SECTION P

LUBRICATION

Recommended lubricants

Section No. P.1	**Daily Attention** Engine
Section No. P.2.	**1,000 miles (1600 km.) service** Steering gear Propeller shaft Hand brake compensator Hand brake cable Gearbox Rear axle Carburetter dampers Carburetter controls Clutch and brake pedal linkage
Section No. P.3.	**3,000 miles (4800 km.) service** Engine oil change Distributor Miscellaneous items
Section No. P.4.	**6,000 miles (9600 km.) service** Gearbox oil change Rear axle oil change Engine oil filter Water pump Front wheel hubs Air cleaners
Section No. P.5.	**12,000 miles (19200 km.) service** Engine flushing Steering rack Dynamo Speedometer and tachometer cables

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 similiar technicalities, and the use of the correct oil is therefore essential.

The following is a list of lubricants recommended:

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), STEERING GEAR

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 LUBRICATION NIPPLES AND WHEEL HUBS.

Wheel hubs, handbrake 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 handbrake cable.	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 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

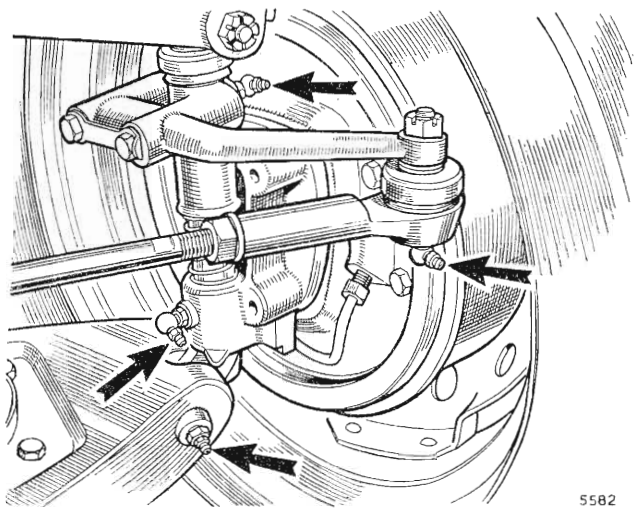


Fig. P.1. The four steering gear nipples on the left-hand wheel assembly.

Section P.1

DAILY ATTENTION

ENGINE

Inspect the oil level in the engine and refill if necessary to the 'FULL' 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.2

1,000 MILES (1600 km.) SERVICE

Carry out the instruction detailed in Section P.1 and then continue with the following:

STEERING GEAR

A lubricating gun filled with grease to Ref. C (page P.1) 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.

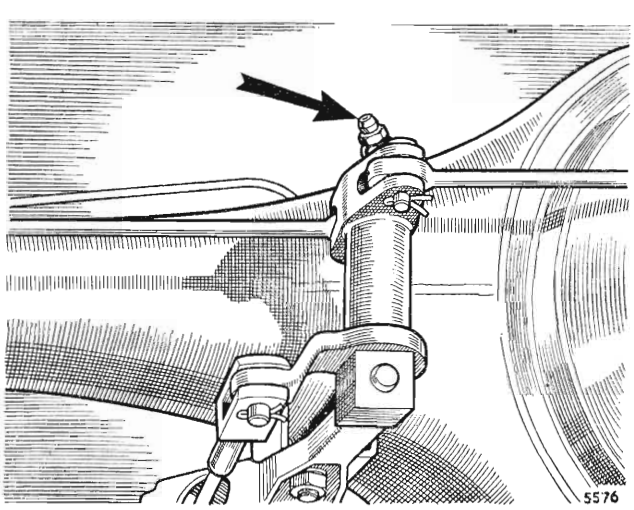


Fig. P.2. The arrow indicates the brake compensator lubricating nipple.

PROPELLER SHAFT

The two needle type universal joints at each end of the propeller shaft are provided with nipples which should receive two or three strokes with a gun filled with oil or grease to Ref. C (page P.1). 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.

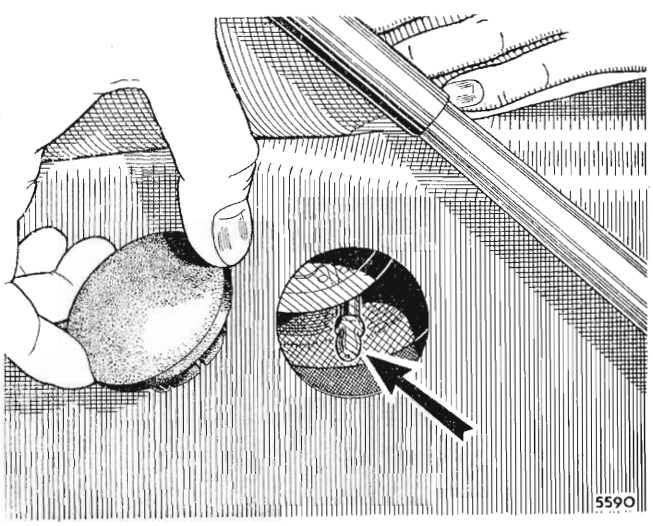


Fig. P.3. The lubricating nipple for the front universal joint. The sliding joint is lubricated from the gearbox.

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.1).

Lubricate the clevis pin joints with an oilcan filled with oil to Ref. D (page P.1).

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.1).

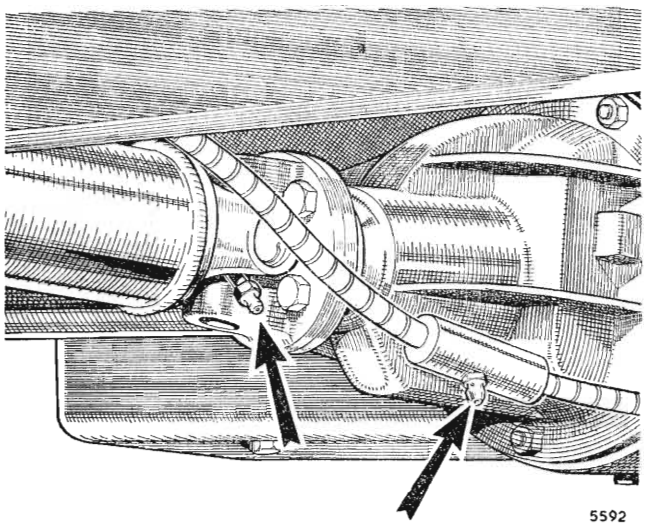


Fig. P.4. The arrows indicate the rear universal joint and hand brake cable lubricating nipples.

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.1). 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 the special key (Part No. 1G 7372). The oil level should be replenished if necessary to the level of the filler plug hole.

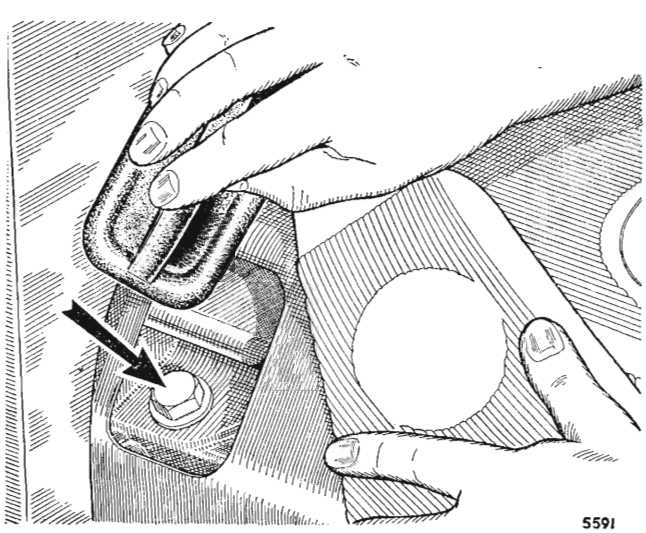


Fig. P. 5. The gearbox oil level and filler plug.

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.1) 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 reduce acceleration.

CARBURETTER CONTROLS

Using an oil to Ref. D (page P.1), lubricate lightly all carburetter linkages.

CLUTCH AND BRAKE PEDAL LINKAGE

Using an oil to Ref. D (page P.1), lubricate lightly all brake and clutch linkage joints.

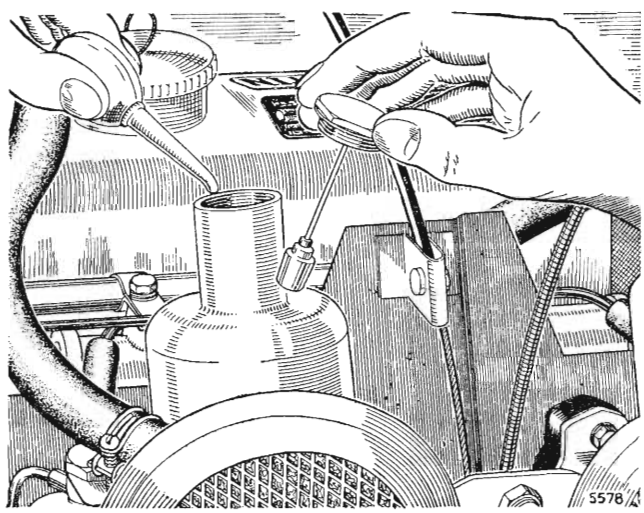


Fig. P.6. Use S.A.E. 20 engine oil to lubricate the carburetter piston dampers.

Section P.3

3,000 MILES (4800 km.) SERVICE

Carry out the instructions detailed in Section P.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 7 pints (8·5 U.S. pints, 4 litres), including the oil filter.

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.1) 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 on to the shaft as far as it will go.

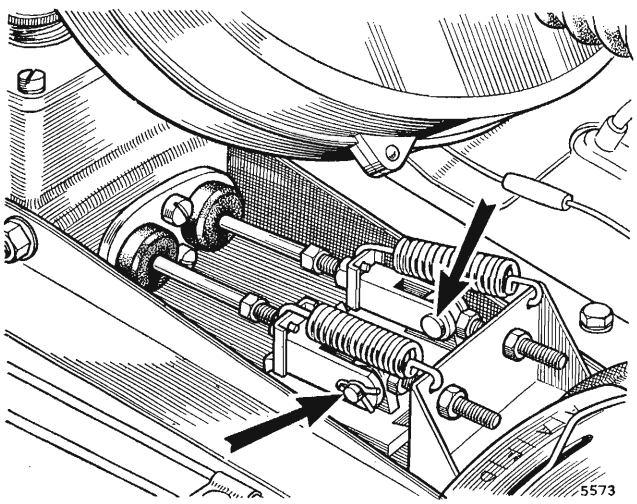


Fig. P.7. The arrows indicate the clutch and brake pedal linkage joints.

Cam

Lightly smear the cam with a very small amount of grease to Ref. C (page P.1), or, if this is not available, clean engine oil may be used.

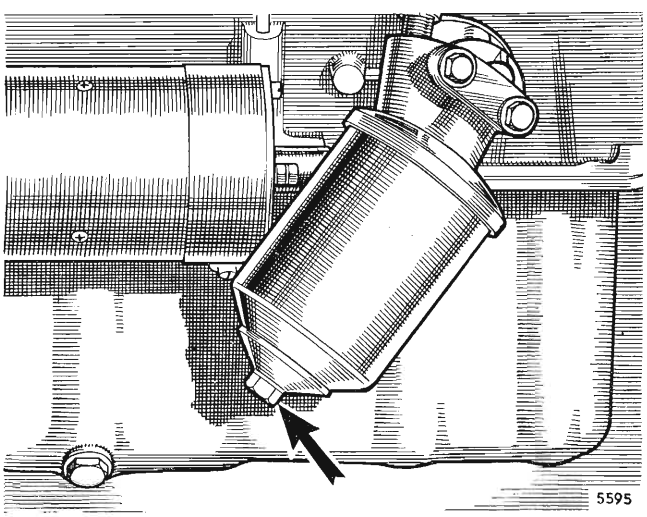


Fig. P.8. Indicated by the arrow is the centre securing bolt for the engine oil filter.

Automatic timing control

Carefully add a few drops of oil to Ref. D (page P.1) through the hole in the contact breaker base through 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.1) to the moving contact pivot pin.

MISCELLANEOUS ITEMS

With an oilcan filled with oil to Ref. D (page P.1) lubricate lightly the door locks, hinges, and bonnet lock mechanism.

Section P.4

6,000 MILES (9600 km.) SERVICE

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

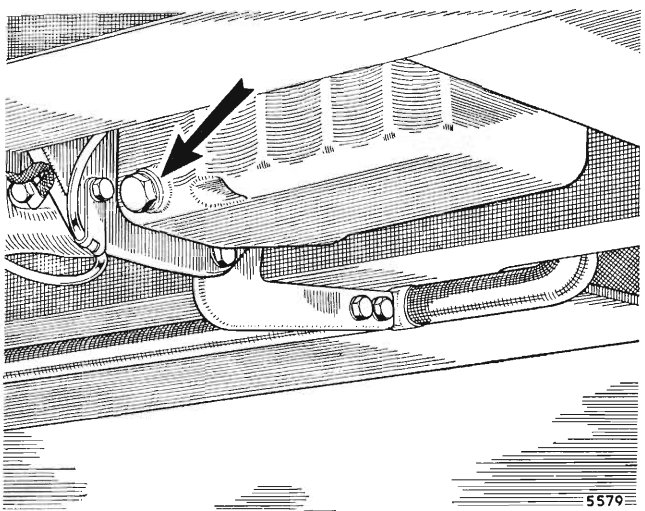


Fig. P.9. The engine sump drain plug.

GEARBOX OIL CHANGE

Drain the gearbox oil when the oil is warm by removing the hexagon headed plug from the base of the gear-

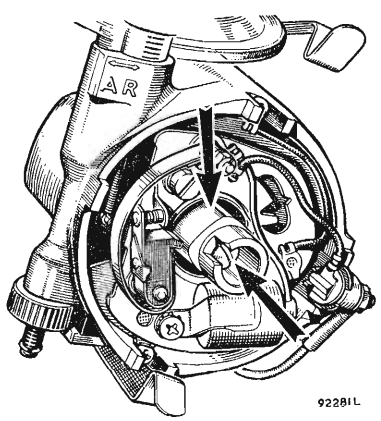


Fig. P.10. Add a few drops only of thin engine oil as indicated by the lower arrow to lubricate the cam bearing. Apply a smear of grease to the cam as indicated by the upper arrow.

box. Ensure that the hollow centre of the drain plug is kept clean. The capacity of the gearbox is 2⅓ pints (2·807 U.S. pints, 1·325 litres).

REAR AXLE OIL CHANGE

Remove the drain plug with the special key (Part No. 1G 7372) and drain out the oil while it is warm. Refill with **Hypoid** oil to Ref. B (page P.1) to the level of the filler plug hole.

Approximately 1¾ pints (1 litre, 2·1 U.S. pints) 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 petrol. 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.

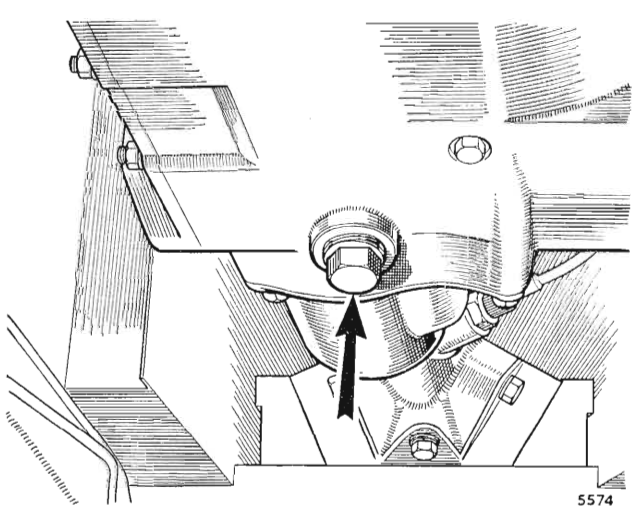


Fig. P.11. The gearbox drain plug.

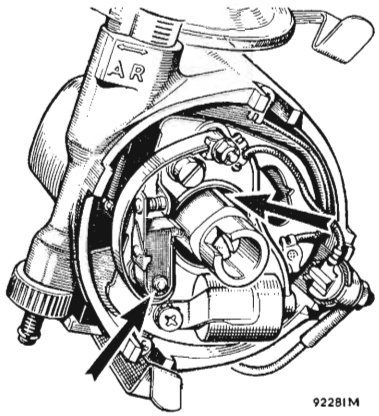


Fig. P.12. The moving contact pivot pin and the automatic timing control mechanism should receive a few spots only of thin engine oil.

The oiling of the pump must be done very sparingly, otherwise oil will flow past the bearings on to 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.1) and replace.

AIR CLEANERS

Remove, clean in petrol, drain and wet the air cleaners with oil to Ref. A (page P.1).

Section P.5

12,000 MILES (19200 km.) SERVICE

Carry out the instructions detailed in Sections P.2, P.3, and P.4 and proceed with the following:

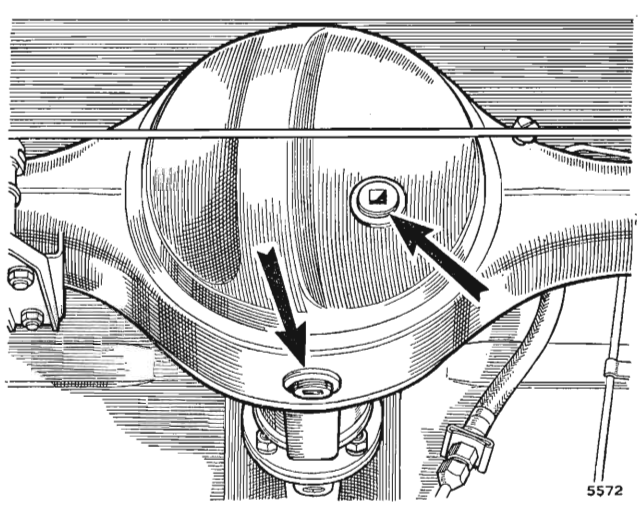


Fig. P.13. The rear axle oil filler and drain plugs.

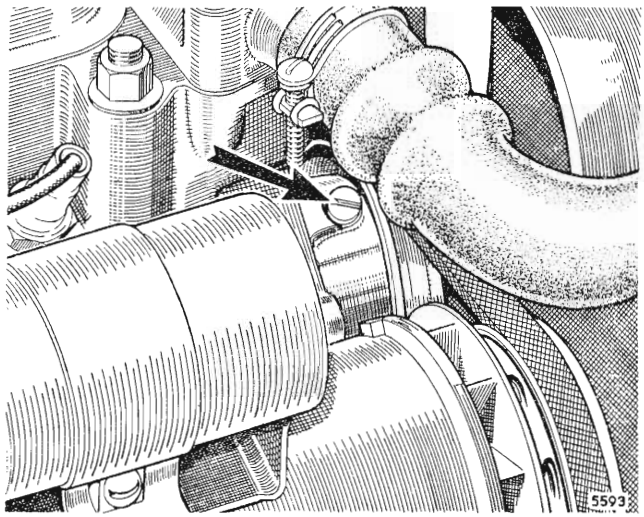


Fig. P.14. The water pump oiling plug.

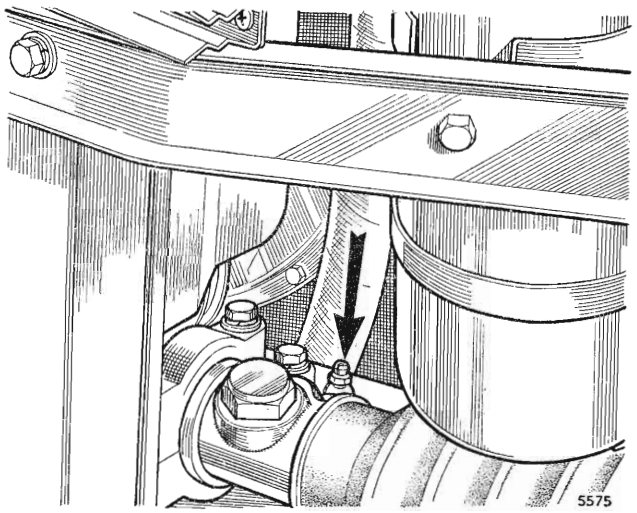


Fig. P.16. The arrow indicates the position of the steering rack oil nipple.

ENGINE FLUSHING

Flush the engine with a flushing oil supplied by one of the recommended manufacturers (page P.1). 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 tickover, 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.

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.1) and give 10 strokes **only.**

DYNAMO

Unscrew the lubricator cap, remove the felt pad and spring, and half-fill the cup with grease to Ref. C (page P.1).

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.1). 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.

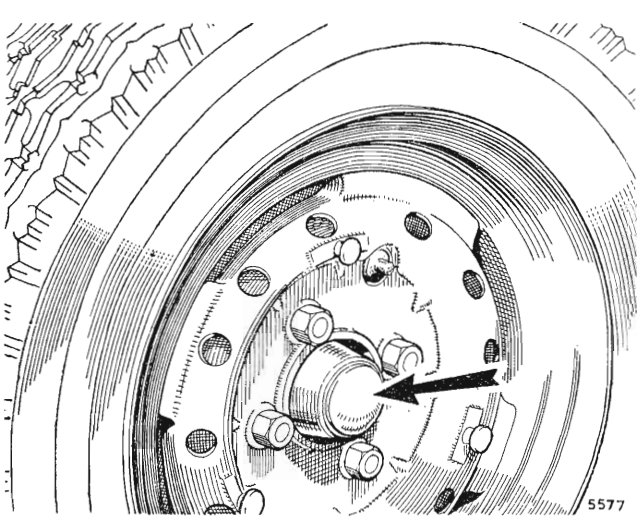


Fig. P.15. A front wheel hub grease-retaining cap.

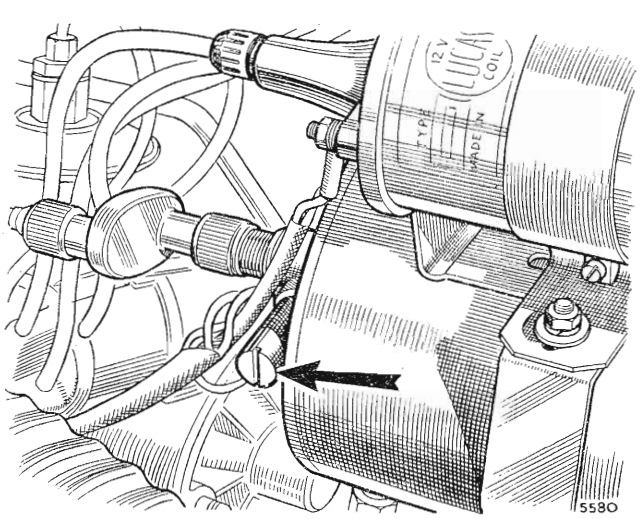


Fig. P.17. The dynamo lubricator cap.

LUBRICATION CHART

KEY TO THE AUSTIN-HEALEY SPRITE LUBRICATION CHART

DAILY

(1) ENGINE. Inspect the oil level by the dipstick, and top up if necessary with oil to Ref. A.

AFTER THE FIRST 500 MILES (800 km.)

(2) ENGINE. Drain off the old oil and refill with fresh oil to Ref. A.
(3) GEARBOX. Drain off the old oil and refill with fresh oil to Ref. A.
(4) REAR AXLE. Drain off the old oil and refill with fresh oil to Ref. B.

EVERY 1,000 MILES (1600 km.)

(5) GEARBOX. Remove the filler plug, and top up if necessary to the filler plug level with oil to Ref. A.
(6) REAR AXLE. Remove the filler plug, and top up if necessary to the filler plug level with oil to Ref. B.
(7) STEERING TIE ROD BALL JOINTS.
(8) SWIVEL AXLES AND SUSPENSION LOWER JOINTS.
(9) PROPELLER SHAFT UNIVERSAL JOINTS.
(10) HAND BRAKE CABLE.
(11) HAND BRAKE COMPENSATOR LEVER.

Lubricate with the gun filled to Ref. C.

(12) HAND BRAKE LINKAGE JOINTS. Lubricate with an oil can filled with oil to Ref. D.
(13) MASTER CYLINDER. Inspect the fluid level in the supply chamber and replenish if necessary with Lockheed Brake Fluid or a fluid conforming to Specification 70 R.1.
(14) CLUTCH, BRAKE AND THROTTLE JOINTS. Lubricate with an oil can filled to Ref. D.
(15) CARBURETTERS. Top up damper assembly reservoirs with oil to Ref. D.

EVERY 3,000 MILES (4800 km.)

(16) ENGINE. Drain off the old oil and refill with fresh oil to Ref. A.
(17) DISTRIBUTOR. Withdraw the rotor arm and add a few drops of oil to Ref. D to the cam bearing and to the advance mechanism through the gap around the cam spindle. Lightly smear the cam with grease to Ref. C.

EVERY 6,000 MILES (9600 km.)

(18) OIL FILTER. Wash the bowl in fuel and fit a new element.
(19) GEARBOX. Drain off the old oil and refill with fresh oil to Ref. A.
(20) REAR AXLE. Drain off the old oil and refill with fresh oil to Ref. B.
(21) WATER PUMP. Remove the plug and add a few drops of S.A.E. 140 oil; replace the plug.
(22) FRONT HUBS. Remove the front hub discs and prise off the grease-retaining caps from the ends of the hubs. Fill the caps with grease to Ref. C and replace securely.
(23) FRONT SHOCK ABSORBERS. Thoroughly clean the shock absorbers, examine the fluid levels, and replenish if necessary with the correct fluid.
(24) REAR SHOCK ABSORBERS. Thoroughly clean the shock absorbers, examine the fluid levels, and replenish if necessary with the correct fluid.
(25) AIR CLEANERS. Remove, clean in fuel, drain and wet the air cleaners with oil to Ref. A.

EVERY 12,000 MILES (19200 km.)

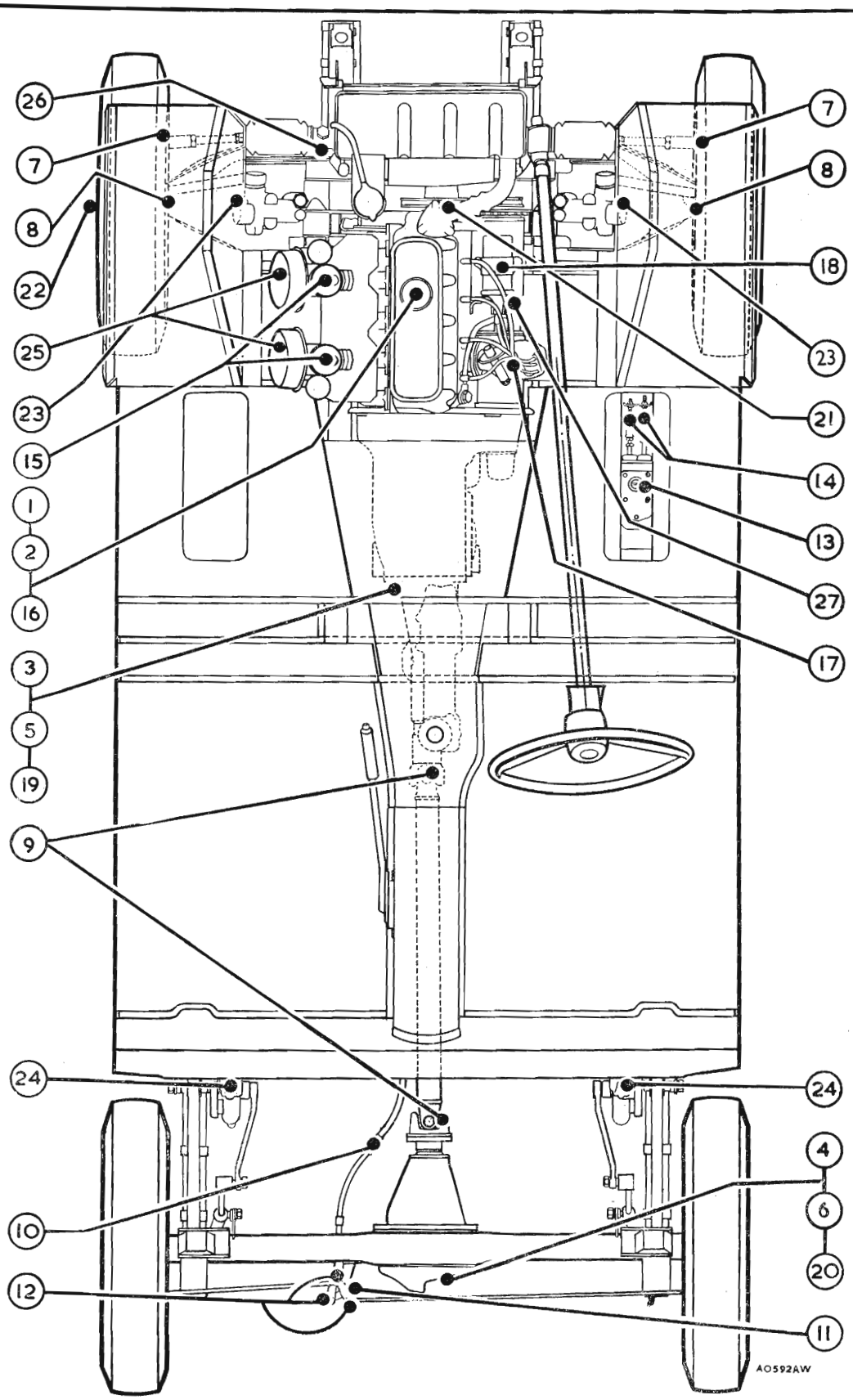
(26) STEERING RACK. Apply the grease gun filled with oil to Ref. B to the nipple on the steering gearbox and give 10 strokes only.
(27) DYNAMO. Unscrew the lubricator cap, remove the felt pad and spring, and half fill the cup with grease to Ref. C.

MULTIGRADE MOTOR OILS

In addition to the recommended lubricants listed on page P.1. we approve the use of these new motor oils as produced by the companies there indicated, for all climatic temperatures unless the engine is in poor mechanical condition.

NOTE—Oil and grease references are to be found on page P.1.

THE AUSTIN-HEALEY SPRITE LUBRICATION CHART



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