SECTION P

LUBRICATION

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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.

Section P.1 RECOMMENDED LUBRICANTS

A ENGINE

Climatic conditions	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 GEAR

All conditions down to 10° F. (—12° C.)	Duckham's Hypoid 90	Castrol Hypoy	Esso Gear Oil G.P. 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 Gear Oil G.P. 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 LUBRICATION NIPPLES AND WHEEL HUBS

Wheel hubs, hand brake cable, and lubrication nipples	Duckham's L.B. 10 Grease	Castrolease L.M.	Esso Multi-purpose Grease H	Mobilgrease M.P.	Shell Retinax A	Energrease L. 2	Super Lithium Filtrate Grease	Ambroline L.H.T.
Alternative for all lubrication nipples **except** hand brake cable and wheel hubs	Duckham's NOL E.P. 140	Castrol Hi-Press	Esso Gear Oil G.P. 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 DASHPOT, 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 Adcoid Liquid	Castrollo	Esso Upper Cylinder Lubricant	Mobil Upperlube	Shell Upper Cylinder Lubricant	Energol U.C.L.	Filtrate Petroyle	Sternol Magikoyl

Section P.2

DAILY ATTENTION

ENGINE

Inspect the oil level in the engine, and top up 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 P.3

1,000 MILES (1600 Km.) SERVICE

Carry out the instructions detailed in Section P.2 and then continue with the following.

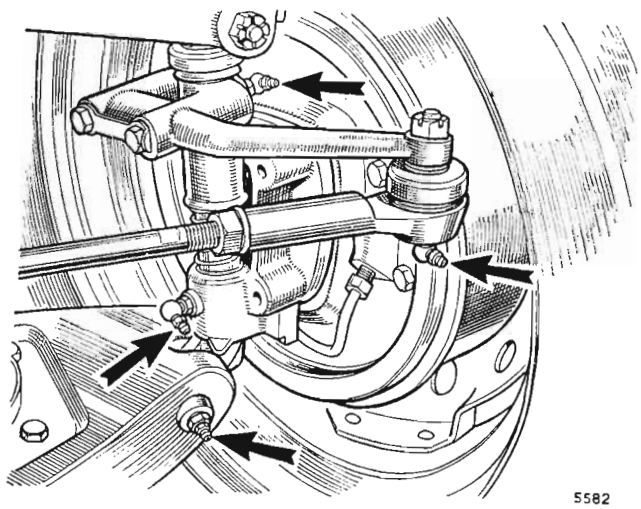


Fig. P.1

The four steering gear nipples on the left-hand wheel assembly

STEERING GEAR

A lubricating gun filled with lubricant to Ref. C (page P.2) should be applied to each of the eight steering gear nipples and three or four strokes given. Nipples are provided on both lower arm joints where they meet the swivel axle housings and on the two tie-rod ball joints. There are two nipples on each swivel axle pin which are best lubricated when the weight of the car has been taken off the suspension with a jack or sling. This will allow the lubricant to penetrate around the bushes more effectively.

PROPELLER SHAFT

The needle-type universal joint at each end of the propeller shaft is provided with a nipple which should receive two or three strokes with a gun filled with oil or grease to Ref. C (page P.2). Access to the front universal joint is gained by lifting the floor covering and removing the rubber plug on the left-hand side of the propeller shaft tunnel. If necessary, move the car to bring the nipple in line with the tunnel hole.

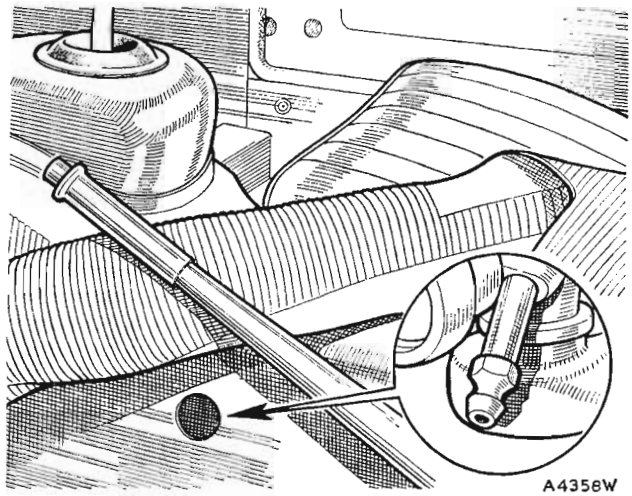


Fig. P.2

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

HAND BRAKE COMPENSATOR

There is one lubricating nipple on the top of the hand brake compensating lever, and this is accessible from underneath the rear of the car. Wipe away all the dirt from the nipple and give one or two strokes with a gun filled with oil or grease to Ref. C (page P.2).

Lubricate the clevis pin joints with an oilcan filled with oil to Ref. D (page P.2).

HAND BRAKE CABLE

The hand brake cable nipple located just forward of the rear axle must receive three or four strokes with a grease gun filled with **grease** to Ref. C (page P.2).

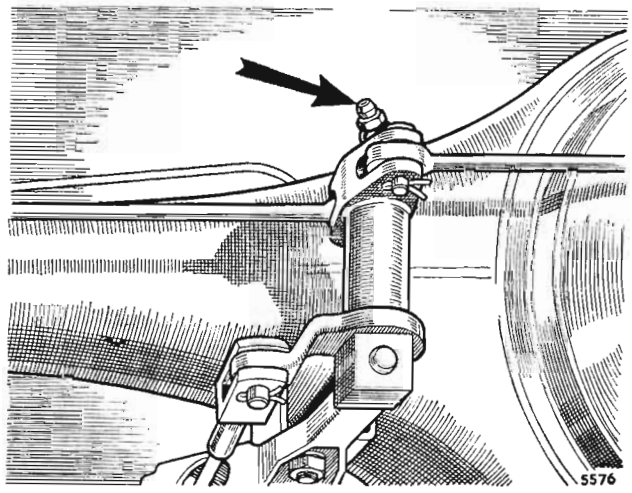


Fig. P.3

The arrow indicates the brake compensator lubricating nipple

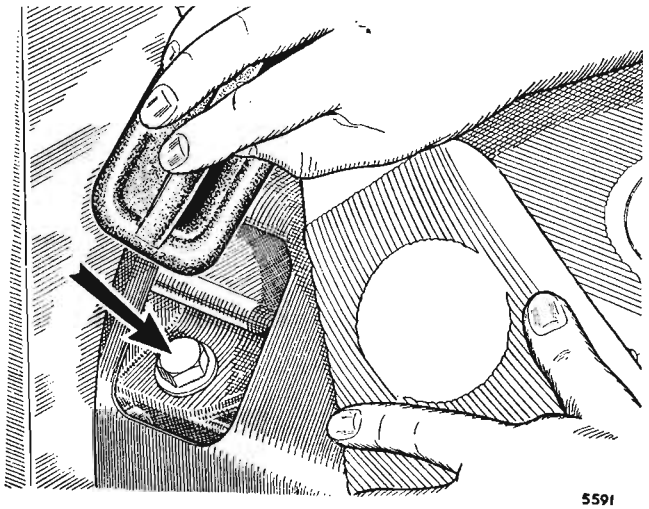


Fig. P.4

The gearbox oil level and filler plug

GEARBOX

Remove the combined filler and level plug on the gearbox extension and top up the oil level to the bottom of the filler hole with oil to Ref. A (page P.2). Access to the plug is gained by lifting the floor covering and removing the rubber plug on the left-hand side of the gearbox cover.

REAR AXLE

The combined filler and level plug situated on the rear of the axle casing is reached from underneath the rear of the car. Use a square key. The oil should be replenished if necessary to the level of the filler plug hole with oil to Ref. B (page P.2).

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

CARBURETTER DAMPERS

Unscrew the caps from the tops of the suction chambers, pour in a small quantity of oil to Ref. D (page P.2), and replace the caps. In no circumstances should a heavy-bodied lubricant be used. Failure to lubricate the piston dampers will cause the pistons to flutter and will reduce acceleration.

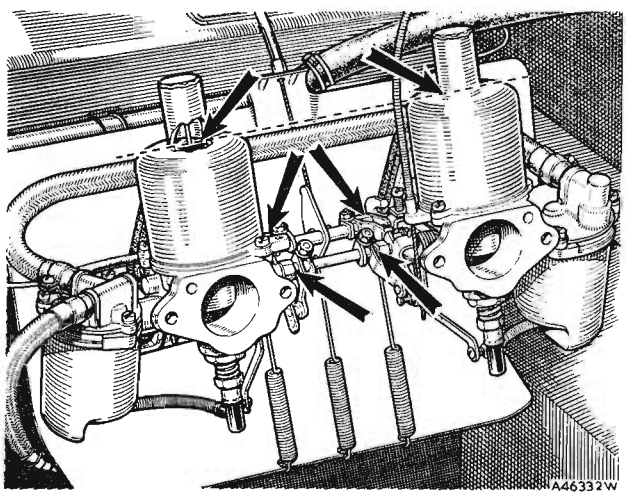


Fig. P.5

Top up the carburetter dampers to the level shown and lubricate each of the throttle linkage joints indicated

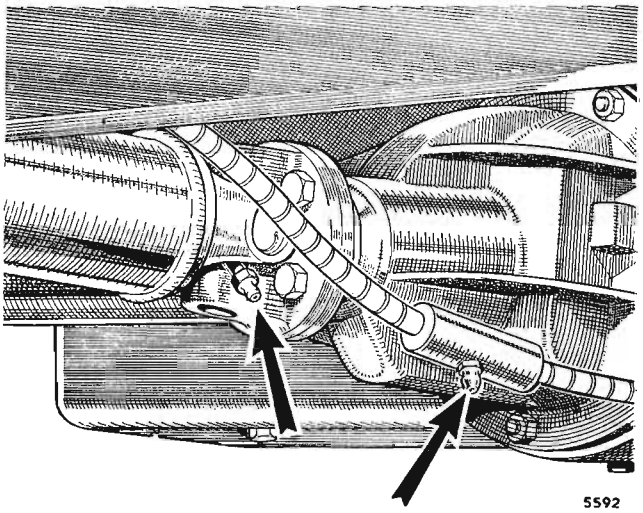


Fig. P.6

The arrows indicate the rear universal joint and hand brake cable lubricating nipples

CARBURETTER CONTROLS

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

CLUTCH AND BRAKE PEDAL LINKAGE

Using an oil to Ref. D (page P.2), lubricate lightly all brake and clutch linkage joints.

Section P.4

3,000 MILES (4800 Km.) SERVICE

Carry out the instructions detailed in Section P.3 and continue with the following.

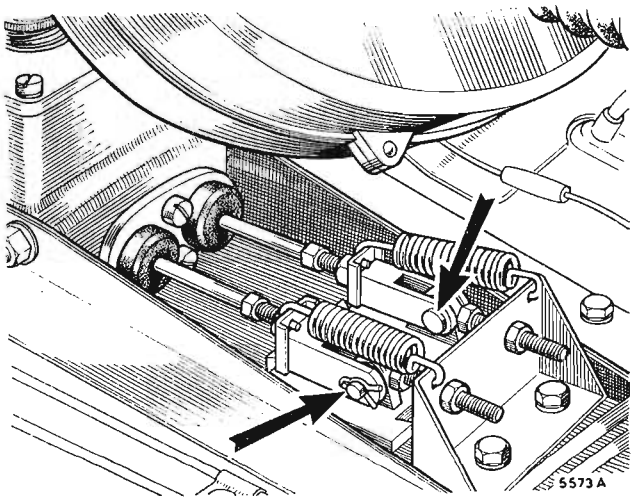


Fig. P.7

The arrows indicate the clutch and brake pedal linkage joints

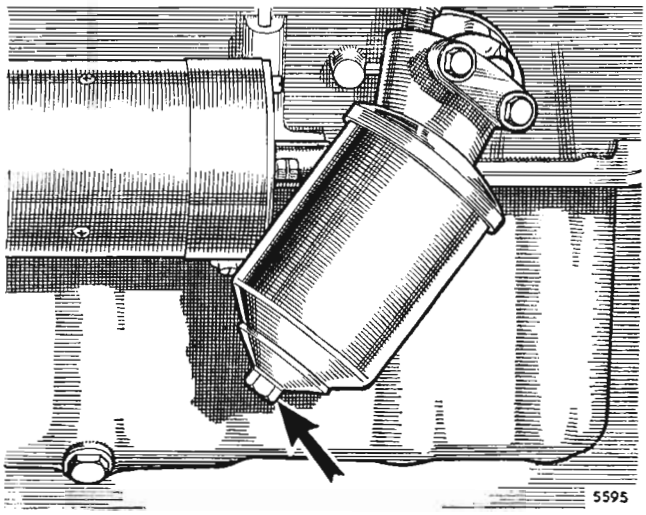


Fig. P.8

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

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 6·5 pints (7·8 U.S. pints, 3·7 litres), including the oil filter.

MISCELLANEOUS ITEMS

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

Section P.5

6,000 MILES (9600 Km.) SERVICE

Carry out the instructions detailed in Sections P.3 and P.4 except those under 'GEARBOX' and 'REAR AXLE' (Section P.3) and continue with the following.

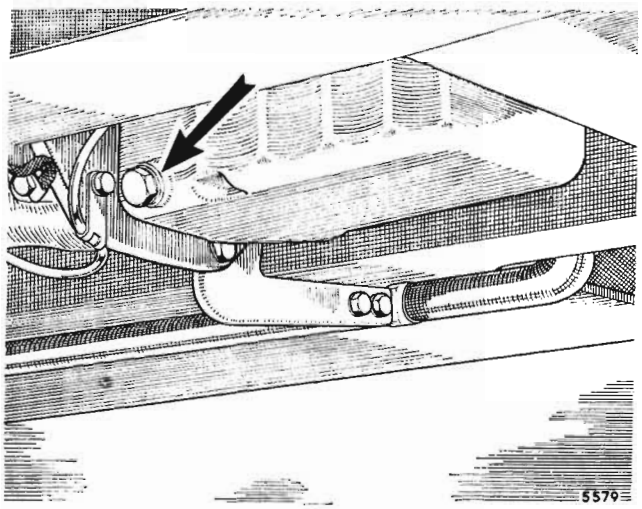


Fig. P.9

The engine sump drain plug

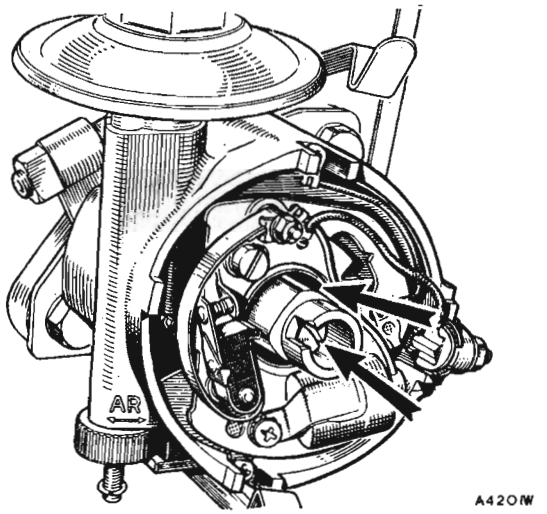


Fig. P.10

Add a few drops of thin engine oil as indicated by the lower arrow to lubricate the cam bearing. Apply a smear of grease to the cam

DISTRIBUTOR

Cam bearing

Lift the rotor off the top of the spindle by pulling it squarely and add a few drops of oil to 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.

Cam

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

Automatic timing control

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

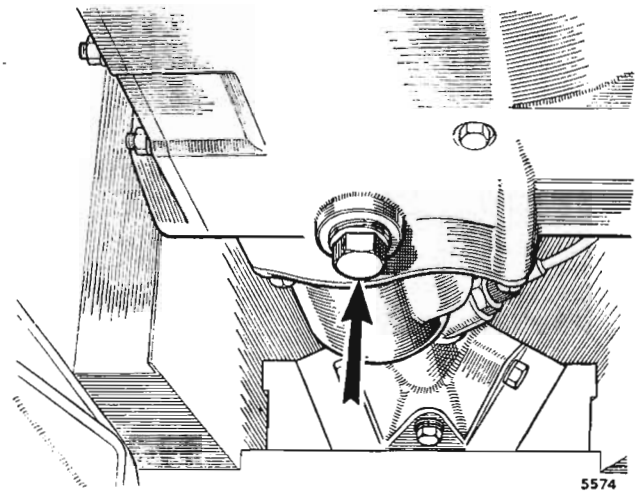


Fig. P.11

The gearbox drain plug

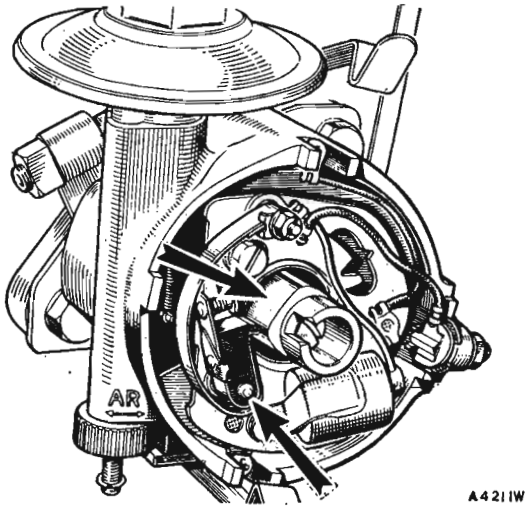


Fig. P.12

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

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

Contact breaker pivot

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

GEARBOX OIL CHANGE

Drain the gearbox oil when the oil is warm by removing the hexagon-headed plug from the base of the gearbox. Ensure that the hollow centre of the drain plug is kept clean. The capacity of the gearbox is 2·25 pints (2·7 U.S. pints, 1·3 litres).

REAR AXLE OIL CHANGE

Remove the drain plug with a square key and drain out the oil while it is warm. Refill with **Hypoid** oil to Ref. B (page P.2) to the level of the filler plug hole.

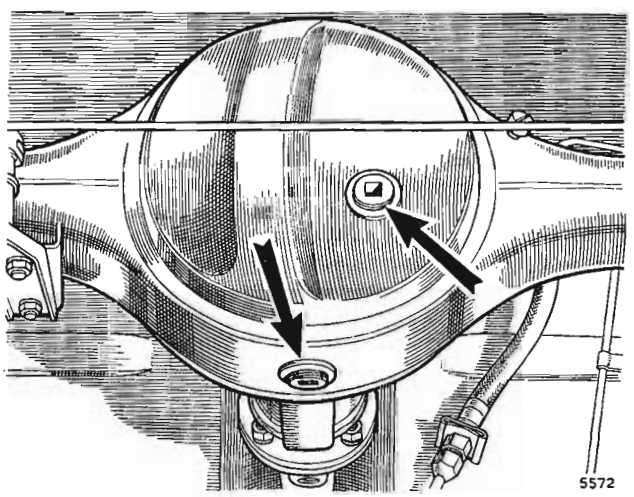


Fig. P.13

The rear axle oil filler and drain plugs

Approximately 1·5 pints (1·8 U.S. pints, ·85 litre) of oil are required to refill the axle.

ENGINE OIL FILTER

Fit a new external engine oil filter element.

The oil filter is of the full-flow type and the bowl should be washed in fuel. The filter is released by unscrewing the central bolt securing the filter to the filter head. When refitting ensure that the seating washer for the filter body 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

Remove the water pump oiling plug on the water pump casing and add a small quantity of S.A.E. 140 oil.

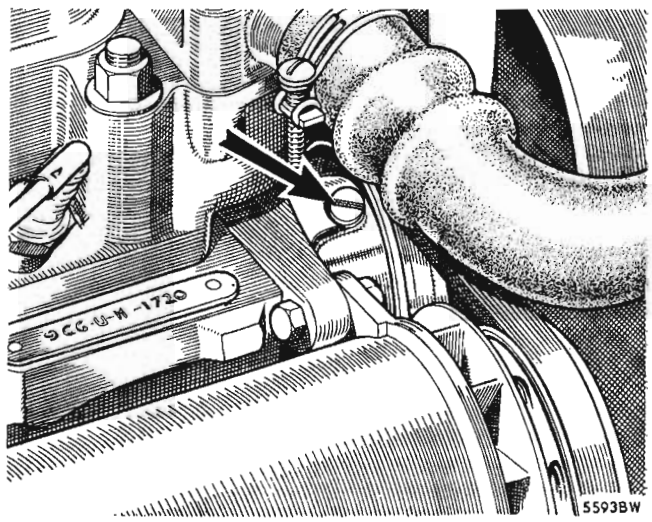


Fig. P.14

The water pump oiling plug

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.

FRONT WHEEL HUBS

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

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

Section P.6

12,000 MILES (19200 Km.) SERVICE

Carry out the instructions detailed in Sections P.3, P.4, and P.5 and proceed with 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 draining 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.

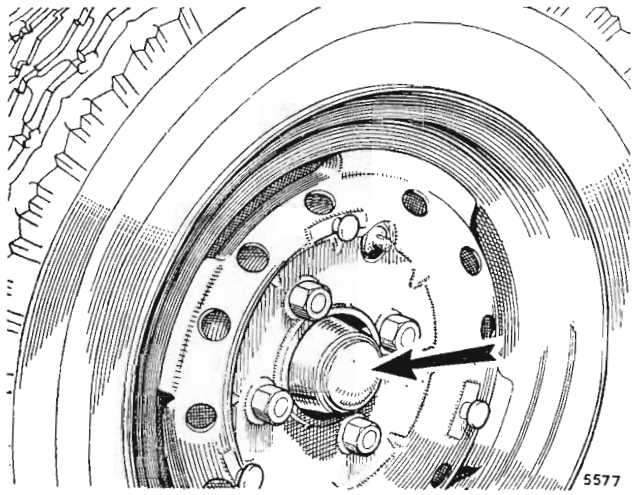


Fig. P.15

A front wheel hub grease-retaining cap

STEERING-RACK

The oil nipple provided at the left-hand side of the rack housing (right-hand side on L.H.D. cars) is accessible when the bonnet is raised. Apply the gun filled with oil to Ref. B (page P.2) and give 10 strokes **only.**

DYNAMO

Unscrew the lubricator, withdraw the felt pad, and half-fill with grease to Ref. C.

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 (page P.2). 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.

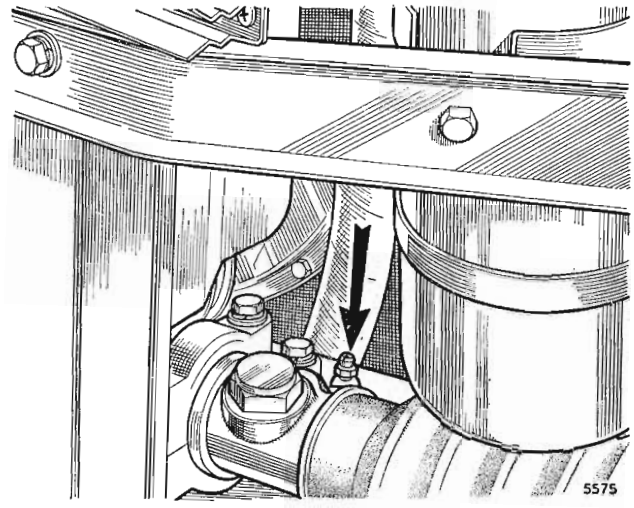


Fig. P.16

The arrow indicates the position of the steering-rack oil nipple

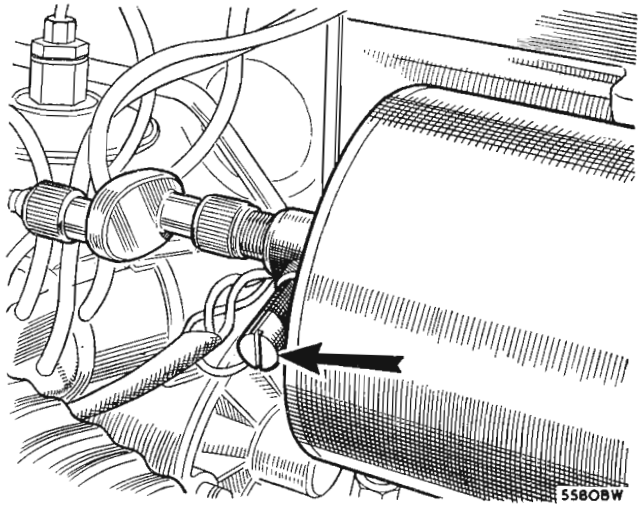


Fig. P.17

The dynamo lubricator cap