

SECTION P

LUBRICATION

Section

Key to recommended lubricants P.1

Correct lubrication of any piece of mechanism is of paramount importance, and in no instance is it of greater importance than in the correct choice of lubricant for a motor-car engine. Automobile engines have different characteristics, such as operating temperatures, oiling systems, size of oilways, clearances, and similar technicalities, and the use of the correct oil is therefore essential.

NOTE.—The letters given in brackets throughout the Manual refer to the appropriate section of the recommended lubricants table given on page P.2.

For additional information see Section PP

Section P.1

The following is a list of lubricants recommended:

A ENGINE AND OIL BATH AIR CLEANER								
<i>Climatic conditions</i>	Duckham's	Castrol	Esso	Mobil	Shell	BP Energol	Filtrate	Sternol
Tropical and temperate down to 32° F. (0° C.)	Duckham's NOL Thirty	Castrol X.L.	Esso Extra Motor Oil 20W/30	Mobiloil A	Shell X-100 30	Energol S.A.E. 30	Medium Filtrate 30	Sternol W.W. 30
Extreme cold down to 10° F. (-12° C.)	Duckham's NOL Twenty	Castrolite	Esso Extra Motor Oil 20W/30	Mobiloil Arctic	Shell X-100 20/20W	Energol S.A.E. 20W	Zero Filtrate 20	Sternol W.W. 20
Arctic consistently below 10° F. (-12° C.)	Duckham's NOL Ten	Castrol Z	Esso Motor Oil 10	Mobiloil 10W	Shell X-100 10W	Energol S.A.E. 10W	Sub-Zero Filtrate 10W	Sternol W.W. 10
GEARBOX								
All conditions	Duckham's NOL Thirty	Castrol X.L.	Esso Extra Motor Oil 20W/30	Mobiloil A	Shell X-100 30	Energol S.A.E. 30	Medium Filtrate 30	Sternol W.W. 30
B REAR AXLE (HYPOID) AND STEERING RACK								
All conditions down to 10° F. (-12° C.)	Duckham's Hypoid 90	Castrol Hypoy	Esso Expee Compound 90	Mobilube G.X. 90	Shell Spirax 90 E.P.	Energol E.P. S.A.E. 90	Hypoid Filtrate Gear 90	Ambroleum E.P. 90
Arctic consistently below 10° F. (-12° C.)	Duckham's Hypoid 80	Castrol Hypoy Light	Esso Expee Compound 80	Mobilube G.X. 80	Shell Spirax 80 E.P.	Energol E.P. S.A.E. 80	Hypoid Filtrate Gear 80	Ambroleum E.P. 80
C WHEEL HUBS AND LUBRICATION NIPPLES								
Wheel hubs, hand brake cable and lubrication nipples except steering rack	Duckham's L.B. 10 Grease	Castrol L.M.	Esso Multi-purpose Grease H	Mobilgrease M.P.	Shell Retinax A	Energol L. 2	Super Lithium Filtrate Grease	Ambroline L.H.T.
Alternative for all lubrication nipples except hand brake cable and steering rack.	Duckham's NOL E.P. 140	Castrol Hi-Press	Esso Expee Compound 140	Mobilube G.X. 140	Shell Spirax 140 E.P.	Energol E.P. S.A.E. 140	E.P. Filtrate Gear 140	Ambroleum E.P. 140
D UTILITY LUBRICANT, S.U. CARBURETTER DASHPOTS, OILCAN POINTS, ETC.								
All conditions	Duckham's NOL Twenty	Castrolite	Esso Extra Motor Oil 20W/30	Mobiloil Arctic	Shell X-100 20/20W	Energol S.A.E. 20W	Zero Filtrate 20	Sternol W.W. 20
E UPPER CYLINDER LUBRICANT								
All conditions	Duckham's Adcoild Liquid	Castrollo	Esso Upper Cylinder Lubricant	Mobil Upperlube	Shell Upper Cylinder Lubricant	Energol U.C.L.	Filtrate Petroyle	Sternol Magikoyl

SECTION PP

LUBRICATION

This Section is a Supplement to Section P

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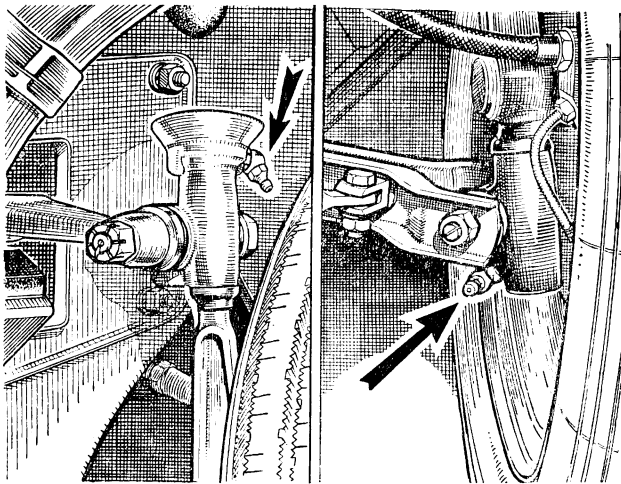


Fig. PP.1

The swivel pin nipples on the left-hand wheel assembly

Section PP.1

250 MILES (400 Km.) SERVICE

ENGINE (A)

Inspect the oil level in the engine, and refill if necessary to the 'MAX' mark on the dipstick. The oil filler cap is on top of the engine valve cover and is released by turning it anti-clockwise.

Section PP.2

1,000 MILES (1600 Km.) SERVICE

Carry out the instructions detailed in Section PP.1 and then continue with the following.

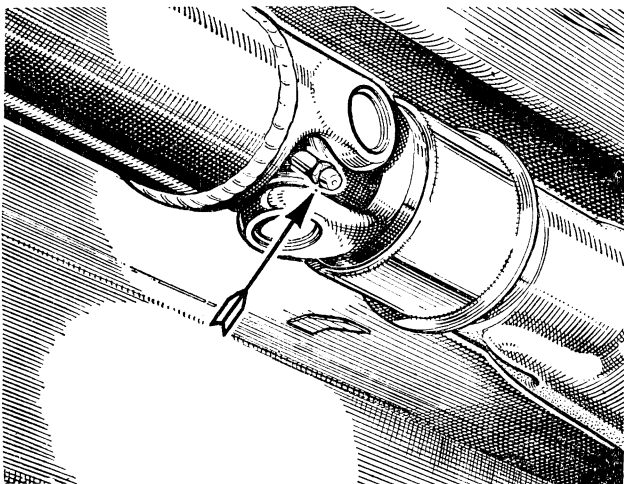


Fig. PP.2

The nipple for the front universal joint. The sliding joint is lubricated from the gearbox

STEERING JOINTS (C)

Nipples are provided at the top and bottom of each swivel pin and on the steering tie-rods. The lubricating gun filled to Ref. C (see page P.2) should be applied to the nipples and three or four strokes given.

NOTE.—Take the weight of the car off the front suspension with the jack or sling when lubricating the steering knuckles or tie-rod ends to allow the lubricant to penetrate more effectively.

PROPELLER SHAFT (C)

The two needle-type universal joints at each end of the propeller shaft are provided with nipples which should

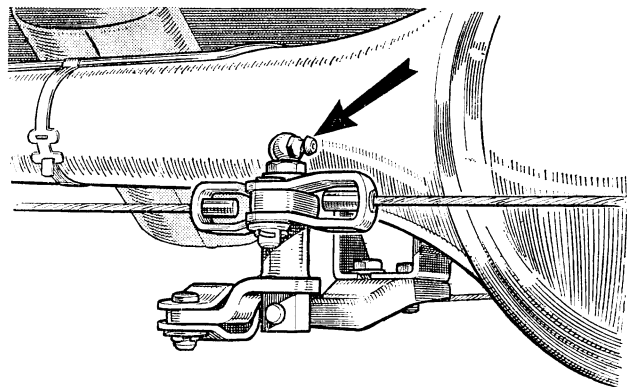


Fig. PP.3

The arrow indicates the hand brake compensator lubricating nipple

receive two or three strokes with a lubricating gun filled to Ref. C (page P.2).

HAND BRAKE COMPENSATOR (C)

There is one lubricating nipple on the top of the hand brake compensating lever, and this is accessible from underneath the rear of the vehicle.

Wipe away all dirt from the nipple and give one or two strokes of the lubricating gun filled to Ref. C (page P.2).

GEARBOX (A)

Remove the combined filler and level plug on the gearbox side plate and top up the oil level to the bottom of the filler hole with oil to Ref. A (page P.2). Replace the plug.

On later models access to the filler plug can be gained from inside the car by removing a body sealing plug.

REAR AXLE (B)

The combined filler and level plug situated on the rear of the axle case is reached from below the rear of the car. Use the special key provided in the tool kit. The oil level should be replenished if necessary to the level of the filler plug hole.

NOTE.—It is essential that only hypoid oil is used in the rear axle.

CARBURETTER DAMPERS (D)

Unscrew the caps from the top of the suction chamber, pour in a small quantity of thin engine oil, and replace the caps. Under no circumstances should a heavy-bodied

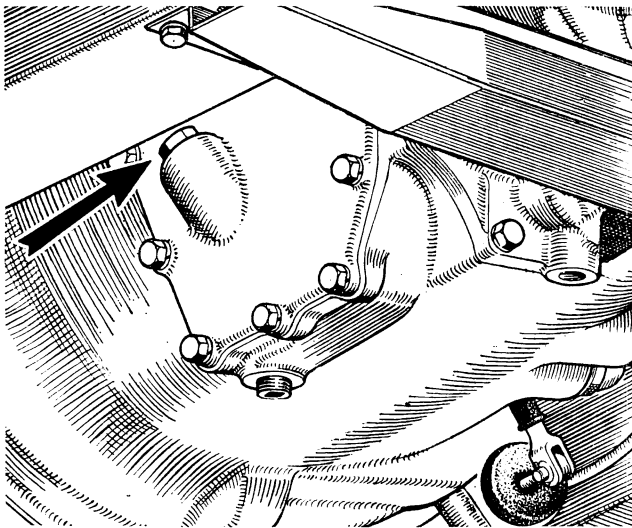


Fig. PP.4

The gearbox oil filler and level plug

lubricant be used. Failure to lubricate the piston damper will cause the piston to flutter and reduce acceleration.

An oil indicated under Ref. D (page P.2) should be used.

CARBURETTER CONTROLS (D)

Using an oil to Ref. D (page P.2), lubricate lightly all carburetter linkage.

AIR CLEANER (A)

Remove the air cleaner as detailed in Section PP.3. Examine the oil container for sludge. If sludge is

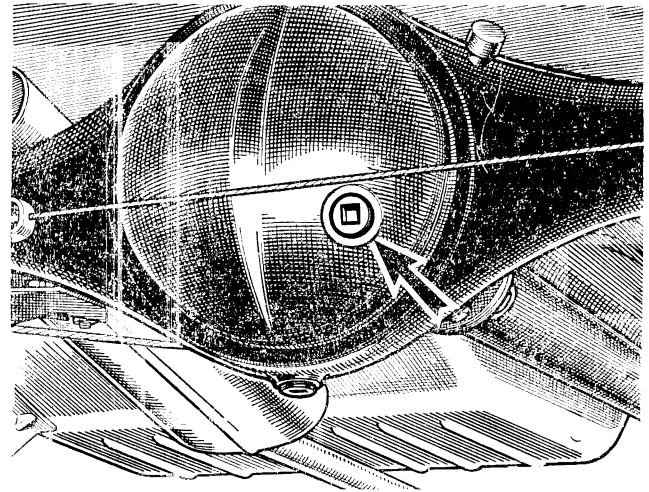


Fig. PP.5

The rear axle oil filler and level plug

present the cleaner must be serviced completely as described in Section PP.3.

If there is no accumulation of sludge top up the oil container with engine oil to the level indicated on the side of the bowl.

Make sure that the cork gasket is in good condition, then replace the element and top cover assembly. Secure with the winged bolt.

It is important to maintain the correct oil level in the cleaner. Too high a level will result in the oil being drawn into the combustion spaces and too low a level will result in failure to keep the element saturated.

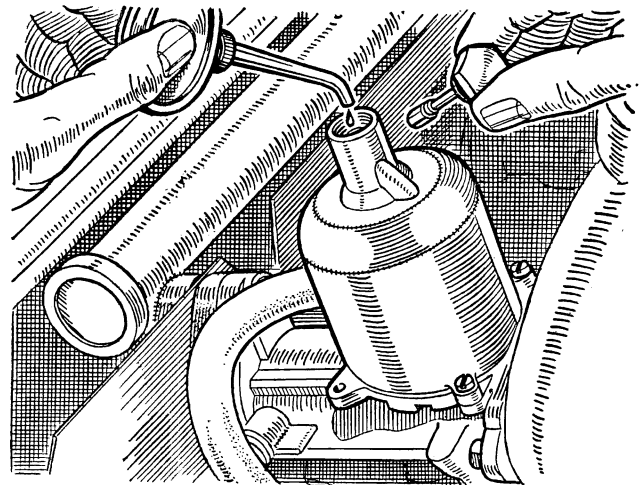


Fig. PP.6

Use thin engine oil to lubricate the carburetter piston damper

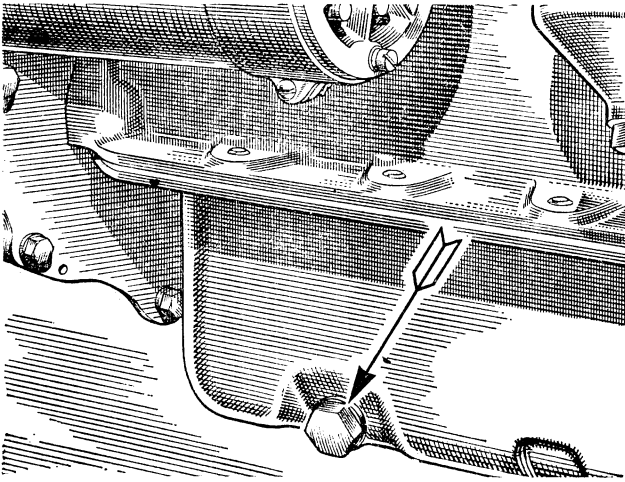


Fig. PP.7

The engine sump drain plug

Section PP.3

3,000 MILES (4800 KM.) SERVICE

Carry out the instructions detailed in Section PP.2 and continue with the following:

ENGINE OIL CHANGE

Drain the oil from the engine by removing the drain plug on the right-hand side of the engine sump after a journey when the oil is still warm. The sump capacity is 8 pints (9.6 U.S. pints, 4.5 litres), including the oil filter.

AIR CLEANER (A)

Release the spring clip and disconnect the rubber breather pipe from the air cleaner.

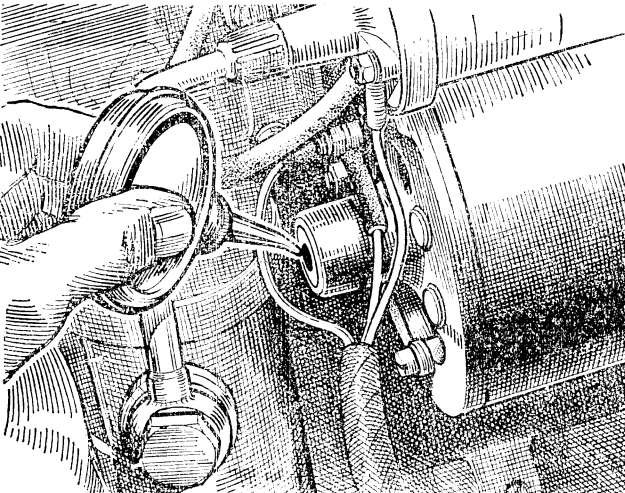


Fig. PP.8

Apply a few spots of engine oil to the dynamo end bearing

Remove the nuts securing the air cleaner brackets to the two cylinder head studs on the right-hand side of the engine.

Unscrew the clip securing the air cleaner to the air intake manifold and lift off the air cleaner.

Remove the retaining bolt from the centre of the top cover. Lift off the top cover and filter element, which is one unit.

Wash the filter element in a bowl of paraffin (kerosene), and allow it to drain and dry **thoroughly**.

Lift out the oil container, empty the oil, and scrape out the accumulated sludge. Wash the oil container in kerosene and fill to the level indicated on the side of the

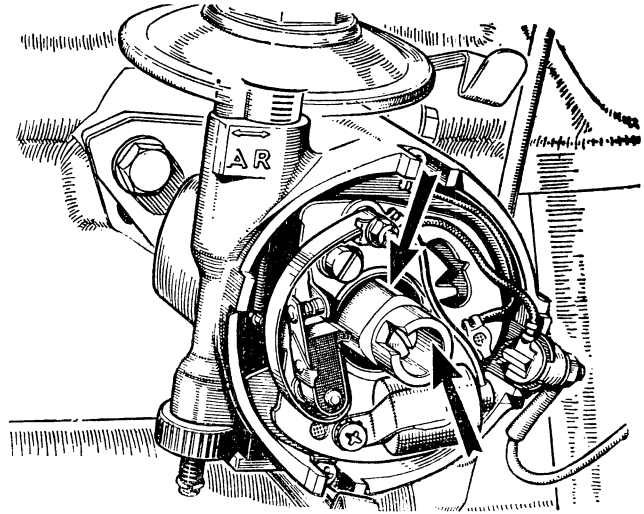


Fig. PP.9

The lower arrow indicates where to lubricate the cam bearing. Apply a smear of grease to the cam as indicated by the upper arrow

bowl with engine oil. It is not necessary to re-oil the filter element; it is done automatically as soon as the engine starts up.

Make sure that the cork gasket in the cover is in good condition, reassemble the cleaner, and refit on the engine.

DYNAMO (D)

Add two drops of engine oil (Ref. D, page P.2) in the lubrication hole in the centre of the rear end bearing plate.

Do not over-oil.

DISTRIBUTOR

Cam bearing (D)

Lift the rotor off the top of the spindle by pulling it squarely and add a few drops of thin engine oil (Ref. D, page P.2) to the cam bearing. Do not remove the screw which is exposed.

There is a clearance between the screw and the inner

face of the spindle for the oil to pass.

Replace the rotor with its drive lug correctly engaging the spindle slot and push it onto the shaft as far as it will go.

Cam (C)

Lightly smear the cam with a very small amount of grease (Ref. C, page P.2), or if this is not available clean engine oil can be used.

Automatic timing control (D)

Carefully add a few drops of thin engine oil (Ref. D, page P.2) through the hole in the contact breaker base

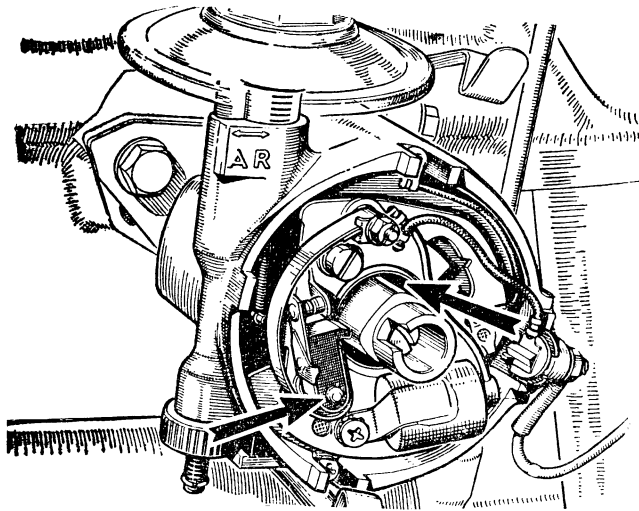


Fig. PP.10

The moving contact pivot pin and the automatic timing control mechanism should receive a few spots of thin engine oil

through which the cam passes. Do not allow the oil to get on or near the contacts. Do not over-oil.

Contact breaker pivot (D)

Add a spot of engine oil (Ref. D, page P.2) to the moving contact pivot pin.

MISCELLANEOUS ITEMS

With an oilcan filled with oil to Ref. D (page P.2) lubricate lightly all door hinges, the bonnet lock, and operating mechanism.

Section PP.4

6,000 MILES (9600 KM.) SERVICE

Carry out the instructions detailed in Sections PP.2 and PP.3 except those under 'GEARBOX' and 'REAR AXLE' (Section PP.2), and continue with the following.

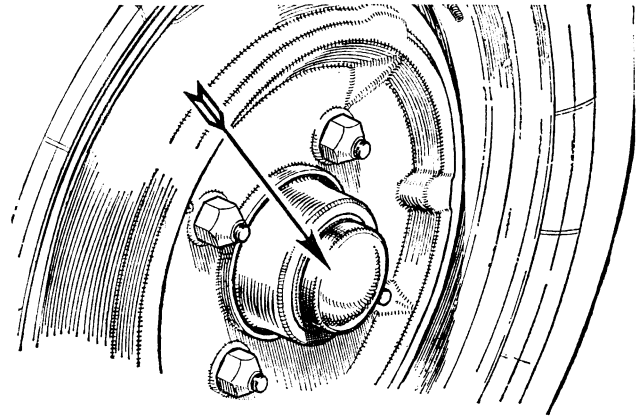


Fig. PP.11

A front wheel hub grease-retaining cap

GEARBOX OIL CHANGE (A)

Drain the gearbox oil, using the special key in the tool kit to remove the drain plug.

When the gearbox has been drained completely 5 Imperial pints (2.8 litres, 6 U.S. pints) of oil are required to fill it. The oil should be poured in through the combined filler and level plug shown in Fig. PP.4.

On later models access to the filler plug can be gained from inside the car by removing a body sealing plug.

REAR AXLE OIL CHANGE (B)

Remove the drain plug with the special key in the tool kit and drain out the oil. Refill with Hypoid oil (Ref. B, page P.2) to the level of the filler plug hole.

Approximately 1½ pints (1 litre, 2.1 U.S. pints) of oil are required to refill the axle.

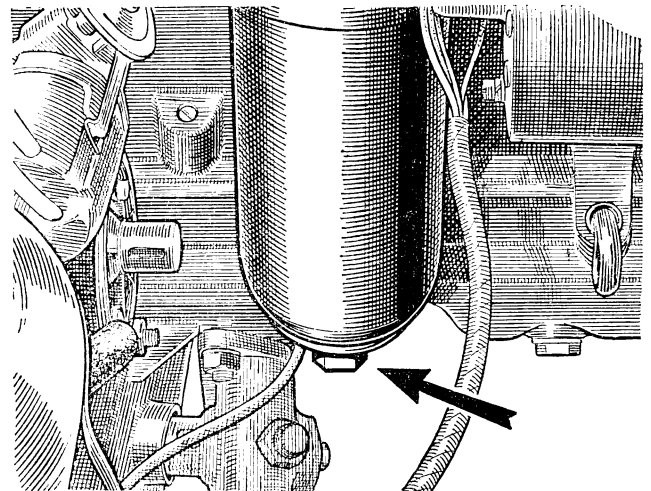


Fig. PP.12

Indicated by the arrow is the centre-securing bolt for the engine filter

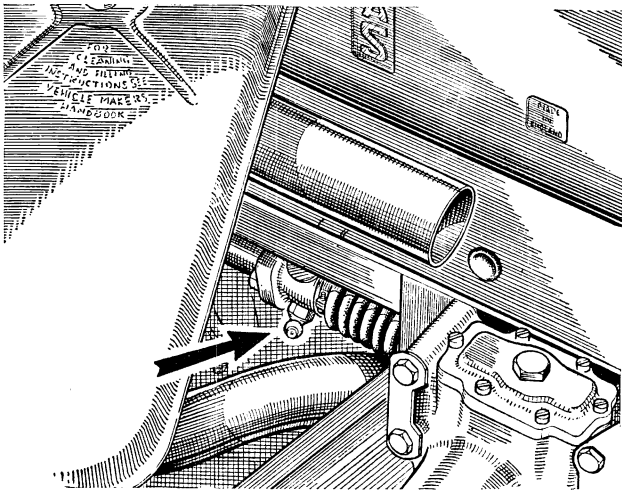


Fig. PP.13

The steering rack oil nipple

FRONT WHEEL HUBS (C)

Remove the front wheel hub covers and prise off the grease-retaining cap from the end of each hub.

Refill with grease (Ref. C, page P.2) and replace.

ENGINE OIL FILTER

Fit a new external engine oil filter element. The filter element is released by unscrewing the centre-fixing bolt and withdrawing the filter. Fit a new felt-type element and replace the filter bowl, ensuring that the joint washer is correctly positioned, clean, and serviceable. Care must also be taken to ensure that the washers below the element inside the bowl are fitted correctly. The small felt washer must be positioned between the element pressure plate and the metal washer above the pressure spring. It is essential for correct oil filtration that the felt washer should be in good condition and be a snug fit on the centre-securing bolt.

WATER PUMP

Every 6,000 miles (9600 km.) remove the water pump

oil plug on the water pump casing and add a small quantity of S.A.E. 140 oil. The oiling of the pump must be done very sparingly, otherwise oil will flow past the bearings onto the face of the carbon sealing ring and impair its efficiency.

Section PP.5

12,000 MILES (19200 KM.) SERVICE

Carry out the instructions detailed in Sections PP.2, PP.3, and PP.4 in addition to the following.

ENGINE-FLUSHING

Flush the engine with a flushing oil supplied by one of the recommended manufacturers (page P.2). This operation must be carried out prior to oil filter changing. Use approximately half the normal sump capacity and run the engine for 2½ to 3 minutes at a fast tick-over, after which special care must be taken to ensure complete drainage of the flushing oil.

It is recommended that at 24,000 miles (38400 km.) the sump and oil pump pick-up strainer should be removed for cleaning.

STEERING RACK

The nipple for the steering rack is reached from under the bonnet below the engine bulkhead on the left-hand side.

Give the steering rack nipple 10 strokes **only** with a gun filled with oil to Ref. B, page P.2.

SPEEDOMETER AND TACHOMETER CABLES

Unscrew the speedometer and tachometer drive cable outer casings from the instrument heads. Extract their inner cables and lubricate sparingly with grease to Ref. C. Oil must not be used. After replacing each cable in its outer casing withdraw the upper end approximately 8 in. (20 cm.) and wipe off the surface grease before reconnecting it to the instrument head.