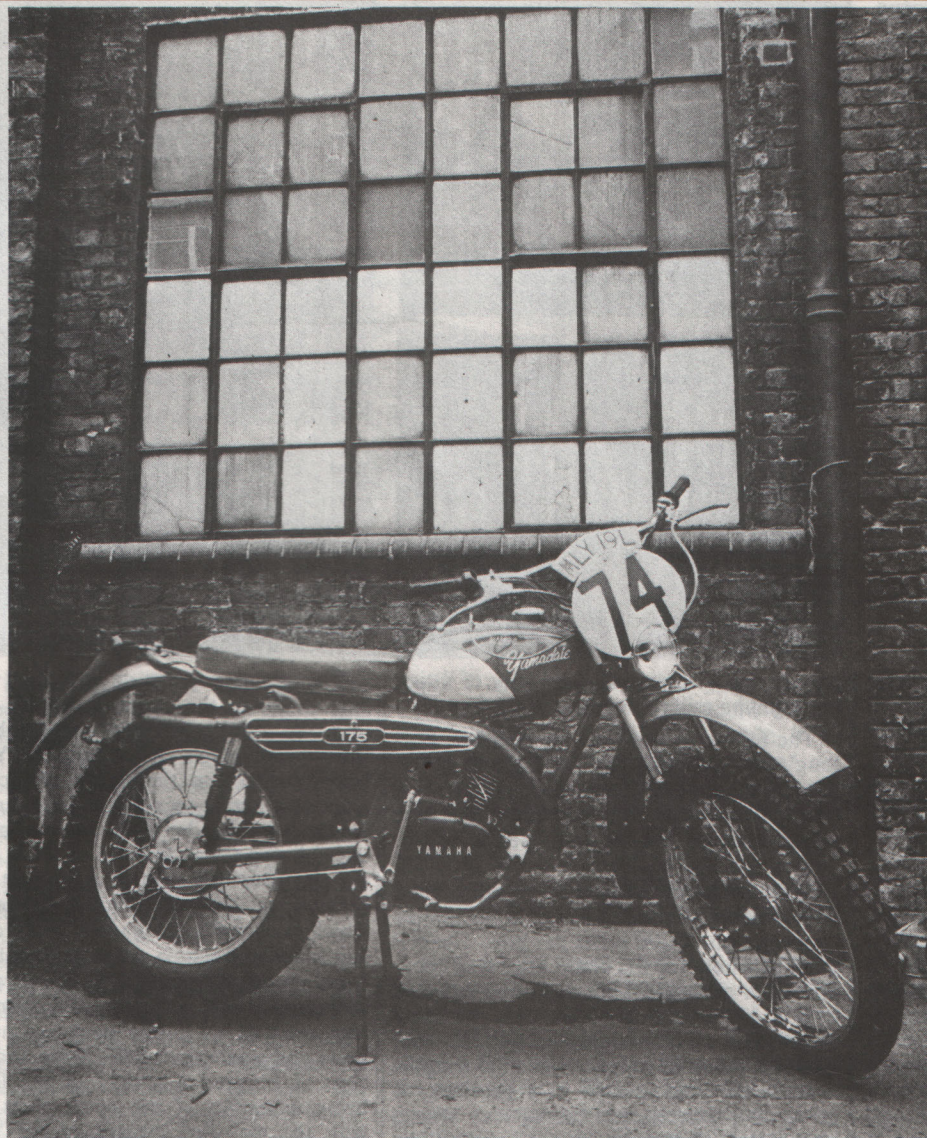


# BORN IN THE CITY RAISED FOR THE COUNTRY



## MARK WILLIAMS GLUES TOGETHER HIS ULTIMATE BOG-HOPPER... WOULD YOU BELIEVE A YAMADALE?

WELL it *seemed* a sensible idea at the time... but the time was just five weeks before the Welsh Two Days, an event which I optimistically felt I could only enter on a hot-shoe macho machine custom tailored to my own perverse requirements.

Five weeks isn't a long time to build a bike from the ground up, allowing for the inevitable filing, welding and bending that are part and parcel of the unavoidable business of sorting. But I had long since sold my Cotton Enduro to the ubiquitous Pete Furlong (last seen riding it to Iran with a 250 Ducati mill replacing the 170 Minarelli stroker), and had spent months of anguish trying to decide which of the over-the-counter mudslingers could be best and most economically converted to suit my purpose.

Specifically, the purpose is to provide reliable, snappy transport along the myriad trails and tracks of Wales, whilst also being suited to competition use

in the handful of enduros the ACU blesses us with each annum. Such schizophrenia is catered for by surprisingly few factory made devices, and the few that do are inevitably expensive, small batch items from the catalogues of Messrs. Husqvarna, Monark, Ossa and the like. Cost apart, the majority of them seem to be scrambles-tuned 250s or rev-hungry 125s, neither of which I feel particularly happy about riding for great distances; too much like hard work.

Instead I have developed an affection for 175 cubes, a capacity which falls nicely twixt the two and offers the crisp responsiveness of the eighth litre and much of the 250's heft, whilst largely avoiding the vices of both. Doubts about the future availability of Minarelli 170 spares led me to the only power-plant generally available in the UK, that which resides in the frame of the Yamaha DT175.

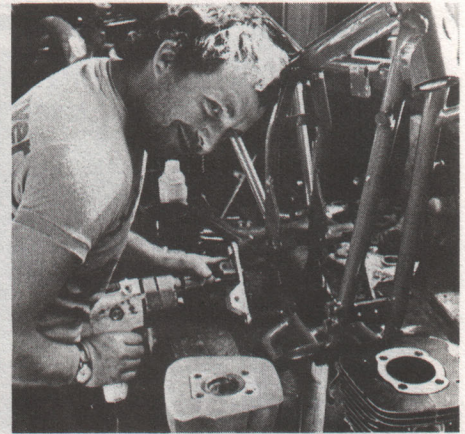
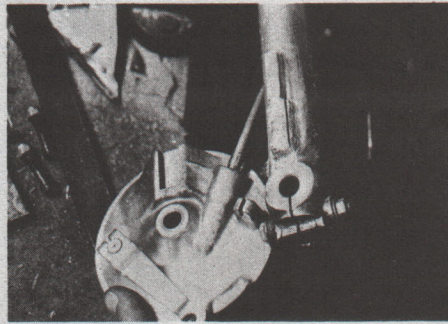
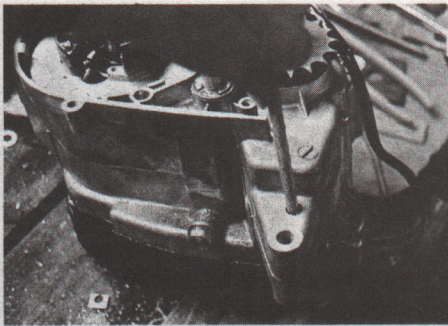
For some time I seriously entertained the idea of buying a DT175 and merely lopping ▶



**(Top left): Filing out engine mounting hole drilled v. cautiously in Yam crankcase.**

**(Below): Lengthened brake-stop on Ceriani fork leg was necessary to accommodate Yammie anchor.**

**(Top right): A crazed M. Harrison drills yet another random orifice. (Below): Cosmetic treatment for "webbed" Jap engine cases — spray-on pan coating!**



off excess ironware, replacing certain non-competition cycle parts such as rear wheel rim, gas tank, tyres, and shocks. However, it appeared this would add about one hundred smackeros to the £317.00 list price, and for that sort of money I could wrench my wrist off on a Jawa 250.

So, it *seemed* (I use the word again) like the only road to hoe involved putting a DT175 engine in somebody else's frame and supplying ancillary garbage to suit. So upon realising that entries for the Welsh were almost overdue, I stuffed a wad of fivers into the mit of a gentleman who advertised in *MCN* a DT175 with only 130 miles on the clock, planning to cannibalise the engine and sell off the rest at a later date.

Messrs. Competition Developments of St. Albans bought a load of Dalesman components when the Lancashire firm went under last year, among which were some excellent enduro frames. I had ridden a Dalesman some time ago and remembered it as a precise, sure-footed machine with a very well designed and constructed frame. So I contacted Comp. Dev. who, since my first garbled phone call, have been extremely helpful and who straightaway offered frame, hubs, forks and just about anything else I needed.

I visited their new premises in Hatfield Road, inspected a brace of Hodakas, importation of which will begin soon, according to CD's Alec Wright, and took away the frame, a Puch QD rear hub, some Girling shocks and a pair of Ceriani lightweight forks.

The frame follows a sturdy twin downtube design and features two extremely useful items, namely a one-pint chain oil reservoir contained in the upper frame member, and a hefty tubular crankcase guard. Immediately I planned to enlarge the oil tank to dimensions appropriate to the consumption of the Yam's Autolube system, and tried

mentally to visualise the best way of fitting the Yamaha mill in that nest of toobs.

The following day was spent in Mr. Furlong's shed, drilling and sawing and generally violating the Reynolds 531. Drilling through the short steering-head brace and thence through into the tank itself, then sealing off the first orifice afterwards, provided almost  $1\frac{1}{2}$  pints capacity — more than enough for a hard day's riding at the quoted consumption of 200 miles per pint. The original exit hole for the chain oiler was occupied by a pet-cock. This was to be replaced with a gas stop-plug which uses the same thread, and which two million London ironmongers failed to supply, hence the temporary use of, you guessed it, a pet-cock. A piece of  $\frac{1}{4}$ -inch copper tubing was brazed into a hole drilled in the very rear of the tank/tube to ensure no oil would be wasted, and a rubber pipe from here now goes directly to the Autolube pump.

Other frame mods included the brazing of two small engine plates just on the inside of the two main downtubes, behind the swing-arm pivot. Whereas the upper of the two rear mounting holes cast into the Yamaha engine married up neatly with the Dalesman's drilled engine plates (originally intended for Sachs power units), the bottom of the Yam's crankcase is blessed with a large triangular protuberance with a hole at its apex. This effectively heightens the engine position/centre of gravity and I can't quite see why Yamaha didn't design a frame which could accept a lower slung engine in the first place, instead of adding this alloy appendage to facilitate what amounts to a mass production lash-up.

However, the workshop manual indicates that the space inside this inverted pyramid, is sealed off from the clutch/gearbox assembly, so a hole was gingerly drilled through it to line up with the two small engine plates.

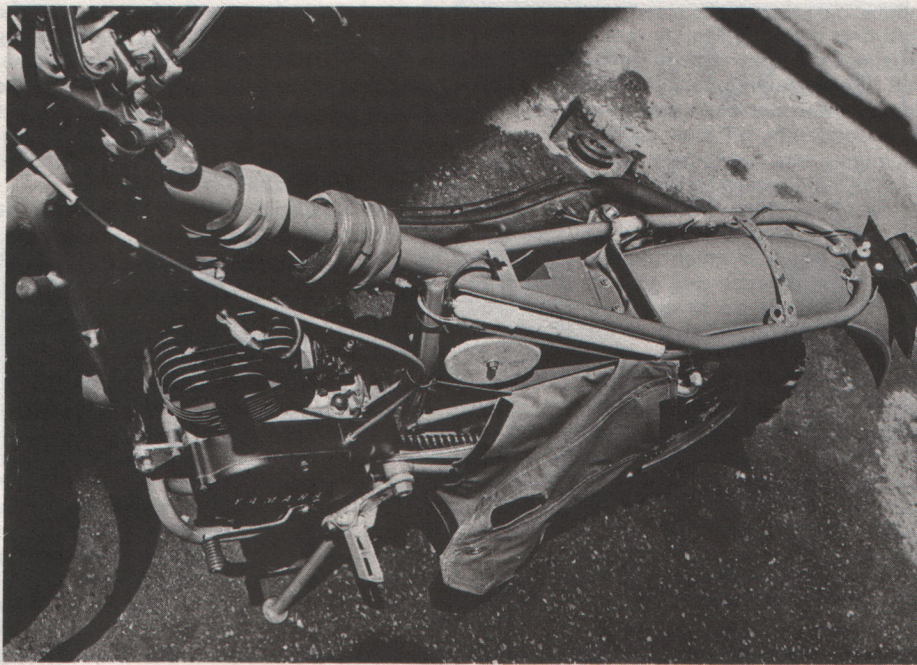
The plates supporting the front of the engine utilise the existing threads tapped into the downtubes and were fabricated from  $\frac{1}{4}$ -inch alloy. All in all, the Yammie lump slotted into the frame with consummate ease and is secured there by three high tensile Allen headed bolts made to order by the obliging Chris Stanger of CDS Screws. He also provided a set of Allen bolts which replace the god-awful Philips headed bolts which secure (?) the engine cases of most Jap bikes and which seem to be fabricated from chromed lead. CDS do a range of replacement sets covering most oriental bolides, as well as jumbo packs of nuts and bolts and washers in BSF, Whit and metric sizes. I blagged a supply of the latter to bring assembly of the cycle parts in line with the metrified threads of the Yamaha engine, thereby simplifying running repairs and the compilation of a tool kit.

With the motor *in situ* it was possible to plan the rest of the bike with a modicum of assurance. Apart from the incongruous lump on its bottom, the Yamaha mill is very compact and was now mounted as low and as far back as possible, with the potential benefits to handling that I'm sure you're not too dumb to deduce.

The enlarged oil reservoir obviated the need for a separate Autolube tank, saving both weight and the need to use anything other than the triangular QD Dalesman air filter box/battery compartment which fits just where one would imagine it ought to fit (I'm not going to do *all* your thinking for you!). In turn, this meant that the Dalesman seat could also be used and, for that matter, the gas tank too. However, despite the blatant simplicity of all this, yours truly decided to get smart.

Firstly, unhampered by US safety regs which require the use of a battery to power horn and stoplight, I could junk the battery and the attendant cat's cradle of Japanese





*Underside shows Bantam gas-tank cap (top left) guarding Autolube reservoir, chain-oil reservoir cap (at extreme rear of upper frame tube with exit pipe just above swing arm pivot), pump location above air box (holding one end of rubber band which secures fuel tank), airbox and its Velcro edged rexine shroud, QD brackets for seat (welded inboard of cross-piece toward rear of frame) and rear number plate assembly.*

wiring. Power for ignition and lights and horn would come direct from the highly efficient Yammie magneto assembly, and I'd be left with an empty battery compartment on the offside of the mild steel air box thingy. Waste not want not, thought I, and it was out with the tin snips, 1 mm aluminium sheet, pop rivet gun and a large rubber hammer. I cut down into the 'V' of the air box, in line with the sides of the battery tray and removing its base, and fabricated new side pieces and a rear wall which were sealed with Araldite to ensure the efficiency of the air filter mounted on t'other side. The job was finished off with an exterior "wall" reaching halfway up the compartment which contrived to secure the tool roll which could now be dropped into the cavity I'd made. Neat, huh?

Not content with this, I made a three-sided tray which was rivetted onto the top of the box and allows a spare inner tube, or your corned beef sandwiches, to sit nicely in the 2½ inches between seat and air filter box.

Next I looked around for somewhere to site a tyre inflater (bicycle pump to you). Two centimetre-long bits of welding rod brazed into the upper corners of the nearside of the triangulated section of frame which houses the air box provided an unobtrusive perch.

More serious work was required on the swing-arm as the Yam drive chain exits on the nearside whilst the original Sachs motor chucked its chain out on the other side. Brake-stop, chain-guard and chain-tensioner mounts had to be taken off a spare swing-arm thoughtfully provided by Comp. Developments and brazed onto the nearside of an arm they happened to have which was as yet unsullied by such artifacts.

As I've only recently attained the rank of sloppy welder second class, I left the torchwork to a friend of Furlong's (embarrass-

ingly, I can't remember his name), whilst CDL's John Gazeley (who could always earn a crust as a stand-up comic if he wasn't a mo/cycle constructor) helped out with a few bits and bobs at a later date. And Stan the Man, who runs the car bodyshop adjacent to Iron Horse, was a true brick when it came to last minute panic alterations to the frame design that couldn't be attended to with a 2 lb. hammer and drift.

Now, all the above work was undertaken within ten days of getting engine and frame together. There followed a period of relative calm whilst I waited for Mr. Gazeley to shave a millimetre off the head and gas flow the ports, Messrs. Bassani Manufacturing to deliver a tuned exhaust system from sunny California, and old Project Bike stalwarts the Rightwheel Co. to build a rear wheel.

The wheel involved lacing an Akront ally rim. They're allegedly stronger than Borranis and don't have that 'orrible mud-catching lip on them, but are 13 quid from your friendly local Bultaco dealer (in my case, Comerfords), who probably won't have them in stock and will pass one's non-motorcycling girlfriend off with a set of coarse thread car-type self-tapping screws instead of the proper precision machined Philips jobs which screw through the rim and jab themselves into the tyre bead. Brainsy people will realise that these screws — six in each side — render the security bolt unnecessary, along with the bleeding fingers and fumbled puncture repairs that are its legacy. Rightwheel have the angle-headed spokes necessary to lace up the excellent Puch hub to the Akront rim and, as usual, did the job in a jiffy.

Whilst on the subject of the Puch hub, because the cush-drive set up is (wisely) of a fairly large diameter, it's impossible to bolt on sprockets containing fewer than 44 teeth without fouling the perimeter of the hub. As the stock DT1 follows the practice of hav-

ing a large-ish drive (16T) and a small rear (37T) sprockets — a sensible enough arrangement, as it minimises clutch stress — it was necessary to get Pagehilm to make a 44-tooth alloy sprocket, in which they deftly cut a step to fit the Puch unit, and badger Sondel Sport, the friend of the improverished Yamaha owner, into lending me a selection of racing sprockets to play around with.

And the machining on barrel and cylinder head! Mitsui's Brian Hamilton advised on what was safe, and so Mr. Gazeley obliged. There was, as I said, a week or so when most of the things that could be done were not being done by me. So I spent my time at the sewing machine (the first wit to mutter about pansy bikers will get a taste of flying handbag) making a vinyl cover for the air box which allowed for Autolube pipe outlets and other addendum not catered for by the Dalesman shroud upon which it was based.

Being of an aesthetically garish persuasion, I chose to make this up in red vinyl to match the red Preston Petty 'guards (from Roy Baldwins of Rochester, who would've done the engine work too, but I didn't give them enough warning, natch), and contrast this with the bright green paintwork I had planned. Having decided on red, I therefore had to re-make the Dalesman seat too, adding a little padding and converting the steel base to a QD arrangement whilst I was at it.

This involved brazing two 1-in. sections of 6-in. nail (!) just in front of the two threads where the stock mounting bolts screw into the rear of the seatpan, drilling a 1/16 in. hole through each of these lashed up spigots, and brazing a heavyweight washer just inboard of the seat support bracket on the frame, into which was coaxed a large rubber grommet. A square section orifice was cut around the existing front mounting point on the frame, into



which slotted a rubber sleeved, rearward angled bracket welded onto the seat when the seat was mounted in place. The rear spigots entered the rubber cushioned "washers" at the arse-end and two circlip pins (which took me four days of racing about London like a lunatic to find I might add — so much hassle for so little — must be crazy) slipped through the holes in the spigot to secure the seat. All this was worth doing because, coupled with the Velcro fastening on the air box shroud, access to tool-kit, air filter, inner tube and/or sandwiches becomes super-fast.

I also planned to make the gas tank removable in a trice. I'd already removed the tiny filler throat and threaded plug which normally provide access to the Dalesman chain oil reservoir and replaced it with similar, and much larger, items from a BSA Bantam fuel tank (thanks here to Chris at Aladdin's Cave, neé Ron Holland, ze king of ze breakers).

This meant the Dalesman tank would now not fit the frame, so R. G. Callow Ltd., my friendly local m/cycle dealers when I'm down in Wales, provided me with a brand new BSA Victor tank at a price that suggested a lorry had back-ache outside their front door. The Victor tank has a big gap at the front to accommodate the oil - in - frame filler cap fitted to those models. Onto this were welded two semi-circular brackets which married up with the rubber capped tank braces already fitted to the Dalesman frame, plus a lipped half-moon bracket at the rear of the tank around which was snapped an eyeletted rubber band normally used to secure the tool kit on a Yamaha XS-2! Thanks again, Sondel. With the tank braces hard up against the smaller ally brackets and the rubber band held securely by short bits of welding rod brazed onto the frame (one of which was already holding on one end of the tyre pump!) the tank is firm as a rock but removed, in, er, seconds.

The man who did the ally welding, Mr. Martin of C & M Welding (they also do Plasma welding, argon arc, metal spraying, carbon steel work and all sorts of other stuff I'd never come across before), also extended the brake-stop on one of the Ceriani fork legs so that the titchy Yamaha front hub could be used. (Why a Yamaha hub, you ask? Well, you gotta drive the speedo somehow, and this seemed the easiest way out.)

Nice man, Mr. Martin. Welded up some bloke's cracked Trident head whilst he waited, all the time smoking a cigarette and explaining the theory of Plasma welding in genial terms even a brickhead like Yrs. Trly. could suss.

Brake levers, inner tubes, bars, tyres and various odds and sods were supplied with great speed by W. E. Wassell Ltd., the m/cycle factors whose products line the shelves of your amiable neighbourhood bike emporium.

I think I've covered all the main stuff now, so how about a little trivia?

Well the Yamaha engine cases were already into an advanced state of "cobwebbing" — myriad white streaks appearing

under the heatproof lacquer the Japs have to put over the inferior alloy they use for their engine cases. One remedy for this is to strip off the remaining lacquer and spray the cases with matt black heatproof paint, but this soon rubs off after a few weeks gear-changing and rearbrake work. 'specially if you're a big booted enduro rider.

So clever-clogs Williams buys a couple of cans of Verine spray-on non-stick pan coating which is much tougher than your Hermatite product, and goes to town with that instead. It works alright too, but you have to bake it in a hot oven for 30 minutes after spraying, which (a) makes a revolting smell and, (b) melts any rubber or nylon seals, cogs, etc. you might find in your engine cases. Draw your own conclusion, dear readers. I finished the job off by touching in the legend YAMAHA in heatproof aluminium silver paint — the stuff you paint silencers with when you're trying to sell your car to an impressionable dolt.

Just realised I'm running out of space already, so it's quickie time. Natty 5-in. headlamp came from a Gilera V50 Trail (courtesy of Douglas Sales & Service), a mite pricey but as you can't get Miller five inchers any more, wot's a fella to do, eh? The Gilera lamp bracket had to be reamed out by 2-mm to fit the Ceriani forks, and the forks themselves had to have the bolt holes reamed out to accept suitably sized sleeves for the tiny Yamaha wheel spindle (I know that sounds like a contradiction in terms, but it was necessary as the holes in each fork leg are of a different size for some reason and so blah - blah - blah).

Rear and front number plates I made up in 1/4-inch laminated rubber (nothing worse than falling off backwards onto an ally number plate — ouch!), and I fabricated the speedo bracket, front mudguard stay, and engine bracket spacers from 1/4-inch aluminium and/or tubing, as appropriate.

CS & E Stove Enamelling stoved the frame in two days flat (they're just down the alley from Iron Horse and seemed used to such panic jobs), and City Sandblasting did their thing in a similar period of time. Finally, a friend, Tony Stead, lettered and pin-striped the tank one Sunday afternoon.

But it was all in vain! I had persuaded me friends at Iron Horse to let me trash up their workshop whilst undertaking final assembly. It seemed the only place where I could make up for lost time by working hard into the night amidst a suitably congenial atmosphere (Stella Artois, loud rock n'roll music and a constant stream of fetching young floosies making tea and other things).

Even the irascible Martin Harrison was begged into helping out, but 'twas no use. Problems kept arising unexpectedly; the brake pedal fouled the kickstart (we'd never thought of that, see), and so had to be pivoted on the *inside* instead of the outside of the footpeg; chain alignment proved annoyingly difficult to perfect, requiring several changes of engine spacers, all of which had to be hand made by muggins here; the Bassani muffler didn't arrive until after the Welsh had already ended and so

some days earlier we had to mount the existing Yamaha item which meant welding a bracket onto the already stoved frame; and, having done this, it was found that the silencer fouled one of the pet-cocks so a complicated bit of plumbing had to be contrived which virtually invalidated the design of the QD gas tank.

After a 48-hour non-stop effort to get the bike properly sorted in time to rush down for the Wednesday night check-in for the Welsh, it was obvious that it wasn't going to happen. It might just have been possible to get there without having finalised gearing, Autolube metering and other fine tuning, but it didn't seem worth spoiling the ship for etc., etc., etc.

Since the incredible disappointment of working like a lunatic but still missing the Welsh, I've sorted out the gearing (18T is not too steep for the drive sprocket), got the Bassani muffler fitted, and ended up with an off-road bike that handles a treat, weighs 184lbs. (38lb. less than the stock DT1), will cruise at 70/75 on the road, and looks kinda spiffy too. And anyone who says it can't be done in four weeks is, well, very sensible.

#### USEFUL NAMES & ADDRESSES

Already streams of admirers have offered me vast sums of money for this brilliant bolide. But I shake my head sadly and tell 'em they'll have to build their own. Should you wish to prepare a similar plot, the following may well be able to help:

Competition Developments, 135a Hatfield Road, St. Albans, Herts.

CDS Screws, 8 Raeburn Avenue, Dartford, Kent.

C & M Welding, ro 96 Upper Wickham Lane, Welling, Kent.

Roy Baldwin Motor Cycles, 97/99 Maidstone Road, Rochester, Kent.

R. G. Callow Ltd., 45 Caerleon Road, Newport, Mons.

Pagehlin Co. Ltd., 153 Bermondsey Street, London S.E.1.

J. Smith & Son Ltd., 42/54 St. John's Square, London E.C.1 (For non-ferrous metals).

Rightwheel Co., Bective Road, London S.W.15 2QA.

Bassani Mnfng., 3726 E. Miraloma Ave., Anaheim, Calif., USA.

City Sand Blast Co., 7 Emma Street, London E.2.

C. S. & E. Co., 63 Chalk Farm Road, London N.W.1. (Stove enamellers).

Sondel Sport, 1 Stapleton Hall Road, London N.4.

Some of the above do not cater regularly for m/cycle requirements, but seemed very willing to and, amazingly, were much quicker than many who do.



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