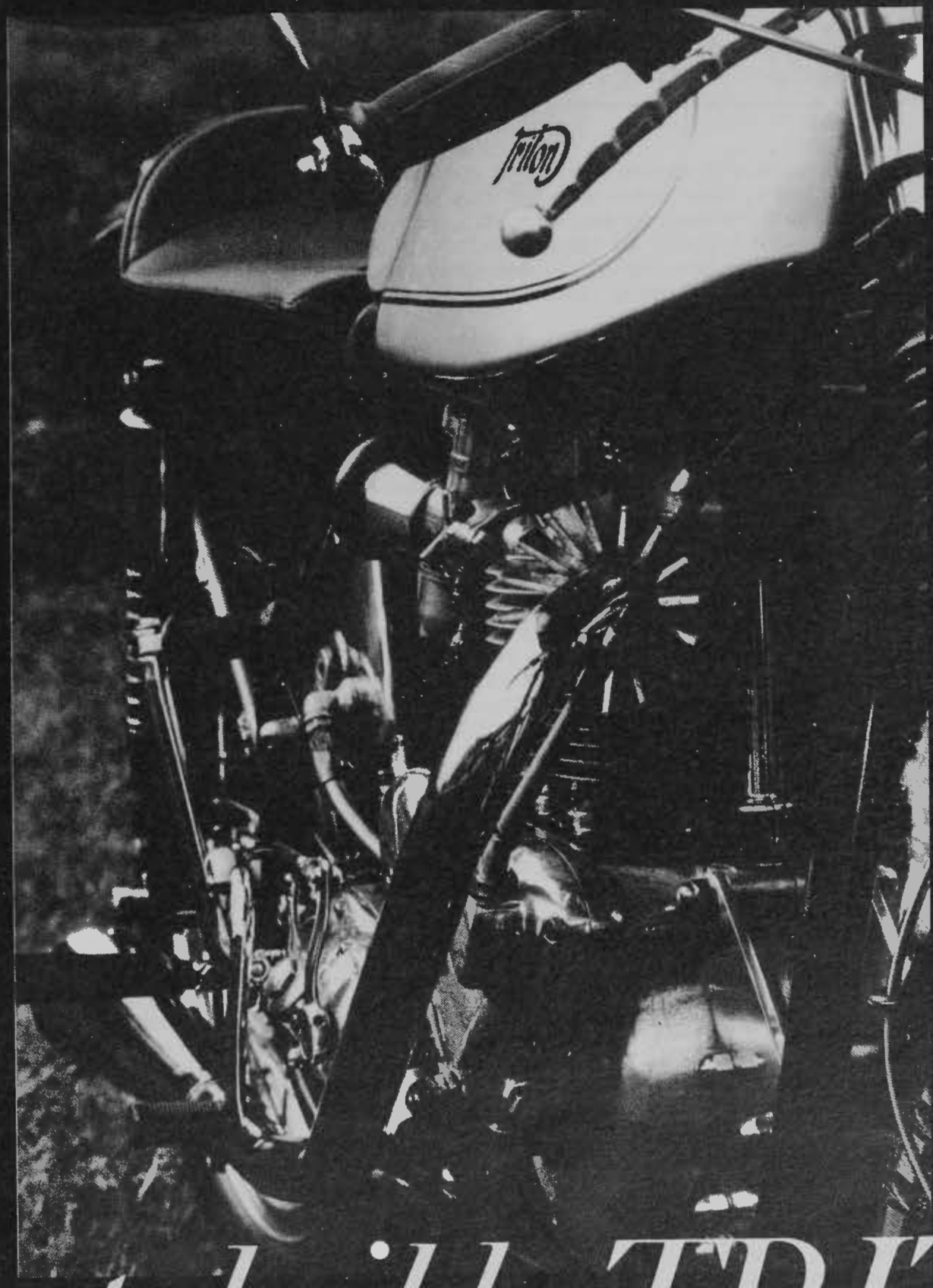
The CLASSIC MECHANICS Book of



How to build a TRITON

How to build a

Reprinted with amendments from Marchant and Durward's 1967 Earls

Original foreword

☐ Tritons have been in existence for several years and are increasing in popularity. There are many reasons why there are Tritons. One obvious reason is that motorcyclists are notoriously individual and specials have a natural appeal to them; no two Tritons being exactly alike adds further to this appeal.

Another reason is that British manufacturers have failed over the years to give the motorcyclist the machines that s/he likes and wants. Nortons produced their "Dommies" with a Featherbed frame. This frame is undoubtedly the finest ever produced, but the Dommy engine cannot be said to be on a par with it. The greatness of this frame can be gauged by the number of foreign competitors who, after decrying "old fashioned British machines" in order to sell their own, have been forced virtually to copy the fabulous Featherbed in order to make their racers steer other than like camels (please do not conclude from this that I do not consider that British machines are old fashioned in many respects). In the same way Triumphs have produced for many years 500cc and 650cc machines with simple, troublefree engines, which are at least on a par as far as performance with any other engines of similar capacity; their frames until very recent years have been sadly lacking. (I am often given to wonder what the story would have been today if Triumph and not AMC had bought out Nortons).

Even the influx of Japanese machines has not affected the popularity of Tritons. Several of these Japanese machines of around 250cc are capable of over 90mph, but for the motorcyclist who is not restricted by a provisional licence, the appeal of a Triton is the ability to travel at comparatively high speeds in comfort and without overstress. The Triumph engine is well known for its ability to take a thrashing without blowing-up, to wearing very well and to being surprisingly economical on juice.

The advantages of a large capacity machine compared with one of smaller capacity are: much better acceleration; longer life; ability to maintain high speed; flexibility and good petrol consumption at high speeds (smaller highly tuned machines do not generally show up too well in this respect).

It can be argued that an overhead camshaft twin engine of 650cc capacity would perform better than a Bonneville. This is possibly true, but at what expense and complication? The Triumph is a simple engine giving excellent all round performance, being very easy to work on and being relatively trouble free. Spare parts are extremely cheap (though unfortunately not always easy to obtain), are well made and are of excellent wearing quality materials. I am not trying to say that the Triumph engine is perfect, it certainly is not, but in my opinion is far and away the best compromise there is (all engines necessarily being a compromise).

Another appeal of a Triton is that it need not cost a fortune to build and you do not have to lay out all your money in one go. A Triton built to a modest specification can be constructed for around £100*. If you want the full works with Manx frame and forks, alloy wheel rims, tuned Bonneville engine to 1966 spec, £400* is probably a nearer figure.

Marchant & Durward, 1967

* £500 and £2,000 will be nearer the mark now.

PREPARATION OF FRAME AND CYCLE PARTS

Forks

Norton forks are extremely simple to dismantle and reassemble. If any difficulty is experienced refer to an appropriate Norton instruction book. Dismantle the forks completely and check all wearable parts, particularly the bottom steel bushes and the top bronze bushes and renew if suspect. Renew the oil seals. Check the left hand fork leg around the pinch bolt boss for cracks. Have boss welded if crack is found. If fork gaiters are to be fitted reduce the length of the top and bottom dust shrouds to 1 in in length. Reassemble forks.

Frame

Either the earlier wide Featherbed or the later Slimline frame is suitable. Check the frame for alignment. This is best done with the forks and wheels in position. Check the swinging arm Silentbloc bushes for wear and have these replaced if necessary. At this stage it is worth considering having the frame stove enamelled. Unless the steering head races are known to be good, they should be renewed.

The Girling rear suspension units must now be checked. Turn the spring tension adjustment to the lowest position by means of a C spanner. Now grip the bottom yoke of the damper in a vice and pull down the top dustcover. This will allow the split collets to be removed. Remove the dustcovers and spring. Check the damping action by pushing the damper together and then jerking it apart again. If resistance is felt on the return stroke all is well with the damper, but if there is little resistance the damper must be replaced.

Wheels

Dismantle the wheel bearings and renew if at all worn, pack with small quantity of high melting point grease and renew felt seals. Check brake

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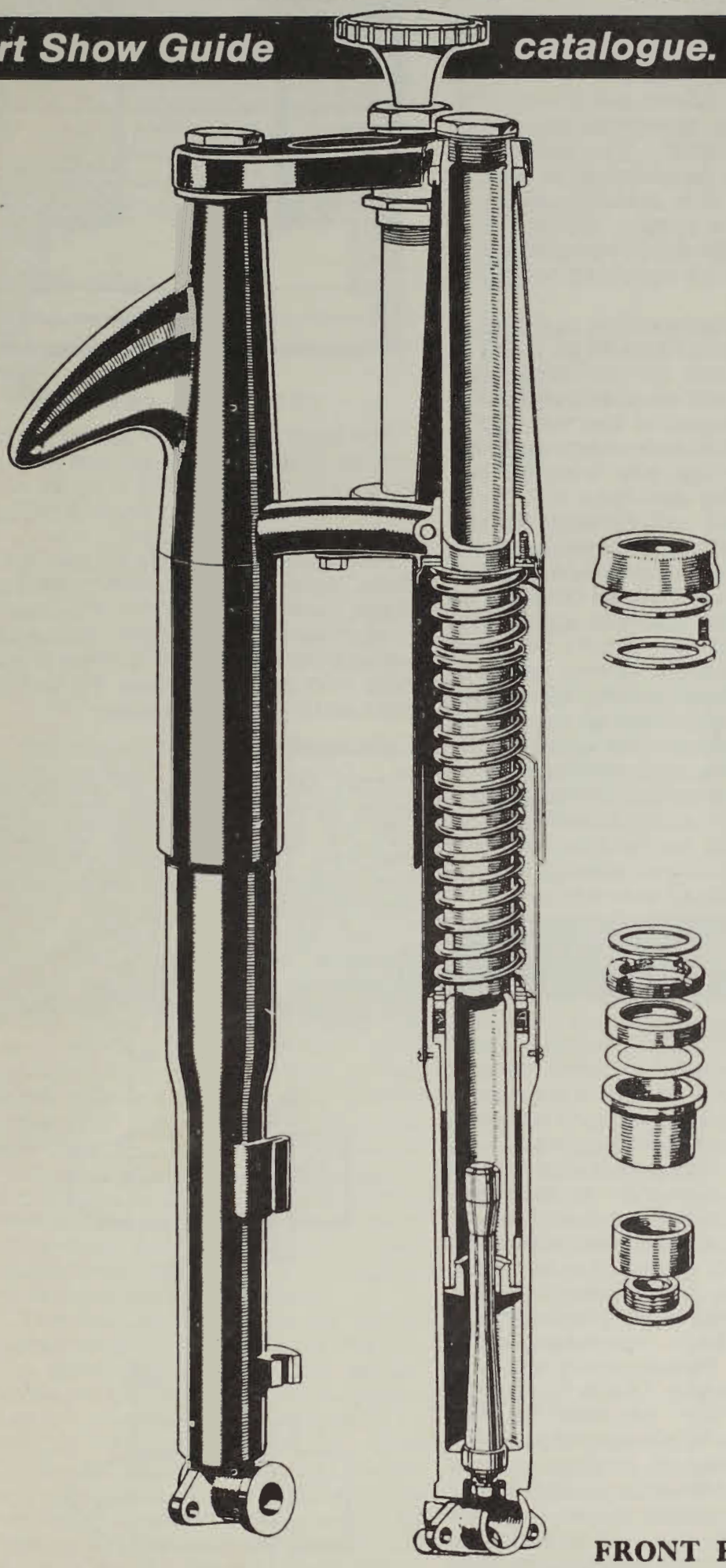
Court Show Guide **catalogue.**



FRONT FORKS

linings, replace with new ones if worn. If new rims are to be fitted entrust this to an experienced wheel builder. A 3.00 x 19 Avon Speed-master* should be fitted to the front wheel and a 3.50 x 19 Avon GP* to the rear. If serrated wheel rims have been fitted no security bolts will be necessary, but if not, security bolts should be fitted to both wheels. Both wheels must be balanced, this is best done after the wheels are in the frame.

Forks, rear suspension units and wheels are now ready to assemble to frame.

If alloy mudguards are to be fitted use alloy Manx type bridges and a bottom stay for the front mudguard. *(A steel bridge may be preferable, to prevent cracked alloy guards and aid handling).* A steel stay is essential for the back portion of the rear mudguard, this stay is fitted to the top rear suspension unit bolt. Another hole must be drilled through the gusset plates to accommodate the second bolt on wide Featherbed frames.

Clip-ons, headlamp brackets, headlamp etc can now be fitted.

* Builders are advised to use more modern Avons, such as Roadrunners.

PREPARATION OF ENGINE

Triumph engines of 500cc and 650cc can be used. Prior to 1955 many Triumph engines were fitted with small diameter cranks and timing side main bearings. These engines are quite suitable (their overall dimensions are exactly the same as later engines), but the later large bearing engines are to be preferred especially if maximum performance is required.

Having acquired a suitable motor, dismantle completely and thoroughly wash all parts in paraffin. Check all parts and scrap any which show signs of wear. It will be useful to obtain an appropriate Triumph Instruction Manual covering your engine, also if you intend bringing your engine up to later specification Instruction Manual No.17 will be of considerable help. These books will ▶

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well repay the small outlay.

Crankcases

Scrape off all old jointing compound and clean out all crankcase oil-ways. Check that the scavenge pipe is an oil tight fit in the timing side crankcase. A leak at this joint will mean the oil pump will be unable to completely scavenge the crankcases. The inside of the crankcases may be polished, but take care to wash away all emery dust. Warm the cases and drive out the main bearings. The camshaft bearings should be checked for wear. These bearings will not need replacing unless the engine has done a very considerable mileage. Note: If the crankcases are of the pre-1958 type which do not have an oilseal in the drive side crankcase and it is intended to fit a duplex primary drive, it will be necessary to have the drive side crankcase opened out to accept the duplex primary drive sprocket (this subject is discussed later in the text). Fit new main bearings: the best arrangement for these is to use a ball race in the timing side and a roller race in the drive side. By using a roller race in the drive side the crankshaft is considerably stiffened whilst the ball race in the timing side locates the crankshaft. The fitting of a roller race in the timing side as well as the drive side would further stiffen the bottom half, but if this is done the roller races will be required to take any end thrust on the crankshaft (end thrust of approximately 20lbs. is created by the pressure of oil fed to the big ends and minor misalignment of the engine and clutch sprockets can also create end thrust. Roller races, even lipped types, should never be subjected to thrust, which will cause considerable friction losses. Check for wear on the intermediate gear pin in the timing side case and renew if worn.

BOTTOM HALF

Crankshaft and Conrods

If the older two piece crankshaft is to be used, dismantle by removing the six bolts and nuts which hold the assembly together and thoroughly clean out all sludge. Reassemble using new bolts and nuts, centre punch the bolts to secure the nuts. Check the crank journal diameters, if there is more than .002in wear or ovality the crankshaft must be reground. (Standard crank diameter is 1.6240in–1.6235in). Check also the oil feed journal diameter and have reground if necessary. (Standard diameter .623in–.622in). This journal is most important as its fit in the timing cover bush controls the pressure and quantity of oil fed to the big-ends.

In the case of the one piece crankshaft, remove the plug in the end of the timing side web and remove the sludge tube. Clean out thoroughly. Check journal diameters as for two piece crankshaft. The crankshaft flywheel can be polished to reduce oil drag, but little is to be gained by polishing the webs. *Note:* 1966 crankshaft with light flywheel can be used in pre-unit construction 650cc engine.

The conrods should be polished all over. No attempt should be made to lighten the rods by removing metal from around the small end eye or the web and flanges of the rod, but a small amount of weight can be saved by cleaning up any irregularities around the big-end eye.

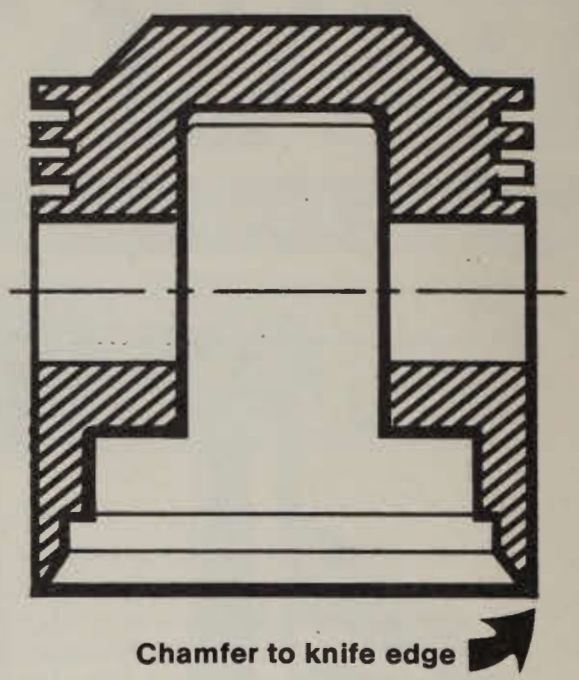
Reassemble the conrods to the crankshaft using new big-end shells. It is advisable to use new big-end bolts and nuts, these should be tightened with a torque spanner to 28 to 30lb/ft.

The bottom half is now ready to assemble; fit camshafts, not forgetting the breather disc and spring on the inlet camshaft. Assemble crankshaft in crankcases and bolt cases together. The crankshaft should revolve freely in crankcases (hold conrods carefully whilst revolving the crankshaft to avoid damaging rods on the crankcase mouth).

TOP END

Barrel and pistons

If a new cylinder is being used, fit new tappet blocks. These are a drive fit in the barrel. Care must be taken that the holes for the locking screws are in line. Now ream the tappet blocks 5/16in diameter. At this juncture I would point out that if a new barrel and cylinder head are being fitted to a 650 engine, it is advisable to obtain the unit construction nine stud barrel and head. The bolt holes on these heads are more widely spaced and consequently are less prone to cracking. I have found from experience that genuine Triumph pistons are to be preferred to pattern parts. For the 650 engines pistons giving the following compression ratios are available: 8.5 to 1, 9 to 1 and 11.1 to 1. The 11.1 to 1 pistons are rather too high for road use, from experience 9 to 1 pistons are the most suitable. If 8.5 to 1 pistons are to be used, I find it advisable to have the bores honed .001in oversize, particularly if maximum performance is required.

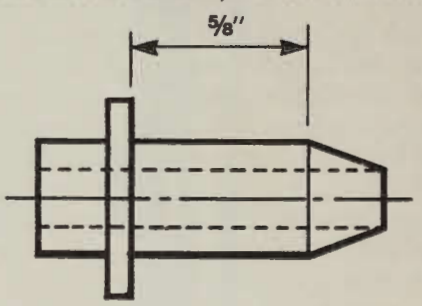


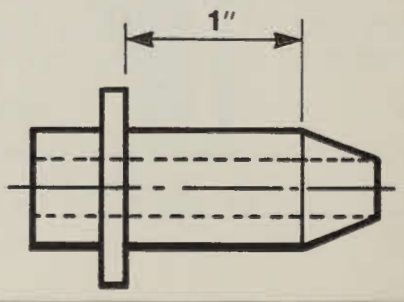
The bottom end of the piston skirts can be chamfered as shown in the sketch, this reduces oil drag as the piston descends. The crowns of the pistons may be polished.

Assemble the pistons on the conrods, place cam followers in tappet block (use E3059Rs for maximum performance), – secure followers with rubber bands to stop them dropping into the crankcase. Fit barrel over pistons and bolt down.

Cylinder head

If an old head is to be used, the valve guides should be drifted out and all the old carbon deposits removed. The combustion chamber and inlet tracts should be polished and bronze valve guides fitted. These should be reamed 5/16in diameter after fitting. (The valve guides may be blended as per sketch, but do not shorten). 1963 and earlier

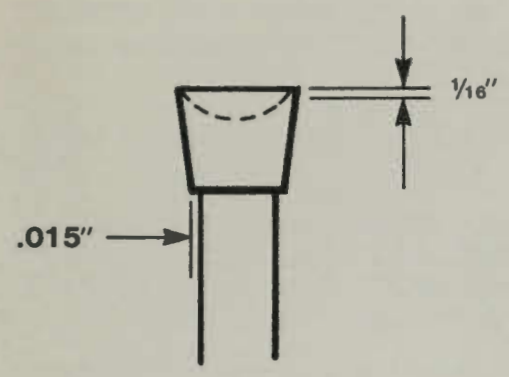




650 heads are fitted with small inlet valves, the ports on these heads can be opened out to take the later large valves. The inlet seats can be reduced to 1/32in wide but the exhaust seats should be 3/32in. The valve seats can now be re-cut or preferably re-ground and the valves ground-in. For high speeds it is worth having 10mm central plugs fitted; use Champion G59R spark plugs for best results. Alloy blanking-off plugs for the 14mm holes are available. The valves and springs use VS 510 for maximum performance, and can be assembled using dural valve collars to reduce reciprocating weight if desired. Assemble cylinder head to barrel, but remember bolts must not be fully tightened until rocker boxes are fitted.

Rocker Gear

The sketch shows how the push rods are lightened. Polish them all over.



To obtain the best from your engine it is essential that the rockers be lightened, but this must be done most carefully. If metal is removed wrongly, flexure and even fracture may occur. The object is to remove any metal which is not contributing to the strength of the arms, particularly around the push rod button and the tappet adjuster boss. The greater the distance from the centre of the rocker spindle the greater the reciprocating effect; hence metal removed from the extremity of the arms reduces reciprocating weight more than metal removed from the spindle boss. The strength of the arm is in proportion to its width and in proportion to the cube of its depth. For this reason the depth of the rocker arms must only be reduced by the absolute minimum that is necessary to remove any irregularities.

The rockers should be as highly polished as possible all over. Polishing does not increase the actual strength, but it does vastly increase the fatigue strength or resistance to fatigue fracture. However the value of the polishing is only that of the worst part, so having only one scratch on say the tappet arm is as bad as having scratches all over the arm. It is advisable to use lightened tappet adjusters.

Hardened steel spacers should be fitted to the rocker spindles instead of the original spring washers. Assemble rockers to rocker boxes, not forgetting to fit new seals to the spindles. The slotted rocker box caps should be discarded and finned caps with hexagons used. The slotted ones are almost impossible to tighten securely and even when fitted with locking clips still come unscrewed. The caps should be wired together.

Magneto

The magneto should be dismantled and the slip ring and bearings checked and replaced if worn. Check that the pick-ups are not cracked and that the brushes are free in them. Reassemble with new contact points. Set points gap to .012in.

Assembly and timing

The camwheels can now be assembled on the camshafts and the timing marks lined up. The magneto timing can be set and the oil pump assembled. Insert push rods and bolt down rocker boxes. Finally tighten cylinder head bolts. Bolt on timing cover using Allen screws.

If E3134 cams and R followers are being used the timing is carried out as follows: Bolt on exhaust rocker box with timing side push rod only and set tappet to .020in. Position timing disc on drive side main shaft, determine TDC and set pointer to zero. Fit the intermediate gear. Turn the crankshaft forward to 35° after TDC, now turn the exhaust camshaft anti-clockwise until the tappet clearance is just taken up. The camwheel must be assembled to the camshaft by lining up one of the three keyways with the camshaft key and also the teeth with the intermediate gear. Care must be taken not to disturb the camshaft. Remove exhaust rocker box and push rod and fit inlet rocker box and timing side push rod, set tappet to .020in. Now rotate crankshaft backwards to 35° before TDC. Turn inlet camshaft clockwise to just take up tappet clearance and assemble camwheel as for exhaust. Reassemble rocker boxes and push rods, not forgetting to re-set tappets to .002in inlet and .004in exhaust. Now time magneto to 39° before TDC for 650cc engines or 42° before TDC for 500cc engines, with ignition fully advanced.

Gearbox

Either a Triumph or AMC gearbox may be used. I personally prefer the Triumph gearbox. Dismantle the gearbox completely and check all parts, in particular the main drive ball race and oil seal and the camplate. Reassemble. (Note: if long type chaincases are being used and the gearbox is a pre-1960 Triumph gearbox, the oil level plug must be removed and the hole blanked off). The bottom fixing bolt lug must be reduced in thickness from 3½in to 3⅜in, by machining or filing 1/16th off each side of lug. (The standard Triumph final drive sprocket can be used if a ⅜in wide Norton rearwheel sprocket is obtained. Otherwise a ground-down final drive sprocket must be used).

Chaincases and primary drive

In my opinion the best chaincases to use in a Triton are the long Triumph type, (dynamo or alternator type). These were fitted to 1947 to 1953 500 and 650cc machines. The engine shaft to gearbox shaft centre distance is almost the same as for the Norton. By using these long cases the engine and gearbox are positioned essentially the same as on a Norton. If the short chaincases, as fitted to later Triumphs, are used, either the engine must be moved backwards or the gearbox moved forward from the normal position. The effect of moving the engine backwards is that weight is taken off the front wheel and this tends to make the steering light at high speeds; moving the gearbox forward lengthens the rear chain and moves the gearbox shaft further away from the centre of the swinging arm. This means that the rear chain is subjected to greater changes in tension and its life consequently shortened. (Ideally for maximum chain life the centres of the gearbox and the swinging arm should coincide). A compromise is usually found moving the engine backwards slightly and the gearbox forward slightly.

If a dynamo type engine is being used, the primary drive can be converted to duplex using an engine sprocket, Triumph part No.E4572, and clutch sprocket, Triumph part No.T1570. If long chaincases are used an endless chain 114 038 x 104 pitches is required. A duplex primary drive is much quieter, a longer life is obtained from the chain, adjustment is less frequent and clutch chatter is virtually eliminated.

Smear Loctite on the thread of the engine nut when assembling and use Allen screws in chaincase to ensure oil-tight joint.

ASSEMBLY OF ENGINES AND GEARBOX TO FRAME

Having obtained or made the engine plates in ¼in dural, bolt these to the engine and gearbox. Fit 1/16in thick washers between the plates and the rear engine lugs and ▶

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between the plates and the top gearbox lug. The front engine plates must have ¼in spacers between them and the front engine lugs. With the engine and gearbox bolted securely in position drill holes for the bolts which go through the centre stand hollow bolts. Also drill holes for the centre stand spring post, the oil tank mounting plate and the footrest bar. (Note: the head of the hollow centre stand bolt on the drive should be thinned down to ⅛in). When finally assembling do not omit the two spacers on the foot-rest bar – the one between the engine plates must be lengthened ⅛in. Use a washer for this purpose. The second spacer goes between the chaincase and the LH engine plate. This must be shortened by 5/32in. With engine and gearbox in position, cut out a plate in ¼in dural to fit over the four rocker box and cylinder head bolts. Bolt the original Norton head steady in position and mark through on to the dural plate the position for the ⅜in securing bolt. Under no circumstances must the steady be omitted, because as well as providing a top steady for the engine it also acts as a stiffener for the steering head.

Carburettors

Standard Amal Concentrics are undoubtedly the best all round carbs produced to date. They are easy to tune, stay in tune for long periods, give good performance and good petrol consumption. Chopped Monoblocs with remote float are I find much more difficult to tune and often result in poor petrol consumption. A better arrangement if frothing at high speeds is suspected, is to use standard Concentrics on flexible rubber inlet tracts. With twin carbs, a balance pipe between the inlet ports gives a better tick-over; it is very important with twin carbs that the slides be set carefully to lift together. If intake funnels are to be fitted, I favour the parallel Amal type rather than the tapered types favoured by many. If Gold Star pattern silencers are fitted increase the main jet by two sizes. Final jet size can only be determined by sparking plug check.

Gear ratios

If a duplex primary drive is being fitted, the overall gear ratios obtainable are rather limited. The engine sprocket has 29 teeth and the clutch 58 teeth. This in conjunction with an 18 tooth gearbox sprocket and a 43 tooth rear wheel sprocket gives an overall ratio of 4.78 to 1. This ratio is just about right for a 650, but for maximum speeds using a twin carb. tuned engine, close ratio gears are desirable.

By using a 17 tooth gearbox sprocket the ratio is 5.06, about right for a 500.

FINAL ASSEMBLY OF MACHINE

All that now remains is the fitting of petrol tank, oil tank, exhaust pipes, silencers, seat, headlamp, rev. counter (if required), number plates, control cables, etc. etc.

Petrol tanks – there is a variety of fibreglass or alloy tanks available.

Oil tanks – the original Norton tank may be used. Fibreglass or alloy central oil tanks are available. If central tank is used, a special battery carrier is needed to house the battery behind the gearbox.

Exhaust pipes and silencers – standard and swept-back exhausts standard, Gold Star and other megaphone silencers can be used. I have obtained the best results using standard exhausts and genuine Triumph silencers.

Seat – bucket seats are generally more comfortable than the standard seats. Single or double bucket seats are available.

Headlamp – a chrome headlamp shell will help to show-off any machine.

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You've read the theory; here's the practice.

☐ Joe Walsh is a born again biker. No, not *that* Joe Walsh of the James Gang and Eagles and "Barnstorming" fame – the other one. You know, the one who lives in Watford. Yes, him.

So, now we've got that straight, Joe Walsh is a born again biker. After years of being a car driver, a copy of *Classic Bike* attracted his attention. It was the Triton issue, with a hand-tinted photograph of a speeding Triton on the cover, and Joe read it from cover to cover. The more he read, the more he liked, and after a bit he decided that he wanted a bike again. The cheapest way to get the kind of machine he wanted, he reasoned, would be to buy the separate pieces and assemble them himself. He wanted a Triton, of course, and he could just throw one together for a very limited budget and in next to no time. Couldn't he?

As it happened, he couldn't. The two basic laws of classic motorcycling caught up with him more or less immediately. There is, I am sure, no need to remind experienced classic mechanics of these axioms, but for beginners they are:

It always takes longer than you think.

and

It always costs more than you imagine.

Mind you, he does admit to getting carried away, and the original intention of cobbling something together for the Spring soon became a determination to create the bike of his dreams. Even so, it was ready by the Autumn, which is not bad going for a project begun the previous December.

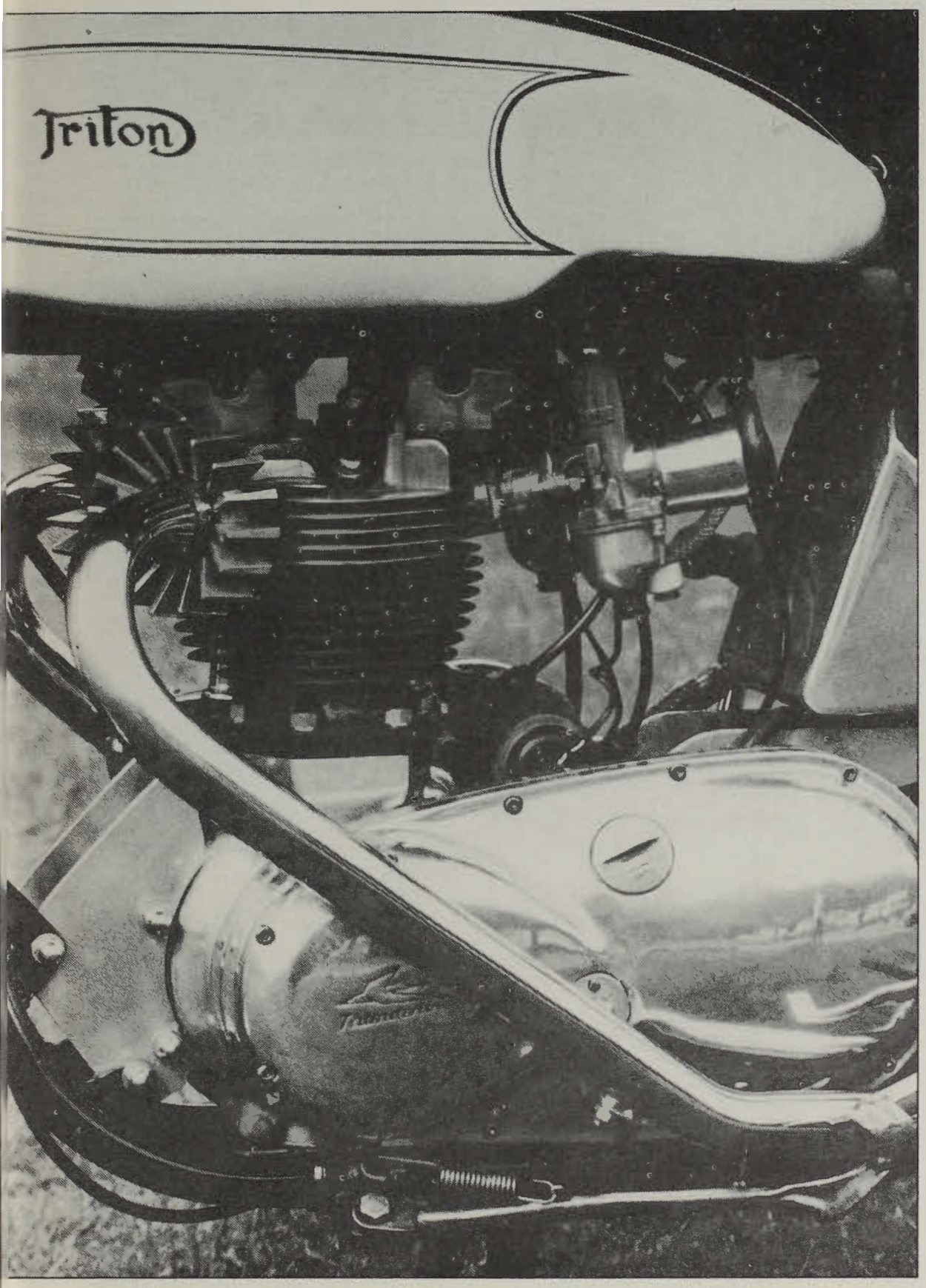
There was another reason for building a special. After reading a few issues of *Classic Bike* Joe had thought about restoring a standard model, inspired by the standard of motorcycle seen in the magazine. However, the standard of nitpicking from the spoke-counting brigade put him off that idea since he didn't fancy putting a lot of effort into a restoration only to have some Part-Book-Peter pointing out that he'd used the wrong pattern handlebar grips. Quite so. Building a unique machine avoids that problem altogether.

In order to acquire a bit of metalworking skill, Joe signed up for a couple of evening courses at his local tech, one on welding and the

other on machining. Both of these he found extremely useful, and any beginner is recommended to seek out the local prospectus assuming that government cutbacks have left your area education authority with the choice. Funny, is it not, that a party dedicated to the idea of self-help and self-improvement should decimate the very system which gives people the opportunity to learn.

The basis of Joe's Triton was a Slimline Featherbed Norton frame, which was swapped for his James and Jawa (relics of bygone biking days). With the frame came Roadholder forks, wheels, and boxes of bits including a one piece swinging arm, not the usual brazed-up job, and a fabricated bottom fork yoke. One of the first jobs was to have the wheels stripped and rebuilt with new Akront alloy rims, though eventually a new full-width front hub had to be obtained, as the bolted up type would not accept a Tickle twin-leading-shoe brake plate. Derek Yorke at Essex Wheels did the job.

With a rolling chassis sorted out, the next requirement was something to make it roll – an engine! This was another set of bits in boxes (Joe seems to have been quite fortunate with his basket cases), comprising 6T crankcases and a Slickshift gearbox.



Thunderbird motor is tuned to T120R spec; carbs are from a Commando.

At this point we should interject. Constructing a one-off motorcycle involves a series of choices, and it is essential to have them made well beforehand. Unless there is a clear end product in view at the beginning, the result is likely to be a hotch-potch of half-digested concepts and yet another tacky "special".

With an engine already in pieces Joe could have gone mad on tuning it, but he knew what he wanted, which was a quick, but reliable unit. Therefore, he uprated it to T120R spec, using the approved parts. To wit, a balanced crankshaft, "R" cam followers, a twin-carb pre-unit Bonnie head (the original single-carb item was cracked anyway), 9 to 1 pistons, E3134 cams and Concentric carburettors which had started life on a Norton Commando. The pistons, incidentally, had come in the box of bits and were +.040in Hepolites. As a measure of security, the motor was treated to a Morgo oil pump.

A clutch tip: Joe uses four Dominator springs on the Triumph clutch as to prevent slip the Triumph springs had to be done up so tight that they stripped the cable nipple with monotonous regularity.

Right. As the late, great Tommy Cooper might have said – "Engine – frame. Frame – engine". Getting the one to fit into the other is the most crucial point of basic construction, and although ready-made plates are available, it is still something of a ticklish question as to whether they will fit. This is not because the suppliers have made the wrong thing, necessarily, but because there were variations in frame lug positions. The main difference is between frames which originally housed a twin cylinder engine and those which housed a single.

As luck would have it, Joe, who did not know what his frame started as, ordered the wrong type initially. When the replacements came, the rear plates fitted perfectly, but the front ones were still out. Rather than mess around any more, and doubtless encouraged by the welding course, he decided to reposition the frame lugs. Easy, no?

Easy-ish, at any rate. Simply take a pattern off the old lugs and shape new ones from suitable steel. Cut off the old ones, put the empty crankcase into position (located by the rear plates) line it all up and mark – very carefully – the new position. Then make some temporary front plates out of ¼in alloy, bolt them to the engine, clamp the lugs onto them and get the metalwork teacher to arc-weld them to the downtubes.

Why the teacher? Because it is a crucial joint, and if it is not done right,

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both the weld and the frame will be weakened. The course was adequate for less important fabrications, but this one had to be just so. It was.

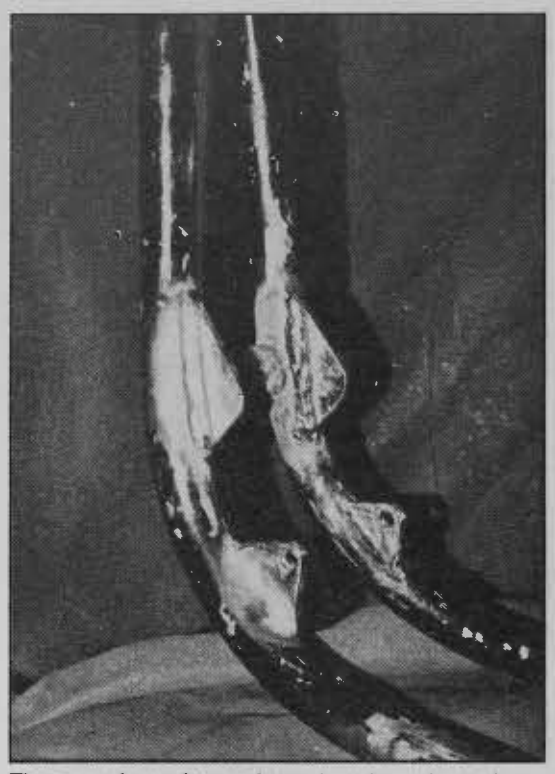
One place where Joe exercised his new found skill with the gas torch and braze was between the rear frame rails. Rather than bodge a bolt-on seat/mudguard fixture he brazed a steel bracket to support them as a permanent fitting. Another item to receive his attention was the rear-set gear pedal. The pedals were bought from a small ad in MCN, and the gear toe piece sat rather too high for comfort, so a new, longer loop was made up and welded onto the stubs. The same small ad provided that TLS front brake.

The head-steady, a vital part of the Featherbed frame configuration was another Walsh fabrication.

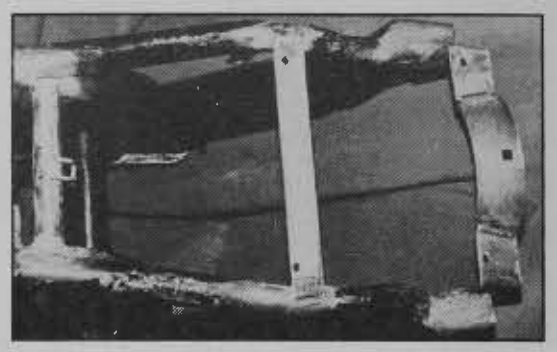
With the engine and gearbox sitting snugly in the frame that's the main bits over with, but it's by no means the end of construction – in fact it's just the beginning. What you have now is the basis of your finished product, and the final appearance of the machine depends on what you do from now on. It could look horrible or it could look beautiful. Specials rarely look mediocre.

Many readily available parts are of perfectly acceptable quality, both aesthetically and in fabrication. Thus, a run-of-the-mill caff-racer central alloy oil tank was acquired from another small ad, polished up and fitted. It was not one of the better made ones, for the oil return pipe was too low in the tank, restricting oil capacity, and it had to be extended. Also, the top mounting lug has fractured, but "they all do that, sir".

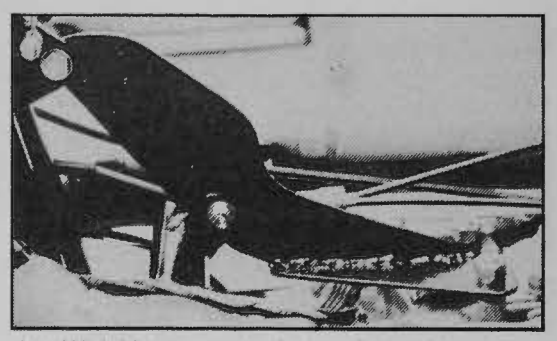
The petrol tank is always a problem on a special, and the Walsh Triton was not excepted from this general rule. The first one Joe fitted was a five-gallon Manx replica, which was all right, but it seemed to spoil the flowing line which the con-



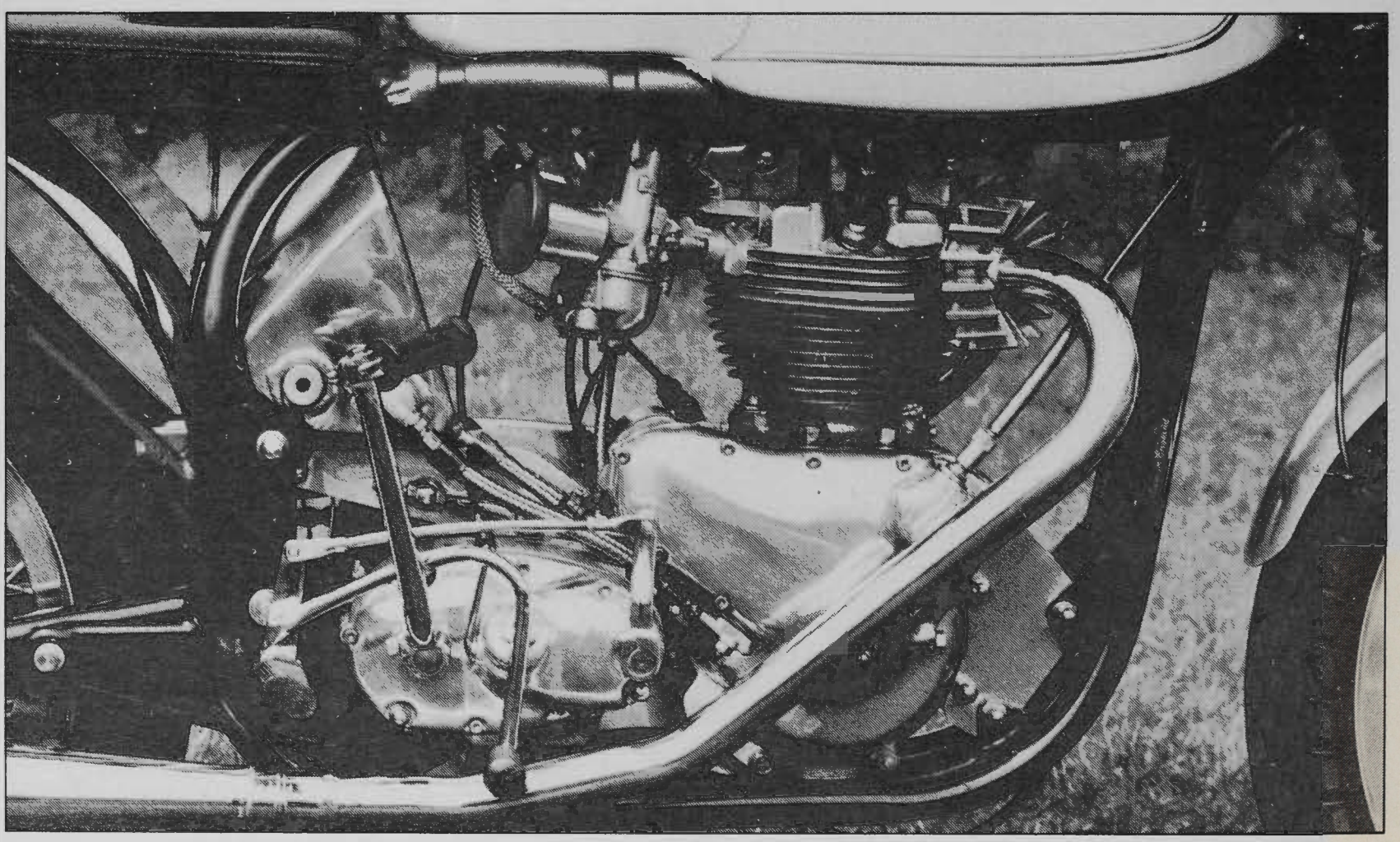
The new front frame lugs, hand made and welded on by teacher.



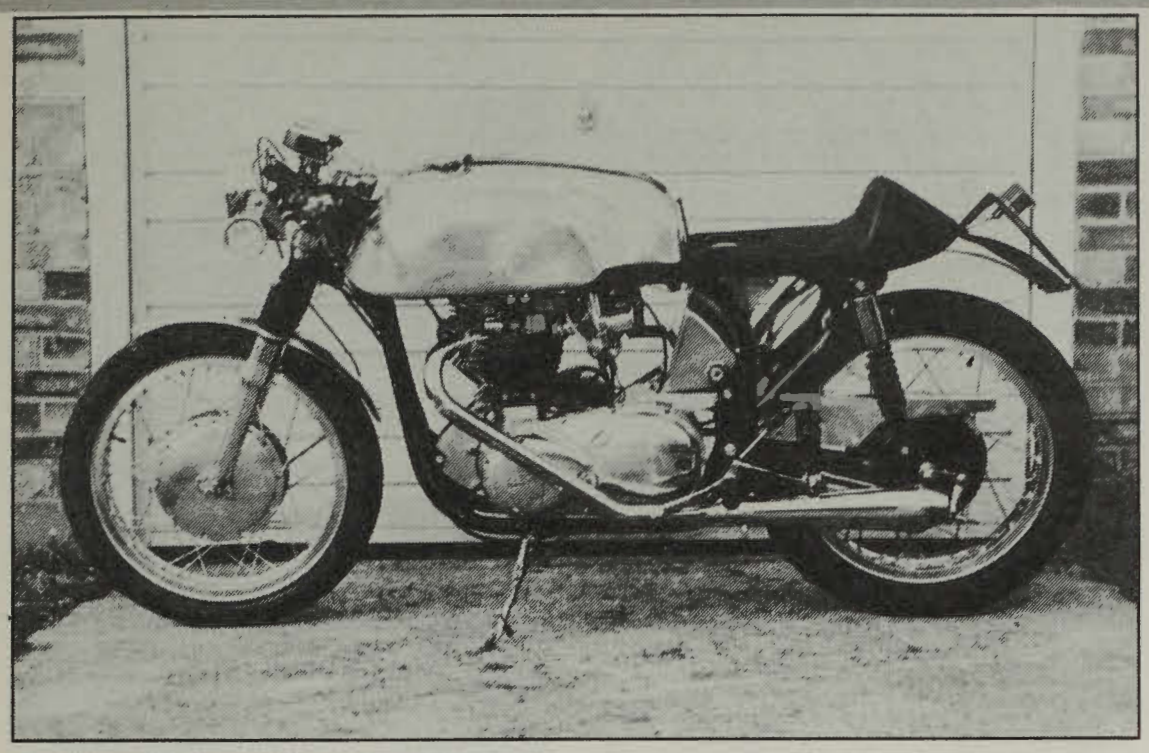
Proper brackets were welded on at the rear to support seat and mudguard.



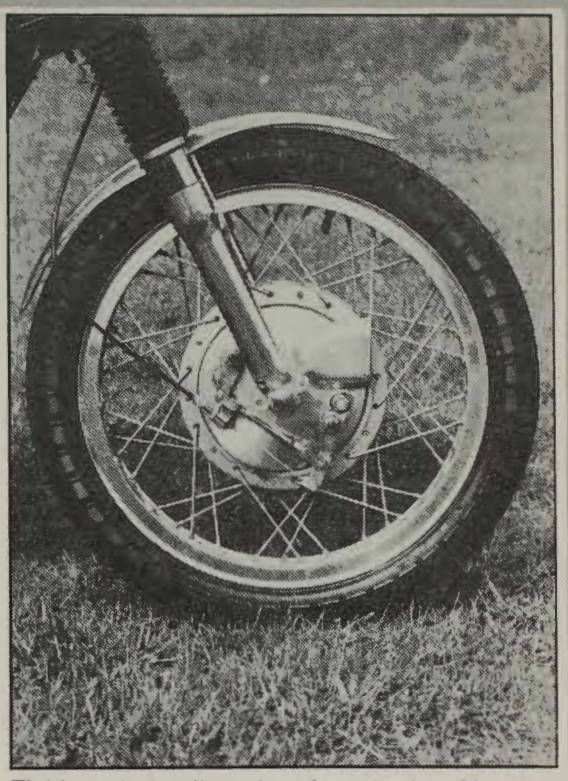
Joe Walsh's home-made head steady – an integral part of the Featherbed frame.



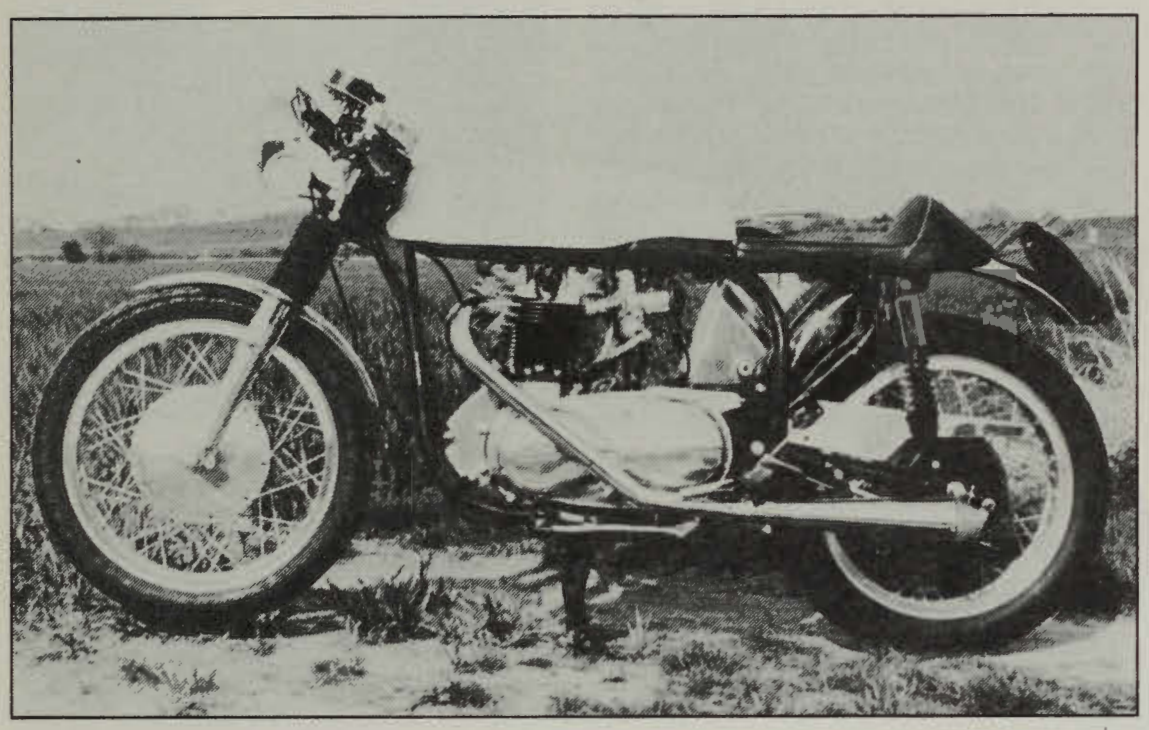
The heart of the Triton. Swept back exhausts and large finned clamps came from an MCN small ad, as did the rear sets and oil tank.



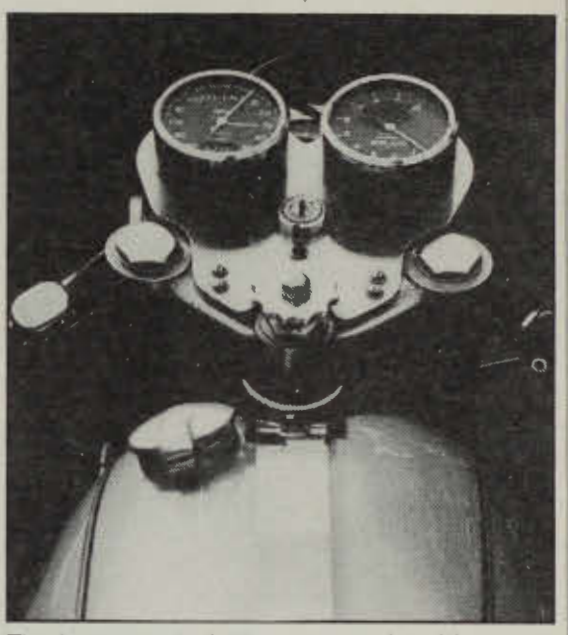
The MkI, with Humpy Manx-type alloy tank.



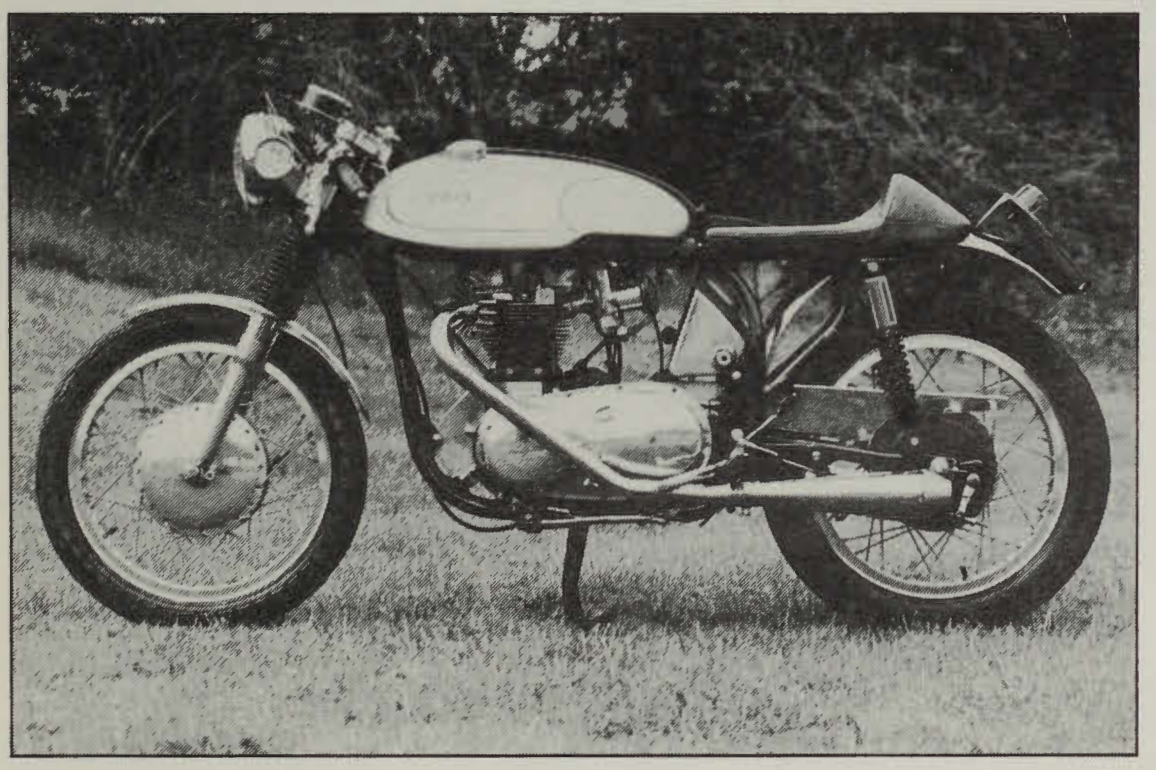
Tickle twin-leading-shoe front brake; Akront wheel rim; Walsh-made mudguard blade.



The MkII, with lowline fibreglass tank.



The instrument platten was made with a hacksaw and file; the steering damper knob on a lathe.



The MkIII – final condition.

structor/designer was seeking. Also, the two petrol taps sat so close to the carburettors that they had to be turned on and off with an electrician's screwdriver.

The next tank was a smaller fibreglass job. This improved the lines, but the petrol taps were still problematic.

Joe decided to do the decent thing. He broke his piggy bank open and took the bike, together with a cardboard template showing the exact position of the petrol tap, to Lyta Tanks in Dartford. Specifying that the finished product should not have the indentations at the front end (intended to give bikes with clip-ons greater steering lock), Joe left with high hopes. In a very short time he was summoned and lo! His every wish was granted. At last he had a beautiful petrol tank.

How I built my TRITON

The paintwork was entrusted to Mr Machine who made a faultless job of the base colour and lining and they even painted the Triton logo. It took a little time, but the job was well worth waiting for and, given the quality of work, was not over expensive.

"Once the Lyta tank went on", says Joe, "it transformed the lines of the bike, and the whole thing now blends in as I originally intended."

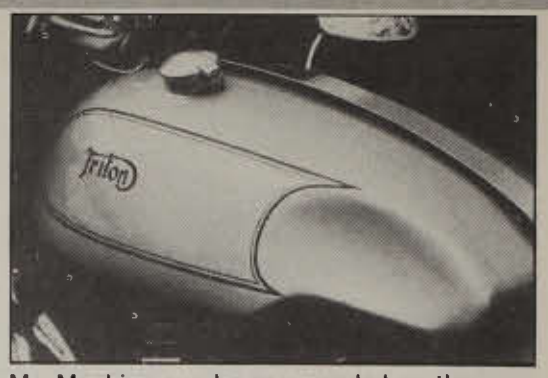
Complementing the tank is the humpy seat. This came from Newton Equipment and rests, as has been noted, on a properly brazed in bracket. There is rather a large cutaway at the front of the platform, allowing access to the oil filter cap. Unfortunately it also allowed some rather sensitive parts of Joe's anatomy to catch the lip, and now a squashy cushion fills the cutout.

That takes care of the Triton's general outline, but if a special is to look good, each and every detail must be spot on. Thus Joe made the slim front mudguard, the instrument platten (with alloy sheet, a hacksaw and a file), the steering damper knob (with a lathe and drill), the centre stand extensions together with the spindle and nut, which hold it onto the frame, and the welded on sidestand (which is adapted from a Kawasaki 750).

The wiring loom started life with the intention of supplying the needs of a Model 7 Dominator until Joe converted it to his own requirements. He also converted the 6volt alternator system to a 12 volt/Zener diode set up. He is still using the original stator and rotor, but intends to change it for a proper Mistral 12volt kit when funds allow. The battery is kept behind the gearbox (as it is on all really sporty Tritons) in a special Walsh-made carrier.

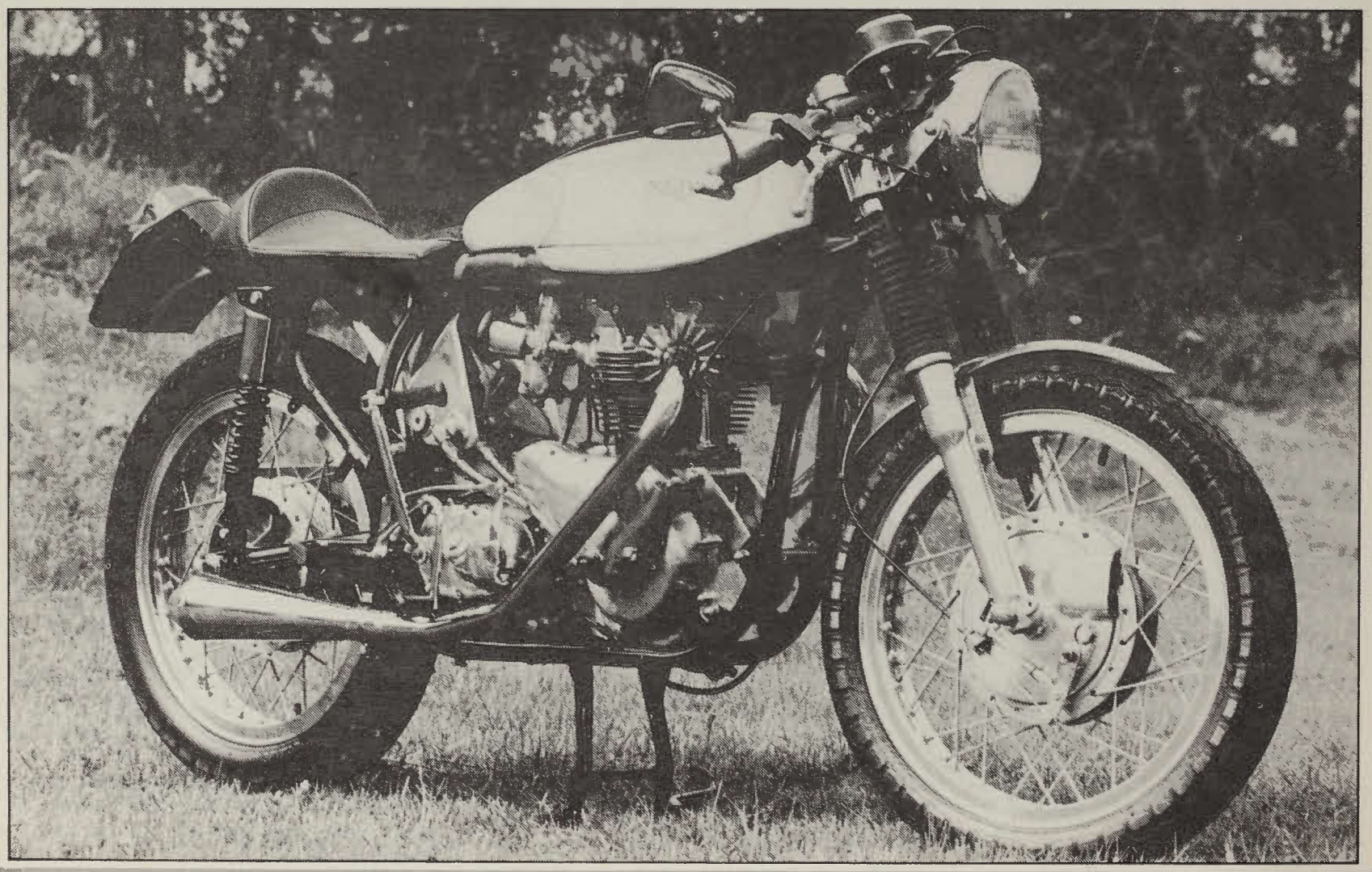
Fasteners (that's nuts, bolts, studs etc to you matey), if they are not made by the owner, were supplied by Andy Molnar in stainless steel. Other bits and pieces:– the exhaust pipes came from another small ad in MCN but quite possibly originated at Armours; silencers are universal short reverse cone megas; the chainguard comes from a Commando; and the rear dampers are Girlings. Enamelling on the frame was done by Autoserve, East Benfleet; chroming by Hockley Enterprises.

Total cost of the Triton, which was made in 1982/83, was £1,500. Does that seem a lot? Joe Walsh has the last word: "Not a bad price to pay for what is virtually a new bike, especially if it's exactly what you want."



Mr. Machine can be commended on the paintwork, lining and logo; tank is a Lyta.

Inviting . . .



Bars, brackets, headlamps etc.

- Armours, 784 Wimborne Rd, Bournemouth (0202 519409)
- Cibie, Stewkley Rd, Soulbury, Leighton Buzzard, Beds (052527 511)
- Tommaselli, Feridax, Park Lane, Halesowen, West Mids (0384 64771)
- Unity Equipe, 916 Manchester Rd, Castleton, Rochdale, Lancs. (0706 32237)
- Wassell stockists.

Carburettor specialists

- Arrow Components, 47 Chesterwood Rd, Birmingham B13
- Avon Engineering, Manse Brae, Avonbridge, Falkirk. FK1 2LU (032486 574)
- Dell Orto, 13 Boult St, Reading, Berks. (0734 598955)
- IMI Amal Ltd, Holdford Rd, Witton, Birmingham. B6 7ES (021 356 4801)

Engine Balancing

- Fred Cooper, 5 Greenwich South St, London SE10. (01 858 2239)
- Basset Down, Swindon, Wilts. SN4 9QP (0793 812331)
- Hughie Hancox, rear of 21 Bayton Rd, Exhall, Coventry. (0203 368038)
- Oselli Ltd, Ferry Hinksey Rd, Oxford. (0865 248100)

Engine plates

- Unity Equipe.

Engine Preparation

- Anglo Bike, Beenham Village, nr Reading, Berks. (0734 713382)
- Bower Forge Engineering, Lysander Rd, Bowerhill Ind. Estate, Melksham, Wilts (0225 708081)
- Fred Cooper, 8 Greenwich South St, London SE10. (01 858 2239)
- John Gleed, Banbury Rd, Hook Norton, Oxon. (0608 737429)
- Ian Griggs, 9 Sevenacres, Orton Brimbles, Peterborough, Cambs. (0733 236650)
- Clive Humphries, 14 Pomeroy Close, Canley, Coventry. (0203 471096)
- Norman Hyde, Rigby Close, Heathcote, Warwick. CU34 6TL (0926 497375)
- Ron Lewis, 72B Choumert Rd, London SE15. (01 639 3387)
- Kirby Rowbotham, 5 Finches Hill, Etching Hill, Rugeley, Staffs. (08894 4758)
- Rob Sewell, 96 Derby Rd, Loughborough, Leics. (0509 232352)
- Jack Shemans, 249 Henley Rd, Bell Green, Coventry (0203 61423)
- Les Williams, Common Lane Ind. Estate, Kenilworth, Warks. CV8 8EF (0926 54948)

Exhaust pipes and silencers

- Armours.
- Campbell Geometrics, Unit D, Burnham Rd Trading Est, Dartford, Kent. (0322 21744)
- Unity Equipe.
- Wassell stockists.

Fasteners

- Allscrews Ltd, 270/274 King St, Hammersmith, London. W6 0ST
- Custom Fasteners, Unit 3, Broad Ground Rd, Lakeside Ind. Estate, Redditch, Worcs. (0527 20200)
- Diamond Engineering, 6 Woodfield Rd, Welwyn Garden City, Herts. AL7 1JQ (07073 35141/2)
- Dave Middleton, Unit 5E, Peel Mills, Commercial St, Morley, Leeds. LS27 8AG (0532 524488)
- Andy Molnar, Scotts Hill Cottage, Walton Rd, Ware, Herts. SG12 9PH
- Thoroughbred Motorcycles, 178 Waltham Ave, Hayes, Mddx. UB3 1TE (01 573 4371)

Petrol tanks

- TA Baker, Readman Ind. Est, Station Rd, East Tilbury, Grays, Essex. (03752 79810)
- Bartel Aluminium Ltd, 25A Eden Rd, Abbotsyard, London E17. (01 251 7161)
- Lyta, Vauxhall Place, Lowfield St, Dartford, Kent. DA1 1HU (0322 20674)
- Saunders Motorcycle Engineering, Unit 13, Stella Gill Ind. Estate, Chester-le-Street, Co. Durham. (0385 889047)

Spare Parts: Norton & Triumph specialists

- Andover-Norton Ltd, West Portway, Andover, Hants. SP10 3LF (0264 61411)
- Blays, 192 Heath Rd, Twickenham, Middlesex. (01 894 2103)
- Camelford Bike Bits, 35 High St, Camelford, Cornwall. (0840 213483)
- Ray Fishers Brit Bits, 185 Barrack Rd, Christchurch, Dorset (0202 483675)
- A Gagg & Son, 106 Alfreton Rd, Nottingham. (0602 786288)
- Richard Hacker Motorcycles, 18-19 Green Lane, Penge, London SE20. (01 659 4045)
- Terry Hobbs Motorcycles, 2 Camden St, Sherwell, Plymouth, Devon (0752 662426)
- Jacksons, Edward St, Chorley, Lancs. PR6 0RE (02572 64151)
- JH Motorcycles, 86 Leavesden Rd, North Watford, Herts.
- Bob Joyner & Son, Wolverhampton Rd, Warley, West Midlands. (021 552 2577)
- Kays of Ealing, 10 Bond St, London W5 (01 567 2387)
- L & D Motors, 367/369 Bath Rd, Brislington, Bristol. (0272 770223)
- Merton Motorcycle Spares, 154 Merton Hall Rd, London SW19 3PZ (01 542 9250)
- Newton & Smyl, 164 Merton High St, London SW19. (01 540 1677)
- RJ Motorcycles, 18-20 Hotel St, Coalville, Leics. LE6 2EP
- Carl Rosner Motorcycles, Station Approach, Sanderstead, South Croydon, Surry. (01 657 0121)
- TC Motorcycles, 62 Northfield Rd, Harbourne, Birmingham (021 427 6068)
- TMS, 92 Carlton Rd, Nottingham. 0602 503447)
- WE Wassell Ltd, Prospect Rd, RW,02Burntwood, Staffs. WS7 0AU (manufacturers of pattern parts).

Spare Parts: Norton specialists

- Fair Spares, 37 Albion St, Rugley, Staffs. (08894 3974)
- Joe Francis Motors, Footscray Rd, New Eltham, London SE9. (01 850 1373)
- Gander and Grey, 594 Romford Road, Manor Park, London E12. (01 478 6062)
- Mick Hemmings Motorcycles, 36-42 Wellington St, Northampton (0604 38505)
- Minters, 1 Cornmarket, Thame, Oxon (084421 2722)
- RGM Motors, 206-8 Rectory Rd, Gateshead, Tyne and Wear (0632 784460)
- Russell Motors, 125-127 Falcon Rd, Battersea, London. SW11 2PE (01 228 1714)
- Wilemans Motors, Siddals Rd, Derby (0332 42813)
- Fredric Williams, 7 Tudor Close, Bromham, Bedford. MK43 8LB (0234 824117)

Spare Parts: Triumph specialists

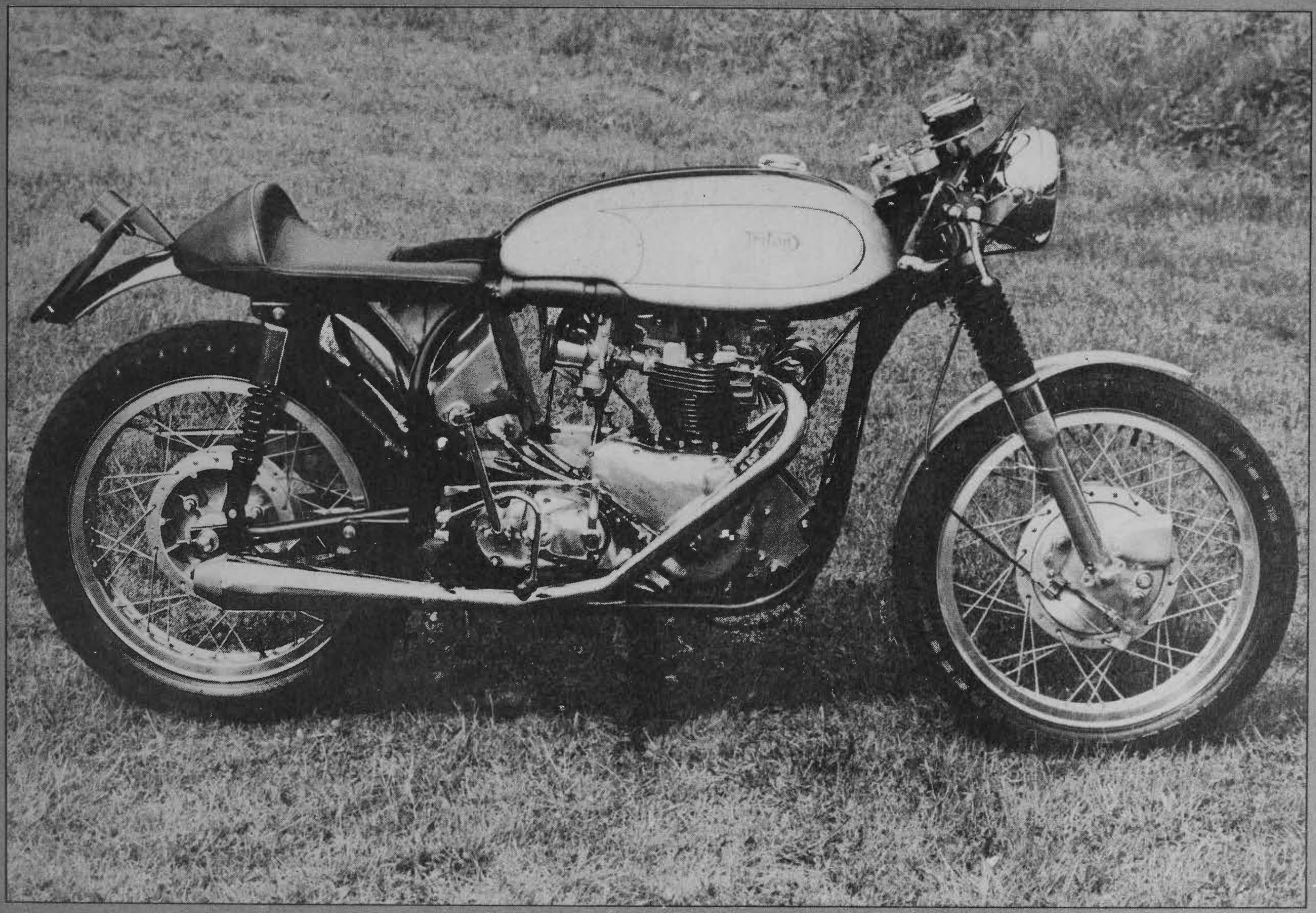
- Reg Allen, 37-41 Grosvenor Rd, Hanwell, London. W7 1HP (01 567 1974)
- Anglo Bike, Beenham Village, nr Reading, Berks. (0734 713382)
- A Bennett and Son, Station Street Garage, Atherston, Warks. (08277 4076)
- Allan Jefferies, 206 Saltaire Rd, Shipley, West Yorks. (0274 587415)
- Minters, Oxon. (see Norton)
- Hamrax Motors Ltd, 328 Ladbroke Grove, North Kensington, London W10. (01 969 5380)
- Mick Hemmings, Northampton. (see Norton)
- Kidderminster Motorcycles, 60-61 Blackwell St, Kidderminster, Worcs. (0562 66679)
- Laceby Motorcycles, Caister Rd, Laceby, nr Grimsby. (0472 71319)
- VM Miller Motorcycles, 21B Marina, St Leonards, Kent. (0424 437719)
- Pete Ostler Motorcycles, 32 Beckside North, Beverley, North Humberside. (0482 862517)
- Owens Motorcycles. 7 Poyser St, Wrexham, Clwyd. LL13 7RP (0978 266084)
- Rockerbox, 31 The Street, Wrecclesham, Farnham, Surrey. (0252 722973)
- Roebuck Motorcycles, 354 Rayners Lane, Pinner, Middlesex. (01 868 123)
- Carl Rosner, Surrey. (see Norton)
- Triple Cycles, 228 Henley Rd, Ilford, Essex. IG1 2TW (01 478 4807)
- Tri-Supply, 2 Kemp Rd, Winton, Bournemouth. (0202 514446)
- Tudor Motorcycles, 100-102 High St, Houghton Regis, Dunstable, Beds. (0582 606713)
- Vale-Onslow Motorcycles, 104-116 Stratford Rd, Birmingham. B11 1AW (021 772 2062)
- Les Williams, Common Lane Industrial Estate, Kenilworth, Warks. CV8 8EF (0926 54948)
- Wilemans Motors, Derby. (see Norton)
- Wilsons Motorcycles, 9 Ellingham Close, Hemel Hempstead, Herts. (0442 58001)

Triton and Specials Specialists

- Cornucopia Enterprises, 62-64 Ripple Rd, Barking, Essex. (01 594 3986)
- Dresda Autos, 137-139 Putney Bridge Rd, London. SW15 2PA (01 870 3934)
- Merton Motorcycles, 154 Merton Hall Rd, Wimbledon, London SW19. (01 542 9250)
- Shokks, 165 Malvern Rd, London NW6. (01 624 4871)
- Unity Equipe, 916 Manchester Rd, Castleton, Rochdale, Lancs. (0706 32237)

Wheel Building

- EC Booth, rear of 3 Copperfield Rd, Coventry. (0203 454148)
- The Central Wheel Co, Lichfield Rd, Water Orton, Birmingham. B46 1NU (021 747 5175)
- Clarkes Industrial, 27-31 Carlton Rd, Nottingham (0602 52415)
- Ron Compton, 109 Brownhill Rd, Catford, London SE6. (01 697 2779)
- D & G Engineering Design, 25-26 Brimble Hill, Wroughton, Swindon. SN4 0RQ (0793 812708)
- Essex Wheels (Derek Yorke), Wethersfield Rd, Sible Hedingham, Essex. (0787 60230)
- Alf Hagon, 350 High Rd, Leyton, London. N10 6QQ (01 556 4447/9200)
- John Hughes, Lower Rd, Harmer Hill, Shrewsbury. (0939 290606)
- Bill Lancaster, 136 High St, Macclesfield, Cheshire. SK11 7QE
- W Lomas, 183 Lees Rd, Oldham, Lancs. (061 633 0966)
- Reg Mills Wire Wheels, Wareham Rd, Lychett Matravers, Poole, Dorset. PH16 6DS (0202 623126)
- Molray, Dover St, Maidstone, Kent. (0622 20012)
- Motor Wheel Service & Repair Co, 71 Jeddo Rd, London. W12 9ED (01 749 1391/743 3532)
- JE Nunn Ltd, 113-117 Brighton Rd, Surbiton, Surrey. (01 339 2455)
- R Phillips, Unit 6, Britannia Works, Rolf St, Smethwick, Warley, W Midlands. (021 558 5942)
- Rossendale Wheels, Grange Works, Burntley Rd, Rawtenstall, Lancs.
- Rightwheel, 64 Wadham Rd, Putney, London SW15. (01 874 7708)
- Stanhill Wheel Building Co, Croft Garages, Haywood St, Leek, Staffs. (0538 37372)
- Roy Thersby, 26 Bowersfield Lane, Stockton, Cleveland. (0642 604768)
- C Wilde & Son, 103 Roundhay Rd, Leeds. L88 5AJ (0532 491 856)



How to build a TRITON: The end product