

# TRADITION MEETS TECHNOLOGY



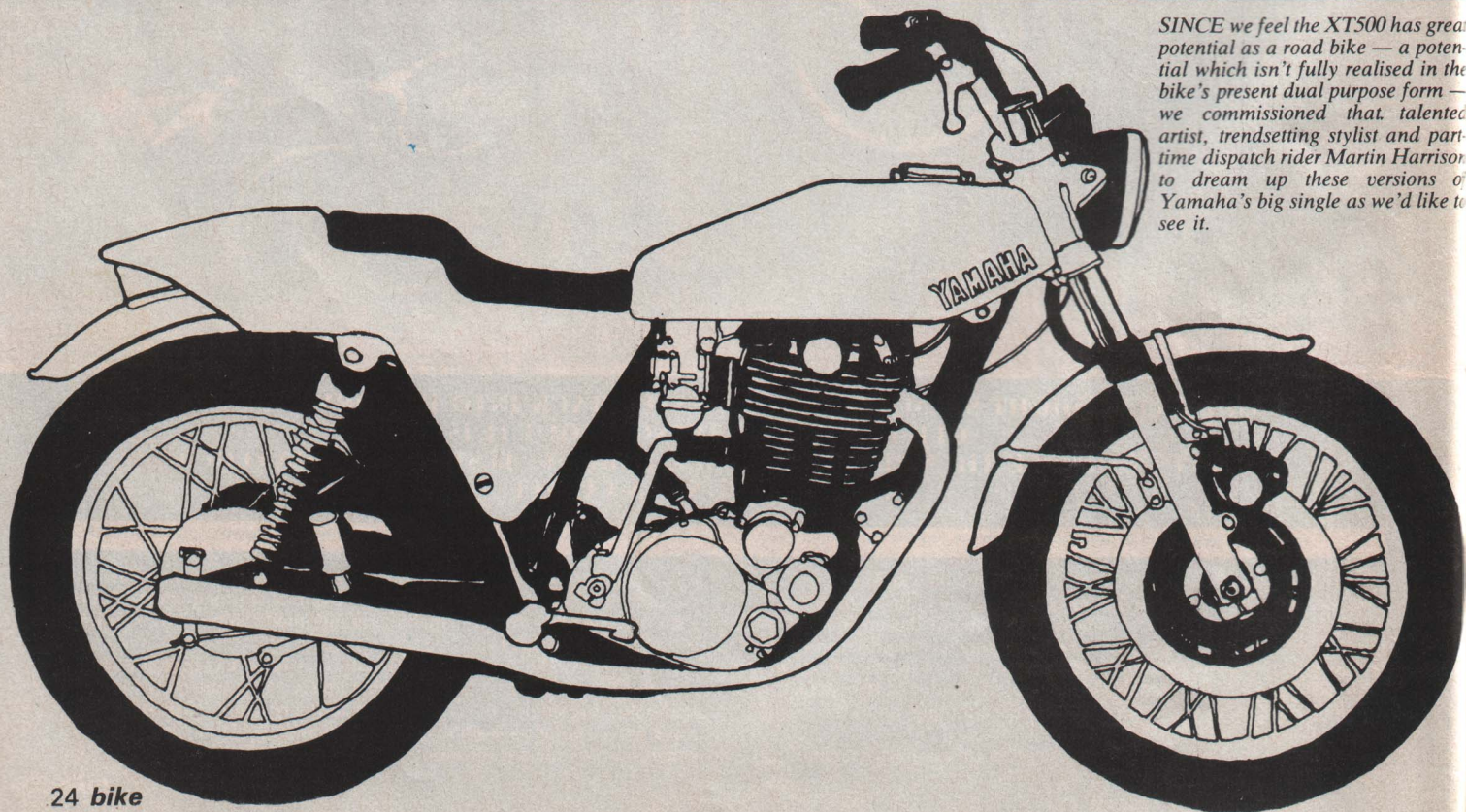
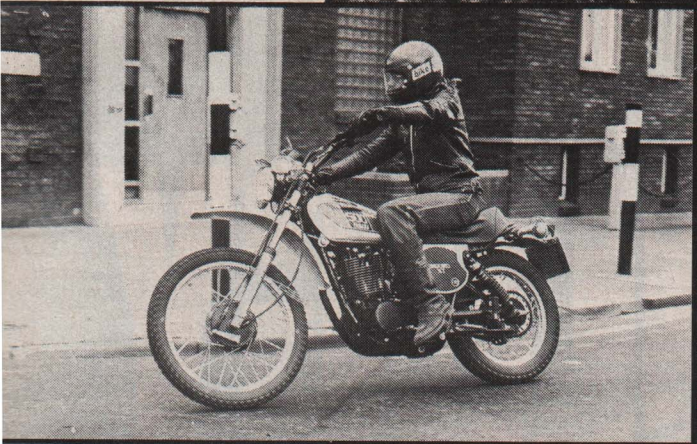
**YAMAHA'S XT500 MIGHT SEEM A NOSTALGIC STEP BACK INTO HISTORY, BUT THE ONLY OLD-FASHIONED THING ABOUT IT IS THAT GOOD OLE THUMPING BIG SINGLE TORQUE. TEST BY BILL HAYLOCK. Photography: DUNCAN CUBITT.**

TECHNOLOGY is undeniably the cornerstone on which the overwhelming success of the Japanese motorcycle industry has been built. A combination of clever innovation in engine design and the application of the latest production engineering techniques transformed the humble two-stroke and put the sophistication of overhead cam multis within the reach of the great mass of bikers. It made the British factories, and the products they produced, look like something out of the steam age.

Considering the successful Japanese preoccupation with technology,

the appearance from the Orient of a motorcycle so traditionally British in concept as a 500 cc four-stroke single seemed nothing short of amazing. Especially coming from Yamaha, a name made famous by screaming little two-stroke racers.

But in reality, the Yamaha XT500 has very little in common with the old-style British bangers — except that lovely gutsy, pulsating torque that only a big single can give you. The initial reaction to the XT is to think what a good try Yamaha have made with their first attempt at something so radically different from their past experience.



*SINCE we feel the XT500 has great potential as a road bike — a potential which isn't fully realised in the bike's present dual purpose form — we commissioned that talented artist, trendsetting stylist and part-time dispatch rider Martin Harrison to dream up these versions of Yamaha's big single as we'd like to see it.*

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The endearing characteristics of the bike are a triumph of sound design and engineering — at least, as far as the motor is concerned. Unfortunately, as on many Jap bikes, the XT's cycle parts don't match the very high standard of the engine, which is definitely built to the levels of seventies technology, despite the roots of the big single concept being decades old.

From the outside, the XT motor just has to be one of the neatest looking four-stroke singles ever, with its all-over matt black finish contrasting with the polished edges of the alloy cylinder fins. A sturdy compactness and tidy construction with a wide use of Allen screws gives it the butch look the old singles had, but it's smoother and more sophisticated. And not a drop of oil besmirches the clean surfaces of the engine casings, or the pavement where you leave the bike parked overnight.

Inside the motor everything runs on needle, roller or ball bearings — except the gudgeon pin which runs in the unbushed end of the rod, and the ignition cam idler gear. Primary drive is by straight cut gears (old fashioned singles were always hard on primary chains) to a huge 15-plate oil bath clutch. One of the biggest advances over older singles is the unit construction transmission, with its slick, modern five-speed shift pattern.

The overhead cam valve gear is nothing new,

except that it is exceptionally neat and compact, the cam chain being hidden inside tunnels cast integrally in the off-side of the barrel. Yamaha's dry sump lubrication system, incorporating a replaceable element filter, is light years ahead of the old British banger. Oil is contained in the large section top tube — the filler cap is easy to get at, just behind the steering head — and circulated to the bearings through a trochoidal oil pump. The system includes a by-pass valve which means the engine still receives lubricant if the filter element clogs.

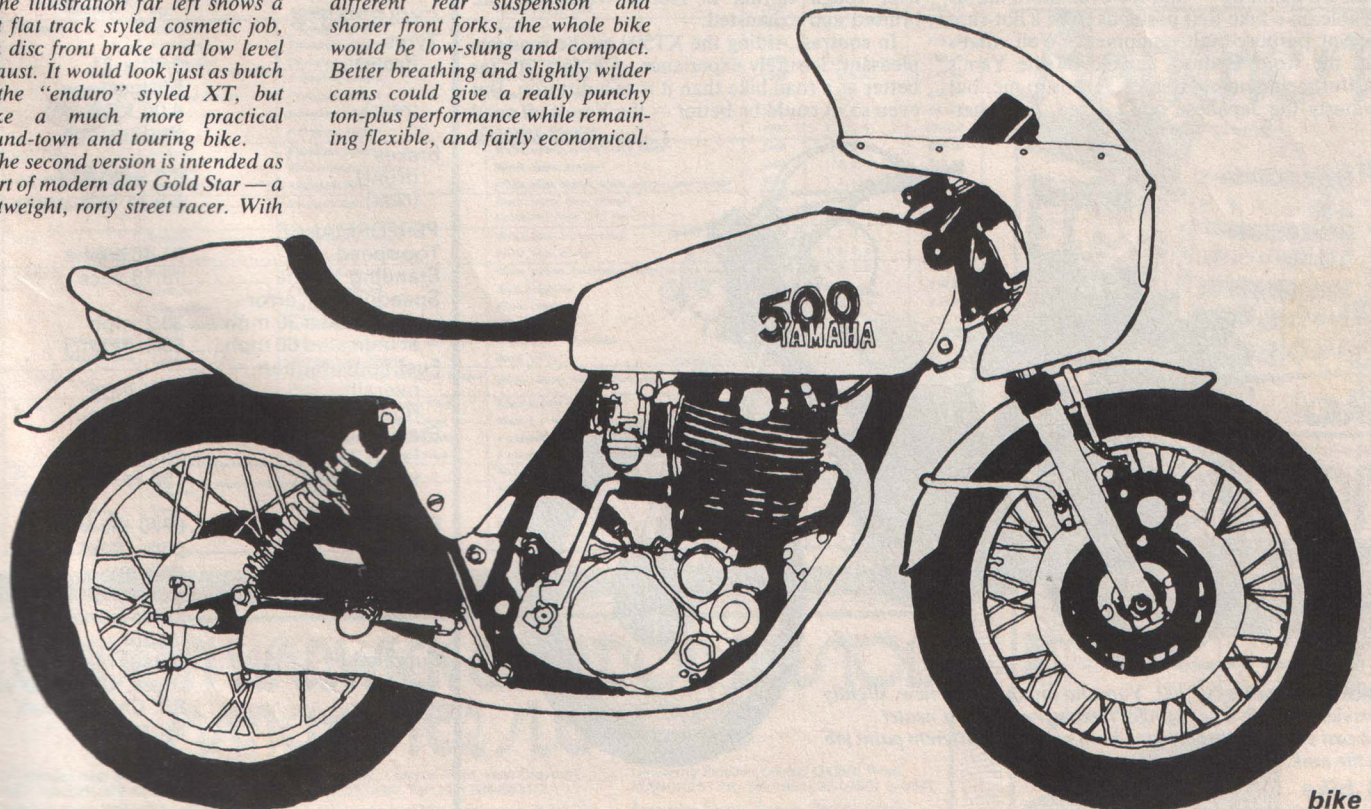
The Yam's impressive specification and relatively low power output of 30 bhp ought to mean a long and healthy life for the motor. Indeed, comparing the design and engineering of the XT with the average old British single makes you wonder how some of them stayed together as long as they did. And of course some of them didn't hold together, at least, not without constant loving attention. The nicest thing about Yamaha's big banger is that it has most of the attractions of the old fashioned big single, without the idiosyncrasies and uncivilised habits.

Yamaha's designers put the XT500 together with the intention of keeping weight and bulk as low as possible on a mass-produced motor. Exotic magnesium alloy helps keep the weight of engine casings down. Unit construction plus small flywheels and oversquare cylinder dimen-

*The illustration far left shows a neat flat track styled cosmetic job, with disc front brake and low level exhaust. It would look just as butch as the "enduro" styled XT, but make a much more practical around-town and touring bike.*

*The second version is intended as a sort of modern day Gold Star — a lightweight, rorty street racer. With*

*different rear suspension and shorter front forks, the whole bike would be low-slung and compact. Better breathing and slightly wilder cams could give a really punchy ton-plus performance while remaining flexible, and fairly economical.*



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sions make the power/transmission unit compact in height, length and width — and cut weight too. However, small flywheels have drawbacks on a bike like this — their lack of weight is about the only criticism I can make of the motor. One piston compressing 500 ccs to a ratio of 9:1 needs a fair bit of oomph to get it over top dead centre with enough force to light the fire. A myth has grown up about the obstinate starting of big singles — tales about vicious tempered brutes that would break your ankle if you didn't master The Drill first time. In fact it's quite simple if you let the flywheels do the work. The technique on the old Matchless and BSA singles I was brought up on, and on my present Ducati 450, is to ease the piston over TDC and then swing your whole weight on the kickstart, spinning the flywheels two full revolutions before the piston comes up to compression again. The momentum of all that hefty ironmongery keeps the piston moving fast enough to produce a nice fat spark and get things cooking.

On the Yamaha a combination of light flywheels and low geared kickstart mechanism means that momentum is pretty well spent by the time the motor has spun twice. So the trick is to get the piston over TDC with the help of the valve lifter (which releases compression) and then slowly push the kick crank through 90 degrees so the piston comes up to TDC at the start of the inlet stroke, before swinging energetically on the lever. Once the knack is mastered, starting is as reliable as the sunrise.

Having made such a nice job of the motor, it's disappointing that Yamaha couldn't produce cycle parts to the same high standard. It's the same old story of a fantastic engine and mediocre handling — and it's even more unforgivable on a bike that pretends to be a hot-shot piece of purpose-built equipment. Well, that's what the word Enduro, carried on the Yam's boastful racing numberplates, means to me, but obviously the Japanese don't agree. For what-

ever that enduro tag may suggest, the XT500 is not a seriously competitive off-road racer — at least, not in its standard form. Although it looks super butch with that chunky matt back engine set off by a crisp white, black and red paint job, the XT is more Japanese street scrambler than European enduro racer.

But despite that, it's still an exciting motorcycle, with much wider market appeal than a full-bore off-road racer would offer. It's just a pity that in trying to produce a compromise, Yamaha have come up with a bike that doesn't quite know what it wants to be. As an off-road bike the suspension lets it down. At leisurely Sunday afternoon trail riding speeds the bike is comfortable and easy to ride — but hammering over ruts and rockery in earnest is a different matter. The rear gas/oil units seem too stiff to respond to sharp, sudden shocks and the rear wheel starts to skitter and kick out. It's impossible to keep the power on over really rough going because the rear wheel refuses to stay down on the deck, hopping and slewing from side to side. Meanwhile the front end is twitching most disconcertingly, adding to the general impression that things are not altogether under your control.

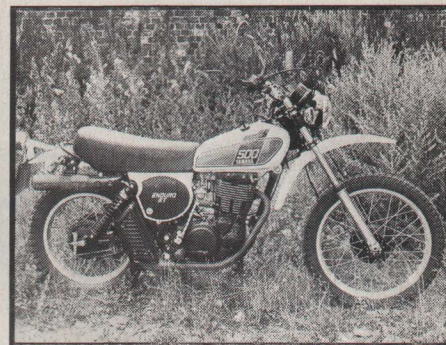
At slow speed the bike is cumbersome. A kerb weight of 320 lb may sound light for a 500, but that's a lot of metal to heft around the countryside, particularly when the steering isn't doing its best to help you. Added to this is the aforementioned lack of flywheel weight and the transmission's high gearing that makes trickling through nadergy sections a delicate operation. Light flywheels and high compression do not a good plonker make — the ability to pull steadily from nil revs used to be one of the old-fashioned single's greatest attributes, but the Yamaha has a tendency to stall. And grabbing a handful of throttle in a desperate attempt to revive a dying motor can get you in even worse trouble. Without big flywheels to soak up the sudden surge of power, you're likely to find the front wheel trying to wind itself in a large arc over your head. From that angle 320 lbs seems an awful lot of motorcycle. An hour's trail riding over rough terrain in North Wales left me bruised and exhausted.

In contrast, riding the XT500 on the road is a pleasant, leisurely experience — in fact, it's far better as a road bike than it is as a dirt iron. But even so, it could be better — the Yam's off-road

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Since we tested the XT500, Yamaha announced a new, slightly re-styled version. The changes merely amount to a neater exhaust system, bigger engine bash plate and different paint job on the tank.



Engine .....	ohc single cyl. 4-stroke
Bore x stroke .....	87 x 84 mm
Capacity .....	499 cc
Compression ratio .....	9:1
Carburation .....	34 mm Mikuni
BHP @ RPM .....	30 @ 6,000
Primary drive .....	straight cut gear
Clutch .....	Multi-plate, wet
Gearbox .....	5 speed
Electrical system .....	6v flywheel magneto, 6ah battery
Lighting .....	30/30W headlight

## DIMENSIONS

Wheelbase .....	56 ins
Seat height .....	33 ins
Overall width .....	35 ins
Ground clearance .....	8.5 ins
Kerb weight .....	320 lbs
Fuel capacity .....	2.3 gal

## EQUIPMENT

Trafficators .....	Yes
Electric starter .....	No
Trip mileometer .....	Yes
Steering lock .....	Yes
Helmet lock .....	Yes
Headlight flasher .....	No

## CYCLE PARTS

Tyres	
(front) .....	3.00 x 21 Bridgestone
(rear) .....	4.00 x 18 Bridgestone
brakes	
(front) .....	6.3 in SLS drum
(rear) .....	5.9 in SLS drum

## PERFORMANCE

Top speed .....	91.46 mph
Standing ¼ mile .....	15.13 secs
Speedometer error	
at indicated 30 mph .....	30.2 mph
at indicated 60 mph .....	59.1 mph
Fuel consumption	
overall .....	54.4 mpg
ridden hard .....	50.9 mpg
Braking distance	
From 30 mph .....	26 ft
From 60 mph .....	124 ft

PRICE .....	£770 inc VAT, plus £9.50 delivery
Guarantee .....	6 months/4,000 miles parts and labour
Supplied by .....	Mitsui Machinery Sales, Oakcroft Rd, Chessington, Surrey.

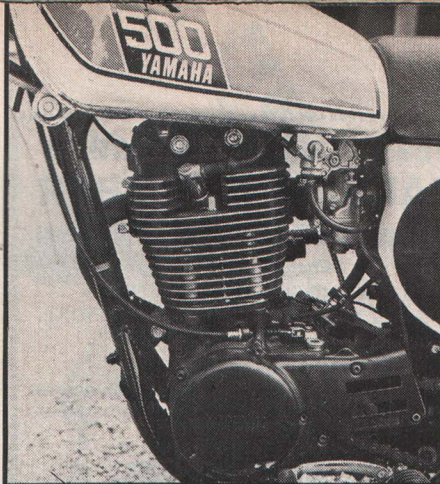
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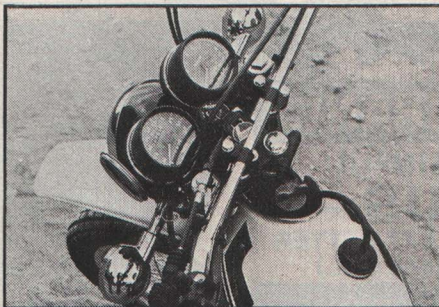
pretensions inevitably detract from its suitability on the tarmac. The steering geometry, intended as a compromise between road and street, suits neither and at 75-80 mph an unpleasant feeling of instability emanates from the front end as the bike starts to slowly weave. Nothing terrifying, just disconcerting.

And there's the brakes (6.3 inch front and 5.9 inch rear single leading shoe drums) which are more than enough off the road, adequate around town, but heart-stopping down long 1-in-4 hills. Electrics are ultra basic with 6 volt, 30 watt candles in the headlight, and naturally, the riding position is pretty spartan for long road hauls.

Despite all this bickering, I had great fun riding the XT500 to mid-Wales early one morning. Forsaking tedious motorways for B-roads and country lanes I thoroughly enjoyed blatting up hill, down dale and around the bends, and achieved a respectable average speed, too. So don't let me give you the impression that the XT isn't fun — the way that big single motor performs is tremendous, but I can't help feeling it would be appreciated all the more in a frame and cycle parts built specifically for the road. Perhaps it could become the Goldie of the Seventies as a lightweight high-performance



One of the neatest big single motors ever made, the XT's engine is ultra clean and compact compared to old style big bangers.

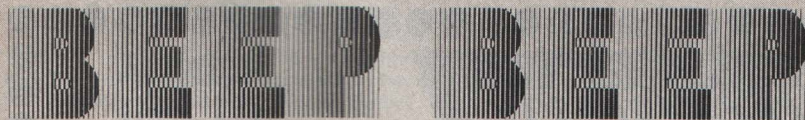


A rev-counter is somewhat superfluous on a trail bike, particularly one with such a flexible motor, but those rubber cable covers on the control levers show thoughtful detail.

cafe-styled sportster — or a really neat flat-track styled tourer with a cosmetic job based on the smart little American TT500 dirt-trackers. Don't laugh, some of it could happen. Yamaha are already working on the sportster version, and rumours have been heard about the flat-track project. We'll just have to wait and see how close Martin Harrison's ideas on these themes get to the real things, should they appear.

The XT's engine characteristics are delightfully refreshing on the road. Although the transmission gives smooth, easy gear shifting, there's little need for cog-swapping once out of town because the motor just slugs out torque from way low down, to the accompaniment of a comforting, soft blat-blatting from the exhaust. If anything, the exhaust is too stifled and performance might be improved with a less restrictive, though more noisy, silencing system. Perhaps that might explain this big single's uncharacteristic thirst. My Ducati achieves between 70 and 80 mpg at higher speeds than the Yam can comfortably maintain, so I was disappointed to get 20 mpg less from the XT. Also just a little disappointing was the motor's lack of top end urge. The red line is marked at 6,500 rpm and even at that speed it's running out of steam. A top whack of just over 91 mph might seem miserable from 500 ccs — but that's still pretty rapid for a trail bike!

I don't like to put a downer on Yamaha's efforts with this design — I'd like to be more encouraging because with such a simple, attractive motor I feel they're heading the right way. I just hope the marketing men make up their minds and decide whether they want a hot-shot off-roader, or a demon tarmac scorcher. Because until they do they're spoiling the makings of a good bike.

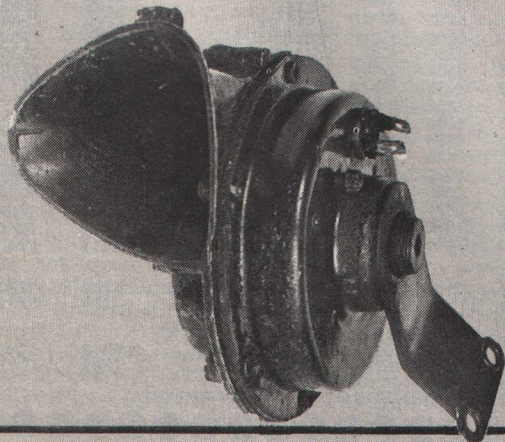


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## SCRAPPER SPECIAL

IMPOVERISHED bikers who haven't the money to shell out for a new horn could always adopt a tactic that would doubtlessly receive the approval of our advocate of alternative biking, Royce Creasey. Visit a scrapyards.

Feechers Ed Peter Watson picked up the ex-Vauxhall Delco-Remy pictured, for less than the price of two pints of beer. Many scrapyards keep a pile of horns and their efficiency can be checked by wiring them to the nearest battery.



## MASERATI

DISMISSING the likelihood of any biker wanting to fit enough air horns to play the first four bars of The Wedding March, Colonel Bogey or Le Marseille every time a pedestrian meanders off the pavement, the choice of Maserati hooters suitable for our uses is diminished to less than a dozen of their range of 41.

The smallest system, and therefore the one we feel most suitable for motorcycles is the TS Sprint pictured. Both trumpets are just over 6 inches in length with a base diameter of 3 inches. With a compressor height of just 4½ inches and diameter of 2¼ inches, the

Sprint costs about £13 or £14.59 if chrome trumpets are preferred.

The TN Normal is very similar both in appearance and price. The compressor is identical to that used on the Sprint and the kit is complete with tubing, fixing bolts, and fitting instructions. Main difference is that the trumpets are longer, one at 6½ inches, the other 8¼ inches. Again there's the option of chrome or plastic trumpets.

Maserati horns are available from motor factors, through importers Harry Moss International, who also supply Halfords and the Asda chain stores.