

*The*



*Service Information*

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*Date of Issue : February, 1933*  
*Revised and Re-issued : February, 1936*

**Service Information Sheet No. 1**

**SPARKING PLUG GAP**

Experience has shown that the gap of .025 in. as originally recommended for all 14 mm. diam. sparking plugs, other than racing, is definitely on the high side. It has been found that a gap of .018 in. is the most suitable.

Agents giving service to customers' cars fitted with 14 mm. plugs are advised to see that the .018 in. gap is not exceeded when the sparking plugs are removed for cleaning and reassembling.

It is recommended that racing plugs should have a gap of .012 in. minimum to .015 in. maximum.

*Date of Issue : February, 1933*

**Service Information Sheet No. 2**

QUICK FILLER CAPS

On racing cars to which quick filler caps are fitted a rubber washer is used for those fitted to the radiator and a special composition washer when the cap is fitted to either the petrol tank or the oil tank.

When ordering these quick filler caps it is essential that the purpose for which they are intended should be specified, as the rubber washers of the radiator quick filler caps will soon perish if these caps are fitted to petrol tanks.

**Service Information Sheet No. 3**

**GEARBOX OIL LEAKAGE FROM LAYSHAFT**

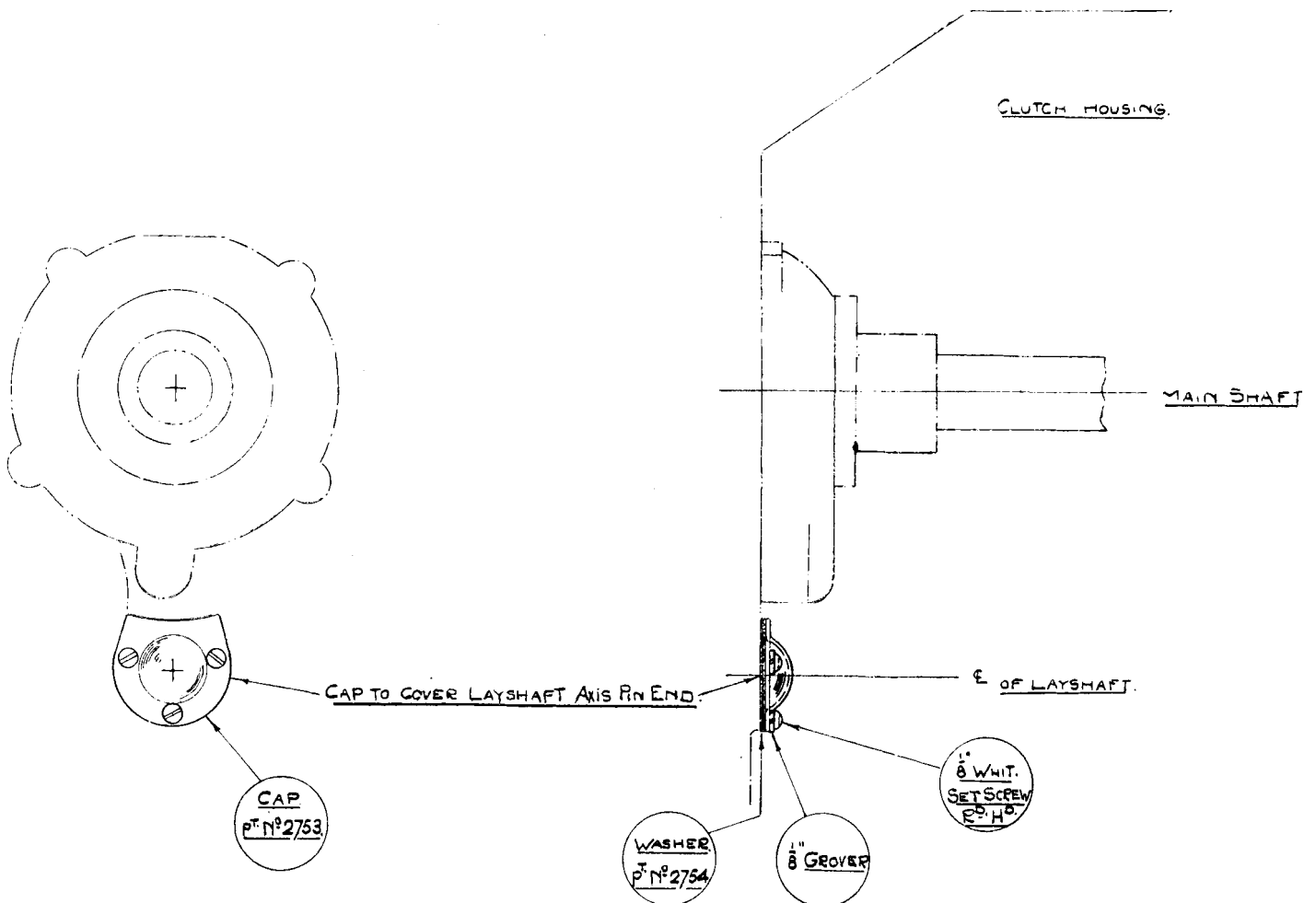
J. Types, L. Types and K. Types fitted with sliding gear change.

On all these models a gearbox is used having a double-helical constant mesh and third speed, also sliding gears for the other ratios. It has been found in service that an escape of oil into the clutch housing may occur through the front layshaft axis pin, which is pressed into the case.

This trouble is not very prevalent, but when it is found a small cover fitted with a washer and three screws can be fitted to prevent a recurrence.

The drawing herewith (Service Blue Print No. 147) gives particulars of the cover, screws and washer, and also shows its location on the gearbox.

Supplies of these parts can be obtained as required, the Chassis Number should be quoted.



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**Service Information Sheet No. 4**

**DIVIDED TRACK ROD STEERINGS**

The J.4, QA. and all K. models are fitted with divided track rod steering. This takes the form of a triple steering arm mounted on a swivel on the front axle beam and connected to the wheels by two independent spring-loaded track rods and to the steering gear by means of the draglink.

It is essential that anyone removing one of the divided track rods should see that it is replaced the correct way round.

On examining the track rod it will be found that the ball joint at one end of the rod is loaded by a coil spring, and at the other end by a coil spring washer.

The end with the double coil spring washer should be fitted to the triple steering arm.

The end with the coil spring should be fitted to the steering knuckle arms.

The draglink from the steering gear to the triple steering arm is fitted as standard with the long ball end at the steering gear, and the short ball end at the triple steering arm. This could be reversed without doing any harm, but as there is no object in reversing it, the standard position should be adhered to.



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**Service Information Sheet No. 5**

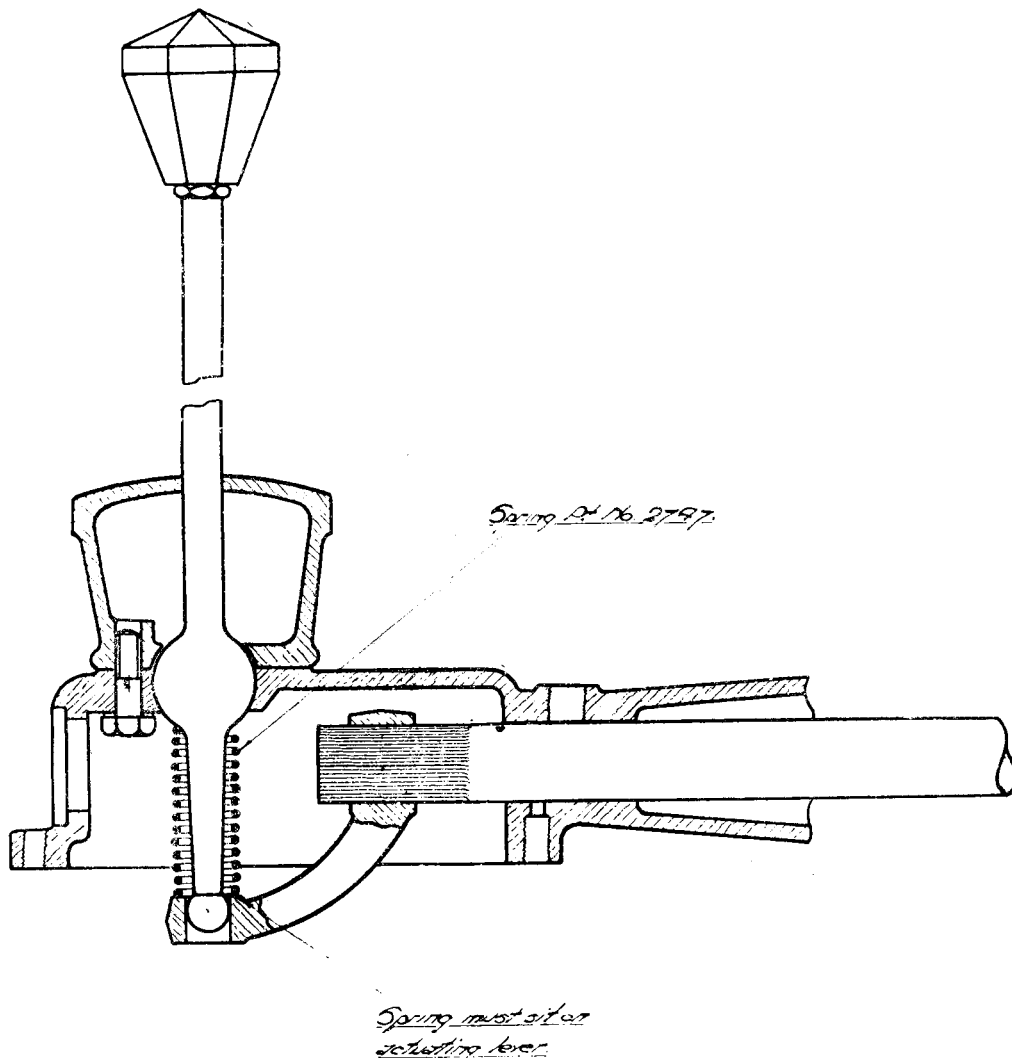
## GEAR LEVER RATTLE

Complaints of rattle in the gear change remote controls have been made from time to time, and up till recently no very satisfactory cure has existed.

It has been found that a spring fitted as shown in the drawing (Service Blue Print No. 146) prevents rattle most effectively.

These springs are very easily fitted and any complaints can therefore be quickly dealt with.

The Part Number of the spring in question is 2747, and this number, together with the Chassis Number of the car concerned, must be quoted when ordering for service.



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**Service Information Sheet No. 6**

**SERVICE PISTON SIZES**

The following information regarding piston sizes and oversizes has been compiled to assist the ordering and resulting prompt dispatch of pistons for service requirements.

Cylinder block bore sizes are divided into A, B, C and D groups, the A group being the smallest bore. These groups are sub-divided for intermediate sizes as will be seen in the following tables.

**MARK I AND MARK II MODELS**

The Part Number for the piston (common to both models) is P.151/144.

The working clearance of the piston is .13 mm.

	<i>Bore Dia.</i>	<i>Piston Size.</i>		<i>Bore Dia.</i>	<i>Piston Size.</i>		
A Group	{	69.00 mm.	A-13	B Group	{	69.25 mm.	B-13
		69.01 mm.	A-12			69.26 mm.	B-12
		69.02 mm.	A-11			69.27 mm.	B-11
		69.03 mm.	A-10			69.28 mm.	B-10
		69.04 mm.	A-9			69.29 mm.	B-9
		69.05 mm.	A-8			69.30 mm.	B-8
		69.06 mm.	A-7			69.31 mm.	B-7
		69.07 mm.	A-6			69.32 mm.	B-6
		69.08 mm.	A-5			69.33 mm.	B-5
		69.09 mm.	A-4			69.34 mm.	B-4
		69.10 mm.	A-3			69.35 mm.	B-3
		69.11 mm.	A-2			69.36 mm.	B-2
		69.12 mm.	A-1			69.37 mm.	B-1
69.13 mm.	A-0	69.38 mm.	B-0				

In continuance, C and D groups follow in a similar manner.

Piston C-13 and D-13 suit bore diameters 69.50 mm. and 69.75 mm. respectively.

**M., D., F., J., K., L., PA., N., KN. AND PB. TYPES, NOT INCLUDING RACING ENGINES**

Apart from special racing and supercharged engines which have special pistons to suit, the groups for the production types referred to above (all of which have nominal cylinder bore diameters of 57 mm., except the PB. model, which has a 60 mm. bore) are sub-divided in a different manner than for the Mark I and Mark II models.

**Service Information Sheet No. 6—continued**

The following is a list of piston sizes in the A group with the corresponding cylinder bore sizes :—

<i>Piston Size.</i>		<i>57 mm.</i>	<i>60 mm. (PB only)</i>
AX	=	2.2430 in.	2.3620 in.
AY	=	2.2435 in.	2.3625 in.
AZ	=	2.2440 in.	2.3630 in.
AZ1	=	2.2450 in.	2.3640 in.
AZ2	=	2.2460 in.	2.3650 in.
AZ3	=	2.2470 in.	2.3660 in.
AZ4	=	2.2480 in.	2.3670 in.
AZ5	=	2.2490 in.	2.3680 in.
AZ6	=	2.2500 in.	2.3690 in.
AZ7	=	2.2510 in.	2.3700 in.

The range of piston sizes in the B, C and D groups follows in the same manner as the A group given above, with BX, .010 in. above AX cylinder bore size, CX, .010 in. above BX cylinder bore size, etc., in both 57 mm. and 60 mm. classes, as follows :—

<i>Piston Size.</i>		<i>57 mm.</i>	<i>60 mm. (PB only)</i>
BX	=	2.2530 in.	2.3720 in.
CX	=	2.2630 in.	2.3820 in.
DX	=	2.2730 in.	2.3920 in.

The Part Numbers of the pistons used in the production of these models are :—

M. TYPE, D. TYPE AND J.1 AND J.2 TYPES UP TO ENGINE NO. 1674 A.J.

P.110/127 (non-compensating type).

F. TYPE.

P.287/188 (non-compensating type).

K., L., PA., N., KN. TYPES, ALSO J.1 AND J.2 TYPES COMMENCING ENGINE NO. 1675 A.J.

MG.363/4 (compensating type).

PB. TYPE (60 mm. BORE)

MG.636/2 (compensating type).

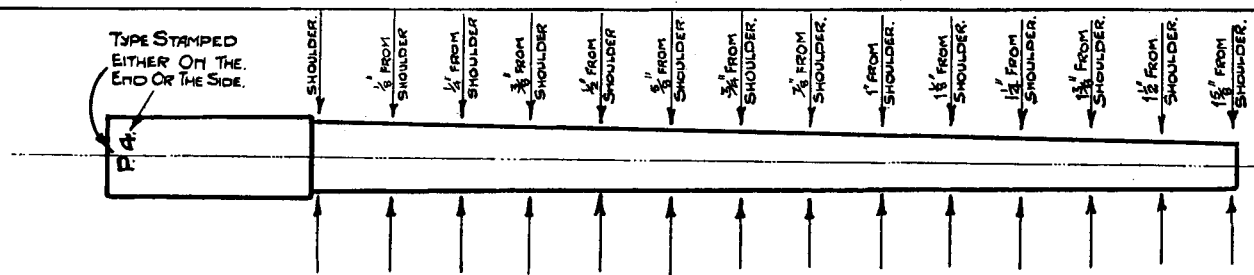
The working clearance of the non-compensating type of piston is .003 in.—.004 in. when cold.

The working clearance of the compensating type of piston is .0025 in.—.0035 in. when cold.

The clearances are taken at the thrust side of the skirt in each case.

Service Information Sheet No. 7

S.U. CARBURETTOR NEEDLES



TYPE OF NEEDLE	USED FOR.	MEASUREMENTS IN THOUSANDTHS OF AN INCH.													
		89	85	81.7	80.1	78.6	77	75.4	73.8	72.3	70.7	69.1	67.6		
M.6.	M.G. MIDGET M. TYPE. WEAKER. 1929-32.	89	85	81.7	80.1	78.6	77	75.4	73.8	72.3	70.7	69.1	67.6		
M.5. G.2.	M.G. MIDGET M. TYPE. STANDARD. 1929-32.	89 87.5	85 83.5	81.7 81.	79.2 78.5	77.6 76.5	76 74.5	74.5 72.5	72.9 70.5	71.2 69	69.6 67.4	68 66	66.6 64.2		
Nº 2.	M.G. MIDGET M. TYPE RICHER 1929-32.	89.	85	81.4	78.5	76.7	74.9	73.2	71.4	69.6	67.8	66	65	64.	
24.B.	M.G. M.K. I. AND MK.2 (6 CYL) WEAKER. 1929-33.	88	84.5	81.5	79.5	77.5	75.5	73.5	71.5	69.5	67.5	65.5	63.5	61.5	
24.A.	M.G. M.K. I. AND MK. II (6 CYL) STANDARD. 1929-33.	88.	84.5	81.5	78.5	76	73.8	71.6	69.8	68	66	64	62	60.	
24	M.G. M.K. I. & MK. II (6 CYL) RICHER. 1929-33.	88.	84.5	81.5	78.5	75.5	72.5	70.2	68.2	66.7	65	63.6	62.5	61.	
M.6.	M.G. MAGNA 'F' TYPE. WEAKER 1932-33.	89.	85	81.7	80.1	78.6	77	75.4	73.8	72.3	70.7	69.1	67.6		
M.5. G.2.	M.G. MAGNA 'F' TYPE. STANDARD. 1932-33.	89 87.5	85 83.5	81.7 81.	79.2 78.5	77.6 76.5	76 74.5	74.5 72.5	72.9 70.5	71.2 69	69.6 67.4	68 66	66.6 64.2		
Nº 1.	M.G. MAGNA 'F' TYPE. RICHER. 1932-33.	89	85	81.4	78.5	77	75.5	74	72.5	71	69.5	68	67	66.	
M.6.	M.G. MIDGET 'D' TYPE. WEAKER. 1932.	89.	85	81.7	80.1	78.6	77	75.4	73.8	72.3	70.7	69.1	67.6		
M.5. G.2.	M.G. MIDGET 'D' TYPE. STANDARD. 1932.	89 87.5	85 83.5	81.7 81.	79.2 78.5	77.6 76.5	76 74.5	74.5 72.5	72.9 70.5	71.2 69	69.6 67.4	68 66	66.6 64.2		
Nº 2.	M.G. MIDGET 'D' TYPE. RICHER 1932.	89.	85	81.4	78.5	76.7	74.9	73.2	71.4	69.6	67.8	66	65	64	
M.6.	M.G. MIDGET 'J' TYPE. WEAKER. 1933-34.	89.	85	81.7	80.1	78.6	77	75.4	73.8	72.3	70.7	69.1	67.6		
D.8.	M.G. MIDGET 'J' TYPE. STANDARD. 1933-34.	89.	85	81.7	78.5	76.7	76	75	74	73	72	71	70		
Nº 1.	M.G. MIDGET 'J' TYPE. RICHER. 1933-34.	89.	85	81.4	78.5	77	75.5	74	72.5	71	69.5	68	67	66.	
M.M.E.	M.G. MIDGET 'J3' TYPE. SUPERCHARGED. WEAKER 1933-34.	89	85	81.5	78	74	70.7	67.3	63.6	60	56.3	53	49.5	46	
RLB.	M.G. MIDGET 'J3' TYPE. SUPERCHARGED. STANDARD 1933-34.	89.	85	81.	77	73.5	69.3	66	62.6	59.2	56	52.6	49.5	46.	
C.S.2.	M.G. MIDGET 'J3' TYPE. SUPERCHARGED. RICHER 1933-34.	89.	85	81.	77	73	69	65	61.5	58	54.6	51	47.5	44	
R.S.	M.G. MAGNETTE 'KI & KI' WEAKER. 1933.	89	85	82.3	81	80.3	79.5	78.6	78	77.5	77	76.5	76.		
O7 D2 D8	M.G. MAGNETTE 'KI & KI' STANDARD 1933.	89 89 89	85 85 85	81.6 81.5 81.7	79.5 80 78.5	78 79.5 76.7	77 79 76	76 78.5 75	75 78 74	74 77.5 73	73 77 72	72 76.5 71	71 76 70.		
O7	M.G. MAGNETTE 'KI & KI' RICHER 1933.	89.	85	81.5	79.5	78	77	76	75	74	73	72	71		



*Date of Issue : November, 1933*

**Service Information Sheet No. 8**

SEALING OF VALVE GUIDES

A sealing washer has been designed to prevent oil passing into the combustion chambers between the valve guides and the cylinder head on the M.G. Magna L. Type and Magnette K. Type models. This washer, of Klingerite 1000 composition, is Part No. M.G.468/121.

Should it be found necessary at any time to dismantle a cylinder head, these should be fitted before reassembling.

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**Service Information Sheet No. 9****FUEL SUPPLY**

It has been found on J.1 and J.2 cars fitted with a Petrolift that there is a tendency for the fuel supply to limit the maximum speed of the car and cause what is commonly known as "drying up."

A careful investigation of the question has shown that the difficulty can be rectified as follows :—

1. The Petrolift should be fitted  $1\frac{1}{4}$  in. higher. No alteration is necessary to the petrol pipes to effect this alteration. Commencing at Chassis No. J0300 on the J.1 Type and Chassis No. J2300 on the J.2 Type, this alteration has been brought in as standard.

2. The existing float-chamber cover fixing screws should be replaced by screws having a slot cut in them to provide larger vents to the float-chambers.

3. The float-chamber needles required are  $\frac{5}{32}$  in. diam. with a seat to correspond.

4. The screws securing the float-chambers to the carburetter bodies must be tightly screwed up, as tests show that if these screws are slightly loose drying up may occur.

5. When reassembling the carburetters care must be taken to see that the toggles have not been bent. On putting the main jets in the full rich position the petrol level should be just below the top of the main jet. If this is not so the toggles may be bent slightly up or down as required.

In the case of J. Type cars fitted with the pressure type petrol pump it has been found that a  $\frac{1}{8}$  in. diam. needle and seat give satisfactory results.

Supplies of needles and seats, also float-chamber cover fixing screws, may be obtained on application being made to our Service Department.

*N.B.*—As a great many J. Type cars have been modified on these lines, in event of any defect in the fuel supply a careful check should be made for each of the various points mentioned, before it is assumed that the modifications have not already been made.

*Date of Issue : December, 1933***Service Information Sheet No. 10****HEAT TREATMENT OF AXLE BEAMS AND  
STEERING ARMS**

In view of the developments which have taken place in the treatment of metals, it is of the utmost importance that parts, such as axle beams, steering arms, etc., which have been bent, are not straightened by the application of heat.

These parts are specially heat treated to a definite degree of toughness, and if again heated the properties are destroyed unless the metal is subjected to the original heat treatment.

It is highly probable therefore that components which have been straightened without regard to this special treatment will not only be unsatisfactorily repaired but may also be so far weakened as to render them unsafe. We therefore advise all those servicing M.G. cars to adopt the following procedure, which is employed at the Factory :—

*Steering arms and drop arms.* These parts are never repaired, as their importance is so great and their cost so little.

*Front axle beams.* If damaged near the king pin eyes they cannot be repaired, as the application of heat causes scaling, which enlarges the king pin eyes. Provided that the damage is confined to the centre of the beam, however, and is not too extensive, the repair can be carried out successfully.

We ask every M.G. Agent to have these parts repaired at the Factory to eliminate as far as possible the danger of unsatisfactory repairs.

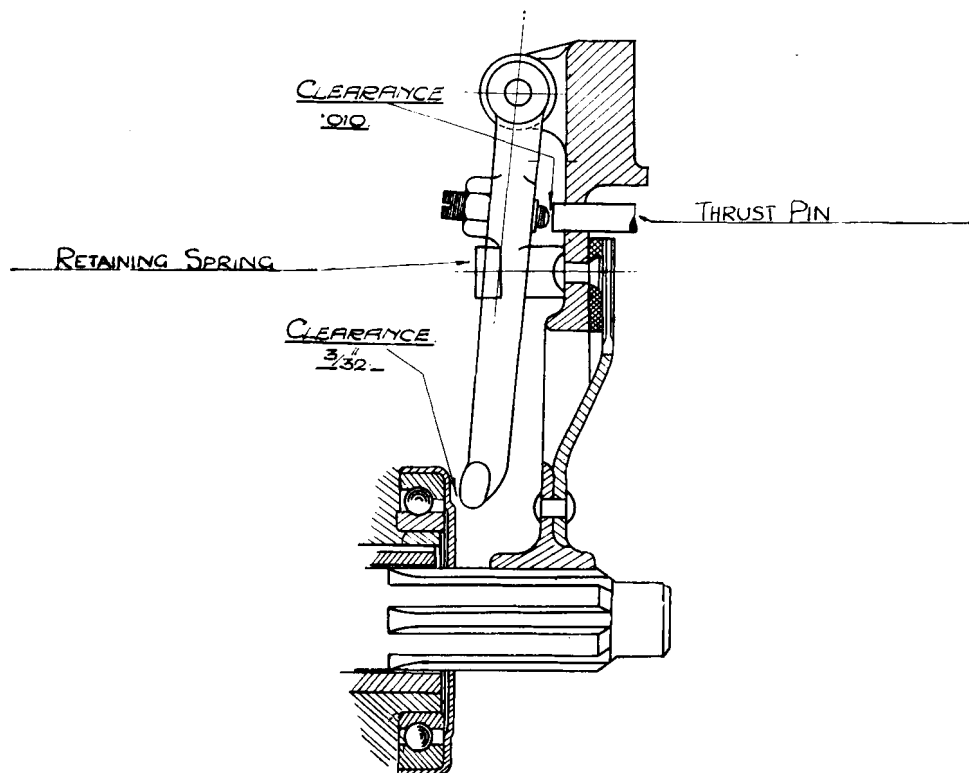


Date of Issue : December, 1933

**Service Information Sheet No. 11****CLUTCH ADJUSTMENT**

It has been thought advisable to issue information regarding clutch adjustment as cases have come to our notice where incorrect adjustment has caused excessive wear to the clutch fingers. The first adjustment is between the clutch fingers and the clutch thrust race. The clearance should be measured by a gauge  $\frac{3}{32}$  in. thick (see drawing), care being taken to get the same clearance for each finger.

The second adjustment, which is equally important, concerns the amount of movement the clutch fingers have between the retaining springs and clutch operating pins. The duty of the retaining springs is to prevent the fingers fouling the thrust race. These springs, therefore, should be set carefully to allow a .010 in. gauge to be inserted between the clutch adjusting screw and the clutch thrust pin, as indicated on the drawing.



*Date of Issue : June, 1934*

**Service Information Sheet No. 12**

VALVE CLEARANCES

It has been found necessary, owing to valve take up, to alter the valve clearance from .006 in. for both inlet and exhaust valves to .006 in. inlet valve, .008 in. exhaust valve.

The clearance is taken as before (i.e. between the camshaft and the valve rocker).

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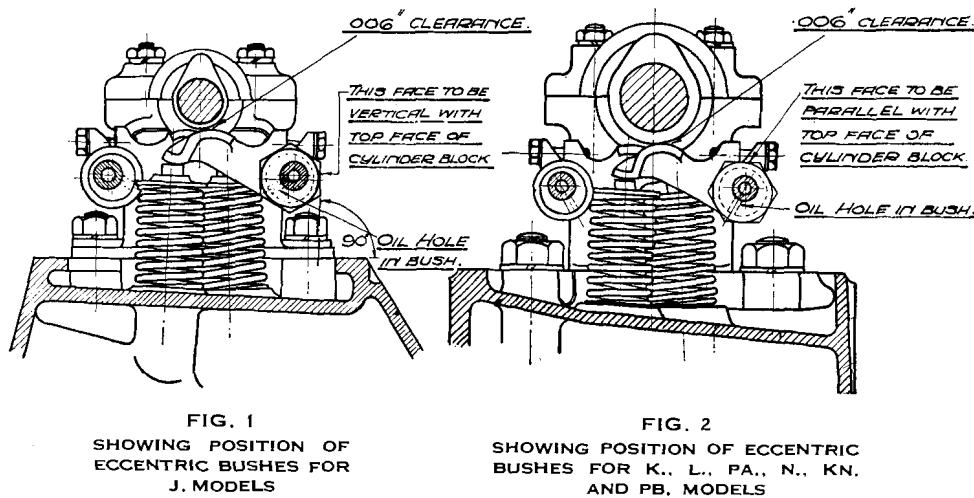
**Service Information Sheet No. 13****VALVE TIMING**

When it is required specially to tune an engine the following remarks in respect of valve timing will be of assistance and are in addition to the instructions laid down in the Manuals.

It is possible for a person not acquainted with the engine to set the rockers in various wrong positions which will cause considerable variation of timing on the corresponding valve.

The correct procedure is as follows :—

1. Set the rocker eccentric bush in the position shown in Fig. 1 for the J. Type and that as shown in Fig. 2 for the K., L., PA., N., KN. and PB. Type models.
2. Insert the correct feeler gauge between the valve rocker and the cam.
3. Shorten or lengthen the valve stem until it just reaches the rocker. It is not possible, owing to the probability of wear of the rocker face, cam face or valve, to give a definite length of the valve stem.



*Note* :—To shorten the valve stem, grind the end carefully on a fine emery wheel, using a "V" block to steady the valve. The end of the stem must be square or very slightly raised in the centre.

To lengthen the valve stem, regrind the valve with its seat, providing the amount is not more than .001 in. to .002 in. If in excess of this measurement it is advisable to re-cut the valve seat with a suitable seating cutter.

It should be noted that the tappet clearances given above are for checking purposes only in the case of K., L., PA., N., KN. and PB. models. The final clearances are .006 in. Inlet, .008 in. Exhaust (ref. Service Information Sheet No. 12.)

*Date of Issue : June, 1934***Service Information Sheet No. 14****PROPELLER SHAFTS**

The propeller shafts fitted to our standard models are designed to withstand torque loads and whirling speeds in excess of that required by these models in their standard condition.

It will be readily understood, however, that if an increase in engine performance (i.e. higher engine speeds with an increase of maximum horse-power) is required, a propeller shaft must be fitted that is capable of transmitting the additional power.

One or two cases have come to our notice where standard models have been specially tuned, and in consequence the power units have developed a greater maximum horse-power, together with higher engine speeds, transmitted through a standard propeller shaft. The result is that, owing to the increase in torque and revolutions per minute, these shafts have been over-stressed and failed.

Our Service Department are able to supply a propeller shaft to meet these requirements on request, providing the maximum engine r.p.m., and if possible, maximum horse-power developed, is stated on the order.

We shall be very pleased to give any advice or other assistance on request being made to our Technical Department.

*Date of Issue : June, 1934*

**Service Information Sheet No. 15**

**HUB FITTING TO REAR DRIVE SHAFTS**

Instances have come to our notice which make it apparent that it is not generally understood that the rear axle drive shafts are fitted to the rear hubs under pressure.

Drive shaft splines have in some cases been filed to make them fit, with a result that independent movement takes place between the hubs and shafts which is accentuated by continued acceleration, deceleration and braking.

From the foregoing it will readily be understood why the diameter of the drive shafts seems to be too large for the hubs, also that it is necessary to employ a suitable press when fitting, the pressure required being a minimum of 6000 lb. with a maximum of 12,700 lb. Drive shafts must on no account be filed.

*Date of Issue : June, 1934*

### **Service Information Sheet No. 16**

#### CRANKSHAFT OIL DUCT PLUGS

It is of the utmost importance that crankshafts are balanced to a fine degree, both statically and dynamically, to eliminate bad vibration, harshness and periods in the power unit.

Great care is taken with the crankshafts fitted to our engines, and for this reason it is as well to draw attention to the plugs that seal the oil ducts.

After an engine has been in commission for some time and an overhaul is necessary, the crankshaft oil duct plugs have to be removed to enable the oil duct to be thoroughly cleaned and all sludge to be removed. It very often happens that these plugs are damaged on removal, and therefore have to be replaced by new ones. This is where great care is necessary, as plugs of two materials are used, steel and aluminium, depending entirely upon which is necessary for the balancing of the crankshaft. If steel plugs are replaced where aluminium plugs are removed the balance of the crankshaft will be seriously affected.

In addition, the length of the new plug must coincide with the length of the old one.

It is always advisable to have a supply of both plugs readily available, to prevent any possibility of fitting the wrong type.

*Date of Issue : August, 1934*  
*Revised and Re-issued : February, 1936*

**Service Information Sheet No. 17**

FITTING PISTON RINGS

Attention is drawn to the fitting of piston rings (maximum and minimum gap to allow for expansion.)

It has now been proved by calculation and experiment that a 57 mm. or a 60 mm. diameter piston ring must have a minimum gap of .006 in. The maximum gap permissible is .010 in.

Where pistons are lapped the gap must be adjusted after lapping.

In the past it has been the practice when fitting piston rings of 57 mm. to allow a ring gap of .004 in.

Date of Issue: August, 1934

### Service Information Sheet No. 18

#### GROUP NIPPLE LUBRICATING SYSTEM

The Service Departments have found numerous cases of very dry and partially seized rear spring trunion bushes, and we have come to the conclusion that the average owner does not lubricate these points sufficiently.

Owing to the length of pipe through which the oil has to travel before reaching these points, the operation of forcing oil through the bushes takes quite a little time, and unless oil is forced through until leakage is apparent, one can never be sure the bushes are lubricated.

After investigation it has been agreed to fit open feed plugs to the rear spring trunion bushes instead of the adjustable type (which allows the oil a much easier and consequently a quicker path).

All cars fitted with the adjustable plug at this point should have the needle valve removed, and the preceding points should be adjusted (if necessary) to the figures detailed below.

The number of turns given against the various points is from the shut position (i.e. the needle valve screwed in as far as it will go).

The correct setting is as follows:—

Steering box, 1 turn.

Steering column,  $\frac{1}{4}$  turn.

Brake cross shaft,  $\frac{1}{2}$  turn.

Front spring rear shackle,  $\frac{1}{2}$  turn.

Rear spring front shackle,  $1\frac{1}{2}$  turns.

The above setting is correct for all models except the N. Type, when the brake cross shaft is  $\frac{1}{4}$  turn and the front spring rear shackle is  $\frac{1}{4}$  turn.



**Service Information Sheet No. 19**

WATER PUMP

A new gland nut retaining spring has been designed to supersede the original type coil spring.

This spring is more positive in action and eliminates the possibility of water (which may leak past the gland) finding its way into the sump past the spindle sealing felt, owing to it being trapped by the coil spring.

This modification is very simple to carry out on all existing pumps.

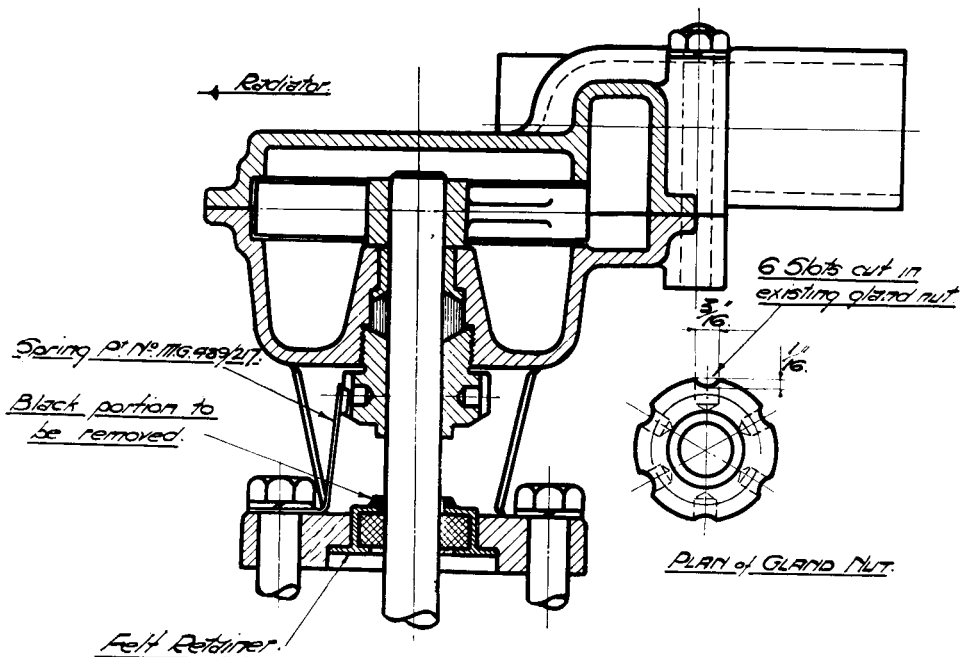
The existing gland nut is slotted to receive the new spring.

The coil spring spigot is removed from the spindle felt retainer.

The new retaining spring is secured by means of the front set screw which secures the pump to the front bearing housing.

The water drain hole is increased from  $\frac{1}{8}$  in. diam. to  $\frac{5}{32}$  in. diam.

Supplies of the new spring, Part No. M.G.489/217, can be obtained on application being made to our Service Stores Department. Price 9d. each (retail).



*Date of Issue : December, 1934*

**Service Information Sheet No. 20**

**STEERING COLUMN RATTLE**

Several complaints have been received regarding a rattle which had developed in the steering column of the Bishop cam type steering gear.

On investigation it was found that the rubber ring which should be situated equidistant between the top and bottom of the column was misplaced, which allowed the inner mast to rattle against the outer tube.

Care must be taken to see that this ring grips the inner mast sufficiently to prevent it moving out of place.

*Date of Issue : June, 1935*

**Service Information Sheet No. 21**

ELONGATION OF HUB STUD HOLES IN BRAKE-DRUMS

Cases have been brought to the notice of our Service Department regarding the elongation of the hub stud holes in the brake-drums, due to the braking torque. This applies to all models fitted with 12 in. diam. brake gear, in addition to all K. Type models.

As a result of an investigation it has been found that the spring washers as fitted had insufficient grip to prevent movement taking place at the hub studs, which in course of time resulted in the elongation of the holes in the drums.

To rectify this difficulty, spring washers having a larger diameter than formerly, and consequently an increased length of gripping edge, are now fitted under the hub studs as standard on P.N. and K.N. Type models.

These washers, to Part No. X.493/5, are  $\frac{1}{8}$  in. O.D., and can be obtained on application to our Service Stores Department.

*Date of Issue : June, 1935***Service Information Sheet No. 22****FITTING CRANKSHAFT FRONT END BALL RACE**

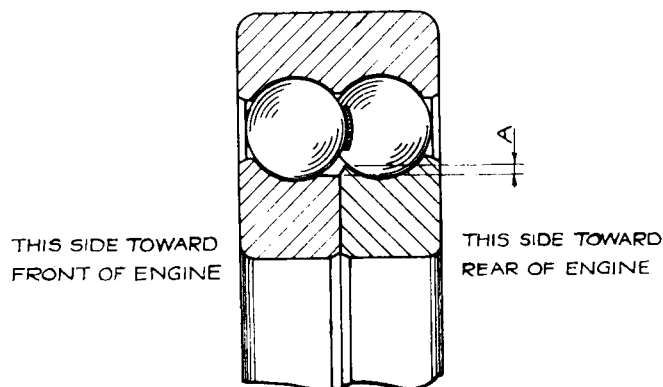
The front crankshaft journal on M., D., F. and J. Type models is a double-row ball race having a split centre ring.

Some difficulty has been experienced in our Service Department due to the race being fitted into the front bearing housing the reverse way round to that intended.

From inspection it will be seen that one half of the centre ring has a slightly smaller outer diameter than the other, at the adjoining faces. The sketch below, representing a section through the race, will explain this matter, the difference in the radii of the half rings at the adjoining faces being shown as dimension "A."

The race must be fitted with the smaller diameter half centre towards the front of the engine.

Although the efficiency of the race is unimpaired whichever way round it is fitted, it will be appreciated that if it is fitted in the reverse position the removal of the front bearing housing will leave the half ring in position on the crankshaft, when the balls will naturally fall into the sump.



*Date of Issue : July, 1935***Service Information Sheet No. 23****CRANKSHAFT FLOAT**

Instructions are issued herewith with regard to the fitting of the crankshaft white-metal thrust ring.

The thrust ring, as serviced, has a fitting allowance of  $\frac{1}{32}$  in. on the grooved face. An end float on the crankshaft of .003 in. is obtained by removing the surplus amount of metal from the grooved face of the thrust ring.

As an example, assuming that the crankshaft has an end float of .025 in., then, as the correct end float is .003 in., this means that there is an excessive amount of .022 in., and the new thrust ring is required .022 in. thicker than the one removed.

Date of Issue : July, 1935

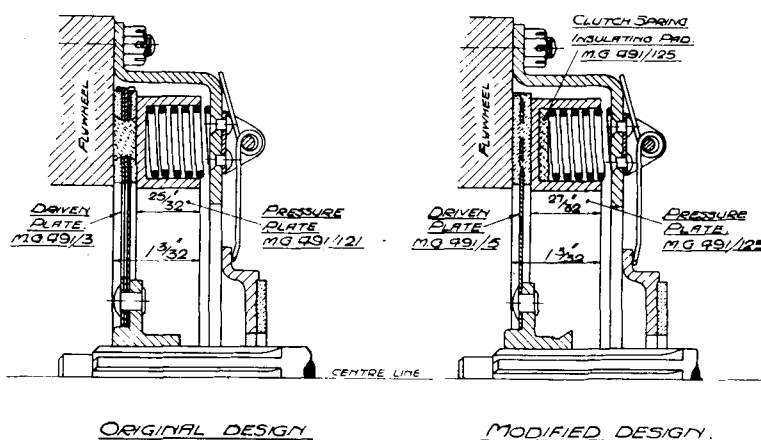
**Service Information Sheet No. 24****CLUTCH MODIFICATIONS**

A lighter design of driven plate, with a proportionately thicker pressure plate, has been incorporated in the P. and N. Type clutch.

The sketch given below of the original and modified design of clutch will illustrate this point.

The original design consisted of a driven plate having three discs with the linings secured by means of cork inserts and tabs on the periphery of the discs turned over to prevent the lining from being flung off by centrifugal force. The pressure plate used with this driven plate is  $\frac{25}{32}$  in. thick.

The modified design of clutch consists of a driven plate having a single disc with the lining moulded in position, the pressure plate being  $\frac{27}{32}$  in. thick. Insulating pads are inserted in the spring guide holes to protect the clutch springs from heat.



The modification came into production commencing at Engine No. :—

**P.A. Engine No. 2002**  
**N.A. Engine No. 1001**

*Original parts now superseded.*

**MG491/3 Driven Plate**  
**MG491/121 Pressure Plate**

*New parts superseding the above.*

**MG491/5 Driven Plate**  
**MG491/123 Pressure Plate**  
**MG491/125 Clutch Spring Insulating Pads (8 per set)**

The new driven plate, MG491/5, can be fitted to engines produced prior to those as given above, providing that the pressure plate, MG491/123, and insulating pads, MG491/125, are also fitted.

**Service Information Sheet No. 25**

**SPECIAL TUNING FOR TRIALS**

**Engine**

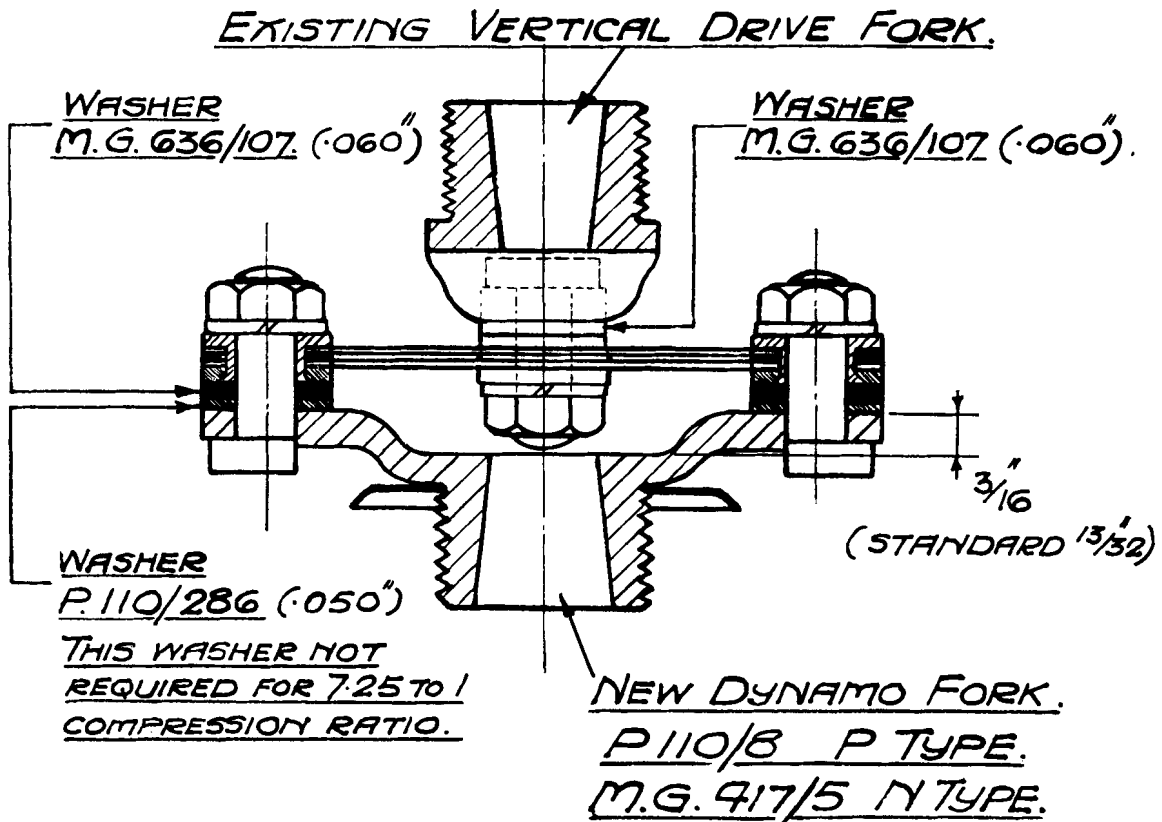
When specially tuning the engine it must be borne in mind that not only is it necessary to ensure that various small adjustments are checked and carried out more frequently, but additional care in handling must be exercised if the engine is to retain its reliability with the increased power produced. For this reason it is necessary, before carrying out any modifications, to consider the nature of the work the car will be called upon to do. For example, if the car is required for ordinary town work in addition to being used in trials, then it is not advisable to go to extremes.

If the car is required for town use it is possible to raise the compression ratio from the standard ratio of 6.2 to 1, to 6.7 to 1 and still retain its usual docility; but, on the other hand, if the owner wishes to produce a car for trials work only, then more power can be obtained by raising the compression ratio to 7.25 to 1.

In the hope that it may be of some assistance the following is a list of modifications which may be carried out with discretion:—

**Compression Ratio (6.7 to 1)**

To raise the compression ratio to 6.7 to 1 the cylinder head face must be machined to give an overall depth of  $3\frac{9}{32}$  in. instead of the standard dimension of  $3\frac{41}{64}$  in. The standard copper and asbestos gasket is retained, and this is always advisable and is to be preferred to the employment of a very thin steel gasket or no gasket at all, as with both the latter the making of a sound joint is always very difficult unless the operation is carried out by a highly skilled man. It will be appreciated that as a result of raising the compression ratio the dimension between the dynamo and cylinder head is reduced by a similar amount, necessitating the use of a more shallow dynamo drive fork. The sketch indicates the forks required together with the necessary packing washers.



**VERTICAL DRIVE COUPLING ARRANGEMENT.**

**6.7 TO 1 COMPRESSION RATIO.**

**Service Information Sheet No. 25**—continued

**Compression Ratio (7.25 to 1)**

In this case the cylinder head will have to be machined to an overall depth of  $3\frac{3}{8}$  in. The same remarks apply in connection with the cylinder head gasket and dynamo drive forks. The two packing washers P110/286 are not required with this compression, as shown on the sketch.

**Sparking Plugs**

With the afore-mentioned compression ratios the K.L.G. type LB1 sparking plug will be found to be satisfactory. It is of considerable importance to observe that the correct gap for this plug is between .012 in. and .015 in., and under no circumstances must the latter be exceeded if satisfactory results are to be obtained.

**Tappets**

Instead of the usual clearance of .006 in. inlet valve and .008 in. exhaust valve, it will be found advisable with the increased compression ratio to increase the clearance to .008 in. inlet and .010 in. exhaust.

**Valve Timing**

To obtain correct valve timing, which is so essential to ensure maximum power from the engine, refer to *Instruction Manual*, pages 25 to 29.

**Ignition Timing**

See *Instruction Manual*, page 43.

**Fuel**

Any commercially obtainable fuel having a benzol or lead content.

**Carburetter Adjustment**

Although in the majority of cases the standard needle will be found to be quite satisfactory, in exceptional cases where a richer needle is required, the M.5 needle will meet the case.

For general hints on synchronisation and general adjustment, see *Instruction Manual*, pages 37 to 40.

**Distributor**

See *Instruction Manual*, pages 41 to 44.

*Additional items which may be modified if so desired :—*

**Specially Balancing and Polishing Connecting Rods**

It is suggested that this should be carried out by a reliable firm, fully qualified to handle work of this nature. Combustion spaces and ports may be polished and exhaust and inlet ports checked to make quite certain that they line up with their respective manifolds.

**Gear Ratios**

The standard gearbox ratios are :—

	<i>1st</i>	<i>2nd</i>	<i>3rd</i>	<i>Top</i>
	4.18—1	2.32—1	1.36—1	1—1

If it is so desired these can be changed to give :—

	<i>1st</i>	<i>2nd</i>	<i>3rd</i>	<i>Top</i>
	3.58—1	2.14—1	1.36—1	1—1

and if used with the standard rear axle ratio of 5.375—1, P. type, or 5.125—1, N. type, the former give overall ratios as follows :—

		<i>1st</i>	<i>2nd</i>	<i>3rd</i>	<i>Top</i>
P. type	...	22.48—1	12.46—1	7.31—1	5.375—1
N. type	...	21.5—1	11.9—1	6.98—1	5.125—1

M.p.h. per 1000 r.p.m. (with standard tyres) :—

P. type	...	3.52	6.34	10.83	14.73
N. type	...	3.79	6.83	11.66	15.86

While the alternative gearbox ratios will give :—

		<i>1st</i>	<i>2nd</i>	<i>3rd</i>	<i>Top</i>
P. type	...	19.24—1	11.5—1	7.31—1	5.375—1
N. type	...	18.35—1	10.97—1	6.98—1	5.125—1

M.p.h. per 1000 r.p.m. (with standard tyres) :—

P. type	...	4.12	6.89	10.83	14.73
N. type	...	4.43	7.41	11.66	15.86



**Service Information Sheet No. 25—continued**

For trials in which very steep gradients are encountered a lower rear axle ratio may be employed, namely 5.875—1 on the P. type, and 5.375—1 on the N. type, giving overall ratios as follows :—

Using standard gearbox ratios :

		<i>1st</i>	<i>2nd</i>	<i>3rd</i>	<i>Top</i>
	P. type ...	24.54—1	13.63—1	7.99—1	5.875—1
	N. type ...	22.48—1	12.46—1	7.31—1	5.375—1
M.p.h. per 1000 r.p.m. (with standard tyres) :—					
	P. type ...	3.22	5.81	9.92	13.46
	N. type ...	3.59	6.46	11	15

While the alternative gearbox ratios will give :—

		<i>1st</i>	<i>2nd</i>	<i>3rd</i>	<i>Top</i>
	P. type ...	21.20—1	12.57—1	7.99—1	5.875—1
	N. type ...	19.24—1	11.5—1	7.31—1	5.375—1
M.p.h. per 1000 r.p.m. (with standard tyres) :—					
	P. type ...	3.77	6.3	9.92	13.46
	N. type ...	4.2	7	11	15

**Differential**

To prevent wheel spin on very steep gradients, the star and planet wheels may be removed from the differential and replaced by a differential lock. This device merely connects the axle shafts together and prevents loss of drive due to wheel spin ; it further assists in preventing wheel spin if the knobbly or sports tyres are fitted to the rear wheels, and advantage may be found when climbing freak gradients by lowering the tyre pressures to approximately 12 to 14 lb.

**Steering Gear**

The ratio of the steering gear fitted to the standard models is 9—1 and is considered quite high enough for general purposes, but for very special circumstances it may be considered advisable to fit a higher ratio, i.e. 7—1, which would enable maximum lock to be obtained with less movement of the wheel.

**Shock Absorbers**

No hard and fast rule can be laid down for the adjustment of the shock absorbers as this is a question of individual requirements, and whilst in trials or speed events it may be found desirable to stiffen the suspension by adjustment of the shock absorbers, this should never be done to any great extent or excessive loads will be imposed on the shock absorbers and their mounting brackets, which will almost certainly result in breakage of one or the other. It is always advisable to readjust the shock absorbers to normal as soon after the event as possible.

**Guarantee**

Before carrying out any of the modifications mentioned it is as well for the owner to bear in mind that the use of an M.G. car for racing and/or record attempts renders the guarantee null and void. This also applies in the case of any car or chassis which has been altered in any way.

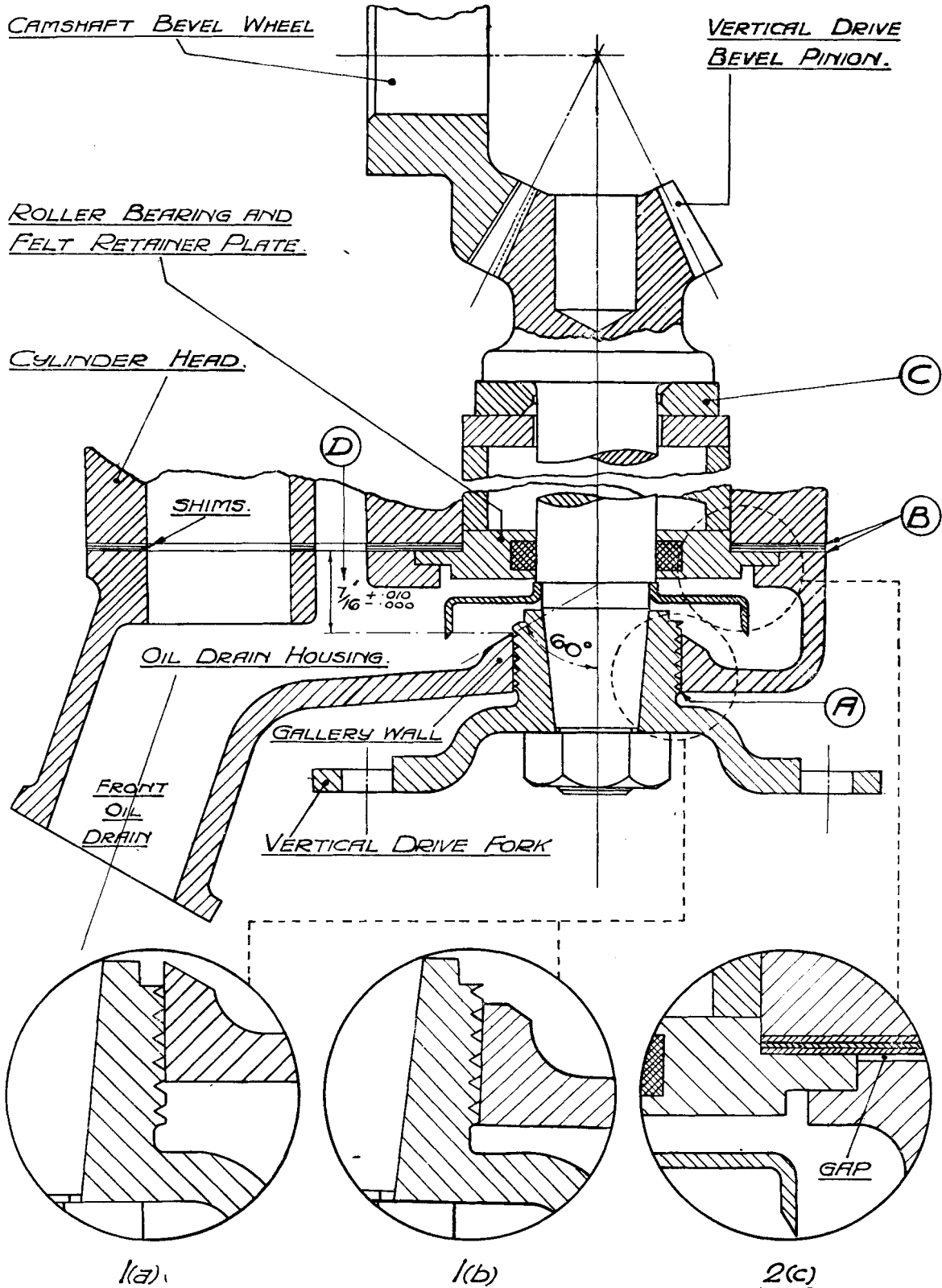
When writing, it is requested that Chassis and Engine Numbers are quoted, as this greatly assists the Service Department and prevents delay.

**Service Information Sheet No. 26**

**OIL LEAK AT VERTICAL DRIVE**

**Sources of Leakage.**

1. Between the oil drain housing and vertical drive fork, marked "A" on the illustration.
2. Between the cylinder head face and oil drain housing face, marked "B" on the illustration.



[Continued

**Service Information Sheet No. 26** (continued)**Causes.**

1. (a) The oil return thread of the vertical drive fork below the top of the oil drain housing gallery wall. Refer to illustration 1 (a).  
(b) The oil drain housing gallery wall flat at the top instead of having a sharp edge (chamfer angle 60°). Refer to illustration 1 (b).  
(c) Front oil drain pipe choked.
2. (a) Shims badly torn, as a result of being passed over the stud threads, or buckled.  
(b) The cylinder head and oil drain housing faces either damaged or bearing slight machining marks.  
(c) The roller bearing and felt retainer plate standing proud of the oil drain housing, preventing the housing from seating on the shims. Refer to illustration 2 (c).
3. Too great a quantity of oil allowed to drain from the cylinder head into the vertical drive housing.

**Method of Correction.**

1. (a) Either the oil drain housing gallery wall is too deep (see "D" on the illustration), in which case the housing is to be renewed, or a thicker thrust washer (marked "C" on the illustration) is to be fitted. The correct depth of the thrust washer is from .171 in. to .179 in. (Part Numbers P110/210 or P110/211). If it is found that a very thin washer has to be changed for one of the correct depth, then the difference between their depths is the required amount of extra shimming necessary between the oil drain housing and cylinder head faces, bearing in mind that the gears must mesh on their correct pitch line.  
(b) If the oil drain housing gallery wall has a flat at the top instead of a sharp edge, or if this wall is too deep for the vertical drive fork, the housing should be replaced by a new one.  
(c) Remove and clean thoroughly.
2. (a) Fit new shims.  
(b) Lap the two faces together, using a fine abrasive.  
(c) Renew housing.
3. Fit one shim (Part Number M.G.489/234) which has a  $\frac{3}{8}$  in. diameter hole instead of a  $\frac{27}{32}$  in. diameter hole, thereby controlling the quantity of oil which can pass into the vertical drive housing. This shim is .010 in. thick and it will be necessary to remove a shim or shims from the vertical drive housing equal to this thickness.

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 Revised and Re-issued : February, 1936

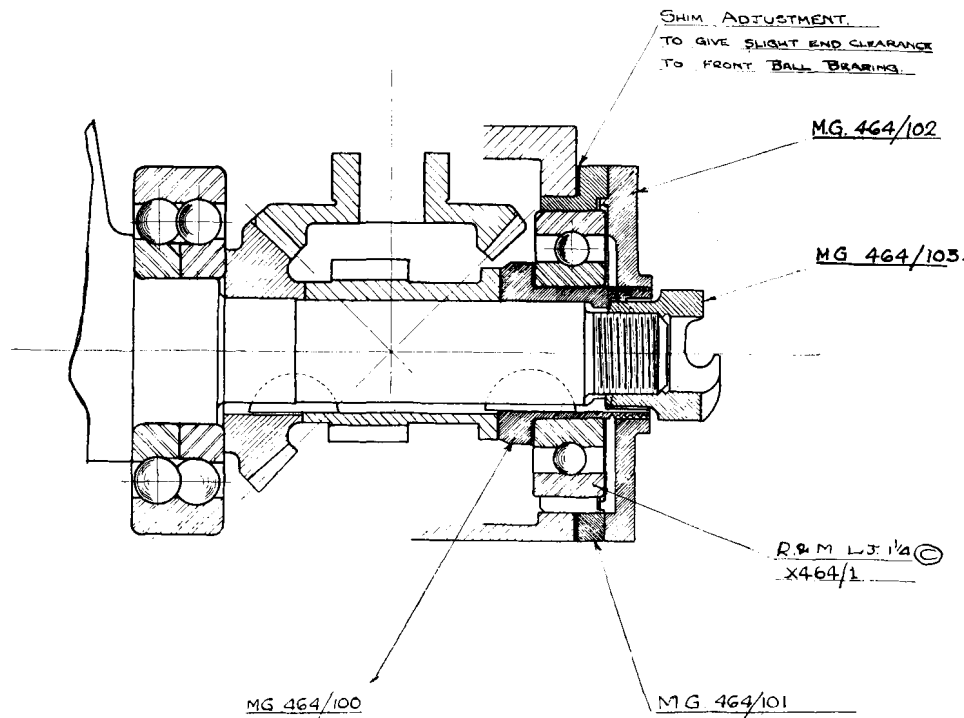
**Service Information Sheet No. 27**

**CRANKSHAFT SECONDARY BEARING**

In order to eliminate slight roughness at certain engine speeds a secondary ball race has been designed for fitting at the front end of the crankshaft. This additional ball race also forms a more efficient oil seal.

This modification is not difficult to fit, but the following remarks will be of assistance :—

1. Slacken the engine fixings to enable the front end to be dropped sufficiently to allow the engine nosepiece and crankshaft thrust washers to be removed, taking care to support the front end of the engine.
2. The crankshaft must be accurately tested for longitudinal movement and this must not exceed .008 in. If the movement is in excess of .008 in. a new main ball race should be fitted, as the secondary race must not be allowed to take any thrust load.



**Service Information Sheet No. 27**—*continued*

3. The diagram shows the assembly in detail, the method of shimming, however, is very important and must be carried out very carefully.

Assemble all parts as shown in the diagram, less shims, and tighten the set screws holding the cover-plate (M.G. 464/102) into position, thus leaving a gap between the front housing and the rear portion of the nosepiece. This gap must be carefully measured by feeler gauge, to which reading add .012 in., the total being the amount of shimming required between the faces. This will ensure that the slight end movement of the crankshaft will not allow any thrust load to be transmitted to the secondary race (X464/1).

Supplies of this assembly can be obtained from the Service Department, and the price, subject to revision, is £5 12s. 6d. If the old engine nosepiece complete and the crankshaft dog nut are returned to the Service Department a credit of £1 9s. 4d. will be passed.

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 Revised and Re-issued : February, 1936

**Service Information Sheet No. 28**

MAGNETO DRIVE

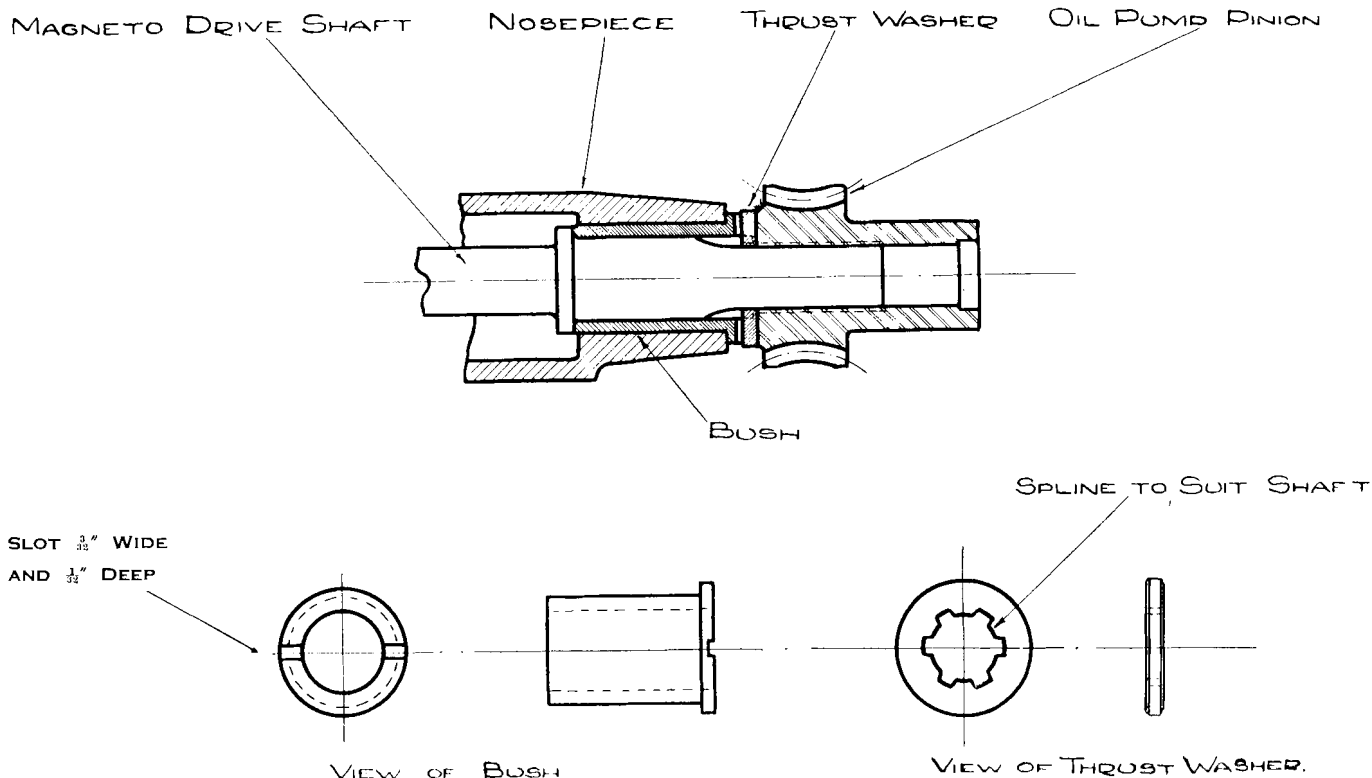
It has been found that the magneto drive thrust washer has been cutting into the splined shaft, causing it ultimately to fail.

Immediate action is necessary to obviate this, and the present washer is to be replaced by a modified one, as shown in the sketch, the washer being splined to the shaft. As the new type of washer has plain faces, oil grooves must be cut in the face of the bush to dimensions as shown in the drawing.

In all probability it will be necessary at the time of modification to change the splined shaft, as wear in the initial stages takes place very rapidly.

The modified washer (Part No. MG.348/298) and splined shaft (Part No. MG.348/227) may be obtained on application being made to the Claims Department.

The Chassis Numbers must be quoted when ordering.



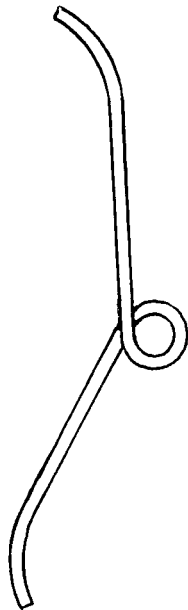
Date of Issue : November, 193  
Revised and Re-issued : February, 193

**Service Information Sheet No. 29**

CLUTCH OPERATING DISC SPRING

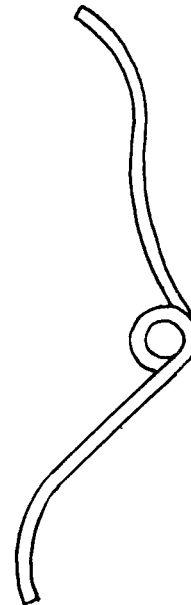
As a result of a few complaints of failure of clutch operating disc springs, it has been decided to discontinue the use of the springs to Part No. MG.412/116 and to substitute three more springs to Part No. MG.412/115, all six springs thereby being of the same type.

Replacement springs may be obtained in exchange for the obsolete springs on application being made to our Claims Department.



PART NO. M.G 412/115

(6 off per set)



PART NO. MG 412/116

(OBSOLETE)

*Date of Issue : June, 1934*  
*Revised and Re-issued : February, 1936*

**Service Information Sheet No. 30**

TWO SPARE WHEELS

As several calls for second spare wheel fittings have been received at the Works, it has been thought advisable to notify Distributors and Dealers that it is of the utmost importance to strengthen the body at the point where the spare wheel hub is attached to the body.

It will be appreciated that the additional weight of an extra spare wheel secured to the original wheel would stress the rear portion of the body to such an extent that (especially in the case of cars used for trials) very bad body distortion, if not fracture, would result.



*Date of Issue : October, 1934*  
*Revised and Re-issued : February, 1936*

**Service Information Sheet No. 31**

CRANKSHAFT FATIGUE

An interesting fact has been brought to light during an investigation into the question of fatigue life of the two-bearing type crankshafts.

The investigation showed quite clearly that this type of crankshaft should not be reground, owing to the fact that regrinding the journals to a smaller dimension weakens the structure and relative balance of the crankshaft.

This, coupled with the fact that a great number of these crankshafts are called upon to transmit exceedingly high engine r.p.m. and increased horse-power, makes it impossible to calculate the fatigue life.

Therefore, it has been officially ruled that this type of crankshaft will on no account be reground in future.

Date of Issue : April, 1936

Revised : March, 1938

**Service Information Sheet No. 32**

A repeated call for information regarding a complete list of M.G. models, past and present, has resulted in the issue of the tabulated list given below.

As the various types were not produced as yearly models, the dates quoted constitute the period during which they were produced.

With three exceptions the Chassis Numbers are prefixed by a type letter. The exceptions are :—  
 14/40 models, which had Chassis Numbers containing six figures ;  
 Mark I models, which had Chassis Numbers of 6000 onwards ;  
 Mark IV models, which had Chassis Numbers of 2000 onwards.

Series	Capacity in c.c.s	Prefix to Chassis No.	Production Period :		Body Type	Remarks
			From	To		
14/40	1802	Nil	1924	June, 1928	2-seater, Tourer and Saloon	4 cylinders
<b>Mark Models.</b>						
Mark I	2468	Nil	Dec., 1928	Aug., 1931	2-seater, Tourer and Saloon	6 cylinders
Mark II	2468	A.	March, 1930	Aug., 1933	2-seater, Tourer and Saloon	6 cylinders
Mark III	2468	B.	July, 1930	Dec., 1931	4-seater	Model title : " Tigresse." 6 cylinders
Mark IV	1802	Nil	Nov., 1927	Nov., 1929	2-seater, Tourer and Saloon	4 cylinders
<b>Midget Models (4 cylinders).</b>						
M.	847	M.	April, 1929	Aug., 1932	2-seater and Coupé	Racing car
C.	746	C.	May, 1931	June, 1932	Racing 2-seater	
D.	847	D.	Oct., 1931	July, 1932	Tourer and Salonette	Supercharged
J.1	847	J.	Sept., 1932	Aug., 1933	Tourer and Salonette	
J.2	847	J.	Sept., 1932	March, 1934	2-seater	Supercharged Racing car
J.3	746	J.	Nov., 1932	Oct., 1933	2-seater	
J.4	746	J.	March, 1933	Aug., 1933	Racing 2-seater	
P.	847	P.A.	Feb., 1934	May, 1936	2-seater and Tourer	Supercharged Racing car
P.B.	939	P.B.	Sept., 1935	May, 1936	2-seater and Tourer	
Q.	746	Q.A.	May, 1934	Dec., 1934	Racing 2-seater	Supercharged Racing car
R.	746	R.A.	April, 1935	Sept., 1935	Racing Monoposto	
T.A.	1292	T.A.	July, 1936	*	2-seater	
<b>Magna Models (6 cylinders).</b>						
F.1	1250	F.	Nov., 1931	Aug., 1932	Tourer and Salonette	} Fitted with 12 in. brakes
F.2	1250	F.	Oct., 1932	Jan., 1933	2-seater	
F.3	1250	F.	Sept., 1932	April, 1933	Tourer and Salonette	
L.1	1087	L.	March, 1933	Jan., 1935	Tourer, Saloon and Continental Coupé	
L.2	1087	L.	March, 1933	Dec., 1933	2-seater	
<b>Magnette Models (6 cylinders).</b>						
K.1	1087 later 1286	K.	Jan., 1933	Feb., 1935	Tourer and Saloon	Supercharged Racing car
K.2	1087 later 1286	K.	March, 1933	Jan., 1934	2-seater	
K.3	1087	K.	March, 1933	July, 1934	Racing 2-seater	
N.	1286	N.A.	April, 1934	Nov., 1936	2-seater and Tourer	Saloon
K.N.	1286	K.N.	Sept., 1934	Sept., 1935		
<b>1½-Litre</b>						
V.A.	1548	V.A.	April, 1937	*	Tourer, Saloon and Foursome	
<b>Two-Litre</b>						
S.A.	2228 later 2322	S.A.	March, 1936	*	Tourer, Saloon and Foursome	

\* Models still current in March, 1938.

*Date of Issue : June, 193*

**Service Information Sheet No. 33**

**PROPELLER SHAFT AND END FLANGES**

Before disconnecting the propeller shaft from the gearbox and rear axle flanges, it is a matter of some importance to mark the adjacent flanges in order to ensure that on reassembling, the propeller shaft retains its original relative position.

Should it be necessary to remove either the gearbox or the rear axle flanges it will also be necessary to mark these in relation to the primary shaft and pinion shaft, respectively, before removal.

In addition, when removing these flanges great care is necessary, as careless removal can so easily distort them, which completely destroys the concentricity of the propeller shaft.

An ideal puller therefore is one which will grip as large an area as close to the hubs as possible.

**Service Information Sheet No. 34****THROTTLE CONTROLS**

In view of a few complaints of sticking throttles, an investigation has been made as to the cause and method of rectification.

1. Examine the flexible discs at the end of the carburetter connecting link, and make sure that these are not buckled, causing undue pressure between the butterfly and the wall of the carburetter.

Should the connecting link be too short the coupling forks secured to the butterfly spindles should be released by unscrewing their clamp bolts, allowing the forks to find their neutral position, and the bolts then re-tightened. The same remarks apply should the rod be too long, but if the forks foul the carburetter body, they must be removed and their bosses refaced to permit them to slide nearer the carburetters. Before refitting the forks, fully close both butterflies, so that they are centralised in their housings. The forks can then be refitted to the butterfly spindles, but do not tighten the clamp bolts until the connecting link and flexible discs have been fitted.

2. Test each butterfly to ensure that the spindles are not too tight in their housings. Should they be tight, remove and polish the spindles with a fine abrasive cloth.
3. Some advantage may be gained if the accelerator return spring be removed to a position midway between its present hole in the accelerator lever and the operating link, thereby increasing the leverage. This increased leverage is not generally necessary but will be found to be of some assistance in extreme cases.
4. The cable operating the slow-running lever on the rear carburetter must be in line throughout the complete travel of this lever. Should the cable be at an angle to this travel, the inner wire being so stiff will bind in its outer casing, jamming the throttle in the open position.

In addition, examine the clip which secures the outer casing to the bracket, between the air silencer manifold and the rear carburetter, making certain that when the nut is tightened the outer casing is not distorted, pinching the inner wire.

5. When the valve cover has been removed and replaced, make sure that the float-chambers have not moved over, and are fouling the flexible discs.

**Service Information Sheet No. 35**

**DUAL PETROL PUMPS**

As a general rule a "clacking" noise produced by the petrol pumps indicates an almost exhausted petrol supply.

Such, however, is not always the case and can be the result of one or both of the following defects : An air leak, which can only exist in the system on the suction side of the pump, or dirty suction valves in the pumps themselves, due to the presence of some foreign matter.

Should both pumps make this noise it is probable that the defect lies in the pipe line, when all unions, olives, and pipe fittings should be tightened and carefully inspected for fracture.

When the noise occurs in one pump only it is an indication of a dirty suction valve. The valve can easily be removed and cleaned, but should any signs of buckling be observed, a new valve should be fitted.

When ticks are heard recurring at fairly long intervals it is an indication that the pumps are operating satisfactorily. It is only when a continuous noise is heard that a defect is to be suspected. The information contained in this bulletin then applies.

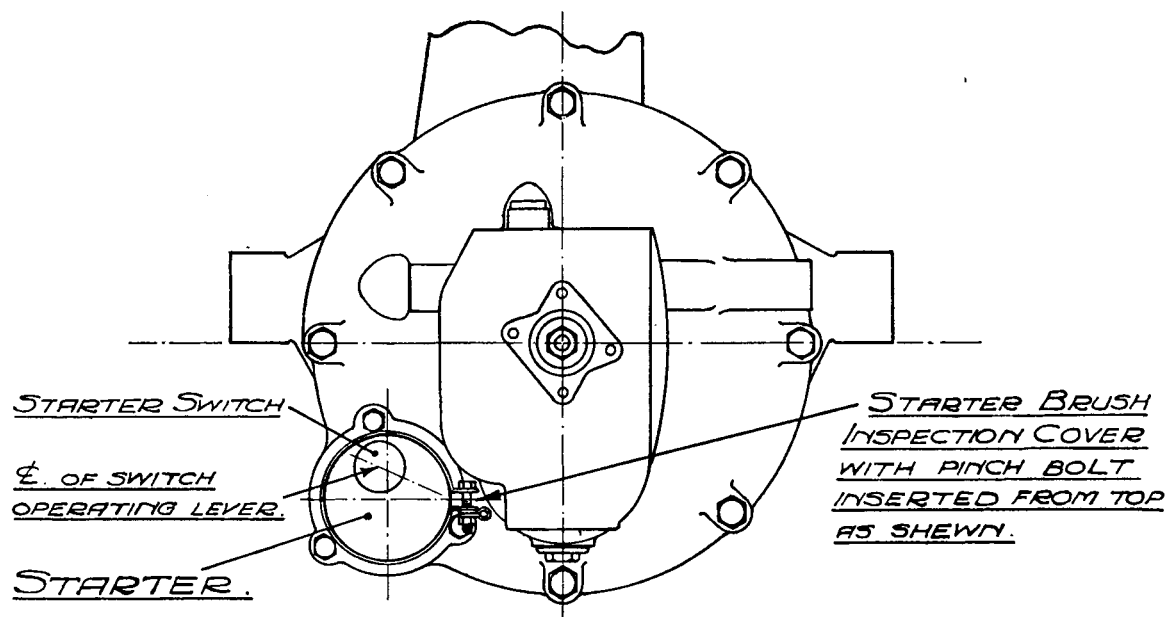
Date of Issue : July, 1936

**Service Information Sheet No. 36****STARTER CONTROL**

Service Departments are asked to note that the starter control is to be so adjusted that the bakelite knob is pulled  $\frac{1}{2}$  in. from the facia before the switch engages.

The necessary adjustment is governed by the outer casing clip, secured to the starter brush inspection cover, and the length of inner cable, which is lengthened or shortened by the pinch bolt screwed into the starter switch operating lever.

The most suitable position for the clip securing the cable outer casing is illustrated in the sketch below.



REAR VIEW OF TWO-LITRE ENGINE.

Date of Issue : July, 1936

Revised : March, 1938

**Service Information Sheet No. 37**

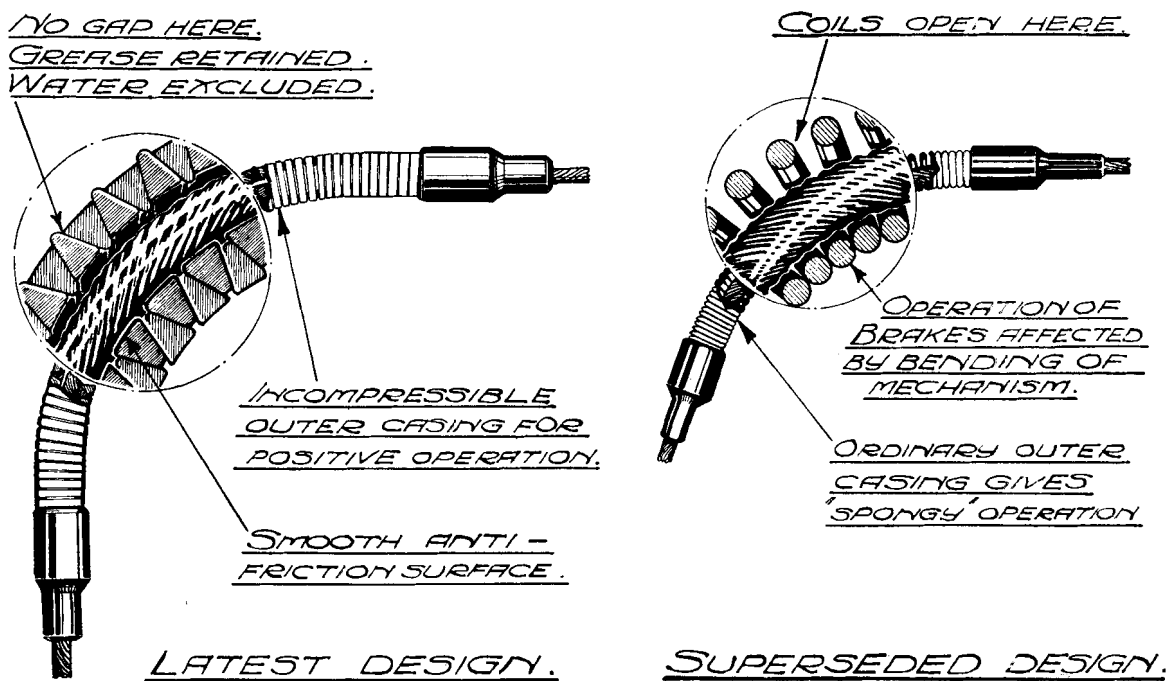
**BRAKE CABLES**

Our brake cable suppliers inform us that they have patented a new improved type of brake cable to supersede previous types.

The R Type Racing Midget was fitted with the new type of cable as standard and is therefore unaffected, but all models, with the exception of the Two-Litre S.A. Type, 1½-Litre V.A. Type, and the Midget Series T.A., will be serviced in future with the new type of cable following on the exhaustion of the stocks of superseded types at present carried in our Service Department.

The new type of cable, which is marketed under the trade name of "Bowdenex T," is fitted with an outer casing which is designed to retain the same mean length whether bent or straight, and is, at the same time, incompressible. The sketch below illustrates this point.

It is a matter of considerable importance to ensure that the new cables are fitted in pairs per axle, as one of the new type fitted in conjunction with one of the old type will inevitably result in uneven braking.



LUBRICATION.—A lubricant having a graphite content must be used.

Date of Issue: August, 1936

**Service Information Sheet No. 38**

**INSTRUCTIONS FOR FITTING REAR BUMPER TO THE M.G. TWO-LITRE MODEL**

The following instructions with regard to the fitting of the new improved type of rear bumper to the Two-litre model will be of assistance.

Remove the petrol tank filler neck cover in the luggage space, the side trim boards, and the rear body mounting bolts (two either side marked "B" on the sketch).

Cut two slots in the body panels for the bumper stays, marking off their positions from the floor of the luggage container. The dimensions of the slots are  $2\frac{1}{2}$  in. deep by  $1\frac{1}{4}$  in. wide and their centres are  $19\frac{1}{16}$  in. either side of the centre line of the chassis frame. (The slots already existing are too low for the bumper as now designed.)

Slide the rubber ferrules provided along the bumper stays.

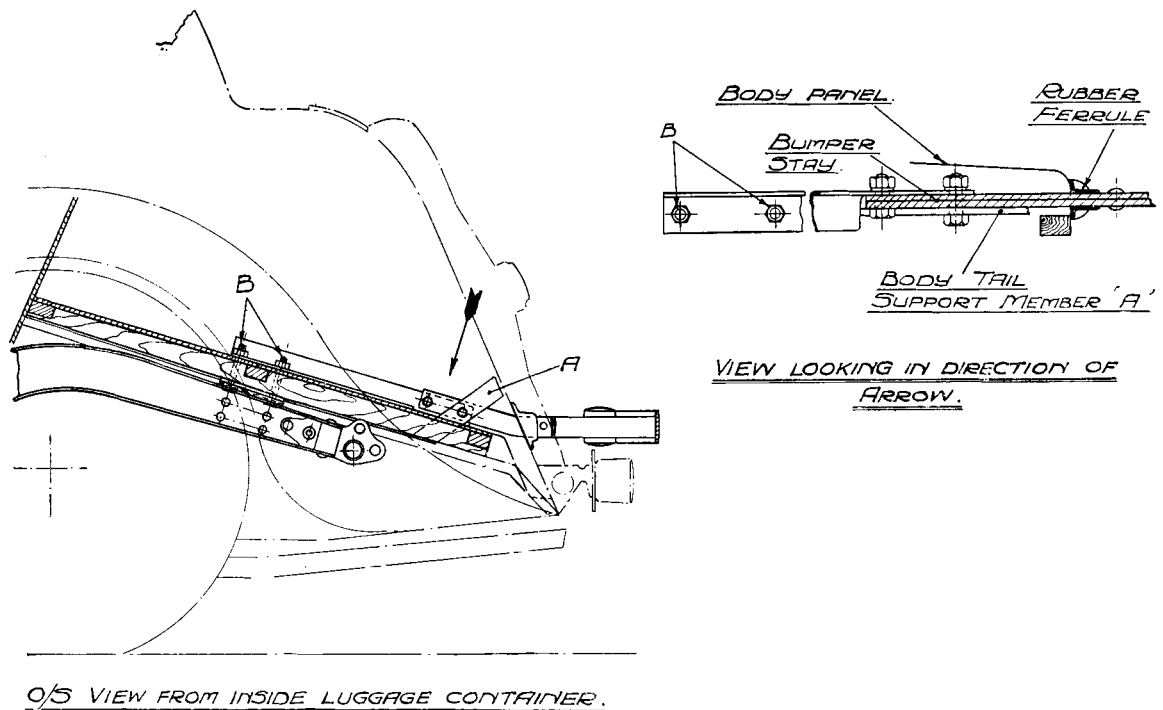
Pass the bumper stays through the slots in the body panels.

With the bumper set horizontal and with a clearance of  $\frac{5}{8}$  in. between the bumper bar and the spare wheel cover with the luggage flap fully open, mark the position of the hole to be drilled in each body tail support bracket from the rear holes in the bumper stays. Drill these holes so marked with a  $\frac{29}{64}$  in. drill. Both bumper and angle support brackets can then be bolted in position.

The holes required to be drilled in the bumper support brackets at the front end can now be marked off and drilled with a  $\frac{29}{64}$  in. diameter drill from the holes in the body member.

The body mounting bolts now also securing the bumper support brackets will be found to be of sufficient length and can be refitted.

It should be noted that the near-side bumper support bracket is cut away to clear the petrol tank filler neck.





Date of Issue: August, 1936

**Service Information Sheet No. 39**

**LOCKHEED BRAKE PIPE LINE**

The flexible hose connection to the rear axle "T" piece has been fitted in such a position that when the rear springs are fully compressed the footwell chafes it.

A modification therefore is vitally necessary and consists of reversing the bracket bolted to the rear axle nose piece carrying the "T" piece, also turning the "T" piece into a position when the outlet connections are nearer to the ground.

The pipe from the off-side back plate is then led under the rear axle nose piece instead of over it, naturally it is of the utmost importance to see that the pipe is secured above the level of the lowermost portion of the rear axle nose piece.

A new pipe will be supplied which is shorter, and armoured for a portion which is under the rear axle casing.

The sketch illustrates the modification.

**As this modification is of major importance we must ask Distributors and Dealers to call in all cars of this type immediately.**

Our Service Department has been instructed to dispatch the necessary material.

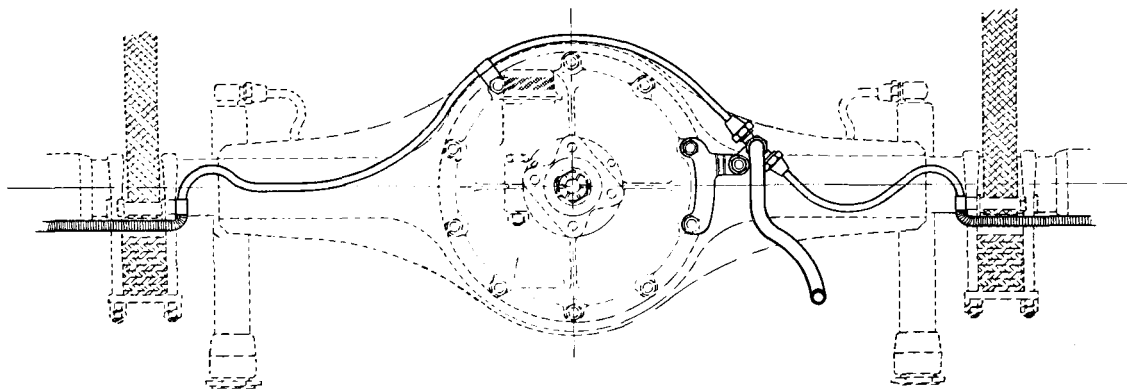
It is important that the pipes removed are returned to our Service Department for credit without delay.

Distributors and Dealers are also asked to issue the necessary instructions to their workshops so that whenever a car of this type comes in for Service these points are checked and the modification carried out if it has not been dealt with previously.

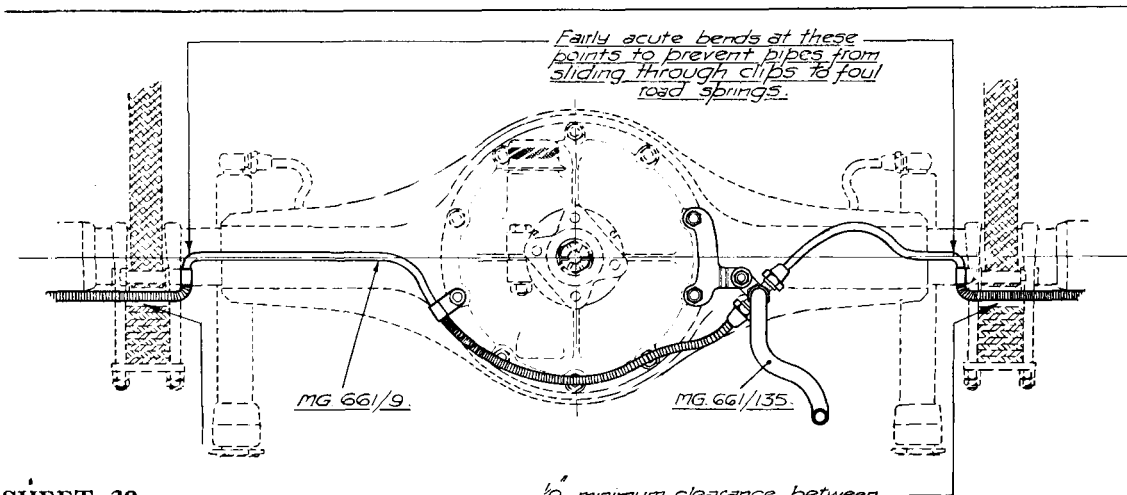
**It is also very important that the Works be notified of the Chassis Numbers of all cars so modified.**

The material necessary for this work is as follows:—

- |                                 |     |                       |                   |
|---------------------------------|-----|-----------------------|-------------------|
| Flexible Hose Connection ...    | ... | Part Number MG661/135 | 1 off (if chafed) |
| Off-side Pipe to Back Plate ... | ... | Part Number MG661/9   | 1 off             |



ORIGINAL ARRANGEMENT OF LOCKHEED PIPES.



MODIFIED ARRANGEMENT OF LOCKHEED PIPES.

**TO SERVICE SHEET 39**

bulletin applies only in the G. Two-Litre cars prior to S.A.0903.

Date of Issue: January, 1937

**Service Information Sheet No. 40**

**BRAKE CABLES**

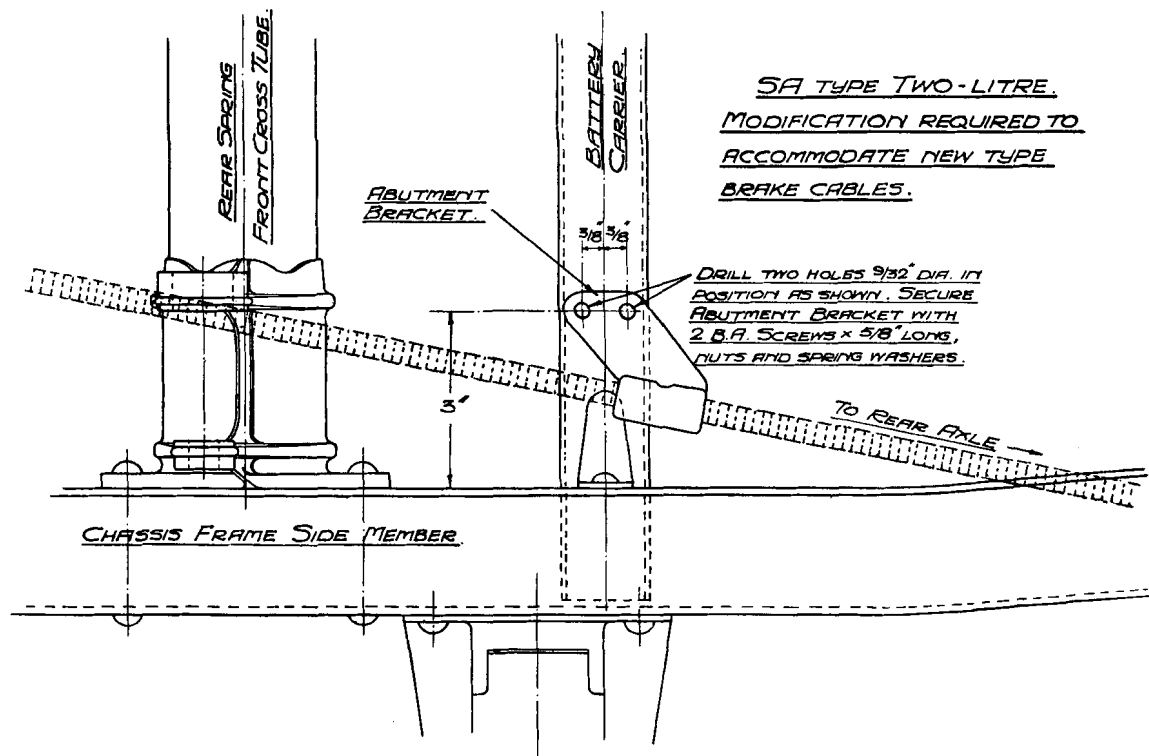
An improved design of brake cable to Part Nos. MG661/26 O/S and MG661/27 N/S, has been introduced on the S.A. Type Two-litre model, commencing at Chassis No. SA1407.

These new cables have been designed to operate through approximately a straight run from the hand brake cross shaft to the rear back plates, when assembled. This feature has necessarily led to the re-positioning of the brake cable abutment brackets.

The new type cable will be serviced for all S.A. type Two-litre cars, the original type being unobtainable.

On cars bearing a Chassis Number previous to SA1407, to accommodate the new cables, it will be necessary to drill two  $\frac{9}{32}$  in. diameter holes in the battery carrier to secure each of the abutment brackets. Particulars of this modification are given in the sketch below. The cables being fitted, it only becomes necessary to connect the Tecalemit pipe line to the abutment bracket when the work is complete.

With the brake cables correctly adjusted no disadvantage can result should one of the new cables be used in conjunction with one of the original type, as the sole purpose of this mechanism is for parking purposes only.



*Date of Issue: January, 1937*

**Service Information Sheet No. 41**

**ADJUSTMENT OF TORQUE CABLES**

The duty of the torque cables is to take the torque reaction of the axle beam when the front brakes are applied ; it is important, however, that they are correctly adjusted.

The following procedure gives the correct method :—

Turn the steering to the “ straight ahead ” position and adjust the cables so that, with pressure applied by the fingers midway between the fulcrum pins, there is  $\frac{3}{4}$  in. to 1 in. of free up and down movement or  $\frac{3}{8}$  in. to  $\frac{1}{2}$  in. either side of the centre line. The lock nuts on the cable yoke ends are then tightened to maintain the adjustment.

*Date of Issue: February, 1937*

**Service Information Sheet No. 42**

**VALVE ROCKER RETURN SPRINGS**

It has been found as a result of a series of tests and experiments that the omission of the valve rocker return springs does not detract in any way from the efficiency of the TA Series Midget and SA Type Two-litre engines.

In consequence of these findings, Agents are notified that in future these springs will not be fitted or supplied for service requirements.

Should any difficulty occur due to the breaking of any one spring it is permissible to remove the complete set.

Date of Issue : February, 1937

**Service Information Sheet No. 43****ADJUSTMENT OF STEERING KNUCKLE**

Service Repair Shops are advised that steering knuckle steel thrust washers are available in various thicknesses to enable the up and down movement on the king pins to be adjusted to the correct amount of .004". This clearance is measured between the brass flange of the king pin bush and the steel thrust washer.

The various washers are as follows :—

MG662/114	Swivel pin thrust washer	.181"	to	.183"
MG662/127	" " " "	.183"	to	.185"
MG662/128	" " " "	.185"	to	.187"
MG662/129	" " " "	.187"	to	.189"
MG662/130	" " " "	.189"	to	.191"
MG662/131	" " " "	.191"	to	.193"
MG662/132	" " " "	.193"	to	.195"
MG662/133	" " " "	.195"	to	.197"
MG662/134	" " " "	.197"	to	.199"

*Date of Issue : February, 1937***Service Information Sheet No. 44****CHASSIS LUBRICATION**

It is very important that gear oil be used for all chassis lubrication nipples and not grease. This particularly applies to hollow draglinks and all those points that are fed with small brass tubing.

Quite apart from the fact that grease is much more difficult to force along small ducts than oil, grease tends to harden and ultimately to solidify, with the result that it is impossible for the ordinary hand gun to force any further lubricant until the solidified grease has been removed.

We must therefore ask all service stations to issue the necessary instructions for the correct lubricant to be used in future. The recommended lubricant is Duckham's Gear Oil "N."

*Date of Issue: March, 1937*

**Service Information Sheet No. 45**

**LOCKING PLATES FOR STEERING ARM BOLTS**

It has been considered necessary to reverse the position of the bolts in the steering arms through the knuckles. Up to the present time these bolts have been fitted with the heads inside the brake-drum and the nuts outside, secured by "Shake-proof" washers.

It is now requested that these bolts be fitted in the reverse direction, that is with the heads outside and the nuts inside the brake-drum. But instead of the "Shake-proof" washers, it has been considered more satisfactory to fit a tab locking washer, Part No. MG493/113. After the nut has been thoroughly tightened, the tabs are then turned up, which prevents the nuts from turning.

This modification has been incorporated on production commencing at Axle Number 1411.

All owners have been notified of the necessity for this alteration in our letter JWT/GL/1, dated 22nd March, 1937. Will Repair Shops please take immediate note of the details so as to be in a position to carry out the alteration on demand?

*Date of Issue : April, 1937*

**Service Information Sheet No. 46**

REMOVAL OF SUMP

Agents are advised that in order to remove the sump of the "T" Series Midget, it is *not* first necessary to remove the front exhaust pipe or disconnect the steering, as described in the *Manual*. To remove the sump it is necessary only to remove the starter securing bolts, when the starter can be drawn out as far as it will go to give access to otherwise inaccessible sump securing bolts.



Date of Issue : April, 1937

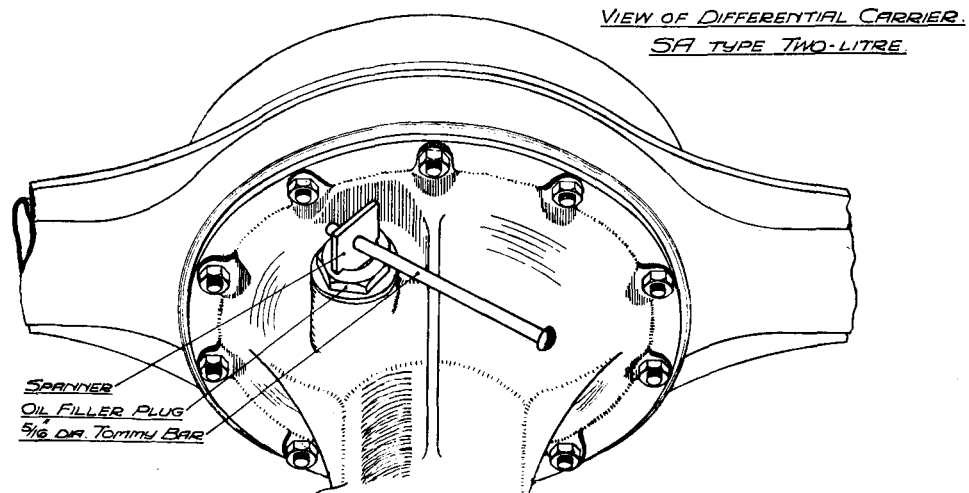
**Service Information Sheet No. 47**

**SPANNER FOR REAR AXLE OIL FILLER PLUG**

Enquiries have been received as to the purpose of the tool shown below, which is included in the tool kit of the "SA" Type Two-litre.

This part is for use as a spanner for removing the rear axle oil filler plug. A tommy bar is inserted through the central hole.

The oil filler plug is exposed to view after the axle dipstick has been removed.



*Date of Issue : July, 1937***Service Information Sheet No. 48****VALVE ADJUSTMENT**

An investigation into a valve gear noise which occurs between 2000 and 3000 r.p.m. has shown the necessity for altering the tappet clearances and method of setting, as at present recommended.

The original clearances for both inlet and exhaust valves were specified as .015 in. with the engine at normal running temperature.

The tappet clearances for the inlet valves should now be set at .009 in. minimum, .010 in. maximum when the engine is at normal running temperature. The tappet clearances for the exhaust valves remain at .015 in. as formerly.

Clearances are taken between the rocker and valve stem when the tappet is on the base of the cam immediately opposite the maximum lift point. This position is obtained by turning the crankshaft one complete turn beyond the valve maximum open position.

*Date of Issue : August, 1937*

**Service Information Sheet No. 49**

ADJUSTMENT OF ENGINE MOUNTING

A point that may not be generally realised is the importance of the correct adjustment of the front engine mounting on the above models.

The seating rubbers with bolts secure the engine to the frame at the same time allowing flexibility, and the small rubber washers under the support brackets prevent the engine from lifting. If these latter are adjusted too hard against the engine brackets, much of the general flexibility is prevented, therefore the retaining plate should be fitted so that the rubber washer just makes contact with the support bracket and held in this position while the lock nut is tightened.

*Date of Issue : August, 1937*

**Service Information Sheet No. 50**

**OIL LEAK INTO REAR BRAKE-DRUMS**

An oil leak from the differential into the brake-drums on the rear axle has been traced to the omission of a paper gasket between the hub and the hub bearing housing.

As from Axle No. 988 onwards this gasket has been fitted in production. On chassis fitted with a rear axle having a serial number previous to the above, it will be necessary for Agents to make this addition when complaints are received.

Particulars of the gasket in question are :—

MG715/138      Joint for Rear Hub.      2 per car.

**Service Information Sheet No. 51**

**MODIFICATIONS FOR IMPROVED VENTILATION AND CONTROL OF TEMPERATURE**

In order to improve ventilation and for a more satisfactory control of temperature in the body interior, certain modifications have been incorporated on production. Details of similar modifications are given herewith, for the conversion of earlier cars, if required.

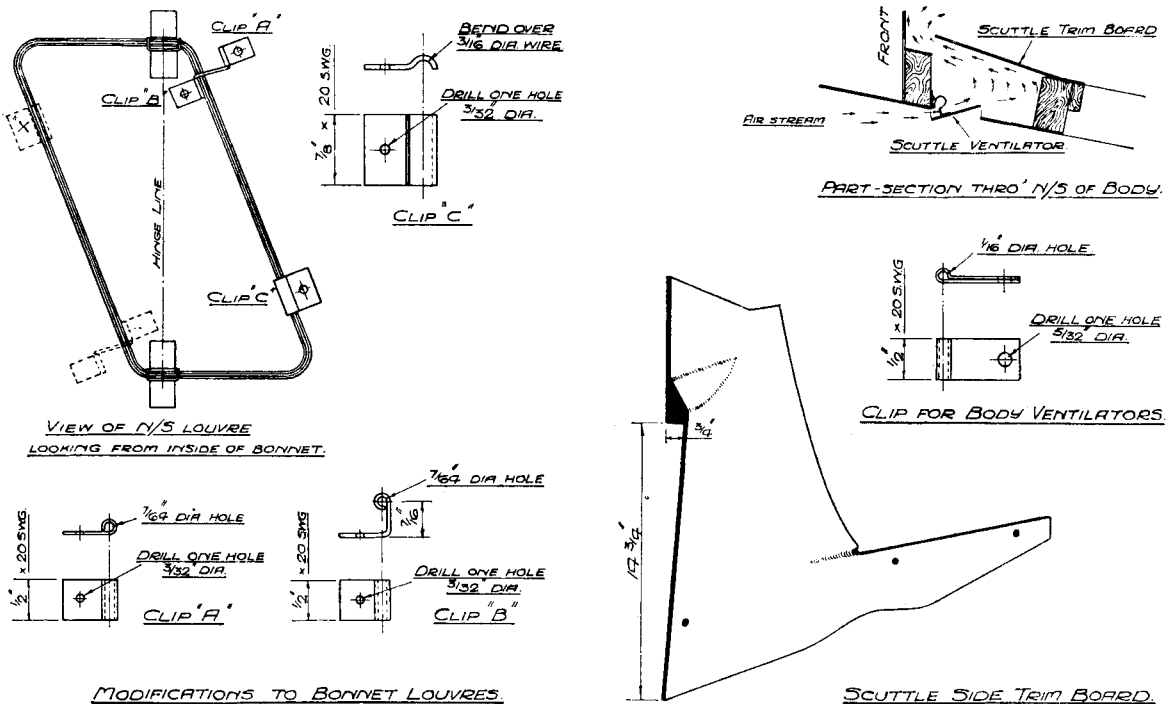
**BONNET LOUVRES.**

The front two louvres are to open forward instead of backward as previously. Taking each louvre individually, the existing stop clip marked "X" on the illustration need not be removed, but should be bent back toward the bonnet and flattened out. The spring clips can remain, but the spring is removed for further use, as explained below.

It is then necessary to make up new clips from 20 s.w.g. steel strip, "A," "B" and "C," as shown on the illustration, which are riveted to the bonnet and louvre, using  $\frac{3}{32}$  in. diameter by  $\frac{1}{4}$  in. long flat head rivets. (These clips are facsimiles of those discarded, and are secured diametrically opposite, as shown.) The springs previously removed are then fitted to the new spring clips.

The two rearmost louvres are to be permanently shut by soldering or welding the stop bracket to the louvre marked "X."

The above modifications have been incorporated on production commencing at Body Number 923/3932.



**REVERSING OF SCUTTLE VENTILATORS.**

With the scuttle ventilators the direction of opening is to be reversed so that the opening is now forward.

The ventilators and side trim boards are removed and the body panel flanges in the apertures, previously acting as stops for the ventilators, are cut away. The ventilators are then inverted and refitted, using two new 20 s.w.g. steel strip clips (refer to illustration) for each ventilator and secured to the scuttle rail woodwork with No. 6 x  $\frac{1}{2}$  in. round head wood screws to pick up the free ends of the springs.

The side trim boards will require to be modified in order that in-rushing air is diverted to the front of the scuttle, not only to prevent draught but to give better ventilation. This is illustrated in the view showing a part-section through the near-side of the body.

The work necessary to the trim boards is the fitting of aluminium panels to cover the existing vent holes and the boards cut and shaped as illustrated. Alternatively, new trim boards may be obtained. Particulars of these new trim boards are:—

- Part Number B267/317 Side Trim Board O/S
- Part Number B267/318 Side Trim Board N/S

The reversing of the scuttle louvres commenced on production at Body Number 740/3795.

*Date of Issue : February, 1938*

**Service Information Sheet No. 52**

**SAFE LIMIT FOR REBORING**

It has been thought advisable to issue information with regard to the safe maximum limit to which cylinder blocks used with models of past and present production may be rebored.

On all models produced with a nominal bore of 57 mm. diameter and the PB Type Midget, which had a nominal bore of 60 mm. diameter, the maximum limit is the F range. A cylinder block bored out to FX size is .050 in. above the nominal bore size, and pistons can be supplied covering subsequent wear.

In the case of the Midget Series T and 1½-Litre VA Type, the maximum limit is G size, which is 1½ mm. over the standard bores. The cylinder bores of the Two-Litre SA Type may be bored out with safety to 71 mm. diameter.

Date of Issue : March, 1938

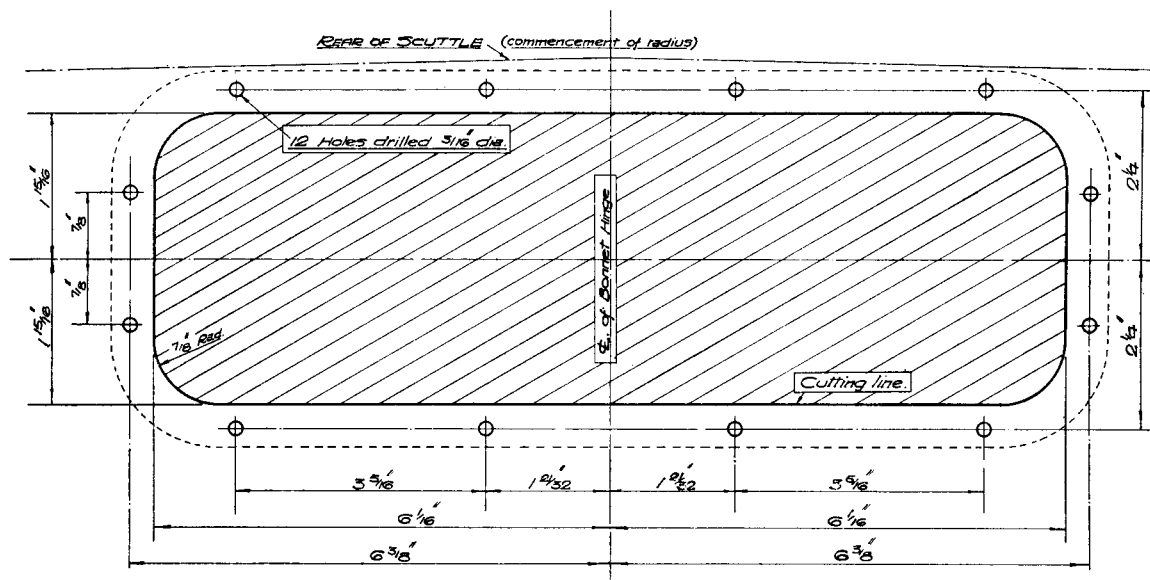
**Service Information Sheet No. 53**

**SCUTTLE TOP VENTILATOR**

Method of fitting a scuttle top ventilator to Two-Litre cars (Saloon only), prior to Body Number 1381/6230, Body Type B.267.

1. **IMPORTANT.** Disconnect battery.
  2. Remove baffle board under the scuttle, the facia side fillets and the facia with instrument panel complete. Remove baffle board, control wires, etc.
  3. Remove and discard tie bracket from screen rail to scuttle body member.
  4. Remove screen wiper control knobs and screen rail capping.
  5. The template is supplied to assist in cutting the scuttle panel to receive the ventilator. Stick this template to the scuttle with paste, or other suitable adhesive, taking care to ensure that the centre line coincides with the bonnet hinge line and that the flange of the ventilator (shown as a dotted line on the template) comes almost to the radius of the scuttle panel below the windscreen.
  6. Mark the panel through the template with a centre punch along the cutting lines and for the position of the twelve holes.
  7. Cut out panel and drill fixing holes.
  8. Fix the right-angle bracket of the control to the lever on the ventilator lid by the clevis pin and split pin provided.
  9. Fix ventilator lid assembly to scuttle with the twelve 3-BA chromium-plated bolts and nuts.
- N.B.* The joint between the ventilator flange and the body must be sealed. A suitable material for this purpose is "Coachbuilders' Dum Dum" glazing compound.
10. Fit the drain tray to the body. This must be centralised so that the ventilator operating rod lines up with the rectangular slot in the drain tray. The back edge of the drain tray must be lifted as high as possible (so that it drains towards the water outlets). To achieve this, two saw cuts must be made in the underside of the screen rail to clear the side flanges of the tray. The tray is secured to the screen rail and forward scuttle rail by wood screws. Countersunk screws must be used in the screen rail to allow the capping to seat satisfactorily.
  11. Assemble the control rod and screw the lead screw into the threaded angle bracket attached to the hinged lid. Secure the chromium-plated bracket to the screen rail with two countersunk wood screws.
  12. Provide means for water to drain away under the car. On production cars at the present time a steel tube is welded in each side of the dash connected to the tubes in the drain tray with two lengths of rubber tubing. This may be impracticable when converting a car, and the method to be adopted is, therefore, left to the operator's discretion.
  13. Cut a slot in the back of the screen rail capping to clear the chromium-plated bracket and refit capping.
  14. Refit instrument panel and facia, side fillets, baffle board, etc. Re-connect battery.

This assembly is similar in all essentials to the ventilator fitted as standard to all bodies subsequent to the aforementioned Body Number and it will greatly assist the work if one of these later bodies is examined before the work is begun.



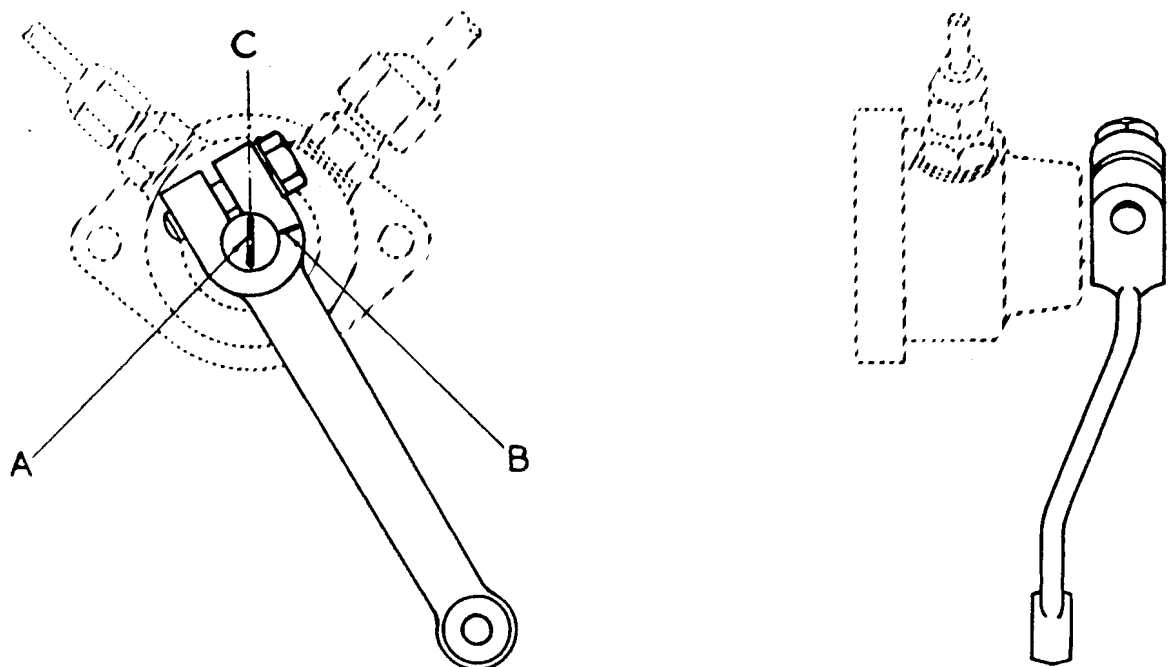
**Service Information Sheet No. 54**

**SHOCK ABSORBER RIDE CONTROL PUMP**

It has been brought to our notice that the fitting mark "A" on the pump shaft is incorrectly positioned in relation to the mark "B" on the operating lever. This gives an unequal travel either side of the central position, sometimes allowing the pump rotor to foul the valve chamber on the maximum rebound position of the axle.

To overcome this difficulty the lever pinch bolt must be slackened and the lever turned clockwise on the shaft until the mark "A" on the shaft lines up with the corner of the lever boss as shown at "C."

This is a very small but very important modification and all Service Stations are requested to check and readjust the pump units on all 1½ Litre (VA. Type) cars that are in for service.



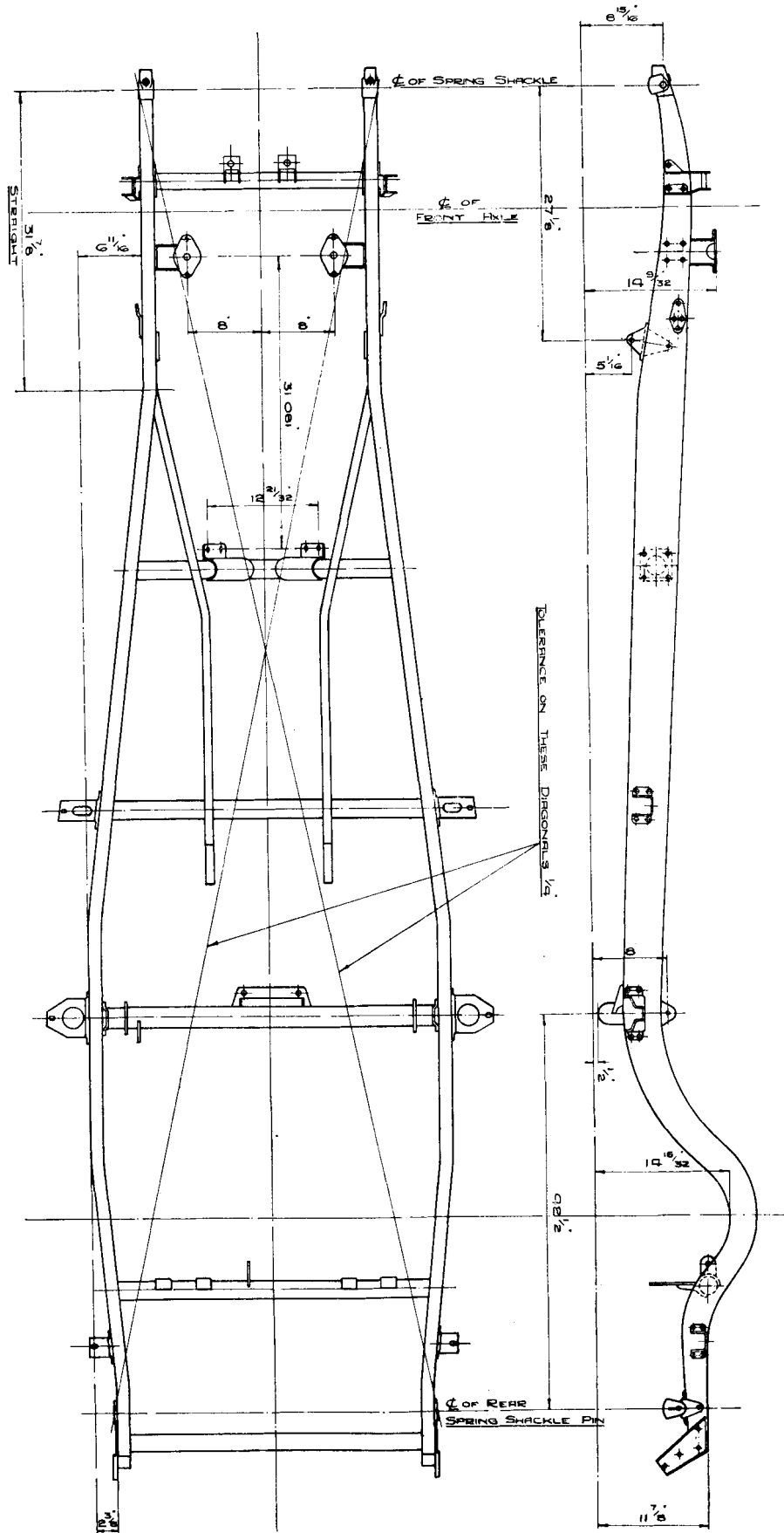


Date of Issue : July, 1938

Service Information Sheet No. 55

CHASSIS DIMENSIONAL DRAWING

It has been pointed out that the Chassis Dimensional Diagram at present appearing in the Instruction Manual for the 1½-Litre VA. Type is inaccurate. The discrepancies have now been rectified and the correct diagram is given below.



Date of Issue : August, 1938

Revised : September, 1938

**Service Information Sheet No. 56****OIL LEAKING INTO CLUTCH**

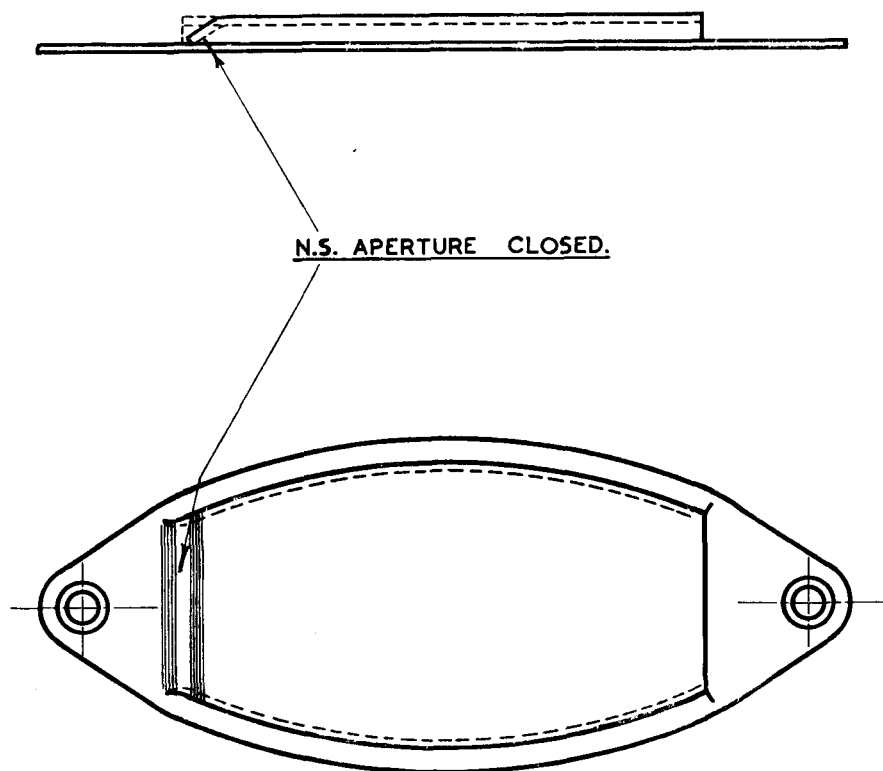
Oil leaking into the dry clutch now fitted to all VA. Type engines has been investigated, with the following findings :—

1. A cover must be fitted over the starter pinion. The first few engines were not fitted with them. The clutch housing must be drilled and tapped to receive the securing screws, the cover can be used as a template for marking the holes.
2. The clutch inspection cover was originally designed with two breather apertures, but the near-side aperture must be closed, it being necessary only to close this aperture by tapping with a ball pein hammer. The sketch below illustrates this particular point.
3. A good joint between the crankshaft flange and the crankshaft oil thrower is essential. It is suggested that the mating surfaces are examined for cleanliness and a slight smear of goldsize applied to each before reassembling.

If, after carrying out the above modifications, oil is still leaking into the clutch compartment, it may be due to the oil thrower immediately behind the rear main bearing running too close to its housing, or damaged threads, etc.

The correct clearance between the oil thrower and its housing is .0025" minimum to .006" maximum, the most important point being that the clearance be equal throughout the 360°.

The possibility of oil leaking from the gearbox into the clutch should also be considered.



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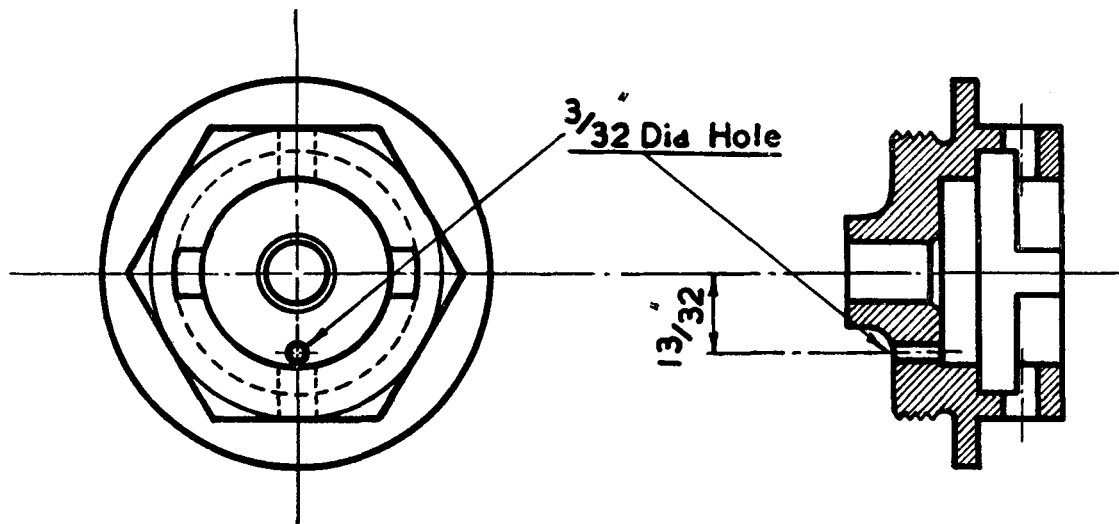
**Service Information Sheet No. 57****OIL LEAKING FROM THE REAR AXLE NOSEPIECE**

A peculiar case of a Two-Litre (SA. Type) axle being drained of oil in a very short mileage due to a leak from the nosepiece has been examined.

Investigation has proved that it was due to inadequate breathing, the pressure generated inside the casing forcing the oil out of the nosepiece.

The breathing of the axle is intended to operate between the oil level dipstick and its housing, a definite clearance being given for this purpose. Due to small variations between the size of the hole and the size of the dipstick this clearance under extreme conditions proving inadequate and an additional  $\frac{3}{32}$ " dia. hole has been made in the dipstick carrier or filler plug in the position illustrated by the sketch.

Service stations are advised, therefore, that if this difficulty is experienced this hole should be drilled.

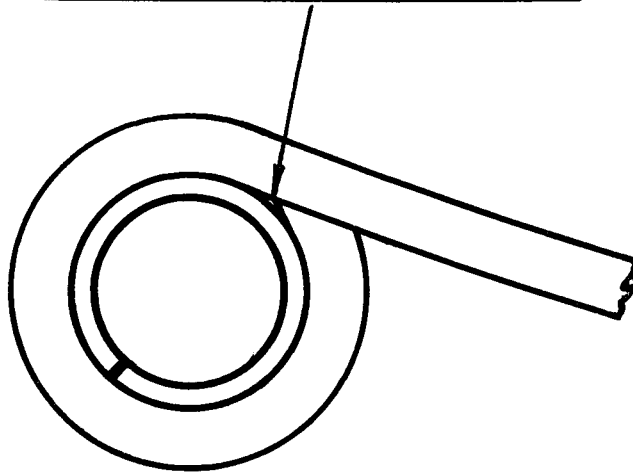


**Service Information Sheet No. 58**

**CORRECT FITTING OF SHACKLE PIN BUSH TO SPRING EYE**

It is essential that the rolled type of shackle pin bush now fitted to the above models is fitted to the spring eye so that the join of the bush does not coincide with the join of the spring eye. If reference is made to the sketch below it will be seen that with the bush correctly fitted loss of lubricant is prevented at this point.

BUSH TO BE FITTED WITH  
SEAM OPPOSITE THIS POINT.



**Service Information Sheet No. 59**

**LUBRICATION OF THE KING PINS**

The king pin bushes for the above models have been modified to give more efficient lubrication of the king pins. The oil grooves are designed to lubricate the thrust surfaces also, and it must be noted, therefore, that there is a correct method of fitting the bushes to the stub axle. The same remark applies to both top and bottom bushes.

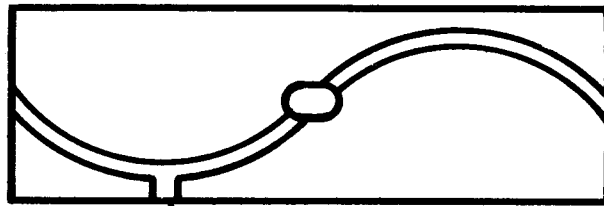
The sketch below illustrates the modified groove, and it is essential that the bush is fitted so that the oil leak is towards the axle beam.

It should be noted that when the new bushes are pressed into place, it is necessary to use a spiral reamer of sufficient length to do both bushes at the same time.

These can be supplied under Part Numbers :—

T.95 for the TA. Series Midget.

T.89 for the VA. Type 1½-Litre.



**BUSH TO BE FITTED WITH GROOVE**

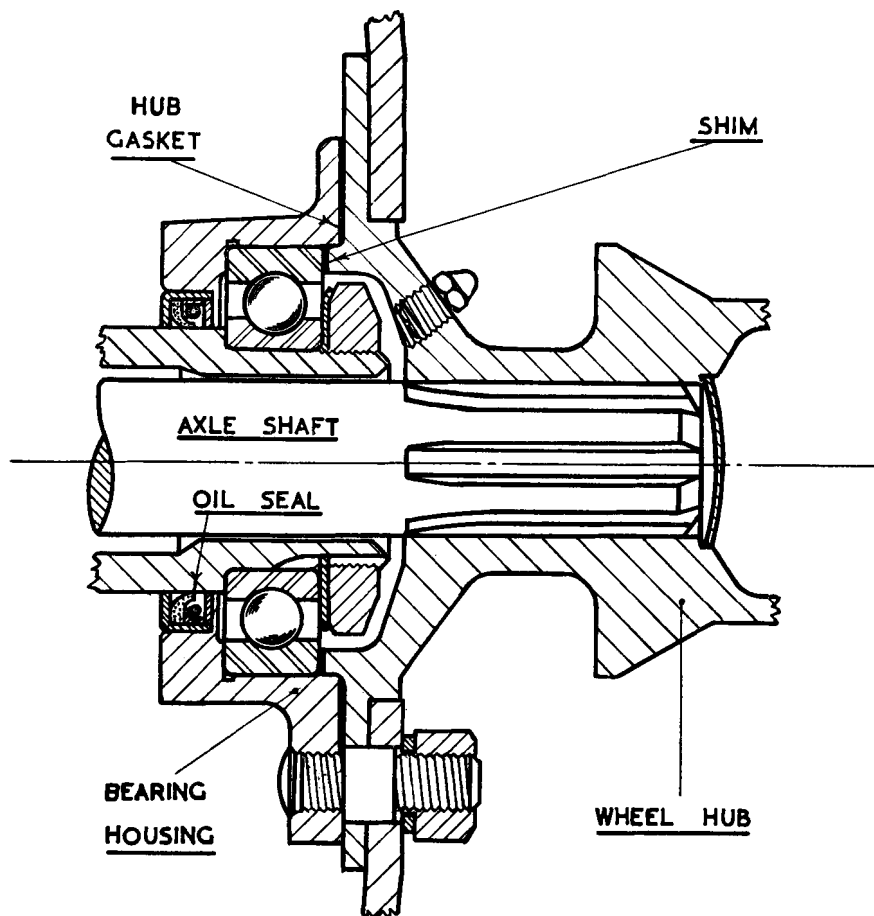
**TOWARDS AXLE BEAM**

**(View of Bush before being rolled)**

**Service Information Sheet No. 60****METHOD OF CLAMPING REAR HUB BALL RACE**

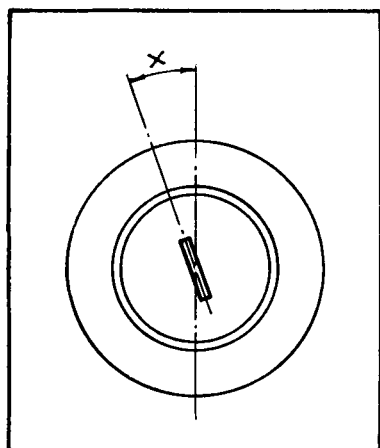
A gasket has been introduced between the rear hub and bearing housing to ensure an oil-tight joint.

In certain circumstances, due to machining limits, the introduction of this gasket gives a clearance between the ball race and the dowel of the hub, which allows the bearing housing to float on the ball race. To overcome this a shim should be fitted as illustrated in the sketch below. SA. Type Two-Litre Shim .010 in. (Part No. MG663/157), and TA. Series Midget and VA. Type 1½-Litre Shim .007 in. (Part No. MG689/143).

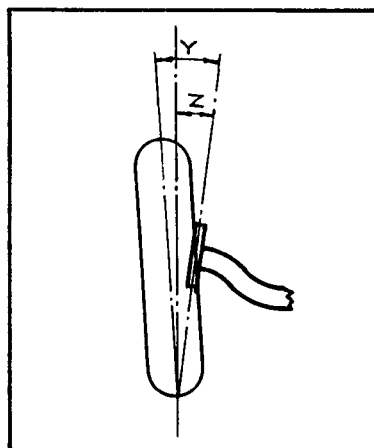


**Service Information Sheet No. 61**

**STEERING ANGLES**



**B = BEAM.  
P = PACKING.  
S = SPRING.**



The following information has been compiled to assist service stations when checking the steering gear on the various models. It is not intended for use in repairing damaged steering parts and attention is drawn to Service Information Sheet No. 10 on this subject.

Model	Castor Angle " X "	Knuckle Angle " Y "	King Pin Angle " Z "
M ... ..	3° (B Nil—P 3°—S Nil)	9°	6½°
D, J, F ... ..	6° (B 3°—P Nil—S 3°)	9°	6½°
L ... ..	7° (B 3°—P 1°—S 3°)	9°	6½°
K, KN, TA ...	6° (B 3°—P Nil—S 3°)	10½°	7½°
P, PB ... ..	8½° (B 3°—P 2½°—S 3°)	9°	6½°
N ... ..	8° (B 3°—P 2°—S 3°)	10½°	7½°
SA ... ..	4° (B Nil—P Nil—S 4°)	10°	8°
VA ... ..	4½° (B Nil—P 1½°—S 3°)	10°	8°
WA ... ..	6° (B Nil—P 2°—S 4°)	10°	8°

**Service Information Sheet No. 62**

**STEERING SWIVEL PIN THRUST ARRANGEMENT**

Commencing Chassis No. VA1254 a modification was introduced to the thrust arrangement of the steering swivel pin, the ball thrust race being superseded by a bronze thrust washer.

The alterations were as follows :—

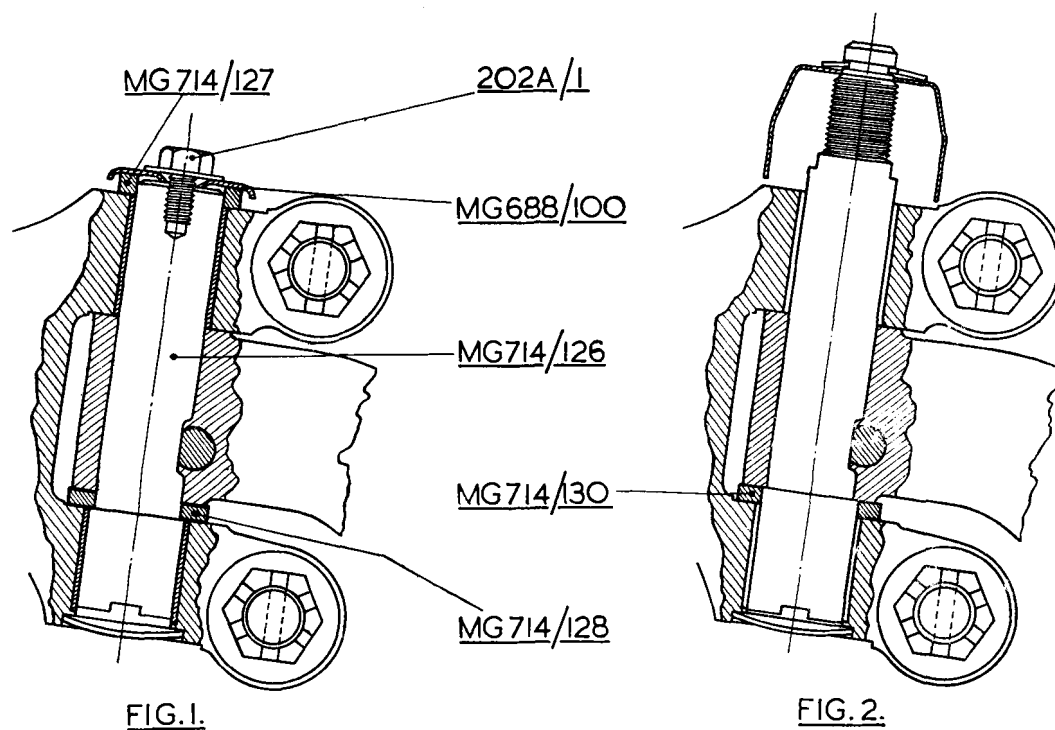
- (a) The swivel pin was replaced by one which has its largest diameter shortened to accommodate a thrust washer, and, instead of a threaded portion to secure the ball race, is drilled and tapped to take a bolt to secure a felt washer and cover for dirt exclusion.
- (b) A bronze thrust washer.

Reference to Fig. 1 will illustrate this assembly.

To cars having a chassis number prior to VA1254 the above modification can be carried out by fitting the new type swivel pin, thrust washer, felt washer, cover-plate and bolt, all other parts being unaltered.

An alternative method (Fig. 2) enables a slightly modified thrust washer to be fitted to the original swivel pin. This modified washer, Part No. MG714/130, has a larger inside diameter to fit over the largest portion of the original type swivel pin. The ball race must be discarded, but the ball race dust cover and horse-shoe clip is refitted for appearance's sake.

It should be noted that only steering swivel pins of the latest type, Part No. MG714/126, bronze thrust washer Part No. MG714/128 or MG714/130, will be supplied, as the original type swivel pins and ball thrust races are discontinued.



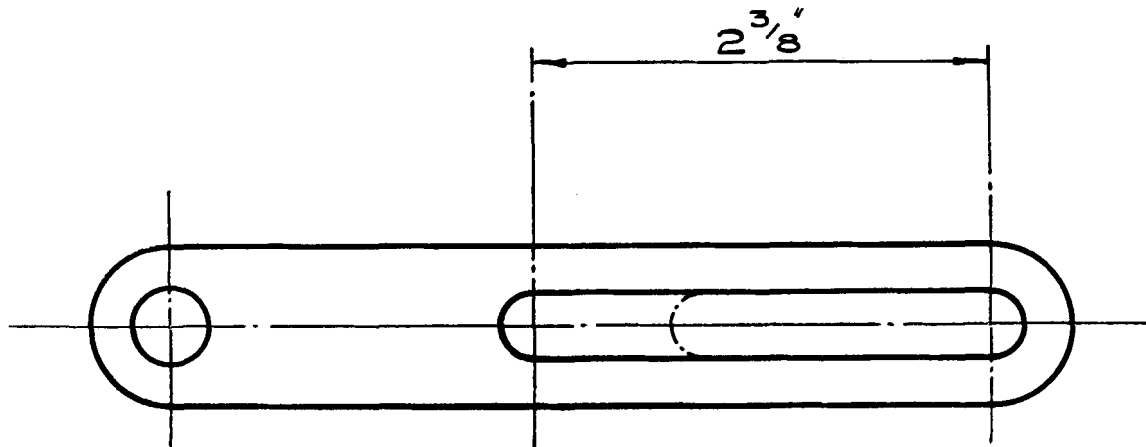


Date of Issue : September, 1938

**Service Information Sheet No. 63**

**FAN BELT ADJUSTMENT**

To provide a greater range of adjustment to the dynamo for adjusting the fan belt, a shorter belt is now being fitted. As the new type belt will be supplied for service replacement, it will be necessary to lengthen the slot in the dynamo support, otherwise the belt will be too tight when first fitted. The alteration necessary to the support is illustrated in the sketch below.



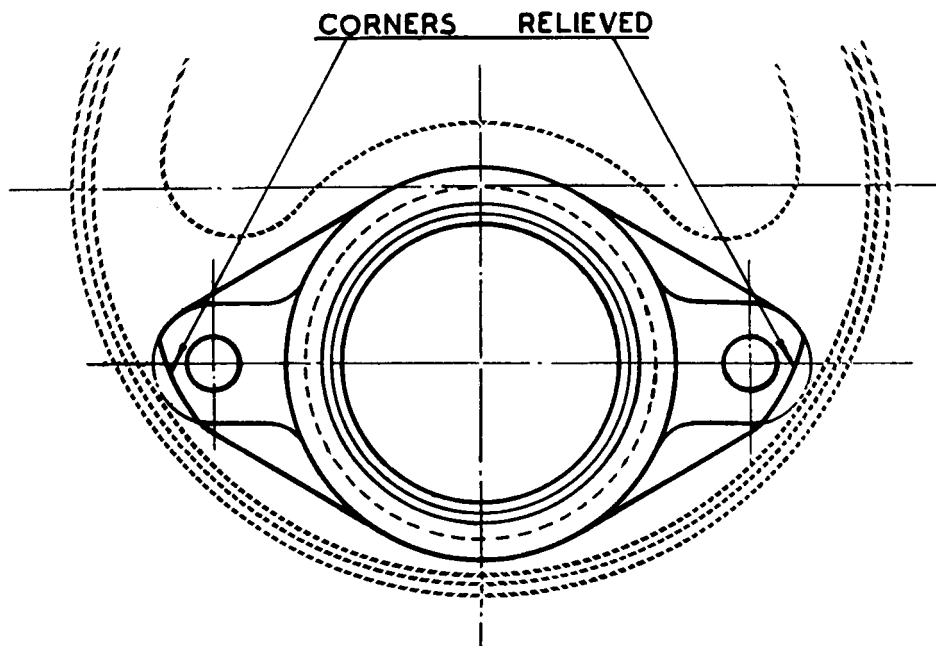


*Date of Issue: September 1938*

**Service Information Sheet No. 65**

**ALTERATION TO SILENCER FLANGE**

With the introduction of a slightly smaller diameter silencer on the Two-Litre model, it should be noted that, when fitting the new silencer as a replacement on the earlier cars, it will be necessary to relieve the corner of the exhaust pipe flange as illustrated.



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**Service Information Sheet No. 66**

**ENGINE PERFORMANCE**

A modification to the air cleaner manifold has been made to improve the engine performance between the speeds of 1000—3500 r.p.m.

The sketch below illustrates the modification and Service Stations are asked to modify all stocks immediately and also to modify all cars coming in for service.

It is very necessary thoroughly to clean the manifold after drilling, and of course the air cleaner should be detached from the manifold to eliminate the possibility of aluminium drillings getting into the air cleaner filter.

