8.—Control Mechanism.

Apply a few drops of oil "A" with oil-can to controls on steering wheel (oil hole), accelerator pedal mechanism, clutch pedal mechanism, and all other control points and bearings.

9.—Brake Connections, etc.

Apply liberally oil "A" with oil-can to all joints and pins of brake rods and connections, or spray with penetrating oil.

10.—Bonnet Fasteners and Locks.

Carefully lubricate with oil "A" bonnet fasteners and locks.

11.—Sparking Plugs.

Alternative plugs are Champion Type N8, or Lodge Type CLN, 14 m/m. non-detachable. Plugs should be serviced on special plug cleaning and testing machine, which should be available in all service stations. Set gaps to .025" (.635 m/m.).

EVERY 10,000 MILES

1.—Starter Motor.

Remove plug on side of reduction gear casing, and fill to plug orifice with oil "B". (See Fig. **42**.)

2.—Engine Oil Sump.

When engine is warm drain crankcase and refill with oil "A" to the correct level.

3.—Hydraulic Shock Dampers.

Inspect oil level and add more oil if necessary.

Use only correct oil. (See page 28.)

4.—Universal Joints and Propeller Shaft.

Inject grease by means of grease-gun into lubricator located at centre of each universal joint, and also into the lubricator on the sliding joint. (See Fig. **21**.)

5.—Valve Rocker Clearances.

Check the inlet valve rocker clearances and re-set if necessary.

This operation should be performed *when the engine is cold.*

The method of adjusting the valve rocker clearances is illustrated in Fig **3**.

Before commencing to adjust a tappet, it should be ascertained that the lower tappet operating the push rod is on the base circle of its operating cam. This is best done by turning the crankshaft by hand until the valve has opened and closed, and then cranking round half a revolution beyond this point.

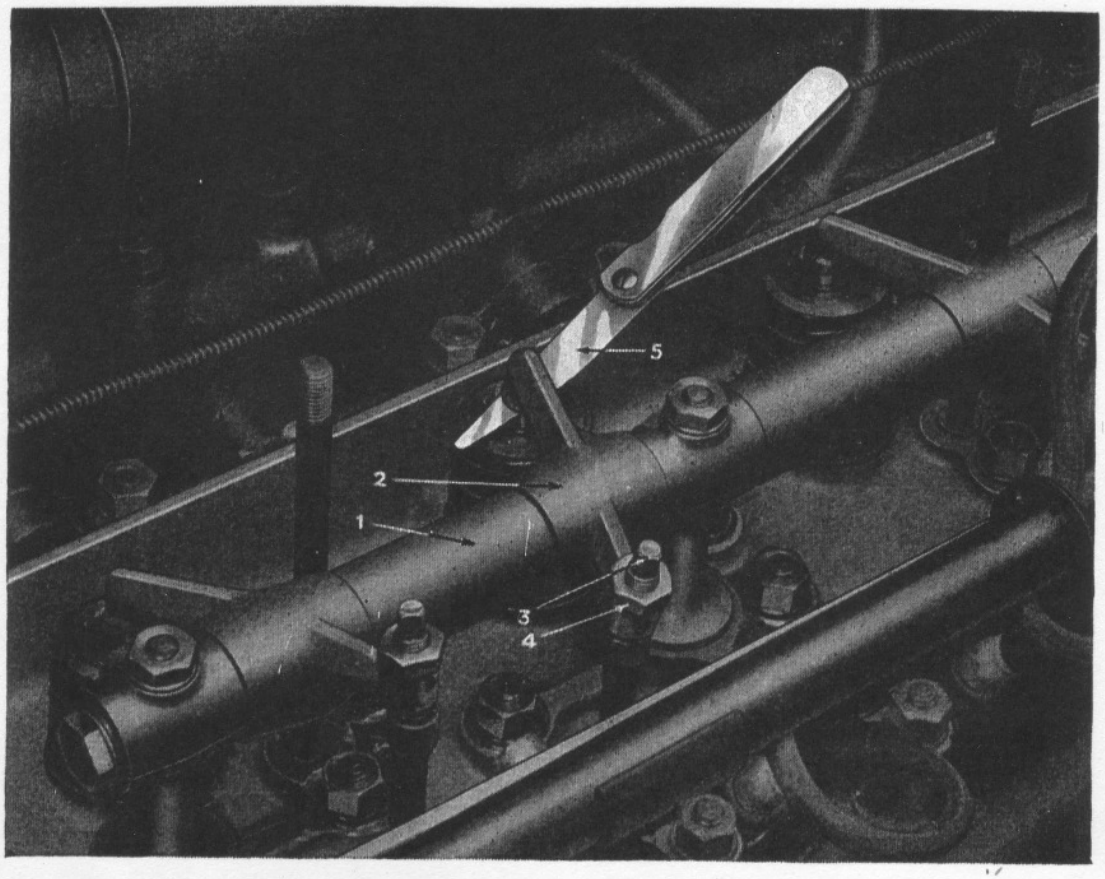

Fig. 3—ADJUSTING THE INLET VALVE ROCKER CLEARANCES.

1. Rocker shaft.
2. Rocker.
3. Ball ended contact screw.
4. Locknut.
5. Feeler gauge.

The ball ended contact screw (**3**) is screwed into the rocker and locked with a nut (**4**). On releasing the nut the screw can be turned by means of the special spanner provided.

The correct clearance for the inlet rockers is .006″ (.152 m/m.). A feeler gauge is provided in the tool kit, and is shown in position (**5**), for measuring the clearances.

As each contact screw is adjusted, its locknut should be securely tightened up.

The correct clearance for the exhaust tappets is .012″ (.305 m/m.), *with the engine cold*. These should need no attention between decarbonising periods of the engine.

6.—Air Cleaner.

Remove cleaner element from front end of silencer, after unscrewing the wing-nut and taking off end cover. Carefully wash element in petrol or paraffin and afterwards oil with oil "A". Drain off excess oil before re-fitting.

It should be noted that if the car is being run under particularly dusty conditions, the element may need cleaning more frequently. (See page 51.)

7.—Doors.

Oil lock bolts and hinges with oil "A". (See page 107.)

8.—Hydraulic Master Cylinder.

Remove the filler plug (1), Fig. 18, and check the fluid level, top up if necessary with the recommended fluid (see page 28) so as to maintain the level at one inch below the filler cap.

9.—Dynamo.

Inspect brushes for wear; to do this, unscrew securing screws and remove cover to expose brushes. (See page 84.)

If renewal is necessary, remove dynamo, clean out dust and refit new brushes, making sure that they are bedding correctly on the commutator. Refit dynamo.

EVERY 20,000 MILES

1.—Gearbox.

Drain out all the oil, by removing the drain plug, and refill with oil "B", up to the mark on the dipstick. (See page 60.)

This operation is more easily performed when the gearbox is warm.

2.—Fuel Filters.

Remove and clean gauzes of rear filter, located on cross-member of frame in front of main tank. Drain and clean filter sump. (See page 45.)

Also, remove and clean gauze filter on fuel inlet to carburetter float chamber, taking care, first, to see that the ignition is switched off, and fuel pumps are therefore inoperative. (See page 45.)

3.—Fuel Tank.

Release—but do not remove—drain plug at bottom of main tank to allow any accumulated water to escape. (See page 45.)

4.—Rear Axle.

Drain axle when warm, and refill. Approximately $1\frac{3}{4}$ pints of oil will be required.

None but the recommended oil should be used, and this should be warmed before inserting.

5.—Chassis Lubrication System.

Remove and discard felt strainer pad, located at base of chassis oil pump. (See page 36.) Replace with new pad.

DIAGRAM

CHASSIS LUBRICATION SYSTEM

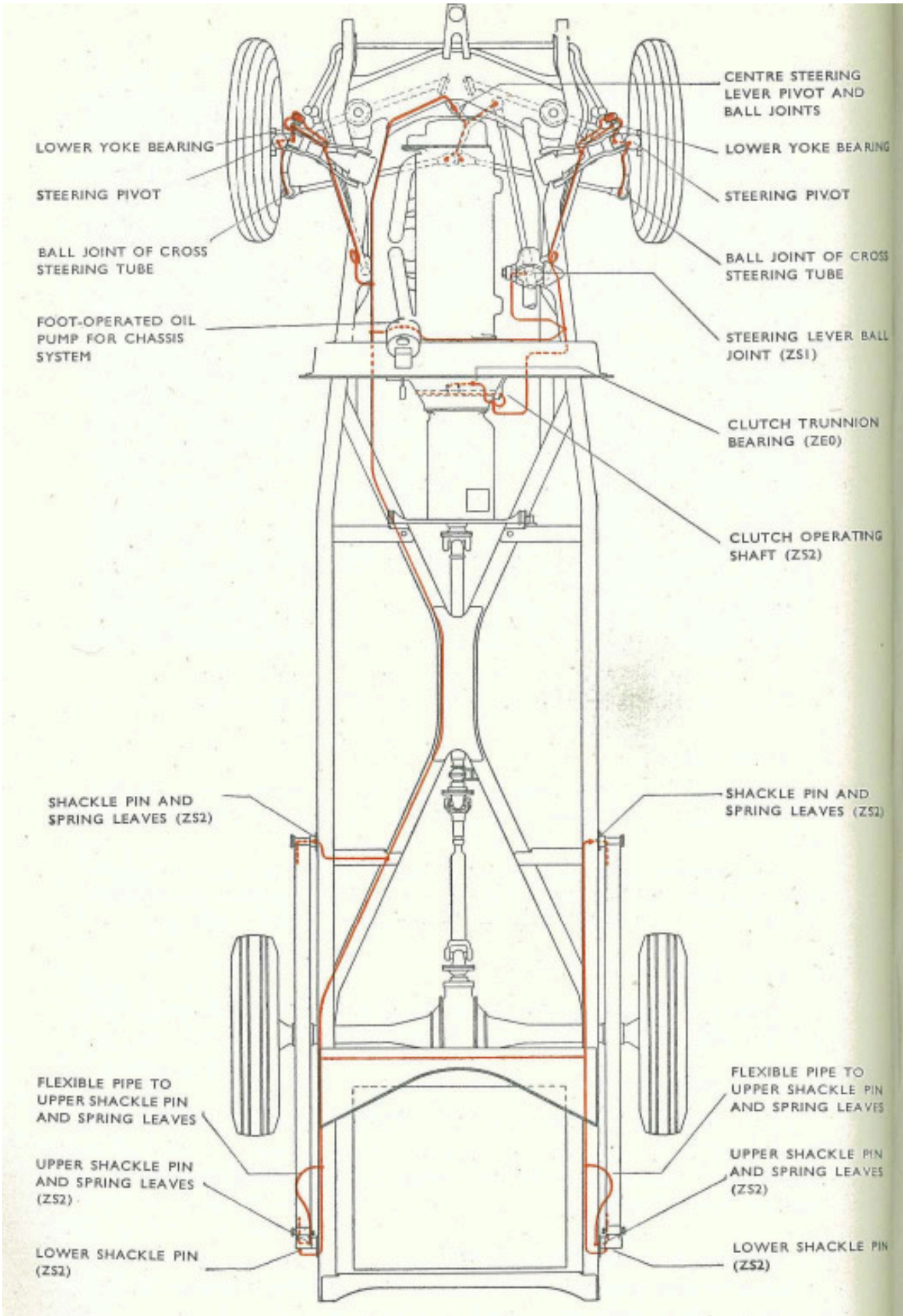

Fig. 4.—DIAGRAM OF CHASSIS LUBRICATION SYSTEM.

CHAPTER III

Centralised Chassis Lubrication

General — Foot-operated Oil Pump — Drip Plugs.

General.

A foot-operated pump, with which is combined an oil reservoir, is located on the front of the dashboard, and supplies oil under pressure for chassis lubrication.

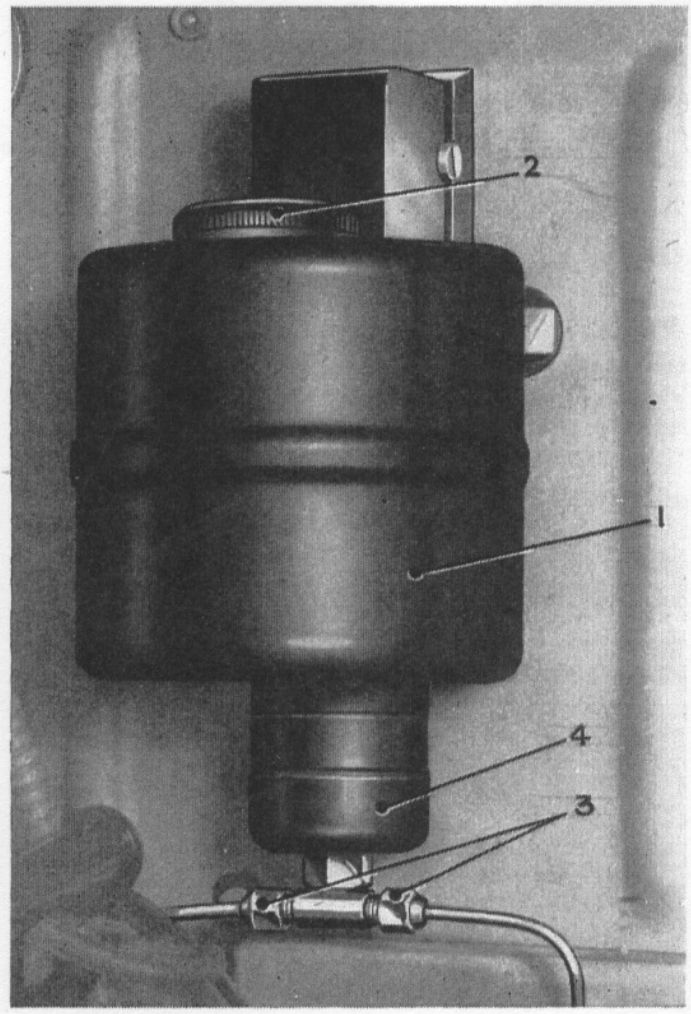

Fig. 5.—CHASSIS OIL PUMP AND RESERVOIR.

1. Reservoir.
2. Filler cap.
3. Pipe unions.
4. Strainer.

A diagram of the complete system is given in Fig. 4, the piping being coloured red. Red discs indicate the positions of drip plugs, and the rating of each is given in parentheses against the description of the part lubricated.

Foot-operated Oil Pump.

The chassis oil pump is shown in Fig. **5**. Normally no attention to the system is necessary beyond filling of the reservoir with the correct oil (see page 28), after removal of the filling plug (**2**), as directed on page 29.

It should not be filled above one inch from the top of the filler cover.

When the reservoir is nearly empty it will be found that the pedal returns instantly after depression, due to the presence of air in the system.

On the other hand, if the pedal takes an abnormal length of time to return to its raised position, this may indicate that the felt strainer located at the bottom of the reservoir is choked. Under these circumstances a new felt strainer must be fitted.

This is arranged at the bottom of the reservoir, and is removed by disconnecting the two unions (**3**), and unscrewing the cap (**4**). An aluminium distance washer, the felt strainer pad, and a wire gauze support can then be taken out.

When replacing the parts, the wire gauze support should be refitted in the cap first, followed by a *new* felt pad and, finally, the aluminium distance washer *with its recessed face towards the felt pad.* Packing washers are provided on either side of the aluminium washer, and it should be observed that these are in position.

Normally, the felt strainer pad should be discarded and a new one fitted every 20,000 miles, as directed on page 33. It should never be necessary further to dismantle the pump.

Drip Plugs.

The drip plugs are non-adjustable and non-demountable, and are lettered and numbered to indicate their shapes and relative rates of oil emission respectively, a higher number indicating a greater rate.

The drip plugs never require cleaning, and, being non-demountable, no attempt must be made to take them apart. If one is suspected of being defective, it should be replaced with a new plug of the same rating. (See Fig. **4**.)

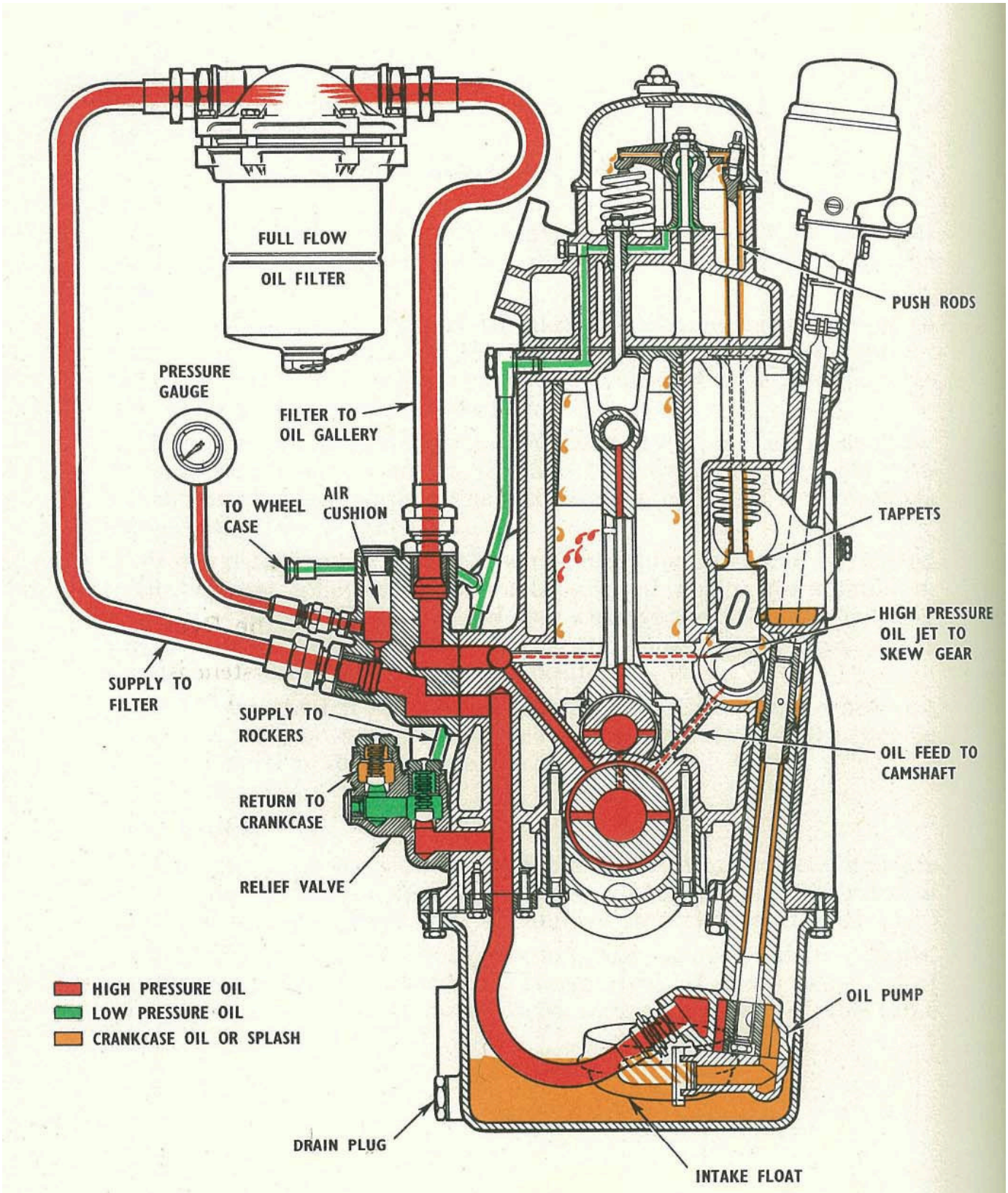

Fig. 6.—ENGINE LUBRICATION SYSTEM.

CHAPTER IV

Engine Lubrication System

Filling the System—Oil Pump—Oil Filter—Crankshaft and Connecting Rods—Relief Valves—Valve Rockers, Push Rods and Tappets—Camshaft—Oil Sump—Oil Level Indicator—Oil Pressure.

The engine lubrication system is of the forced feed, full-flow filtered type, and is diagrammatically illustrated in Fig. **6**.

Recommended oils will be found on page 27.

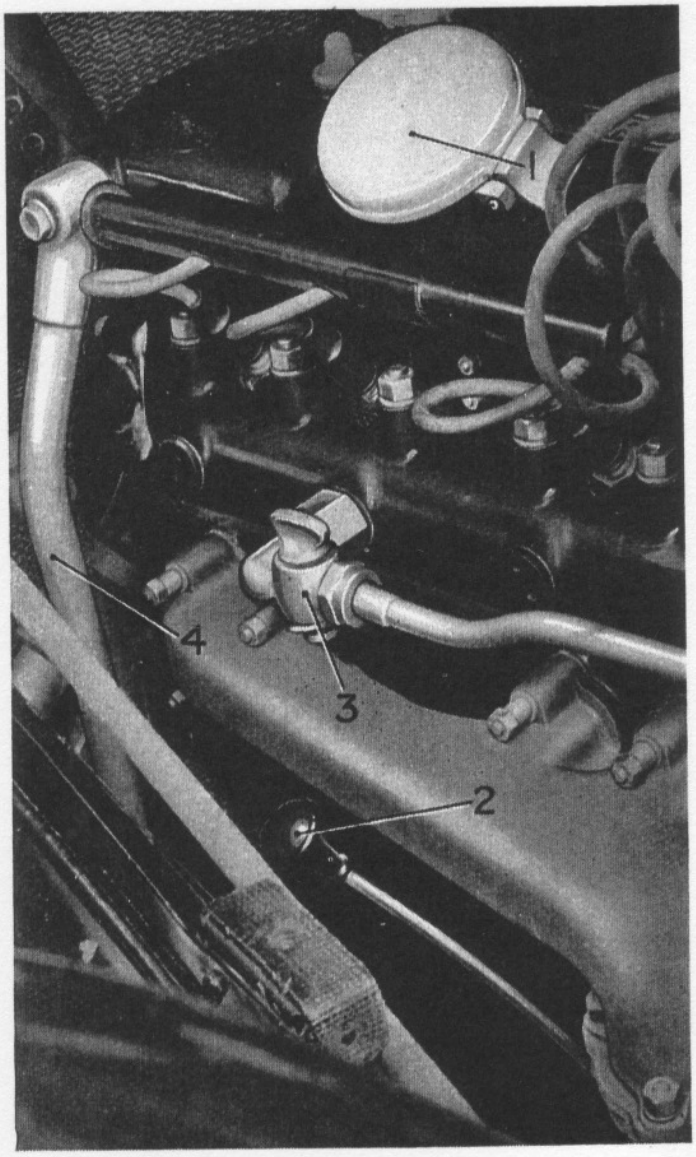

Fig. 7.—FILLER CAP AND DIPSTICK.

1. Engine oil filler cap.
2. Dipstick.
3. Heater—Isolating tap.
4. Breather pipe.

Filling the System.

The system is filled, or topped up, by opening the oil filler cap (**1**, Fig. **7**), on the inlet rocker cover, and pouring in the required amount of recommended oil.

It should be appreciated that it takes a little time for the oil to drain through to the sump, especially if the oil is cold.

The level of the oil should be frequently checked with the dipstick (**2**, Fig. **7**), **when the engine is not running,** and the system regularly topped up as required (see page 29), so as to keep the level of the oil up to the "Max" mark.

Oil Pump.

A gear type pump mounted in the lower half of the crankcase is driven by means of a vertically-mounted shaft and skew gears from the centre of the camshaft. A coupled extension of this shaft also drives the ignition distributor.

The oil intake from the sump is of the floating gauze filter type, ensuring the collection of clean oil, free from sludge.

Oil is drawn by the pump through the floating intake and delivered direct to the full-flow filter.

Oil Filter.

The full-flow filter is fitted on the right-hand side of the crankcase as shown in Fig. **8**, and, as previously stated, oil is fed direct from the pump to the filter, and, after passing through the filter, is returned via the relief valves to the main oil gallery, as shown in the diagrammatic illustration, Fig. **6**.

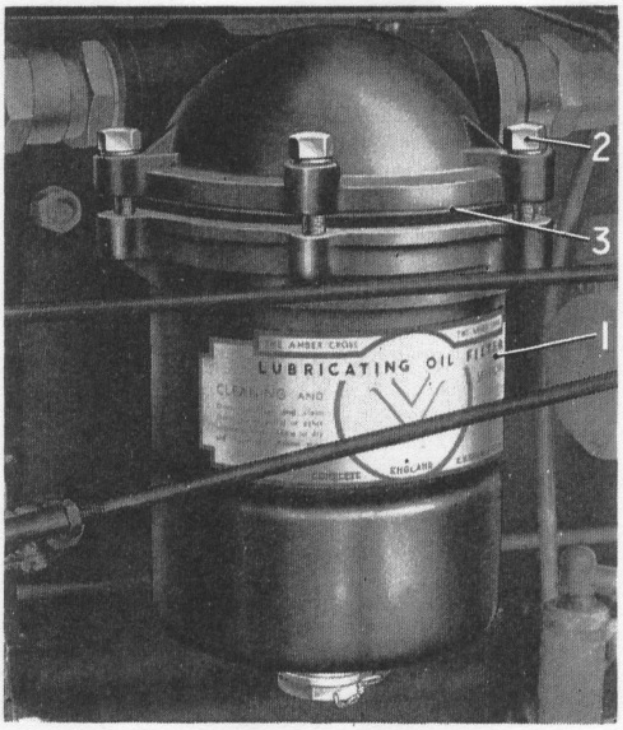

Fig. 8.—OIL FILTER.

1. Filter bowl.
2. Setscrews.
3. Joint washer.

Every 5,000 miles, as directed on page 30, the filter element should be discarded and replaced with a new one. It is not practicable to clean the felt element, and no attempt must be made to do so.

To remove the element, unscrew the six setscrews (**2**, Fig. **8**) in the cover and remove the bowl complete with the mesh canister.

Dismantle the canister by unsealing and removing the wing-nut from the bottom cover, extract the felt element and the two felt washers. Discard, and replace with new ones. Re-assemble the canister and replace in bowl. Fill bowl with oil and refit in position.

When refitting the bowl, ensure that the rubber washer is in good condition and correctly fitted. On next running the engine, it should be inspected for oil leaks around the filter joint.

Crankshaft and Connecting Rods.

The filtered oil is conveyed to the relief valves, from where the main oil supply, controlled at approximately 25 lbs. per square inch, is delivered to the main oil gallery incorporated in the crankcase casting.