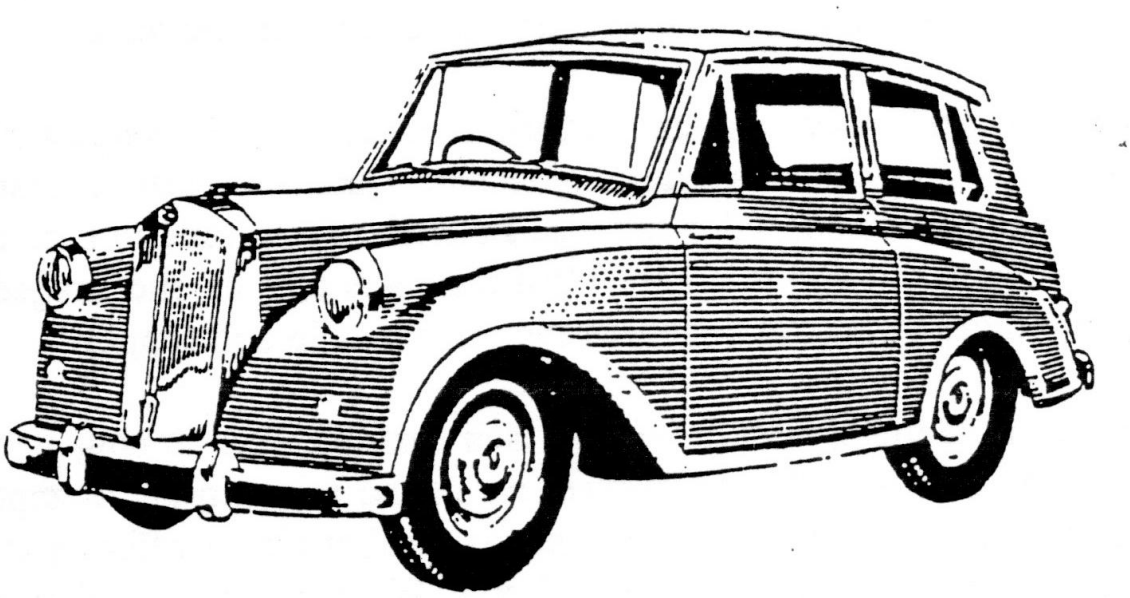


THE TRIUMPH MAYFLOWER CLUB

TECHNICALITIES: RUNNING GEAR, STEERING, SUSPENSION, BRAKES, DRIVE

February 2019 | Paul Burgess

CONTENTS

Rear Springs – Flower Power, Summer 1991

If you are replacing or repairing your rear springs be aware that at least three versions have been used on the car and the commission number becomes quite important.

- After No 451: Longer springs were fitted (eye to eye) 45.5".
- After No 928: Stiffened springs, thicker leaf fitted.
- After No 3071: Ten leaves changed to eight thicker leaves.

Overhauling the Front Suspension – Flower Power Spring 2015

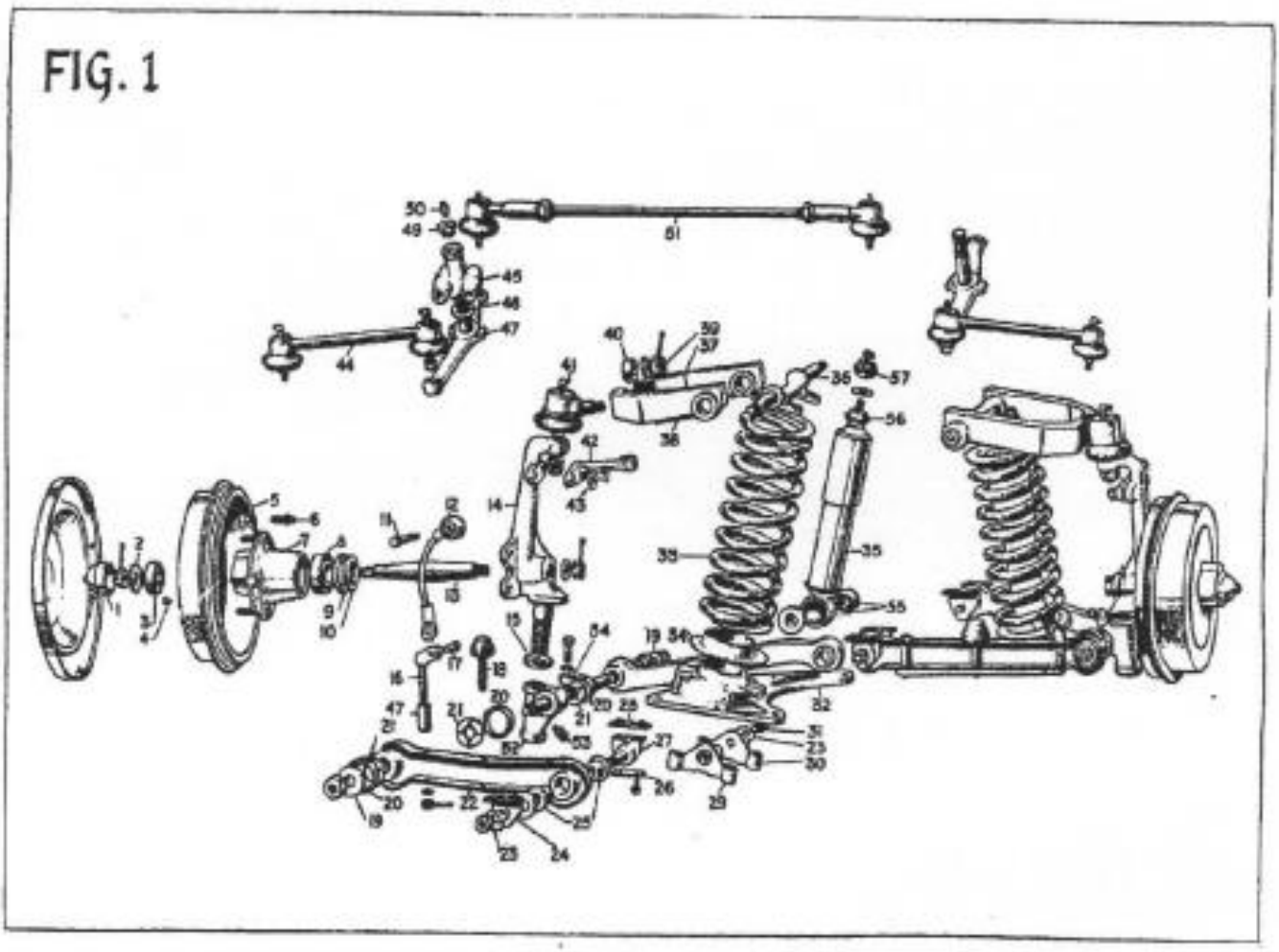
1. INTRODUCTION

You can not only repair but also improve your suspension, by replacing the rubber bushes fitted to the inner ends of the lower wishbone arms with the arrangement of nylon and steel bushes used on the TR3. An article on this subject by Robin Bussell appeared in "Flower Power" No. 9, but as members who have joined since 1976 are unlikely to have seen this, it is reprinted below, together with some other material which will (I hope) be useful.

2. GENERAL ARRANGEMENT OF FRONT SUSPENSION

Fig. 1 is reproduced from the Spare Parts Catalogue, and Fig. 2 clarifies the arrangement of bushes and washers upon either side of the trunnion; no alteration to these is possible. The anti-rebound cable assembly (Nos. 11, 12, 16 and 17 on Fig. 1) was not fitted to later Mayflowers for the home market, so is presumably not essential. In any case it is now unobtainable.

FIG. 1



3. REMOVAL OF FRONT SUSPENSION UNIT (From Workshop Manual)

Note; The numbers quoted refer to those shown In Fig. 1.

(a) Jack up the front of the car, remove road wheel, and place support under jacking bracket, afterwards withdrawing the jack.

(b) Disconnect steering outer tie rod (44) from the steering lever (42).

(c) Compress front spring (33) by applying a lifting jack under brake drum (5) .

(d) Remove locking nut on the upper end of the shock absorber (35), whilst holding the larger nut on this spindle with a suitably thin spanner.

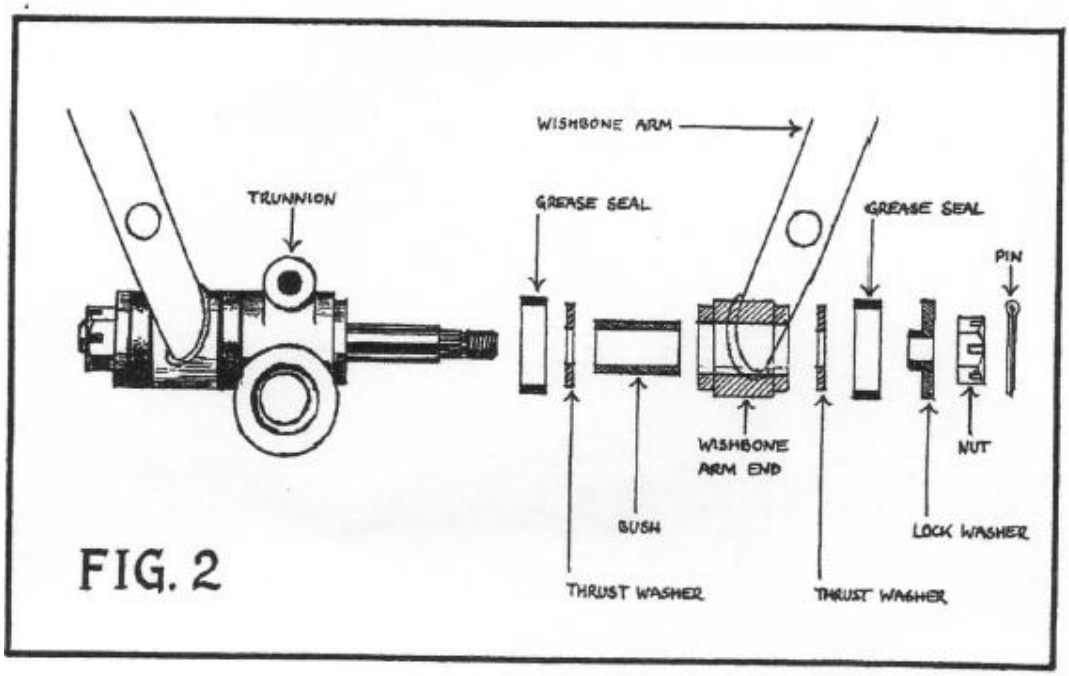


FIG. 2

(e) Remove the four plain nuts on the studs which secure the shock absorber. These should not be confused with the 6 castellated nuts which secure the spring pan.

(f) The shock absorber (35) can now be driven down through the spring pan (32) with a hide-faced hammer.

(g) Remove the split pins which secure the six spring pan securing nuts, and REMOVE THE CENTRE BOLT ON EACH SIDE AND REPLACE WITH GUIDE PINS, leaving the other four for removal, as directed in next operation .

(h) Remove pack and place under centre of spring pan with a suitable packing, as shown in Fig. 3 to provide clearance on the four shock absorber mounting studs. NOTE: One or two guide pins used.

(i) Remove the four spring pan securing bolts not so far withdrawn, and lower jack, thus releasing spring pan. With all but early models a rebound cable (12) is attached to a special bolt (16) which is substituted for the front outer spring pan securing bolt, and this bolt will then be left attached to the cable. NOTE; It is most important that the inner end of the cable shall be free to rotate on the attachment bolt. Failure to allow for such movement will ultimately lead to the collapse of the cable.

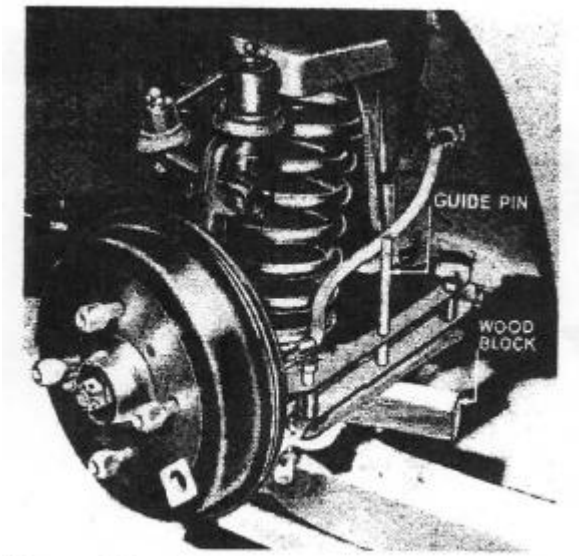


Fig. 3. Method of supporting spring pan whilst removing four outer securing bolts

(j) Disconnect the brake hose from the body valance. This detachment necessitates the removal, in the case of the right hand side of the car, of the two lower hydraulic unions and barrel nut to allow access to the nut which secures the hose to the valance, as shown in Fig. 4. The banjo union on the left of the car has only one union to remove in addition to the barrel nut. NO ATTEMPT SHOULD BE MADE TO TURN THE HOSE BY ITS HEXAGONAL EXTREMITIES, as such a procedure will destroy the hose. The hexagon sizes on these items are of Whitworth specification.

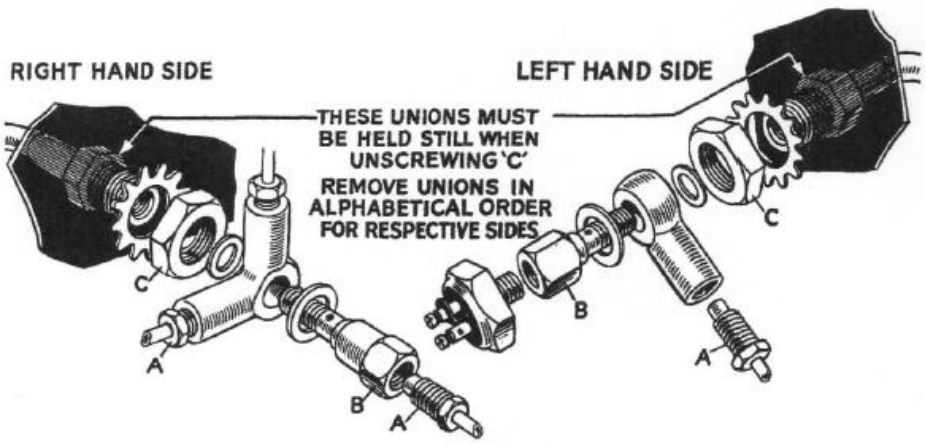
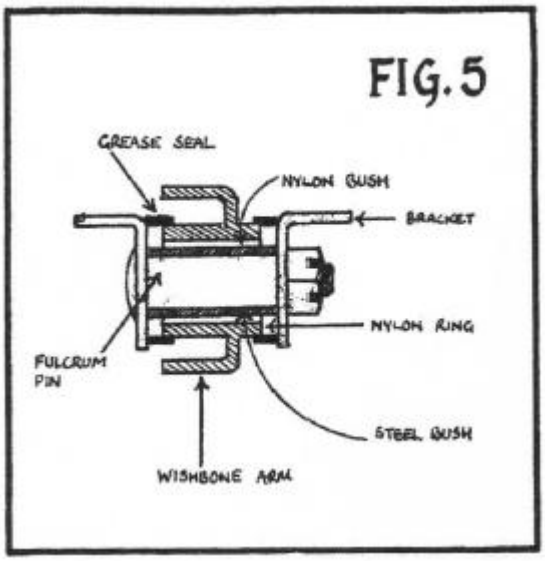


Fig. 4. Front brake hydraulic pipe connections

(k) Release the locking plates (26) which lock the four bolts on each side of the bottom inner fulcrum bracket (24 and 27) and remove these bolts, thus releasing the bottom wish-bones (22) from the chassis side member.
(l) To complete the removal of the assembly, withdraw the four bolts which secure the top inner fulcrum bracket (26) to the spring abutment bracket. The two rear bolts are provided with loose nuts, but the outer pair screw into captive nuts.
(m) Re-assembly of the front suspension assembly Is the reverse procedure to the foregoing, with the additional necessity of 'bleeding" the brakes upon completion of re-assembly and the employment of guide pins as shown in Fig. 3 when fitting the spring and pan.

4. ALTERNATIVE LOWER WISHBONE INNER BUSHES FOR YOUR 'FLOWER'

A Mayflower weakness that MOT inspectors often delight in pointing out is the tendency of the black rubber bushes at the inner end of the lower wishbones of the front suspension to disintegrate. The TR2 sports car, with virtually identical suspension, suffered from the same problem—only more so in that the rubbers had rather more vicious stresses to cope with. On the TR3 the rubber bushes were changed to an arrangement of steel lined nylon bushes and nylon washers. These modified bushes (see Fig. 5) can be fitted to the Mayflower.



Each set for one bushing comprises:—
1 steel bush, or liner;
1 nylon bush;
2 nylon washers;
2 rubber dust seals.

For an all-round replacement of the bottom inner bushes, four sets are needed. The upper inner bushes can also be replaced in the same way, but here the rubber ones seem to last fairly well and were retained even on the TR3 and TR4 models.

To fit, first of all dismantle the old rubber bush in the normal way. Then clean all the crud and muck off the fulcrum spindle until the steel liner of the new bush is an easy fit. Fit the rubber sealing rings on to the nylon washers. Clean out the eye of the wishbone arm (make a good job of this) until the nylon bush can be pressed into it. Check that the bush has not been distorted so that the steel liner is difficult to introduce. If it is, you've left some crud in the eye—CLEAN IT AGAIN I To assemble, and to a certain extent this depends on how much you have dismantled the mounting brackets and so on, the liner goes on the fulcrum spindle after a light smear of grease, then one of the nylon washers is slid on to the liner at one end, followed by the wishbone eye containing the nylon bush also lightly smeared with grease, next the second nylon washer. Discard the metal washer, put on the mounting plate, and bolt up. Remember to replace all tab washers or use Nylon nuts.

Front Suspension Rebuild – Ed Copson, Flower Power, Summer 2002

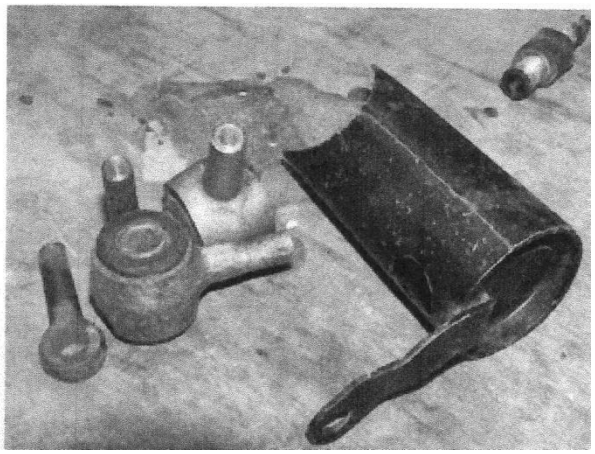
Having just finished overhauling my Mayflower's front suspension the following may be of help to readers.
Probable components needed:
Bottom trunnion sub-assembly (2 of 101557), front suspension repair kit (2 of), 3/8 UNF tap, 3/8 UNF die, sturdy vice, good tool kit and hydraulic trolley jack. I estimate a good mechanic would take just over a day to complete this job with all components at hand and no overzealous cleaning and painting.
Stripping down:
Jack up car, place sturdy stands near the master cylinder and remove wheels. Throw the wheels under the centre of car for extra safety.

1) Remove hub and bearing (keep them clean).
2) Remove back plate and tie it up out of the way, do not let it hang on the pipe.
3) Remove track rod, use a ball joint remover. In the absence of a splitter a sharp smack with a heavy hammer at the end of the arm will shock the taper out
4) Place a trolley jack under the suspension and just take the weight of the car. Now start to remove the shock absorber (SA) by removing the lock nut at the top of the SA and then the other nut. Lower the jack, the SA may come away from the top a little.

5) Remove the four bottom nuts holding the SA. The SA can now be withdrawn. In the event of it being rusted in, leave the SA in place it won't hurt, it can be stripped later.
6) The next item is the dreaded coil spring. Mostly undo the six nuts holding the spring pan. The split pins will probably be rusted in and have to be sheared off and drilled out later. Place the trolley jack under the pan and take the weight then finally remove the nuts. Lower the spring down until all the tension is released. You may need to tap the bolts up and out of the way to save jamming.
7) Remove the eight bolts holding wishbone brackets to the chassis, this should now drop free.
8) Partly remove the nut from the upper wishbone ball joint and split with either ball joint remover or striking it with a big hammer.
9) The stub axle should now drop free.
10) Now remove the top wishbone by undoing the two studs and two nuts and bolts securing it.
11) The top wishbone is further dismantled by removing the ball joint and tapping apart the two halves.
12) Check the SA, it should have resistance in both up and down directions.
13) Reassembly is the reverse of the dismantling.
14) Remove sheared split pins from all bolts. A good idea is to use the castle nut as a guide for the drill. Clean up all threads with the 3/8 UNF tap and die; useful to have also 5/16 and 7/16 tap and dies.
15) Push the bush out using the extractor tool and a sturdy vice, the bushes can be stubborn.
16) Clean up the hole, add lubricate, turn the extractor tool around, slide the new bush onto it and this time use it to guide the bush and keep it square whilst pressing it home. Don't forget to line the oil hole up.
17) Build up the stub axle. Screw the trunnion all the way onto the stub axle and then undo it about one turn. The wishbone bushes should be greased on assembly, the nuts on the ends of the shackle should be adjusted to give .004” to .008" end float.
18) Build up the inner fulcrum brackets with the new rubber bushes. They are difficult to assemble dry, do not use oil/grease, chalk if you have it, but I found I had to cheat and use WD 40.
19) Build up the top wishbone on bench and then fit it to the car.
20) Assemble the stub axle to the car.
21) Insert the coil spring and jack up into position. Two long threaded bolts are very useful for pulling it into position.
22) Finally insert the shock absorber and bolt into position.

Front Suspension Rebound Cable Assembly - Russ Hoenig, Flower Power Summer 2013

After we got TT20192, we began inventorying parts that we had from it and TT6215. One unique part was shown on page 12 of the Spare Parts List (SPL) as "103409, Rebound Cable Assembly". TT6215 had them as they appeared in the SPL with a cast eye on top and the bottoms secured with compression sleeves using some type of aircraft cable swaged onto the lower suspension eye bolt. Of course all this was rusted solid and the cables were broken.



TT20192 had the same top pieces but the bottom assembly had the cable swaged onto smaller cast eye bolts. Our luck was good as there were all four ends and one that still had the cable intact (but broken, hanging on by several strands of wire).

During restoration, there were many e-mails to TMC asking about parts availability and alternative sources. I remember the response about the "Rebound Cable" as that "these are not available, not needed, and most

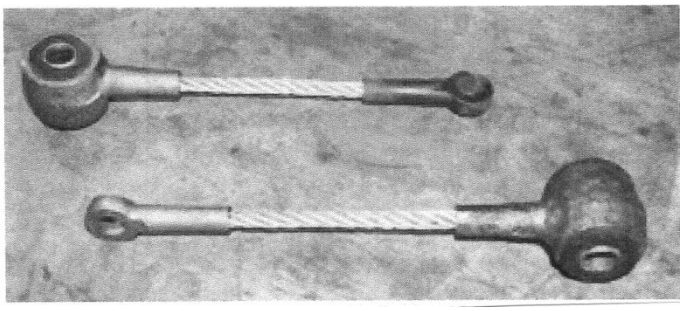
Mayflowers no longer had them". That was like a "red flag" telling me that someday, TT20192 would have them. For what, I did not know.

After several years of waiting patiently on the shelf, the ends came down, the exposed cable length measured 2⅝". The cable diameter was hard to measure, but was greater than 3/16" at about .210"(which is not metric). I obtained a length of 7/32" (.219) 7 x 32 aircraft cable.

One lower eye bolt end was super heated to see if we could pull the cable out which was negative. This particular end was put in a vice and was easily drilled out and we ran out of cable at 3/4" depth. When another end was drilled, nothing happened, the various drills just spun. We were not going to super heat the ends with the rubber bushing, so another method to removing the cable had to be used.

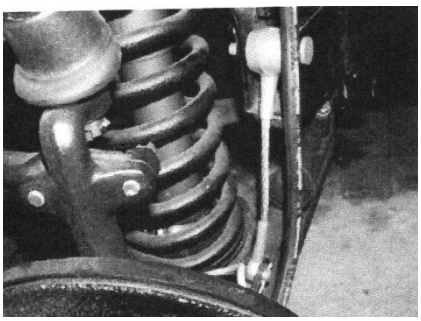
We put the remaining ends on a lathe and "drilled" them out, using the tail stock, first with a 3/16" centre cutting end mill and then cleaned them up with a 7/32" end mill, all the depths ended up being approximately 3/4". These two 3/4" holes, plus the 2⅝" exposed cable length gave a total uninstalled cable length of 4 ⅛". With some careful alignment and twisting, the cables were inserted into the ends.

The question next was how to swage or secure them in place? The first thought was to silver solder or braze them, but after thinking and looking at them for several days, got the hardness tester out and found that the ends were very soft.



I took a chance by placing one lower eye bolt end on the flat end of my vice and with a hammer, started working the metal starting about 3/4" up from the end and with continually rotating the end and hitting moderately hard. By the time I got to the end, there was no way I could pull the cable from the eye bolt. A small file cleaned up any marks on the end, but there were surprisingly few. All four ends were done this way.

The test was installing them on the car and putting strain on them. Note the top pin goes in from the front and the lower pin gets installed from the rear. I added a non standard, very thin shim washer between the frame and eye bolt to protect the paint from the cotter pin. So far they have held and they add an unusual original feature to the car.



In hind sight and thinking from an engineering standpoint, these cables must have been added to minimize the body roll that I've always read about. Any added thoughts will be most appreciated.

Front Suspension Bushes – Flower Power Spring 1993

A Mayflower weakness that MOT inspectors often delight in pointing out is the tendency for the black rubber bushes at the inner end of the lower wishbones of the front suspension to disintegrate. The TR2 sports car, also suffered with a similar problem - only more so due to greater performance and hence greater stresses coming into play.

On the TR3 the lower rubber bushes and white metal washers were changed to an arrangement of steel lined nylon bushes and nylon washers. These modified bushes can be fitted to the Mayflower and the TR2. The upper bushes can also be replaced, but they do not endure the same stresses as the lower bushes and therefore remained in rubber on the TR3.

Each set of replacement bushings comprises 1 steel bush or liner, 1 nylon bush, 2 nylon washers and 2 rubber dust seals. You will need 4 complete sets to do all the lower bushes on the Mayflower.

To fit, first dismantle the old rubber bush in the normal way. Then clean the fulcrum spindle up thoroughly until the steel liner of the new bush is an easy fit. Fit the rubber sealing rings onto the nylon washers. Clean out the of the wishbone arm (make a good job of this) until the nylon bush can be pressed into it. Ensure the nylon bush has not been distorted so that the steel liner is difficult to introduce. If it is you must clean the eye again, but even better this time.

To assemble, the liner goes on the fulcrum spindle after a light smear of grease, and then one of the nylon washers is slid onto the liner at one end, followed by the wishbone eye containing the nylon bush, also lightly greased, then the second nylon washer. Discard the old metal washer, put on the mounting plate and bolt up. Remember to replace all the tab washers. MOT inspectors love to point out unsecured nuts (That describes most of us).

Steering Idler Box Adjustment – Flower Power

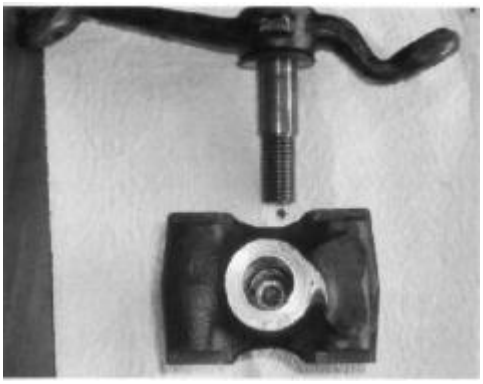
Some readers may be unaware that there is a degree of adjustment available in the steering idler box if it is worn. Try removing the box assembly, unscrewing the arm pivot and cleaning the whole unit. Grease and reassemble, tightening the arm pivot up as far as it will go, compressing the rubber grease seal — then back off until free movement is obtained.

This may well cure the problem. If it doesn't then the unit will need to be re-bushed or replaced, but it's worth a try.

Slack steering – Terry Snow, Flower Power, Winter 2015

After just buying from the club the last idler assembly I went about trying to refurbish the old one. The centre does in fact unscrew but does look as if it is welded in.

After taking to a local engineering works they skimmed the shaft and put in a bronze bush after reboring the casting. The result is an as new assembly and all for £20. Well worth the effort if you have a slack steering linkage problem.



Removing Steering Wheel – Standard Car Review 1951, Flower Power Winter 1990, Spring 2000

To remove steering wheel we refer to sketches 4, 5 and 6. First remove the three screws indicated in steering wheel hub, and gland nut at bottom of steering box. The complete centre control for horn and trafficator switches can then be withdrawn after the connections for the horn and trafficator wires, which pass through the centre of the stator tube, have been detached at the lower end. Within the steering wheel hub will be found a large nut which must be removed. The wheel is then free to be withdrawn from its taper and splines. A proper extractor should be used for this as tapping on the wheel hub may easily damage the hub, unless great care is taken.

FIG. 4

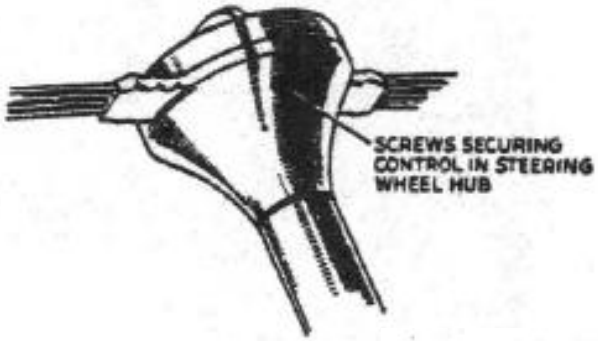


FIG. 5

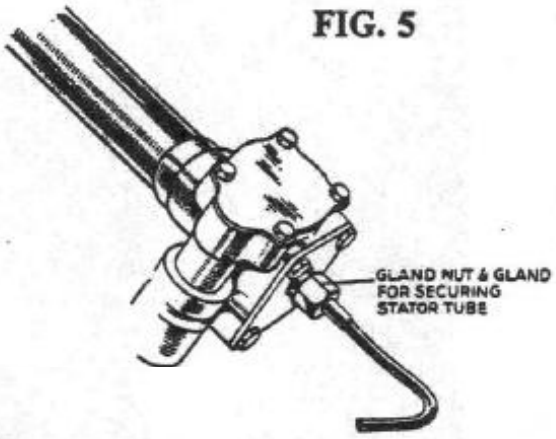
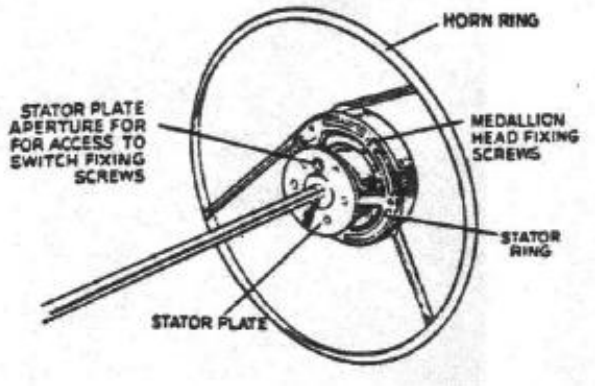


FIG 6.



With the steering wheel removed and securing clamp C slackened (Figs. 1 and 2), the whole unit can be lifted, *B* turned to desired position and all parts then replaced. If difficulty is found in threading the electrical wires through the stator tube a wire may first be threaded through, the wires attached to this and pulled through like a cleaner in a rifle barrel.

Removing the Steering Wheel – Mike Cutler, Flower Power, Winter 2018

Removing the Mayflower steering wheel is an easy task ***but*** you must follow the following points; otherwise you will have a broken centre section.

Firstly, the centre Bakelite section is fixed to a stator tube that goes the whole length of the steering column. It is held in place by a nut and olive at the base of the column (just like a gas fitting). ***Do not try and prise the centre*** from the steering wheel, or at the very least you will end up smashing the internal mechanism!

Unbolt the nut at the bottom of the column, disconnect the electrical wires and attach a stiff wire to the electrical cable (at least the length of the column). Do not undo the four bolts at the base of the column, as they retain a number of ball bearings which will drop out all over the garage floor!

Now, this is very important: unscrew the three tiny grub screws that are in the side of the steering wheel (difficult to see but imperative to remove) — they need to be sufficiently out to allow the centre Bakelite section to pull up. Do not hit the stator tube at the bottom to push it up — this will smash the indicator and horn mechanism.

Gently ease the centre section up from the steering wheel — ***do not prise*** or use too large a force; it should come up with gentle force, but if not, remove the three grub screws completely and put them somewhere safe. Once you have drawn the centre section and stator tube up, together with the wire you have attached — this is important for the reverse procedure.

Completely remove the centre stator tube and the wire you have attached. With a large socket undo the steering nuts. Gently pull the steering wheel off the column. If it is stubborn, use a puller, or gently tap the underside (not the best way, though); rocking will also help, plus a liberal use of easing oil. Try not to damage the bottom of the steering wheel.

Reversing the procedure is easy: Replace the wheel and tighten, thread the attached wire down the steering column until it emerges at the bottom, slide the stator tube down the column. Replace the grub screws in the wheel and fit the holding bolt and olive at the bottom. Reconnect the electrical wires.

Hope it goes well for you. Remember: do not use force; put the hammer away! If it's stubborn, you need to check again that all nuts and grub screws are out. If y o u want to disassemble the Bakelite centre . . . Take a good look first; it's full of springs and connections.

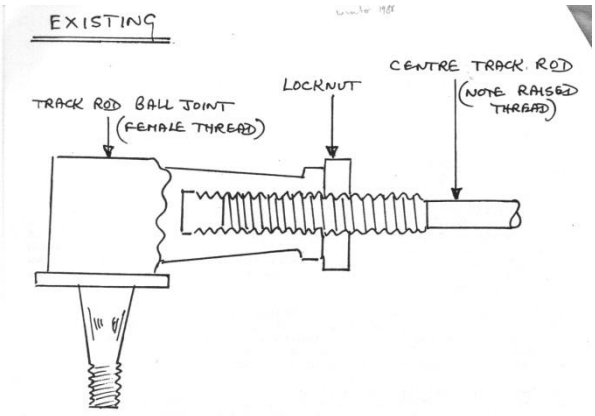
Another story perhaps!

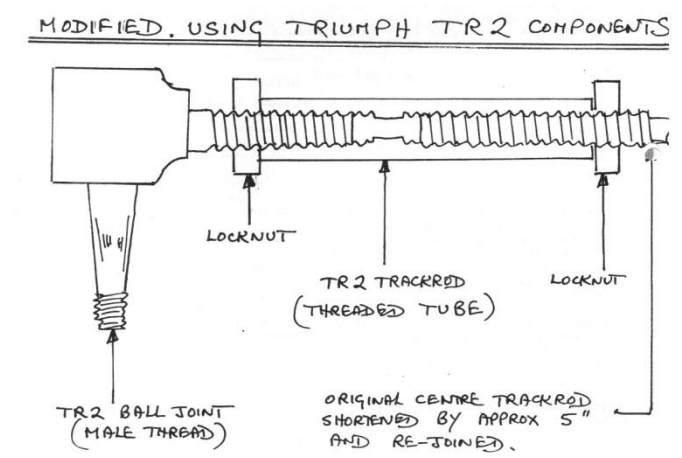
Solving The Track Rod End Shortage – Alan Bonnick, Flower Power Winter 1988

Alan was unable to find a set of track rod ends and so was forced to an alternative solution. Readily available parts were found at a Triumph specialist but they were for the similar but different TR2. Triumph TR2 track rod ends have the same taper and dimensions as the Mayflower components. However, the fittings are male threaded whereas the Mayflower are female!

The problem can be overcome by purchasing a pair (RH & LH thread) of TR track rods which are only four inches long. These can be screwed onto the Mayflower track rod and the ends inserted. This makes the assembly about five inches too long, so the rod must be cut, five inches cut out and the rod re-joined. Remember to leave about half an inch each side of threaded tube for tracking adjustments.

Also an additional pair of locknuts (RH & LH thread) will be required to positively lock the additional threaded tube.





Tracking your Triumph Mayflower – Ed Copson, Flower Power Winter 2012

In my capacity of Technical Advisor for the club I was asked for information on how to track and adjust the Mayflower tracking with radial tyres. I hope that this article may just help some other members.

The tracking should be 1/8 inch in with cross ply tyres, radials were not fitted to our cars but I would guess it to be 1/8, the same.

It is a good idea to check for wear first, so I would go through the following routine:

1) Check for wear on the steering linkages. Get someone to shake the steering wheel gently whilst you look at the four ball joints on the drag link and track rod ends.

2) Jack one wheel up and check for wear on steering and suspension joints by shaking the road wheel sideways and up and down.

3) Lower the car onto jack stands and jack under the suspension just to take a little weight and again check for wear on the suspension joints.

4) A little movement on the tapered wheel bearings is okay and some movement can be taken out by removing the dust cap, split pin and tightening the nut a little to the next castellation.

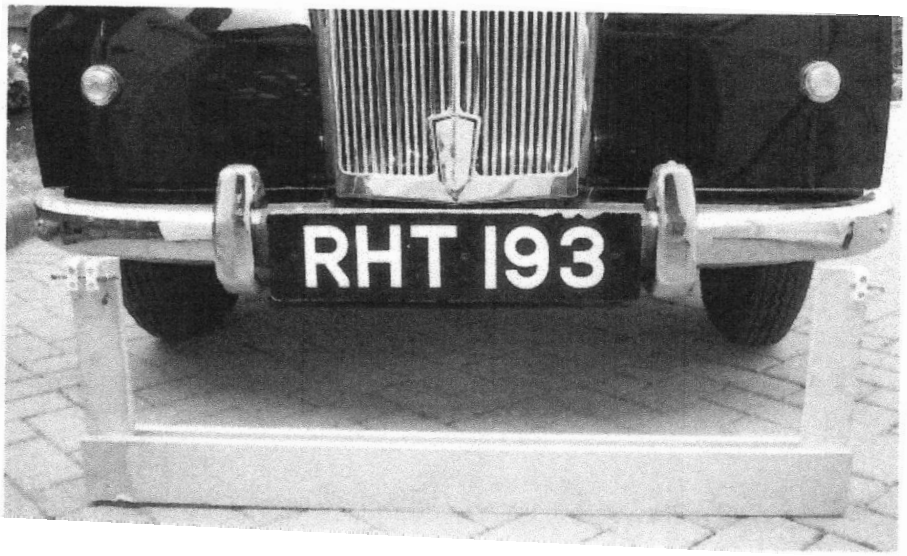
5) Check the wheel rims to make sure they are not damaged by holding a secured pointer against the rim and spinning the wheel. Damaged wheel rims will give a false reading.

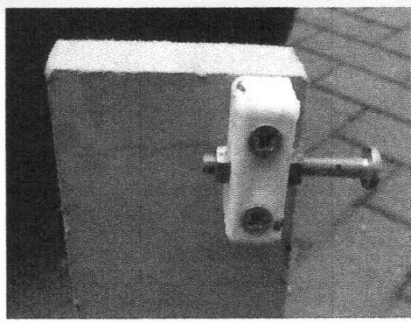
6) Now for the tracking. Drop the car onto a flat surface. Slacken off the two locking nuts on the track rod. The rod is threaded both ends, left hand and right hand, so one turn of the Track rod will move the wheels by about ½ inch. Mark the rod in some way.

7) Roll the car back and forward (important) and re-check the towing in. Adjust accordingly.

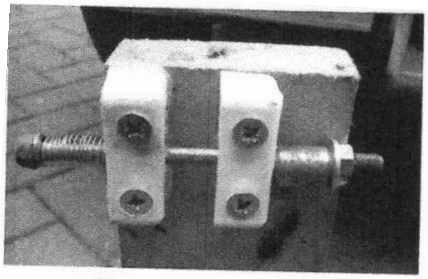
The service garages use a very neat tracking device that has a mirror and fits easily onto the outside rims of the road wheel. You obviously get charged for this and unless you ask for the checking of the above you could easily be wasting a lot of money.

The way I did it was to make up my own track checking device that just squeezes under the car as shown.





Nearside adjuster



Close up of offside adjuster

Is There A Dipstick In Your Rear End? - Russ Hoenig, Flower Power

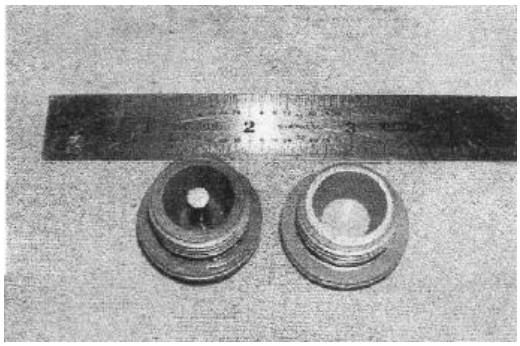
While looking up the part number for a new red fibre washer for the rear end filler plug for TT20192, I noticed that the spare parts lists calls 56912 "washer for the plug". In the service manual, the same part number is called "washer for the dipstick"!

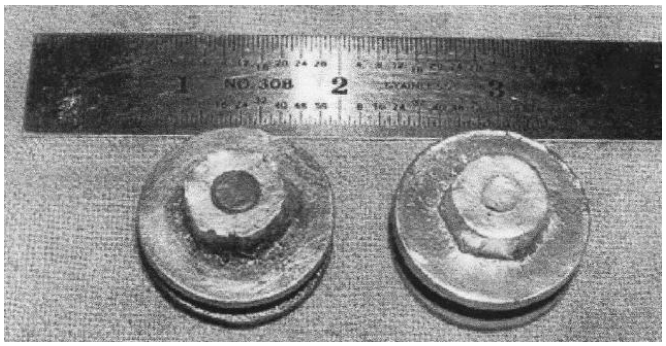
This is a call for further investigation as the spare parts list diagram shows the rear end filler plug drawn with a little "dipstick" to measure rear end fluid. What a novel idea, I had always thought you fill to the bottom of the threads but here is an exact measuring device. If there is supposed to be a dipstick in the rear end, TT20192 is going to get one, if it needs it or not!

TT6215's rear axle is out in the old horse barn, so a trip out there with a 9/15 wrench and lo and behold, the plugs are different. The plug from TT6215 shows the remnants of a stem that passed through the threaded plug body.

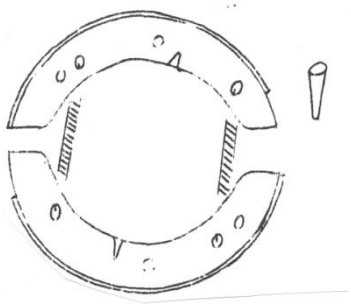
This stem appears to have been ground off flush with the length of the threaded area of the plug. There are no burrs so it does not appear to have been sawn off. It was definitely longer at one time and probably as shown in the spare parts list. TT20192's rear end filler plug was never drilled to accept any type of stem. The photographs show TT6215 on the left.

So, the questions are: does anyone have a car with an intact "rear end filler plug with a dipstick" and "what are the dipstick measurements", or "were they all slowly ground off by the rear end gears" and "when did the change eliminating them come about"?





Brake Shoe Reassembly Tip – Flowerman, Flower Power Summer 2005



Assemble the brake shoes with the springs in the correct position. Make four wooden tapered pegs as shown in the diagram and tap these in place to hold the springs firmly in position. The brake shoes may now be levered into position without the springs jumping off. Remember to take the pegs out before replacing the brake drum!! It makes life that much easier.

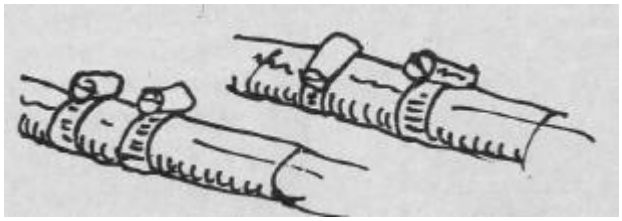
How Old Are Your Tyres?

It is not recommended that you use tyres which are more than 10 years old. Tests have shown that braking, handling and stability are affected by the age of a tyre. So how do you find the age of a tyre?

- Look for a code in a rounded rectangle after the figures denoting the tyre size or the letters 'DOT'.
- If there is a 4 digit code the first 2 digits tell you which week of the year the tyre was made and the last 2 digits the year of manufacture. So, '0109' means the tyre was made in the first week of 2009.
- If there is a 3 digit code the tyre was made in the 1980s or 1990s and shouldn't be used on the road.

Balancing Act – Terry's Tips, Practical Classics August 1983

Another rave from the grave, this, but it works. Prop shaft vibration is annoying and can result in damage so needs to be cured as soon as possible. Usually the solution is quite easy though it involves a bit of trial-and-error work. Find two Jubilee clips of the right size and attach them to the shaft with their heads together; then go and drive the car to see what happens. If the vibration is still there, loosen the clips and move the heads in opposite directions, and drive off again. Keep doing this until (hopefully) you find the position where the clips will balance the shaft.



DAILY

Check engine oil level.

A. EVERY 1000 MILES

A1 to A4. Lubricate with grease gun (3 or 4 strokes).
A1. Steering swivel joints (4 nipples).
A2. Lower suspension arm outer shackle pins (4 nipples).
A3. Steering linkage joints (6 nipples).
A4. Steering idler pivot (1 nipple).

B. EVERY 2500 MILES

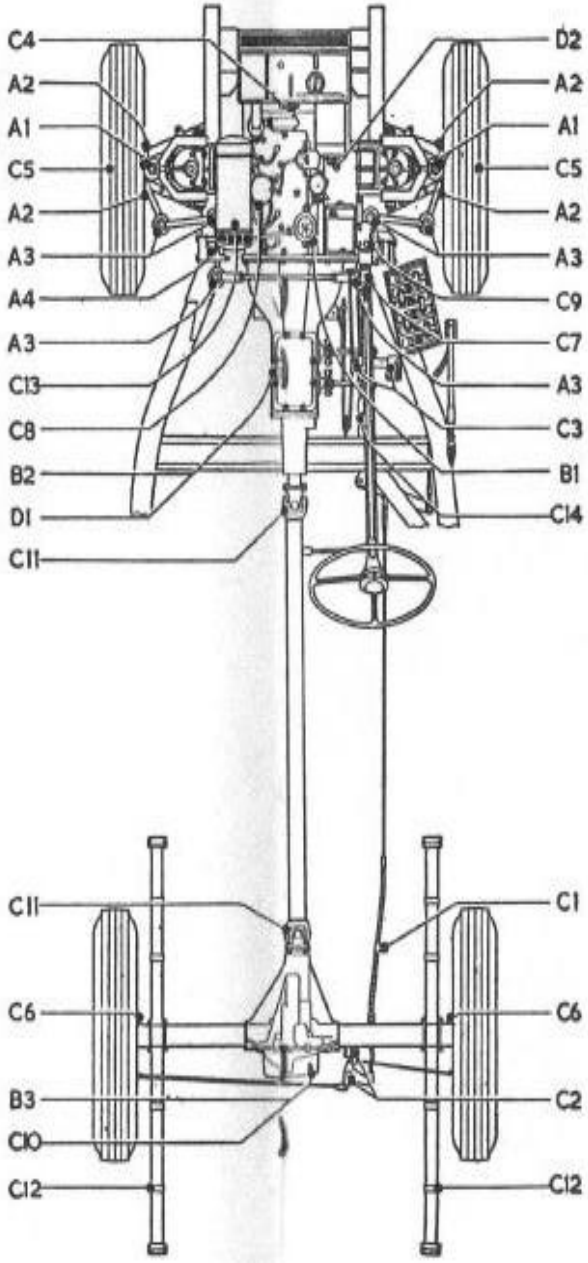
B1. Engine sump, drain and refill.
B2. Gearbox, check oil level, top up if necessary.
B3. Rear axle/Differential, check oil level, top up if necessary.

C. EVERY 5000 MILES

C1 to C7. Lubricate with grease gun.
C1. Parking brake cable (1 nipple, 3 or 4 strokes).
C2. Parking brake compensator (2 nipples, 3 or 4 strokes).
C3. Pedal bearings (2 nipples, 3 or 4 strokes).
C4. Water pump and fan (1 nipple, 5 strokes)
C5. Front wheel hubs (2 nipples, 5 strokes).
C6. Rear wheel hubs (2 nipples, 5 strokes).
C7. Gear shift mechanism selector box (1 nipple, 5 strokes).
C8. Ignition distributor : remove rotor and apply a few drops of engine oil on screw thus exposed, one drop on breaker arm pivot and a few drops on automatic advance mechanism through gap round cam spindle. Lightly smear cam profile with grease or oil.
C9. Steering box, check oil level, top up if necessary.
C10. Rear axle/Differential, drain and refill.
C11. Propeller shaft universal joints, lubricate with oil gun (2 nipples, 3 or 4 strokes).
C12. Rear road springs, clean and oil.
C13. Air cleaner, clean and re-oil element. Refill with fresh engine oil if oil bath air cleaner is fitted.
C14. Brake master cylinder reservoir, check fluid level, top up with brake fluid if necessary.
Lubricate with engine oil : gear shift mechanism frame bearings, accelerator and parking brake lever, clutch shaft bearings, clutch controls, door locks and hinges, bonnet catches and other moving points and controls.

D. EVERY 10000 MILES

D1. Gearbox, drain and refill.
D2. Dynamo rear bearing, unscrew lubricator cap (if fitted) and repack with BP Energrease L2.
Trafficators, lubricate sparingly with engine oil.



LUBRICANTS

Engine	BP ENERGOL 'VISCO-STATIC'* OR BP ENERGOL SAE 20W
Gearbox, Rear Axle/Differential and Steering Box	BP ENERGOL SAE 90 EP
Universal Joints	BP ENERGOL SAE 140 EP OR BP ENERGREASE L2
Grease Nipples	BP ENERGREASE L2

CAPACITIES

Engine	6 pints
Cooling System, without heater	12 pints
with heater	13 pints
Gear Box	1½ pints
Rear Axle/Differential	1½ pints
Fuel Capacity	10 gallons

TYRE PRESSURES

cold

	lbs./sq. in.
Front	20
Rear, normal	23
fully loaded	25

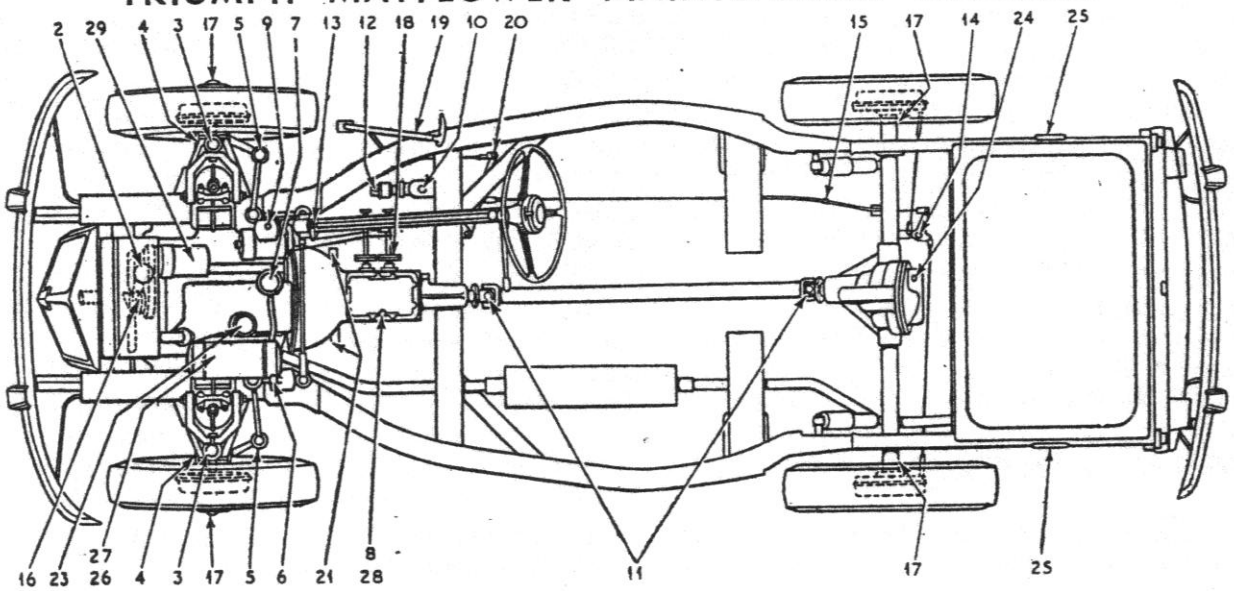
BRIEF ADJUSTMENT DATA

Valve clearance (engine cold), Inlet	.015"
exhaust	.015"
Firing order	1-3-4-2
Contact Breaker points gap	.015"
Sparking plug electrode gap	.032"

*'Visco-static' is a trade-mark of the British Petroleum Company Limited.

Maintenance Diagram – Motor Trader 1951, Flower Power Spring 1980

TRIUMPH MAYFLOWER MAINTENANCE DIAGRAM



KEY TO MAINTENANCE DIAGRAM

EVERY 200 MILES

1. Engine sump } Top up
2. Radiator }

EVERY 1,000 MILES

3. King pin bearings (4) } Grease gun
4. Front suspension outer pivots (4) } Grease gun
5. Steering ball joints (6) } Grease gun
6. Steering relay arm pivot (1) } Grease gun

EVERY 2,500 MILES

7. Engine sump—Drain and refill
8. Gearbox—Top up

EVERY 5,000 MILES

9. Steering box } Top up
10. Brake fluid reservoir }
11. Propeller shaft universal joints (2) } Grease gun (chassis grease)
12. Pedal pivots (2) } Grease gun (chassis grease)
13. Gear change selector (base of column) (1) } Grease gun (chassis grease)
14. Handbrake compensator (2) } Grease gun (chassis grease)
15. Handbrake cable—Grease gun (cable grease)
16. Water pump bearings (1) } Grease gun (bearing grease)
17. Wheel hubs (4) } Grease gun (bearing grease)
18. Gear change linkage } Oil can
19. Handbrake lever } Oil can
20. Control linkage } Oil can
21. Clutch cross-shaft } Oil can
22. Door locks, hinges, bonnet catches } Oil can
23. Distributor—Oil shaft bearing, auto advance and contact breaker pivot. Grease cam
24. Rear axle—Drain and refill
25. Rear springs—Clean and oil
26. Air cleaner (oil-wet)—Clean in petrol and re-oil
27. Air cleaner (oil-bath)—Clean and refill with engine oil

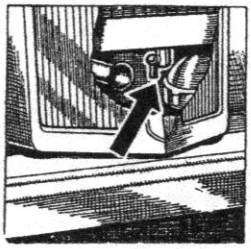
EVERY 10,000 MILES

28. Gearbox—Drain and refill
29. Dynamo—Refill lubricator with H.M.P. grease
30. Trafficators—Oil can

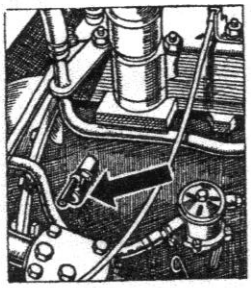
FILL-UP DATA

		Litres
Engine sump	6 pints	3.4
Gearbox	1½ pints	.7
Rear axle	1½ pints	.8
Cooling system	12 pints	6.8
extra for heater	1 pint	.6
Fuel tank	9 gallons	41
Tyre pressures : front ...	20 lb	
rear ...	25 lb	

DRAINING POINTS



Radiator drain tap on near side



Cylinder block drain tap on offside rear of block. To drain heater put control to "hot"

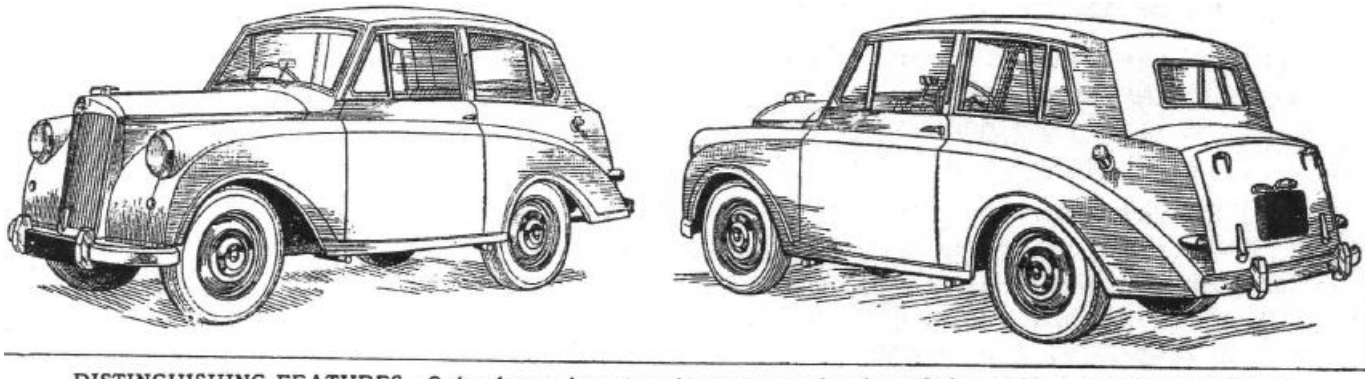
RECOMMENDED LUBRICANTS (HOME)

	Price's	Shell	Esso	Duckham's	Vacuum	Wakefield
Engine — Summer	Energol S.A.E. 30	Double Shell	Essolube 30	NP Thirty	Mobiloil A	Castrol XL
Engine — Winter	Energol S.A.E. 20	Single Shell	Essolube 20	NP Twenty	Mobiloil Arctic	Castrolite
Gearbox	Energol S.A.E. 30	Double Shell	Essolube 30	NP Thirty	Mobiloil A	Castrol XL
Rear axle	Energol EP S.A.E. 90	Spirax 90 EP	Esso Expee Compound 90	Hypoid 90	Mobilube GX 90	Castrol Hypoy
Steering box, Propeller shaft	Energol EP S.A.E. 140	Spirax 140 EP	Esso Expee Compound 140	XS-Press 140	Mobilube GX 140	Castrol Hipress
Wheel hubs, Water pump ...	Belmoline C	Retinax RB	Esso Grease	HBB Grease	Mobil Hub Grease	Castrolease Heavy
Chassis nipples	Belmoline C	Retinax C	Esso Grease	Laminoid Soft	Mobilgrease No. 4	Castrolease CL
Rear springs	Penetrating Oil	Donax P	Penetrating Oil	Laminoid Liquid	Mobil Spring Oil	Castrol Pen. Oil
Brake cables	Belmoline CG	Retinax C	Graphite Grease	Keenol KG 16	Mobil Graphited Grease	Castrolease Brake Cable Grease
Upper cylinder lubricant	Energol U.C.L.	Donax U	Essomix	Adcoids	Mobil Upperlube	Castrollo
Brake fluid reservoir ...	Lockheed Orange Brake Fluid					

Trader Service Data No 180 – Motor Trader 1951, Flower Power Spring 1988

Triumph Mayflower Type 1200T 1950 - 51

Manufacturers: Standard Motor Co., Ltd., Banner Lane {Regd. Offices), Coventry.
Sales and Service: Fletchamstead Highway, Coventry.



DISTINGUISHING FEATURES—Only change in outward appearance has been fitting of block lenses to headlamps

Introduced at the 1949 Earls Court Motor Show, the Mayflower came into production in May, 1950. Original in styling, the car has an integral chassis and body. Independent front suspension with coil springs, a side-valve engine based on that of the pre-war Standard Ten, and a transmission on the same lines as the Standard Vanguard. Engineering changes introduced since the car was first produced are listed here.

Commission numbers (car serial numbers) starting at 1, prefixed TT and suffixed D L , indicating body type, are stamped on a plate on the near side of the scuttle under the bonnet. Engine serial numbers, also starting at 1, prefixed TT and suffixed E, are stamped on a boss at the offside rear of the engine below the oil filler. Engine and car numbers do not necessarily correspond.

Special tools have been designed to speed up certain operations, and officially approved by the Standard Motor Co. They are available from V. L. Churchill & Co., Ltd., 27-34 Walnut Tree Walk, Kennington, London, S. E. 11. Those considered most important are listed here.

SPECIAL TOOLS

	Tool No.
ENGINE	
Tappet spanners (D/E). Set of three comprising $\frac{1}{4}$in A/F straight × $\frac{7}{16}$in A/F cranked ; $\frac{7}{16}$in A/F straight × $\frac{1}{4}$in A/F cranked ; $\frac{13}{32}$in A/F straight × $\frac{13}{32}$in A/F cranked	M 854 A, B, C
GEARBOX	
Mainshaft spring ring remover ...	208M 69
Mainshaft spring ring installer... ...	208M 48
Mainshaft assembling tool	208M 65
Layshaft needle bearing retainer ...	208M 77
Drawer with adapters for primary shaft, mainshaft and axle half-shaft bearings	208M 4615
REAR AXLE	
Bevel pinion shaft bearing inner race drawer with adapters	208M 85
Bevel pinion shaft bearing outer race installer	M 70
Bevel pinion bearing gauge (for meshing shims)	M 84
Final drive housing spreader	208M 4220

Prefix 208M indicates suitability (with or without adapters) for Mayflower and Vanguard.

ENGINEERING CHANGES

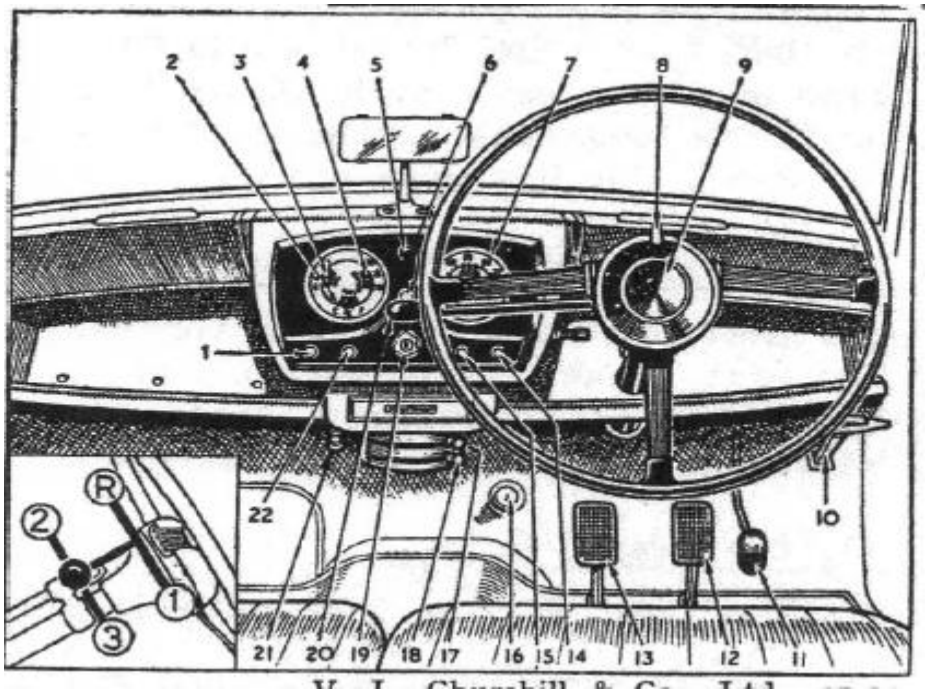
	Comm. No. (Prefix TT)
Longer rear springs fitted, with new spring plates and longer stroke shock absorbers	451
Rear springs stiffened (thicker leaf substituted)	928
Oil relief valve changed, ball to plunger. New plug	1356 E
Camshaft, and distributor drive gear, changed from casting to forging. Must be replaced together	1408 E
Rear spring changed, ten leaves to eight thicker leaves	3071
Oil bleed holes in con rod big ends deleted	3215 E
Headlamps changed to double dip, with block lenses and 42/36 watt bulbs ...	3264
Fuel pump with hand primer introduced	3407 E
Wheels with larger offset (1.125in instead of .63in) introduced. Track increased	5535*
Engine front mounting to frame, bolts changed to studs. Slotted mountings introduced (interchangeable) ...	6010 E
Fan and pulley changed, integral to separate. *New assembly must be used with new dynamo*	6109 E†
New (higher output) dynamo and new control box introduced. *New control box must not be used with old dynamo, but new dynamo can be used with old control box*	6155 E‡
Oil level in rear axle raised to bottom of filler threads. Dipstick deleted ...	6813
Manifold clamps strengthened. Longer studs	Pending
Differential gear and pinion thrust washers introduced	Pending
Screenwiper, more powerful motor introduced. *New drive (steel pinions) must be fitted with new motor*	Pending

* Except comm. Nos. 5547-5552.
† At comm No. 6131 (chassis).
‡ At comm No. 6134 (chassis).

American S. A. E. threads and hexagons are used throughout, except on some proprietary components.

Instruments and Controls:

1. Choke
2. Petrol gauge
3. Oil pressure gauge
4. Water temperature gauge
5. Ignition warning light
6. Heater motor switch
7. Speedometer
8. Trafficator switch
9. Horn push
10. Handbrake
11. Accelerator
12. Brake pedal
13. Clutch pedal
14. Starter switch
15. Screenwiper switch
16. Dipper switch
17. Heater air control
18. Demister control
19. Lighting and ignition switch
20. Gear lever
21. Scuttle ventilator control
22. Panel and roof lamp switch



REAR AXLE

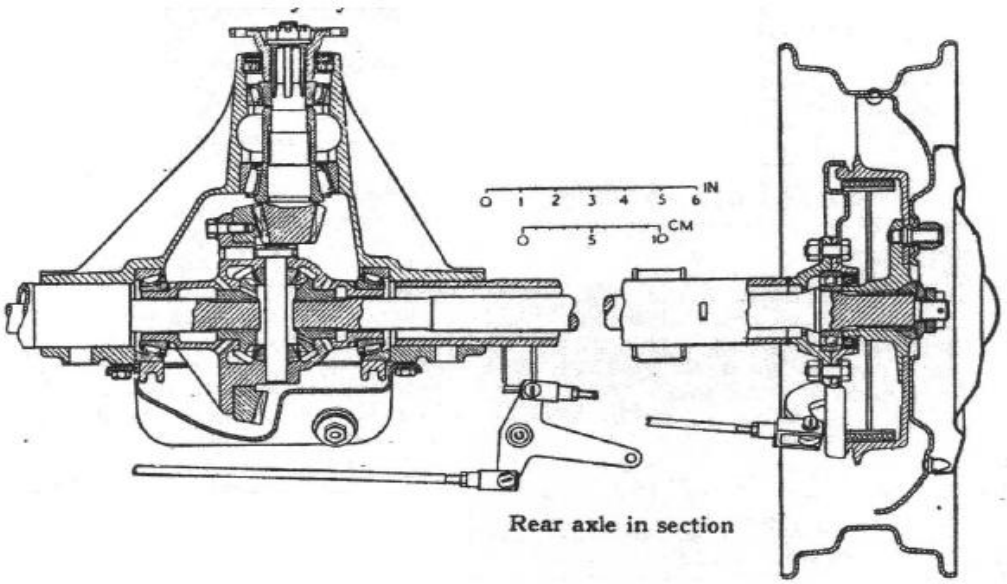
Hypoid bevel final drive, semi floating shafts. Final drive housing riveted to axle tubes, rear cover detachable.

To remove axle from car disconnect brake cable at clevis, undo conduit clamp on axle and pull out conduit. Open out clamp and pull cable through. Disconnect brake fluid pipe, shock absorbers and rear end of propeller shaft. Jack up rear of car and undo spring U-bolts. Axle can then be passed out sideways through springs.

Hub flanges splined on ends of axle shafts and retained by nuts with thick washers and slotted cones. Half-shafts interchangeable, splined in differential at inner ends. Outer ends of half shafts carried in ball bearings spigoted half in axle tube ends and half in bearing covers, with lipped oil seals (lip inwards), bolted up with brake back plates.

To withdraw shaft, draw off hub and remove brake back plate assembly. Tap bearing cover flange round until corners can be tapped outwards, and shaft and bearing withdrawn.

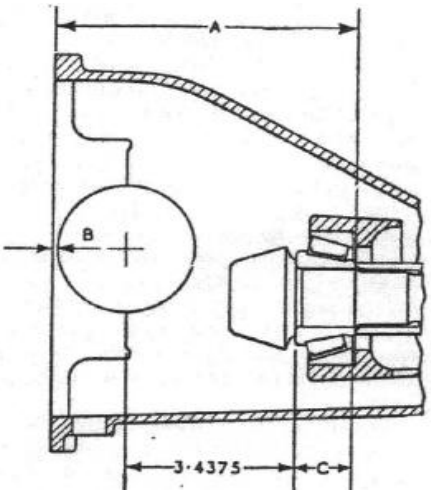
Bevel pinion shaft carried in taper roller bearings pressed into final drive housing from front and rear. Distance piece between inner races. Shims (.003, .005, .010in) between distance piece and inner race of front bearing for bearing adjustment. Shims (.003, .005, .010in) between outer race of rear bearing and housing for mesh adjustment.



Rear axle in section

Set pinion for mesh by calculating thickness of shims. Measure distance from abutment face of rear pinion bearing outer race to rear face of final drive housing (A in diagram). Then measure distance from rear face of final drive housing to differential bearing outer race (B) and add to it radius of differential bearing (1.422in).

Subtracting this figure from A will give distance from crown wheel centre to pinion bearing abutment. Measure depth of pinion rear bearing under hand pressure (C) , and add this to theoretical dimension from crown wheel centre to back of pinion (3.4375in). Subtracting this figure from previous total gives thickness of shims required. Formula: A – (B+1.422)-(C+3.4375).



Assemble pinion in bearing with original bearing shims without oil seal. Tighten driving flange nut and test bearings, which should have 4-6lb/in drag, oiled.

Crown wheel spigoted and bolted by ten setscrews to flange of one-piece differential cage. Side bevel gears run directly in cage. Planet bevel pinions run on spindle retained by pin inserted from nearside and locked by dot punch. On later axles side bevel gears have flat thrust washers, and planet bevel pinions have spherical washers.

Differential assembly carried on taper roller bearings in split housings with shims (.003, .005, .010in) between inner races and cage, for bearing and mesh adjustment. Install differential assembly *without shims and with bevel pinion removed,* and mount dial gauge on final drive housing with button against a crown wheel setscrew.

Move differential assembly to one side of housing with lever, and set gauge to zero. Lever assembly over to other side and note gauge reading (X) . This figure indicates play in bearings, and thickness of shims needed to take up play. Add .004 into total to give 8 lb/in preload. This total must be adjusted to obtain correct crown wheel mesh.

After installing bevel pinion, reassemble differential, again without shims, lever away from pinion, set indicator to zero, and lever assembly towards pinion. Note reading (Y). This figure minus .005in for tooth clearance indicates thickness of shims to go behind crown wheel side bearing. Remainder of shims from total (X + .004in) go behind offside bearing.

When assembly is complete, check for backlash (.004-.006in). Change shims from one side to other of differential bearings if necessary. Backlash will be changed about 2/3 thickness of shims changed.

CHASSIS

BRAKES

Lockheed hydraulic. Two leading shoe front brakes with separate cylinder for each shoe. Rear brakes have single floating cylinder incorporating bell-cranks for handbrake operation through transverse linkage from compensator. Two-stage cable with relay lever between hand lever and compensator.

BRAKE DATA	
Drum diameter	8in
Lining : length	7¾in
width	1¼in
thickness	3/32in
No. of rivets per shoe	10

Micram adjuster on each wheel cylinder, with slotted head reached through hole in brake drum *after removal of wheel.* Apply brakes hard to position shoes in drums, jack up car, remove wheel, turn adjuster clockwise until shoe touches drum, then back off one notch. Note *two* adjusters for each front wheel. No separate adjustment for handbrake.

REAR SPRINGS

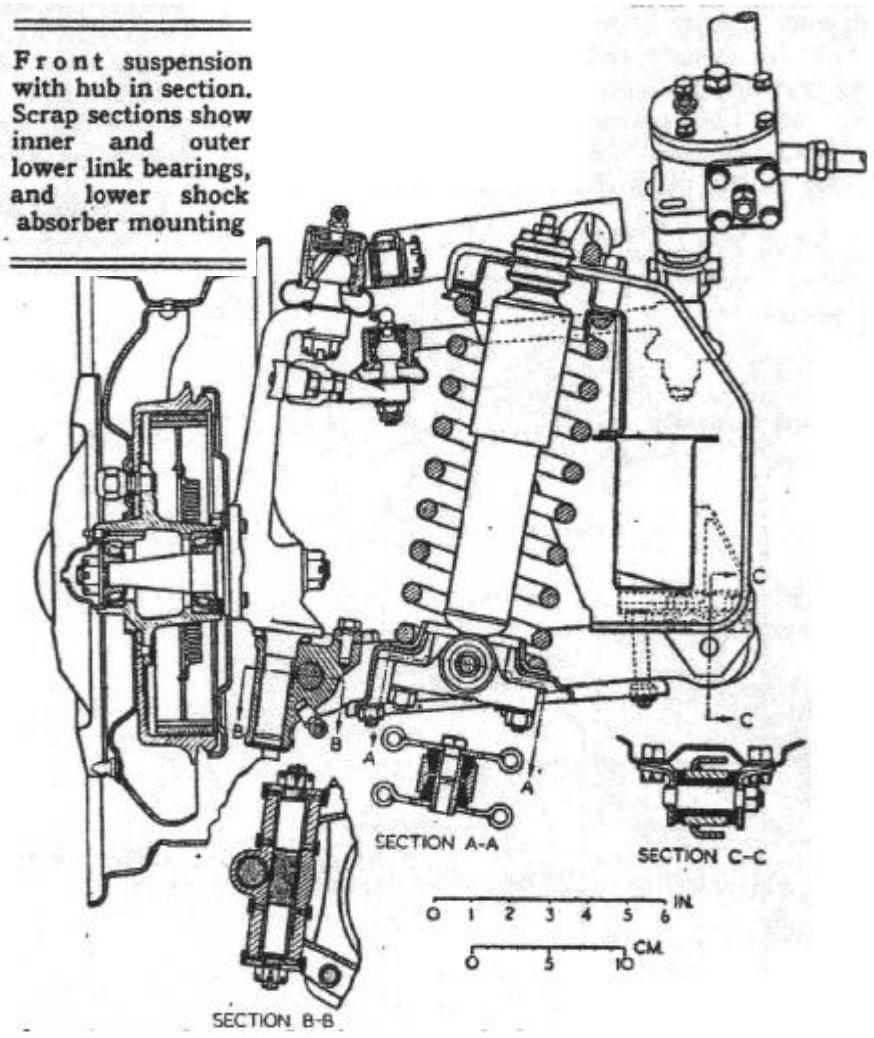
Semi-elliptic. Silentbloc rubber bushed anchorages, loose rubber shackle bushes with shouldered bolts. Tighten fully with weight of car on springs. Spring centre bolts offset towards front.

SPRING DATA					
	Front	Rear			
Length (eye centres, laden)	—	43¾in*	45¾in*	45¾in*	45¾*in
Width	—	1¾in	1¾in	1¾in	1¾in
No. of leaves	—	10	10	10	8
Free camber (approx.) (length, coil)	12.25in	6¼in	6¼in	5in	6¼in
Loaded camber (length, coil)	8.5in	¼in *neg.*	1¼in *neg.*	1¼in *neg.*	zero
At load	890 lb	690 lb	690 lb	690 lb	690 lb

* Centrebolt offset to front. Front eye to centrebolt 20¼in on all springs.

FRONT SUSPENSION

Independent, with coil springs and double wishbone links. Inner pivots of upper and lower links have loose rubber bushes. Stub axle pins spigoted in wheel carrier arms and retained by nuts. Complete suspension assembly is symmetrical and interchangeable from side to side except for steering arms.



Front suspension with hub in section. Scrap sections show inner and outer lower link bearings, and lower shock absorber mounting

Upper end of each wheel carrier arm terminates in ball pin working in sealed ball socket bolted through both arms, of upper wishbone.

Lower end of each wheel carrier arm threaded, working in bronze swivel housing. Serrated pin pressed into housing carries bronze bushed outer ends of lower link arms. Assembly on each side of housing consists of inner thrust washer with rubber seal, link arm, outer thrust washer with rubber seal (same as inner) registering in stepped washer with serrated bore, which fits on serrations at outer end of pin. Assembly retained by plain washer and split-pinned nut. Tighten nut until .006in feeler is nipped between thrust washer a n d link arm, giving .004-.008in end float when nut is locked.

To remove spring (telescopic shock absorber inside) support car on jack, jack up separately under spring plate, take out three bolts to each lower link arm and undo nut and locknut at top of shock absorber. Lower carefully until spring is fully extended. For this operation engine must be in place to hold car down against spring.

T o dismantle suspension assembly remove spring and shock absorber, disconnect brake fluid pipe, and track rod from steering arm. Undo nut inside upper link, holding upper ball joint to two halves of upper link. Detach lower link inner pivot brackets from chassis and remove wheel carrier arm and lower link assembly.

When reassembling wheel carrier arm in lower swivel housing, screw in until rubber seal is just nipped, and back off until full movement is available.

Tighten inner pivot bearing nuts (upper and lower) when weight of car is on springs. Tighten lower inner pivot brackets to chassis last.

Hubs run on taper roller bearings. Adjust by tightening castellated nut fully against D-washer and backing off three castellations. Felt oil seals in retainers pressed into hubs outside inner bearings.

Three-piece track rod has sealed ball joints. Sockets on outer sections integral with rods. Sockets on centre section screwed left- and right hand for track adjustment, and locked by nuts. Centre section of track rod connects double drop arm to relay arm on opposite side. Relay arm pressed on to shaft which is threaded, and screwed directly into bracket. Later arms spot-welded to shafts at two points. When assembling relay arm, screw shaft into bracket as far as it will go with rubber seal, and back off until full movement is obtainable. Bracket bolts on to chassis either way.

STEERING GEAR

Bishop cam and lever, type T.

T o remove gear from car, remove radiator core, dynamo, coil and bracket, and dipstick. Disconnect petrol suction pipe from pump, and track rods from drop arm. Disconnect gear change

STEERING DATA	
Castor	0 deg
Camber	2 deg
King pin inclination	7 deg
Toe-in	0-$\frac{1}{16}$in
No. of turns lock to lock ...	2$\frac{1}{2}$

links by removing upper eyebolts from levers. Detach column draught excluder plate and rubber. Remove dash bracket support eyebolt and upper half of clamp. Disconnect column wiring at push-in connectors, extract control tube and draw off steering wheel. Detach gear lever (pivot pin retained by spring ring), slacken clamp and pull gear change column bracket off column. Take out single bolt holding steering box bracket to chassis (do not detach box from bracket), pull steering gear forward as far as possible and lift out.

If replacement steering gear is fitted, attach box to bracket loosely, and tighten column support clamp U-bolt first, then single bolt to chassis, and finally nuts holding box to bracket.

Cam and lower end of column carried in cup-and-cone caged ball bearings. Adjust for end play by shims under lower cover (.0024, .005, .010in). Split felt bush supports upper end of column. If ball bearings are to be renewed, ball cage on column end of cam must be split, as it will not pass over upper end of column. Replace caged balls by 14 of 7/32in loose balls.

Lever shaft runs directly in box. Adjust end play and mesh of peg in cam by setscrew and locknut in top cover.

SHOCK ABSORBERS

Girling telescopic hydraulic, front type DAS3/7, rear DAS/6. No attention needed.