

# INSTRUCTION BOOK



**VOLVO 422S**

HOW TO DRIVE AND SERVICE

YOUR

**VOLVO**

AKTIEBOLAGET VOLVO GOTHENBURG SWEDEN



## FOREWORD

Your Volvo has been designed with the primary object of giving you a car which will always be ready to take you wherever and whenever you want to go, quickly, comfortably and cheaply. You now have a car which stands at the top of its class but remember that things may occasionally happen which may make it necessary for you to call in help. In such cases it is a reassurance to know that Volvo maintains a world-wide Service Organization with Dealers disposing of modern equipment and whose staffs include factory trained personnel.

We have a mutual interest — that your car should give complete satisfaction — but to achieve this your co-operation is necessary. This book has been specially prepared for you, the owner, and contains the information you need to enable you to keep this car in the best possible trim.

Follow the instructions given and see that your car gets regular service — you'll find that it will always pay.

We reserve the right to change the specifications given in this book without notice.

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## VOLVO 122 S



### Main data:

Output:	85 h.p. (SAE) at 5500 r.p.m.
Wheelbase:	2600 mm (102.4")
Kerb weight:	1160 kg (2491 lb)

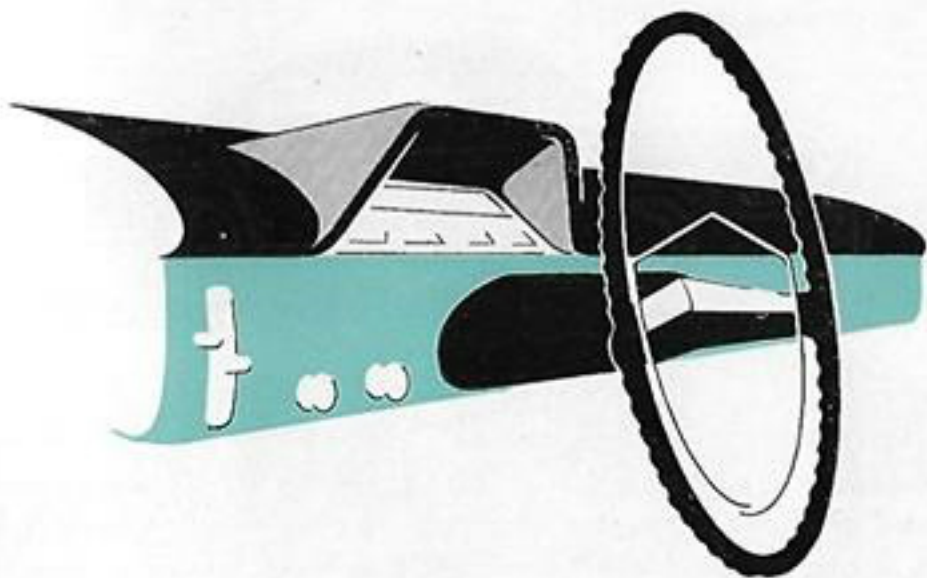
# INTRODUCTION



The Volvo 122 S is a 4-door, 5-seater saloon car with an overhead-valve engine and having a kerb weight of 1160 kg (2491 lb). It fulfills every modern demand as regards appearance, comfort and performance. The petrol-thrifty, lively engine combined with independent front wheel and robust rear axle suspensions, makes it an outstandingly road-worthy car. It is easy to drive and it is fast — but at the same time, safe. The Volvo has an all-welded steel body, itself a vital safety factor. The brakes are over-sized, the steering feather-light and there is good all-round vision in all types of weather. It also has a safety type steering wheel, padded instrument panel and sun visor and reinforcements in the body for fitting of safety belts. If an accident should happen a safety belt gives you the best possible chance of avoiding injury. Therefore buy the safety belts from your Volvo dealer — better be safe than sorry.

The Volvo can be delivered having front seats with fixed back rests or with seats which can be folded back to form sleeping accommodation. There are, besides, many other accessories for your Volvo and your Volvo dealer is always at your service with any further information.

# INSTRUMENTS AND CONTROLS



When you first get into your Volvo and sit behind the steering wheel you may find that the seat will require adjusting. This is no trouble since the catch at the side of the seat has only to be moved sideways and the seat can then be adjusted backwards or forwards until the most comfortable position is obtained.

Next adjust the driving mirror so that you have a clear view rearwards without having to crane your neck. If this is adjusted properly you will have an excellent view through the large rear window. Make sure that you adjust the mirror so as to give you an unobstructed view of any traffic coming up from behind which may wish to overtake you.

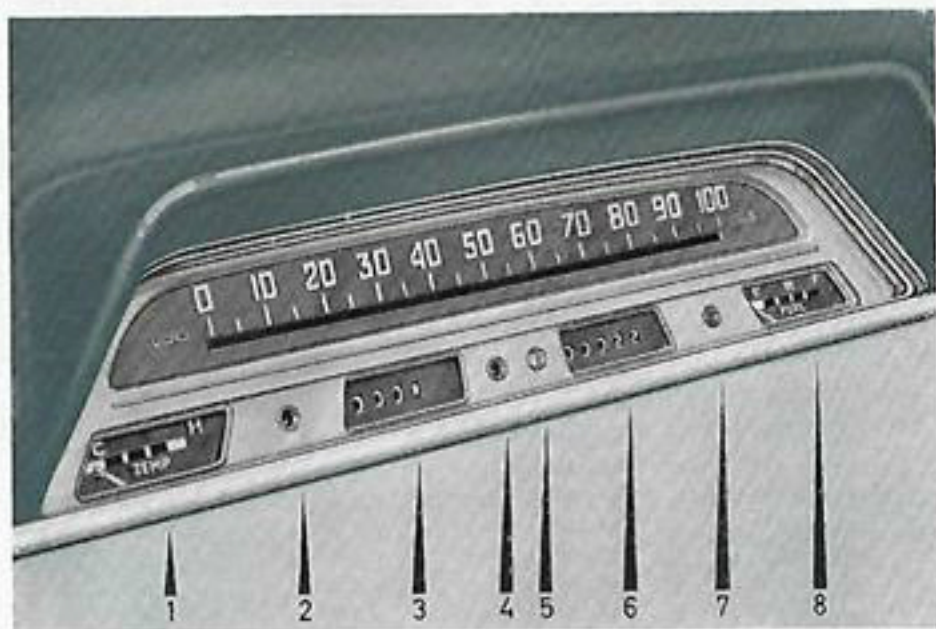
Before starting to drive, examine the





instrument panel with the different instruments and controls. The first to catch your eye will be the dials of the instruments right in front of you. Here are grouped the instruments and controls which indicate your speed, that the engine is working properly and that the electrical system is in order.

There is a figure in brackets following the headings below. This refers to the captions in Fig. A below and Fig. B on page 9.



**Fig. A. Instrument panel.**

- |                               |                                    |
|-------------------------------|------------------------------------|
| 1. Temperature gauge          | 5. Directional signal control lamp |
| 2. Charging control lamp      | 6. Mileometer                      |
| 3. Recess for trip meter      | 7. Oil pressure indicator lamp     |
| 4. Headlamp beam control lamp | 8. Fuel gauge                      |

### **Speedometer**

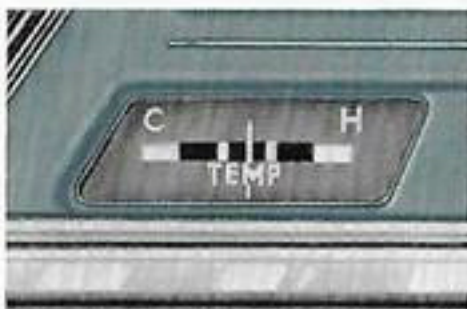
is of new type having a red column which moves horizontally to the right across the face of the instrument as the speed increases. In this way a clearer indication is given, especially at higher speeds. It differs from conventional speedometers in that the red column varies in length in proportion to the speed. Here you have another safety factor because the more red there is showing, the faster you are going. Remember — red spells d-a-n-g-e-r.

In addition to the usual mileometer there is a trip meter (3). This can be set to zero by pulling down the knob to the left of the steering column underneath the dashboard.



### Temperature gauge (1)

shows the working temperature of the engine. The reading should be between the green marks. If the gauge should consistently register too high a reading this could be due to the fact that the channels in the cooling system have become choked and impair circulation. In such cases the cooling system should be cleaned out.



### Fuel gauge (9)

operates when the ignition is switched on and shows the level of the gasoline in the tank. When the needle lies within the white mark there is about 1 US gallon left in the tank as a reserve. To be on the safe side, however, we would recommend you always to have a reserve can with you, especially on long journeys. There is a special place reserved for a gasoline can in the luggage compartment behind the spare wheel.



### Warning lamps

In order more easily to call attention to certain of the car's functions some instruments have been replaced by warning lamps. Should anything unusual happen or perhaps something be left switched on, these lamps will light, thus calling your attention to the fact.

### Green lamp (8)

lights up when the engine oil pressure is too low. When you switch on the ignition the lamp should light but should extinguish as soon as the engine has started. NOTE. If the lamp comes on whilst driving, stop the engine immediately and try to ascertain the reason. In most cases it will be found that the oil level is too low. **Never run the engine if the oil pressure is too low.**

### Red lamp (2)

lights up when the battery is being discharged, which is normal whilst the engine is idling. As soon as you depress the accelerator the light will go out. NOTE. If the lamp lights during normal driving this usually indicates some fault in the electrical system. It may also be due to the fact that the fan belt is not tensioned correctly and is slipping, the result of which is insufficient charging.

### Blue lamp (4)

indicates that headlamps are full on. No need to tell you how unpleasant it is, to say nothing of dangerous, to be dazzled by the headlamps of an oncoming car. When meeting another vehicle at night always dip your headlamps by means of the foot dipper switch.

### Yellow lamp (5)

reminds you that one of the directional signals is flashing. At the same time you will hear a ticking sound.

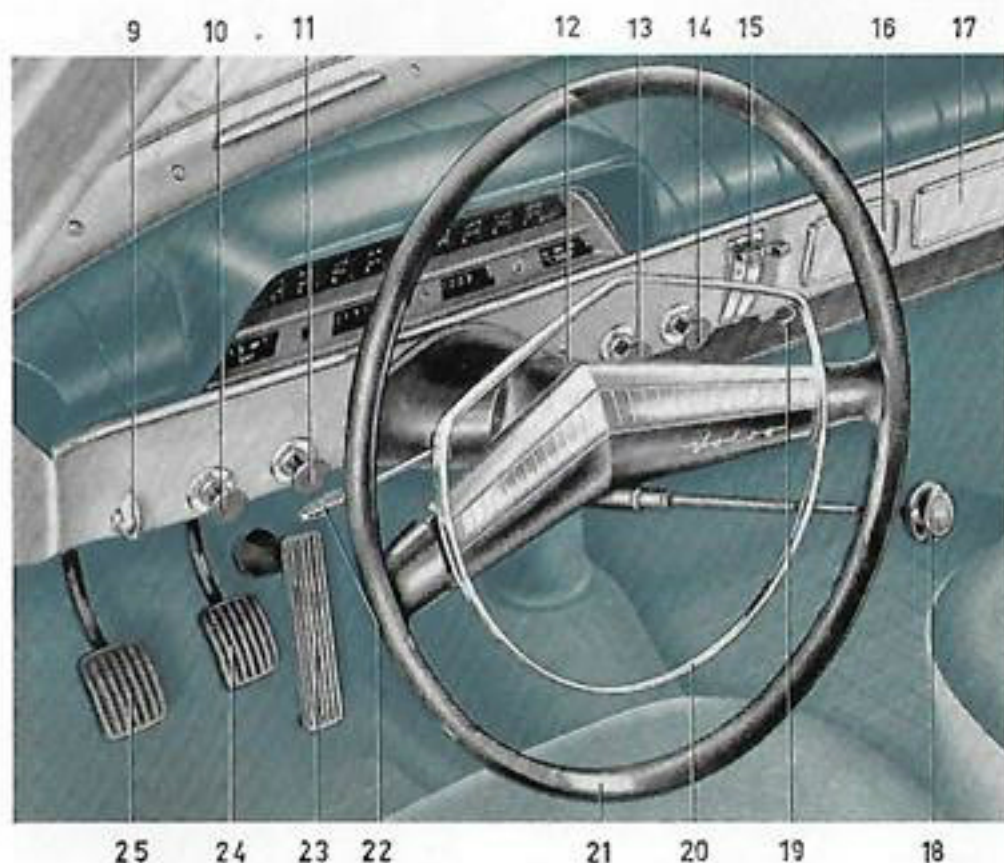


Fig. B. Controls.

- |   |  |
|---|--|
| 9. Windshield wiper control               | 18. Gearshift lever                                |
| 10. Choke control                         | 19. Radiator blind control                         |
| 11. Lighting control                      | 20. Horn   |
| 12. Ignition switch with built-in starter | 21. Steering wheel                                 |
| 13. Cigarette lighter                     | 22. Directional signal switch and headlamp flasher |
| 14. Heater controls                       | 23. Accelerator pedal                              |
| 15. Heater controls                       | 24. Brake pedal                                    |
| 16. Ashtray                               | 25. Clutch pedal                                   |
| 17. Radio panel                           |  |



### Choke control (10)

is used when starting from cold. It operates on a fast idling device in the carburettor.

This fast idling device prevents the engine stalling before it has had a chance to warm up. The choke should be used sparingly — never drive with the choke out for more than a few minutes and never when the engine is thoroughly warm.

### Ignition switch (12)

has a built-in starter switch and there are four different key positions as shown in Fig. C. Position 1 is the "radio position". In this position all electrical accessories can be switched on with the exception of the ignition system. Position 2 is the neutral position and the only one in which the key can be removed. Position 3 is the driving position. When starting the engine turn the key right over to position 4 and release it as soon as the engine starts. The key returns automatically to the driving position 3.



### Headlamps (11)

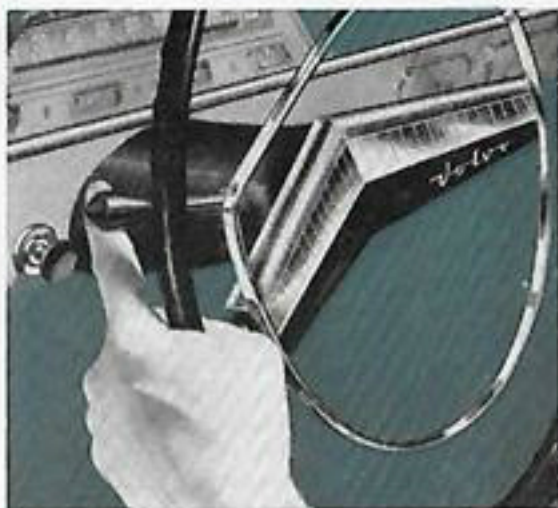
are controlled by a switch having three positions as shown in the illustration opposite. By pulling out the knob half-way the parking lights are switched on. Pulled right out, the headlamps come on. In both positions the rear lights and number plate lights are also switched on.



There is a foot dipper switch on the floor to the left which is used for switching the headlamps from the full to the dipped position and vice versa. When the headlamps are on full the blue control lamp (4) is alight. If you so desire you can have the foot dipper switch connected through the light switch parking light position. The dipper switch then also changes from parking lights to dipped headlights and vice versa. Your dealer will be able to tell you more about this.

### Headlamp flasher (22)

is a feature of the Volvo. When overtaking, a light signal is often more effective than sounding the horn. The headlamps can be made to blink by moving the directional signal switch upwards for as long as you think necessary for the vehicle in front of you to be made aware of your intention to overtake.



Position of traffic indicator switch for blinking headlights

### Interior lighting

consists of a roof light with switch. There are three position for the switch as shown in Fig. D. The first is the normal position.

1. The lamp lights when either of the front doors is opened.
2. Lamp always remains off.
3. Lamp is on all the time.



Fig. D.

### Instrument lighting (11)

is controlled by turning the headlamp switch button. The more the button is turned anti-clockwise the stronger the lighting becomes.

### If you are a smoker (13, 16)

you will appreciate the convenience of a cigarette lighter and ashtray placed within easy reach of the driving seat. For passengers there is an ashtray in each of the rear doors. When using the cigarette lighter press in the button and after a few seconds it can be pulled right out ready for use. The ashtrays are emptied by removing them with a simple movement as shown in the illustration.



### Radiator blind (19)

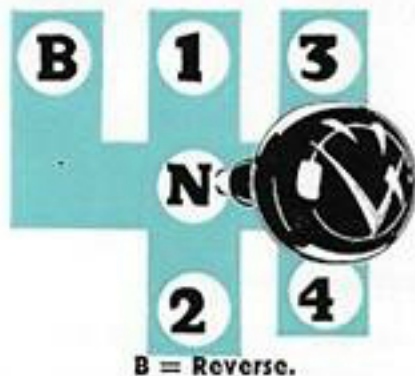
is standard equipment. When starting from cold the blind should be pulled fully up so that the engine can reach its normal operating temperature quickly. In cold weather it may be advantageous to run with the blind drawn partly up. This helps to maintain a higher temperature inside the car.

**NOTE.** Never drive with the blind pulled up so far that the engine becomes too hot — a seized engine may be the result. Do not use the radiator blind during the first 1500 miles!

### Gearshift lever (18)

is direct-operating which makes for quick and precise gear changing. Positions of the various gears are shown in the illustration opposite.

When changing gear the lever should be held in neutral for a moment before engaging the desired speed.





### Handbrake lever

is placed on the off side of the driving seat which facilitates application. Thus you can easily apply the handbrake without actually sitting in the car. The lever is released by pressing in the button as shown in the illustration below.



### Pedals

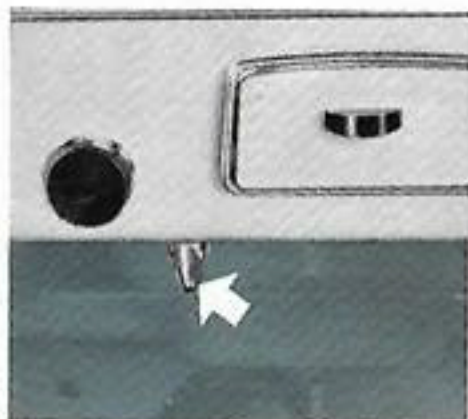
are of suspended type which means that irritating floor draughts are avoided. When you have started the engine and place your foot on the clutch pedal you feel none of the usual engine vibrations since the pedal operates hydraulically.

### Directional signals [22]

consist of flashers front and rear. The switch lever is self-cancelling. When the signals are on there is a ticking sound as well as the yellow blinking control lamp.

### Windshield wipers (9)

are driven electrically — which means even running regardless of engine loading. Another advantage is that they have two speeds and are self-parking. To set them going turn the control a little to the right. They will then run at normal speed. To increase the speed and therefore the capacity of the wipers, turn the control further to the right.





### A roomy shelf

for holding maps, gloves, etc., replaces the conventional glove compartment. Besides being so capacious it also has the advantage that you can easily see all the contents. It is also provided with illumination which is very useful for map reading etc. The switch for this is fitted to the under side of the instrument panel furthest away from the driver. There is also another roomy shelf below the rear window for parcels and so on. It is sunken so that the contents will not obstruct the driver's rearward view.

### Door locking system

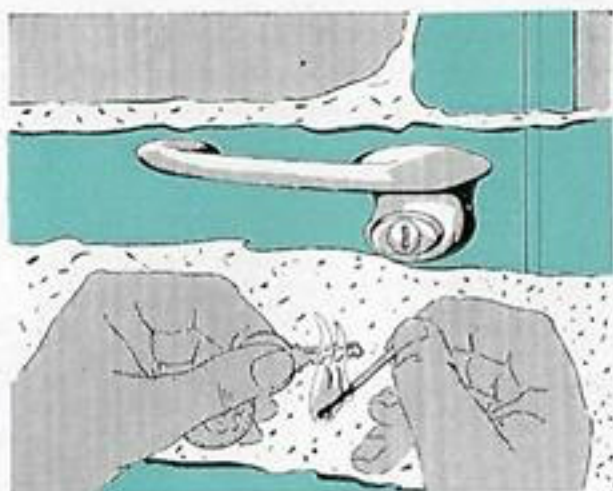
on the Volvo offers many advantages.

1. All doors, including the luggage compartment door, are opened from outside by pressing in the respective button.
2. All doors can be locked from inside by pressing down the respective knob on the window ledge.
3. When the car is locked, both front doors can be opened from the outside with the key.
4. On the front doors, the locking knob lifts automatically when the doors are opened from inside. This prevents you from locking yourself out. There is also a further advantage — you do not need a key to lock the car. Just depress the locking knobs and close the doors. **But remember to take the key out of the car.**

By having to depress the locking knobs in order to lock the car, this will jog your memory not to leave the key in the car.



**Don't forget to take the key out of the car.**



Sometimes, in extremely cold weather, the locks can freeze particularly if air humidity is high. Do not use force as this can break the key. Warm up the key instead.

Special preparations are available to prevent the locks from freezing. A little glycol on the key can often do the trick.

### **Ventilating panes**

on the front door windows give draught-free ventilation in the car. When the window is closed and the handle turned down, this is locked by a catch. This catch must be pressed in for the window to be opened again.

### **Heating system (14, 15)**

of the Volvo also provides ventilation and gives fresh warm air during the winter and invigorating outside air during the summer.

The fresh air intake is placed immediately in front of the windscreen thus avoiding taking in exhaust gases from preceding vehicles.

The system is operated by four controls — a pull switch for the fresh air fan and three controls for regulating the degree of heat and air distribution (see illustration).

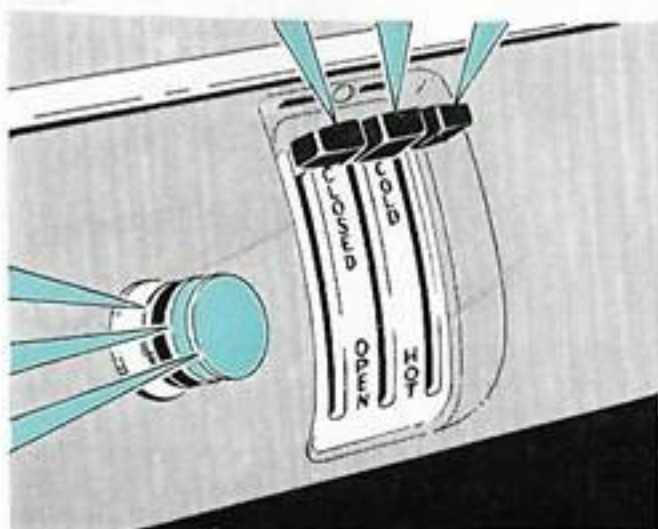
The pull switch on the left has three positions. In the inmost position the fan is off, the intermediate position gives full output and, pulled right out, gives half output.

The control on the left operates the fresh air shutter and the center one (defroster) operates the shutter for controlling the flow of air to the windscreen. Both shutters are closed when the controls are in their upper position. By pushing the controls downwards the respective shutters are opened, being fully opened when the controls are in their lower position.

The right-hand control regulates the temperature of the incoming air. In the upper position no heat is supplied to the air. The lower down the control is moved, the warmer the incoming air becomes. When adjusting this control it takes a few minutes before the thermostat settles down to the new temperature.

## AIR DEFROST TEMP

CLOSED  
FULL OUTPUT  
HALF OUTPUT





# DRIVING



Whether or not the Volvo is the first car you have owned, driving it will not present any great difficulties — on the contrary, in fact. Everything is laid out to enable you to drive quickly and comfortably without in any way sacrificing safety. Safety is, after all, the sovereign virtue especially when it comes to car driving where awkward situations crop up suddenly and where even more or less experienced drivers squabble for road space. It is very difficult to lay down any hard and fast rules as to how to drive in any particular situation but every driver should try to cultivate an instinctive reaction to do the right thing. This can best be achieved by developing a sense of judgement, by always having consideration for other road users and by taking into account localities and road conditions. In this way you and your Volvo will have many miles of carefree motoring ahead. You have, of course, fitted safety belts?

## Starting the car

is done with a few simple movements.

1. Make sure that the handbrake is on.
2. See that the gearshift lever is in neutral.
3. **If the engine is cold pull out the choke.**  
**If the engine is warm the choke should be fully in.**
4. Fully depress the clutch pedal.
5. Turn the ignition key to the starting position and release the key as soon as the engine starts. When making repeated attempts to start, both engine and starter motor must be allowed to come to rest completely before a further attempt is made.



6. When the engine has started, idling speed is controlled by the fast idling device which is linked with the choke. As the engine warms up so the choke must be pushed in more and more.

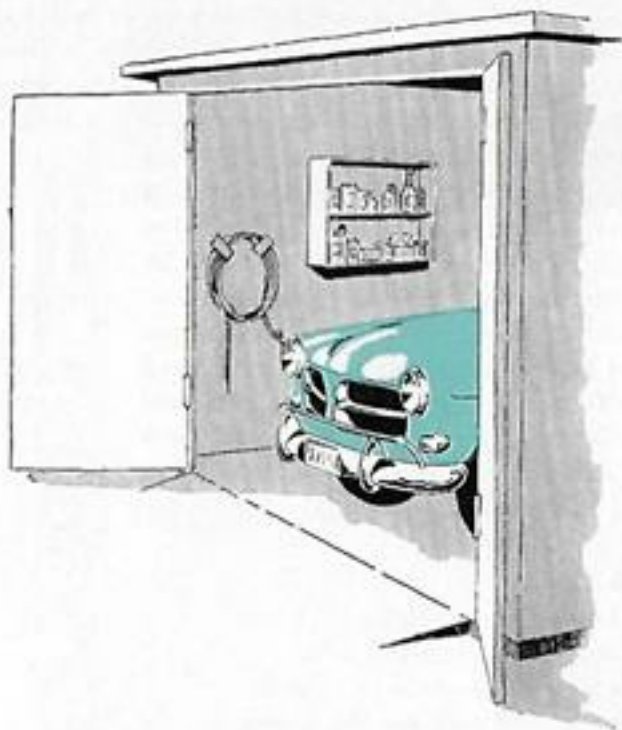
### **Never race a cold engine**

Never race up the engine immediately after a cold start but allow it to run at a moderate speed. Do not subject the engine to heavy loading until it has reached its normal working temperature. **Before moving off ensure that the oil pressure control light is out.**

### **Starting indoors**

Make a point of always opening the garage doors **before** starting your car. Exhaust fumes contain poisonous carbon monoxide gas which is both colourless and odorless.

**Air containing only 2 parts per thousand carbon monoxide can have fatal results if breathed in for half an hour.**



**Don't run the engine in a closed garage**

### **When the car is new**

it goes without saying that it should not be driven "flat out". During this first period it should be run in carefully so that all vital parts of the car such as engine, transmission, rear axle, wheels, etc., have a chance to "bed down". For the first 300 miles it is unwise to exert full engine output except for very short

periods and for the very first journeys it is particularly important that the engine should not be subjected to full loading. Keep an eye on the temperature gauge and should this show an excessively high reading the engine should be stopped immediately.

#### **Do not use the radiator blind during the first 1500 miles**

During the running-in period the engine oil should be changed more often than will later be necessary. Change the oil for the first time after having driven for 600 miles, a second time after 1500 miles and a third after 3000 miles when at the same time the oil filter element should also be replaced (see page 23). Thereafter the engine oil should normally be changed at 3000 miles driving intervals.

Since the engine has been thoroughly tested, partly on a test bench and partly on road test after installation, we are ensured that all fits are satisfactory and we are therefore unable to accept responsibility for any subsequent scoring of pistons and bearings.

Do not drive the car hard when it is new.

#### **Gear-shifting speeds**

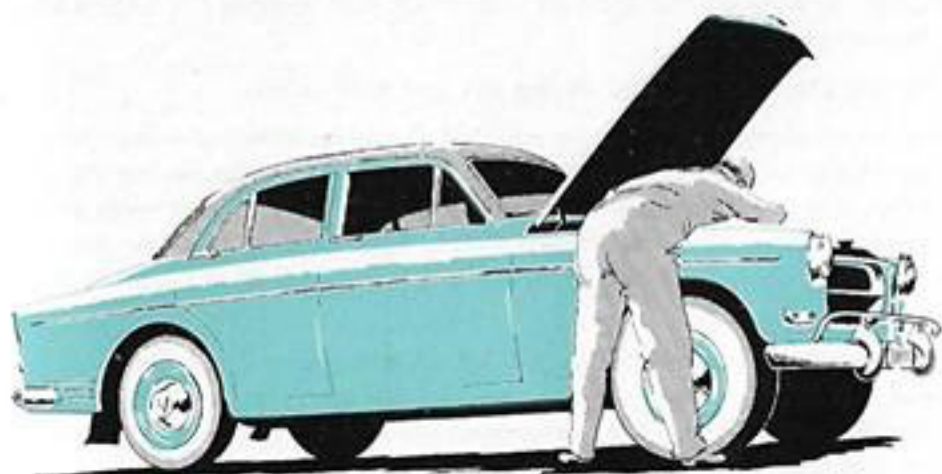
Your engine will give you the best service if it is not run too fast or too slow. The best speeds for gear-shifting are as follows:

1st speed .....	0—25 m.p.h.
2nd speed .....	10—40 m.p.h.
3rd speed .....	20—70 m.p.h.
4th speed .....	25— m.p.h.

Driving will be most economical if you shift gear in the speed ranges quoted.



## SERVICING



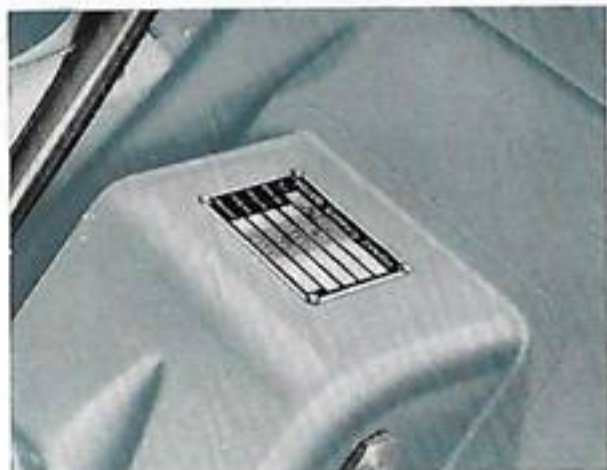
There are some cars on the road which cause their owners continual trouble. As a Volvo owner, however, you will not suffer such trouble — always providing you see that the normal servicing which every vehicle requires is properly carried out. The small amount of pains and care required to follow our instructions and advice concerning service and maintenance will be repaid many times by the pleasure and enjoyment you will get from your Volvo. You will soon notice that one of the features in the design and manufacture of the Volvo is that all servicing and maintenance work has been brought to a minimum and at the same time made as simple as possible. It is impossible to avoid entirely all aspects of servicing work but the intervals between which various maintenance adjustments have to be carried out have been increased considerably when compared with other makes. For this reason your overhead maintenance and servicing costs will be very small.

Through simplification of the maintenance work there are many of the recurring servicing jobs which you will be able to do yourself. We would, however, warn you against attempting to do any work requiring the use of special tools or which you are not absolutely certain you can manage yourself. Volvo has built up a large and comprehensive service organization and all Volvo dealers are equipped with special tools. It is for your — the customer's — sake that this organization has been built — to bring down costs and to expedite work. Knowing full well that nothing is so good that it cannot be made better, Volvo engineers strive constantly to find ways and means of further simplifying service. You, as the owner of a Volvo product, will reap the reward of all this effort in the form of well-done work at low cost.

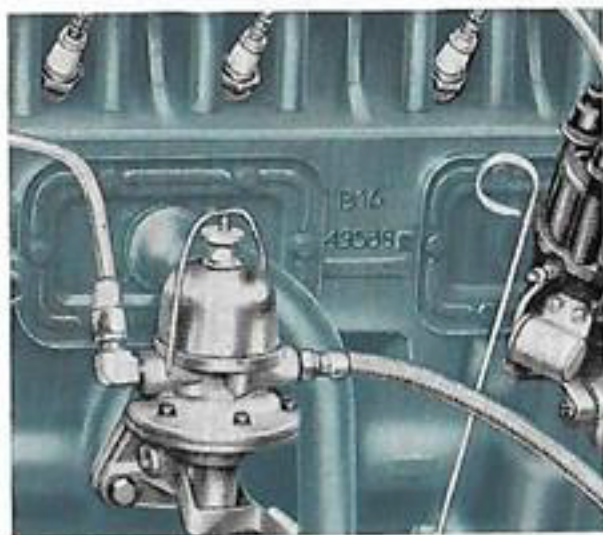
If for any reason you need to order spare parts for your Volvo or require information, you should, **in the first place**, apply to your dealer and only **in the second place** direct to the Volvo factory.

**Always quote the car's type designation and chassis or engine number.** Note also that when ordering upholstery items or enamel, the number code appearing on the chassis number plate should be quoted. These numbers will be found stamped on two plates fixed to the car as shown in the following illustrations.

The chassis number plate is beside the steering column under the hood.

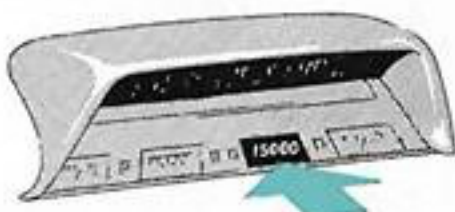


The type designation and part number of the engine are stamped in the engine block on the left side as shown in the illustration. The engine serial number is stamped under the part number. For engine identification, always state the engine part number and the serial number, for example 495383—12345.



### **Maintenance scheme**

Regular service is of the utmost importance. This should be done about every 3000 miles. Every time the mileometer comes up to units of 3000 miles this will be a reminder that a service is due.





In order to give you an idea as to what should be done on these occasions we have drawn up a scheme of the different measures and when they should be carried out. Some of these jobs you will be able to do yourself whilst others must be left to the dealer since they require trained mechanics and the use of special tools. Such items are marked with colour in the scheme. The different maintenance items have been numbered consecutively and the scheme is followed by brief descriptions of the various measures. The numbers in brackets following the headings of these descriptions refer back to the scheme.

It is in your own interests to follow these rules as in this way you will save yourself time and money.

In addition to the measures listed in the following scheme you should at least once a fortnight, preferably when filling up with gasoline check:

- a) engine oil level
- b) coolant level in radiator
- c) tire pressure
- d) battery

From a traffic safety point of view you should also check:

- a) lighting (don't forget the stoplights)
- b) directional signals
- c) horn

Always try to keep your car in good trim. Wash and polish it regularly and brush out or vacuum-clean the inside when necessary. Also keep it clean and spruce under the hood — it will facilitate service and help you to find and remedy any fault quicker and more easily. Follow this advice and you will soon realize how much more satisfying it is to have a well-kept car to say nothing of the good impression made on friends and acquaintances.



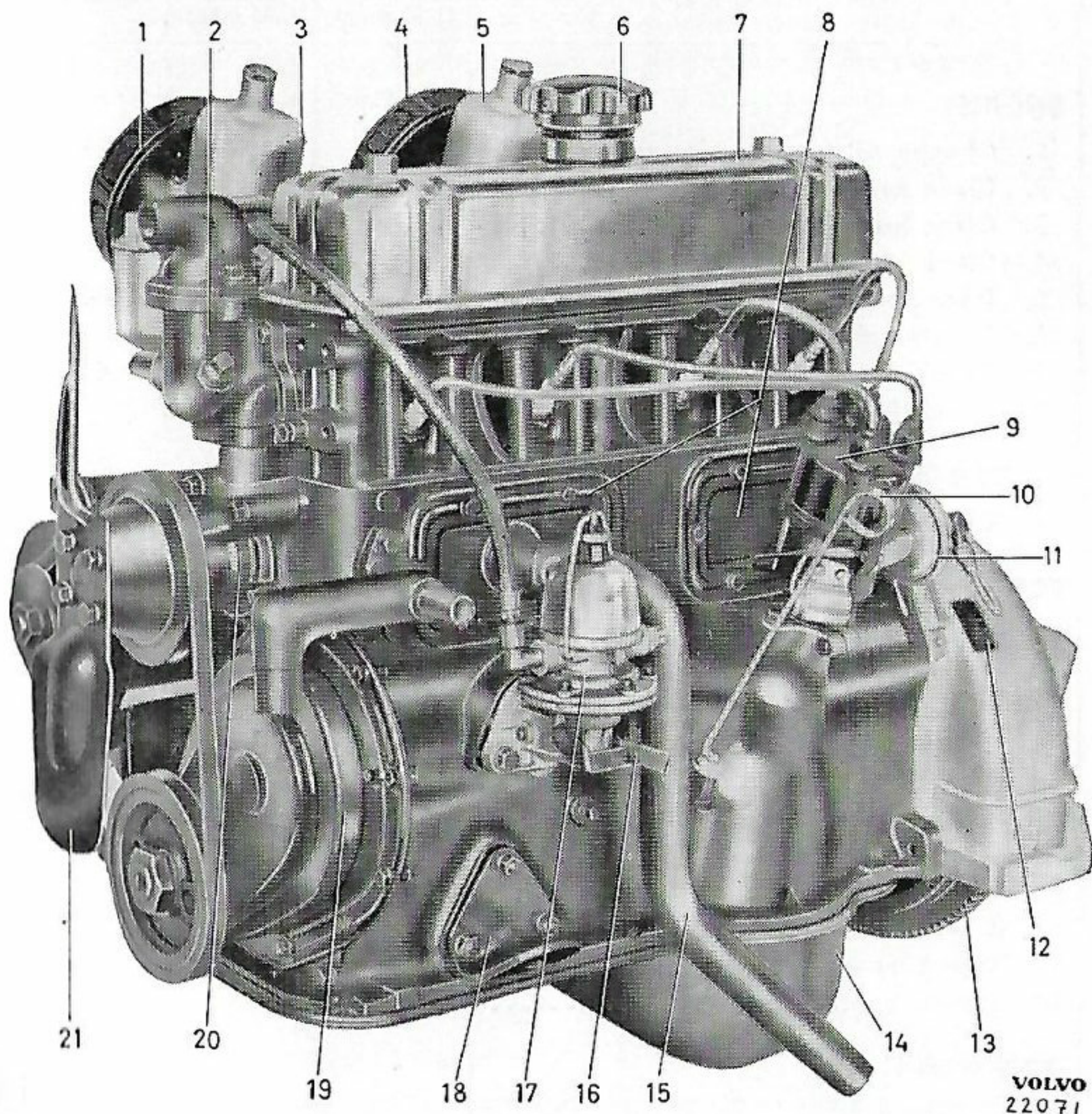
## MAINTENANCE SCHEME FOR YOUR VOLVO

MEASURE	Every 5000 km (3000 miles)	Every 10000 km (6000 miles)	See page
<b>ENGINE</b>			
1. Change oil cleaner element .....	● <sup>1)</sup>	●	26
2. Clean breather filter .....		●	
3. Clean fuel filter .....	●		
4. Clean air filter .....	●		
5. Decarbonizing .....			44
6. Check valve clearance .....	●		
7. Check cooling system .....			44
8. Check fan belt .....		●	
<b>CLUTCH</b>			
9. Check fluid level .....	●		
<b>FRONT OF CAR</b>			
10. Check front wheel adjustment .....		●	47
<b>BRAKES</b>			
11. Check footbrakes .....	●		47
12. Check handbrake .....		●	
13. Check fluid level .....	●		
<b>ELECTRICAL SYSTEM</b>			
14. Check headlamp adjustment .....		●	54
15. Check spark plugs .....	●		
16. Renew spark plugs .....			55
<b>BODYWORK</b>			
17. Polishing .....			56
18. Cleaning upholstery and mats .....			57
<b>LUBRICATION</b>			
19. Engine .....	●		
20. Transmission .....	● <sup>2)</sup>		60
21. Rear axle .....	● <sup>2)</sup>		60
22. Steering gear .....	●		
23. Chassis .....	●	●	61
24. Body .....		●	

1) Only after the first 3000 miles. After the first 3000 miles the transmission and rear axle should be thoroughly flushed out and new oil added.



# Engine

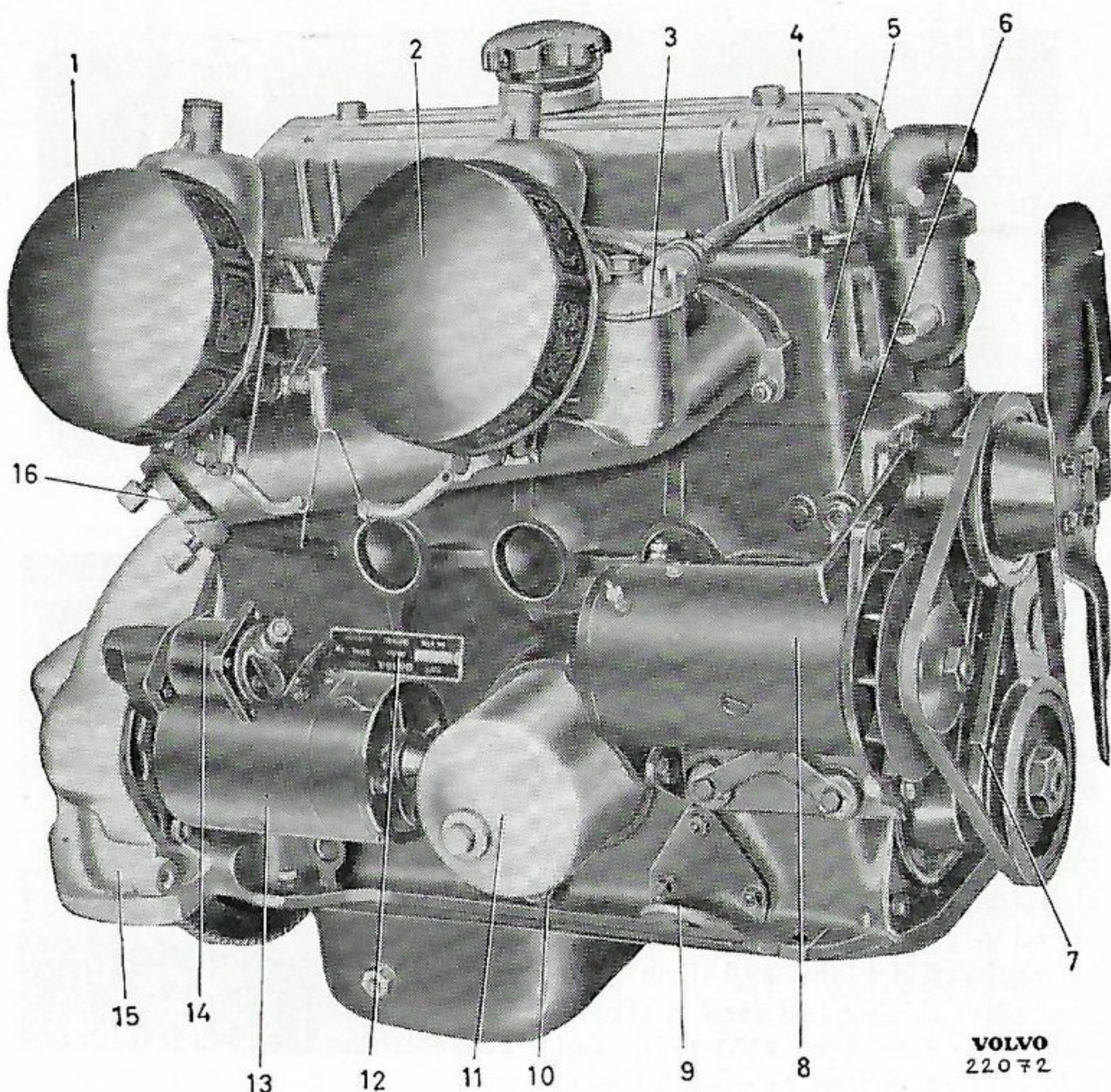


**VOLVO**  
22071

**Fig. E. B 16 B engine viewed from the left.**

- |                       |                        |
|-----------------------|------------------------|
| 1. Front air filter   | 12. Inspection hole    |
| 2. Thermostat housing | 13. Flywheel           |
| 3. Front carburetor   | 14. Oil sump           |
| 4. Rear air filter    | 15. Crankcase breather |
| 5. Rear carburetor    | 16. Hand primer pump   |
| 6. Oil filler cap     | 17. Fuel pump          |
| 7. Rocker arm cover   | 18. Engine mounting    |
| 8. Inspection cover   | 19. Timing gear casing |
| 9. Distributor        | 20. Water pump         |
| 10. Oil dipstick      | 21. Fan                |
| 11. Vacuum regulator  |                        |



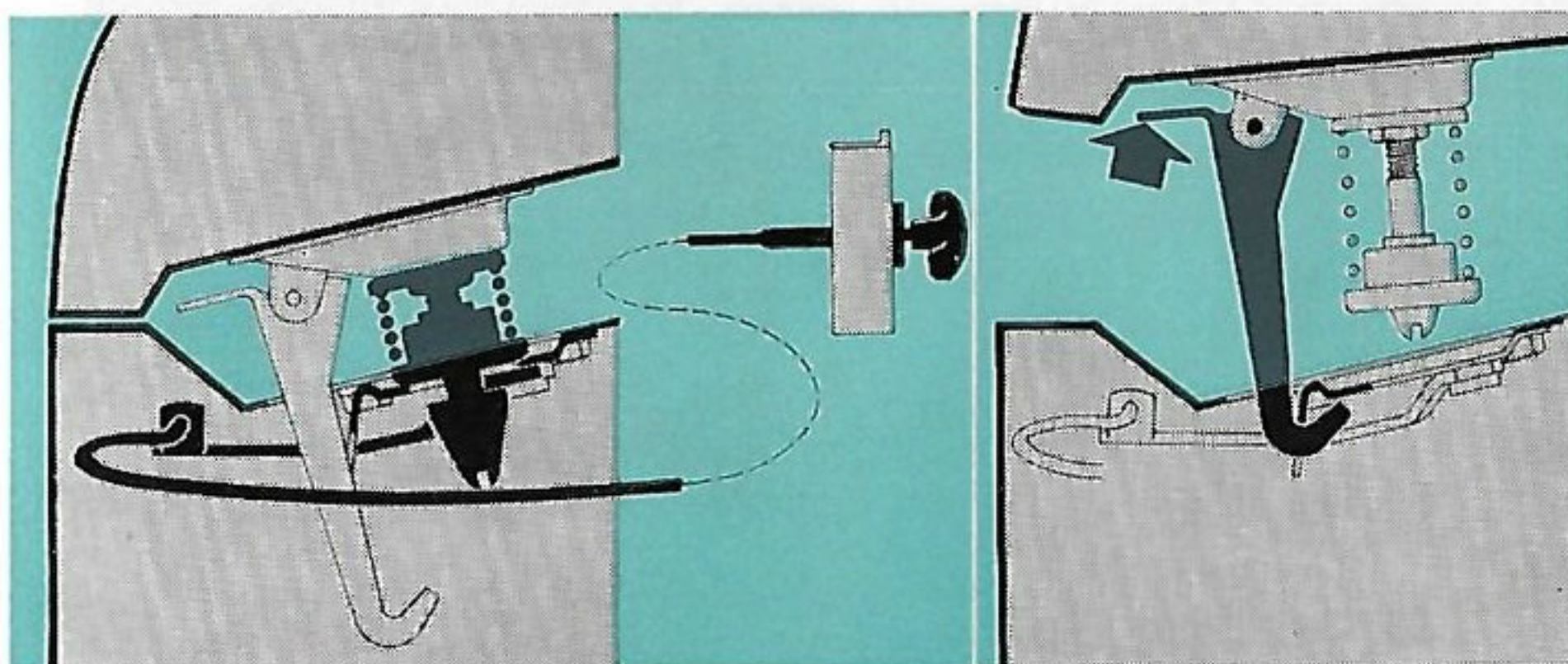


**Fig. F. B 16 B engine viewed from the right.**

- |                                     |   |
|-------------------------------------|---|
| 1. Rear air filter                  | 9. Engine mounting  |
| 2. Front air filter                 | 10. Oil pressure relief valve   |
| 3. Float chamber (front carburetor) | 11. Oil filter  |
| 4. Fuel line                        | 12. Type and number designation plate (only early prod. See page 21 for late prod.) |
| 5. Cylinder head                    | 13. Starter motor   |
| 6. Cylinder block                   | 14. Solenoid  |
| 7. Ignition setting mark (T.D.C.)   | 15. Flywheel housing  |
| 8. Generator                        | 16. Exhaust manifold  |

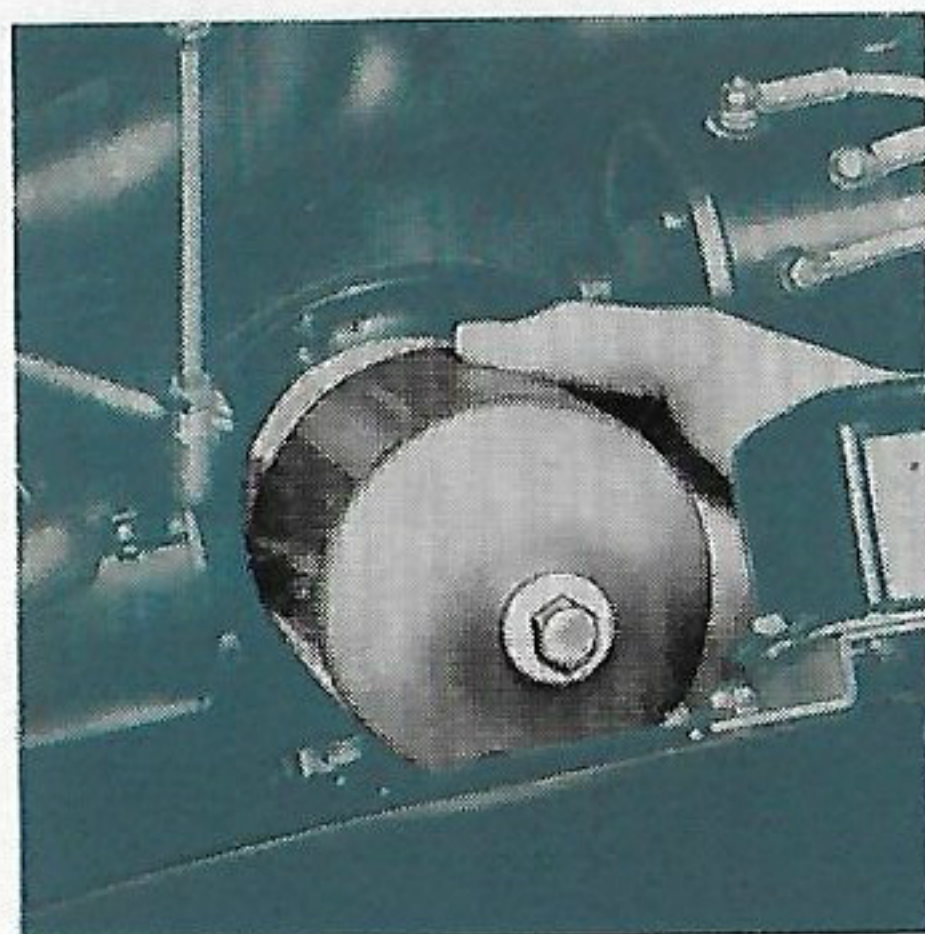
The hood can only be opened from inside the car. This is to prevent unauthorized persons from being able to get at the engine. The hood is opened by pulling the handle furthest to the left underneath the instrument panel. A safety catch at the front edge of the hood still holds it down but when this is released the hood can be fully raised. When closing the hood make sure that it is properly shut.





### Oil cleaner (1)

The Volvo has an oil cleaner of the full-flow type, that is to say all the oil circulating in the engine passes through it. During the process impurities in the oil accumulate in the filter so that the element gradually becomes choked up. The element must therefore be replaced regularly which should be done at a workshop. In a new or reconditioned engine the filter element must be replaced for the first time after 3000 miles driving and for the second time after a total of 6000 miles and thereafter at driving intervals of 6000 miles, that is to say at every other oil change. Replacement of the oil filter element is done as follows:



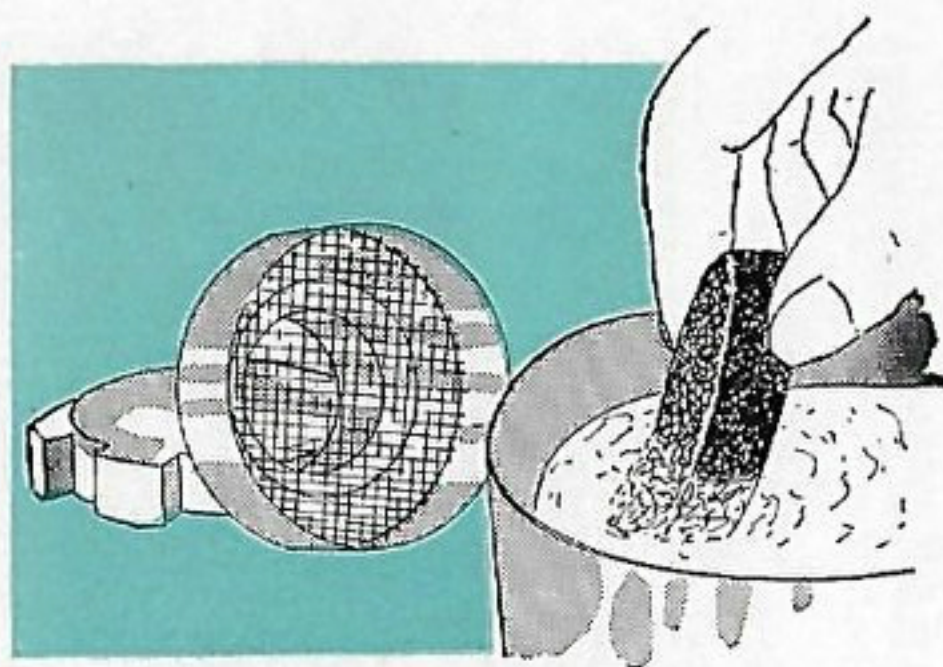
1. Clean off the outside of the cleaner and adjacent parts so that no dirt can enter the lubricating system when dismantling.
2. Slacken the center bolt, collect up the oil which runs out and remove the filter.
3. Wash the cleaner housing in kerosene. Ensure that the hole in the intermediate plate is facing straight up, fit new element and gasket with the cleaner. Ensure that the cleaner is correctly located in the groove in the cylinder block. The center bolt should be tightened with a torque wrench to a torque of 14.5 lb.ft.
4. If the element is replaced without the oil being changed at the same time, top up with 1½ US pints of fresh oil.
5. Start the engine and check that no oil leaks out from the cleaner.

**Note.** It is most important that only genuine Volvo elements should be used as otherwise the oil circulation may be unsatisfactory.



## Oil filler cap (2)

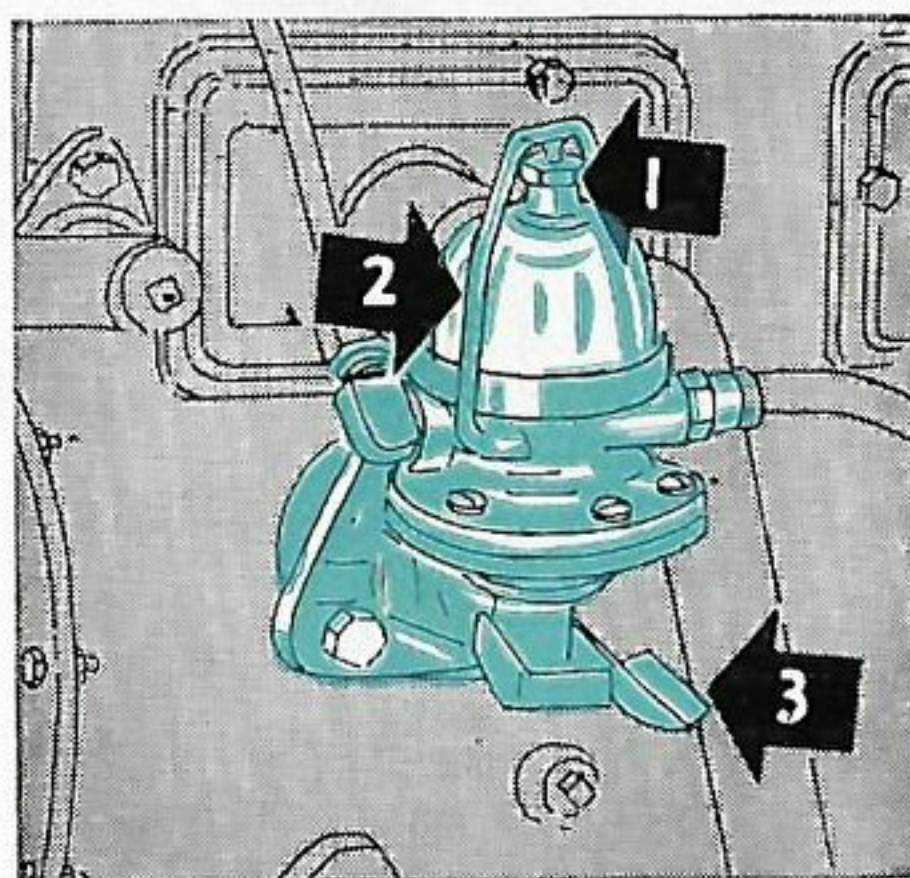
is fitted with a breather filter for ventilating the crankcase. The incoming air is cleaned by this filter which should be cleaned regularly with gasoline about every 6000 miles. Slacken the three screws in the cap and remove the upper part. Take out the filter and wash the whole lot in clean gasoline.



## Fuel filter (3)

should be given due attention in order to prevent contaminated petrol from being pumped into the carburettor. Because of the easy accessibility of the filter, cleaning offers no difficulties. This filter should be cleaned at every 3000 miles service.

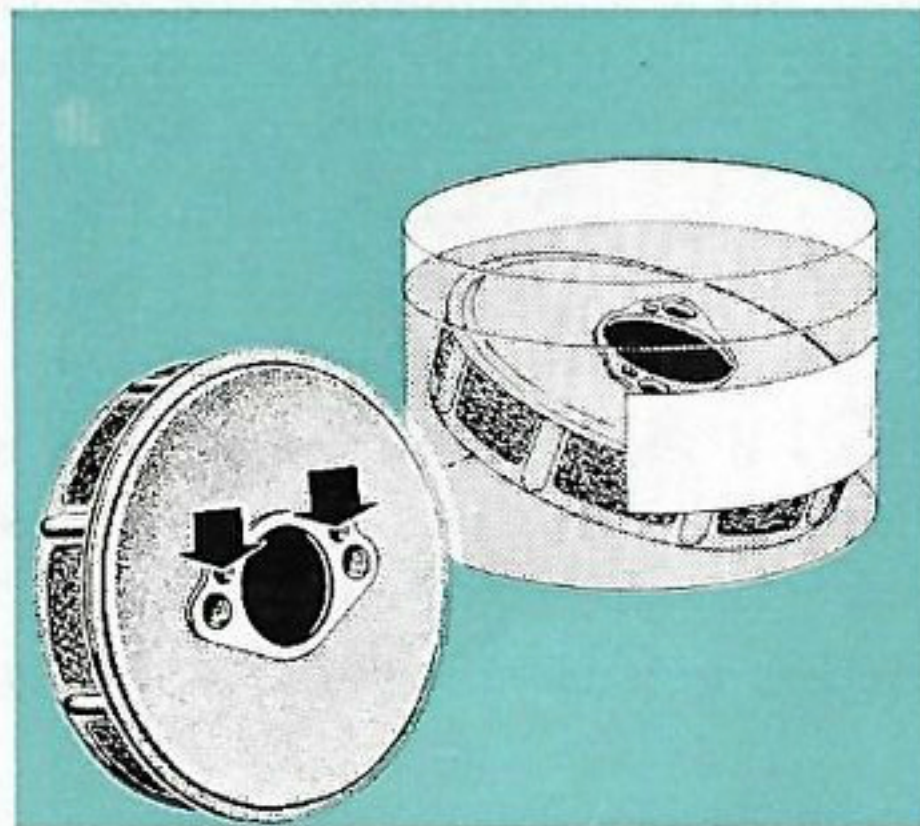
First slacken the nut (1) and move the bail (2) to one side. Remove the glass bowl and strainer and clean them. Also clean the upper part of the pump where the gasket is fitted. Be careful not to allow any dirt to enter the fuel lines. After having reassembled the filter make sure that the gasket seals properly. Fuel can then be pumped through by means of the handle (3).



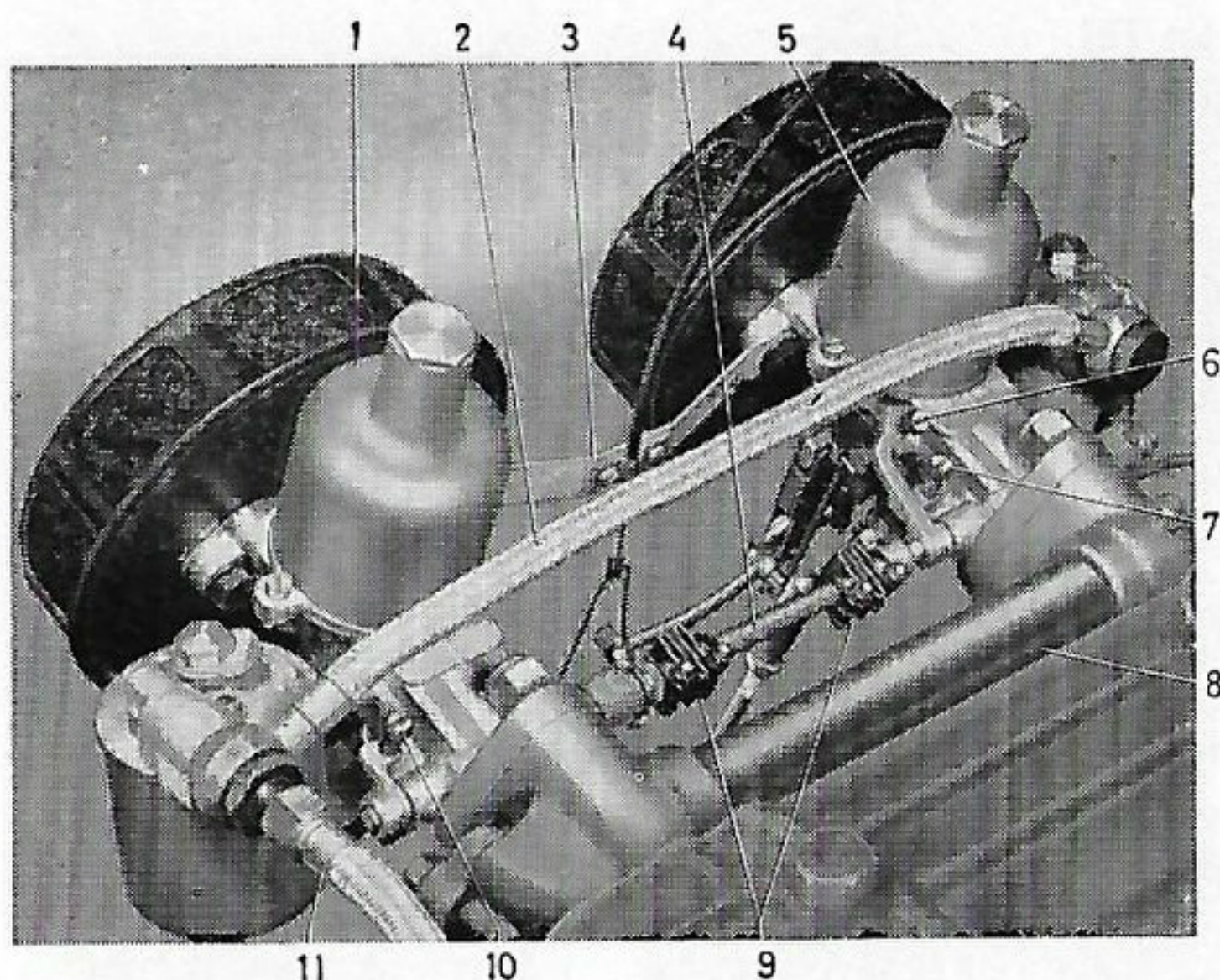
## Cleaning the air cleaners (4)

The carburetor air cleaners should be cleaned out at least every 3000 miles. They should be removed from the carburetors and flushed through with clean gasoline and then soaked in light engine oil which must be allowed to drain off before fitting.

**Note.** Ventilating air to the lower part of the carburetor vacuum chambers passes through the two upper holes in the cleaner and it is therefore important that the gasket on the carburetor is located correctly as otherwise the holes can be obstructed.







**Fig. H. Carburetors arrangement.**

- |                                    |                                |
|------------------------------------|--------------------------------|
| 1. Front carburetor                | 7. Adjusting screw for idling  |
| 2. Fuel pipe                       | 8. Equalizing tube             |
| 3. Control retainer                | 9. Couplings                   |
| 4. Carburetor coupling spindle     | 10. Adjusting screw for idling |
| 5. Rear carburetor                 | 11. Fuel pipe from pump        |
| 6. Adjusting screw for fast idling |                                |

## Carburetors

The correct adjustment of the carburetors is of paramount importance if the engine is to run efficiently and economically. Since the engine has twin carburetors which are not of an altogether usual type we give below a full description of their design and function.

The engine is equipped with two coupled horizontal type SU carburetors. The rear carburetor is fitted with a fast idling device whose impulses are transferred to the front carburetor through a common spindle.

A pressure equalizing tube is fitted between the induction ports. Each carburetor has only one jet. Fuel flow is regulated by a taper needle which is guided by a piston located in the carburetor which moves under the influence of vacuum in the carburetor throat.

There is no choking device in the accepted sense as a cold-starting device is fitted which gives a richer mixture when starting from cold.

The function of the carburetor can be divided into the following parts: float system, normal running, cold starting, fast idling and idling.

## Float system

The float system controls the flow of fuel so that the correct fuel level is received by the carburetor.



1. Vacuum chamber
2. Spring
3. Damping plunger
4. Piston in vacuum chamber
5. Channel
6. Throttle shutter
7. Carburetor housing
8. Rubber gasket
9. Bolt for float chamber
10. Jet
11. Adjusting nut
12. Lower jet retaining sleeve
13. Sealing ring with washer
14. Spring
15. Lock nut
16. Sealing ring with gland
17. Spring
18. Washer
19. Sealing ring with washer
20. Upper jet retaining sleeve
21. Washer
22. Bridge
23. Channel
24. Fuel needle

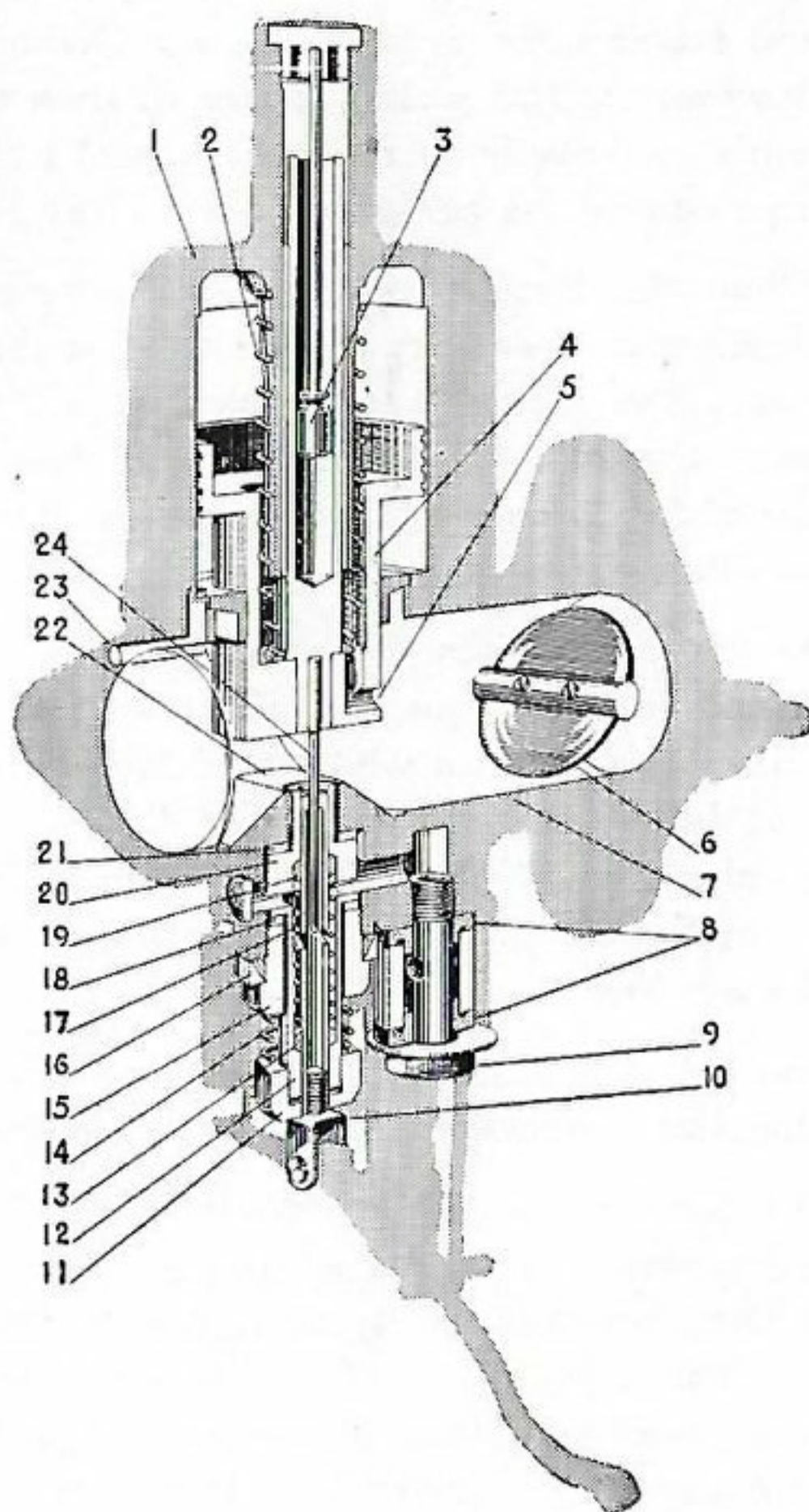


Fig. 1. Carburetor, operating position.

### Normal running

The quantity of fuel/air mixture supplied to the engine is controlled by means of the throttle shutter (6, Fig. 1) in the carburetor housing (7) which takes the form of a channel but also acts as a body on which the various carburetor components are built.

Above the jet (10) the channel narrows due to the projection called the bridge (22) and the piston (4) which is situated above the bridge. The speed of the air flow increases when it passes this restriction so that the fuel is more easily sucked up. Opposite the bridge in the upper part of the carburetor there is a vacuum chamber (1) containing a piston (4). A taper needle (24) is fixed to the lower part of the piston.

The piston is guided by a centrally placed spindle which moves in a bushing in the central sleeve of the vacuum chamber. The upper part of the piston is precision-fitted in the vacuum chamber. The lower portion acts as a shutter



and restricts the area of the air channel above the jet as the piston moves downwards. The piston, under its own weight and influenced by a spring (2) tends continually to reach its lowest position. In its lowest position the piston rests against the bridge on a pin fitted into the piston.

When the throttle opening is increased whilst running the vacuum in the chamber between the bridge and the throttle shutter increases. Since the space above the piston is connected with the above mentioned chamber by two small channels (5), the piston will rise. The space beneath the upper part of the piston is connected with the outer air via two small channels (23) and the air filters.

As the piston rises the cross-sectional area above the jet increases and thus permits a larger quantity of air to pass. Since the fuel needle is fixed to the piston, this will rise with it and the aperture between the needle and the jet is thus increased with the result that an amount of fuel corresponding to the greater amount of air is sucked up with it. The amount of fuel is determined partly by the position of the piston (fuel needle) and partly by the speed of the air flow.

The jet supplies fuel from the space in the carburetor housing at the float chamber connection through holes in the jet walls.

The position of the piston is constant for any given air flow through the carburetor. The extent of this air flow is determined by engine speed and loading which in turn is controlled by the extent of the throttle shutter opening. In order to prevent the piston from "wandering" or moving too suddenly there is a damping device in the piston guide spindle sleeve. The device consists of a damping plunger (3) attached to the rod which is fixed at the top end. There is a small quantity of thin engine oil in the guide spindle and the braking effect imparted to the piston when it tends to rise quickly prevents the engine from stalling as a result of too weak a fuel/air mixture when the accelerator is suddenly depressed.

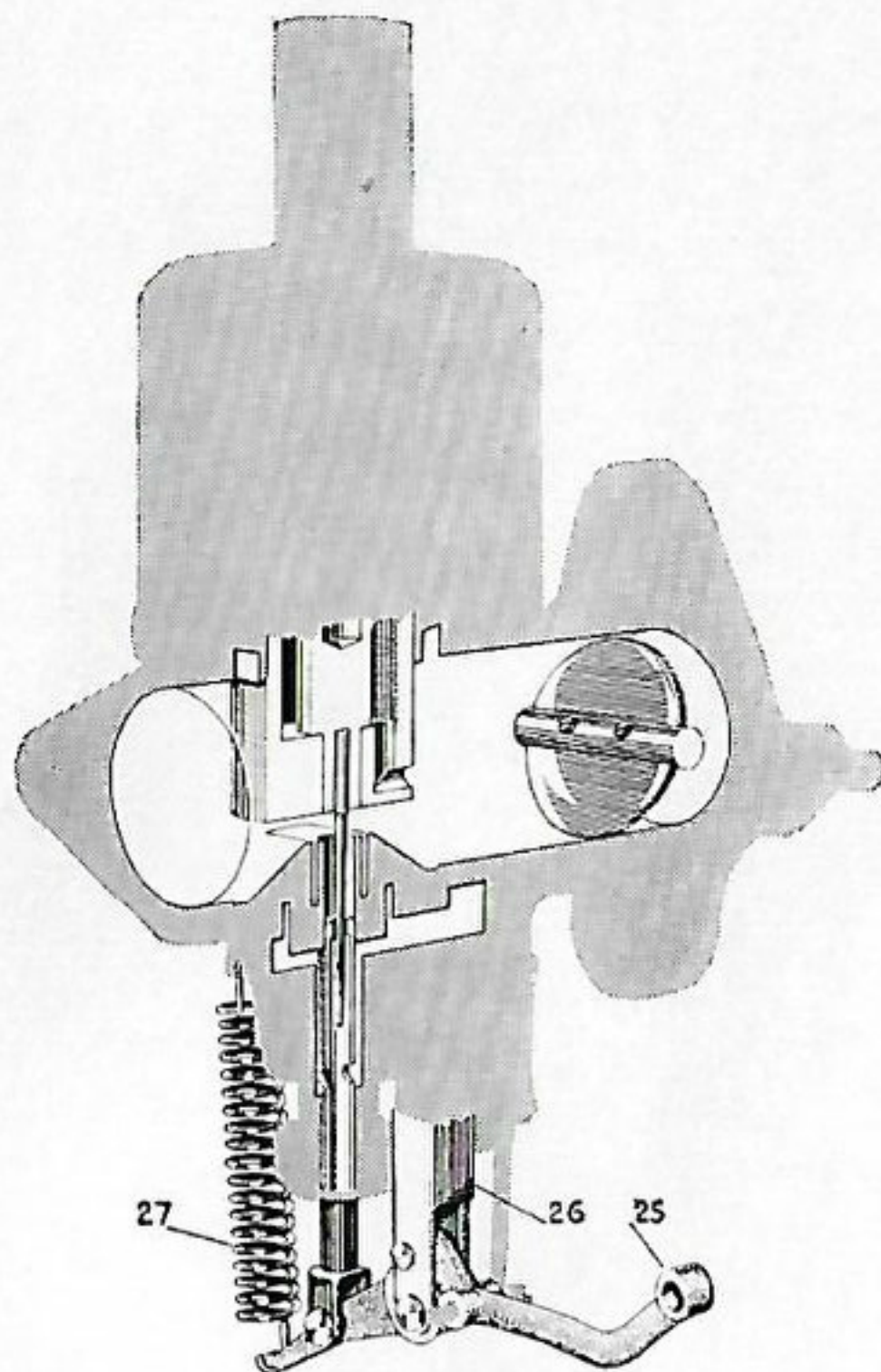
Opposite the throttle on the rear carburetor there is a connection for a pipe line to the vacuum device on the distributor.

### **Cold starting**

In order to richen the fuel/air mixture when starting from cold, the carburetor is provided with a device by which the jet can be lowered. When the jet is lowered a larger passage for the fuel is formed since the needle in the jet is conical. There is no choke shutter on the carburetor.

When starting from cold the outer end of lever (25, Fig. J) is drawn upwards by means of a control and this movement is transferred via link (26) so that the jet, which is connected to the inner end of the lever, is pulled downwards. This movement is limited by a catch on the lever and return to the normal position is effected by means of the spring (27) when the control is pushed in.





**Fig. J. Carburetor, cold starting.**

25. Lever 26. Link 27. Spring

### **Fast idling**

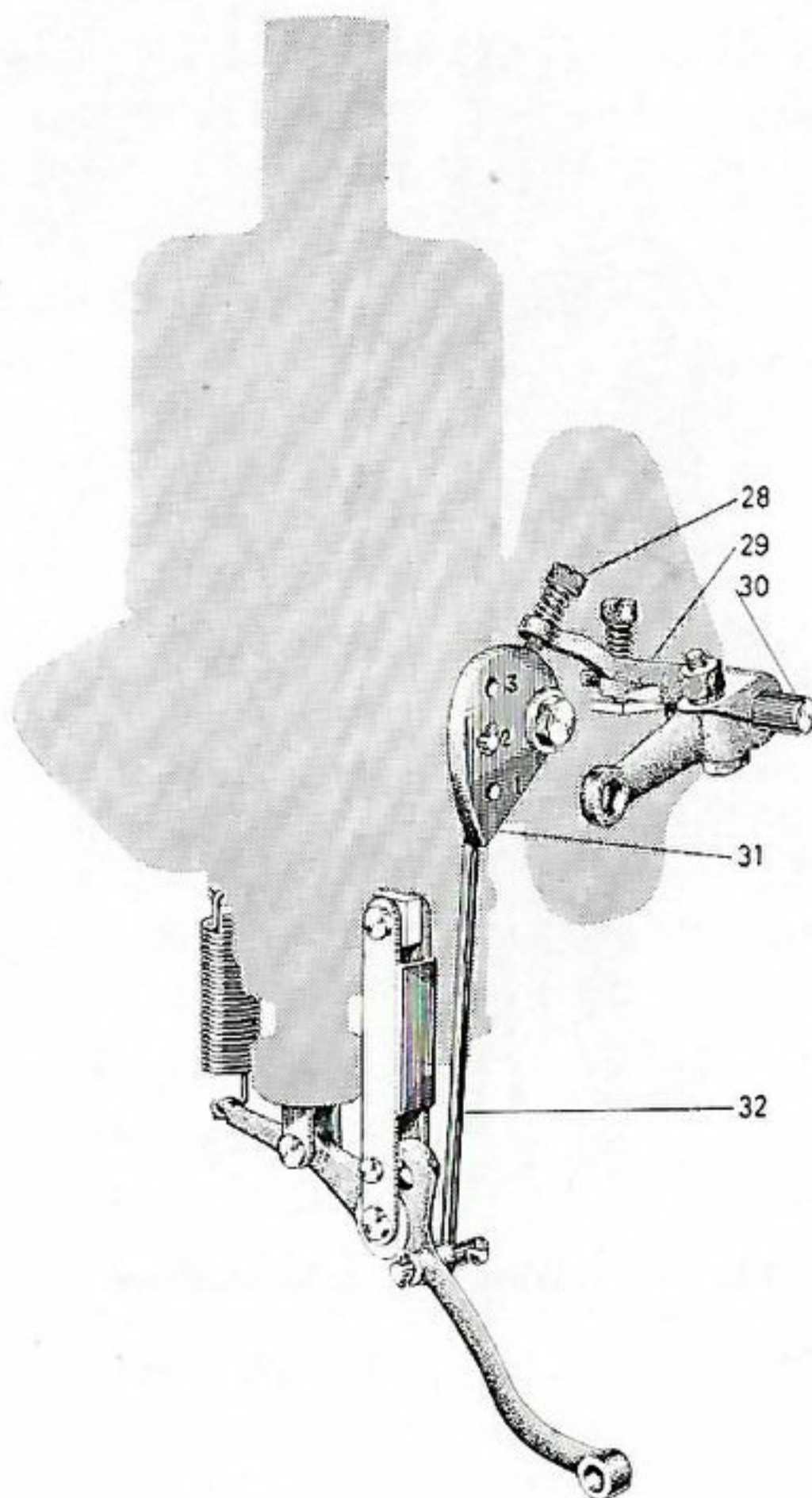
When the fast idling device is engaged it causes a larger throttle opening than for normal idling and should be used during the warming-up period to obtain a somewhat higher idling speed. See Fig. K.

When the control on the instrument panel is pulled out the first effect is on the fast idling. With continued movement increased resistance is felt which is due to the fact that the jets are beginning to be influenced (lowered).

The device consists of linkage rod (31 Fig. K) connected to the lower lever. This operates on a cam-shaped disc (30) fixed to the carburetor housing. When engaged, an adjuster screw comes into contact with the disk. This screw is attached to the throttle lever (28). When the outer end of the lower lever is lifted the cam disc turns and the throttle is thus opened slightly. (The end of the lever can be lifted slightly before the jet is influenced because of the large amount of play in the lever arm link hole).

The cam disc has three holes for different positions on the linkage rod (31). Normally the rod is connected at the hole marked 2.





**Fig. K. Carburetor, fast idling.**

- |                     |                      |                 |
|---------------------|----------------------|-----------------|
| 28. Adjusting screw | 30. Throttle spindle | 32. Linkage rod |
| 29. Throttle lever  | 31. Cam disk         |                 |

### Idling

When the engine idles the carburetor piston is in the lowest position and rests against the bridge at the jet on a pin. The narrow opening which then remains between the bridge and the piston permits the passage of the requisite amount of air for idling.

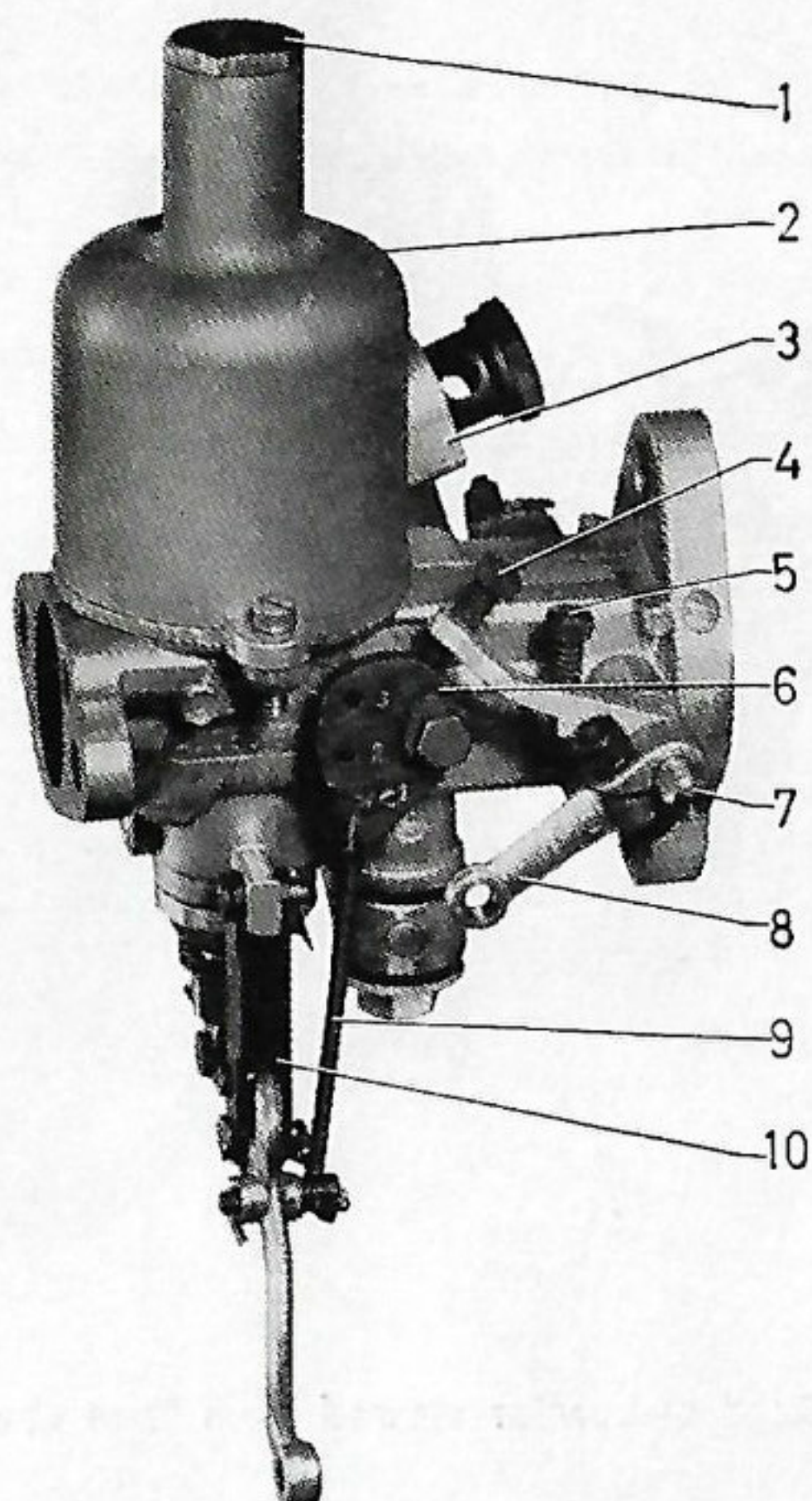
Only a very small amount of fuel is required for idling and the taper needle fills up practically the whole of the jet aperture.

The fuel/air proportion for the whole range of engine speed is adjusted when idling.

The jet is pressed upwards by the lever spring (10, Fig. M) so that its lower part rests against the adjusting nut (8, Fig. M) which is locked in place by a spring (6, Fig. M). The quantity of fuel flowing through is controlled by this nut since the fuel needle is conical.

If the nut is screwed upwards a weaker mixture is obtained whilst screwing it downwards gives a richer mixture.





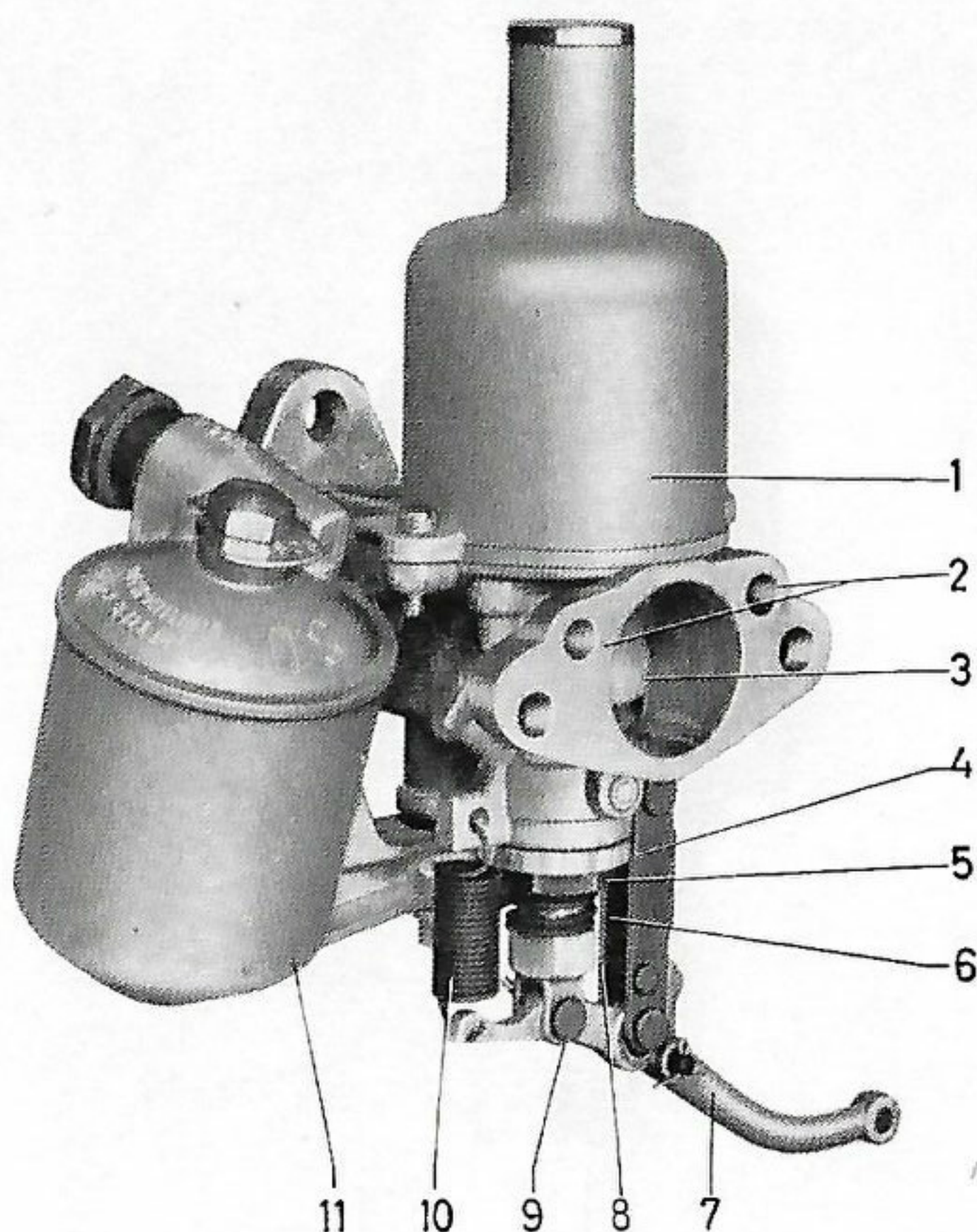
**Fig. L. Rear carburetor viewed from control side.**

- |                                    |                           |
|------------------------------------|---------------------------|
| 1. Nut for damping plunger         | 6. Cam disc               |
| 2. Vacuum chamber                  | 7. Throttle spindle       |
| 3. Float chamber cover             | 8. Throttle control lever |
| 4. Adjusting screw for fast idling | 9. Link rod               |
| 5. Adjusting screw for idling      | 10. Link                  |

## **INSTRUCTIONS FOR ADJUSTING THE CARBURETORS**

The hollow central spindle for the vacuum chamber piston is filled with oil and together with the small damping plunger (3, Fig. L) acts as a damper. This should be topped up with oil at regular intervals, suitably when changing the engine oil. To do this screw off the nut at the top of the vacuum chamber, lift up the nut with damping plunger and fill oil through the hole. Only fill the central spindle and not the part above it. Use thin engine oil (SAE 10 W).





**Fig. M. Rear carburetor viewed from float chamber side.**

- |                   |                  |                   |
|-------------------|------------------|-------------------|
| 1. Vacuum chamber | 5. Lock nut      | 9. Jet            |
| 2. Air channel    | 6. Spring        | 10. Lever spring  |
| 3. Piston         | 7. Lever         | 11. Float chamber |
| 4. Sealing washer | 8. Adjusting nut |                   |

### Removing

1. Blow the carburetor clean externally.
2. Slacken and remove the air filters and control retainers and controls between them.
3. Slacken the fuel pipe connections and the vacuum pipe connections to the distributor.
4. Unscrew the coupling nuts on the spindle between the carburetor. Move up the couplings on the spindle. Slacken the throttle control. Remove the carburetor.



## Dismantling and cleaning

### a. Float chamber

1. Remove the float chamber from the carburetor housing.
2. Screw out the float chamber cover nut. Remove the cover and lift out the float. See Fig. N.
3. Remove the float lever by pulling out the pin on which it pivots.
4. Remove the needle valve in the cover together with the strainer and drilled pin.

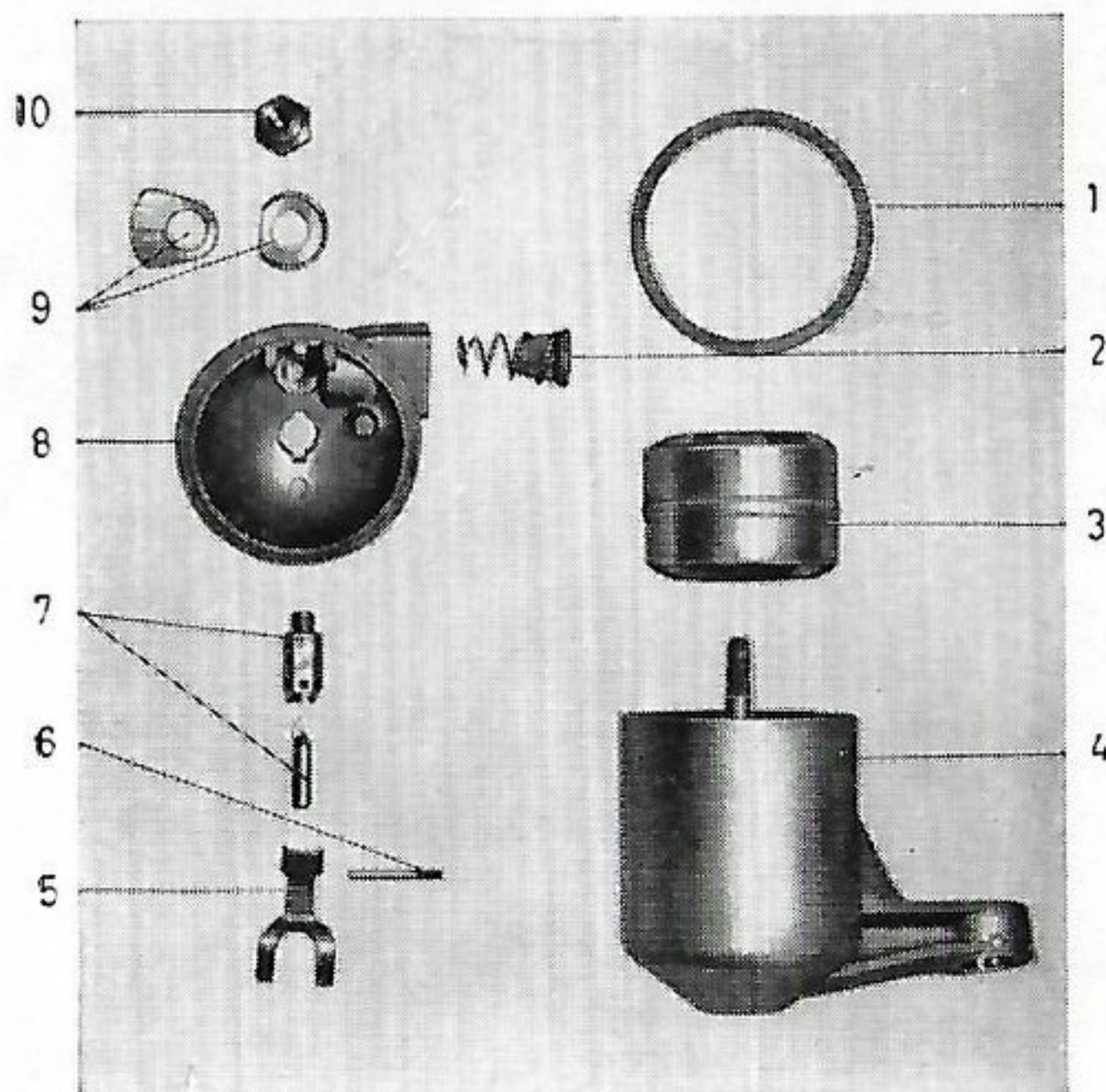


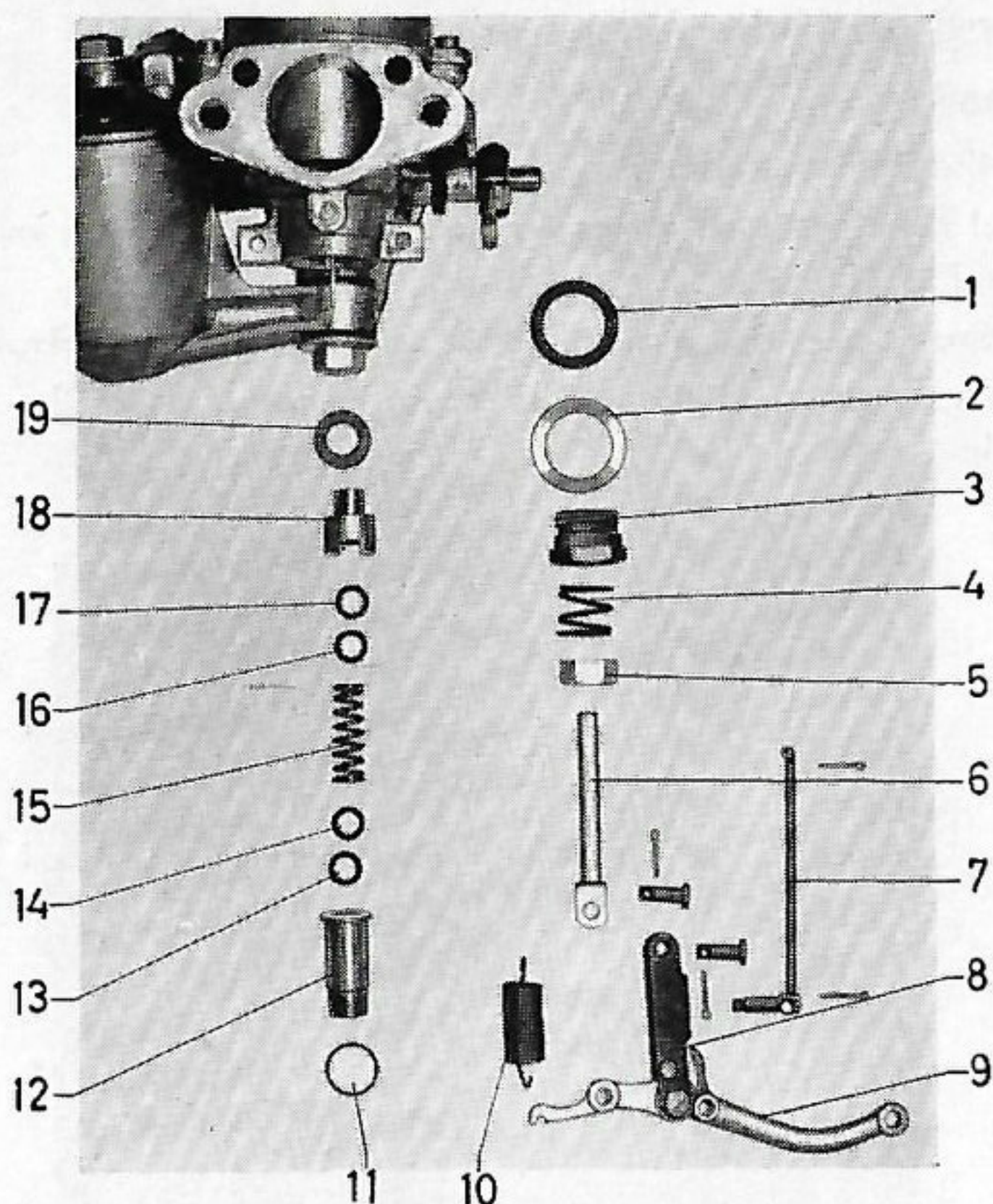
Fig. N. Float chamber dismantled.

- |                        |                        |
|------------------------|------------------------|
| 1. Gasket              | 6. Pin                 |
| 2. Strainer and spring | 7. Needle valve        |
| 3. Float               | 8. Float chamber cover |
| 4. Float chamber       | 9. Washer              |
| 5. Lever               | 10. Nut                |

### b. Jet assembly

1. Remove the jet lever return spring and link rod between the lever and cam disk.
2. Take out the jet head pivot pin and the upper pivot pin for the link and then remove the lever. See Fig. O.
3. Unscrew the lock nut and remove the jet sleeves with springs and seals. Pull out the jet. Unscrew the adjusting nut and remove its spring.





**Fig. O. Jet assembly dismantled.**

- |                   |                      |                      |
|-------------------|----------------------|----------------------|
| 1. Gasket         | 8. Link              | 14. Washer           |
| 2. Sealing washer | 9. Lever             | 15. Spring           |
| 3. Lock nut       | 10. Spring           | 16. Washer           |
| 4. Spring         | 11. Washer           | 17. Sealing ring     |
| 5. Adjusting nut  | 12. Lower jet sleeve | 18. Upper jet sleeve |
| 6. Jet            | 13. Sealing ring     | 19. Washer           |
| 7. Link rod       |                      |                      |

#### **c. Vacuum chamber with piston and fuel needle.**

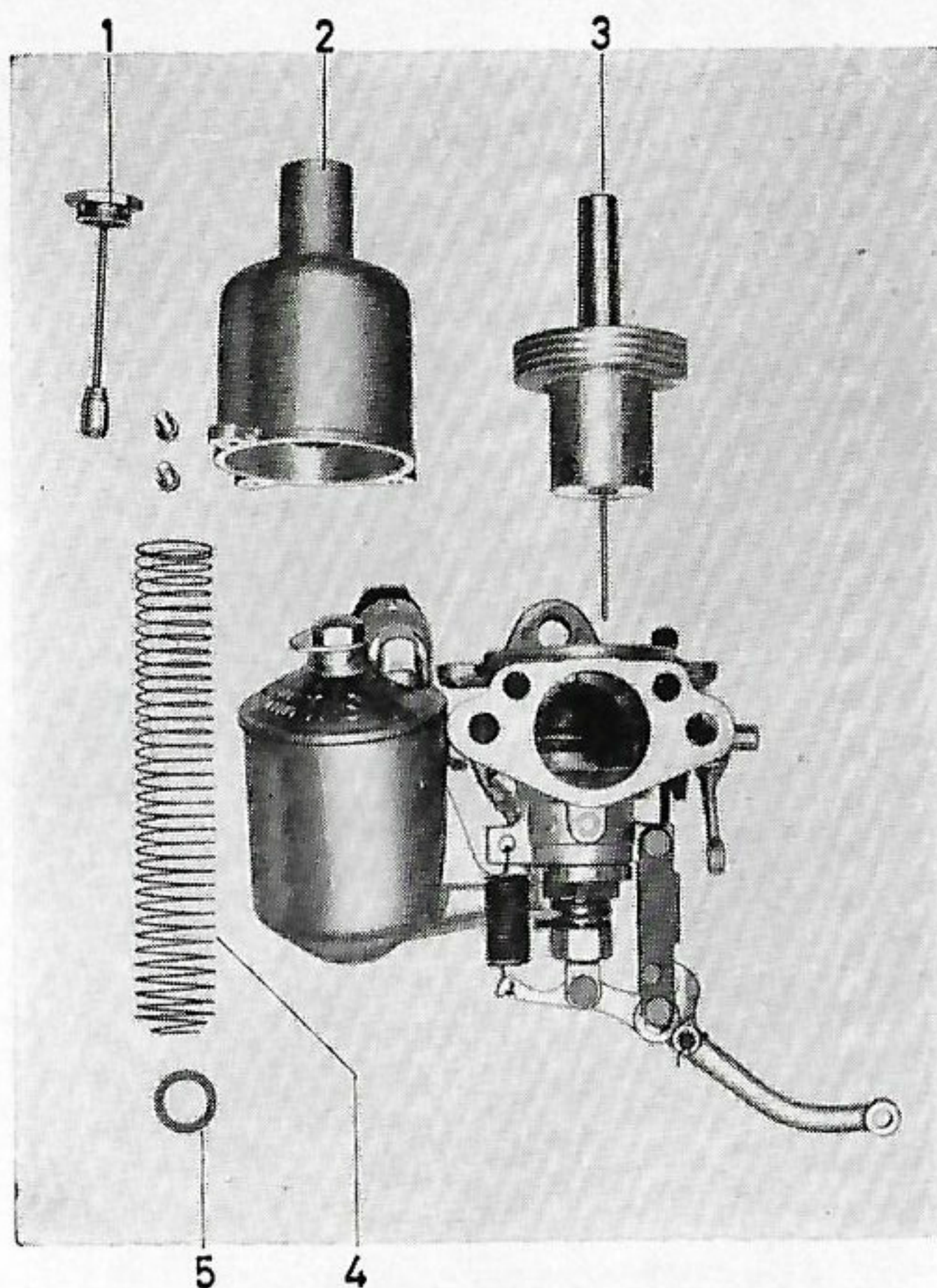
The vacuum chamber and piston are fitted together as a unit and if either need renewing then both must be replaced.

1. Remove the damping plunger (1, Fig. P) from the vacuum chamber.
2. Slacken the screws for the vacuum chamber and remove it.
3. Lift up the spring and piston. Do this carefully so that the needle does not get bent.
4. Unscrew the locking screw for the fuel needle and pull it out.

#### **d. Cleaning**

After dismantling wash all parts in kerosene then blow them dry with compressed air.





**Fig. P. Vacuum chamber dismantled.**

- |                    |           |
|--------------------|-----------|
| 1. Damping plunger | 4. Spring |
| 2. Vacuum chamber  | 5. Washer |
| 3. Piston          |           |

### **Assembling and fitting**

Assembling and fitting to the engine is done in the reverse sequence from removing and dismantling.

Before assembling check that all gaskets and seals are undamaged, renewing any as necessary. Check also that all other parts are serviceable and not worn. The vacuum chamber and piston must on no account be filed or polished with emery cloth so that the character of the fit is altered since the existing fit is essential for the proper function of the carburetor. Any rough spots can, however, be carefully scraped away.

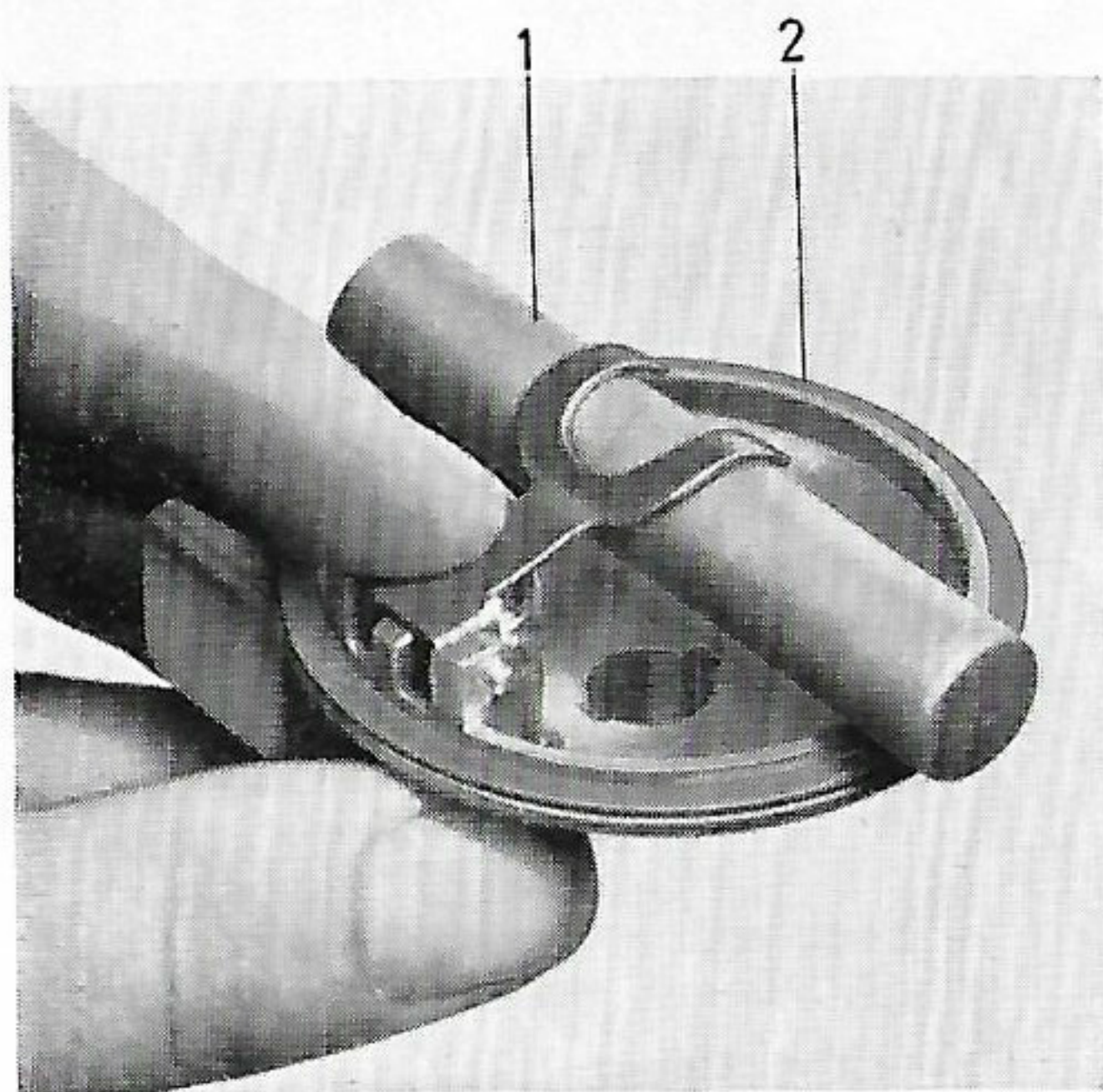
When fitting the needle into the piston it is very important that the needle beds into the correct depth. See below under "Replacing fuel needle". The piston in the vacuum chamber is provided with a groove into which fits a guide peg in the carburetor housing. Lubricate the piston stem lightly with thin engine oil before assembling.



When the jet is fitted this must be centered before being tightened, otherwise the needle can bind and possibly become damaged. See below under "Centering the jet".

Fill oil (engine oil SAE 10 W) into the damping cylinders after fitting the carburetors.

When fitting the air filters ensure that they and their gaskets are turned the proper way. The air channel (2, Fig. M) must not be blocked.



**Fig. Q. Checking fuel level.**

1. Gauge (11 mm [.433"] diam.)

2. Float chamber cover

### Checking fuel level

The fuel level can be checked indirectly after removing the float chamber cover.

1. Slacken the fuel pipe and remove the float chamber cover.
2. Turn the float chamber cover over.
3. Measure the distance from the float chamber cover to the lever by placing in a gauge of 11 mm (.433") diameter as shown in Fig. Q. The needle valve lever should just lie on the gauge when the needle valve is closed.
4. If necessary bend the lever at the base of the forked portion so as to obtain the setting in point 3 above.



## Replacing fuel needle

1. Remove vacuum chamber with piston and fuel needle.
2. Slacken the screw and pull out the fuel needle.
3. Fit the new fuel needle. Check that it has the right marking in accordance with the specifications. Be careful when inserting the needle into the piston so that the tapered portion only protrudes. See Fig. R. Tighten the locking screw.
4. Fit the parts in the carburetor. Check that the piston moves easily up and down. The piston can be lifted up a little way with the help of the pin without having to remove the air filter. When the pin is released the piston should strike the bridge with a characteristic sound.

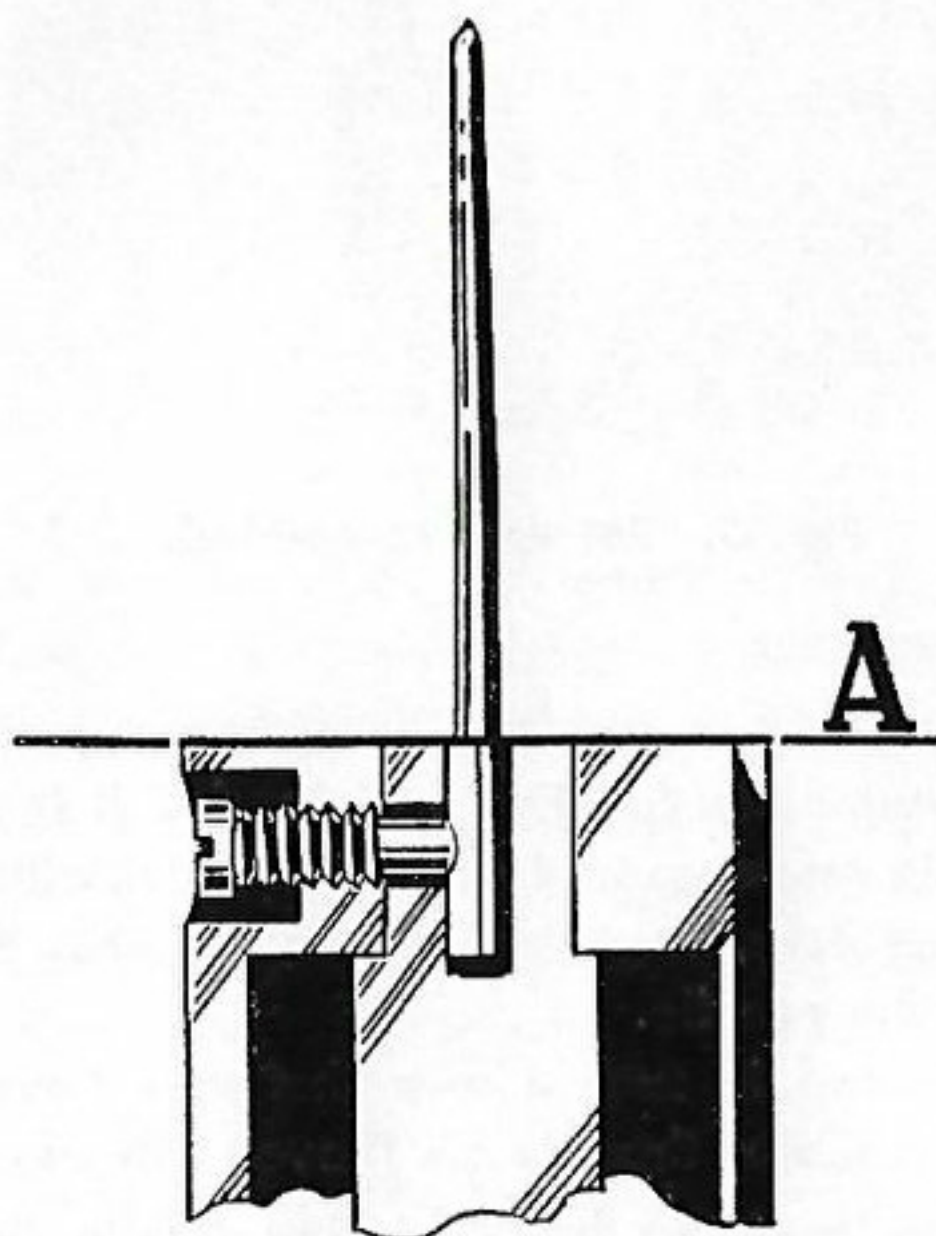


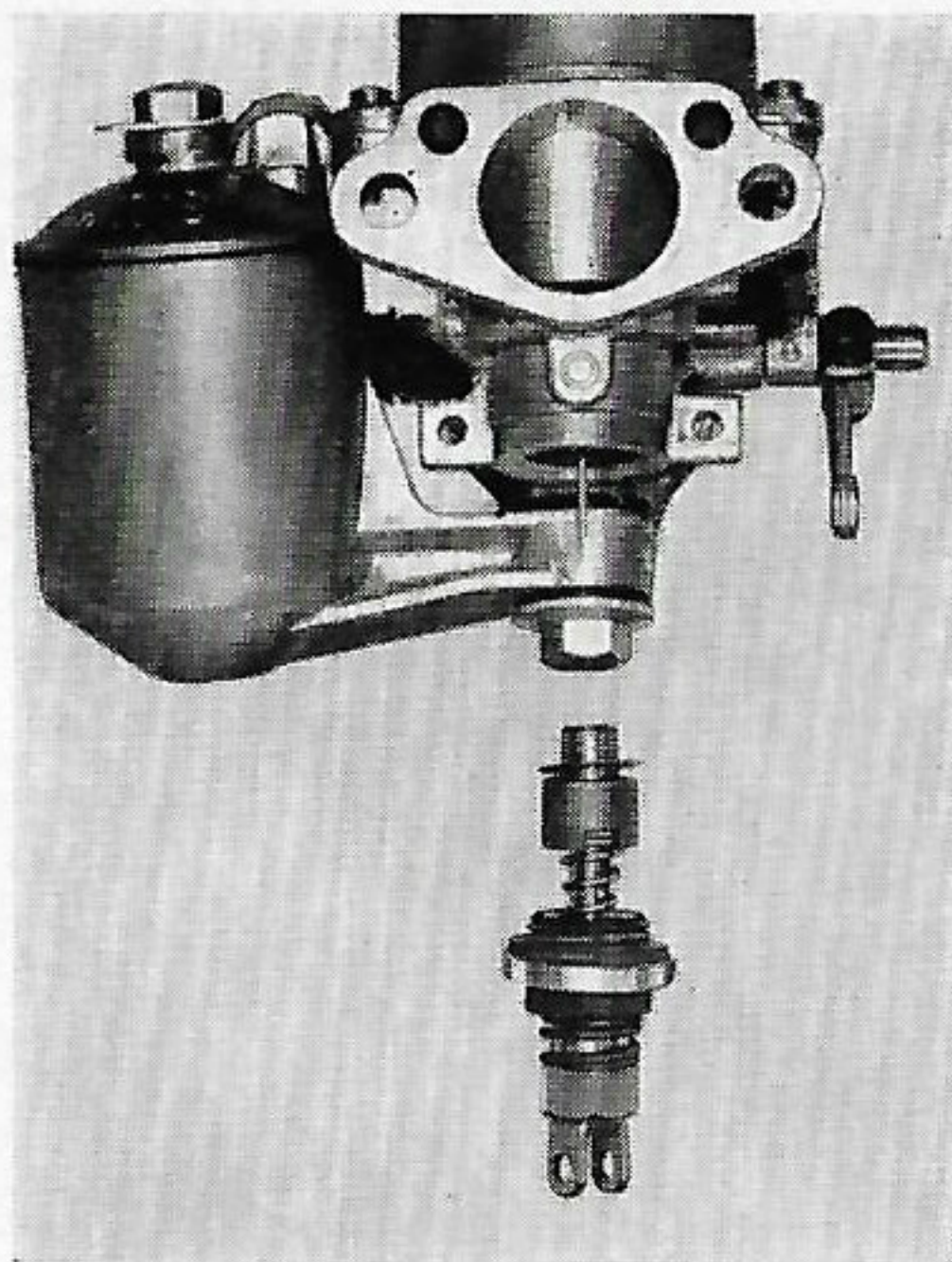
Fig. R. Fitting Fuel needle.

A = Fitting line

## Changing the jet

1. Remove the jet. The adjusting nut need not be removed. If the carburetor is fitted on the engine the control wire on the jet lever must first be removed.
2. Fit the new jet in the lower sleeve and then the lower sealing ring with washer, spring, upper sealing ring with washer and upper sleeve and copper washer. The washers for the upper and lower sealing rings should lie against the spring.
3. Insert the jet with fitted parts into the carburetor housing. See fig. S. Tighten the lock nut gently. Center the jet as described in the following section and then fit the lever and other parts.





**Fig. S. Jet unit assembled.**

### **Centering the jets**

In order that the carburetor can function as intended it is most important that the fuel needle is free to move up and down in the jet without binding against the jet walls. It is, therefore, important to ensure that the jet is correctly centered in relation to the needle.

The jet sleeves are secured in such a way that they have a relatively large lateral clearance which enables them to be moved sideways.

**The jet must always be centered before being finally tightened and fitted** and in other cases when it is found to be out of center.

1. Screw in the adjusting nut (8, Fig. M) as far as possible towards the carburettor housing.
2. Check that the lock nut (5, Fig. M) is slackened and if not, do so.
3. Check that the jet is in its upper position, that is to say, the jet head is in contact with the adjusting nut and that the piston with needle is in the lower position.
4. Center the jet by carefully turning the lower jet sleeve. Do not screw down the adjusting nut. If necessary the jet sleeve can be moved by lightly tapping the adjusting nut.
5. Lift up the piston and needle. When the piston is released it should, under its own weight, strike the bridge with a distinct sound which indicates that the jet is correctly centered and the piston moves easily.
6. Tighten the lock nut. Re-check that the piston moves easily as per point 5.



## **Idling adjustment and connecting up the carburetors**

Idling adjustment is done partly with the screws (7 and 10, Fig. H) on the throttle arms which control the engine speed, and partly by turning the adjusting nuts at the jet heads which control the mixture proportions. When the nuts are screwed downwards a richer mixture is obtained, whilst screwing them upwards gives a weaker mixture. Mixture proportions for the whole range of engine speed is set when idling.

When correct idling speed has been obtained and when both carburetors have as equal a flow through them as possible, they can be coupled together. The adjustment before connecting them together should be carried out as carefully as possible so that the best engine output can be attained.

1. Run the engine until it is warm. If the jets have not been adjusted, approximate setting is done by first screwing the adjusting nuts to the upper position and then screwing them back one turn.
2. Slacken one of the couplings (9, Fig. H) on the shaft between the carburetors. Ensure that the jets on both carburetors are in contact with the adjusting nuts and that the adjusting screw for fast idling (6, Fig. H) is not in contact with the cam disk.
3. Set both throttle shutters alike by screwing out the throttle adjusting screws (7 and 10) and then screwing them in again sufficiently so that they just contact the stops. Then screw each down equally one turn.
4. Start the engine. Check that the throttles are opened the same amount in both carburetors by listening to the sound with the aid of a rubber tube which should be placed on similar points on both the air filters. Adjust the idling screws so that induction noise is equally strong on both carburetors.
5. Set the jets by turning the adjusting nuts so that the idling speed is as high as possible with unchanged throttle opening. Adjust the carburetors one at a time. First screw the adjusting nuts upwards (weaker mixture) until the engine runs unevenly, then screw back until the engine runs perfectly smoothly. If the engine speed is too high, it can be decreased by unscrewing the idling screws on the throttle shaft levers. After this, check once more that induction noise is equally strong on both carburetors.
6. Check that the fuel/air mixture is correct in both carburetors by lifting their respective pistons a small but equal amount with the aid of the pin beside the air intake. Listen to the engine sound and lift first one and then the other piston. When the mixture is correct the engine should run unevenly when either one or other of the pistons is lifted.
7. Connect the carburetors together by tightening the couplings on the shaft. Adjust the fast idling screw. Screw in until it is contact with the cam disk. Then screw it back one turn so that a certain clearance is obtained. Check once again that the flow through both carburetors is the same. See point 4.



### Fast idling and controls

The fast idling device (Fig. K) can be adjusted to suit varying conditions by means of the adjusting screw against the cam disk. When the control is pushed fully in, the clearance between the adjusting screw and cam disk should normally correspond to one turn of the screw.

The clamp on the end of the control cable should be attached so that the jets begin to lower when the knob on the instrument panel has been pulled out about 10 mm ( $\frac{3}{8}$ " (fast idling movement)). Increased resistance will be felt on the knob when the jets begin to move downwards.

When the control button is pulled out as far as it will go, the long lever ends should be lifted so far that the jets are fully lowered, i.e. the levers should contact the stops in the links.

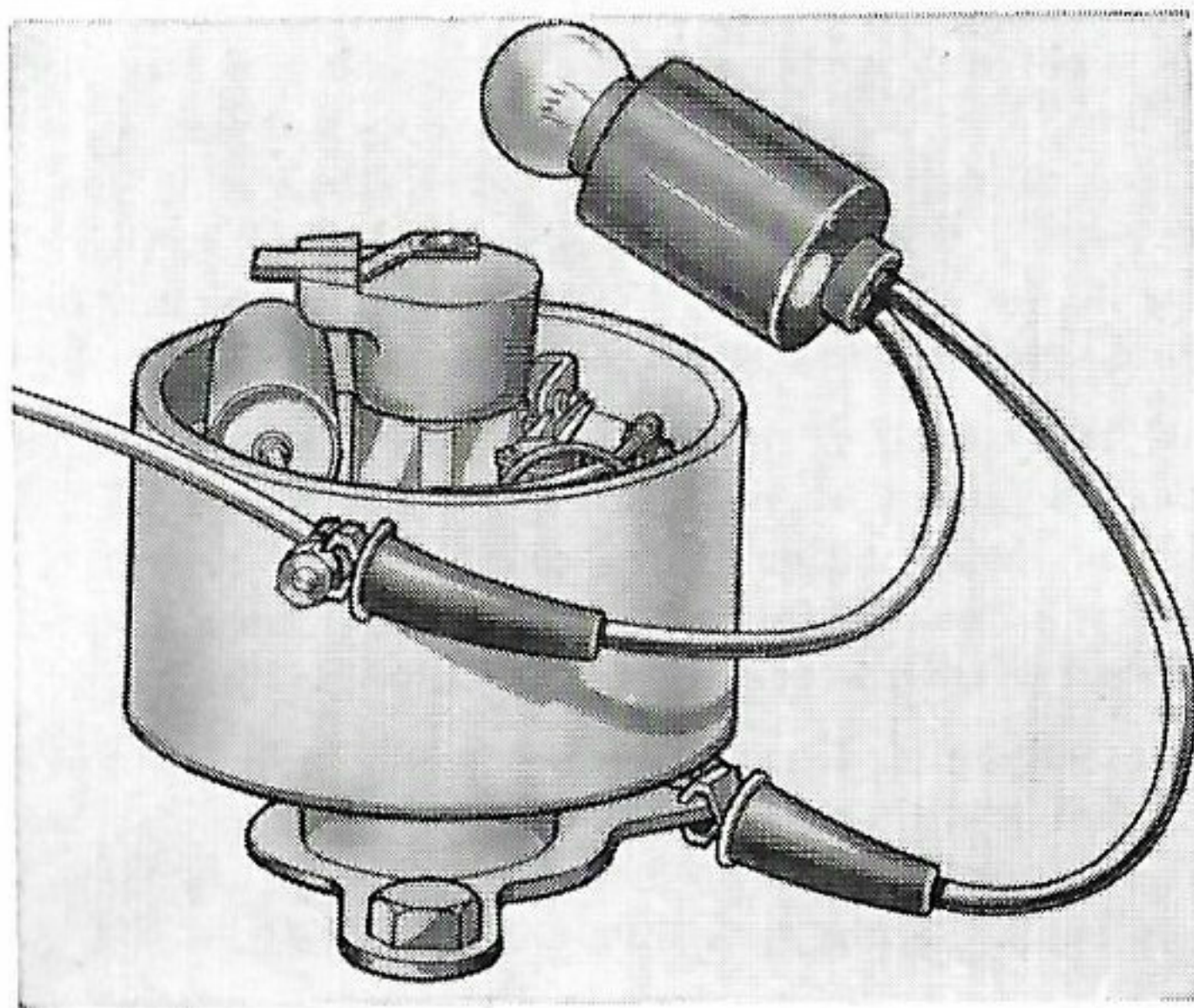
Make sure that the curved cable moves both levers to the same extent so that both jets start to move downwards at the same time.

### Ignition setting

Ignition setting should be done with the aid of a stroboscope whilst the engine is running and with the vacuum governor disconnected. Basic setting should be used when fitting the distributor and in cases where a stroboscope is not available but the setting should be checked with one of these instruments as soon as the opportunity occurs.

### Basic setting

1. Remove the distributor cover and hold it over the distributor. Turn the engine slowly in the normal direction of rotation until the rotor arm approaches the contact for No. 1 cylinder sparking plug.



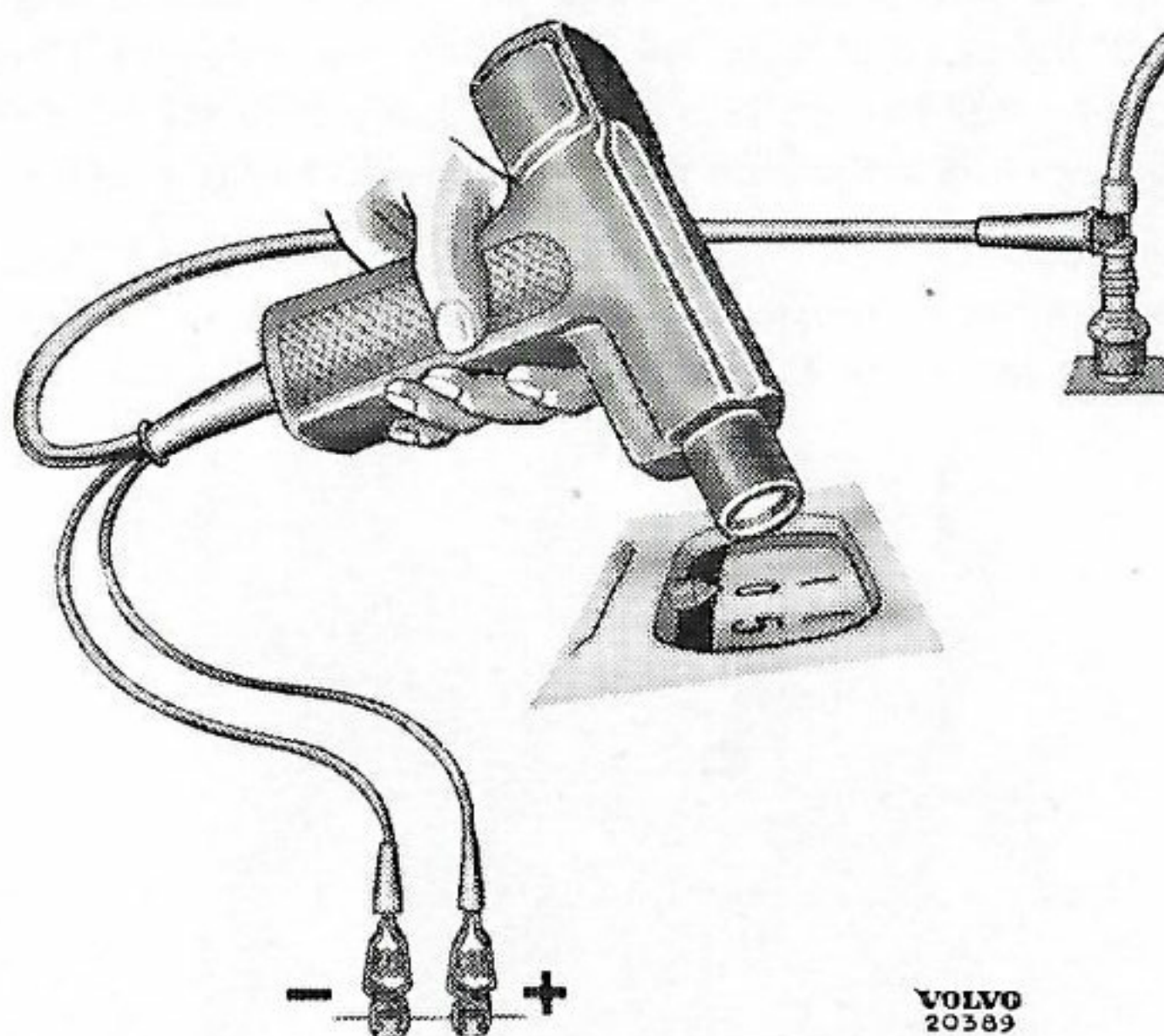
VOLVO  
20390



2. Connect in a small control lamp (max. 3 w.) between the low tension cable on the distributor and the earth. Switch on the current. Continue to turn the engine slowly in the normal direction of rotation and watch the lamp. Stop turning instantly the lamp lights (this represents the moment when the contacts break) and check the ignition setting through the hole in the flywheel housing. The indicator should be opposite  $4^{\circ}$  B.T.D.C. (A small deviation is permissible if the engine has recently been checked with the aid of a stroboscope, which is more reliable than basic setting).
3. If necessary, adjust the setting after slackening the clamping screw on the distributor. When turning the engine forwards, remember not to pass ignition point. If this should happen, the engine must be turned back a  $\frac{1}{4}$  turn and then forwards again towards ignition point. This must be done in order to take up the play in tooth contacts etc.

### Setting with a stroboscope

1. Run the engine until it is warm, then stop and mark out  $21^{\circ}$  B.T.D.C. on the flywheel with chalk. Disconnect the vacuum regulator by loosening one end of the vacuum pipe.



2. Connect the stroboscope with low tension cables to battery voltage and high tension cable to No. 1 cylinder sparking plug.
3. Run the engine at 1500 r.p.m. and direct the light beam onto the flywheel marking. The chalk mark at  $21^{\circ}$  B.T.D.C. should remain steadily opposite the indicator. Adjust the setting if necessary after slackening the distributor clamping screw.



## Decarbonizing [6]

You should have the engine decarbonized regularly. The need for this varies considerably depending upon manner of driving but we would recommend driving intervals of about 25000 miles as being suitable. Cars which are used mostly for light driving require decarbonizing at relatively shorter intervals.

## Valve clearance [7]

should be checked at every 3000 miles service. Faulty clearance has a bad effect on engine output. Too little clearance can, in addition, cause burned valves.

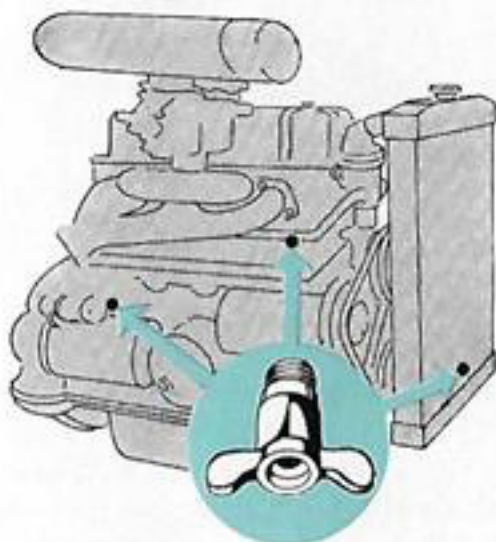
Correct clearances with a warm engine are:

Inlet valves	0.020"
Exhaust valves	0.020"

## Cooling system [8]

is provided with a pressure cap to raise the boiling point of the coolant. Be careful when opening the cap, especially if the coolant is boiling for any reason. The cap has two positions — the first one for decreasing pressure in the system and the second one for removing the cap for filling up with coolant. Never pour cold water into a hot engine unless the engine is running — the great temperature difference may cause cracks in the engine.

There are three cocks for draining the system — one on the right-hand side of the engine, one on the connection from the water pump to the heater element and one on the underside of the radiator (see figure).



Cooling system drain cocks.



In order to function the cooling system must be clean and all channels in the engine and radiator must be free from deposits and impurities. These deposits are caused by the salts which are usually present in ordinary water.

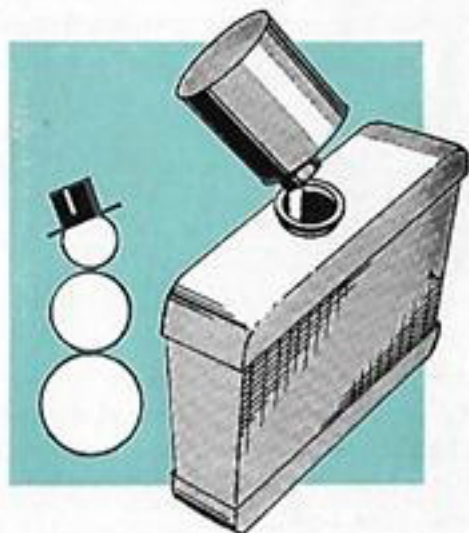
In order to keep the cooling system clean and to prevent boiling you should

- a) use clean water (preferably rain water) with some rust preventive additive.
- b) when filling up and draining off anti-freeze in autumn and spring, the system should be well flushed with water or steam at about 14 p.s.i. pressure or with a suitable soda solution. The latter method is carried out as follows:

Add about 10.6 oz. oxalic acid to the coolant and let the engine run warm for about an hour, (when the system is badly blocked, run for 2 or 3 hours) the drain the cooling system. Remember that splashes from oxalic acid have a corrosive effect on clothes etc. Refill the system with water and let the engine run warm for about ten minutes. Flush the system through three times in this way. After adding about 1.8 oz. of sodium carbonate, proceed in the same manner as for oxalic acid, i.e. draining and flushing three times.

### **Antifreeze fluids**

During the cold season an antifreeze solution should be used in the cooling system. The most common anti-freeze mediums are methylated spirits and ethylene-glycol. Unfortunately methylated spirits evaporates quickly at normal engine temperature and therefore requires frequent checking and topping up. Since ethylene-glycol does not have this disadvantage, it is preferable as an antifreeze medium.



It should be noted that pure ethylene-glycol has a marked corrosive effect on the cooling system and for this reason antifreeze fluids on the market are treated with anti-corrosive additives. For chemical reasons these additives



cannot be applied in a larger quantity than is required for one winter season and — if sludge, rust or flushing agent are present in a badly cleaned system — will not even last this long.

Before filling with antifreeze fluid, the whole cooling system should be carefully cleaned out and any leaks in hoses and connections should be remedied. Then fill with a solution of ethylene-glycol and water. For suitable proportions of ethylene-glycol, see page 65.

At the end of the winter season the whole cooling system should be drained and flushed through.

**NOTE.** In order to use ethylene-glycol solution for more than one season an anti-corrosion medium must be added. Since it is difficult to determine suitable quantities of this, we advise against using the same solution for more than one season. Avoid spilling any ethylene-glycol solution on the paintwork as it can have a damaging effect.

### **Fan belt (8)**

About every 6000 miles you should get your Volvo workshop to check fan belt tension. If the belt is worn or covered with dirt and grease it can slip and thus cause poor cooling effect and generator output. You can check the tension yourself by pulling round the fan at the point of one of the blades in its direction of rotation.

Considerable resistance (12—14½ lb) should be felt before the belt begins to slip. A simpler but more provisional method is to press down the belt with the thumb halfway between the generator and fan. When doing this it should be possible to press in the belt about 3—4 mm (approx. ⅛") with normal thumb pressure.

### **Clutch (9)**

On the Volvo the clutch is operated hydraulically by the clutch pedal. In this way vibrations normally occurring in a mechanical control are eliminated. The fluid in the clutch hydraulic system is the same as that in the brake system. (See below). The container is the smaller of the two placed beside the steering column under the bonnet. (See fig.).

The location of the container makes it easy to check the level of the fluid which should reach up to the level mark. It is sufficient if this check is done every 3000 miles. If the clutch should ever need adjusting, contact your dealer.





## Front of car (10)

In order to be able to drive fast and safely and not to wear the front tires excessively, it is of great importance that the front wheel setting is correct. You should, therefore, let your Volvo service workshop check this and carry out any necessary adjustments every 6000 miles. Volvo dealers are equipped with special measuring devices for this purpose and can therefore give you first-class service in this respect. If you have run into anything so that the front of the car has received a blow, you should have the front wheel setting checked.



## Brakes

### The brake system (11)

is one of the most important parts of your Volvo. For your own sake and for the sake of others it is of the utmost importance that the brake system functions faultlessly.

For this reason have the brake checked and adjusted if necessary after every 3000 miles. After every 12000 miles have your brakes thoroughly checked in a Volvo workshop.



### Handbrake (12)

operates mechanically on the rear wheel brake shoes. Check every 6000 miles that the handbrake effect is satisfactory. When the handbrake is correctly adjusted, full effect is obtained at the 4th or 5th notch. Any necessary adjustment can be carried out quite simply as shown in the figure.

All work on both the hand and foot brake systems should preferably be carried out at a workshop.



### Brake fluid (13)

is filled into the master cylinder which is placed by the steering column and which is the larger of the two containers. It should be filled up to the level mark with brake fluid and checked every 3000 miles.



From the point of view of traffic safety it is of vital importance that only first-class quality brake fluid is used. Such fluid must fulfil great demands in the way of resistance to heat and cold and must not cause damage to the rubber parts in the brake system.

Therefore use only a brake fluid which fulfills the requirements of specification SAE 70 R1 (HD-quality).



## Wheels and tires

The Volvo is provided with tubeless tires. This type runs at a lower temperature than the earlier type of tire with tube and for this reason tire wear is less. Air pressure in a tubeless tire also remains more constant than in a tire with tube. This means that you do not need to check the air pressure more than a couple of times a month.

### Air pressure

in the front tires should be  
20 p.s.i.

and in the rear tires  
24.2 p.s.i.

at normal loading. If setting out on a long journey with a full complement of passengers and fully loaded, the above-mentioned figures should be increased by 2.8 p.s.i. If, on the other hand, you drive alone and prefer smoother riding, you can decrease the tire pressure by 2.8 p.s.i. Remember, however, always to have 4.3 p.s.i. more in the rear tires than in the front as otherwise the car will tend to "over-steer".



**Never allow the tire pressure to go below 14—15 1/2 p.s.i.** as if this happens the seal between the tire and rim can be endangered should the car be subjected to a violent side thrust, for example, extremely hard cornering or driving against a kerb.

In order to keep tire bills as low as possible, always drive with consideration so as to spare the tires.

You as the owner can help increase the length of life of your tires by maintaining correct air pressure, regularly checking wheel balance and front wheel adjustment and by using the spare wheel, as otherwise this can deteriorate if left out of use for a long time.

The Volvo is fitted with white side-wall tires and it often happens that these become grimy. Ordinary washing is not always sufficient. The white side-walls should then be scrubbed with a brush and suitable washing compound or scouring powder. Only in exceptional cases should methylated spirits be used and then it should be thoroughly rinsed off with water. Remember that paintwork can be damaged by methylated spirits.



## Spare wheel

is fitted on the left in the luggage compartment. It is stowed upright in a recess to take up the least possible space and is secured with a strap. The jack is stowed behind the spare wheel together with the car tools (see list on page 68). There is also a space here for a gasoline can.



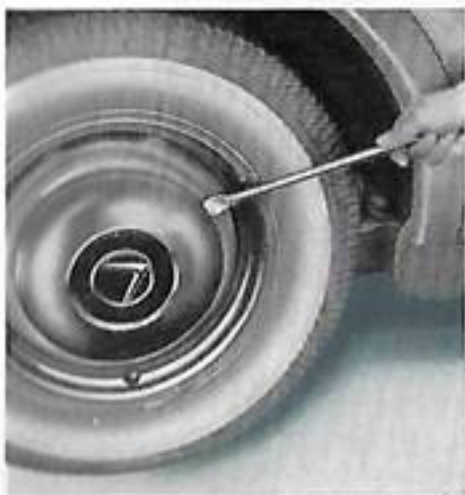
Spare wheel.



Jack.

## Changing a wheel

is done as shown in the illustrations below. Before starting make quite sure that the car is standing firmly and cannot start rolling. **The handbrake operates on the rear wheels only.**



1. First remove the hub cap with the aid of the wheel nut wrench.



2. Slightly slacken all five wheel nuts with the same tool.





3. Then jack the car up sufficiently for the wheel to be clear of the ground. There are brackets in the body in which the jack should be placed. These are located in front of the rear wheels and to the rear of the front wheels.



4. Screw off the wheel nuts and lift off the wheel. Fit on the spare wheel and tighten the nuts a little at a time, taking alternate nuts. Do not tighten up the nuts excessively as otherwise the wheel disk and threads may get damaged.

**Note.** When working underneath the car never rely completely on the jack but always place a block or some other form of support beneath the car.



## Electrical system

### Battery

The battery is situated under the bonnet and is easily accessible for checking acid level. This is most conveniently done when filling with gasoline and in any case must be done at least once a fortnight. Acid level should be about  $3/8$ " above the plates. Use distilled water only for topping up but be careful not to put in too much otherwise acid may overflow from the battery and cause damage. Use a hydrometer to test the state of charge of the battery. This shows the specific gravity of the battery acid (see page 66). This is particularly important during winter since a fully charged battery is not so likely to be damaged by frost as one which is almost discharged. The electrical accessory which places the heaviest strain on the battery is the starter motor. When making repeated attempts to start do not keep the starter motor engaged for more than 5 to 10 seconds at a time. Also wait for a similar period between each attempt so that the battery has a chance of recovering.

Long periods of heavy loading considerably reduce the length of life of the battery.



### Replacing headlamp inserts



1. Slacken the screw on the underside of the rim.

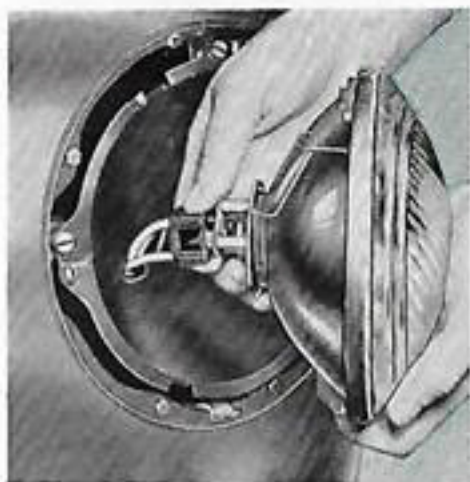


2. Pull out the lower part of the rim a little and then lift upwards so that the catch at the top disengages.



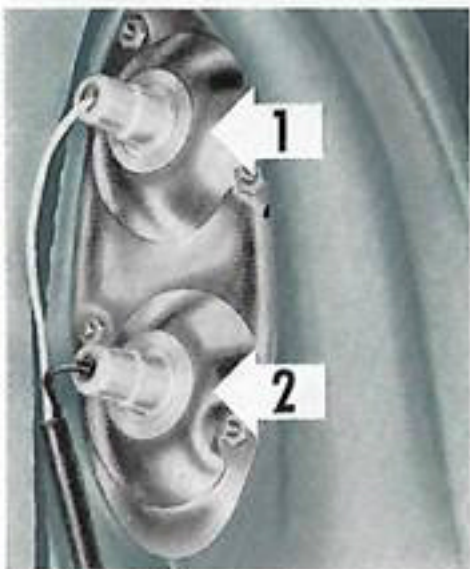


3. Loosen the three screws retaining the insert.



4. Pull out the insert and disconnect by withdrawing plug.

### Replacing rear light bulbs



The various rear light bulbs have the following functions:

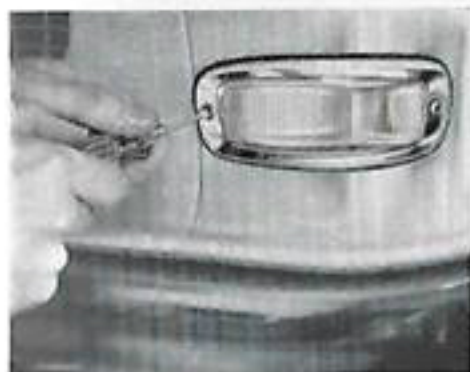
1. Traffic indicator
2. Stop light and rear light



When replacing any of the bulbs, pull out the holder as shown in the figure, after which the bulb can be changed. Do not touch the new bulb with the fingers.



### Replacing parking light bulbs



Remove the rim of the parking light with a Philips screwdriver



The bulb is now accessible for replacement. Do not touch the bulb with the fingers.

### Replacing number plate lighting bulbs



Release the bulb holder by pressing the spring inwards and pulling the holder straight out.



The bulb can now be replaced. Do not touch the new bulb with the fingers.

### Headlamp adjustment (14)

If you think your lights do not illuminate the road sufficiently or you notice that oncoming traffic is worried by your lights, have the headlamp setting checked by the nearest Volvo workshop. It is especially important to do this check during late autumn when the days begin to grow shorter **Badly adjusted headlamps constitute a menace to traffic safety.**



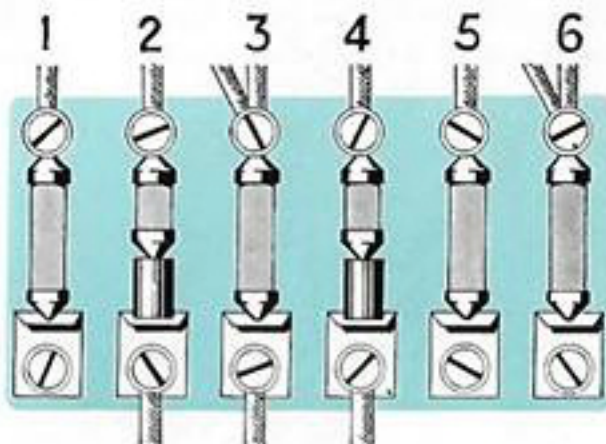
## Fuses

The function of the fuses is to protect the electrical system in the event of possible short circuits. They are situated in a fuse box fixed to the left under the bonnet. The figure shows which parts of the electrical system are protected by the individual fuses and this information is also given on the fuse box. The two short fuses are 25 amp and the others 8 amp. There are also two extra fuses to allow for subsequent fitting of a fog light etc.

Always carry spare fuses with you in the car.

Brake lights, long-time parking lights, glove shelf light and roof light are protected by a thermal fuse built into the light switch.

1. (Reversing light)
2. (Fog light, spot light)
3. Parking lights
4. Flasher mechanism for headlight signalling
5. Heater
6. Horn, directional signals, fuel gauge.



## Sparking plugs (15 and 16)

should be taken out and examined at every 3000 miles service. They should be sand-blasted and the spark gap should be adjusted. When refitted, the washers should be replaced and the plugs tightened with a torque wrench. Only in exceptional cases should you remove and refit the plugs yourself.

At least once every 12500 miles the whole set should be replaced if this has not been done previously.





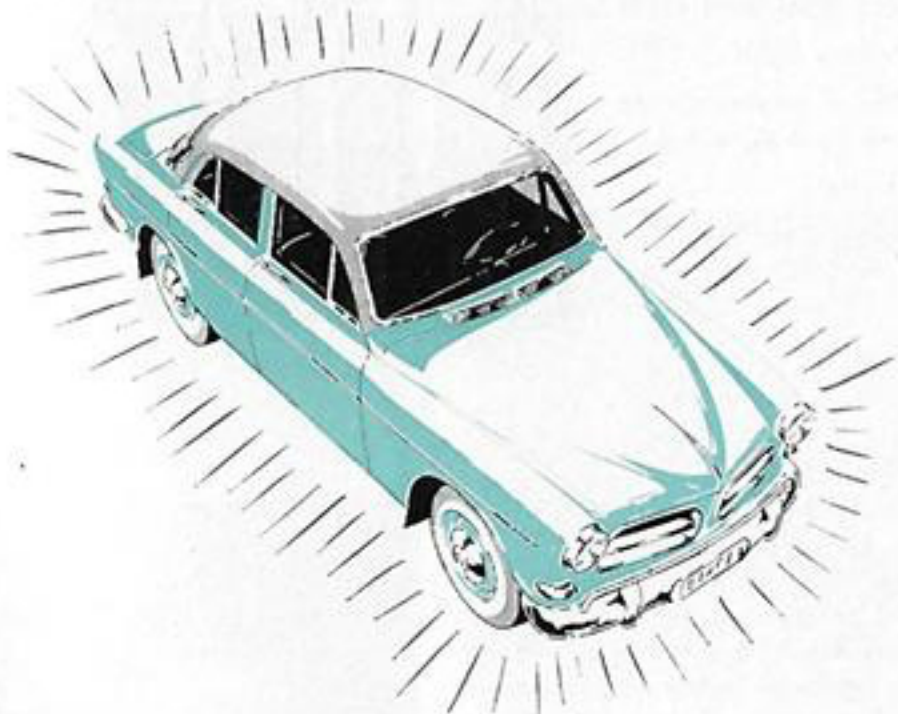
## Bodywork

Just as you have the car lubricated to keep it in best condition, so you should also give the bodywork regular attention. In this way you will preserve the attractive appearance of the car.

### Washing the car

The car should never be washed in direct sunshine.

Wash a new car often since this hardens the surface finish. Otherwise, the car should be washed when it is dirty or very dusty. Dust and dirt that is allowed to remain in contact with the body surface for a long time can be very damaging. When washing, use only clean water, without any added washing compounds. Other special washing compounds may not be used unless they are recommended by an expert. The reason for this is that some of the washing compounds on the market can damage the synthetic finish on the car.



Use a soft, natural sponge and plenty of water. Do not aim highpressure jets of water directly at the car body. Rinse out the sponge often in order to avoid scratches. Do not wash in strong sunshine since this can cause flecks that are very difficult to remove. After washing is completed, dry off the car with a soft, clean chamois leather. N.B. If soap solution has been used, the car must be thoroughly rinsed with water.

### Polishing (17)

In order to retain the high gloss on the body surface, the car should be polished at regular intervals. Polish the car if soap solution has been used when washing.



Before polishing, the car should be thoroughly washed and dried. Never polish a dirty surface since this can cause scratches. Use only good quality polish that has been recommended for use on cars with synthetic finish. Use a soft cloth or pad to apply the polish on one small area at a time. Then rub with a clean, soft cloth or pad until a high gloss is obtained. Never polish in direct sunshine since this can cause a stripy surface.

### Touching up

The synthetic finish requires special training and equipment as far as touching up is concerned. In the event of damage to the finish contact your nearest Volvo dealer or a workshop equipped to do the job on synthetic finish. Small scratches and small dents can be fixed by the owner. You can get small 4 oz. kits of paint from your Volvo dealer. Do not touch up with cellulose enamel since the colour change will become apparent after some time.

**NOTE.** Have damage repaired immediately to avoid rust damage.

### Chromium plated parts

Bumpers, radiator grille and wheel hub caps are chromium plated and should be washed with clean water as soon they have become grimy or dusty. Chromium plating is stimulated by washing and afterwards ordinary wax or some rust preventive medium can be rubbed on.

The strips around the windows are of anodized aluminium which retain their shine without any special care. No polish must be used on these.

### Upholstery (18)

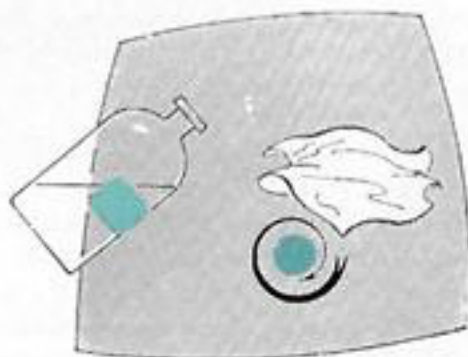
The material in the upholstery is a first-class woollen textile which is dirt-repellant. The headlining is of cotton material which should be vacuum cleaned now and then to retain its appearance.

The woven plastic portions of the upholstery and on the doors are best cleaned with a tepid soap solution or in severe cases with some household washing preparation. Gasoline, carbon tetrachloride etc., must on no account be used on woven plastic.

If the upholstery material has got stained in any way the spot should be removed as soon as possible. Proceed as follows:

Use a clean cloth and moisten it with the recommended cleansing medium. Begin at the outer limits of the stain and work inwards towards the centre. In this way you will avoid having a ring left.

Examples of different types of stains and the best way of removing them follow.





**Battery acid**

If any battery acid happens to get spilled on the upholstery the spot must be treated immediately. Ammonia should be applied but since this is rarely available just when needed, water should be poured over the spot there and then. Treat the spot with ammonia as soon as possible and rinse off with water afterwards.

**Blood**

Rub the stain with a rag dipped in clean, cold water. Finish with a weak, almost cold, soap flakes solution.

**Chocolate**

First rub with a rag dipped in lukewarm water. If the mark does not disappear completely treat further with carbon tetrachloride.

**Grease**

Should be removed with carbon tetrachloride. Do not use gasoline as this often leaves a mark on the material. Leaded tetraethyl fuel must not be used.

**Fruit**

First rub the stain with a rag dipped in hot water. If the spot does not disappear completely treat further with carbon tetrachloride.

**Lipstick**

Pour a little carbon tetrachloride on the spot and then immediately apply a piece of clean blotting paper over it. Repeat the process until the mark disappears.

**Chewing gum**

Soften up the chewing gum with carbon tetrachloride and then scrape it off with a blunt knife.

**Vomit**

Rub the stain with a rag dipped in lukewarm soap flakes solution. Then rub over with cold water. Finally go over the surface with carbon tetrachloride.

**Urine**

Wash with warm soapy water and afterwards rinse with cold water. Then pour diluted ammonia (one part ammonia to five parts water) on the stain. Allow this to remain for a few minutes and then rinse off with clean water.

**Note.** When using carbon tetrachloride always be careful to ventilate the car in accordance with the instructions printed on the packing.

**Floor mats (18)**

are made of rubber and have a thick layer of felt on the underside.

When vacuum cleaning the upholstery the floor mats should be taken out and the inside of the car swept out. If the mats have got wet through ice or snow being brought in these should be allowed to dry before they are put back into the car. Any stains on the rubber mats can be removed with methylated spirits. The upper side should then be rinsed off with clean water.



## Lubrication

Proper lubrication at the right point at the right time — follow this advice and you will save yourself many visits to the workshop.

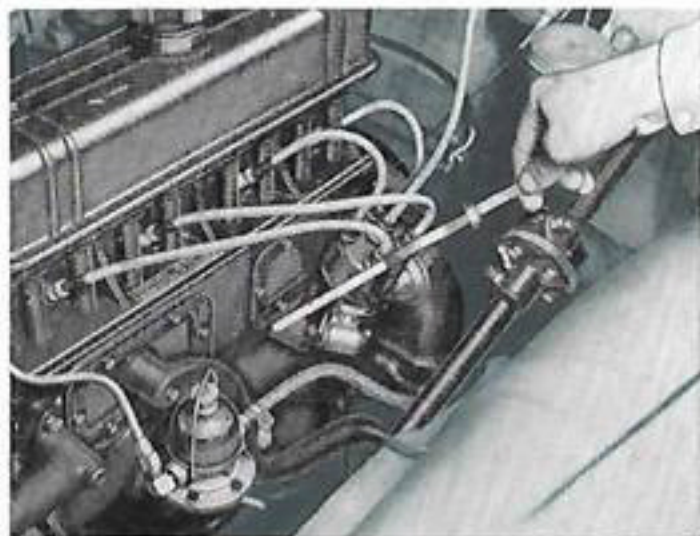
Every time you take your car in for a general service the oil levels in the engine, transmission and rear axle are automatically checked without any special instructions on your part. In the same way the radiator and battery also receive attention. You need only carry out an all-round lubrication of the car every 3000 miles as per the lubricating chart at the end of the book.

If you entrust your car to a Volvo dealer — which is by far the best course — you need only ask for a service in accordance with the mileometer reading and the workshop will then know exactly what should be done. They have a special service schedule which has been carefully worked out in consultation with the Volvo factory.

In case you wish to look after the lubrication of your Volvo yourself, we give below brief instructions for the lubrication of the engine, chassis and body.

### Engine oil level [19]

should be checked at least once a fortnight, preferably when the car is being filled with gasoline. Oil level should be maintained between the two marks on the dipstick. **Under no circumstances must it be allowed to fall below the lower mark.**



If you need to top up or change the oil you should use a well-known make and in future keep to the same brand.

If you drive on one brand of oil and are obliged to top up with oil of the same type but of different make, this is not a matter of great significance, but

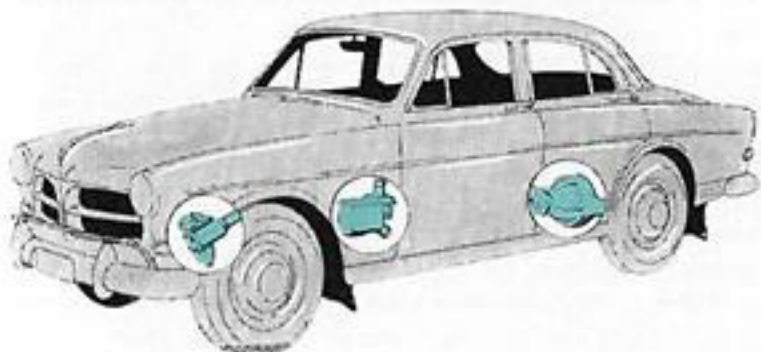


in the long run it is a good policy to keep to the same brand of engine lubricating oil.

The engine oil must be changed every 3000 miles. Pour in 5  $\frac{3}{4}$  US pints if the oil filter element is not replaced at the same time. If the filter element has been replaced fill in 7  $\frac{1}{2}$  US pints.

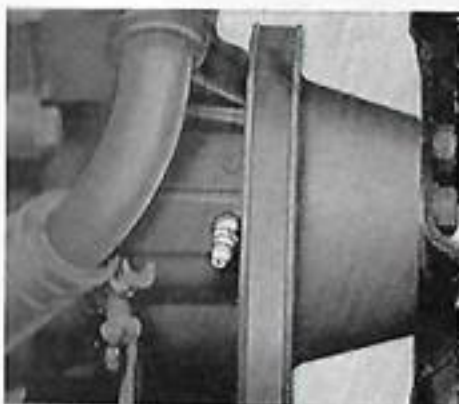
#### **Oil level in transmission (20)**

should reach up to the filling plug hole — if not, top up with fresh oil. The oil should be changed every 12500 miles. At every other oil change the transmission should be flushed out. Use transmission oil SAE 80. Hypoid oil must not be used.



#### **Oil level in rear axle (21)**

should reach up to the filling plug hole. Top up as necessary with fresh hypoid oil SAE 80. Every 12500 miles the oil should be drained. At every other oil change the rear axle should be flushed out before fresh oil is filled in. Capacity is 2  $\frac{3}{4}$  US pints of hypoid oil.



**Grease nipple for coolant pump.**



**Oil filling plug for steering gear.**



### **Oil level in steering gear (22)**

should be checked at every all-round lubrication. The oil should reach up to the filling plug hole and topped up with transmission oil SAE 80 as necessary.

### **Coolant pump**

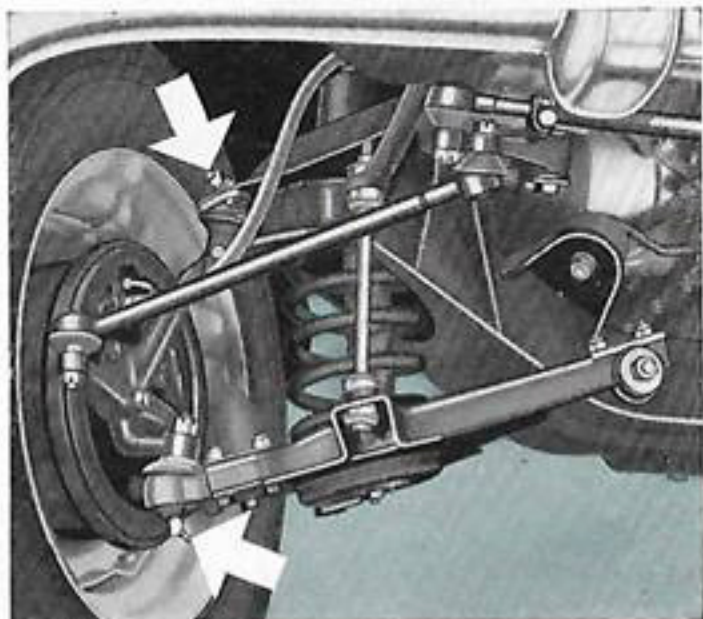
should be lubricated sparingly with special heat resistant grease. Only one or two strokes of the grease gun at every all-round lubrication is sufficient.

### **Carburetors**

Regarding lubrication of the carburetors, refer to page 38 and to the lubricating chart at the end of the book.

### **Chassis (23)**

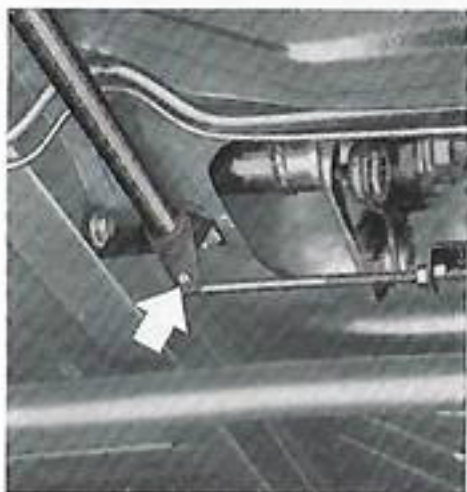
The Volvo has only 8 lubricating points — 4 at the front of the car and 4 on the propeller shaft. These should be lubricated with special chassis lubricant.



The front of the Volvo has 4 lubricating points —  
the 2 ball joints on either side.



Lubricate now and then with an oil can, the point on the handbrake pullrod indicated by the arrow. (See fig.). The handbrake cable should be lubricated with graphite grease — it is best to let your Volvo workshop do this.

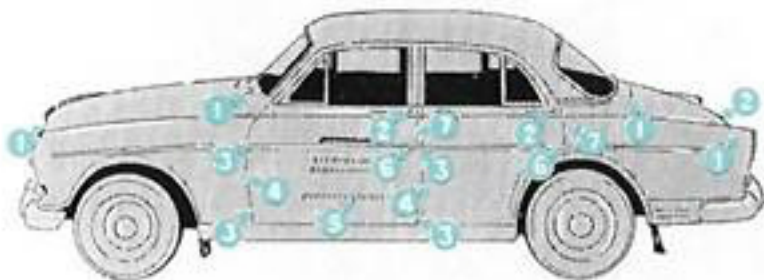


### Body work [24]

It is chiefly the door locking mechanism and door stops which require attention and which should be lubricated with special grease which can be obtained from your Volvo dealer. Always lubricate sparingly after first having removed dust and dirt.

The locking cylinders are best lubricated with pulverized graphite which can be blown into the key hole and at the same time the key which has been dipped in graphite should be inserted and turned a few times.

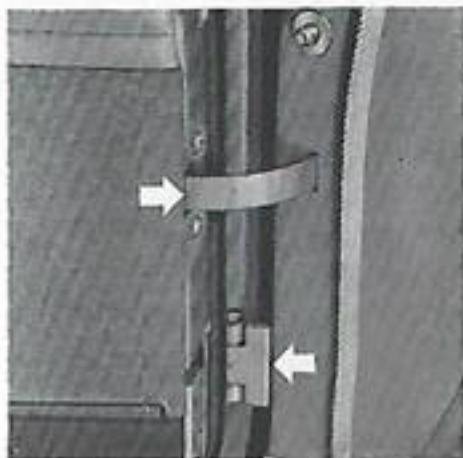
All hinges are lubricated with ordinary engine oil. The following illustrations show where the different lubricating points are.



**Bodywork lubrication.**

- |  |   |
|--|---|
| 1. Bonnet and luggage compartment hinges and locks are lubricated with thin oil. | 4. Door stops. (See separate fig.).   |
| 2. Buttons on doors and luggage compartment are lubricated with thin oil.        | 5. Front seat sliding rails and locking devices are lubricated with grease. |
| 3. Door hinges. (See separate fig.).   | 6. Door locks. (See separate fig.).   |
|  | 7. Door latches. (See separate fig.).                                       |





3—4. Door hinges are lubricated with thin oil, door stops with paraffin.



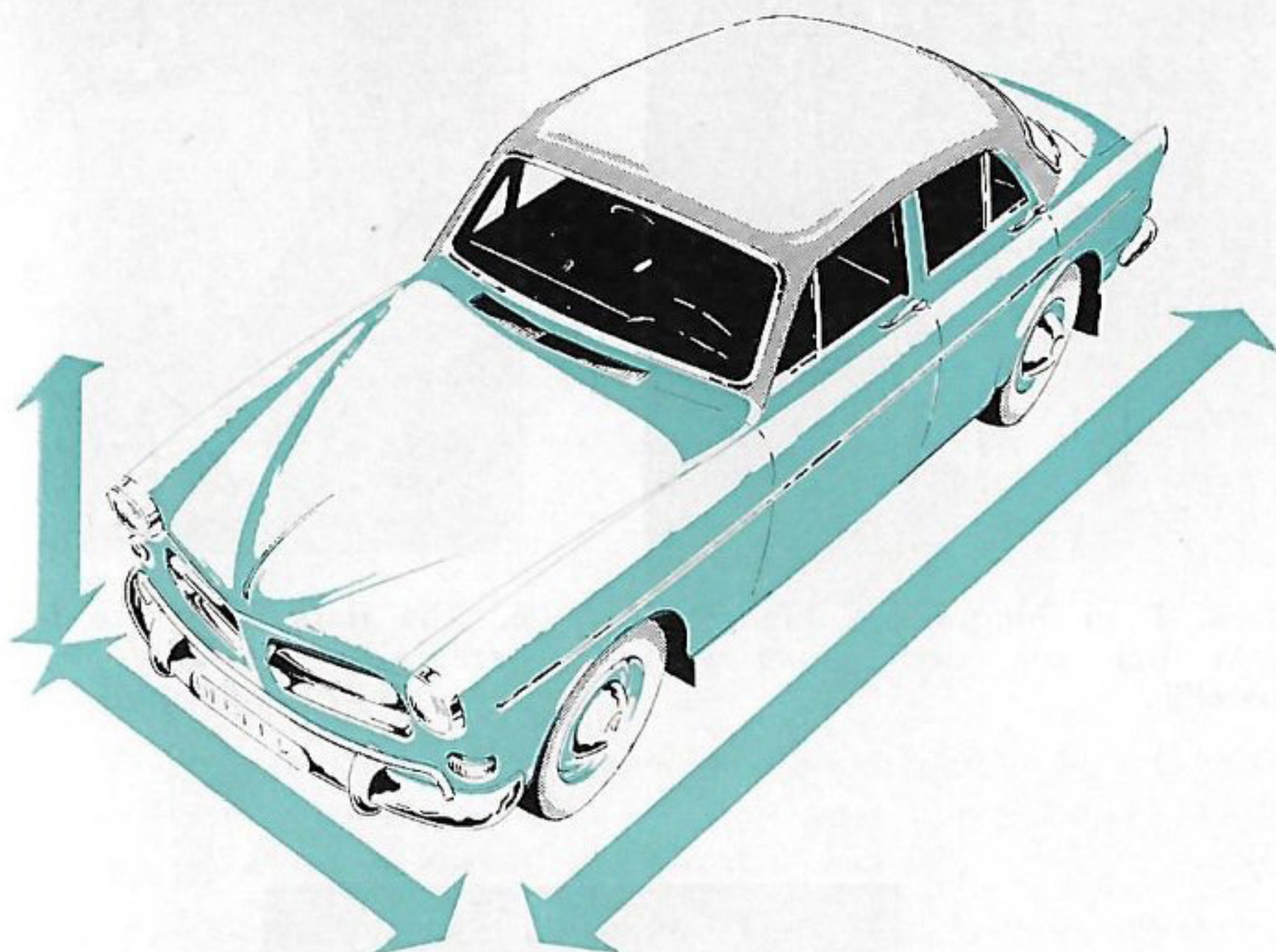
6. The door locks are lubricated partly with thin oil (upper arrow) and partly with paraffin (lower arrow).



7. Door latches are lubricated with paraffin.



## SPECIFICATIONS



## GENERAL DATA

Type designation .....	Volvo 122 S
Kerb weight .....	2400 lbs.
Length .....	173"
Width .....	63 1/2"
Height .....	59 1/4"
Wheelbase .....	102.4"
Ground clearance, empty vehicle .....	8 1/4"
with four persons .....	7.3"
Track width, front .....	51.77"
rear .....	51.77"
Turning circle .....	389 3/4"

## Engine

Output at 5500 r.p.m.	85 h.p. (SAE)
Maximum torque at 3500 r.p.m.	86.8 lb.ft.
Number of cylinders	4
Bore	3.125"
Stroke	3.150"
Displacement	1.58 litres (97 cu.in.)
Compression ratio	8.2:1
Compression pressure	142—167 p.s.i.
Valve clearance, warm engine, inlet	0.020"
exhaust	0.020"



Engine lubricating system

Oil capacity for oil changing .....	5 3/4 US pints
including oil filter .....	7 1/2 US pints
Oil pressure, warm engine .....	36—50 p.s.i.
Lubricant type .....	Engine Oil "For Service MS"
viscosity: Below 32° F .....	SAE 10
32° F—90° F .....	SAE 20
Above 90° F .....	SAE 30

Fuel system

Fuel tank capacity .....	12 US gallons
Carburetors, type .....	Horizontal
Make and designation .....	SU H 4
size (air intake diameter) .....	1 1/2"
control jet .....	AUC 2112
control needle .....	GT
gauge for float level .....	11 mm diam. (.433")
idling speed, about .....	550 r.p.m.

Cooling system

Type .....	Pressure 3 1/2 p.s.i.
Capacity incl. heater .....	2 1/4 US gallons
Thermostat begins to open at about .....	167—172° F
fully open at about .....	194° F

Anti-freeze mixtures

Table for ethylene-glycol/water proportions

Cooling system capacity US gallons	Necessary quantity of ethylene-glycol in US pints for frost protection down to:				
	14° F	5° F	—4° F	—22° F	—40° F
2 1/4	4 1/2	5 1/4	6 1/2	8 1/2	10

The maximum possible frost protection with ethylene-glycol/water mixture, —69° F is obtained by the addition of 10 1/2 US pints of ethylene-glycol.

TRANSMISSION

Type designation .....	M 4
Ratio 1st speed .....	3.45: 1
2nd speed .....	2.18: 1
3rd speed .....	1.31: 1
4th speed .....	1: 1
reverse .....	3.55: 1



Lubricant, type .....	Transmission oil
viscosity, year round .....	SAE 80
Oil capacity .....	2 US pints

## REAR AXLE

Type .....	Bevel pinion (hypoid)
Ratio .....	4.56:1
Lubricant, type .....	Hypoid oil
viscosity, year round .....	SAE 80
Oil capacity .....	2 3/4 US pints

## FRONT WHEEL ADJUSTMENT

(Adjustment carried out with unladen car but including fuel, water and spare wheel, on a completely level surface)

Toe-in .....	0 to +4 mm (1.57")
Camber .....	0° to +0.5°
Caster .....	0° to +1.0°
"King pin" inclination at 0° camber .....	8°

## Steering gear

Type .....	Cam and roller
Lubricant .....	Transmission oil SAE 80
Oil capacity .....	1/2 US pint

## WHEELS AND TIRES

Tire size .....	5.90"—15"
Tire pressure, cold tires, front .....	20 p.s.i.
Tire pressure, cold tires, rear .....	24 p.s.i.

## ELECTRICAL SYSTEM

Voltage .....	6 V.
Battery, make and type .....	Tudor 3DF 6
	Noack 312
	SAAJ GH-13 or
	corresponding
Battery capacity .....	85 amp. hours
Electrolyte specific gravity:	
fully charged battery .....	1.275—1.285
When battery needs recharging .....	1.230



Generator, designation .....	Bosch LJ/GG 200/6/2300 R
output .....	7...10 300 watts
Starter motor, designation .....	Bosch EGD 0.6/6 AR19
output .....	0.75 h.p.
Fuses, rating/number .....	8/4 25/2

## Ignition system

Firing order .....	1-3-4-2
Ignition setting, 93 octane (Research) .....	4° B.T.D.C.
Plugs .....	AC 43 com. Auto-Lite AH4 Bosch W 225 T 3 Champion J-6 or corresponding.
Spark plug gap .....	.028"—.032"
Distributor, make and designation .....	Bosch VJU 4 BR 20
direction of rotation .....	Clockwise
contact breaker gap .....	0.016"—0.020"

## Bulbs (all 6 v.)

	No.	Watts.	Socket
Headlamps .....	2	45/40	BA 20 d
Front flashers/parking light .....	2	20/5	BA 15 d spec.
Long-time parking .....	4	2	BA 9 s
Number plate lighting .....	2	5	BA 15 s
Stop light .....	2	15	BA 15 s
Rear lights .....	2	5	BA 15 s
Rear flashers .....	2	15	BA 15 s
Roof light .....	1	10	S 8
Instrument panel .....	2	2	BA 9 s
Glove shelf .....	1		
Control lamp for directional signals .....	1		
for oil pressure .....	1		
for charging .....	1		
for full headlamps .....	1		

## CAPACITIES, summary

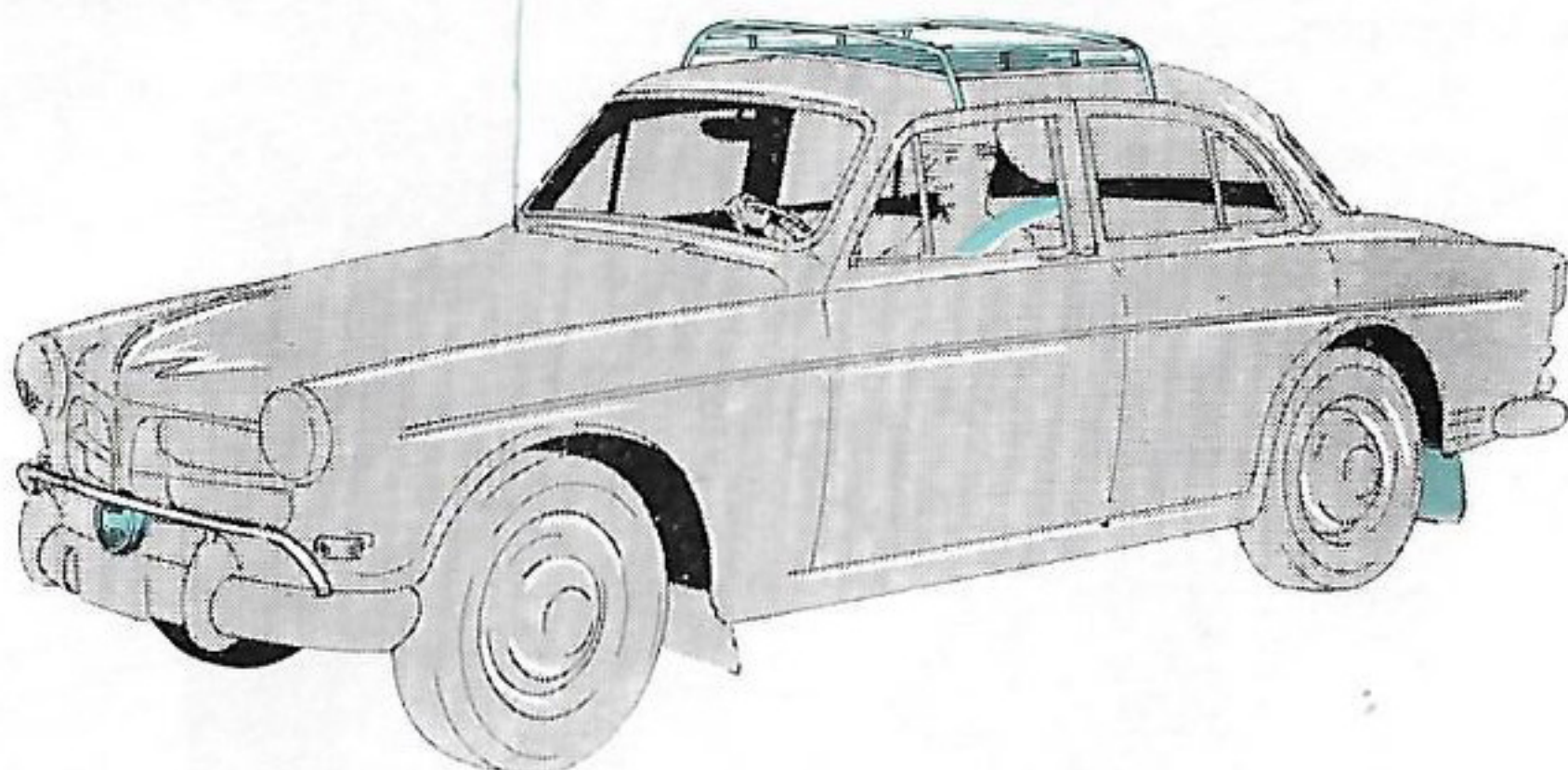
Fuel tank .....	12 US gallons
Cooling system .....	2 1/4 US gallons







# ACCESSORIES



Many car owners wish to supplement the standard equipment on their cars and, for this reason, Volvo keeps a stock of accessories and extra equipment. These are easy to fit in cases where fitting is necessary.

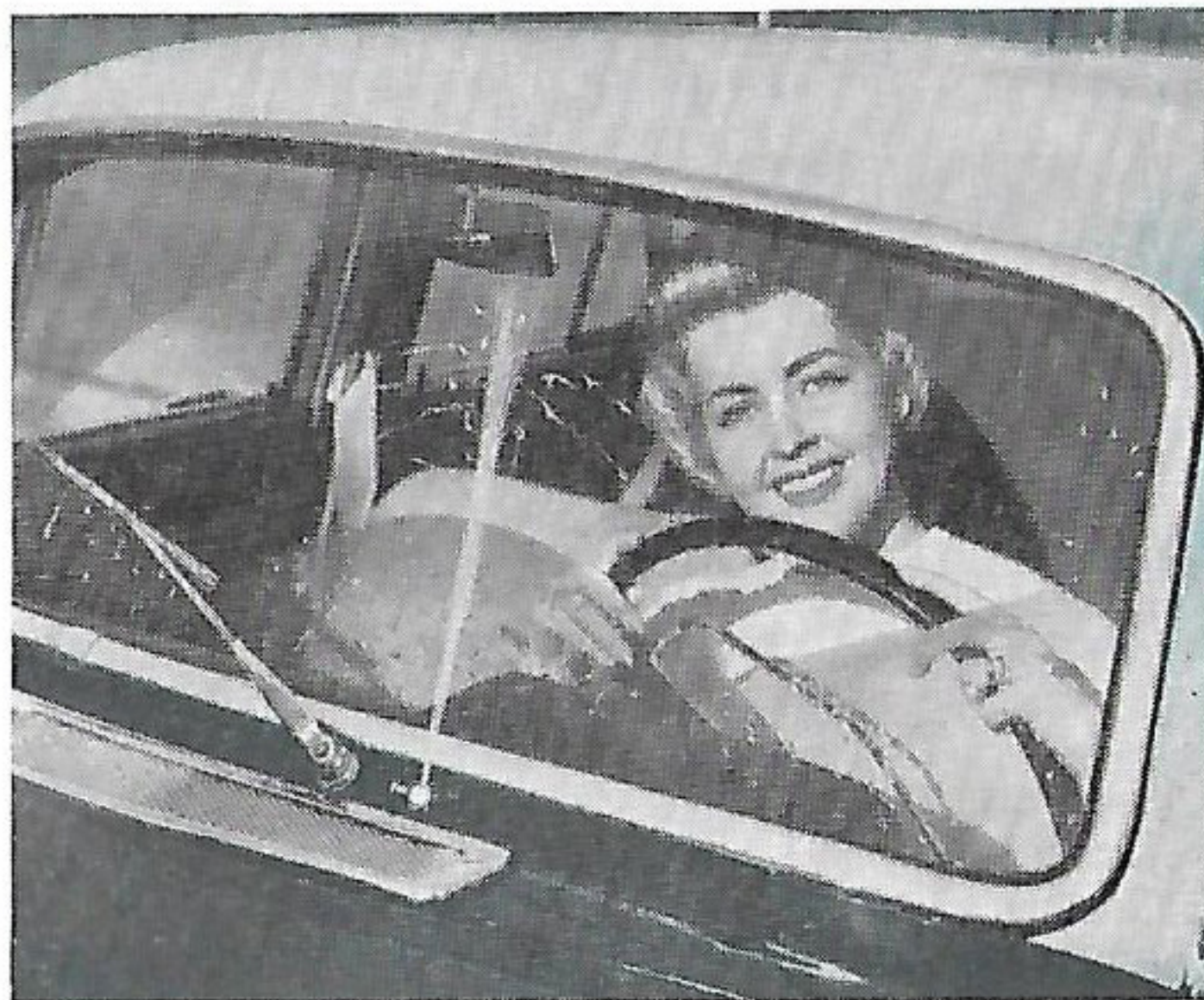
Every Volvo owner has his own individual requirements concerning accessories to make driving easier and more comfortable. The following selection shows a few examples of the accessories available.

## WINDSHIELD WASHER

A bit of advice to those who are irritated by a dirty windshield: Fit a windshield washer.

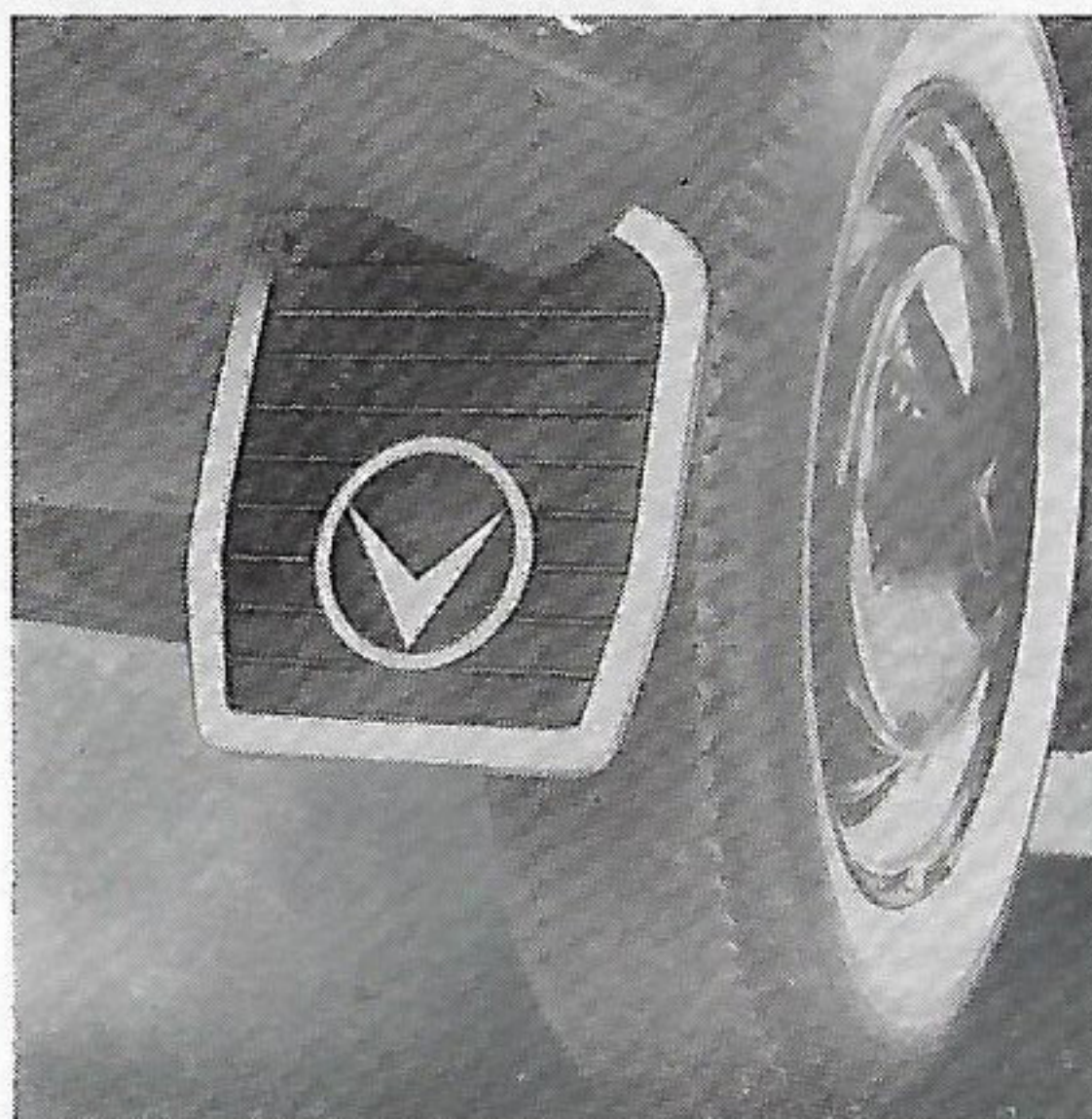
All you need to do is to press a button, the windshield wiper makes a few strokes and vision is perfectly clear again. Driving with a dirty windshield can be dangerous.

Standard equipment on the 122 S includes nozzles for the windshield washer.



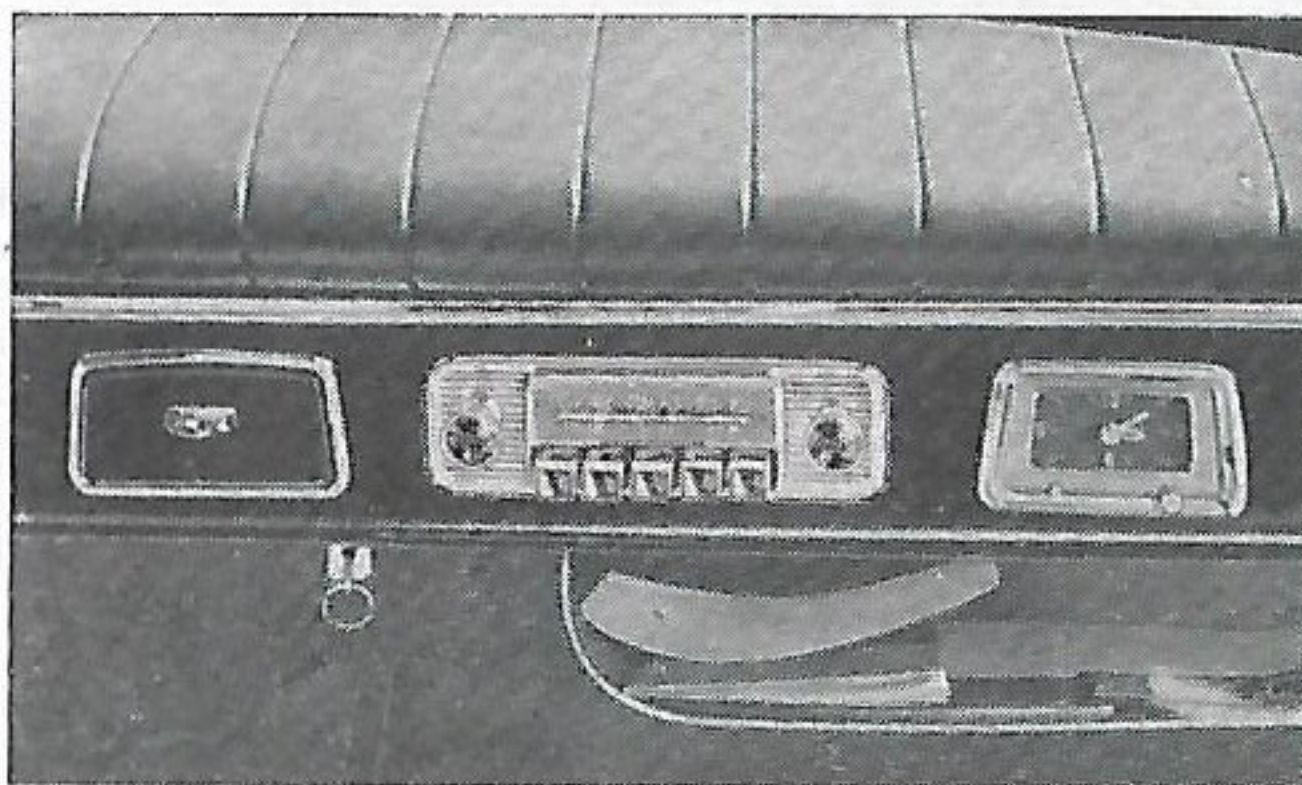


Have a pair of **MUD FLAPS** fitted as soon as possible. This helps to protect the bodywork on your own car and stops gravel and mud from being thrown up onto other cars.



You should always have a spare **GASOLINE CONTAINER** in the luggage compartment where there is space reserved for it on the inside of the spare wheel. This is a worthwhile investment when you think of the irritation and time wasted should you run out of gas some time.

A journey always seems shorter and less tiring if you are in good company. If you must travel alone then a **RADIO** — preferably with press-button controls — is the best company you can have. There is a special recess in the instrument panel for a radio into which most makes of radio fit. There is also a special place close to the parcel shelf for fitting a loudspeaker.



Burned-out bulbs can constitute a menace to traffic. Have always a **BULB CONTAINER** containing all the bulbs you might need in a convenient place in



the car. This container is specially form-molded in rubber with room for the bulbs, well-protected from shocks.

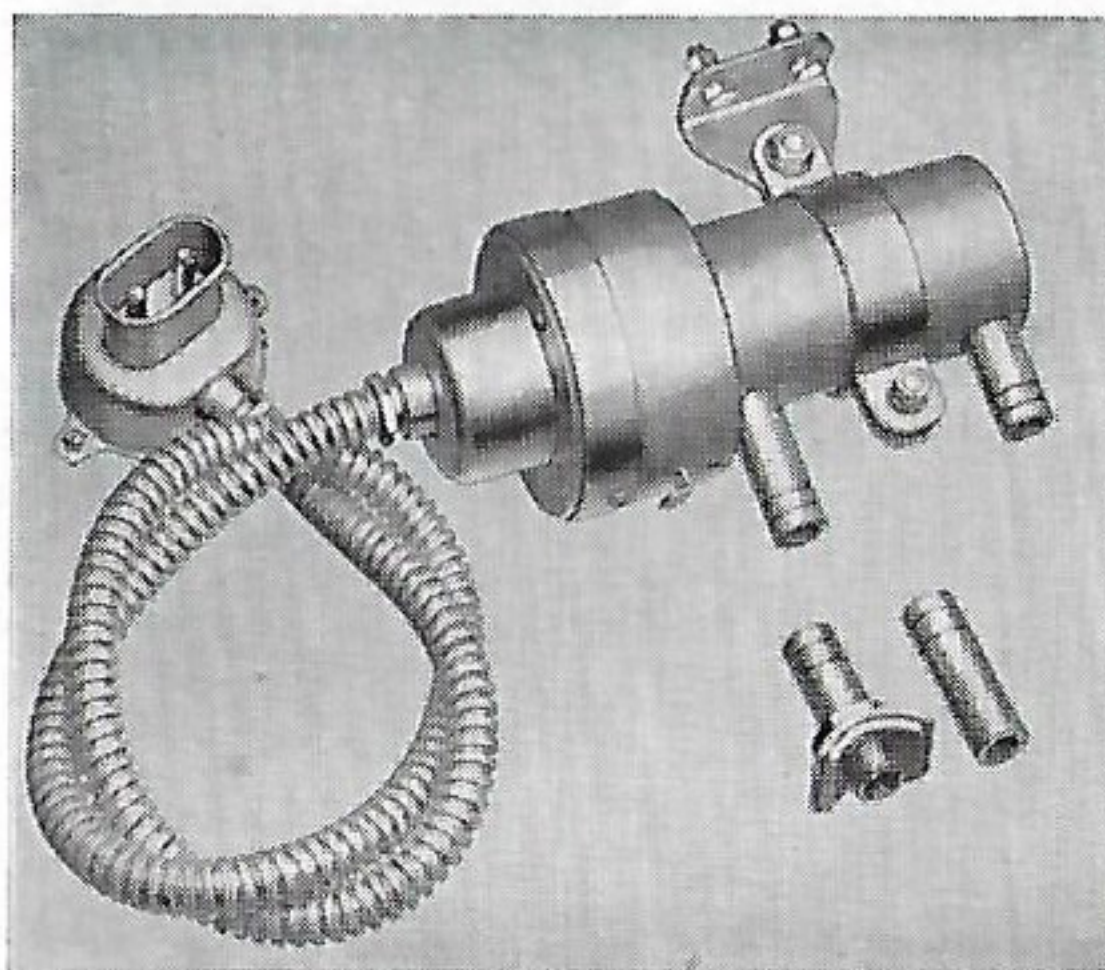
For increased traffic safety you should fit a **FAN** on the rear window — it sometimes happens that this window gets a little misty and makes rear view vision a little difficult.

To increase travelling comfort in your 122 S, we can supply **ADJUSTABLE FRONT SEATS**. The backrest can be adjusted to all angles from vertical to horizontal so that you can sleep comfortably in your car. Adjustment is carried out in one single movement.



#### **ENGINE HEATER**

If your car stands outdoors during the winter, it is a good idea to fit an engine heater so as to keep up the temperature of the cooling water. This makes the engine easy to start and the temperature in the car increases more rapidly.





## SAFETY BELTS

Safety belts are accessories which should be fitted in every car since they help to minimize or eliminate injuries in the case of accident. Buy your safety belts from your Volvo dealer **before it is too late.**

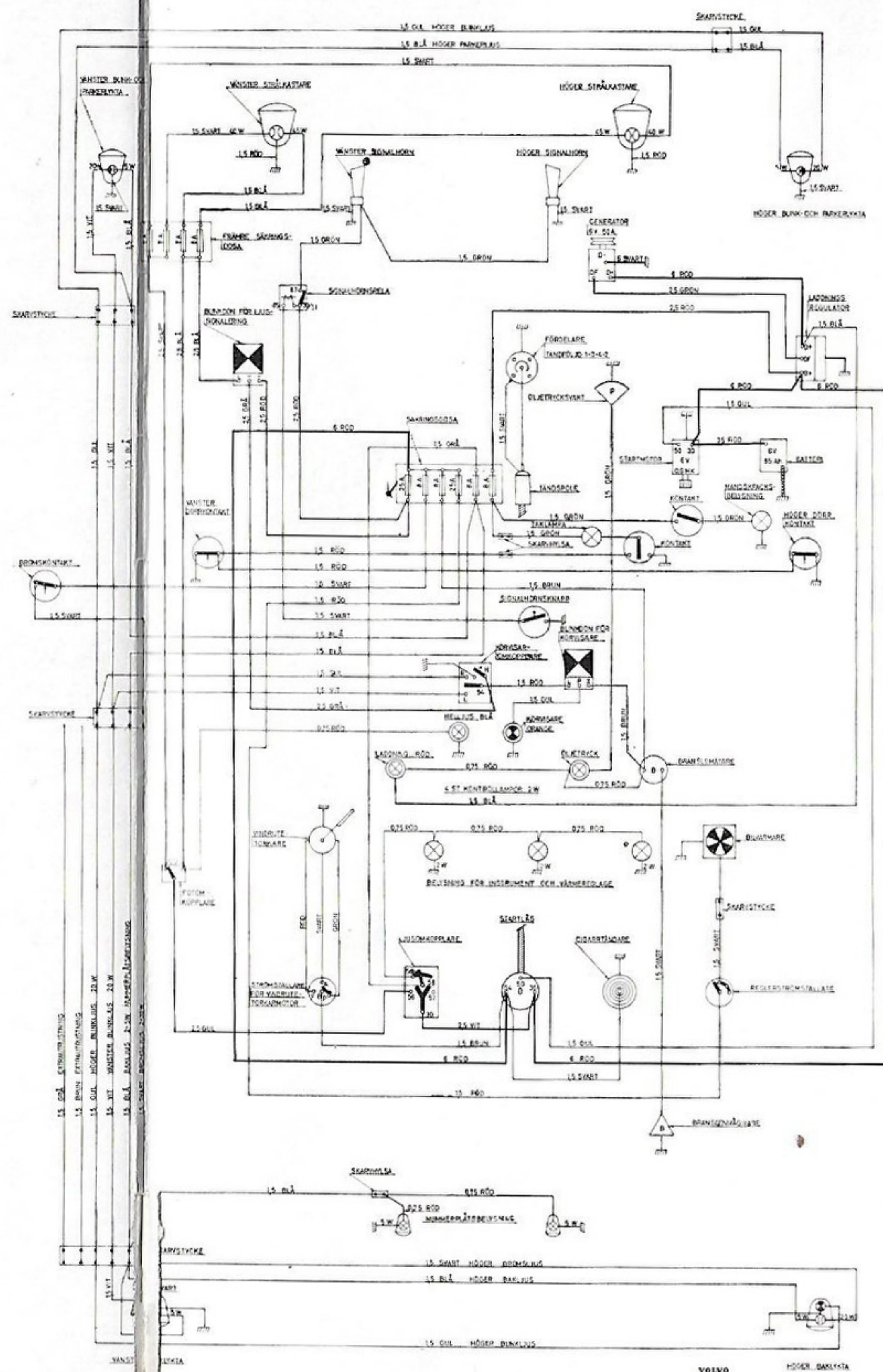
The Volvo 122S has safety belts fittings as standard equipment under the upholstery on the center pillars.





## CODE

Höger blinkljus	= Right-hand blinker
Höger parkering	= Right-hand parking
Höger helljus	= Right-hand headlight (full)
Skarvstycke	= Junction box
Vänster blink- o. parker- lykta	= Left-hand blinker and parking light
Signalhorn	= Horn
Vänster strålkastare	= Left-hand headlight
Höger strålkastare	= Right-hand headlight
Höger blink- och parkerlykta	= Right-hand blinker and parking light
Relä för strålkastare och signalhorn	= Relay for headlight and horn
Höger halvljus	= Right-hand headlight (dipped)
Fotomkopplare	= Foot dipper switch
Fördelare	= Distributor
Tändföljd 1-3-4-2	= Firing order 1-3-4-2
Generator	= Dynamo
Laddningsregulator	= Charging control
Blinkdon för ljussignal	= Blinker mechanism for headlight signalling
Baklykta	= Rear light
Dimljus, sökarlykta	= Fog light, spot light
Backstrålkastare	= Reversing light
Säkringsplint	= Fuse box
Bilvärmare	= Heater
Reglerströmställare	= Rheostat switch
Tändspole	= Coil
Bakre fläkt	= Rear fan
Körvisaromkopplare	= Traffic indicator switch
Signalhornsknapp	= Horn button
Kontakt för ljussignal	= Contact for headlight signalling
Blinkdon för körvisare	= Blinker mechanism for traffic indicators
Bränslemätare	= Fuel gauge
Oljetrycksvakt	= Oil pressure tell-tale
Startmotor	= Starter motor
Batteri	= Battery
Omkopplare för vindruteforkarmotor	= Switch for windscreen wiper motor
Handskfacksbelysning	= Glove compartment lighting
Kontakt för handskfack- belysning	= Contact for glove compartment lighting
Kontrollampa för helljus	= Control lamp for full headlights
Startlås	= Main switch
Termisk utlösare	= Thermal release
Cigarrändare	= Cigar lighter
Instrumentbelysning	= Instrument lighting
Kontrollampa för oljetryck	= Control lamp for oil pressure
Ljusomkopplare	= Light switch
Kontrollampa för laddning	= Charging control lamp
Kontakt för långfids- parkering	= Contact for long-time parking
Bromskontakt	= Brake contact



Wiring diagram.



Vänster dörrkontakt  
Höger dörrkontakt  
Taklampa  
Strömställare  
Vänster blinkljus  
Bakljus  
Bromsljus  
Bränslenivågivare  
Höger bromsljus  
Höger bakljus  
Nummerplåtsbelysning  
Vänster baklykta  
Höger baklykta

Gul = Yellow

Blå = Blue

Grön = Green

Svart = Black

Vit = White

Grå = Grey

Röd = Red

= Left-hand door contact  
= Right-hand door contact  
= Roof lamp  
= Switch  
= Left-hand blinker  
= Rear light  
= Brake light  
= Fuel gauge tank unit  
= Right-hand brake light  
= Right-hand rear light  
= Number plate lighting  
= Left-hand rear light  
= Right-hand rear light

Ledningsarea 1,5 mm<sup>2</sup> där ej annat  
angives

= Cross-sectional area of leads 1.5 mm<sup>2</sup>  
unless otherwise stated



# LUBRICATING CHART

## VOLVO 122 S models

### SYMBOLS

Chassis lubricant

Special lubricant  
see respective note

Engine oil "for Service M5"  
Below 32° F SAE 10  
32° F—90° F SAE 20  
Over 90° F SAE 30

Transmission oil, year round:  
SAE 80

Rear axle oil, year round:  
Hypoid oil SAE 80

Brake fluid

Thin engine oil

### OIL CAPACITIES

Engine, for oil changing:

5 3/4 US pints

incl. oil filler

7 1/2 US pints

Transmission M 4:

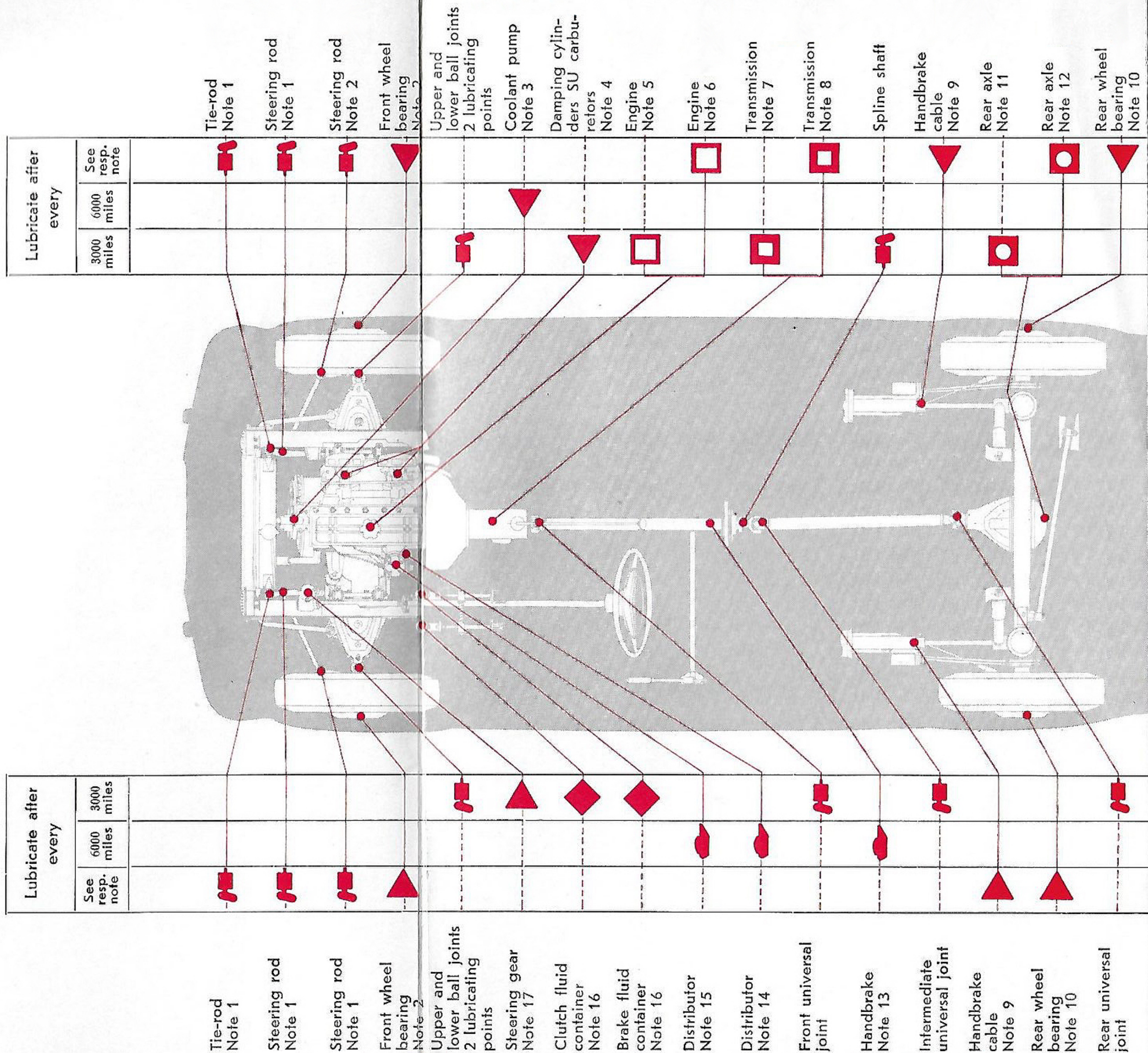
2 US pints

Rear axle:

2 1/4 US pints

Steering gear:

1/2 US pint





**Note 1.** Once a year check the rubber sleeves over the ball joints. When new sleeves are fitted they should be filled with grease.

**Note 2.** Every 12000 miles the front wheel bearings should be dismantled and carefully cleaned. The bearings should be packed with heat-resistant grease when being refitted. Do not overfill with grease otherwise this may work through to the brake drums.

**Note 3.** Lubricate sparingly with heat-resistant ball bearing grease.

**Note 4.** At every all-round lubrication the damping cylinders of the carburetors should be topped up with SAE 10 W oil. See further page 38.

**Note 5.** Change the engine oil. Drain out the old oil while the engine is warm. At every other oil change the oil filter element should be replaced, see page 26. Check oil level at least once a fortnight, preferably when filling up with petrol.

**Note 6.** Change the engine oil at spring and fall. See further Note 5.

**Note 7.** Check that the oil comes up to the level plug. Top up with fresh oil if necessary.

**Note 8.** Every 12000 miles the oil should be changed. Drain out the old oil immediately after having driven. The transmission should be flushed through with flushing oil at every other oil change. Do not use hypoid oil.

**Note 9.** Have the handbrake cable lubricated with graphite grease once or twice a year. Let your Volvo dealer see to this.

**Note 10.** Every 25000 miles or at least every other year the bearings should be cleaned and filled with fresh grease. See further Note 2.

**Note 11.** Check that the oil comes up to the level plug. If necessary top up with the same sort of oil which is already in the rear axle.

**Note 12.** Every 12000 miles the oil should be changed. The rear axle should be flushed through at every other oil change.

**Note 13.** Lubricate the pull-rod at the split pin (see figure on page 62).

**Note 14.** Pour a few drops of thin engine oil into the lubricator.

**Note 15.** The felt wick under the rotor should be lubricated with a few drops of thin engine oil.

**Note 16.** Check fluid level. Top up if necessary with first class brake fluid of HD quality to the level mark.

**Note 17.** Check that there is sufficient oil in the bearing housing. Top up with fresh oil if necessary. Use transmission oil SAE 80.



# TRANS-AMERICAN CHART

## FOR THE YEAR 1907

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
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## Personal Information

Name .....

Address .....

Tel. ....

Driving License no. ....

## Nearest Volvo dealer

Address .....

Name .....

Tel. ....

Garage manager's name .....

Tel. ....

## Car Information

Type designation .....

Chassis number .....

Engine number .....

Registration number .....

Ignition key number .....

Door key number .....

## General Information

Fuel tank lock, key number .....

Insurance Company .....

Insurance Policy no. ....

.....



**~~VOLVO 422S~~**