VOLVO

INSTRUKTIONSBOK
INSTRUKTIONSBOG
INSTRUKSJONSBOK
INSTRUKTIEBOEKJE
INSTRUCTION BOOK
BETRIEBSANLEITUNG
LIVRO DE INSTRUÇÕES
LIBRO DE INSTRUCCIONES
MANUEL D'INSTRUCTIONS

1/122

AB VOLVO GOTHENBURG SWEDEN

SERVICE DEPARTMENT

TP 14/8 (Engelska) 45.000. 10. 65.

Printed in Sweden/Gumperts

Give a thought to the danger of carbon monoxide fumes!

Concerning driving with the luggage compartment lid open, see page 30.

VOLVO 121/122 S

TWO- AND FOUR-DOOR CARS

(121/122 S F and L)

DESCRIPTION

DRIVING

MAINTENANCE

AB VOLVO GOTHENBURG SWEDEN
Service Department
Cables: "Volvo, Gothenburg, Sweden"

BEFORE YOU START DRIVING YOUR NEW VOLVO
PLEASE READ THROUGH THIS
INSTRUCTION BOOK CAREFULLY. IT CONTAINS ALL
THE INFORMATION YOU NEED TO BE ABLE TO
DRIVE AND SERVICE YOUR VEHICLE IN THE BEST
POSSIBLE WAY. BY FOLLOWING THE INSTRUCTIONS
GIVEN IN THIS BOOK, YOU WILL FIND THAT
YOUR VOLVO WILL COME UP TO ALL THE
EXPECTATIONS CONCERNING ECONOMICAL
OPERATION AND EXCELLENT PERFORMANCE THAT
YOU HAVE EVERY RIGHT TO EXPECT OF
A TOP-QUALITY VEHICLE.
THIS INSTRUCTION BOOK IS NOT INTENDED TO
BE A COMPREHENSIVE TECHNICAL MANUAL AND
DOES NOT CLAIM TO MAKE THE
READER INTO A PERFECT CAR MECHANIC. IT WILL,
HOWEVER, SHOW YOU HOW TO LOOK AFTER YOUR
VEHICLE SO THAT TROUBLE IN THE FUTURE
CAN BE AVOIDED

AB VOLVO

GÖTEBORG

DO NOT
WAIT UNTIL SOMETHING GOES
WRONG BEFORE YOU START READING
THIS BOOK. READ IT NOW.
THE SHORT TIME THIS TAKES WILL MORE THAN
REPAY YOU IN THE LONG RUN.
THE BETTER YOU KNOW YOUR VOLVO, THE
BETTER SERVICE IT CAN GIVE YOU.
THIS BOOK CAN CONTAIN SOME VALUABLE
INFORMATION EVEN FOR AN EXPERIENCED
MOTORIST.
FINALLY, WE WOULD LIKE TO EXPRESS OUR
APPRECIATION FOR THE CONFIDENCE
YOU HAVE SHOWN IN THE NAME OF VOLVO
BY CHOOSING A VOLVO VEHICLE.
WE ARE SURE THAT THE DEMANDS YOU MAKE
ON YOUR VOLVO WILL BE MORE THAN
SATISFIED, APART FROM THE FACT THAT YOU
WILL ENJOY DRIVING IT, AND THAT IT WILL
GIVE YOU FAITHFUL SERVICE FOR MANY,
MANY MILES.

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VOLVO SERVICE

DESCRIPTION

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Volvo Service organization

In order to get the most out of the invested capital represented by a car, it must be looked after and serviced rationally. Volvo has gone to a great amount of trouble in the design and selection of material to ensure that the car in question only requires a minimum of servicing. All this work will be in vain unless we can count on your co-operation — that is to say, that you make sure that your vehicle gets the regular servicing it needs. In order to help you, Volvo has built up a world-wide service organization. All Volvo dealers have specially trained personnel and receive a continuous supply of technical information from the Volvo Service Organization concerning repair and adjustment work. They have also special tools, designed at the Volvo factory.

All Volvo dealers have a comprehensive stock of spare parts which is your guarantee for genuine Volvo spares. This is why our dealers are in the very best position to give your vehicle first-class service concerning both maintenance operations and repairs. You should also refer to your dealer if you need information about your Volvo that is not included in this instruction book.

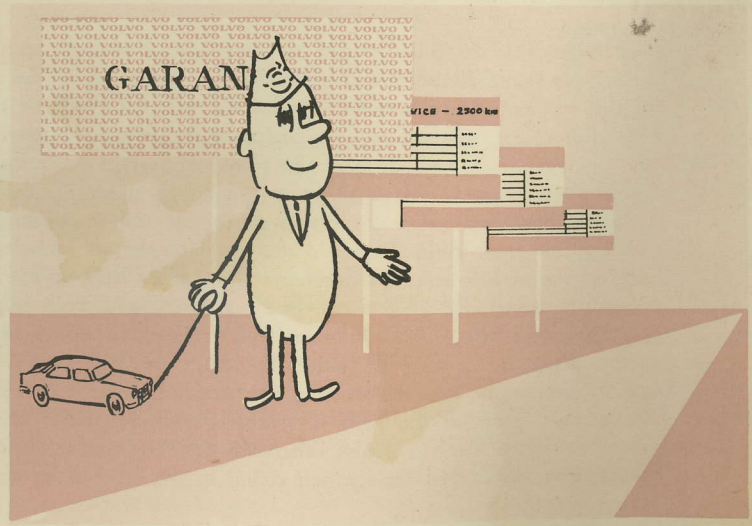
It is not only in your own country that there is a Volvo workshop within easy reach but Volvo also has a widely distributed service network in other countries too.

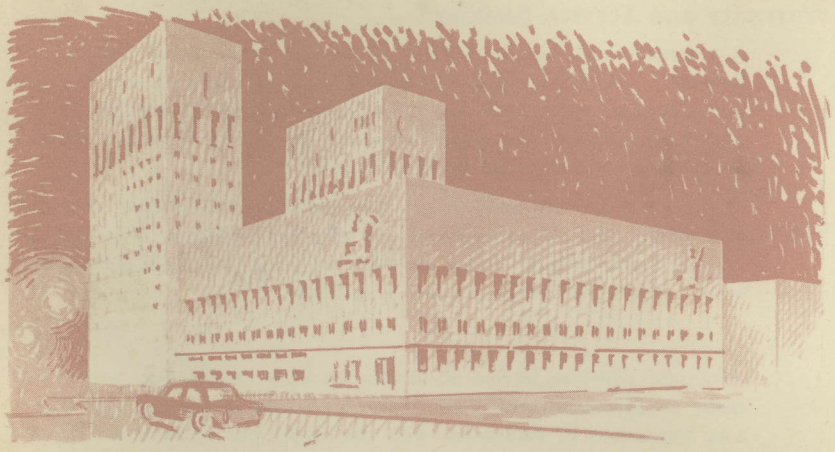
Warranty and Service Booklet

A warranty and service booklet accompanies each vehicle when it is delivered. This book contains a coupon entitling you to a cost-free service inspection after 2 500 km (1 500 miles) running. If possible, let the dealer who supplied the vehicle carry out this service inspection. If necessary, however, any of our dealers can do this.

If our six-month guarantee is to apply, we make one absolute condition and that is that the above-mentioned cost-free inspection is carried out at roughly the mileage shown and that the vehicle has been looked after in accordance with the instructions in this book.

After the cost-free service inspection has been carried out, you should make an agreement with your dealer concerning continued, *regular* service inspections in accordance with the suggestions made in our *Service Book. Thorough and regular servicing is of vital importance for the performance and length of life of the vehicle.*
Always use genuine Volvo spares.



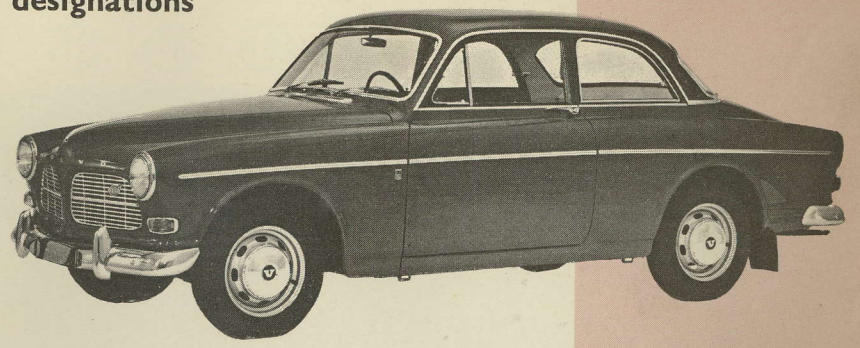


OSLO

General

The Volvo 121/122 S is a two- or four-door, five-seater car. Many colours are available and in each particular case the colour of the internal fittings and upholstery harmonizes with the external finish of the car. In addition to a spacious luggage compartment, where the spare wheel and tool kit are stowed, there is also plenty of storage space inside the car itself, such as a shelf with its own lighting under the dashboard, a recessed hat shelf below the rear window and roomy pockets on the inside of the front doors. Standard equipment on the car includes a trip meter in the speedometer, a windscreen washer and a back-up light which goes on automatically when the reverse gear is engaged. Both front seats are fitted with safety belts. The car is of the integral construction type so that there is no separate frame. The front and rear suspensions as well as the engine and transmission are attached directly to the body. The surface finish of the body is synthetic and the primer used rust-proofs the body. The car is also thiefproof since the connection between the ignition switch and the ignition coil is in the form of an armoured cable.

Type designations



This instruction book deals with vehicles having the following type designations:

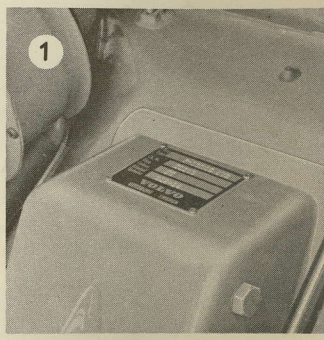
Type designation	*Engine*	*Gearbox*
12134 VL or HL	B 18 A	M 40
12136 VL or HL	B 18 A	AV*
12234 VL or HL	B 18 D	M 40
12235 VL or HL	B 18 D	M 41*
12246 VL or HL	B 18 D	AV*
13134 VF or HF	B 18 A	M 40
13234 VF or HF	B 18 D	M 40
13246 VF or HF	B 18 D	AV*

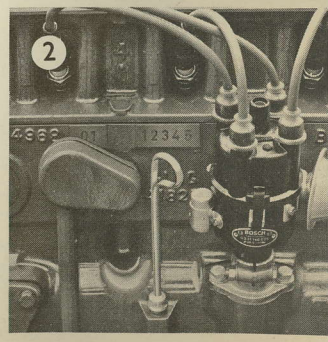
On the USA market, 12234 and 13234 have designations 12244 and 13244 respectively.

1. The vehicle type and chassis number are stamped on a plate attached to the left under the bonnet. The plate also indicates code numbers for colour and upholstery.

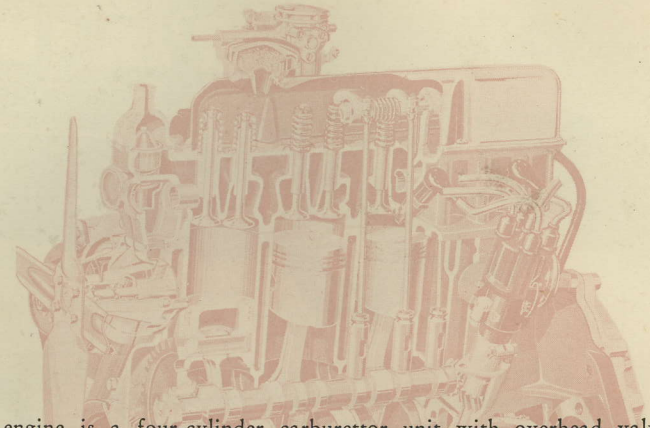
2. The engine type designation, part number and serial number are given on the left-hand side of the cylinder block. The last figures of the part number are stamped on a tab. The serial number follows this with all the figures stamped on. For identifying the engine, both the part number and serial number should be quoted, for example 496801—12345.

*) See separate supplement.





In all correspondence concerning your vehicle with the dealer and when ordering spare parts, the *type designation, chassis and engine number* should always be quoted.



The engine is a four-cylinder carburettor unit with overhead valves. The pistons are made of light-alloy and the upper compression ring on each piston is chromed. The main bearings and connecting rod bearings are replaceable. The crankshaft is statically and dynamically balanced.

Engine type B 18 A has an output of 75 h.p. (SAE) and is equipped with Zenith down-draught carburettor.

Engine type B 18 D has an output of 95 h.p. (SAE) and is equipped with twin SU horizontal carburettors.

Fuel system

The fuel system is fed from the tank to the carburettor by a fuel pump which is driven by a cam on the engine camshaft. There is a filter in the fuel pump which traps water and other impurities in the fuel.

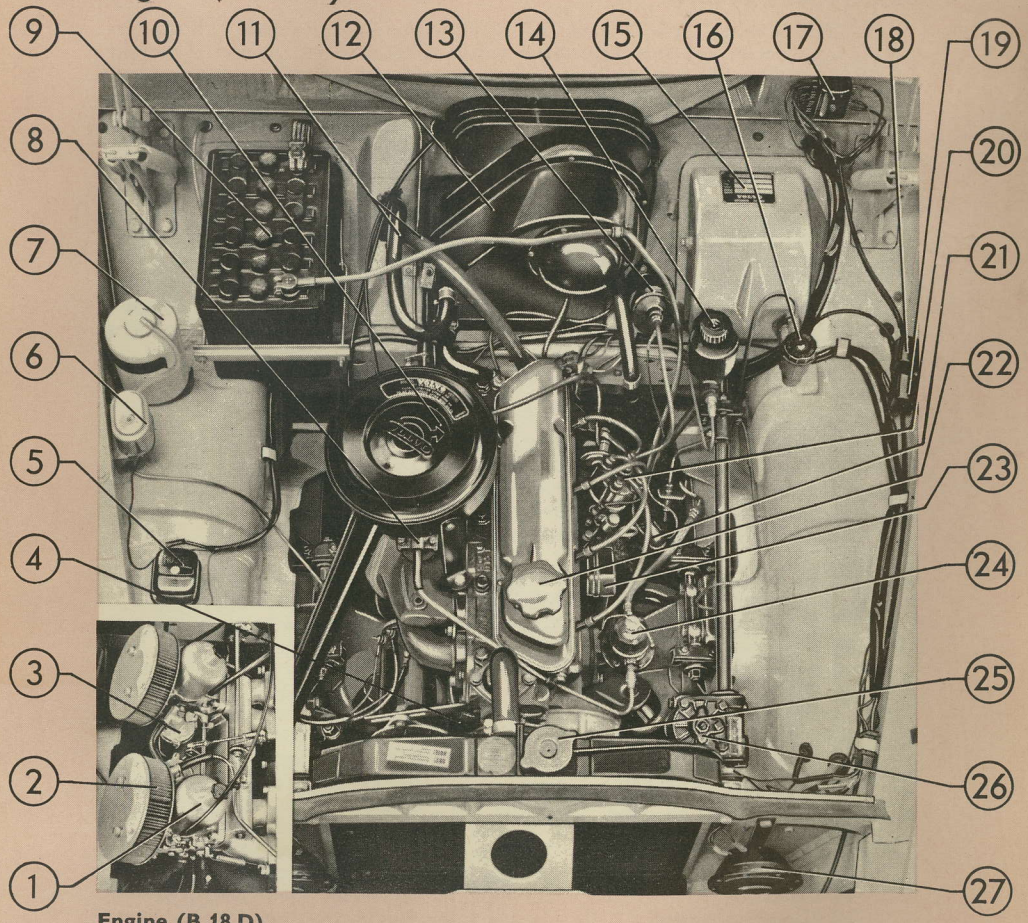
Lubricating system

The engine lubrication is taken care of by a gear pump which sucks up oil from the sump on the bottom of the engine and forces it through the oil filter out to the lubricating points in the engine. A relief valve is built into the oil filter which prevents the oil pressure from reaching excessively high values.

Cooling system

The engine is water-cooled and the cooling system is of the pressure type. Water is circulated by means of a pump fitted on the fan shaft. A thermostat with an opening temperature of about 76° C (169° F) prevents the cooling water from passing through the radiator before the engine has reached its normal working temperature.

Engine (B 18 A)



Engine (B 18 D)

1. Carburettor (B 18 D)
2. Air cleaner (B 18 D)
3. Float chamber (B 18 D)
4. Dynamo
5. Charging control
6. Motor for windscreen washers
7. Fluid container for windscreen washers
8. Carburettor (B 18 A)
9. Battery
10. Air cleaner (B 18 A)
11. Hoses for heater system
12. Heater
13. Ignition coil
14. Brake fluid container
15. Chassis plate
16. Clutch fluid container
17. Fusebox
18. Relay for headlight signal (not USA)
19. Relay for back-up light
20. Distributor
21. Oil dipstick
22. Oil filling cap
23. Oil trap
24. Fuel pump
25. Radiator filler cap
26. Steering box
27. Horn

Electrical system

The electrical system is of the 12-volt type and is fitted with a voltage control dynamo. The starter motor is controlled from the instrument panel by means of the ignition key. This key also forms the main switch for the rest of the electrical system. The cables to the headlights, parking lights and internal lighting, however, are not taken over the ignition switch but can be switched on and off without the ignition key being in position.

Lighting

The lighting on the vehicle consists of two headlights (full and dipped) together with two combined flasher and parking lights. At the rear the lighting consists of two tail lights including flashers, combined lamps for the tail lights and brake warning lights, and the back-up light. Internal lighting consists of a roof light above the rear view mirror and a light for the parcel shelf.

See pages 42—44 concerning replacement of bulbs.

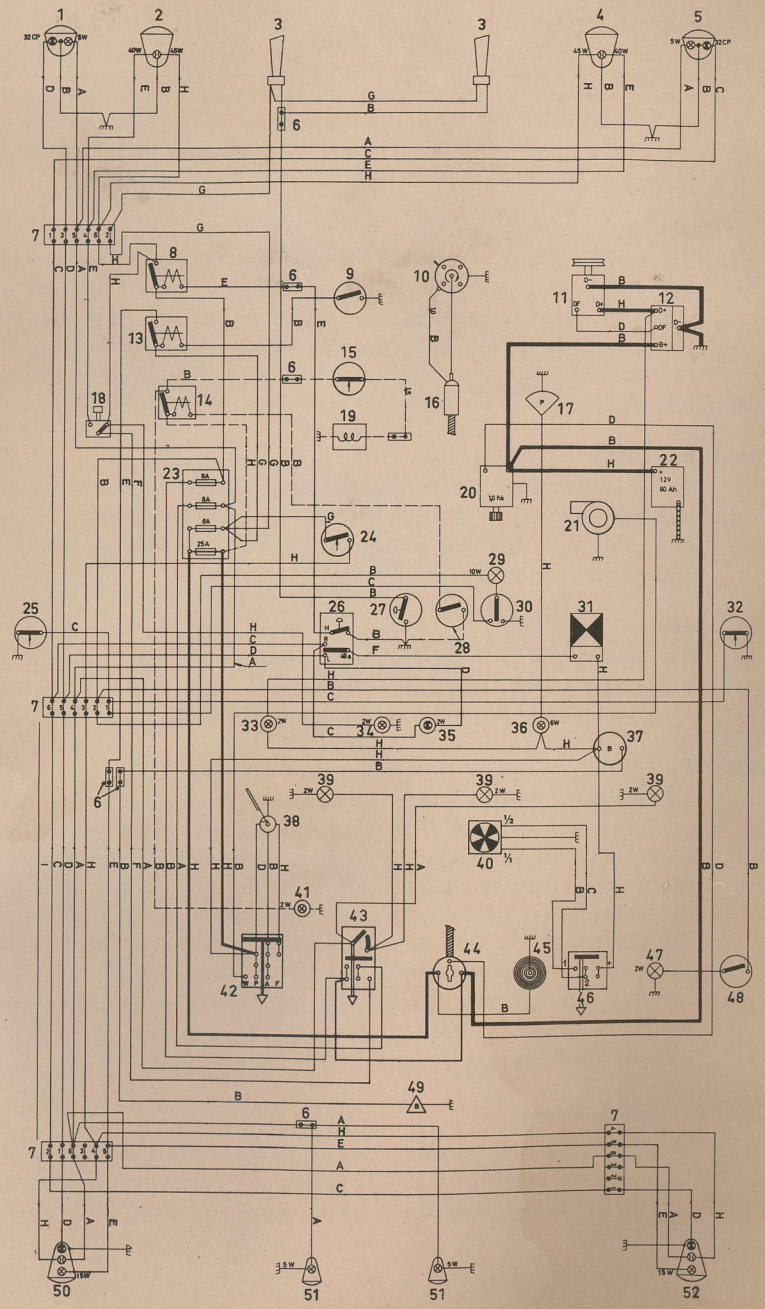
Fuses

The electrical system is protected by means of fuses fitted in a fusebox to the left on the bulkhead under the bonnet. When replacing a fuse, be sure that you use a one of the right rating. If one of the fuses should blow repeatedly, do not fit a more powerful fuse. Instead, take the vehicle to a workshop for a check of the electrical system.

1. Flasher and parking light, left
2. Headlight, left
3. Horn
4. Headlight, right
5. Flasher and parking light, right
6. Connector
7. Junction block
8. Relay for headlight signal
9. Reversing light contact
10. Distributor
11. Dynamo
12. Charging control
13. Relay for reversing light
14. Relay for overdrive[1])
15. Overdrive contact[1])
16. Ignition coil
17. Oil pressure warning indicator
18. Foot dipper switch
19. Solenoid for overdrive[1])
20. Starter motor
21. Windscreen washer
22. Battery
23. Fuse box
24. Brake contact
25. Door contact, left
26. Light signal device
27. Relay for horn
28. Overdrive switch[1])
29. Roof light
30. Switch for roof light
31. Flasher unit, direction indicators
32. Door contact, right
33. Control lamp for charging
34. Control lamp for full-beam headlights
35. Control lamp for direction indicators
36. Control lamp for oil pressure
37. Fuel gauge
38. Windscreen wiper
39. Instrument lighting
40. Ventilation fan
41. Control lamp for overdrive
42. Control for windscreen wiper and washer
43. Lighting switch
44. Ignition switch
45. Cigarette lighter
46. Control for ventilation fan
47. Glove compartment lighting
48. Switch for glove compartment lighting
49. Fuel gauge impulse unit
50. Rear lamp, left, with rear light, stop light, flasher and back-up light
51. Number plate lighting
52. Rear lamp, right, with rear light, stop light, flasher and back-up light

A=White E=Grey
B=Black F=Yellow
C=Blue G=Brown
D=Green H=Red
I = Spare lead

[1]) Applies only to cars equipped with overdrive



Power transmission

Clutch

The function of the clutch is to transmit the power from the engine to the gearbox. The clutch is of the single dry plate type. The pressure plate is operated by means of three release levers operated by the clutch pedal through a hydraulic control system.

Gearbox

The gearbox is used to regulate the speed ratio between the engine and the rear axle so that the engine always operates in its most favourable speed range. The gearbox is synchronised on all the forward gears; this means that gear-changing can be carried out without double declutching. Since the gearbox is fitted with helical gears and the gear lever is rubber insulated, excellent sound insulation is obtained. See page 57 for data.

Propeller shaft

The propeller shaft, which is the connecting link between the gearbox and the rear axle, is divided into two sections. The forward section is journalled at its rear end in a bearing housing supported by two rubber-bushed bolts. See page 57 for data.

Rear axle

The driving power of the engine is transmitted from the propeller shaft to the rear wheels through the rear axle. The rear axle is of the hypoid type, i.e. drive pinion is below the centre line of the drive shafts.

Brakes

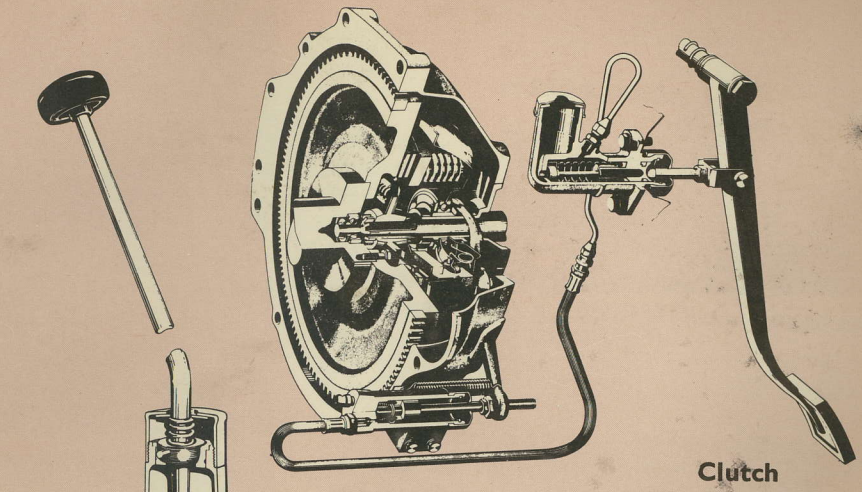
The vehicle is equipped with disc brakes at the front and drum brakes at the rear as standard. The brake system is also provided with a reducer valve, which prevents involuntary locking of the rear wheels.

The footbrake system is hydraulic and influences all four wheels. The hydraulic system consists of a fluid-filled master cylinder which, when the brake pedal is depressed, transmits the brake pressure through the brake fluid in the lines to the wheel unit cylinders. The plungers in these are then pressed outwards and apply the brake shoes or brake pads respectively.

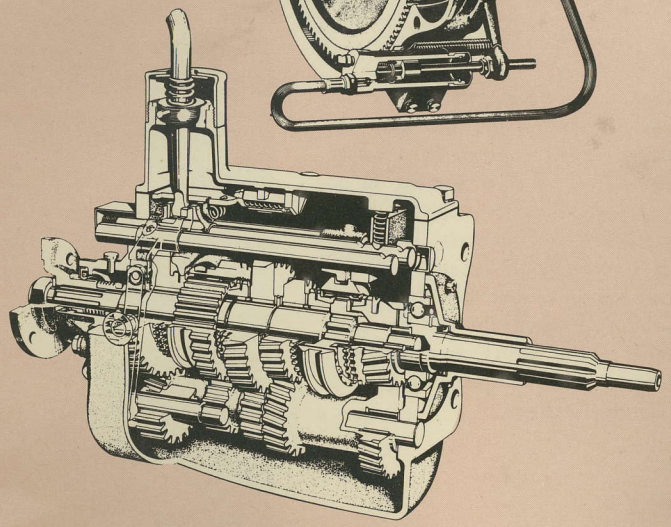
The handbrake system operates mechanically on the rear wheels.

Wheels and tyres

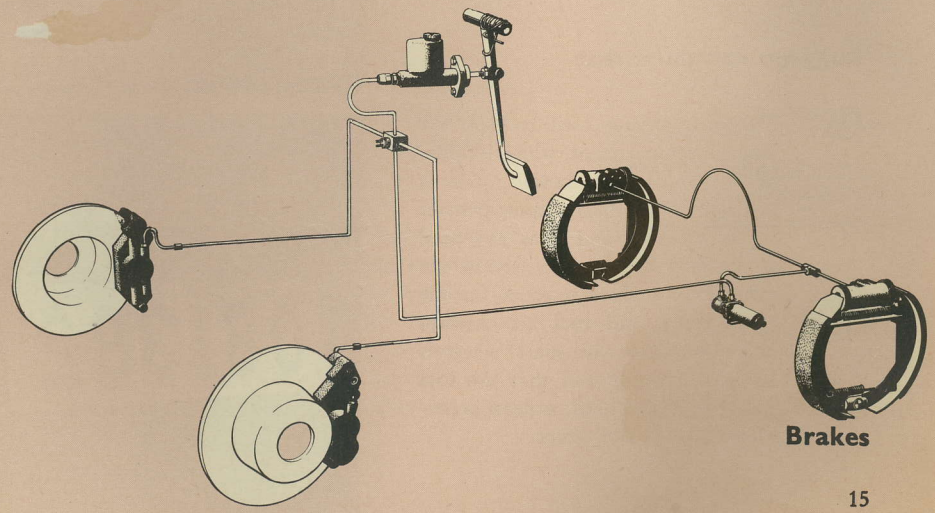
The vehicle has pressed steel wheels with lugs for the attachment of the hub caps. All wheels are carefully balanced and the tyres are of the tubeless type. Vehicles with the B 18 D engine are fitted with tyres size 165 S 15.



Clutch



Gearbox



Brakes

Body

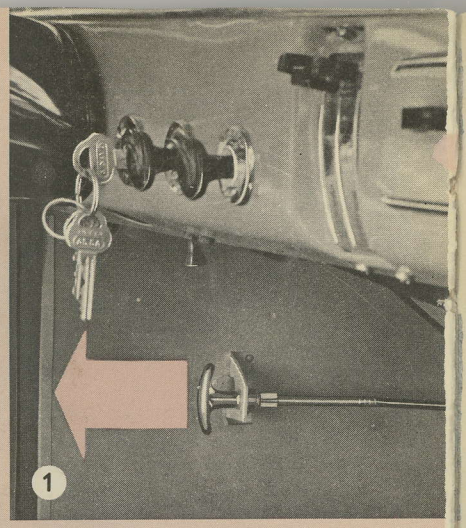
Bonnet

① The bonnet is fitted with a catch which is operated from the driving seat through a handle located to the left under the instrument panel. The bonnet catch is released by pulling the handle out.

② When the bonnet catch handle has been released inside the car, the bonnet is still retained by a safety catch. After this is pressed in as shown, the bonnet can be lifted up. When the bonnet is closed the bonnet catch is automatically locked and cannot be lifted until the handle inside the car has been pulled again. Check to make sure that the bonnet is properly secured when it is closed.

Luggage compartment

③ The door key is used to lock the luggage compartment, which is opened by pressing the handle upwards as shown. The luggage compartment lid is balanced and does not need to be held up. To the left in the compartment there is room for the spare wheel and tool kit. Always make sure that the spare wheel is fastened securely and that the tool kit is firmly stowed, otherwise irritating rattles can occur.



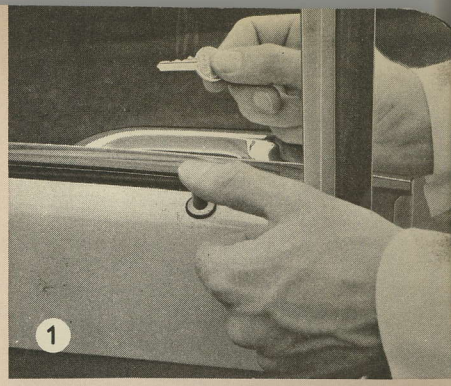
Doors and locks

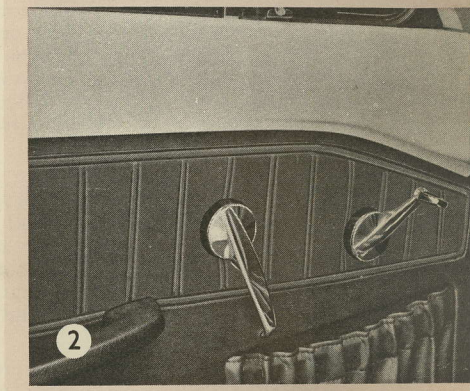
① There is a lock with a keyhole on each of the front doors. The doors are opened by pressing in the button. All the doors can be locked from inside the car by pressing down the lock buttons on the window ledge. On the rear doors, this button must first be pulled up before the doors can be opened from the inside. This is an important safety factor if children are alone in the back. All the doors can be locked by pressing down the internal lock button and then closing the doors. *Do not leave the keys in the car, otherwise you can easily lock yourself out.*

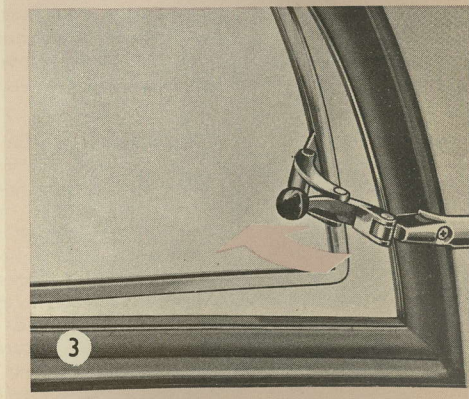
② The doors are opened from the inside by turning the handle to the rear. The ventilation windows are opened by pressing in the lock stud and turning the handle upwards.

③ The rear side windows of two-door cars can be partly opened by setting the handle at the rear edge in different positions.

In order to prevent freezing-up of the locks, a suitable anti-freeze agent should be used in cold weather. If the locks are already frozen, be careful not to break the key. Instead, heat it with a match or similar and place it quickly into the keyhole.







Should you lose the car keys, contact your nearest Volvo dealer for new keys and quote the code number of the keys. Remember to note the key number in the appropriate place on the last page of this book.

Front seats

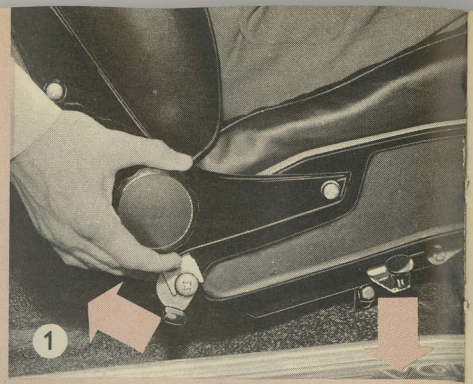
① The front seats can be slid backwards or forwards after the knob on the outside of the seat is pressed down. Exert leverage with your feet on the floor and slide the seat to the desired position.
If necessary, the seats can be moved 25 mm (1″) further to the rear than permitted by the slide rails by using the extra holes in the seat frames.
The backrest inclination of the front seats is smoothly adjusted by means of an adjuster knob located at the outside of the seat frame at the bottom.

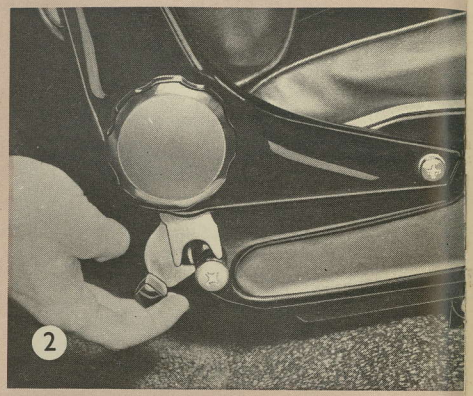
② On the two-door model the backrest is locked in the raised position by means of a catch. In order to tip the backrest forwards the catch at the rear edge of the seat frame must be lifted backwards and upwards.

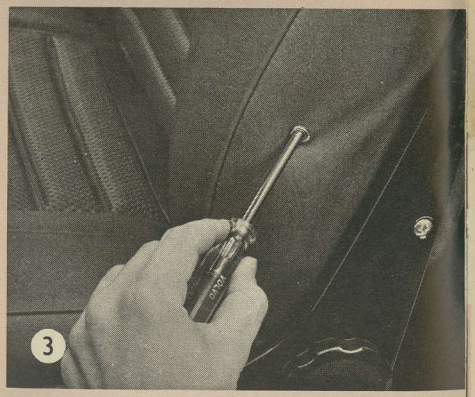
③ The front seat is also provided with an adjustable lumbar support. For adjusting this, the backrest is provided with holes on both sides. To tension the lumbar support, turn the screw clockwise and vice versa.

④ The inclination of the whole seat can be adjusted with the eyelet screw at the front under the seat. Slacken the screw which goes through the eyelet and tip the seat backwards as shown in the figure. Then slacken the locknut on the floor and screw the eyelet screw upwards or downwards to the desired height. Then secure the eyelet screw with the locknut.
The whole seat can also be raised or lowered, which is done as follows: Remove the seat cushion, unscrew the bolt on the seat frame attachment and then place it in one of the other holes in the bracket.

⑤ The front seat backrest has built-in attachments for fitting a headrest.







Safety belts

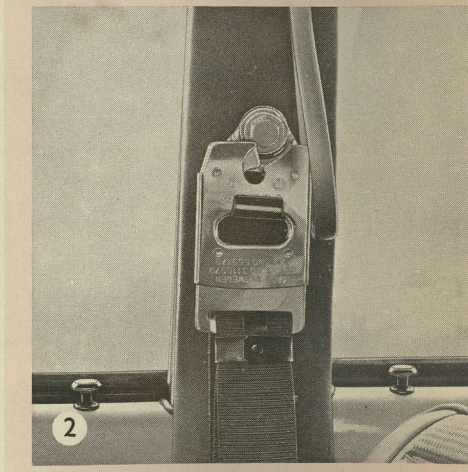
Standard on this vehicle includes safety belts for both the front seats. Utilise this simple but effective safety device. The practical design of the belt type used means that you get used to putting on the belts as an automatic procedure before starting the engine.

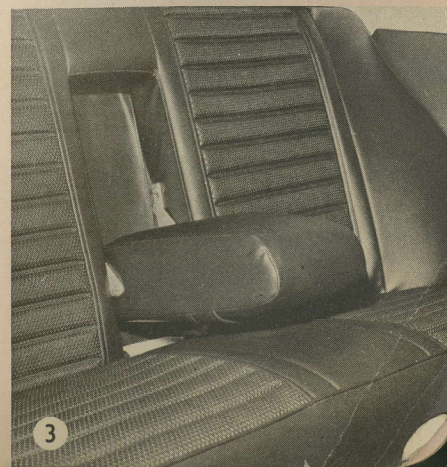
① The length of the belt can be adjusted at the outer, lower attachment. Adjust the belt so that it fits over the body easily.
When the belt is to be used it is removed from the retaining device on the door pillar and then placed with one part round the waist and the other part over the shoulder and chest and then locked in the anchorage between the front seats.

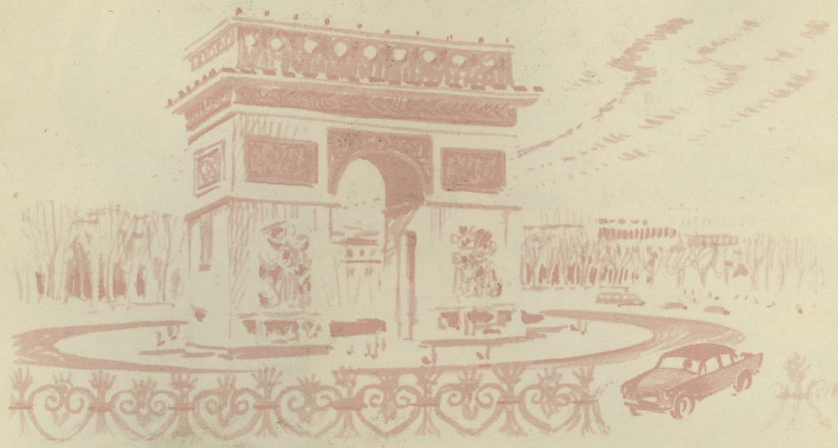
② The belt is removed by pressing in the trigger and lifting up the hook. Make a habit of always hanging up the belt when not in use. If it is allowed to lie on the floor it will become dirty and frayed and will hinder getting in and out of the vehicle.
Check now and then that the bolts which hold the belt are properly tightened. If the belt has become dirty it can best be cleaned with water and synthetic washing agent. Petrol and similar must not be used since this can cause stains.
As the safety belts lose much of their strength when exposed to stretching, they should be replaced after a collision even though they may appear to be undamaged.

Rear seat

③ The rear seat is provided with a folding armrest in the middle.







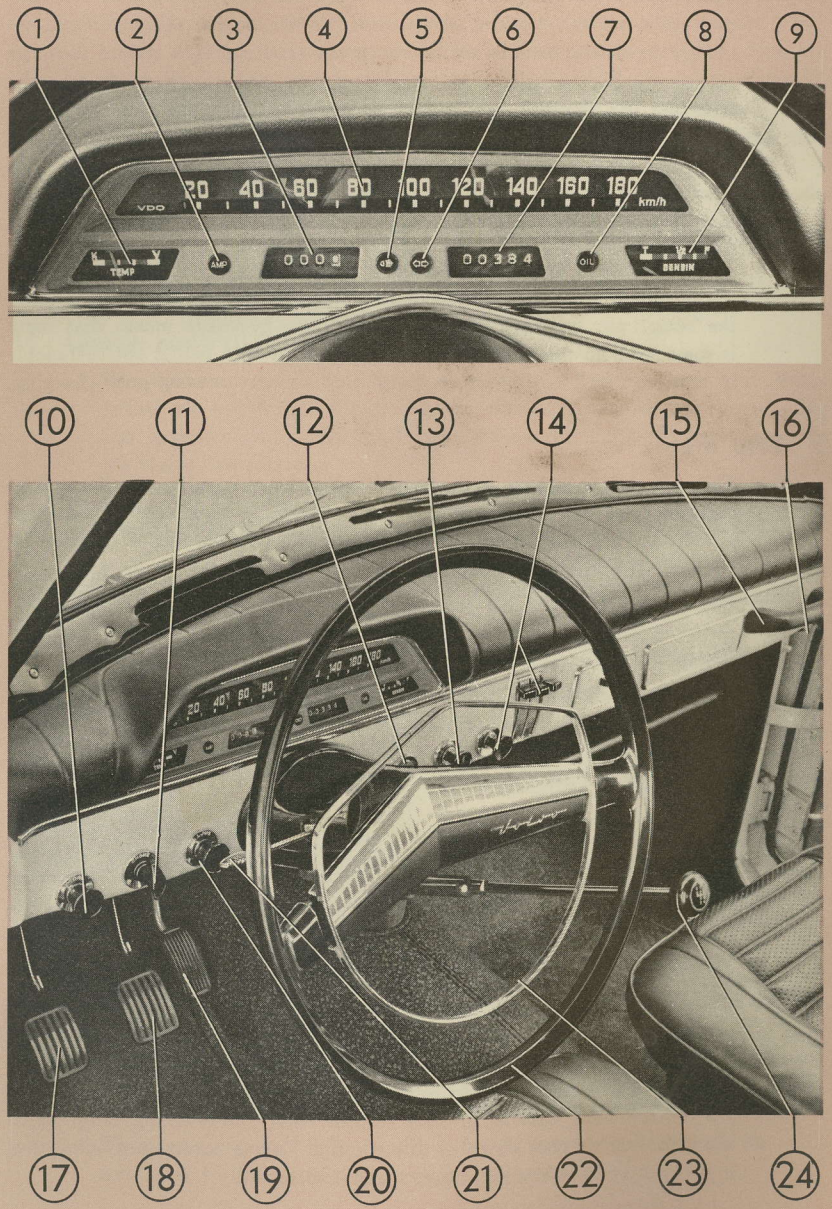
PARIS

Instruments and operating controls

Before you start the engine, sit behind the wheel and carefully check through all the instruments and controls. The location of these is shown in the illustration. The instruments and operating controls are described in more detail on the following pages with reference to the numbers in the illustration.

Immediately after starting, and now and then while driving, you should glance at the instruments and check that they are showing normal readings according to the values stated.

1. Temperature gauge
2. Warning lamp, charging
3. Trip meter
4. Speedometer
5. Warning lamp, full headlights
6. Warning lamp, directional signals
7. Mileometer
8. Warning lamp, oil pressure
9. Fuel gauge
10. Control for windscreen wiper and washer
11. Choke control
12. Ignition switch and starter contact
13. Cigarette lighter
14. Heater controls
15. Grab handle
16. Switch for glove box lighting
17. Clutch pedal
18. Brake pedal
19. Accelerator pedal
20. Lighting switch
21. Direction indicator switch
22. Steering wheel
23. Horn ring
24. Gear lever



1 Temperature gauge

The temperature gauge shows the temperature of the cooling system and thus indicates the working temperature of the engine. The indicator on this gauge should remain within the green marking. If it should show an excessively high temperature for a long time, this can depend upon the fact that the channels in the cooling system are blocked and circulation is thus being hindered. In such cases the cooling system should be cleaned (see page 40).

2 Charging control lamp

This lamp lights up when the battery is discharging, this being normal at idling speed. If you accelerate a little, this lamp should go out. Should the lamp light up while you are driving, this generally means that there is some fault in the electrical system or that the fan belt is not sufficiently tensioned and is slipping on the pulley, thereby causing poor charging.

3 Trip meter

This trip meter, which is graduated in tenths of a mile, can be used to measure even short distances. The meter can be reset to zero by means of a twist knob placed under the instrument panel to the left of the steering column. The knob is turned first to the right and then back to the left again.

4 Speedometer

The speedometer has a horizontal indicator, the right hand point showing the speed at which you are travelling. Since the length of the red strip is proportional to the speed, this is in itself a safety factor — the more red you can see, the more dangerous your speed.

7 Mileometer

The mileometer shows the total distance covered in miles. At a reading of 99 999 miles the mechanism returns to zero and starts to go round again.

8 Oil pressure warning lamp

When you switch on the ignition, this lamp should light up and then go out again when the engine has been started. *Should the lamp remain on while you are driving*, the engine should be stopped immediately and the cause for this determined. In most cases it means that the oil level is too low. After hard driving it may happen that the warning lamp lights when the engine goes down to idling speed. This is normal providing that it goes out again when the engine speed is increased.

10 Control for windscreen wiper and washer

The control for the windscreen wipers and washers has four positions. When pressed in, the control is shut. When pulled out one step, the windscreen wipers operate at normal speed. When pulled out two steps, the windscreen wipers move more quickly. When pulled out fully, the windscreen washers are also operated. (Not standard on USA cars.) When the control is pressed in again, the wiper blades stop when they have reached their normal position.

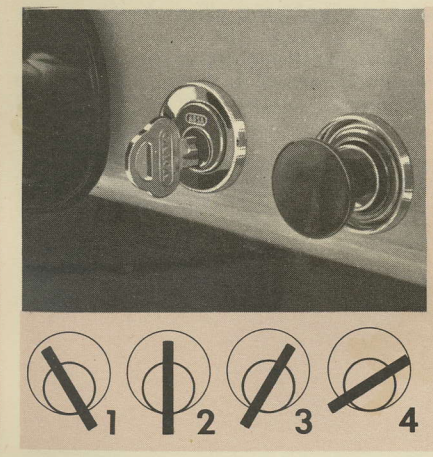
The liquid container for the windscreen washers is placed under the bonnet and holds about one litre (1¾ Imp. pints = 2 US pints).

Never allow the wiper blades to operate on a dry and dusty surface since the glass and blades can then easily be scratched.

11 Choke control

The choke control is used when the engine is started from cold. When pulled out approx. 10 mm (⅜"), the control influences the throttle flap and increases idling speed. When pulled out further, the control enriches the fuel — air mixture.

12 Ignition switch



1. "Radio" position
In this position, the complete electrical system of the vehicle with the exception of the engine ignition system, is switched on.

2. Neutral position

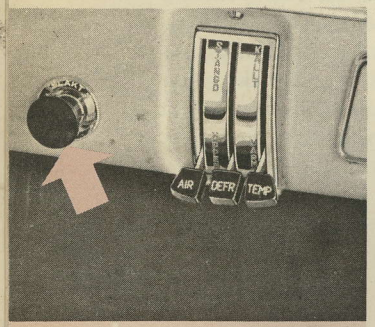
3. Driving position

4. Starting position
To start the engine, turn the key to this position which engages the starter motor.

13 Cigarette lighter

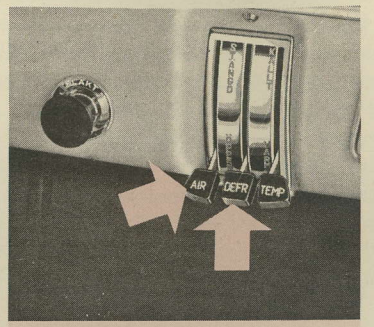
To use the cigarette lighter, push it in. As soon as it has heated up sufficiently, it will automatically spring out backwards.

14 Heater and ventilation system



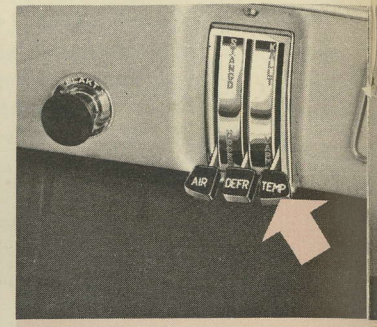
Switch for fresh air fan

Pushed right in — closed
Interm. pos. — full output
Fully out — half output



Air flow

AIR = Air to front seat floor
DEFR = Air to windscreen and to rear seat floor

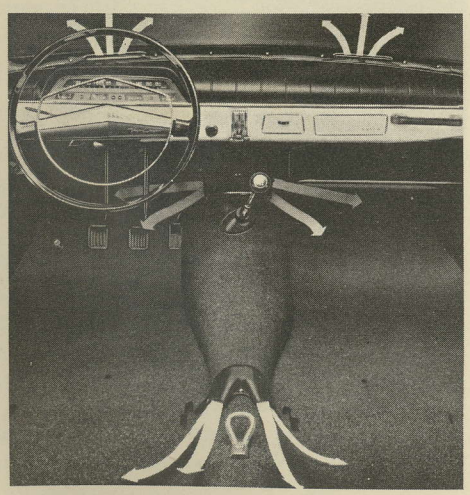


Sliding control for air temp.

This control is used to regulate the temperature of the incoming air.

The heating and ventilation system of the car is operated as shown above. Air is sucked in by the fan and then passes through a heater element to a distributing chamber where it is distributed to the floor and windscreen by means of the controls. Providing the speed of the vehicle is not too low, sufficient air-flow is obtained even when the fan is not running.
The heater element is connected with a thermostat which keeps the temperature constant. When the temperature control is moved there will be a slight delay before the heater element adjusts itself to the desired temperature.

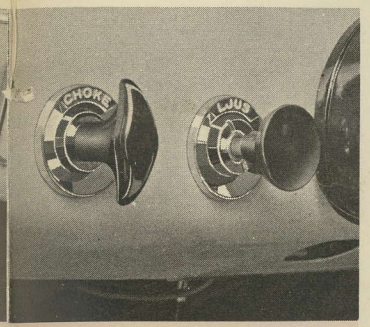
The figure shows the air duct to the rear seat and the air distribution in the vehicle when both the "AIR" and "DEFR" controls are used.



Misting on the windows

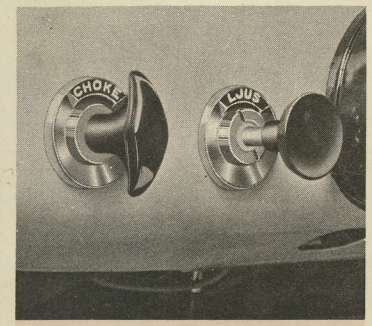
During cold or damp weather mist can easily form on the windows, particularly with a full number of passengers. The best way of getting rid of this or to avoid it altogether is to open the ventilation windows partly or fully.

20 Lighting switch



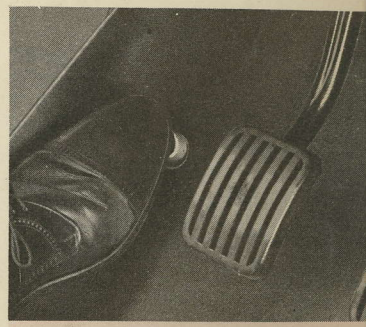
Parking lights

(Lighting switch pulled out one notch)



Dipped headlights

(Lighting switch fully out and foot dipper switch in dipped position)



Full headlights

(Lighting switch fully out and foot dipper switch in full position)

The headlights are switched from full to dipped and vice versa by depressing the dipper switch with your foot.

Instrument lighting

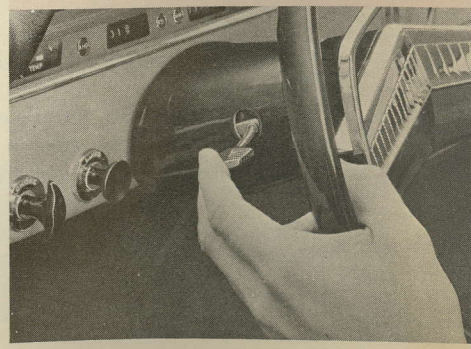
The instrument lighting is regulated by turning the lighting switch knob. The more this knob is turned clockwise, the stronger the instrument lighting will be.

Interior lighting

1. The lamp lights when the left-hand door is opened.
2. The light is off all the time.
3. The light is on all the time.

Direction indicator switch lever

The direction indicators are controlled by means of the switch lever to the left under the steering wheel.



The driving of your Volvo should not cause you any difficulties whatsoever. You will soon find that everything has been arranged so that you can drive in comfort without sacrificing safety. Keep your eye on the road the whole time. The instruments themselves look after the function of the vehicle and the warning lights will immediately inform you if any fault should occur.

Stop the vehicle immediately if something should go wrong. It may be just a minor point, but if it is not remedied in time it can cost you time and money.

9 driving hints = 9 lives for your vehicle

1. Use your brakes sensibly.
2. Adapt speed to prevailing road conditions.
3. Follow the running-in instructions carefully.
4. Do not use the clutch pedal as a foot rest.
5. Do not let the engine labour.
6. Use the gearbox to maintain engine speed at a favourable level.
7. Think of your tyres.
8. Never drive when oil pressure is low.
9. Never subject the engine to heavy loading until the normal working temperature has been reached.

Running-in

When your Volvo is new you should naturally not drive it too hard. The first period is very important, since the vital parts in the car must be properly bedded in to withstand future stresses. Do not use full engine output for more than short periods during the first 500 km (300 miles). During the running-in period, before the engine parts are properly bedded in, oil consumption may be in excess of normal. This is quite in order.

Keep an eye on the cooling water temperature

Since the moving parts in a new engine do not have the contact they gradually wear into, heavy loading can easily cause high engine temperatures. Always keep an eye on the temperature gauge during the running-in period.

Warranty inspection

After 2 500 km (1 500 miles) running, the vehicle should be taken to a Volvo workshop for the cost-free warranty inspection. The control and adjusting procedure then carried out also includes an oil change in the engine. It is very important to ensure that this oil change is carried out since during the first period the engine oil usually collects a lot of impurities.

After 5 000 km (3 000 miles) running, the vehicle should be given all-round lubrication and the oil in the engine, gearbox and rear axle should be changed. At the same time as the engine oil is changed, the oil filter element should also be replaced.

All Volvo engines are test-run before being delivered, partly on test benches and partly in the vehicles on test tracks. We are therefore assured that all clearances are satisfactory and we can thus accept no responsibility for seizing of pistons or bearings due to careless running-in.

Starting the engine

B 18 A (Zenith carburettor)

1. Depress the clutch pedal and turn the ignition key to the starting position. Release the key as soon as the engine has started.
2. *If the engine is cold,* pull out the choke control fully or partly depending on the outside temperature. As soon as the engine has started, the choke control should be pushed in until the most suitable idling speed is obtained. As the engine becomes warmer, the control should be pushed in more and more. When the engine is thoroughly warm, the control should be pushed right in.
3. *When starting a warm engine* the choke control must not be used. Proceed according to (1) above. If the engine does not start immediately, depress the accelerator pedal slowly but fully and hold it there until the engine has started. Never "pump" with the accelerator pedal.
4. As soon as the oil pressure warning lamp has gone out, driving can be started.

B 18 D (twin SU carburettors)

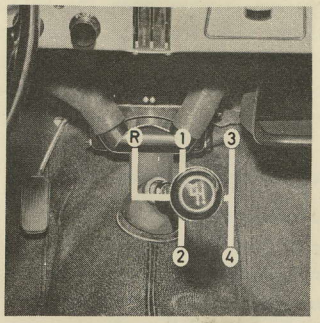
1. Depress the clutch pedal, pull out the choke control fully and turn the ignition key to the starting position. Release the key as soon as the engine has started.
   As soon as the engine begins to run, the choke control should be pushed in until the most suitable idling speed is obtained. As the engine becomes warmer, the choke control should be pushed in more and more.
2. *When starting a thoroughly warm engine* the choke control need not be used. When the engine is moderately warm, the choke control need only be pulled out slightly.
3. As soon as the oil pressure warning lamp has gone out, driving can be started.

Warming up the engine

Experience has shown that engines in vehicles used with frequent stopping and starting are subject to abnormally rapid wear. The reason for this is that the engine does not maintain its normal working temperature. The result is that corrosive acids are formed. When the engine is cold, it should thus be taken up to its normal working temperature as quickly as possible.

After starting a cold engine do not race it immediately but run it at moderate speed and do not subject it to heavy loading until the engine temperature has reached its normal level.

Gear-changing



Gear positions for 4-speed gearbox
The gearbox is fully synchronized on all gears. If this synchronization is to function perfectly, the clutch pedal must be fully depressed and the gear lever held for a moment in the neutral position while changing gear.

If the engine is to function in the best possible way it is important to ensure that the point at which gear-changing is carried out is suited to the speed in such a way that the engine speed is maintained within certain limits, neither too high nor too low. If the engine speed is excessively low, there is poor pulling power and unfavourable loading on the engine and the power transmission. If the engine speed is too high, on the other hand, this means that fuel consumption goes up, engine pulling power decreases and acceleration will be no better.
As a rule the most economical running is obtained if gear-changing is carried out roughly in the middle of the speed ranges shown. If more rapid acceleration is desired, however, the range for each speed shown can be taken to its upper limiting value.
Never let the engine labour in high gear but change down in good time. If you require greater pulling power, however, and the engine is running easily with light acceleration, this naturally does not prevent you from changing down earlier than shown in the table.

Recommended speeds, km.p.h. (m.p.h.)

Engine	1st speed	2nd speed	3rd speed	4th speed
B 18 A	0—40 (0—25)	15—65 (10—40)	25—95 (15—60)	35— (22—)
B 18 D	0—45 (0—30)	20—75 (15—47)	30—105 (20—65)	40— (25—)
B 18 D overdrive	0—40 (0—25)	15—75 (10—47)	30—105 (20—65)	35— * (22—)

* 70 km.p.h. (45 m.p.h.) with overdrive engaged

Starting in a garage

If you start your vehicle in a garage, always open the garage doors before starting the engine. The exhaust gases from the engine contain the poisonous gas carbon monoxide which is particularly dangerous since it is both invisible and odourless. Air containing only 0.1—0.2 % carbon monoxide can be fatal if breathed in for half-an-hour.

Driving with the luggage compartment lid open

While driving with the luggage compartment lid partly or fully open, exhaust gases (and consequently also carbon monoxide) can be sucked into the car through the luggage compartment, particularly if a window is open. Normally this involves no risk for the passengers, but for the greatest safety the following advice should be followed:

1. Keep all windows closed.
2. Set the fresh air and defroster levers to fully open and the fan control to full speed.

Braking

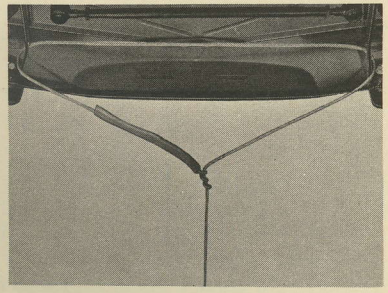
You should attempt to use the brakes as little as possible. Use the engine as a brake instead by releasing the accelerator pedal in good time. Violent braking is only justified in dangerous situations and even in such cases the wheels must not be locked. Remember that the best braking effect is obtained if the wheels continue to rotate slowly.

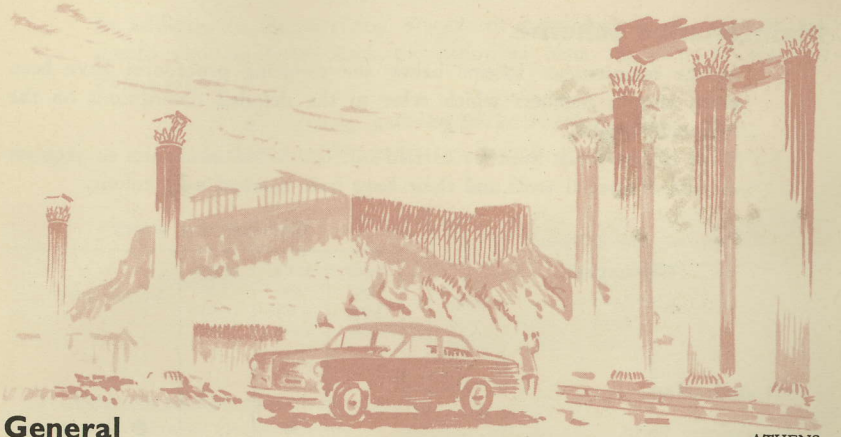
Steady acceleration and gentle braking are characteristic for a good driver and also result in the most economic running. Apply the brakes *before* going into a curve and use your gearbox on downhill gradients so that you save unnecessary wear on both brakes and tyres.

When air humidity is high it can happen that moisture gets into the brake linings and this can cause the brakes to bind when applied. The best way to eliminate this is to carry out a long, gentle braking whereby the moisture will evaporate through the heat developed.

Towing

If the vehicle is to be towed, the tow-line should not be attached directly to the bumpers, but should be taken round the bumper supports. While the vehicle is being towed, the tow-line should be kept evenly stretched since violent jerks can damage the bumpers.





ATHENS

General

Before the vehicle was delivered from the factory it was subjected to a very thorough inspection. Your dealer, in his turn, carried out a further delivery inspection in accordance with the specifications of the Volvo factory. In addition to this there is the cost free service inspection after 2 500 km (1 500 miles). After this inspection the servicing of the vehicle should follow the routine in the *service book* which is based on a *rubber stamp* system with all-round lubrication after every 5 000 km (3 000 miles) and service inspections after every 10 000 km (6 000 miles) running.

The simplest (and in the long run most profitable) way to give the vehicle the servicing it requires is to have all the servicing done by a Volvo workshop. You will then have all the work shown in the service book carried out in accordance with fixed prices and the workshop stamp in the service book will show how the vehicle is being serviced — this is also extremely important as far as second-hand value is concerned.

When designing the car particular attention has been paid to the "safety details" (e.g. suspension, brakes and steering). They are calculated to withstand the severest stresses with a wide safety margin. However, if you use your car for hard driving, you should take the precaution of checking these parts for fatigue cracks sometime during the car's useful life, for instance when the parts concerned are reconditioned.

If you prefer to carry out the simpler servicing procedures yourself or if you are sometimes obliged to have them done by a workshop outside the Volvo organization, this chapter contains some advice as to when and how they should be carried out.

For the sake of convenience, the servicing procedures have been summarised in a maintenance scheme on the following pages.

Maintenance scheme

In the maintenance scheme below the servicing procedures have been given certain numbers which refer to the detailed descriptions on the following pages.
Some of the work must be carried out by skilled mechanics or requires the use of special tools and these have been marked with colour.

Operation	Carried out every: 5 000 km 3 000 miles	10 000 km 6 000 miles	20 000 km 12 500 miles	See note below
Lubrication				
1 Lubricate body		●		● Once a year
2 Check oil level in engine				When tanking
3 Change oil in engine	●			Spring and autumn
4 Check oil level in gearbox	●			
5 Change oil in gearbox	●[1]			● 40 000 km (25 000 miles)
6 Check oil level in rear axle	●			
7 Change oil in rear axle	●[1]			● 40 000 km (25 000 miles)
8 Check oil level in steering box	●			
9 Check brake fluid level	●			
10 Check level of clutch control fluid	●			
Engine				
11 Clean oil filler cap		●		
12 Replace oil filter	●[1]	●		
13 Clean fuel filter		●		
14 Clean air cleaner (B 18 A)		●[2]	●	
15 Change air cleaner (B 18 D)			●	
16 Check valve clearances		●		
17 Carry out compression test		●		
18 Check fan belt tension		●		
19 Check cooling water level				When tanking
20 Clean cooling system				Spring and autumn
21 Check sparking plugs		●		
22 Change sparking plugs			●	

[1]) Only after the first 5 000 km (3 000 miles) [2]) Oil-bath type

In addition to the servicing procedures mentioned in this scheme you should also regularly check the following from the point of view of traffic safety:

a) lighting, including brake warning lights
b) direction indicator flashers
c) horn

Operation	Carried out every: 5 000 km 3 000 miles	10 000 km 6 000 miles	20 000 km 12 500 miles	See note below
23 Check distributor contact breakers		●		
24 Check ignition timing setting		●		
25 Clean and check carburettor		●		
Electrical system				
26 Check electrolyte level in battery				
27 Check state of charge of battery		●		When tanking
28 Check headlight alignment		●		
Power transmission				
29 Check clutch yoke travel		●		
30 Check propeller shaft			●	● Once a year
Brakes				
31 Check and overhaul brakes		●		
Front end				
32 Check front wheel alignment		●		
33 Check ball joints, steering rods, etc.		●	●	● Once a year
Wheels and tyres				
34 Check tyre pressure				When tanking
35 Tighten wheel nuts		●		
Body				
36 Washing				See page 48
37 Polishing				See page 48
38 Anti-rust treatment				See page 50
39 Cleaning				See page 50

Lubrication

Lubrication is the most important procedure in servicing a vehicle. The cost of lubricant is insignificant compared with the cost of repairs caused by neglected lubrication.

All metallic surfaces, no matter how finely ground they are, consist of extremely small uneven points. If two ground surfaces are pressed together and rubbed, the uneven surfaces will engage in each other and result in friction and wear. If these two surfaces are separated by a thin coating of oil, however, the friction disappears and with it the wear. This is exactly what happens when bearings, pistons and gears in the vehicle are lubricated. The oil or grease actually prevents the metallic surfaces from coming into direct contact with one another.

This means that from a purely theoretical viewpoint the metallic surfaces in a motor vehicle are never subject to wear and it should be sufficient to lubricate them once. Unfortunately this is not so in practice. The uneven surfaces are worn down more and more and the minute particles released contaminate the oil which also becomes partially carbonized. It is thus impossible to avoid wear completely, but wear can be decreased and prevented to a very large extent by *regular* and *careful* lubrication.

Chassis maintenance

To simplify maintenance of your Volvo, the vehicle has been equipped with ball joints, steering rods and propeller shaft of such a design that they do not require regular lubrication. This has been possible due to the fact that points which normally require lubricating have been packed with very durable grease at the factory and then carefully sealed, thus obviating the need for lubrication.

However, in order to be certain that these parts are functioning properly, it is necessary to inspect thoroughly their seals and rubber sleeves after every 20 000 km (12 500 miles) or at least once a year.

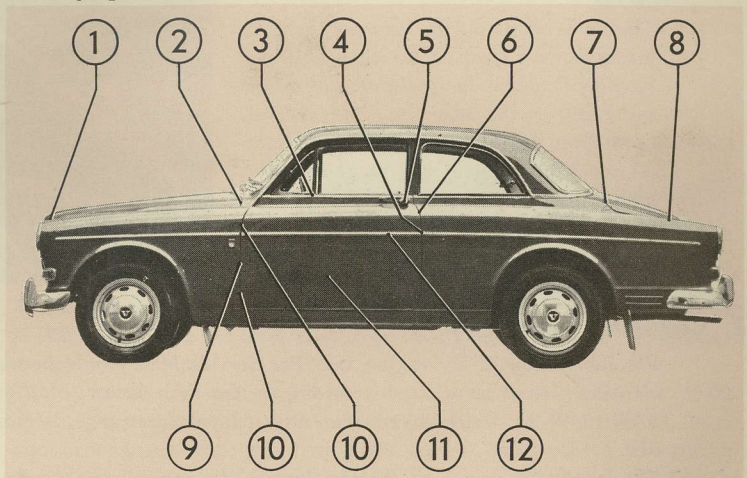
Oil should be changed or the oil level checked after every 5000 km (3000 miles) in accordance with the lubricating chart at the end of the book. After every 10 000 km (6 000 miles) the vehicle should undergo the 10 000 km (6 000 miles) inspection at a Volvo workshop. The measures taken during this inspection are also to be found in the lubricating chart.

You should follow the recommendations of the Service Booklet, which are based on Volvo's own investigations. Use only first-class lubricants of a well-known make. The *right* lubricant in the *right* quantity at the *right* time will increase both the lifetime and reliability of your car.

1 Body lubrication

In order to avoid squeaks and unnecessary wear, the body should be lubricated about once a year. The door locks and door handle buttons should, however, be lubricated more frequently, about every 10 000 km (6 000 miles).

During the winter season the door locks and luggage compartment lock should be treated with a suitable anti-freeze agent to prevent them from freezing up.



No.	Lubricating point	Lubricant
1	Bonnet catch	Paraffin wax
2	Bonnet hinges	Oil
3	Ventilator window catches and hinges	Oil
4	Catches	Paraffin wax
5	Door handle lock buttons	Paraffin wax
	Keyholes	Silicon oil
6	Door locks	Silicon oil
7	Luggage compartment hinges	Oil
8	Luggage compartment lock	Oil
9	Door stops	Paraffin wax
10	Door hinges	Oil
11	Driving seat rails and catches	Paraffin wax and oil
12	Window lifts	
	Locks	Oil and grease
	(Accessible after removal of door panels).	Silicon grease

9 Brake fluid

10 Clutch control fluid

The fluid level in the brake and clutch control hydraulic systems should be checked after every 5 000 km (3 000 miles). The fluid should be up to the level marks in the containers. Use brake fluid for both systems.

Engine

11 Oil filler cap

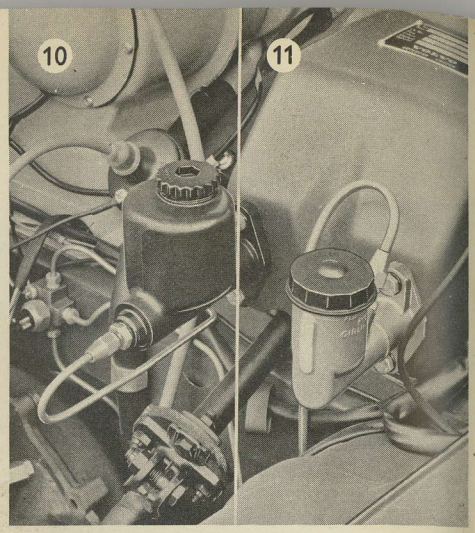
The oil filler cap is fitted with a filter for the evacuation of water vapour and gas that leaks past the piston rings. If this filter becomes blocked by dust from the air passing in, there will be excessive pressure in the crankcase and this can lead to oil leakage. This filter must therefore be cleaned after about every 10 000 km (6 000 miles).

12 Oil filter

The oil filter collects the impurities in the oil and thus gradually becomes blocked. This means that the filter must be replaced at regular intervals, for example after every 10 000 km (6 000 miles). This should preferably be done by a Volvo workshop. If the filter is replaced without the engine oil being changed, the engine should be topped up with 0.5 litre (7/8 Imp. pint = 1 US pint) of oil.

13 Fuel filter

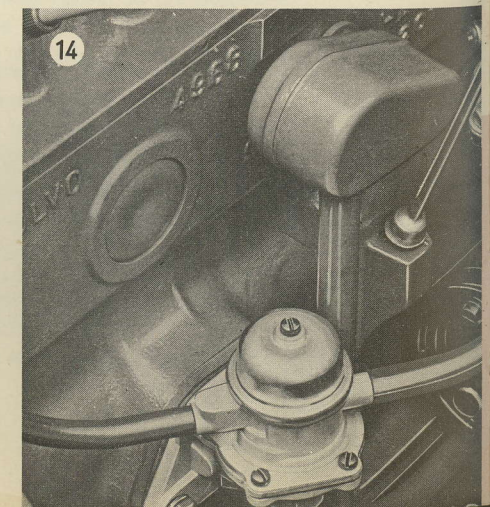
The fuel filter should be cleaned after every 10 000 km (6 000 miles). Loosen the screw and remove the cover and strainer and clean these. When refitting the cover make sure that the gasket seals properly.



Brake fluid

The brake fluid used in the hydraulic brake system must come up to the standards laid down in SAE 70 R 3.

From the point of view of traffic safety it is extremely important to ensure that poor quality brake fluid is not used in the hydraulic brake system. A top-quality brake fluid must satisfy strict conditions, concerning resistance to cold and heat and must have no detrimental effect on the rubber components in the brake system.



14 Air cleaner (B 18 A)

Air cleaner with paper element

The air cleaner should be replaced with a new one after every 40 000 km (25 000 miles). With continuous driving in dusty conditions replacement must be carried out more frequently. When changing the air cleaner the sealing ring against the carburettor should be checked.

NOTE. On no account must the element be moistened or oiled.

Oil-bath type air cleaners

These should be cleaned every 10 000 km (6 000 miles). When driving in dusty conditions, it may be necessary to do this more frequently. Remove the upper part and the inner container and empty out the old oil. Wash all parts in white spirit and then place the container in the cleaner. Fill up with engine oil (the same type as used in the engine) to the level mark in the inner container.

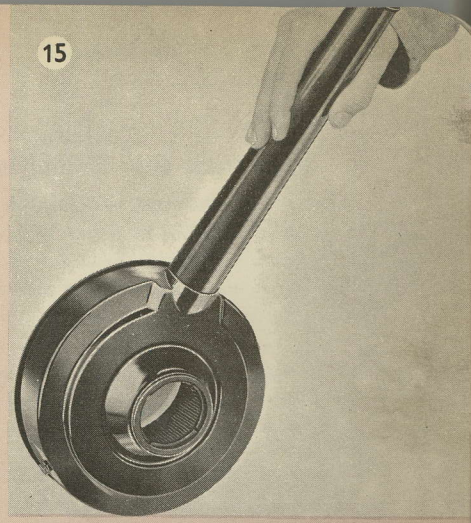
NOTE. Never pour oil into the lower part itself.

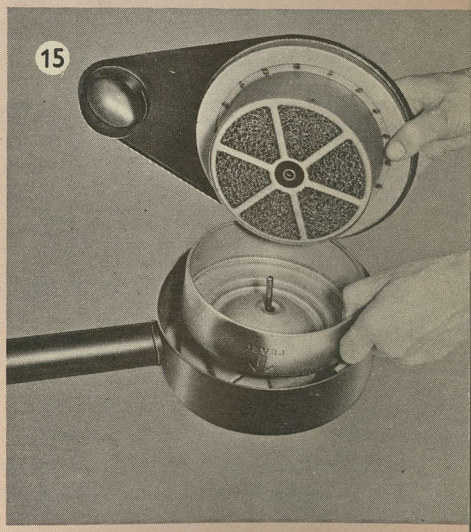
15 Air cleaners (B 18 D)

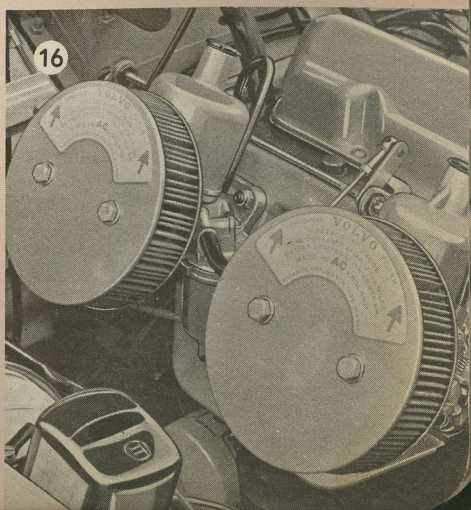
The air cleaners of the SU carburettors should be replaced with new ones after every 20 000 km (12 500 miles). The old ones should be discarded since the cleaner and element are made as a unit.

18 Fan belt

The fan belt tension should be checked at a Volvo workshop after every 10 000 km (6 000 miles). Incorrect tension can result in poor dynamo output.







19 Check the cooling water level

The engine cooling water level should be checked each time the fuel tank is filled. Water is added through the filler opening at the top of the radiator. In order to avoid deposits in the cooling system, only clean water should be used (not water containing chalk or iron), together with some rust-preventive additive. Do not use rust-preventive agents based on mineral oil since these can damage the rubber hoses in the cooling system. Never add cold water to a hot engine. The sudden change in temperature can cause cracks in the engine.

Be careful when removing the radiator filler cap. There are two positions on the cap when loosening it, one to decrease pressure in the system and the second to remove the cap itself.

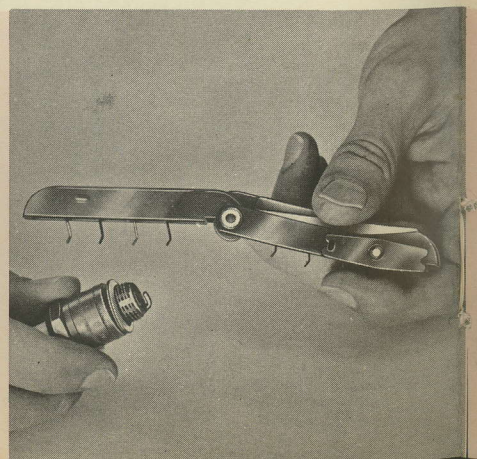
20 Clean the cooling system

If the cooling system is to function in an effective manner, all the channels in the engine and radiator must be free from deposits and impurities. The deposits that build up consist of the salts which are always present in normal water.

Cleaning can be conveniently carried out in connection with filling or draining of anti-freeze in the autumn and spring, (see page 52). If necessary, however, the cooling system should be cleaned more often.

21 Check the sparking plugs

The sparking plugs should be checked in a Volvo workshop after every 10 000 km (6 000 miles). The plugs should be cleaned by using a brush or a sandblaster and should then be blown well clean with compressed air. The electrode gap can be checked by using a wire gauge with a diameter of 0.7—0.8 mm (0.028—0.032″). After the sparking plugs have been cleaned and adjusted they should be thoroughly tested.



22 Replace the sparking plugs

When the electrodes have been burnt down about 50 %, all the sparking plugs should be replaced. This corresponds to a driving stretch of about 20 000 km (12 500 miles). This replacement should preferably be carried out at a Volvo workshop where the sparking plugs are tightened with a torque wrench to about 3.5 kgm (25 lb.ft.). When fitting new sparking plugs, be sure to fit the right type (see page 56). Consult a Volvo workshop if you consider fitting another type of plug.

23 Ignition system

24 The distributor contact breaker gap and the engine ignition timing setting should be checked in a Volvo workshop after every 10 000 km (6 000 miles). All adjusting work should be done by the workshop which has the necessary equipment for this purpose. The distributor is one of the most sensitive units in the engine and careless handling can lead to decreased engine output and high fuel consumption or even serious damage to the engine.

Petrol

The fuel used should be petrol with an octane value of at least 97*. If petrol with too low an octane value is used, knocking or glow ignition can result.

When delivered from the factory, the engine is adjusted for fuel having an octane rating of at least 97*.

*) Research Method Rating

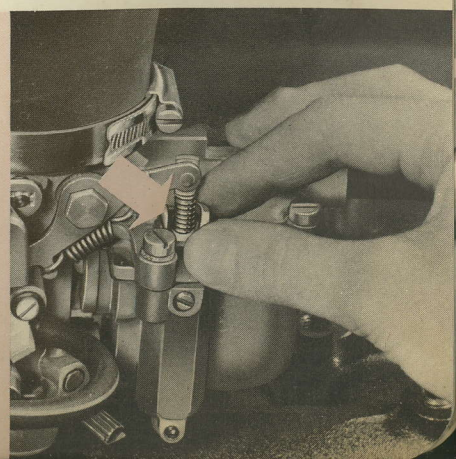
25 Carburettor

After every 10 000 km (6 000 miles), the vehicle should be taken to a Volvo workshop for the carburettor to be thoroughly cleaned and checked.

Acceleration pump (B 18 A)

The carburettor is fitted with an acceleration pump and the length of the pump stroke is determined by a cam plate which can be adjusted for short or long strokes by lifting the plate and turning it half a turn.

The best acceleration performance is obtained when the arm is towards the lower cam lobe. This will, however, also result in increased fuel consumption.



Electrical system

26 Check the battery electrolyte level

The electrolyte level should be checked when the fuel tank is being filled. The electrolyte level should be 5—10 mm (3/16—3/8") over the top of the cell plates. Top up with distilled water if necessary. Never add too much distilled water since this can cause the acid to splash over and result in corrosion on the parts of the engine around the battery. *Never check the electrolyte level by lighting a match.* The gases formed in the cells are very explosive.

27 Check the state of charge of the battery

The state of charge of the battery should be checked after every 10 000 km (6 000 miles). This check is carried out with the help of a hydrometer, this showing the specific gravity of the electrolyte which varies with the state of charge, see page 57. During the winter the state of charge must be checked more often since a fully charged battery is more resistant to frost damage than a half charged one.

28 Check headlight alignment

The alignment of the headlights should be checked in a Volvo workshop after every 10 000 km (6 000 miles). Remember that the section of the road lit up by the headlights can vary depending on the loading of the vehicle.

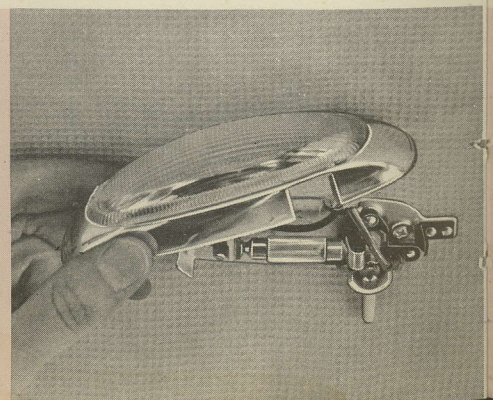
Replacement of bulbs

The replacement of bulbs in the various lighting units is shown on the following pages. Some of the bulbs have two functions, for example the headlight bulbs which have filaments for both full and dipped lights. The guide pins on the sockets of these bulbs are either of different thickness or they are staggered so that the bulbs can only be fitted in one definite position. Certain makes of bulbs have a *"Top"* mark on the socket and this should be turned upwards.

Replacing the roof light bulb

When replacing the roof light bulb the lamp shade is pulled straight out.

When fitting headlight bulbs do not touch the glass with your fingers. The reason for this is that grease, oil or any other impurities can be carbonized onto the bulb and this can cause damage to the reflector.



Replacing the headlight bulbs

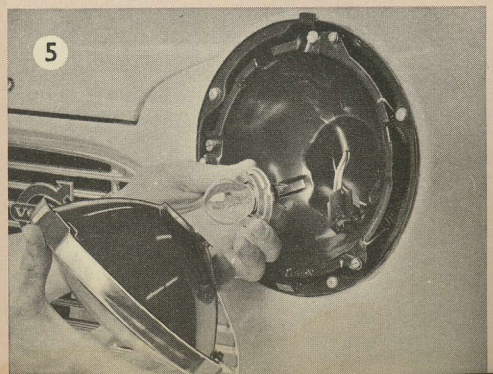
① Loosen the screw on the underside of the rim with a screwdriver.

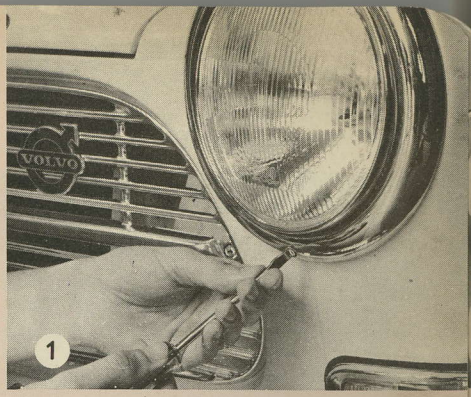
② Pull out the bottom part of the rim slightly and then lift upwards so that the retainer catch releases its grip. (Do not pull the headlight rim so far forwards that the catch at the top becomes bent, otherwise water can penetrate and damage the reflector.)

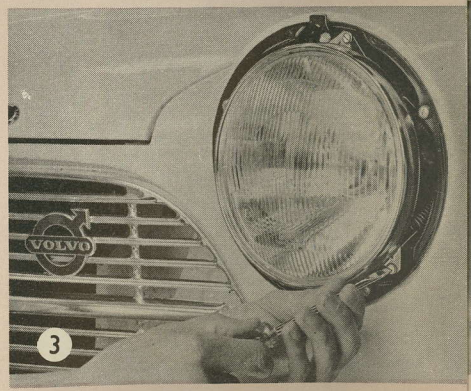
③ Loosen the three screws retaining the insert. It is not necessary to remove these screws completely. The insert can now be removed by turning it in an anti-clockwise direction.

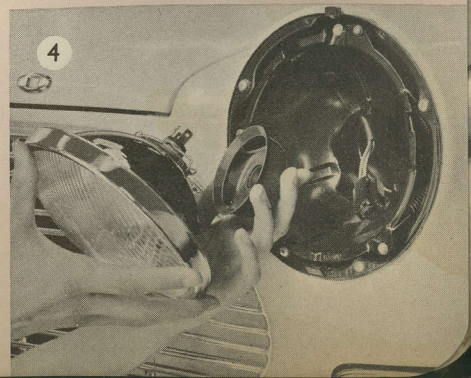
④ Loosen the small springs retaining the above holder and remove it.

⑤ Take out the bulb holder and loosen the bulb by pressing it inwards and turning it in a clockwise direction at the same time. When fitting a new bulb, remember that the socket pins have different widths. When refitting the bulb holder in the insert make sure that the small retainer engages in its notch.
(In the case of Sealed Beam headlights, follow the instructions shown in the pictures 1—5 and disconnect the contact for the bulb holder, after which the bulb and holder are replaced.)

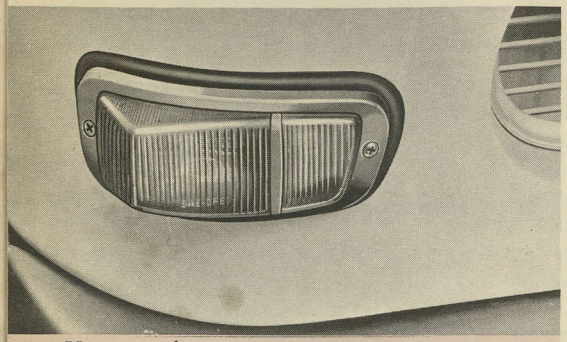




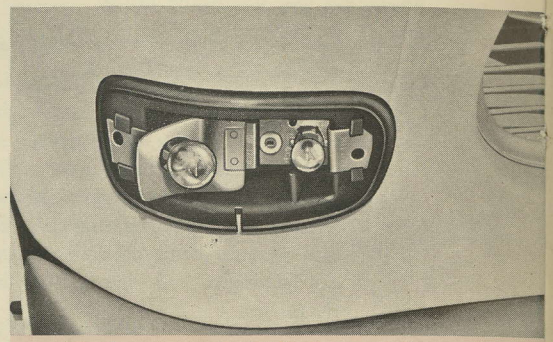




Replacing the bulbs in the front parking lights/flashers

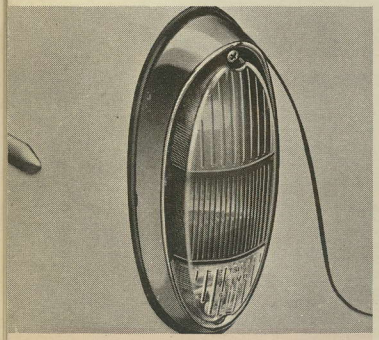


Unscrew the two screws by means of a Philips screwdriver and lift off the glass and the metal frame. The bulbs can now be removed by pushing in and twisting anti-clockwise.

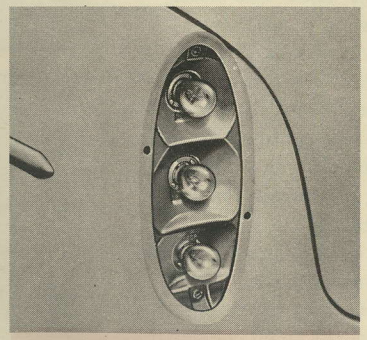


The larger one is the flasher and the smaller one the parking light. See that the glass seats properly on the gasket.

Replacing the bulbs in the rear flashers, stop/tail lights and back-up lights



Unscrew the two screws, one at the upper and one at the lower end of the lighting fixture, by means of a Philips screwdriver and lift off the glass and the metal frame. The bulbs can now be removed by pushing in and twisting anti-clockwise. The top bulb



is the flasher, the middle one the combined stop/tail light, and the bottom one the back-up light. See that the glass seats properly on the gasket when assembling the fixture. The untinted part of the glass should be at the bottom.

Replacing the bulbs in the number plate lighting

The number plate lighting is built into the handle on the luggage compartment lid with one bulb on each side of the emblem. The bulbs are accessible from the inside of the lid. The bulb holder is loosened by pressing in the spring and can be pulled out for removal of the bulb.

Power transmission

29 Checking the free travel of the clutch yoke

In order to prevent the clutch from slipping, the free travel of the clutch yoke must be checked regularly and adjusted if necessary after 10 000 km (6 000 miles) of operation. If the clutch does not disengage in a satisfactory way, the free travel of the clutch pedal must be checked. See the data on page 57.

The clutch should be checked and adjusted at a Volvo workshop since these workshops have the necessary equipment.

30 Check the propellor shaft

Every 20 000 km (12 500 miles) the rubber seal on the spline shaft should be checked as well as the universal joints. If the rubber seal is damaged, it should be replaced and the new seal filled with molybdenum disulphide grease before fitting. The universal joints should be replaced if they show any sign of leakage.

Brakes

31 Check and overhaul the brakes

After every 10 000 km (6 000 miles) running the vehicle should be taken to a Volvo workshop for controlling the function of the brakes.

As the rear wheel brake linings become worn the brake shoes must be adjusted in order to obtain satisfactory braking effect.

The disc brakes on the front wheels are self-adjusting.

In connection with this check the brakes should also be inspected for wear.

Front end

32 Check the front wheel alignment

Correct front wheel alignment is of vital importance for the steering of the vehicle. Faulty adjustment can also mean heavy wear on the tyres.

Have the front wheel alignment checked at a Volvo workshop at regular intervals, for example after every 10 000 km (6 000 miles). If the vehicle has been involved in a collision or heavy impact and it is suspected that the front end may have been affected, take the vehicle to a workshop for a check of the front wheel alignment as soon as possible. The front wheel alignment angles are shown on page 58.

33 Check the ball joints, tie-rod, etc.

After every 10 000 km (6 000 miles) the vehicle should be taken to a Volvo workshop for a check of the front end concerning excessive play in the ball joints, steering gear, etc. After every 20 000 km (12 500 miles), or at least once a year, the ball joint seals should also be checked for damage and leakage. When new seals are fitted they should be filled with chassis grease.

Wheels and tyres

34 Air pressure

Make a habit of checking the air pressure in the tyres regularly. The best way to do this is to check the pressures every time you fill the fuel tank. See page 58 for the correct air pressures. Do not forget the spare wheel when you check the air pressure. Even if this wheel is not used, the air pressure can go down and you may find that the tyre is flat just when you need it. Size 6.00—15″ tyres are not intended for speeds exceeding 160 km.p.h. (100 m.p.h.) while 165 S 15 tyres are approved for speeds up to 175 km.p.h. (110 m.p.h.).

For prolonged driving at speeds above 140 km.p.h. (90 m.p.h.) the air pressure in both these tyres should be increased by 0.3 kg/cm² (4.5 lb/sq.in.).

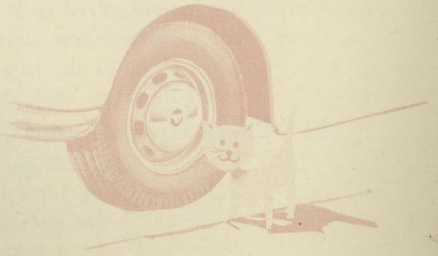
Excessively low air pressure is one of the most usual reasons for wear. If pressure is too low, the outer edges of the tread take the whole loading and wear down very quickly. Insufficiently inflated tyres also result in difficult steering and high fuel consumption.

Excessively high air pressure means tyre wear along the centre of the tread. It also means that the tyre cannot stand up to impact, which results in severe tyre damage.

35 Tighten the wheel nuts, etc.

After every 10 000 km (6 000 miles) the wheel nuts should be tightened to a torque of 10—14 kgm (72—100 lb.ft.). The wheels should also be balanced at the same time if this proves necessary.

If inspection of the tyres shows that there are particularly worn spots and unusual wear on the tread, take the vehicle to a Volvo workshop for the wheels to be balanced.



Avoid damaging your tyres on pavement kerbs.

Changing a wheel

Before the vehicle is jacked up, the handbrake should be applied and one of the gears engaged to make sure that the vehicle stands still. Lay a couple of stones or chocks in front of and behind the wheels that remain on the ground.

Removing

1 Lever off the hub cap with the help of the spade-shaped lever.

2 Loosen the wheel nuts slightly with the help of the box spanner and tommy bar. All the wheels have nuts with right-hand threads which are loosened by turning in an anti-clockwise direction.

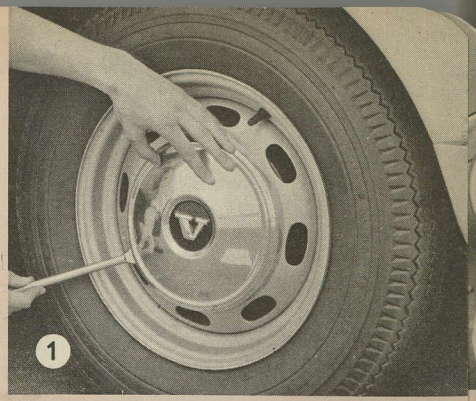
3 Insert the lifting claw of the jack in the appropriate jack attachment of the wheel to be changed. Lift up the side of the car far enough for the wheel to turn freely.

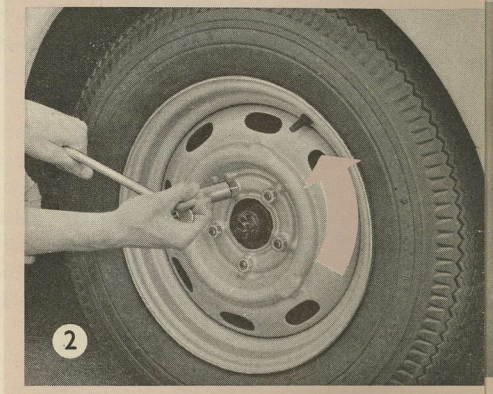
4 Unscrew the wheel nuts completely and lift off the wheel. Be careful when lifting off the wheel so that the threads of the studs are not damaged.

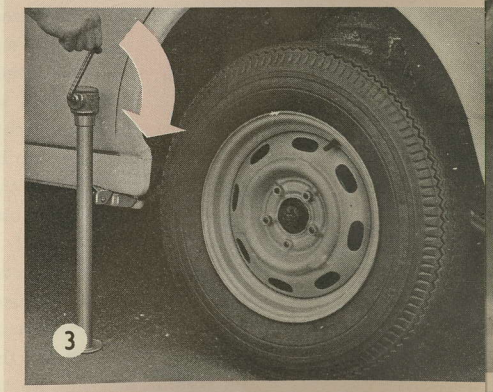
Fitting

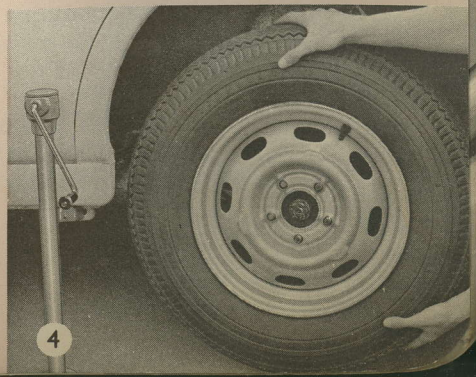
Fit the new wheel and tighten the nuts until the wheel is in good contact with the hub flange. Then lower the vehicle and tighten the nuts finally. Tighten the nuts alternately.

Fit the hub cap by striking it smartly with the hand opposite the last of the lugs to engage.









Body

36 Washing

When the vehicle is new it should be washed often to harden the surface finish. Otherwise the vehicle should be washed as soon as it is dirty or dusty. If dust and dirt are allowed to remain in contact with the surface finish for any length of time, damage can result.

While the vehicle is being washed it should stand where it is not in direct sunshine since this can cause drying patches. First rinse off the underside of the body with a jet of water and use a soft brush if necessary. Then rinse down the entire body with a fairly *light* jet until the dirt has loosened up. Then wash off the dirt with a sponge using *plenty* of water.

If washing with water alone is not sufficient, washing agents can be used. Be very careful when choosing a washing agent since some of them are detrimental to the surface finish.

Spots of tar, etc. can be removed by using paraffin. If the vehicle has white side-wall tyres, these can be cleaned by scrubbing them with washing agents, scouring powder or, in the worst cases, fine sandpaper. After washing, clean the vehicle carefully with a soft, *clean* chamois leather.

Use a different leather for the windows, otherwise greasy smears can be caused.

37 Polishing (waxing)

The vehicle does not need polishing until the surface finish begins to lose its lustre and normal washing is not sufficient to make it shine again. Polishing will also remove any deposits on the surface finish. Under normal conditions it is sufficient to polish the vehicle a couple of times a year on condition that it is carefully looked after and thoroughly washed as soon as it has become dirty or dusty.

The vehicle should be carefully washed and dried before being polished. If polishing is carried out on a dirty or dusty surface, the surface finish can easily be scratched. Do not polish in direct sunshine since this can result in a smeary surface.

Polishing a couple of times a year is generally sufficient to give the surface finish the maintenance it needs. If you want to wax the vehicle, be very careful to ensure that the surface is absolutely clean before a layer of wax is applied. Be very careful when using solvents since in many cases these can damage the surface finish. *Waxing may not be carried out until at least six months after the vehicle has been delivered.*

Use a good quality polish intended for synthetic finish. Never polish or wash the vehicle in direct sunshine since the result can be a smeary surface. Be careful when choosing washing agents.

Touching-up damage on the surface finish

The touching-up of any extensive damage to the synthetic finish requires the use of special equipment and skill, so that the repairing of any such damage should be entrusted to a Volvo workshop. Any minor damage caused by flying stones, etc. and small scratches can, however, be attended to by the owner himself.

Damage caused by flying stones requires immediate treatment. Therefore make a habit of checking the finish and carrying out touching-up work regularly — for example when washing the car.

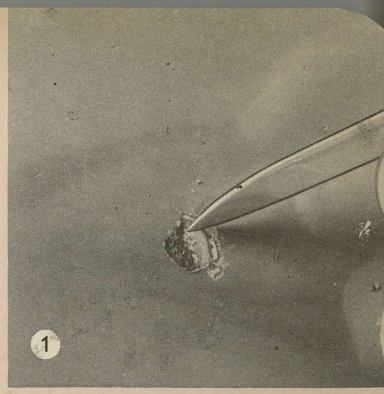
Volvo dealers can supply suitable touching-up paint. *Always check that you get exactly the right colour.*

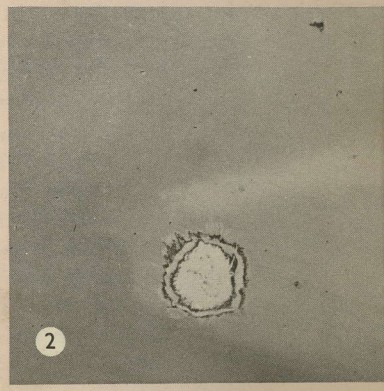
1 Scrape the damaged surface absolutely clean with a penknife or other sharp object. Carefully remove any loose flakes of paint and "chamfer off" the edges round the damaged surface.

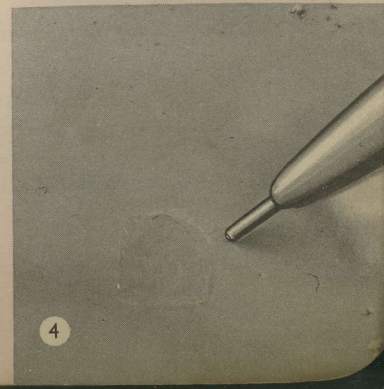
2 The figure shows a damaged spot scraped clean with "chamfered" edges ready for touching-up.

3 In the event of severe damage due to flying stones it is necessary to treat the spot with anti-rust primer. This can be applied with a matchstick or fine brush. The primer should cover the whole of the scraped and "chamfered" surface.

4 When the anti-rust primer has dried, genuine Volvo paint is applied. Stir the paint well (not with the brush). Apply several thin coats of the paint, allowing it to dry thoroughly between each application.







Chromed parts

The bumpers, the radiator grille and the hub caps are chromed and should be washed with clean water as soon as they are dirty. This is particularly important if you drive a lot on gravel roads which are treated with chemicals to keep the dust down or if you drive near the sea. After washing you can apply wax or anti-rust preparation.

38 Anti-rust treatment

The Volvo 121/122 S is anti-rust treated at the factory.
The door sills are made of galvanized sheet metal and do not require any maintenance. The lower part of the body is treated with underbody sealing compound on those places which are subjected to flying stones from the wheels, i.e. the wheel arches, the entire floor plate and the underside of the sills. Anti-rust fluid is sprayed on the chassis parts.
Inspection and any touching-up of the anti-rust protection should be done at regular intervals, and at least once a year.
If any touching-up of the anti-rust protection is necessary, this should be done immediately to prevent moisture from seeping under it.

39 Cleaning

Cleaning the upholstery

The upholstery consists of vinyl-coated fabric and is very resistant to dirt so that it does not really require any maintenance. If it becomes stained, the upholstery can easily be cleaned with a synthetic washing agent and lukewarm water.

Cleaning the floor mats

The floor mats should be taken out at least twice a year and cleaned. Particularly during the winter when there can be snow and ice on the mats, they should be taken out and dried.
If the mats are stained they can be cleaned with methylated spirit which is then rinsed off with water.

Servicing before long-distance driving

If you're thinking of travelling abroad with your vehicle or making any other long journey, you should have your vehicle overhauled at a Volvo workshop. You will enjoy your journey better if you know that your vehicle is in perfect trim. You drive in a more relaxed way if you're certain that everything is functioning perfectly. You thus avoid irritating incidents and expensive and time-making stoppages. Even if something unforeseen should happen, your journey does not need to be spoiled. Wherever you go you know you have Volvo workshops within reach and these workshops can take care of your vehicle very quickly. Do not forget the regular servicing during your trip abroad. All Volvo workshops abroad are equipped to give your vehicle the service it needs.

If you prefer to look over your vehicle yourself, the following hints are worth noting:

1 Check the brakes, front wheel alignment and steering gear.

2 Flush out the engine cooling system and check the hose clips.

3 Examine the tyres carefully. Replace worn tyres.

4 If you are not sure whether the engine is functioning perfectly and the fuel consumption is normal, you can save both time and money by doing a thorough overhaul.

5 Examine the state of charge of the battery and clean the terminals.

6 Check the tool kit and spare wheel.

7 Check the lighting and adjust your headlights for left-hand or right-hand traffic if necessary.

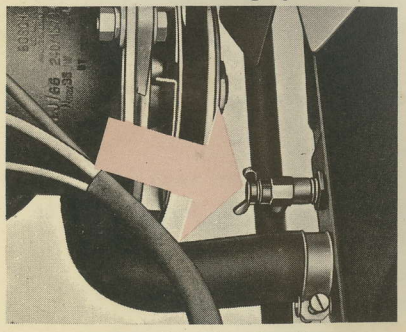
Procedure in cold weather

When cold weather is in the offing, it is time to think of the winter servicing of your vehicle. The first heavy night frosts can come as an unpleasant surprise unless preventive precautions have been taken.

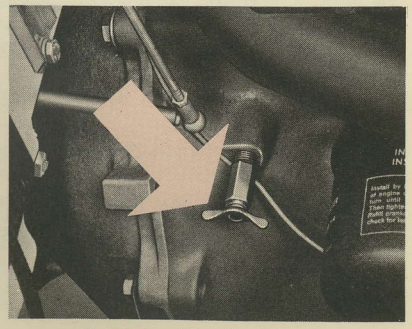
Engine cooling system

A suitable type of anti-freeze solution should be added to the cooling system in good time before the winter season. The most usual anti-freeze agents are ethylene glycol and methylated spirit. Methylated spirit, however, has the disadvantage that it evaporates at normal engine temperatures. Ethylene glycol is more stable and is therefore preferable for use as anti-freeze. Pure ethylene glycol has a corrosive effect on the engine cooling system, so that we recommend Volvo anti-freeze fluid which is treated with corrosion-inhibiting additives. For chemical reasons the quantity of these additives is only sufficient to last for one winter season. Under unfavourable conditions they can even be used up more quickly if, for example, there are traces of sludge, rust or flushing agent left in the cooling system. For this reason, never use the same glycol solution for more than one winter season. Experience has shown that too thin glycol solutions (10—20 %) are very unfavourable from the point of view of rust protection. For this reason the quantity of glycol should amount to at least 40 % of the coolant, that is, 3.5 litres (6 Imp. pints = 7¼ U.S. pints), this lowering the freezing point to —24° C (—11° F). Before filling up with anti-freeze fluid the cooling system should be thoroughly cleaned out by an authorized Volvo workshop.

Drain cocks for cooling system



1. Right side of radiator.



2. Right side of engine.

Mixing table för anti-freeze/water

Cooling system Capacity		Necessary amount of anti-freeze for frost protection down to:			
		—24° C (—11° F)	—30° C (—22° F)	—40° C (—40° F)	—56° C (—69° F)
Litres	8.5	3.5	4	4.5	5.1
Imp. galls,	15	6¼	7	8	9
U. S. galls.	18	7½	8½	9½	10¾

Engine lubricating system

During the winter multigrade oil SAE 10 W-30 or engine oil with a viscosity of SAE 10 W should be used for the engine lubricating system. These oils reach the lubricating points in the engine more easily at low temperatures and also facilitate cold starting. If you drive mainly short distances during the winter, the engine oil should be changed more often than usual, for example after every 2 500 km (1 500 miles). See page 36.

Electrical system

The electrical system in the vehicle is subjected to greater stresses during the winter than during the warm summer months. The lighting and the starter motor are used more and since the capacity of the battery is also considerably lower with low air temperatures, the state of charge must be checked more often. If the battery voltage is excessively low there is risk of frost damage to the battery.

Brake system

During the winter the brakes are subjected to splash and condensation water to a greater extent than during the summer and the result of this can be that the handbrake cable may freeze up if the handbrake is left on. When you park the car, do not apply the handbrake but engage bottom gear or reverse.

Windscreen washer, anti-freeze for door locks

In the same way as anti-freeze is added to the cooling system during the winter to prevent frost damage, anti-freeze should also be added to the windscreen washer water container. Your Volvo dealer can supply you with a suitable anti-freeze for this purpose.

A frozen door lock is one of the most irritating things that can happen to a car-owner. Many valuable minutes early in the morning can be wasted warming up keys and melting ice in locks. Remember this in *good time* and lubricate the lock with some anti-freeze preparation.

The information given below is only intended to serve as a guide in localizing and temporarily correcting minor faults. After having carried out any such measures, have them checked and adjusted by an expert mechanic.

The engine does start although the starter motor turns it round at normal speed

1 Check that there is fuel in the tank.
2 On single-carburettor engines, if the engine is warm, starting should be done with the accelerator pedal slowly depressed as far as it will go
3 In wet weather the sparking plug insulators should be wiped clean and the distributor cap removed and wiped dry if flash-over is suspected.
4 Check that the fuel line connections on the pump and carburettor are not leaking and that fuel is supplied to the carburettor.
5 If the engine is turned round for a while without having started, too rich a fuel mixture can enter the cylinders resulting in the sparking plugs becoming moist. Blow the cylinders clean by screwing out the sparking plugs and turning round the engine with the starter motor. Dry the sparking plugs before fitting them.

If the engine still does not start

1 Remove the ignition cable from each plug in turn. Hold the end of the cable about 1/4" from the cylinder block while turning round the engine with the ignition switched on. If there is a strong spark the fault is probably in the sparking plugs, so that they should be changed.
2 If only a weak spark is obtained or none at all, check to see whether the ignition cables are properly inserted in the distributor and ignition coil. Remove the cables and clean the contact surfaces.
3 Remove the distributor cover and check and clean all contact surfaces. Check that the contact breakers close properly when the engine is turned round. If the contact breaker arm shaft binds, oil it very sparingly.
4 If a spark is obtained but the engine still does not start although the carburettor receives fuel, check that the jets and channels in the carburettor are not blocked. Clean out any dirt from the carburettor.

If the engine misfires, the reason can be:

1 That one of the ignition cables has loosened in the distributor cover or from the sparking plug.
2 That one or more of the sparking plugs is coated with soot or oiled up, in which case the plug concerned should be cleaned or changed and the sparking plug gap adjusted.
3 That the distributor cover and rotor arm can be cracked or damp.
4 That one of the ignition cables is in a poor condition.
5 That the contact breaker gap in the distributor is insufficient or non-existent.
6 That the contact breakers are badly burnt.

NEW YORK

Dimensions and weights

Length	4400 mm	(173 1/4")
Width	1635 mm	(64 1/4")
Height	1505 mm	(59 1/2")
Wheelbase	2600 mm	(102 1/4")
Ground clearance, unladen	210 mm	(8 1/4")
Ground clearance, driver and 3 passengers	170 mm	(6 11/16")
Track, front	1315 mm	(51 3/4")
Track, rear	1315 mm	(51 3/4")
Turning circle	10.4 m	(33')
Kerb weight*, two-door	1070 kg	(2360 lb)
four-door	1100 kg	(2426 lb)

*) With full fuel tank.

SPECIFICATIONS

Engine

	Volvo B 18 A	*Volvo B 18 D*
Type designation	*Volvo B 18 A*	*Volvo B 18 D*
Max. output (DIN) at r.p.m.	68 h.p./4500	86 h.p./5000
Max. output (SAE) at r.p.m.	75 h.p./4500	95 h.p./5400
Max. torque (DIN) at r.p.m.	13.5 kgm (97.6 lb.ft.)/2600	14.2 kgm (103 lb.ft.) /3200
Max. torque (SAE) at r.p.m.	14.5 kgm (104.6 lb.ft.)/2800	14.8 kgm (107 lb.ft.)/3500
Number of cylinders	4	4
Bore	84.15 mm	84.14 mm
Stroke	80 mm	80 mm
Displacement	1.78 litres	1.78 litres
Compression ratio	8.7:1	8.7:1
Valves	Overhead	Overhead
Valve clearance, warm and cold, inlet and exhaust	0.40—0.45 mm (0.016″—0.018″)	0.50—0.55 mm (0.020″—0.022″)
Idling speed (warm engine)	500—700 r.p.m.	600—800 r.p.m.

Fuel system

Carburettor, type	Down-draught	Horizontal (twin)
designation	Zenith 36 VN	2 SU—HS 6

Cooling system

Type	Positive pressure
Thermostat, begins to open at	75—78° C (167—172° F)
fully open at	89° C (194° F)

Ignition system

Firing order		1—3—4—2
Ignition setting, 97 octane Research: stroboscope setting at 1500 r.p.m. with vacuum regulator disconnected	21—23° B.T.D.C.	17—19° B.T.D.C.
Sparking plugs	Bosch W 175 T 1*)	W7BC W7BP
Sparking plug gap	0.7 mm (0.028″)	
Tightening torque, copper washer	3.5 kgm (25 lb.ft.)	
steel washer	4 kgm (29 lb.ft.)	
Distributor, direction of rotation	Anti-clockwise	
Contact breaker gap	0.4—0.5 mm (0.016—0.020″)	

*) Or corresponding

Electrical system

Voltage	12 V
Battery, type	Boliden 107 GM 60*)
capacity	60 Ah
electrolyte, specific gravity	1.275—1.285
when recharging is necessary	1.230
Dynamo, rated output	240 W
Fuses	8 amp—3
	25 amp—1

Lamp bulbs (12 V)	Power	Socket	Number
Headlights	45/40 W	Ba 20 d	2
Parking lights, front	5 W	Ba 15 s	2
Flashers	32 CP	Ba 15 s	4
Stop/tail lights	32/4 CP	Ba 15 d spec.	2
Back-up lights	15 W	Ba 15 s	2
Number plate lighting	5 W	Ba 15 s	2
Interior lighting	10 W	S 8	1
Glove compartment lighting	2 W	Ba 9 s	1
Instrument lighting	2 W	Ba 9 s	3
Warning lamps, direction indicators	2 W	Ba 9 s	1
headlights	2 W	Ba 9 s	1
charging	2 W	Ba 9 s	1
oil pressure	6 W	Ba 9 s	1

Power transmission

Clutch

Clutch yoke free travel	3—4 mm (approx. 1/8″)
Clutch pedal travel	140 mm (5 1/2″)

Gearbox

Type designation	*M 40*
Reduction ratios: 1st speed	3.13:1
2nd speed	1.99:1
3rd speed	1.36:1
4th speed	1:1
Reverse	3.25:1

Rear axle

Type	Crown wheel and pinion (Hypoid)
Reduction ratio	4.1:1

*) Or corresponding

SPECIFICATIONS

Front wheel alignment

Toe-in	0—4 mm (0.157")
Camber	0 to +1/2°
Caster	0 to +1°
King pin inclination	8°

Wheels and tyres

Tyre size, standard	6.00—15	
sports type	165 S 15	
Air pressure (cold tyres)	1—2 persons	5 persons +baggage
front kg/cm²	1.4	1.4
lb/sq.in.	20	20
rear kg/cm²	1.6	1.8
lb/sq.in.	23	26

For prolonged driving at speeds over 140 km.p.h. = 90 m.p.h. the pressure should be increased by 0.3 kg/cm² (4.5 lb/sq.in.).

Capacities

Fuel tank	approx. 45 litres (9 7/8 Imp. galls = 11 7/8 US galls.)
Cooling system	approx. 8.5 litres (15 Imp. pint = 2 US galls.)
Oil capacity, engine, when changing oil	approx. 3.25 litres (5 3/4 Imp. pints = 7 US pints)
including oil cleaner	approx. 3.75 litres (6 5/8 Imp. pints = 8 1/4 US pints)
Oil capacity, gearbox	approx. 0.75 litre (1 1/4 Imp. pints = 1 1/2 US pints)
Oil capacity, rear axle	approx. 1.3 litres (2 1/4 Imp. pints = 2 3/4 US pints)
Oil capacity, steering box	approx. 0.25 litre (3/8 Imp. pint = 1/2 US pint)

Tool kit

The tool kit contains:

Wheel nut and sparking plug spanner
Tommy bar
Pliers
Adjustable spanner
Philips screwdriver
Plain screwdriver

The jack is strapped in position behind the spare wheel in the luggage compartment.

INDEX

Lubricating chart

Symbols

Brake fluid
See page 38

Rear axle oil
Grade: Hypoid oil
Viscosity: See page 37

Lubricant see notes

Light engine oil

Engine oil
Grade: For Service MS
Viscosity: Multigrade SAE 10 W—30
See page 36.

Gearbox oil
Viscosity: See page 87

Oil capacities

Engine ..... 3.25 litres ($5^{3}/_{4}$ Imp. pints = 7 US pints)
Engine, incl. oil cleaner..... 3.75 litres ($6^{5}/_{8}$ Imp. pints = $8^{1}/_{4}$ US pints)
Gearbox..... 0.75 litre ($1^{1}/_{4}$ Imp. pints = $1^{1}/_{2}$ US pints)
Rear axle..... 1.3 litres ($2^{1}/_{4}$ Imp. pints = $2^{3}/_{4}$ US pints)
Steering box ..... 0.25 litre ($^{3}/_{8}$ Imp. pint = $^{1}/_{2}$ US pint)

Notes for lubricating chart

Note 1 Check that the oil reaches up to the filling plug. Use hypoid SAE 80 oil all year round.

Note 2 After every 40 000 km (25 000 miles) the wheel bearings should be dismantled and thoroughly cleaned and then packed with a high-quality lithium base multi-purpose grease.

Note 3 Check that the fluid reaches up to the level mark.

Note 4 Lubricate the felt wick under the rotor and fill a few drops of light engine oil into the lubricating cup.

Note 5 Check the oil level when filling up with petrol. Change the oil every 5 000 km (3 000 miles) and in spring and autumn when changing over to another viscosity, if multigrade oil is not used. In unfavourable operating conditions the oil should be changed after every 2 500 km (1 500 miles), see page 36.

Note 6 Have the handbrake cable lubricated with graphite grease a couple of times a year.

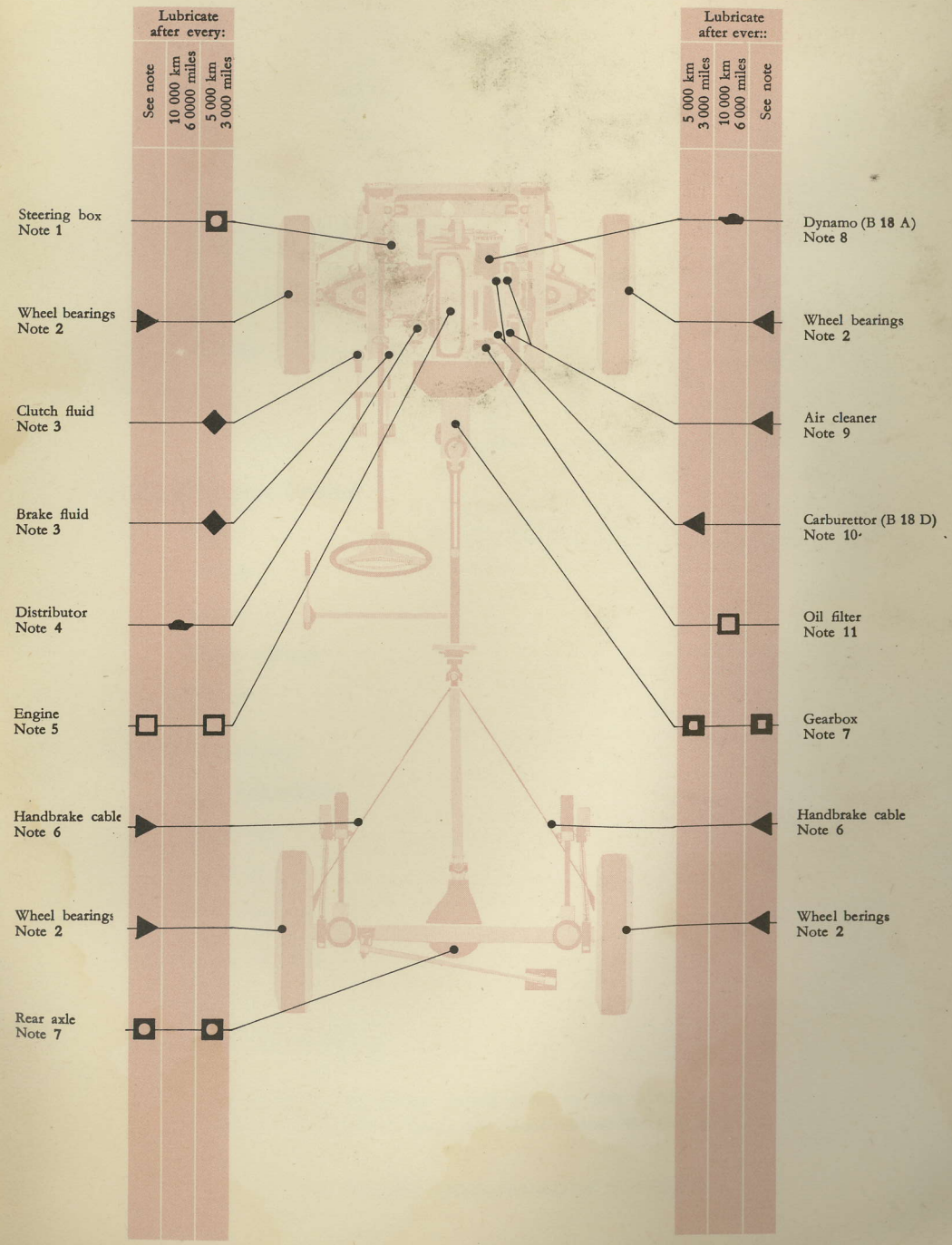
Note 7 Check every 5 000 km (3 000 miles) that the oil reaches up to the filling plug. The oil should be changed after every 40 000 km (25 000 miles), see page 37.

Note 8 Fill the lubricating cup with light engine oil. The lubricating cup is opened by turning the outer cap. Use an ordinary oil can, not a pressure can.

Note 9 The air cleaner with oil-bath schould be cleaned and provided with new oil every 10 000 km (6 000 miles), see page 39. The air cleaner with built-in paper element should be changed every 40 000 km (25 000 miles), see page 39.

Note 10 At every engine oil change the oil level in the carburettor damping cylinders should be checked. To do this, screw off the nut on top of the carburettor and lift out the plunger. The oil level should be such that the centre spindle, but not the part above it, is filled when the plunger is fitted. If necessary, top up with light engine oil (SAE 20 — not multigrade oil).

Note 11 The oil filter should be changed every 10 000 km (6 000 miles), see page 38.



Personal information

Name .....

Address .....

Tel. no. .....

Driving licence no. .....

Insurance Company .....

Insurance Policy no. .....

.....

.....

Nearest Volvo Dealer

Name .....

Address .....

Tel. no. .....

Garage manager .....

Tel. no. .....

Car information

Type designation .....

Chassis no. .....

Engine no. .....

Registration no. .....

Ignition key no. .....

Door key no. .....

Fuel tank lock, key no. .....

AB VOLVO GOTHENBURG SWEDEN