 was completely new from the ground up with a heavier flywheel, tougher gearbox and a set of five ratios more suited to trials work.

The sum of the improvements is that the new engine has better punch and yet still has good power at top revs. Suzuki claim a hearty maximum of 23bhp at 6,500rpm from the 80x64mm, 322cc unit.

A sensible change has been to the 28mm Mikuni carburettor. As with all large-capacity two strokes the carburetion is critical, so easy access to the idle mixture screw and the rest of the carb settings is very important. Last year's machines had an idling screw that was obscured by the expansion chamber, necessitating a hole in the chamber through which a five-inch screwdriver could be inserted. Now the idling mixture screw is on the left and easily accessible to the rider.

Another change is the removal of the rear frame loop. This has been done, as on the works bikes, to enable the rider to foot out of a mud hole or out of a rocky outcrop without incurring embarrassing injuries.

The chassis remains the excellent British-made assembly with a Mick Whitlock frame. It's made in Reynolds 531 alloy-steel tubing for strength and durability and chrome plated to make cleaning easier. It also raises the resale value as it doesn't look shabby after a couple of years.

Construction is similar to the Bultaco frame with a simple single downtube and spine plus a light-alloy bash plate that doubles as the bottom rail.

Suspension is Japanese made with a Kayaba leading axle front fork using air-pressure assisted springs and conventional rear dampers. The size of the bike takes the middle road. Wheelbase is 53 inches while the ground clearance is a useful 13 inches.

What was most impressive about the Suzuki's handling was that it would soak up the shocks where the other bikes would bounce.

The front fork has seven inches of beautifully controlled movement which due to the air pressure, which can be varied via valves at the top of the legs to suit the rider, is progressively heavier as the legs are compressed.

The rear subframe has been modified too. The swing arm pivot is much closer to the final drive sprocket (the swing arm itself is slightly longer to maintain the correct wheelbase) minimising the variations in chain tension that occur during wheel movement.

Beforehand, as the rear suspension was compressed over bumps the chain slack would change, altering the traction at the rear wheel. Now, since there is less variation in the slack, no tensioner is required and just a couple of plastic rollers on the frame suffice.

Riding the Suzuki was the most pleasant of the bikes because it was smooth front and rear. But it didn't feel 'dead'. It was well controlled. For example, climbing over a rocky outcrop on some machines the front end jars its way over the obstacles. On the Suzuki it was a matter of climbing up the section and letting the fork action to do the work, allowing the rider to concentrate on the rest of the section rather than giving unnecessary concentration to a machine that bucks its way over the bumps.

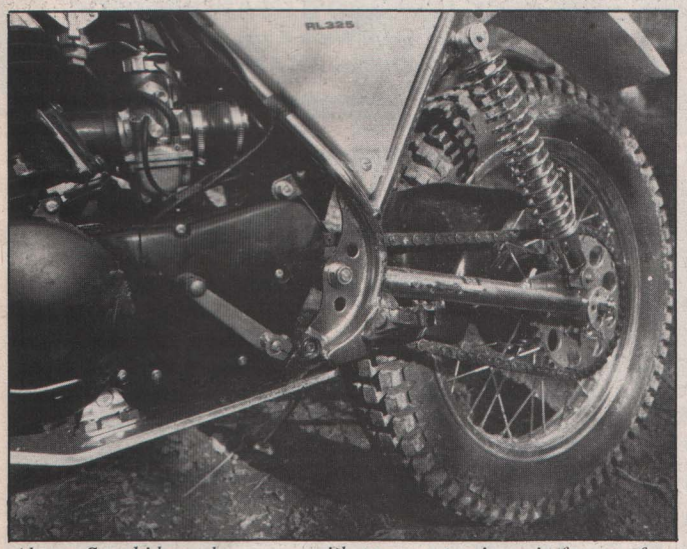
The Suzuki wasn't all sugar and spice though. Despite the engine's excellent power characteristics the five speed gearbox could have had a better choice of ratios. The bottom three were okay for section work, but when the odd occasion arose when you needed a slightly lower fourth (or higher third) all you found was a large gap between the third and fourth provided.

This was usually when you were attacking a long muddy hill at about 40mph. If third was used the bike was likely to spin the back wheel, and if fourth was used there wasn't enough power.

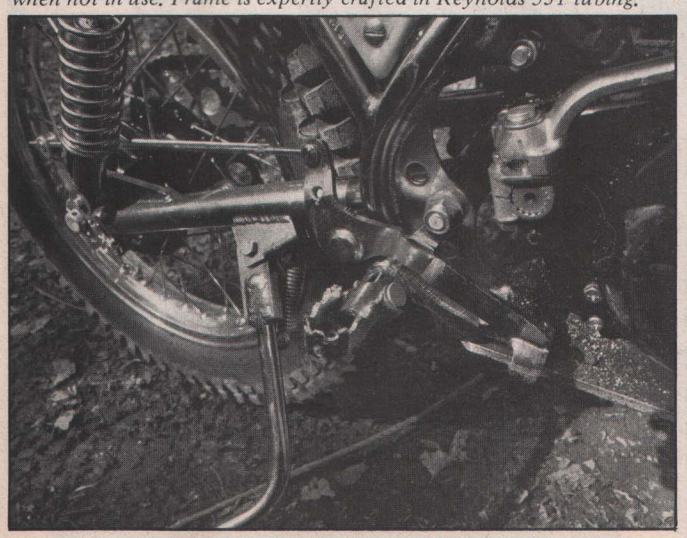
Power delivery of the Suzuki was about as good as it could be. But it did have one little annoying fault. When the throttle was shut and you were either coasting down a hill or dropping off a ledge, the capacitor discharge ignition was likely to fire the mixture. Whether this was a function of the ignition system or the carburetion we don't know, but it was a bother all the same.

Brakes on the RL325 were Japanese made and the best of the bunch, being controllable yet water-proof.

For the money, £999, the Suzuki is easily the best value of all the big trials bikes since although it's the cheapest it didn't display any really bad faults.



Above: Suzuki have done away with a sprung tensioner in favour of two fixed rollers. Below: Prop stand tucks nicely out of the way when not in use. Frame is expertly crafted in Reynolds 531 tubing.

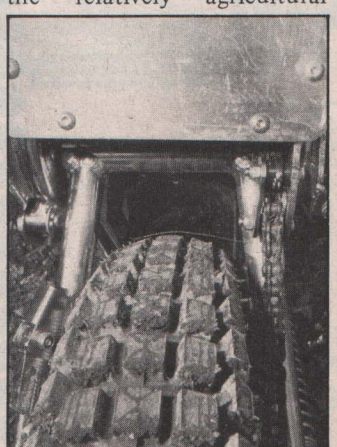


MAJESTY YAMAHA 325

The 320cc Majesty Yamaha is the result of the efforts of one man – Mick Andrews. It is based on the production TY250 Yamaha which was also developed by Mick in the early seventies before he went on to Ossa. When he left however, the design stagnated and although it's a bullet proof mount for the clubman, cannot really be compared to the top-notch championship machines.

The trouble with the TY250 was that it was simply dated. It didn't have enough ground clearance, it wouldn't rev, had a flimsy fork with poor damping and limited rear suspension travel. While it may have been a good motorcycle in the early seventies, and in fact shared many of the characteristics of the earlier Ossas since Mick was with them before originally going to Yamaha the first time, it couldn't cut it when the going got tough.

The beauty of the TY250 was that like most Jap competition machines had superb detailing. The engine was a solid and unbreakable lump, the brakes and wheels were as good as you could get them and the bits and pieces found all over the bike impressed, compared to the relatively agricultural looking Spanish trials machines.



Lots of room for the back tyre and the Suzi has the thickest bash plate.

You couldn't but help being charmed by the carburettor's starting lever, the primary kick start, the smooth cable action and a finish that wouldn't look out of place on an expensive road bike.

So the TY250 had all the credentials. And was the perfect base for a modified chassis to take form. While Mick's works machinery before he left Yamaha to return to Ossa the second time boasted sophisticated features like a cantilever rear end and special carburettor, there was plenty that he learnt which could be incorporated into the new big-bore Yamaha special when he returned to the marque last year.

The most important modification to the chassis of the Yamaha is the increase the ground clearance to a more competitive 13½ inches. This was done by removing sections of the frame fore and aft of the motor and lifting the whole, engine and all, up a couple of inches. This naturally includes the swing arm pivot point, so in order to retain a similar rear end geometry the rear suspension units were relocated in a laid-down position. These units are specially developed Girling Gas Shocks with compound springs to give a twin-rate action.

The Yamaha always had a short 51 inch wheelbase so with the modificiations it becomes an even more cobby handling machine. And weighing just 192lbs dry as well it can become very demanding if the rider isn't up to it.

The Majesty is so small and light it acts more like an extension of its rider's intentions than the other bikes, and like the old Ossas is perfectly suited to rocky going.

Several useful changes have been made to the engine since it was tested by us last year. Basically it's the same TY250 unit with the capacity upped to 322cc by increasing the bore from 70mm to 80mm. On the earlier units this was all that was done and as you might expect, the transfer porting limited the revving capability of the engine.

	Suzuki RL325T	SWM 320TL	Majesty Yamaha 325	Bultaco 350 Sherpa T	Montesa Cota 348
Price inc VAT:	£999	£1,299	£1,168	£1,159	£1,150
Engine:	Reed-valve 2-stroke single	Disc-valve 2-stroke single	Reed-valve 2-stroke single	2-stroke single	2-stroke single
Capacity:	322cc (80x64mm)	277cc (76x61mm)	322cc (80x64mm)	326cc (83.2x60mm)	349cc (83.4x64mm)
Comp ratio:	7.5 to 1 (corrected)	8 to 1 (corrected)	8.5 to 1 (corrected)	9 to 1 (corrected)	8.5 to 1 (corrected)
Carburetion:	28mm Mikuni	26mm Dellorto	26mm Mikuni	28mm Bing	26mm Amal
Lubrication:	Petroil mex	Petroil	Petroil	Petroil	Petroil
Max Power:	23bhp @ 6,500rpm	18bhp @ 6,500rpm	n/a	20.8bhp @ 6,500rpm	n/a
Ignition:	Capacitor discharge	Electronic	Flywheel magneto	Flywheel magneto	Flywheel magneto
Primary drive:	Gear	Gear	Gear	Duplex chain	Gear
Clutch:	Wet multiplate	Wet multiplate	Wet multiplate	Wet multiplate	Wet multiplate
Gearbox:	5-speed	6-speed	5-speed	5-speed	6-speed
Final drive:	520 chain	520 chain	520 chain	520 chain	520 chain
Frame:	Single downtube	Duplex cradle	Duplex cradle	Single downtube	Single downtube
Suspension:	Leading axle telescopic fork with air assist (f) Swing arm with Kayaba units (r)	Marzocchi telescopic fork (f) Swing arm with Girling dampers (r)	Yamaha telescopic fork (f) Swing arm with Girling dampers (r)	Betor telescopic fork (f) Swing arm with Betor dampers (r)	Telescopic fork (f) Swing arm with Hydro-bag dampers (r)
Tyres:	Pirelli MT13,	Pirelli MT13,	Pirelli MT13,	Pirelli MT13,	Pirelli MT13,
Tyres:	2.75 x 21 (f) 4.00 x 18 (r)	2.75 x 21 (f) 4.00 x 18 (r)	2.75 x 21 (f) 4.00 x 18 (r)	2.75 x 21 (f) 4.00 x 18 (r)	2.75 x 21 (f) 4.00 x 18 (r)
Brakes:	Drum/drum	Drum/drum	Drum/drum	Drum/drum	Drum/drum
DIMENSIONS					
Wheelbase:	52 inches	51.9 inches	51 inches	53 inches	53 inches
Seat height:	31½ inches	31½ inches	32 inches	30½ inches	33 inches
Grnd Clrnce:	13 inches	12½ inches	13½ inches	12 inches	13 inches
Rake/trail:	n/a	n/a	n/a	n/a	n/a
Fuel capacity:	1.25 galls	0.8 gal	1 gall	1.1 galls	1 gal
Weight:	20lbs dry	187lbs	192lbs dry	203lbs dry	200 lbs dry
Importer:	Beamish Motors Ltd, Camden St, Portslade, Brighton, Sussex	SWM (GB) Ltd., 63 Alcester Rd, Studley, Worcester-shire	John Shirt, The Work-shop, Stabel Lane, Leed Road, Buxton, Derbyshire	Comerfords Interna-tional Ltd., Oxford House, Ports-mouth Rd, Thames Ditton, Surrey	Jim Sandiford (Impor-ters) Ltd., 38 Walmer-slay Rd., Bury, Lancs.

This latest version has a new barrel with bigger transfer ports and a revised combustion chamber shape. So now as well as having immense pulling power at low revs will buzz at the top end too.

No maximum power output is quoted for the engine but there's no doubt now that it works well. The flywheel has been increased in size on the big engine, smoothing out the power delivery and with the 26mm Mikuni carburettor providing good metering, throttle control can be as precise as you could want.

A nice feature on the carb is the use of a two-setting idle screw. Trials machines need to have their idle jetting just on the lean side to get regular firing and easy control. But this affects the mixture when you're running between sections and can sometimes lead to the engine nipping up unless you run with the choke on.

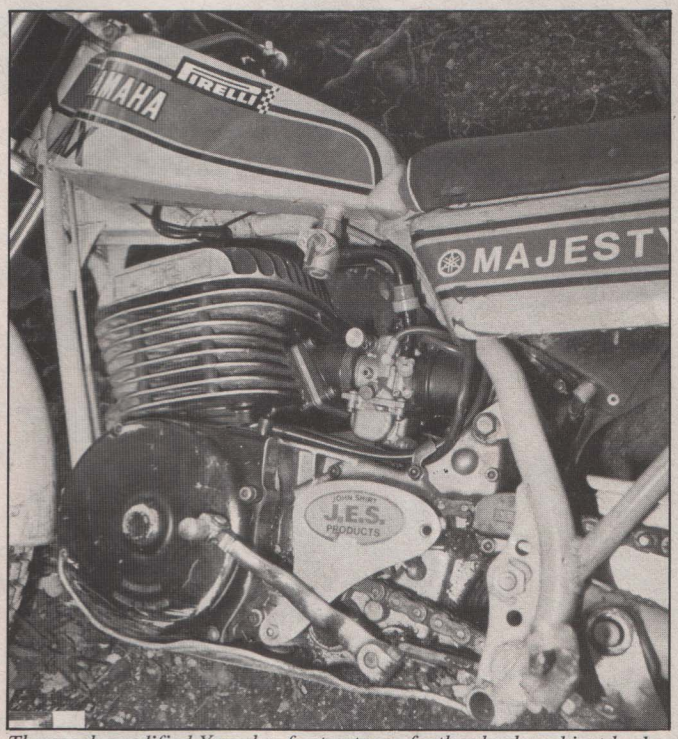
So the Majesty's carb has an idle mixture screw that can be set simply for section work and at the flick of a finger be set for flat out riding between sections. It's typical of the way in which a factory like Yamaha can give sophistication to trials machines.

As you would imagine the Majesty is tailored to Mick's riding style. The extra power makes the front end light. His personal machine has even lighter steering as the footrests are more rear set. More attention to detail in this area includes sprung loaded ends to the gearchange and rear brake levers.

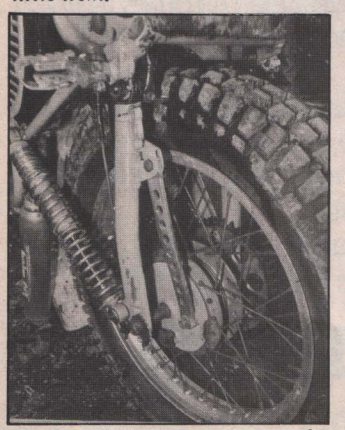
Starting the Majesty is a piece of cake with its primary kick and nothing gets in the way of the lever either. Gear selection is smooth and positive at all times. Throttle control is good, nothing is slack and the action is light enough for the most fiddly throttle controlled turns. The power comes in like turning on a tap, it's all there even at the lowest revs, the front wheel can be popped up without so much as a tug on the bars. The bike is very well balanced and at 192lbs only the SWM is lighter.

The Majesty inspires confidence right from the word go and adverse camber climbs can be tackled with hardly a thought even by novices. The only danger comes from the possibility of looping it. The Yam definitely has the quickest steering of all the bikes tested and the expert says that you can steer it just as easily on the back wheel

Andrews' well used bash plate illustrates the importance of this little item.

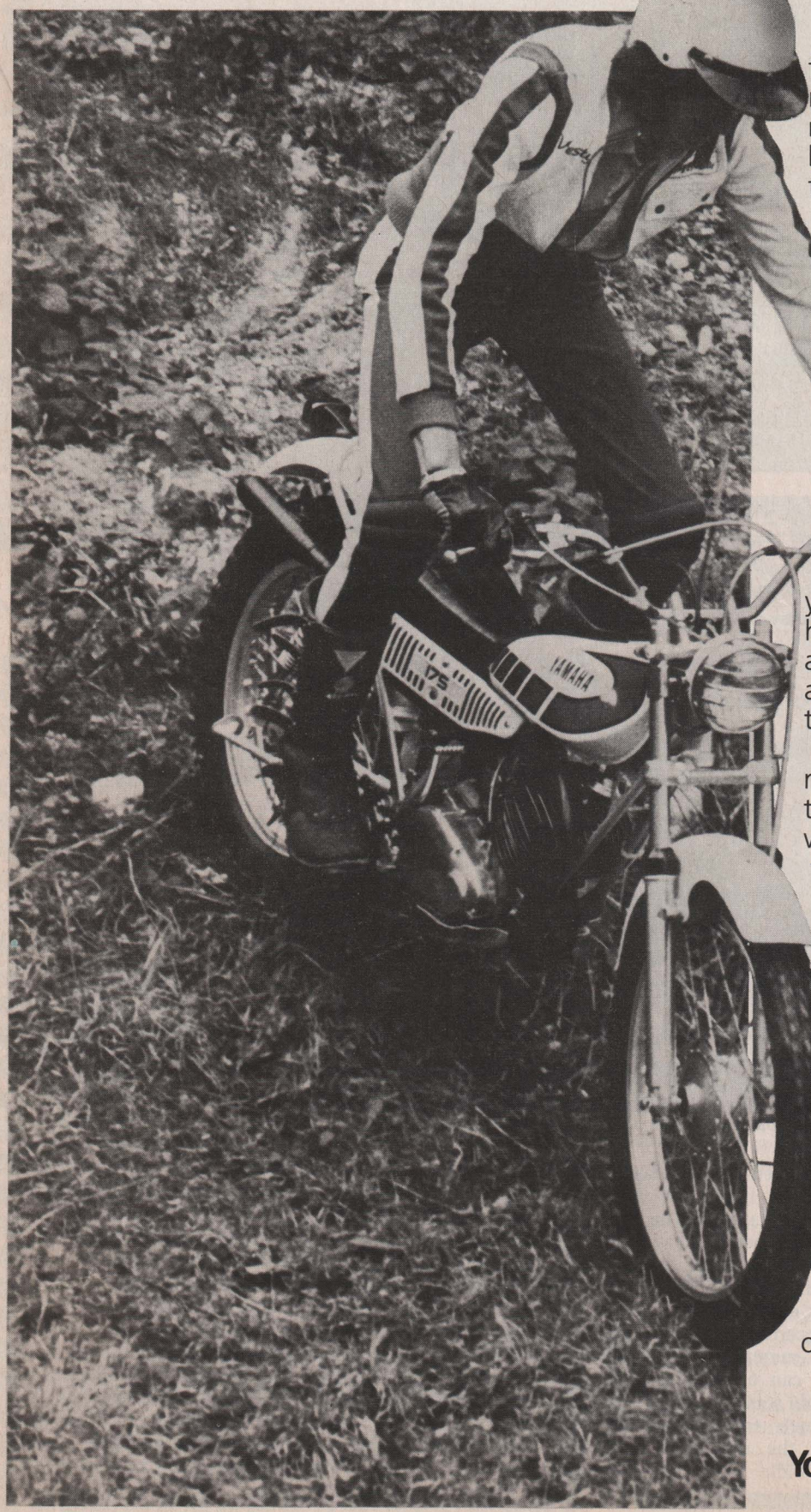


The much modified Yamaha, footrests are further back and just look at the angles on that gear lever!



The Yamaha's brakes are generally considered to be the best.

Is your toughest trial the bike or the sections?



Why spend more time fiddling with your bike than you need to? It's a well-known fact that most Mediterranean trials bikes come with a Mediterranean temperament.

Like the ladies from that area they need a lot of fussing over and a lot of time spent on them to keep them happy.

Oriental ladies on the other hand are there to indulge your every whim.

Take Yamaha's trials bikes for instance.

They're designed and built to be as reliable and fuss-free as possible, giving you more confidence during a long, hard trial. And more time to sit and admire the trophies while others are in the garden shed fiddling with their bikes.

While they're carefully mixing cocktails of petrol and oil for their Latin ladies your Yamaha TY will be doing it for you with Yamaha's famous Autolube system.

And when they're wishing they had just one more gear you'll be snicking up into sixth on the TY175.

Apart from their reliability the Yamaha TY250, TY175 and TY80 are in a class of their own when it comes to finish and price.

Their Mediterranean counterparts are more expensive, and more likely to change colour at the first sight of water.

So get out of the shed and onto the trail. On a Yamaha TY.

YAMAHA

You know you're gonna beat them on a Yamaha.

by shifting your weight and squirting the throttle.

Braking on Japanese trials machines is generally superior and the Yam is no exception. The labyrinth seals keep most of the water and mud out and what does get in is quickly thrown out again. The Majesty is produced and fettled up north and is best suited to the terrain in that part of the country, that is, rocky climbs and stream beds, but it was no slouch over our southern soil either.

Because of the Majesty's peculiar characteristics it's a difficult machine to come to terms with. Being fairly light and having such light steering it benefits from having a skilled rider to take advantage with accurate weight transfer. As such then it might not suit everybody, despite it being capable of winning world championship events.

A 'works' bike for £1168 may sound a good deal, but beware of the Majesty if you can't live up to it.

CONCLUSIONS

If money were no object we can't help concluding that the SWM was the best by a small margin of the trials big bangers, mainly because it had such a superb engine.

But in the real world, most people will want the best for their money. And at £999, some £300 less than the SWM, the Suzuki proved to be fantastic value for its excellent performance. It would also probably last better through the year.

There's little to choose between the Bultaco and the Majesty Yamaha despite them being almost diametrically different machines. Both are basically bikes for rocky going. The Buly has a great following, but the Majesty has still to create brand loyalty. The Yamaha will probably need less attention because of its better brakes and suspension.

The Montesa by comparison was troublesome in its production form. It's a big bike, too big really, and should run much smoother out of the crate for the amount of money you spend. But you can't discount the appeal created by good functional looks, lots of power and a creditable competition record.