INSTRUCTION BOOK

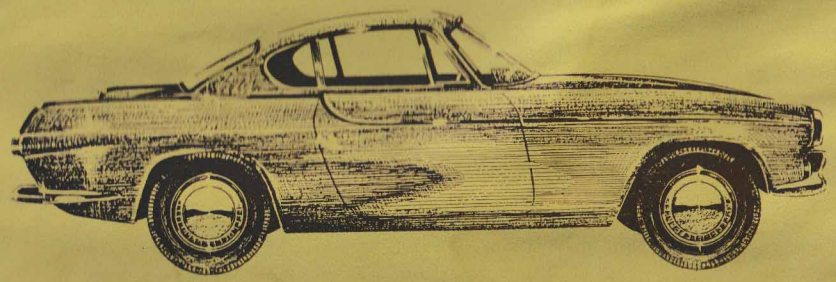
VOLVO 1800 S

22048 Body 44
183451 M Type

AB VOLVO GÖTEBORG SWEDEN

VOLVO 1800 S

Contents Page



INTRODUCTION

Before you start to drive your new Volvo we advise you to read through this instruction book carefully. It contains all the information you need to be able to drive and service your car in the best possible way. If you follow the advice and instructions in this book, then the car will more than satisfy the demands concerning good running economy and outstanding performance you have every right to make on such a high class vehicle.

Do not wait until something goes wrong before you read the instruction book. Read it now. The short time this takes is more than well spent. The better you know your car the more you will get out of it. Even for those of you who are experienced motorists, this book might contain something new.

This instruction book is not intended to be a complete technical manual nor is it intended 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.

For a more detailed description of mechanical work and adjustments, we refer you to a special Service Manual which can be ordered from your local Volvo dealer.

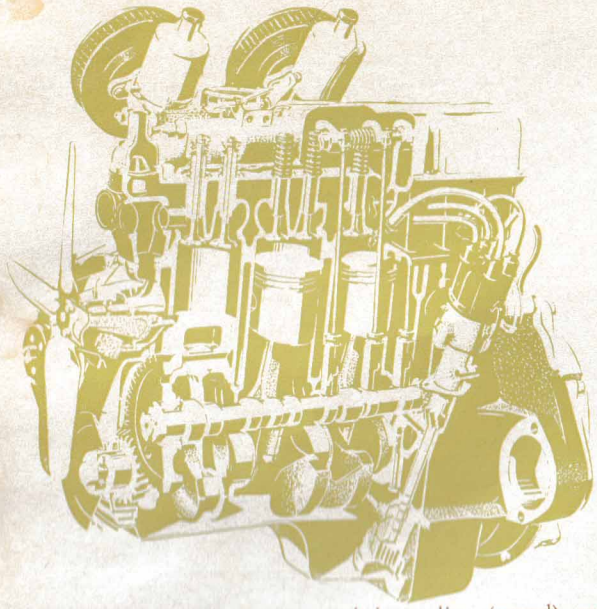
DESCRIPTION

The Volvo 1800 S is a two-door sports car. The car is a two-seater but there is space for a further two passengers in the rear seat. The body is of integral construction so there is no frame as such. The front and rear suspensions, the engine and the transmission (gearbox) are attached directly to the body. The body surface finish is synthetic and applied over a rust-protective primer.

The car is protected from theft by having the ignition switch and the ignition coil connected by means of an armored cable.

The instruments are located on the instrument panel in such a way that they are very easy to see and are in keeping with the sports character of the car: revolution counter, temperature gauge for oil as well as water, loud tone horn, etc. The operation of the various controls and adjusting instructions for the seats, etc. are described in this chapter in more detail.

ENGINE



The engine is a four-cylinder, water-cooled gasoline (petrol) unit with overhead valves. The max. output is 108 b.h.p. (SAE), the compression ratio 10:1 and the capacity 1.78 liters. (103.6 cu.in.).

Fuel system

The engine is fitted with twin 1¾" SU horizontal carburetors. The fuel is fed from the tank to the carburetors by a fuel pump driven by a cam on the engine camshaft. There is a fuel filter incorporated in the fuel pump and this filter traps any water and other impurities in the fuel.

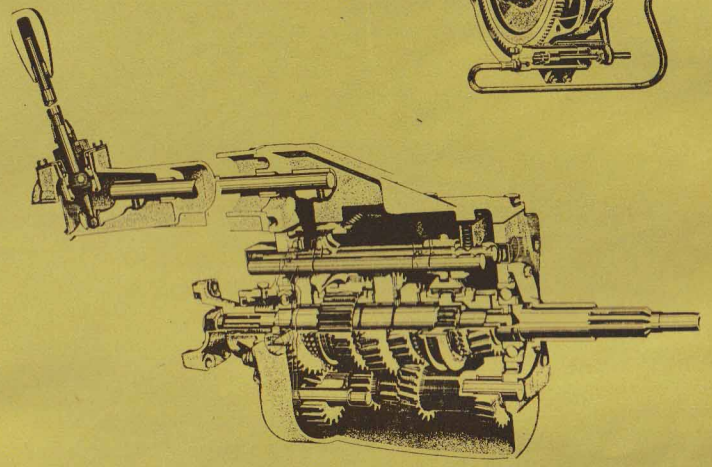
Lubricating system

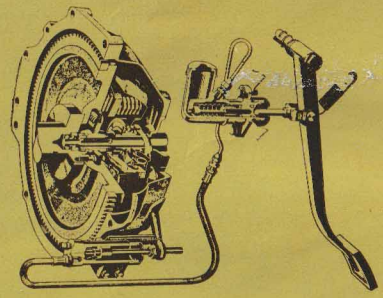
Engine lubrication is taken care of by means of a gear pump which sucks oil from the oil pan on the lower part of the engine and forces it through the oil filter out to all the lubricating points on the engine. The oil is cooled in an oil cooler, water from the engine cooling system circulating through the jacket on the oil cooler.

Cooling system

The engine is water-cooled and has a pressure system. Cooling water circulation is taken care of by a pump which is fitted on the fan shaft. A thermostat, which does not open until the temperature reaches 76° C (170° F), prevents the cooling water from passing through the radiator before the engine has reached its normal operating temperature.

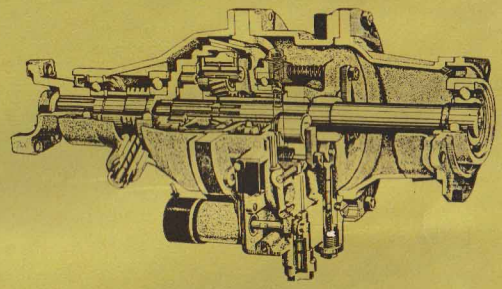
Transmission (Gearbox)

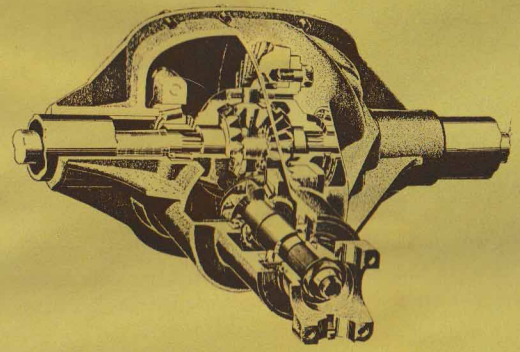




Clutch

Overdrive





Rear axle

STEERING GEAR

This car is fitted with a cam and roller type steering gear. Movements of the steering wheel are transmitted via the worm on the steering column to the roller on the pitman arm shaft, which, in its turn, influences the wheels through the medium of the steering rods.

BRAKES

The car is fitted with two independent brake systems, a footbrake system and a handbrake system.

Handbrake System

This is mechanical and only influences the brakes on the rear wheels. Movement of the handbrake lever is transmitted through a series of pull rods and cables to the rear wheel brake levers which then apply the brakes.

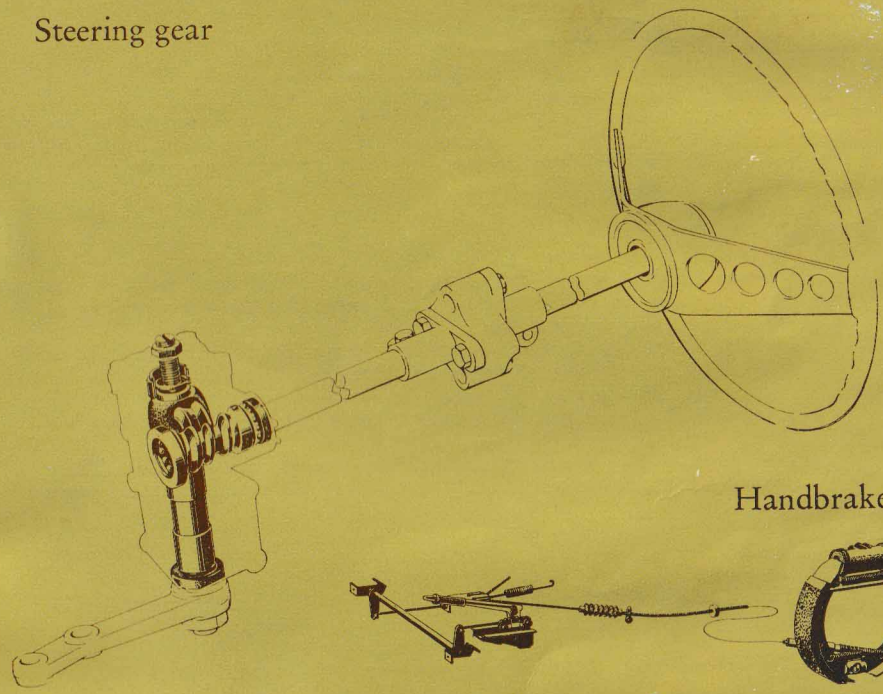
Footbrake System

This is hydraulic and influences all four wheels. The hydraulic system consists of a master cylinder filled with brake fluid which, when the brake pedal is depressed, transfers the brake pressure through the fluid in the lines to a further brake cylinder which further increases the pressure before it continues to the brake cylinders at the wheels. The plungers in these wheel cylinders are pressed outwards and the brakes are applied.
The front wheel brakes are of the disc type and the rear wheel brakes of the drum type.

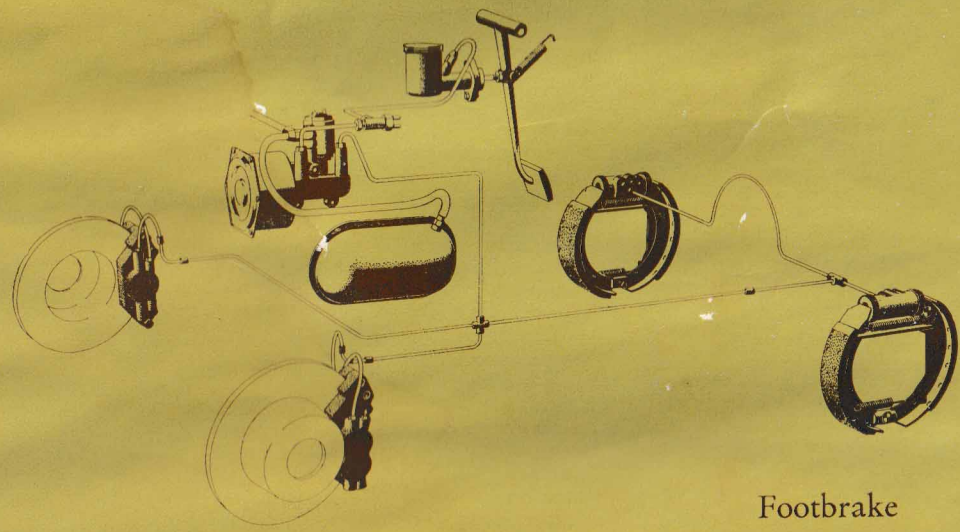
WHEELS AND TIRES

The car is fitted with pressed steel wheels with hub caps. All the wheels are carefully balanced. The tires are of the braced tread type with inner tubes specially designed for the stresses occurring at high speeds. The tire size is 165×15.

Steering gear



Handbrake



Footbrake

ELECTRICAL SYSTEM

The electrical system is of the 12-volt type and is fitted with a voltage control generator (dynamo). The starter motor is operated from the instrument panel through the ignition key. This key is also used to switch on the other electrical equipment. The cables to the headlamps, parking lights, and internal lighting, however, are not connected over the ignition switch but can be used independently of the ignition key.

Lighting

Lighting on the front of the car consists of the headlamps with full and dimmed beams, as well as the combined lamps for the directional signal flashers and the parking lights.

Lighting at the rear consists of combined lamps for the directional signals and tail-lights, and the brake warning lights. There are also two lamps for rear license plate lighting.

The car is fitted with a reversing light which comes on automatically when reverse gear is engaged.

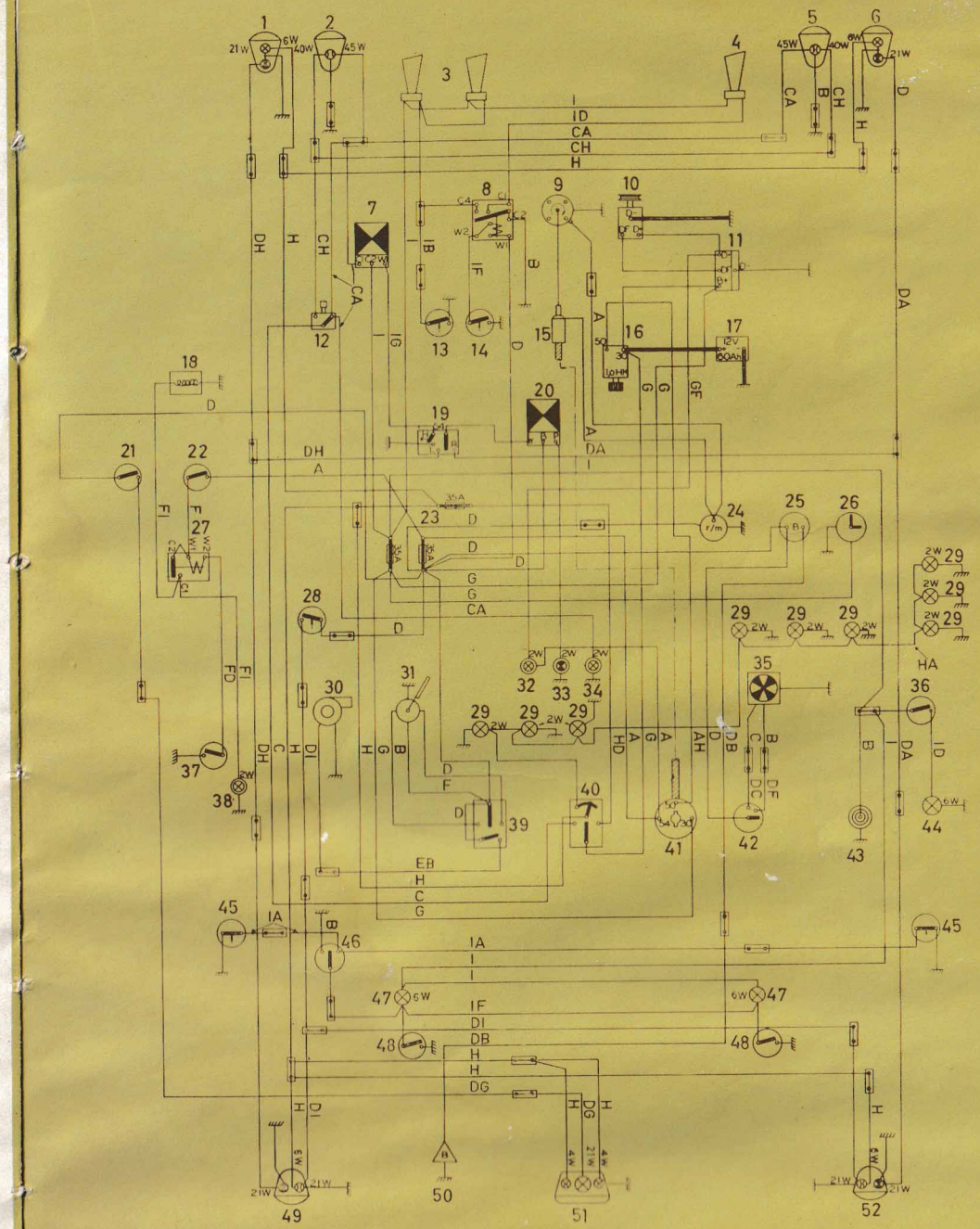
Internal lighting consists of two lamps located on the rear side pillars. There are bulbs for indirect instrument lighting. For bulb replacement, see pages 34—36.

Fuses

The electrical equipment is protected by means of three 35 A fuses, located in fuse boxes on the left-hand wheel arch.

1 Flasher and parking light, left
2 Headlamp, left
3 Horn
4 Loud tone horn
5 Headlamp, right
6 Flasher and parking light, right
7 Relay for headlamp signal
8 Horn relay
9 Distributor
10 Generator (Dynamo)
11 Charging relay
12 Foot dimmer switch
13 Horn button
14 Lever for loud tone horn
15 Ignition coil
16 Starter motor
17 Battery
18 Control solenoid for overdrive
19 Directional signal switch
20 Flasher impulse unit for directional signals
21 Switch for back-up light (on transmission =gearbox)
22 Switch for overdrive (on transmission= gearbox)
23 Fuses
24 Revolution counter
25 Fuel gauge
26 Clock
27 Relay for overdrive
28 Brake light contact
29 Instrument lighting
30 Windshield washers
31 Windshield wipers
32 Warning lamp for charging
33 Directional signal warning lamp
34 Warning lamp for full-beam headlamps
35 Heater
36 Switch for map-reading lamp
37 Selector switch for overdrive
38 Warning lamp for overdrive
39 Switch for windshield wipers and windshield washers
40 Lighting control
41 Ignition switch
42 Switch for heater
43 Cigarette lighter
44 Map-reading lamp
45 Door contact switch for roof lamp
47 Roof lamp
48 Built-in switch for roof lamp
49 Tail-light, left
50 Fuel gauge sender unit
51 License plate lighting
52 Tail-light, right

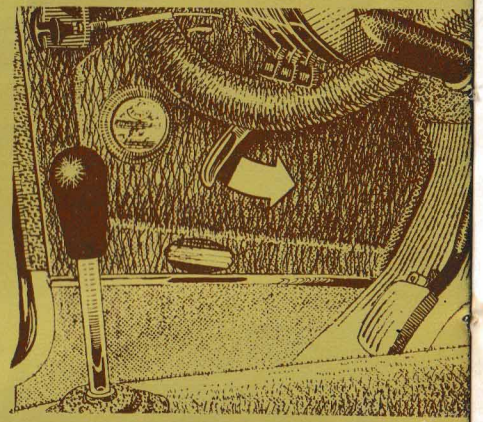
A = White
B = Black
C = Blue
D = Green
E = Light-green
F = Yellow
G = Brown
H = Red
I = Violet



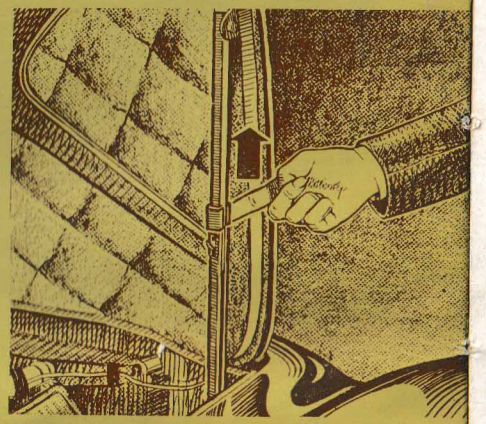
BODY

Hood (Bonnet)

The hood (bonnet) is fitted with a locking device which is operated from the driving seat by means of a handle to the left under the instrument panel. This releases the hood which can then be lifted up after the handle has been moved forward and downward.

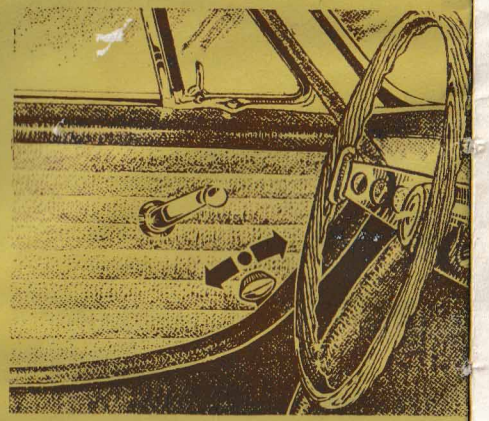


The hood remains in its lifted position by means of a stay which is automatically locked by a built-in catch when the hood is lifted all the way up. When the hood is to be lowered again, the catch sleeve is moved upwards at the same time as the hood is lifted to its outer position and then lowered.



Doors and Locks

The car is fitted with key locks for both doors, the luggage compartment and the fuel tank cap. Before the doors can be opened, the button in the door handle must be pressed in. The doors can be locked from the inside by moving the handle forwards as shown in the illustration. To open the door, move the handle to the rear.



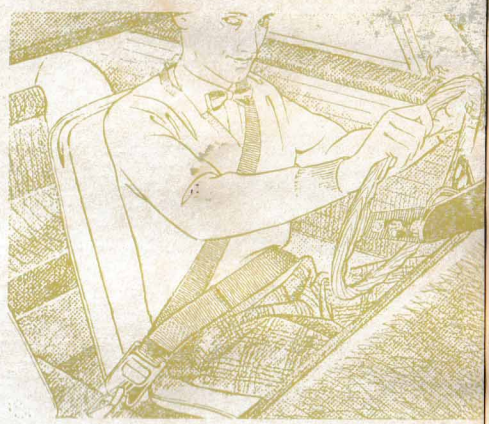
If you happen to lose your keys, contact your nearest Volvo dealer, who will supply you with new keys if you inform him of the code number that was on the missing keys.

Safety belts

Standard equipment on this vehicle includes safety belts for both the front seats. Make a habit of fitting on the belts as soon as you get into the car. The length of each belt can be easily adjusted by means of the part attached to the floor. Adjust the length of the belt very carefully so that it is neither too tight nor too loose.

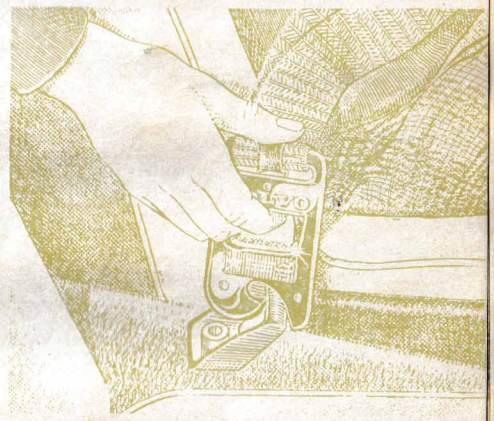
The belt is taken down from its stowing device, the waistband placed around the waist and the shoulder strap over the shoulder and across the chest. The buckle is then secured in the anchorage between the seats. To remove the belt, press in the spring-loaded trigger on the buckle.

Check now and then that the bolts retaining the belts are well tightened.



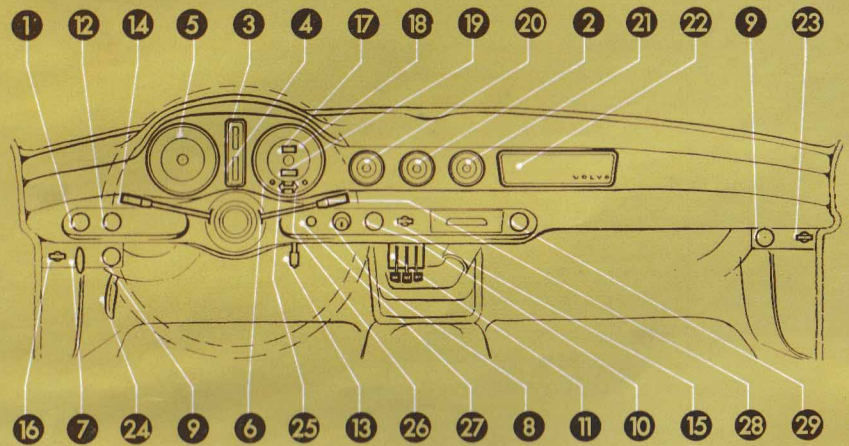
Adjusting the seats

The front seats can be adjusted backwards and forwards after the handle (1) has been moved sideways towards the middle of the car. The seat can then be moved to the most comfortable position by pushing on the floor with your feet. The inclination of the backrest can be adjusted by means of the knob (2).



The seat can be adjusted vertically by means of the screws and nuts (3) on each side of the seat. Slacken the upper nut and adjust to the desired position with the lower one. If it is desired to move the seat further backwards or forwards than permitted by the slide rails, this can be done by utilizing the series of holes drilled in the seat frame and by turning the spacing brackets on the slide rail.

INSTRUMENTS AND OPERATING CONTROLS



1 Controls for windshield wipers and windshield washers
2 Oil pressure gauge
3 Temperature gauge for cooling water
4 Temperature gauge for engine oil
5 Revolution counter
6 Warning lamp for charging
7 Choke control
8 Ignition switch with built-in starter
9 Control for direct ventilation
10 Fan controls
11 Heater and ventilation controls
12 Lighting switch
13 Zero-setting control for trip meter
14 Directional signal switch with built-in headlight flasher
15 Overdrive switch
16 Switch for interior lighting
17 Trip meter
18 Speedometer
19 Milcometer
20 Fuel gauge
21 Clock
22 Recess for radio
23 Switch for map-reading lamp
24 Hood (Bonnet) catch
25 Warning lamp for directional signals
26 Warning lamp for full-beam headlamps
27 Warning lamp for overdrive
28 Lever for loud tone horn
29 Cigarette lighter

1 Controls for windshield wipers and windshield washers

The windshield wipers are electrical and can be set to two speeds by pulling out the control. If pulled out to the first notch, the wipers run at half speed, and if pulled out two notches they run at full speed. When this control is pushed in the whole way, the windshield wipers automatically stop in their parked position.

The windshield washers are operated by turning the control knob in a clockwise direction. The windshield washers can be used even when the windshield wipers are switched off. The fluid container for the windshield washers is located under the hood (bonnet) and contains about one liter (one quart). Never let the windshield wipers run on a dry and dusty surface since this can easily scratch the glass.

2 Oil pressure gauge

The oil pressure is dependent on the temperature of the oil and the engine speed. Since the engine is fitted with an oil cooler, there can be some slight delay before the oil pressure gauge gives a reading. If the engine is cold, it will show relatively high pressure, which is normal. If the pressure should at any point go down to zero, the engine must be stopped immediately and the reason determined. See under "Driving", pages 21 and 23.

3 Temperature gauge for cooling water

The temperature gauge shows the temperature of the cooling water and thus the working temperature of the engine. The temperature should normally be 70—90° C (158—194° F). If it should indicate a high temperature for a long time, this can depend upon the fact that the cooling system channels are blocked and are preventing circulation, or that the thermostat has been damaged. In such cases the cooling system should be cleaned (see page 32), or the thermostat should be replaced.

4 Temperature gauge for engine oil

The oil temperature is a function of the engine speed and can vary quite considerably. Temperatures above 130° C (265° F), however, should not be permitted.

5 Revolution counter

The revolution counter indicates the engine speed in revolutions per minute. The shaded area between 6000 and 6500 r.p.m. shows the momentary permissible speed. The area between 6500 and 7000 r.p.m. is marked in red.

6 Warning lamps for charging

This lamp lights up when the battery is discharging, which is normal at idling speeds. If you accelerate a little, the lamp should go out. Should the lamp remain on while you are driving, this usually means that there is some fault in the electrical system or that the fan belt is insufficiently tensioned and is slipping on the generator pulley. The result of this will be poor charging.

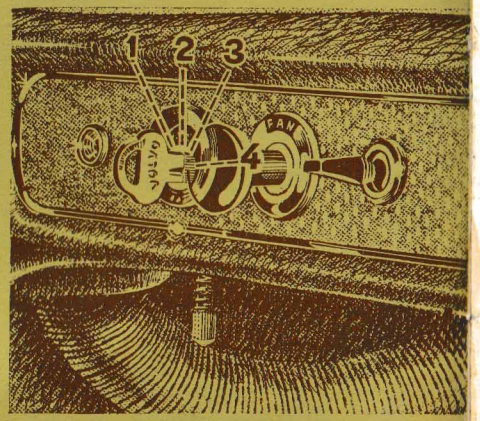
7 Choke control

To use the choke control pull it out directly (A) and lock it by turning a quarter of a turn (B). To return the control, twist it back to its vertical position. See the following page.

When the engine is thoroughly warmed up, the choke control should be fully in. See under "Driving", page 21.

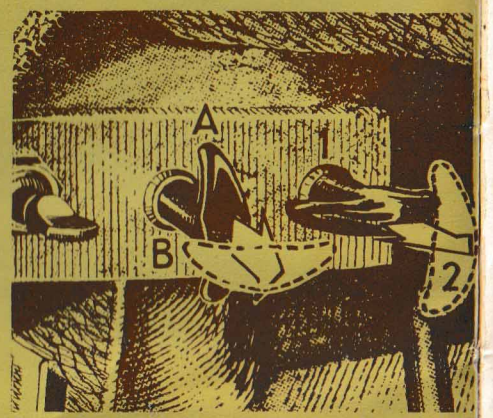
⑧ Ignition switch with built-in starter

1 *Radio position.* In this position, all the electrical equipment in the car can be used without having the engine running.
2 *Neutral position.*
3 *Running position.*
4 *Starting position.* To start the engine, turn the key to this position and the starter motor will be cut in. As soon as the engine starts release the key, which will then return to position 3.



⑨ Controls for direct ventilation

There are two scuttles for direct ventilation, one on the right side and one on the left side. These are opened by means of the handle which is pulled out directly (1) and locked in the desired position by turning a quarter of a turn (2).



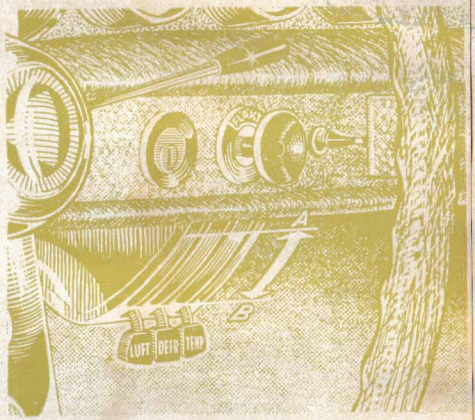
⑩ Fan control (lower illustration)

The fan control has three positions. In position 1 the fan is switched off, in position 2 it runs at full output and in position 3 it runs at half output.

⑪ Heater and ventilation controls

The heater and ventilation system is controlled by means of three levers:
"AIR"=Flow of air inside car
"DEFR"=Air to windshield
"TEMP"=control for the temperature of the incoming air.
The controls are closed in their upper position and fully open in their lower position.
The fan can then be used to increase the flow of cold or warm air. The heater is connected to the engine cooling system and also to a thermostat which maintains a constant temperature.

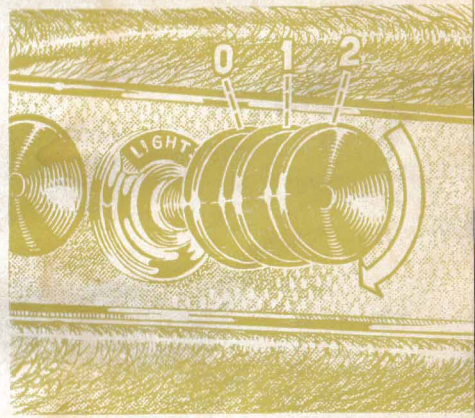
In very cold weather there can be misting on the windows. The best way to get rid of this is to have the ventilator windows fully or partially opened at the same time as the fan motor is running at full output and the defroster control in its fully open position.



⑫ Lighting switch

HEADLAMPS

The headlamps on the car are operated by means of a pull control on the instrument panel as well as by a foot dimmer switch to the left on the floorboard.
Position 0=Off.
Position 1=Parking lights.
Position 2=Full or dimmed headlamps depending on position of foot dimmer switch.
The headlamps are switched from full to dimmed and vice versa by depressing the foot dimmer switch.

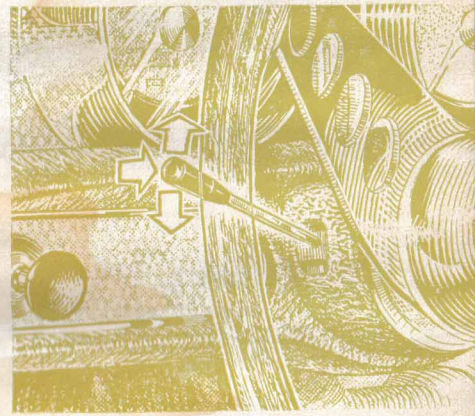


INSTRUMENT LIGHTING

The intensity of the instrument lighting can be regulated by turning the lighting switch knob. The further the knob is turned in a clockwise direction, the stronger the instrument lighting will be.

⑬ Zero-setting control for trip meter

The trip meter is set to zero by pressing up the button and turning it.

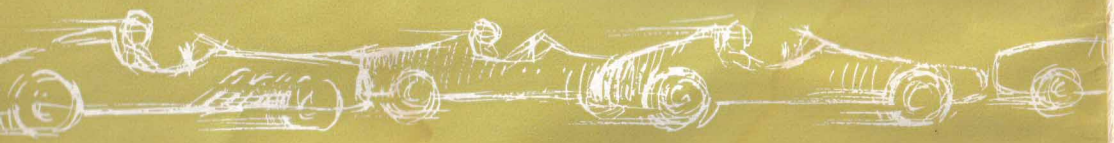


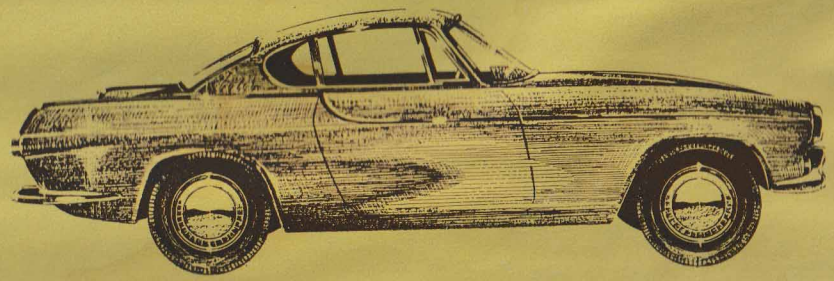
⑭ Directional signal switch with headlamp signal

In the directional signal switch there is a built-in switch which lights the headlamps on full beam when the switch is pulled upwards towards the steering wheel.

㉑ Clock

The clock is driven electrically. If the battery has been disconnected, the clock is started again by pressing in the setting knob.





DRIVING

The driving of your 1800 S should not cause you any trouble whatsoever if you follow the advice and instructions in this book. You will soon find out that everything has been well arranged so that you can feel relaxed and drive fast without sacrificing road safety. The brakes and the roadholding properties of the car are designed to match the speed of which the car is capable of travelling.

The instruments are located so that you can see them at a glance. Stop the car immediately if something should go wrong. It may be a minor point but if it is not remedied in time it can lead to expensive and time-taking repairs.

Always drive with consideration for other road users.

RUNNING-IN

When it is new, you should obviously not run your Volvo as fast as it can go. The reason for this is that during the first period all the vital parts of the car become bedded in so that they can stand up to stresses even better. Do not utilize full output for more than short periods during the first 300 miles (500 km). It is particularly important that the engine should not be loaded too hard during the very first miles.

Keep an eye on the cooling water temperature

When an engine is new, the cooling water temperature can easily go up if the engine is subjected to hard loading. For this reason you should keep an eye on the temperature gauge during the first period.

Inspections during the running-in period

After 1 500 miles (2 500 km) operation, the car should be taken to a Volvo workshop for the guarantee inspection, which is free of charge. The control procedures and adjustments carried out here include an oil change in the engine. It is very important to ensure that this oil change is carried out, since the oil becomes contaminated comparatively quickly during the first period.

After 3 000 miles (5 000 km) the car should be given all-round lubrication and the oil in the engine, transmission (gearbox) and rear axle should be changed. At the same time as the oil in the engine is changed, the oil filter should also be replaced with a new unit. The transmission (gearbox) and the rear axle should be carefully cleaned out with flushing oil. Following this mileage, oil changes should be carried out at the intervals shown in the maintenance scheme on page 26 and in the lubricating chart at the end of this book.

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

STARTING THE ENGINE

COLD ENGINE

1 Pull out the choke control fully.
2 Depress the clutch pedal.
3 Turn the ignition key to the starting position. Release the key as soon as the engine starts.
4 Set the choke control so that the best idling speed is obtained. Then push in the choke control little by little as the engine warms up.

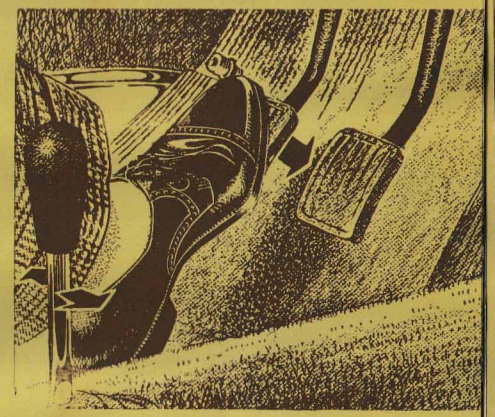
In order to get the engine to run evenly when you start driving, it may sometimes be necessary to pull out the choke control slightly. Use the choke as little as possible while you are driving. By the time the engine is fully warmed up, the choke control should be pushed right in again.

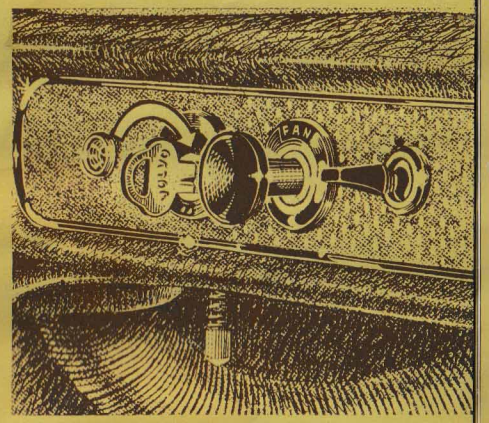
When an engine is started from cold, it is important to attain the normal working temperature as quickly as possible in order to avoid unnecessary cold-starting wear. For this reason do not run the engine too long at idling speed; it will attain its working temperature more rapidly when it is subjected to loading.

WARM ENGINE

1 Depress the clutch pedal.
2 Turn the ignition key to the starting position. Release the key as soon as the engine starts.

You can then drive the car as soon as the oil pressure gauge shows a reading. Since the engine is fitted with an oil cooler there can be a slight delay before the gauge shows a reading. If the engine is cold, the gauge will show a relatively high reading which is, however, normal.



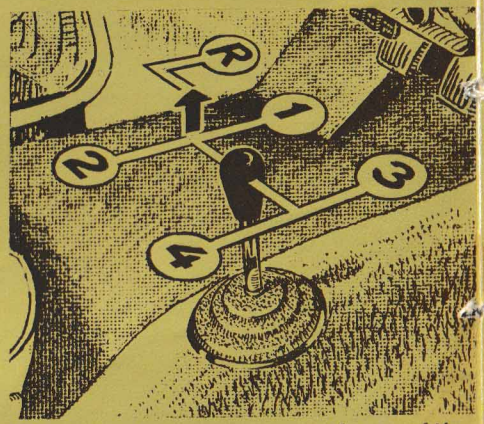


GEAR-CHANGING

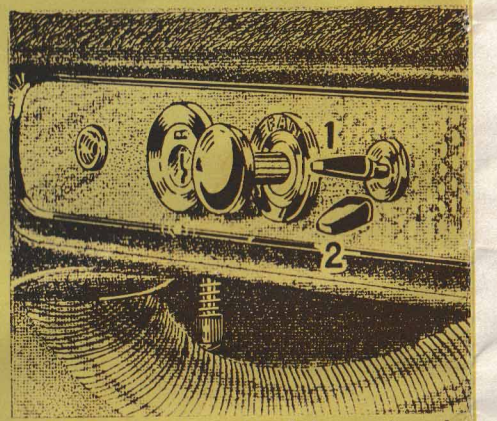
The transmission (gearbox) is synchronized on all gears. If the synchronizing is to work in a satisfactory way, the clutch must be fully depressed. Let the engine speed go down when shifting to a higher gear and increase it when shifting to a lower gear.

If the engine is to work in the best possible way, it is important to suit the point at which gear-changing is carried out to the speed of the car so that engine speed is maintained within certain limits, neither too high nor too low. If the engine speed is too low, the result will be poor pulling power and unfavorable loading of the engine and power transmission. If the engine speed is too high, on the other hand, fuel consumption will be higher, the pulling power of the engine will be decreased and better acceleration will not be obtained. The normal speed range for the engine is 1500—5500 r.p.m. Do not exceed 6500 r.p.m.

Never let the engine labor in a high gear but shift down in good time. If you need good pulling power, however, and the engine is working easily under slight acceleration, this does naturally not prevent you from going down below 1500 r.p.m.



When engaging reverse, move the gearshift lever as far as it will go to the left. Then lift the lever and move it to the left and forwards.



The overdrive is operated by moving the switch to position 1. The warning lamp to the left of the ignition switch will then light up.

Overdrive

The overdrive (model 18335) which can be engaged when you are running in fourth speed, is operated by means of a switch on the instrument panel. The overdrive is engaged when the switch is moved up. No extra operation of the clutch or accelerator is normally necessary when engaging and disengaging the overdrive. Engagement is, however, easier if the accelerator is kept depressed. When shifting from overdrive to fourth speed, light pressure on the clutch ensures a smoother shift. When the overdrive is engaged, the warning lamp on the instrument panel lights up.

ADVICE CONCERNING DRIVING

Starting in a garage

Always open the garage doors when you start the car in your garage. The reason for this is that the exhaust gases from the engine always contain the poisonous gas carbon monoxide, which is particularly dangerous since it is both invisible and odorless.

Air containing only 0.2 % carbon monoxide can be fatal if it is breathed in for half an hour.

Oil pressure

The oil pressure is dependent on the oil temperature and the engine speed. If the oil pressure should go down to zero at any time, the engine must be stopped immediately. After very hard driving with oil temperatures up to about 120° C (250° F), the oil pressure at idling speed can go down to 0.5 kg/cm² (7 lb./sq.in.) which is, however, quite normal.

Braking

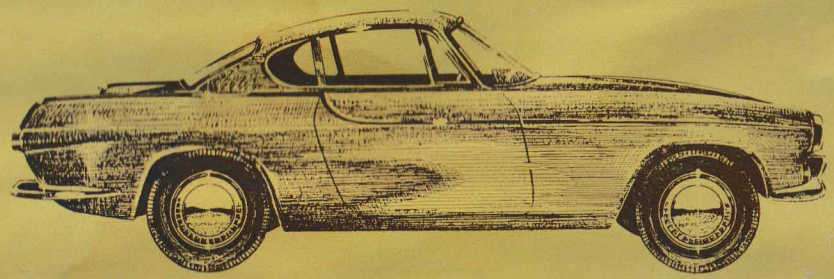
Try to use the brakes as little as possible. Instead use the engine as a brake by releasing the accelerator pedal in good time. Violent braking is only justified in dangerous situations and even in such cases the wheels should never be locked. Remember that the best braking result is obtained if the wheels are permitted to rotate slightly.

Even acceleration and gentle braking are typical characteristics of a good driver and also result in the most economical running.

Tires

When the car is delivered, it is fitted with tires that stand up to the stresses occurring during high-speed driving. It is, however, very important to maintain the correct air pressure in the tires, particularly when you are driving long distances at a high average speed. It is better to have too much than too little air. If the temperature in a tire becomes excessively high, the cord and the rubber start to separate from each other and this can have disastrous results.

SERVICING



Before the car 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 addition to this there is a cost-free guarantee inspection after 1 500 miles (2 500 km). The warranty booklet which is supplied together with the car contains a coupon which entitles you to this inspection. If possible let the dealer who supplied the car carry out this work. If our six-month guarantee is to apply, one condition is that the guarantee inspection is carried out at approximately the correct mileage and that the car has otherwise been serviced in accordance with the instructions in this book.

The servicing of the car should then follow the procedure in the service book which is based on a system of coupons with all-round lubrication after every 3 000 miles (5 000 km) and service inspections after every 6 000 miles (10 000 km). You can obtain this book from your dealer or directly from Volvo by sending in the coupon at the end of the warranty booklet.

In all countries where Volvos are sold, there are ultra-modern workshops with specially trained personnel at your service. All these workshops receive a continuous supply of technical information through the Volvo service organization, and they are also in possession of special tools designed at the Volvo factory. Our dealers are therefore best equipped to give your car first-class service as regards both maintenance and repairs. The car is serviced in accordance with the service book at fixed prices and the workshop stamp in the book is evidence of how the car is being serviced, this being a very important point as far as its secondhand value is concerned. If you would prefer to carry out some of the simpler servicing yourself, this chapter contains advice about when and how this work should be done.

MAINTENANCE SCHEME

	Operation	Carried out every 3 000 miles 5 000 km	6 000 miles 10 000 km	12 500 miles 20 000 km	See note below
	Lubrication				
1	Chassis lubrication as shown in lubricating chart	●	●		25 000 miles ○ (40 000 km)
2	Check oil level in engine				● When tanking
3	Change oil in engine	●			● Spring and autumn
4	Check oil level in transmission (gearbox)	●			
5	Change oil in transmission (gearbox)	●[1]			● 25 000 miles (40 000 km)
6	Check oil level in rear axle	●[2]			
7	Check oil level in steering box	●			
8	Check brake fluid level	●			
9	Check clutch fluid level	●			
	Engine				
10	Care of crankcase ventilation system			●	
11	Change oil filter	○[1]	○		
12	Check valve clearances		○		
13	Clean fuel filter		●		
14	Change air cleaners			●	
15	Check fan belt		○		
16	Check cooling water level				● When tanking
17	Clean out cooling system				● Spring and autumn
18	Check spark plugs		○		
19	Change spark plugs			○	
20	Check distributor and ignition timing setting		○		
21	Carburetors		○		

1) Only after the first 3000 miles (5000 km)

2) The oil is only changed once after 3000 miles (5000 km.)

In the above maintenance scheme, the servicing procedures have been given certain numbers which refer to the detailed descriptions on the following pages.

○ = Service workshop operation.

● = Operation you can carry out yourself.

	Operation	Carried out every 3 000 miles 5 000 km	6 000 miles 10 000 km	12 500 miles 20 000 km	See note below
	Electrical system				
22	Check battery electrolyte level				● When tanking
23	Check state of charge of battery		●		
24	Check headlight alignment		○		
	Power transmission system				
25	Clean overdrive oil strainer				● 25 000 miles (40 000 km)
26	Check clutch yoke free travel		○		
	Brakes				
27	Check and overhaul the brakes		○		
	Front end				
28	Check front wheel alignment		○		
29	Check ball joints, tie rod, etc.		○		
	Wheels and tires				
30	Check tire pressure				● When tanking
31	Check-tighten wheel nuts		○		
	Body				
32	Washing				● See page 40
33	Polishing and waxing				● See page 40
34	Cleaning				● See page 41

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

a) lighting, including brake stoplights
b) directional signal indicators
c) horn

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. Our recommendations here are based on many years of experience.

It is impossible to avoid wear completely but it can be reduced and prevented to a great extent by regular and careful lubrication.

1 Chassis lubrication

The chassis should be lubricated after certain mileages according to the instructions in the lubricating chart at the end of this book. All the linkages on the throttle control system, handbrake, etc., should also be sparingly lubricated.

2 Check the oil level in the engine

The oil level in the engine should be checked every time tanking is carried out. This should be done while the engine is warm, and the oil level is checked by using the dipstick on the left side of the engine. Wipe off the dipstick first to avoid a faulty reading.

The oil level should be between the two marks on the dipstick. It should never be permitted to go down below the lower mark but, on the other hand, it should not be above the upper mark since abnormally high oil consumption will be the result. If necessary, top up with oil of the same type as already being used in the engine through the oil filler cap on the rocker arm cover.

3 Change the engine oil

The intervals between oil changes depend to a great extent on the driving conditions. During the summer, or when the car is being mainly used for long-distance running, it is sufficient to change the oil after every 3 000 miles (5 000 km). During the winter and when the car is being used under unfavorable conditions with continuous stopping and starting, the oil should be changed after every 1 500 miles (2 500 km). At the same time the carburetor damping cylinders should be lubricated with SAE 20 engine oil — see page 33. During the running-in period the oil should also be changed after the first 1 500 miles (2 500 km).

Oil grade	Viscosities			Oil capacity	
	Below 0°C(32°F)	Between 0°C and 30°C (32°F and 90°F)	Above 30° C (90° F)	When changing oil	Including oil filter
For Service MS	SAE 10W*	SAE 20*	SAE 30*	3.25 liters (3½ US qts. =3¼ Imp.qts.)	3.75 liters (4 US qts.= 3½Imp.qts.)

*) or SAE 10 W—30 multigrade oil

4 Transmission (Gearbox)

The oil level in the transmission (gearbox) should be checked after every 3 000 miles (5 000 km). The oil level should be up to the filler hole.

5

The oil in the transmission (gearbox) should be changed after every 25 000 miles (40 000 km). (In the case of a new or reconditioned transmission (gearbox) the oil should be changed after the first 3 000 miles (5 000 km) and the transmission (gearbox) should also be carefully rinsed out with flushing oil). The old oil should be drained off immediately after the car has been run while the oil is still warm. At every other oil change it is advisable to clean out the transmission (gearbox) with flushing oil before the new oil is added. When draining off the oil from a transmission (gearbox) fitted with an overdrive, note that there is an extra drain plug under the overdrive marked "Drain". When oil is being added it takes some time for the oil to run into the overdrive and for this reason filling should be carried our relatively slowly.

Each time the oil is changed, the overdrive oil strainer should be cleaned — see servicing procedure 25, page 37.

Transmission (Gear) oil	Oil grade	Viscosity	Oil capacity
M 40	Transmission (Gear) oil	SAE 90 (continuously below 0° C= 32° F SAE 80)	0.75 liter (1½ US pints= 1¼ Imp. pints)
M 41	Engine oil	SAE 30 all year round	1.8 liters (2 US qts. = 1¾ Imp. qts.)

6 Rear axle

The oil level in the rear axle should be checked after every 3 000 miles (5 000 km). The oil level should be up to the filler hole.

The oil in the rear axle should be changed after the first 3 000 miles (5 000 km). The old oil is drained off by removing the cover on the back of the housing and this should be done immediately after the car has been run while the oil is still warm. The rear axle should then be carefully rinsed out with flushing oil before new oil is added. After this the oil level only needs checking, and topping up carried out if necessary.

Oil grade	Viscosity	Oil capacity
Hypoid oil	SAE 90 (continuously below 0° C=32° F SAE 80)	1.3 liters (2¾ US pints =2¼ Imp. pints)

7 Steering box

The oil level in the steering box should be checked after every 3 000 miles (5 000 km). The oil level should be up to the filler plug. If necessary top up with new oil of the same grade and viscosity as that already used.

The oil in the steering box usually only needs changing when reconditioning of the unit is being carried out. Should the oil, however, have to be changed for some reason, the old oil should be sucked out by inserting a suitable device through the filler hole.

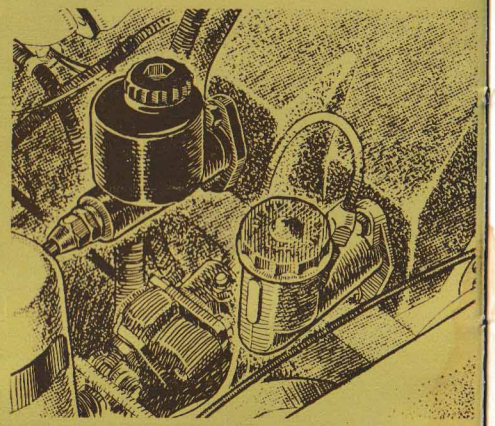
Oil grade	Viscosity	Oil capacity
Hypoid oil	SAE 90 (continuously below 0° C=32° F SAE 80)	0.2 liter (½ US pint= ⅜ Imp. pint)

8 Brake fluid

9 Clutch fluid

The fluid level in the brake and clutch control hydraulic systems should be checked after every 3 000 miles (5 000 km). The fluid should be up to a point about 3/4" (15—20 mm) below the upper edge of the containers.

Use only brake fluid satisfying the conditions laid down in SAE 70 R 3.



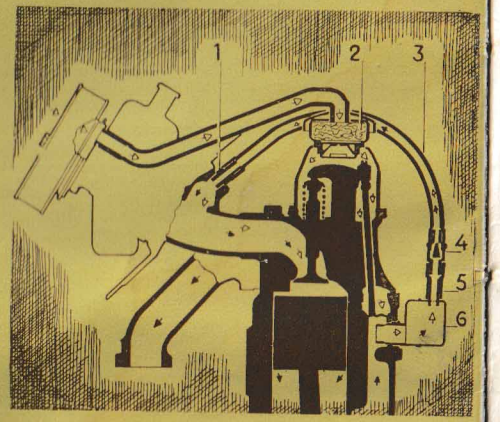
ENGINE

10 Care of the crankcase ventilation system

The positive crankcase ventilation system prevents the gases in the crankcase from being released into the atmosphere. Instead these gases are sucked into the intake mainfold and blown out through the exhaust pipe in the normal manner.

The valve (4) is replaced at intervals of 12 500 miles (20 000 km). At the same time the oil trap (6), hoses (3 and 5), nipple (1) and filter (2) are removed and cleaned thoroughly. The rubber hoses should also be replaced if they are in a poor condition.

For cars without positive crankcase ventilation, the filter in the oil filler cap should be cleaned in gasoline (petrol) every 6 000 miles (10 000 km).



11 Change the oil filter

The engine is fitted with a fullflow type oil filter, this meaning that all the oil passes through the filter on the way from the oil to the various lubricating points. Impurities in the oil thus collect in the filter and gradually block it. For this reason it must be changed at regular intervals, after about every 6 000 miles (10 000 km). This operation should preferably be carried out by a Volvo workshop.

If the oil filter is changed without the engine oil being changed, 0.5 liter (1 US qt. = 1 3/4 Imp. pints) should be added to the engine.

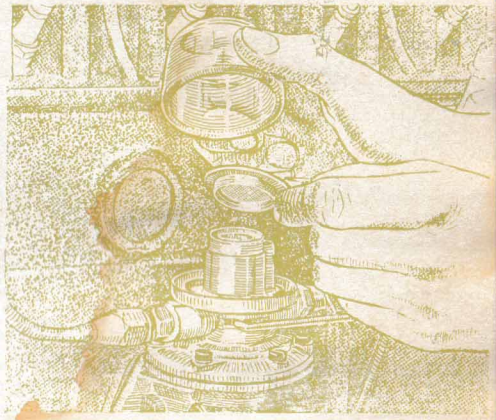
12 Valve clearances

Let your Volvo workshop check the engine valve clearances after every 6 000 miles (10 000 km). Excessively small clearances can easily cause burned valves.

13 Clean the fuel filter

In order to avoid dirty fuel from being pumped into the carburetors, the fuel filter should be serviced. Due to the accessible location of the filter, it is very easy to clean.

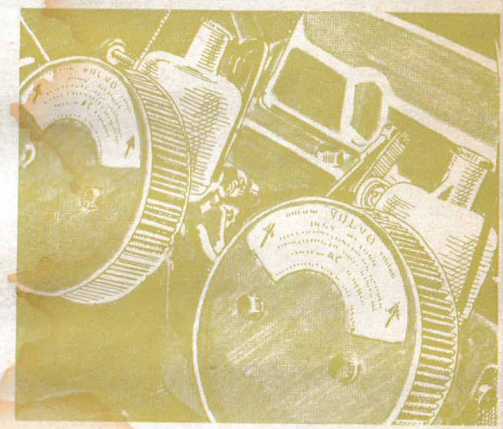
The fuel filter should be cleaned after every 6 000 miles (10 000 km). Loosen the nut and move the bail to one side. Remove the glass bowl and strainer and clean these parts. When the filter is being re-fitted, make sure that the gasket seals properly.



14 Change the air cleaners

The air cleaners on the SU carburetors should be replaced with new units after every 12 500 miles (20 000 km). The old unit should be thrown away since the cleaner and the filter are built together in one unit. When driving on dusty roads it may be advisable to change the air cleaners more often, for example after every 6 000 miles (10 000 km).

NOTE. The ventilation air to the lower part of the carburetor suction chambers passes the air cleaner through the two upper holes in the cleaner, so it is important to see that the gasket and the air cleaner are fitted correctly in each case, since otherwise these holes will be blocked.



15 Check the fan belt tension

After about every 6 000 miles (10 000 km) you should let your Volvo workshop check that the fan belt tension is correct. Due to wear or dirt, this belt can start slipping and the result will be poor cooling and poor generator output. You can easily check the tension by pulling the tips of the fan blades in their correct direction of rotation. There should be definite resistance to movement (at a pulling force of 12—14 lb. = 5.5—6.5 kg) before the belt starts slipping. A simple but not so reliable way of testing belt tension is to press in the fan belt with your thumb at a point midway between the generator and the fan. It should be possible to press down the belt about 1/8" = 3—4 mm with normal thumb pressure.

16 Check the cooling water level

The engine cooling water should be checked each time the fuel tank is filled. Water is added through the filler opening on the top of the radiator. Be careful when you remove the radiator cap. There are two positions on the cap, one to decrease pressure in the system and a second position to remove the cap.

In order to avoid deposits in the cooling system, only clean water should be used (not containing calcium or iron), together with some rust-preventive agent. Rust-preventive agent with a mineral oil base must not be used since it can damage the hoses. See page 42 for anti-freeze.

Never add cold water to a hot engine. The sudden difference in temperature can cause cracks in the cast material.

17 Clean the cooling system

If the cooling system is to function in an effective manner, all the channels in the engine and the radiator must be free from deposits and impurities. The deposits that build up consist of the salts always present in normal water. Cleaning can conveniently be carried out in connection with filling or draining of anti-freeze in the autumn and spring (see page 42). If necessary, however, the cooling system can be cleaned more often.

18 Check the spark plugs

The spark plugs should be cleaned at a Volvo workshop after every 6 000 miles (10 000 km) and the electrode gaps checked at the same time.

The plugs can be cleaned by using a brush or a sand-blaster and should then be blown clean with compressed air. The electrode gap should be 0.028″ (0.7 mm). After the spark plugs have been cleaned and adjusted they should be tested in a spark plug tester.

19 Replace the spark plugs

When the electrodes have been burnt down by about 50 %, all the spark plugs should be replaced. This corresponds to about 12 500 miles (20 000 km). This replacement should preferably be carried out at a Volvo workshop since the spark plugs should be tightened with a torque wrench.

When fitting new spark plugs, make sure that you fit the right type (see page 48).

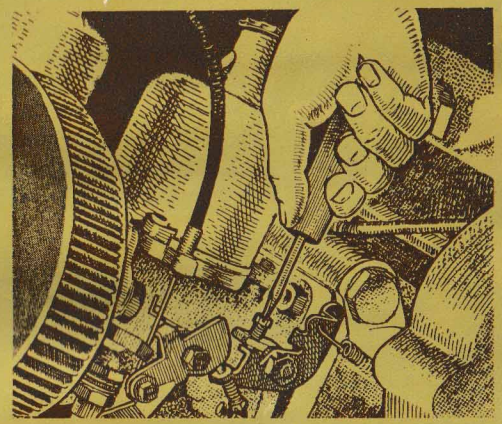
20 Ignition system

The distributor contact breaker gap and the engine ignition timing setting should be checked at a workshop after every 6 000 miles (10 000 km).
All adjusting work in the engine ignition system should be carried out by a workshop possessing the correct equipment for this work. A distributor is one of the most sensitive units in the engine and careless handling can lead to decreased engine output, high fuel consumption and, in the worst case, serious damage to the engine.

21 Carburetors

The engine is fitted with a carburetor system consisting of two coupled SU carburetors of the horizontal type. The carburetor throttles are connected by means of a shaft so that movements of the accelerator pedal influence both the carburetors simultaneously.

IDLING SETTING



The engine idling setting is correctly adjusted before the car is delivered from the factory and should not be altered later. Should adjustment be necessary, it should be carried out by a Volvo workshop so that the engine delivers the highest output.
Provisional adjustment can, however, be carried out by listening to the induction sound on the carburetors while the setting screws on the carburetors are screwed inwards or outwards to increase or decrease the idling speed. When the setting is correct, the air induction sound on both the carburetors should be the same.

LUBRICATION OF DAMPING CYLINDERS

Each time the engine oil is changed, the nut on top of each carburetor should be removed and the damping plungers taken out. Engine oil with viscosity SAE 20 of a standard grade (that is to say, not multigrade oil) should then be added so that the inner tube is full but not the part above this.

Fuel

The gasoline (petrol) used as fuel should be at least 97 octane. If gasoline with too low an octane value is used, knocking or glow ignition can result. When the engine is supplied from the Volvo factory, it is adjusted for operation on 97 octane fuel.

ELECTRICAL SYSTEM

22 Check the battery electrolyte level

If it is to function correctly, the battery should be regularly checked to ensure that the electrolyte level is not too low. This check can conveniently be carried out when the car is being tanked. The electrolyte level should be about 3/8" (5—10 mm) above the cell plates. If necessary, top up with distilled water. Never add too much since otherwise the acid can splash over and cause damage in the engine compartment. Never check the electrolyte level by using a lighted match. The gases formed in the cells are very explosive.

23 Check the state of charge of the battery

The state of charge of the battery should be checked after every 6 000 miles (10 000 km). This check is carried out with the help of a hydrometer which shows the specific gravity of the battery acid, this varying with the state of charge of the battery, see page 48. At the same time as the state of charge is checked, the terminals and terminal bolts should be checked to make sure that they are well tightened, and they should be smeared with grease or vaseline. If necessary, they can be wiped off with a cloth or brushed with a steel brush before being greased.

24 Check headlamp alignment

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

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 headlamp bulbs, which have filaments for both full and dimmed lights. The guide pins on the sockets of these bulbs are either of different thicknesses or they are staggered so that the bulbs can only be fitted in one definite position. Certain makes of bulbs have a "Top" mark which should be turned upwards.

When fitting bulbs, you should never touch the glass with your fingers. The reason for this is that grease, oil, etc. can be carbonized by the heat from 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 lift upwards so that the retainer catch releases its grip.

3 Loosen the three screws retaining the inner ring (upper picture). These screws do not need to be completely removed. The inner ring can then be removed by turning it in an anti-clockwise direction. Then lift out the insert.

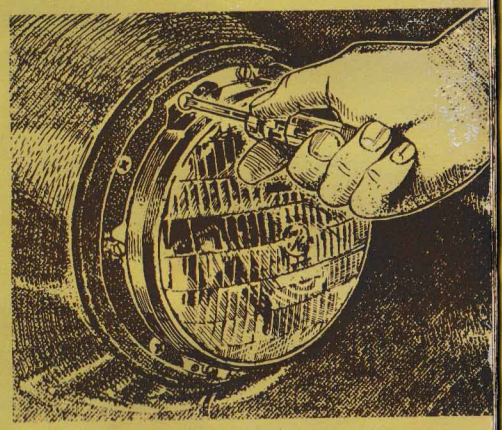
4 The insert is more convenient to deal with if the cable plug is removed (middle picture).

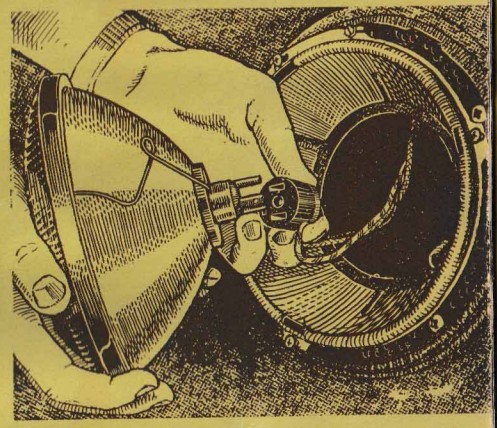
5 Loosen the spring which retains the bulb holder (lower picture).

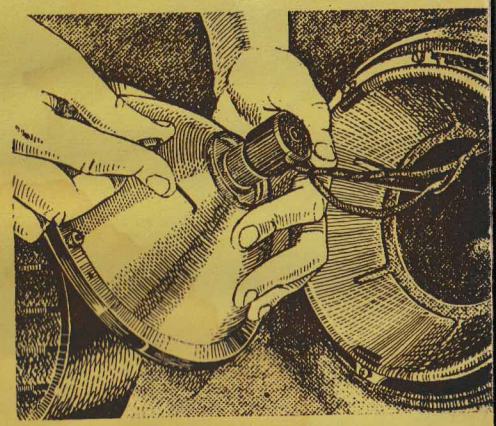
6 Take out the bulb holder and loosen the bulb by pushing it inwards and then turning it in a clockwise direction. When fitting the new bulb, remember that the pins on the socket have different thicknesses.

7 When the bulb holder is being refitted in the insert, make sure that the small catch engages in its notch.

On vehicles fitted with Sealed Beam headlamps, follow the instructions under points 1—4 and then replace the complete unit.







REPLACING THE BULBS IN THE INTERIOR LIGHTING UNITS

The bulbs are accessible after the shade has been removed by pulling it outwards.

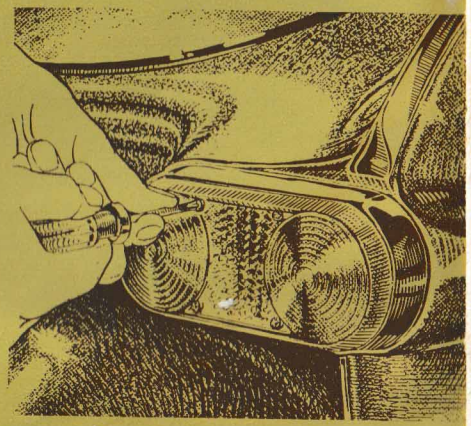
REPLACING THE BULBS IN THE FRONT PARKING LIGHT/FLASHERS

First loosen the glass in the rim. These units can be loosened at the same time by turning in an anti-clockwise direction. The bulb is now accessible for replacement. The bulb has a bayonet fitting but remember that the pins on the socket are in different positions.

REPLACING THE BULBS FOR THE DIRECTIONAL SIGNAL/TAIL LIGHTS AND STOPLIGHTS

Loosen the screws with a Philips screwdriver and remove the glass.

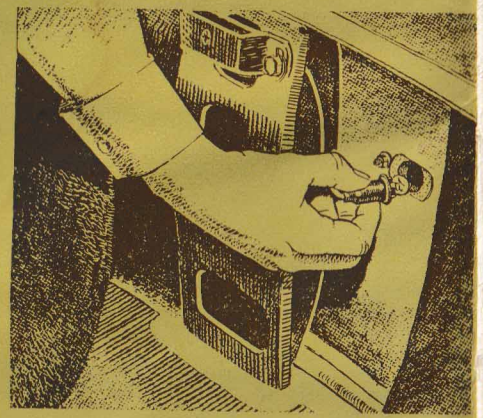
The bulbs are now accessible for replacement. The outer bulb is the directional signal and tail light, the inner bulb is the stop light.



REPLACING THE BULB FOR THE LICENSE PLATE LIGHTING AND BACK-UP LIGHT

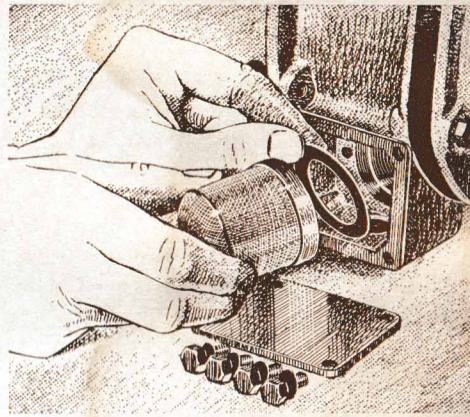
The bulbs for the license plate lighting and the back-up light are accessible from the inside of the luggage compartment.

The bulb holder is loosened simply by pressing it to one side, after which the bulb, which has a bayonet fitting, can be removed.



POWER TRANSMISSION SYSTEM

25 Cleaning the overdrive oil strainer



The oil strainer is behind a cover on the left side of the overdrive (see picture) and should be cleaned each time the oil in the transmission (gearbox) is changed (that is about every 25 000 miles = 40 000 km). The oil strainer should be cleaned in gasoline (petrol) or with spirit and blown dry, preferably with compressed air. Check that the gaskets are in good condition before you fit the strainer and the cover.

26 Checking the clutch yoke free travel

In order to avoid risk of the clutch slipping, the clutch yoke free travel should be checked at regular intervals and adjusted if necessary after every 6 000 miles (10 000 km). If the clutch does not disengage in a satisfactory manner, the free travel of the clutch pedal should also be checked. See page 49 for data. The clutch should be checked and adjusted at a Volvo workshop which has the equipment for this purpose.

BRAKES

27 Check and overhaul the brakes

After every 6 000 miles (10 000 km) the car should be taken to a Volvo workshop for a check on the function of the brakes.

As the brake linings become worn, the brake shoes must be adjusted so that satisfactory braking effect is obtained without excessively large movements of the brake pedal and handbrake lever.

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

SERVICING

FRONT END

28 Checking the front wheel alignment

Correct front wheel alignment is of vital importance for the steering characteristics of the car. Faulty adjustment can also mean unnecessarily heavy tire wear.

For this reason you should let your Volvo workshop carry out a regular check on the front wheel alignment, for example after every 6 000 miles (10 000 km). If the car has been involved in a collision or heavy impact, and it is suspected that the front end may have been affected, the car should be taken as quickly as possible to a workshop for a check of the front wheel alignment. Volvo workshops have special measuring equipment for this purpose and can therefore carry out this control very quickly. The front wheel alignment angles are shown on page 49.

29 Checking the ball joints, tie rod, etc.

After every 6 000 miles (10 000 km) the car should be taken to a Volvo workshop for a check of the front end concerning looseness in the ball joints, steering gear, etc.

WHEELS AND TIRES

30 Check the tire pressure

Make a habit of checking the tire pressure regularly. The best way to do this is to check the pressure at a service station while the car is being tanked. Use a gauge for this purpose. See page 49 for the correct air pressure. Do not forget the spare wheel. Even if the spare wheel is not used, the pressure can go down and the tire can be flat just when you need it. Do not let the spare wheel remain unused for a long time, but change it around at regular intervals with the other tires.

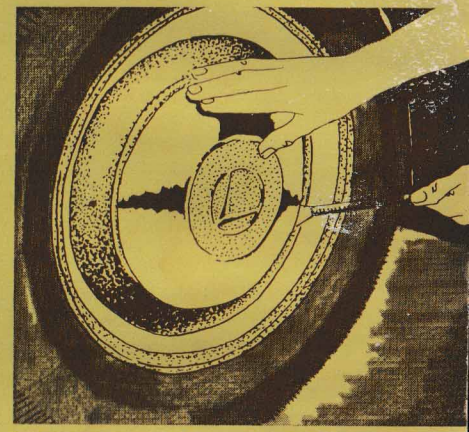
31 Check-tightening the wheel nuts, balancing

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

If inspection of the tires shows that there are particularly worn spots and unusual wear on the tread, the car should be taken immediately to a Volvo workshop for the wheels to be re-balanced.

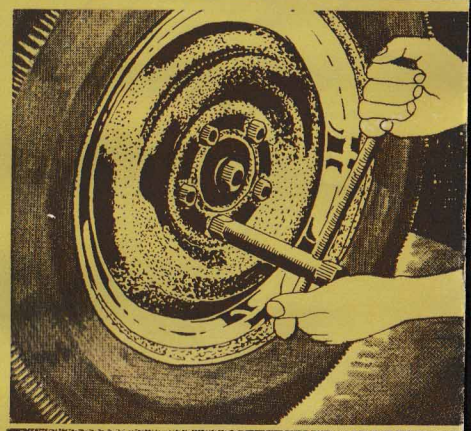
Changing a wheel

Before the car is jacked up, the handbrake should be applied. Lay some blocks or stones in front of and behind the wheels that remain on the ground as a further safety measure. Remember that the handbrake only influences the rear wheels.



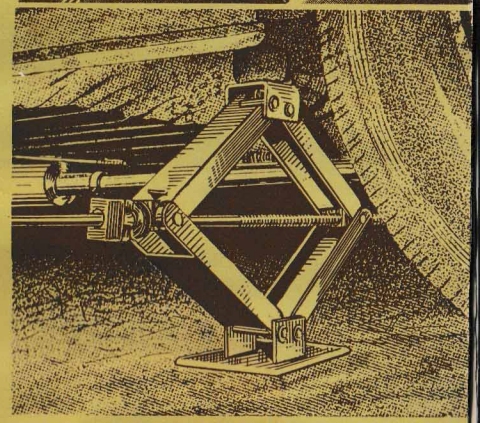
REMOVING

1 Lever off the hub cap with the help of the spade-shaped lever.
2 Loosen the wheel nuts slightly with the help of a socket wrench. All the wheels have right-hand thread nuts which can be loosened by turning in an anti-clockwise direction.
3 Place the jack in the jack recess nearest the wheel that is to be lifted up. Lift up the side of the car so high that the wheel is clear of the ground.
4 Remove the wheel nuts completely and lift off the wheel. Be careful when lifting off the wheel so as not to damage the threads on the wheel studs.



FITTING

1 Lift on the new wheel and screw up the nuts. Then lower the car and tighten the nuts finally. Tighten the nuts alternately.
2 Fit the hub cap by striking smartly with the hand a little at a time all round until it is firmly in position.



BODY

32 Washing

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

While the car is being washed it should stand so that it is not in direct sunlight since otherwise drying patches can result. First rinse off the underside of the body with a jet of water and use a soft brush if necessary. Then rinse down the whole body with a light jet until the dirt has softened up. Do not be sparing with the water. The dirt is then washed off with a sponge, using plenty of water.

If washing with water alone is not sufficient, washing agents can be used. Be careful when choosing a washing agent since some of them can be detrimental to the surface finish. Asphalt splashes and tar spots can be removed with white spirit.

Whenever a washing agent is used, the car should be well rinsed down with clean water afterwards.

After washing, the car should be carefully dried off with a soft, clean chamois leather.

33 Polishing and waxing

The car should be polished when the surface finish appears to be a little dull and normal washing is not sufficient to make it shine again. Under normal conditions it is sufficient to polish the car a couple of times a year, on condition that it is carefully serviced and washed in the meantime.

The car should be carefully washed and dried off before polishing. If polish should be applied on a dirty or dusty surface, the result can easily be scratches on the surface finish. Avoid polishing in direct sunlight since the result of this can be a smeary surface. Use only a good quality polish intended for synthetic finish.

Polishing a couple of times a year is generally sufficient to give the surface finish of the car the maintenance it needs. If you want to wax the car yourself, be very careful to see that the surface is absolutely clean before the wax is applied. The car should also be newly polished. Be very careful when using solvents, since these can be very damaging to the surface finish. Waxing may not be carried out before one year after the car has been delivered.

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 a lot near the sea. After washing, you can apply wax or anti-rust preparation.

TOUCHING UP THE UNDERBODY SEALING, GRAVEL DAMAGE, ETC.

At the same time as you rinse off the underbody, the underbody sealing should be examined. Should it need touching up, make sure that this is done before there is any rust damage on the metal.
Synthetic paint-spraying makes great demands on workshop equipment and professional skill, and for this reason you should take the car to a Volvo workshop if any extensive damage needs touching up.
You can touch up minor gravel damage and scratches yourself, and for this purpose Volvo dealers can supply approved touching-up paint in matching colors in 100 gramme tins.
Always have minor damage remedied as soon as possible, since otherwise there is risk of rusting.

34 Cleaning

CLEANING THE UPHOLSTERY

The upholstery consists of leather and plastic-coated fabric. The leather parts are cleaned with a damp cloth or possibly a mild soap solution. In the case of heavy staining, consult a cleaning expert concerning the choice of a suitable cleaning agent.
The plastic-coated fabric is washed with a tepid soap solution, or in difficult cases with a suitable household detergent.
Do not use gasoline (petrol), white spirit, carbon tetrachloride or similar cleaning agents, since these can damage both the leather and plastic-coated fabric.

CLEANING THE FLOOR MATS

The floor mats should be taken out at least twice a year and cleaned. This is particularly important during the winter, since it is easy for snow and ice to be brought into the car on the feet and the mats should then often be removed for drying. At the same time remove gravel and dirt from the floor plating under the mats.
If the rubber mats have become stained, they can be cleaned with methylated spirit which is then rinsed off with water.

PROCEDURE IN COLD WEATHER

When cold weather is on the way, it is time to think of the winter servicing of your car. The first night frost can come as a very unpleasant surprise unless you are prepared. Most people know that anti-freeze should be added to the cooling system, but do not forget that the water in the windshield washer container can also freeze. Moisture in the door locks can also freeze.

Engine cooling system

Some suitable anti-freeze should be added to the cooling system in good time before the cold weather. The most usual anti-freeze is methylated spirit or ethylene glycol, methylated spirit having the disadvantage that it evaporates at normal engine temperatures. Ethylene glycol is more stable and is therefore preferable. Pure ethylene glycol, however, has a corrosive effect on the engine cooling system and for this reason the anti-freeze glycol available on the market also contains additives to prevent corrosion. For technical reasons these additives cannot be added in greater quantity than is necessary for one winter season. Under unfavorable conditions they can even be used up more quickly, for example, if there is sludge, rust or flushing agent left in the cooling system. Never use the same glycol for more than one winter season. The cooling system should be carefully cleaned out before anti-freeze is added. Drain off the complete cooling system, including the heater, and rinse out with water, steam (at a pressure of about 14 lb/sq.in.=1 kg/cm²) or suitable cleaning agent.

COOLING SYSTEM DRAIN COCKS

Four cocks should be opened when the cooling water is drained off. They are located as follows:
At the rear on the right side of the engine block.
Under the oil cooler.
Under the heater.
Low down on the left side of the radiator.

MIXING TABLE FOR ETHYLENE GLYCOL AND WATER

Cooling system capacity	Necessary amount of ethylene glycol for frost protection down to:				
	—10° C (14° F)	—15° C (5° F)	—20° C (—5° F)	—30° C (—22° F)	—40° C (—40° F)
Liters 9	2.0	2.75	3.25	4.25	5.0
US pints 19	4 1/4	5 3/4	6 3/4	9	11
Imp. pints 16	1 3/4	4 3/4	5 3/4	7 1/2	9 1/4

The maximum depression of freezing point, —56° C (—69° F), is obtained by adding 6.1 liters (12 1/4 US pints=10 1/2 Imp. pints) of glycol.

Engine lubricating system

During the winter engine oil with a viscosity of SAE 10 W should be used in the engine lubricating system. This lighter oil reaches the lubricating points in the engine more easily at low temperatures and also facilitates cold starting. If you drive mainly short stretches during the winter, the engine oil should be changed more often than normal, for example, after every 1 500 miles (2 500 km).

Electrical system

The electrical system in the car is subjected to greater stresses during the winter than during the warm summer months. The lighting and the starter motor are used more and this means higher current consumption, and since the capacity of the battery is considerably lower with lower air temperatures, it must be checked more often and re-charged when necessary. If the battery voltage is excessively low, there is risk of frost damage to the battery.

Brake system

During the winter the brakes are more subjected to splash and condensation water. This can result in the handbrake freezing-on when it is applied. For this reason the handbrake should not be applied when the car is parked, but first gear or reverse should be engaged instead.

Windshield washers

At the same time as the engine cooling system has anti-freeze added, the water in the windshield washer container should also have anti-freeze added. Your Volvo dealer can supply you with suitable anti-freeze for this purpose.

Anti-freeze for door locks

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 to lubricate the lock in good time with some anti-freeze preparation.

SERVICING BEFORE A LONG-DISTANCE TRIP

If you are thinking of travelling abroad with your car, or taking a long trip, you should have it overhauled first in a Volvo workshop. You will enjoy your journey better if you know that your car is in perfect trim. But even if something should go wrong, your journey need not be spoiled. Wherever you go you will have a Volvo workshop within easy distance to take care of your car. The regular servicing of your car need not be neglected while you are driving abroad. All Volvo service workshops abroad are fitted out to give your car the service it needs.

IF YOU PREFER TO LOOK OVER YOUR CAR YOURSELF, THE FOLLOWING TIPS ARE WORTH NOTING:

1 Give the car thorough all-round lubrication.

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

3 Examine the tires carefully. Replace worn tires.

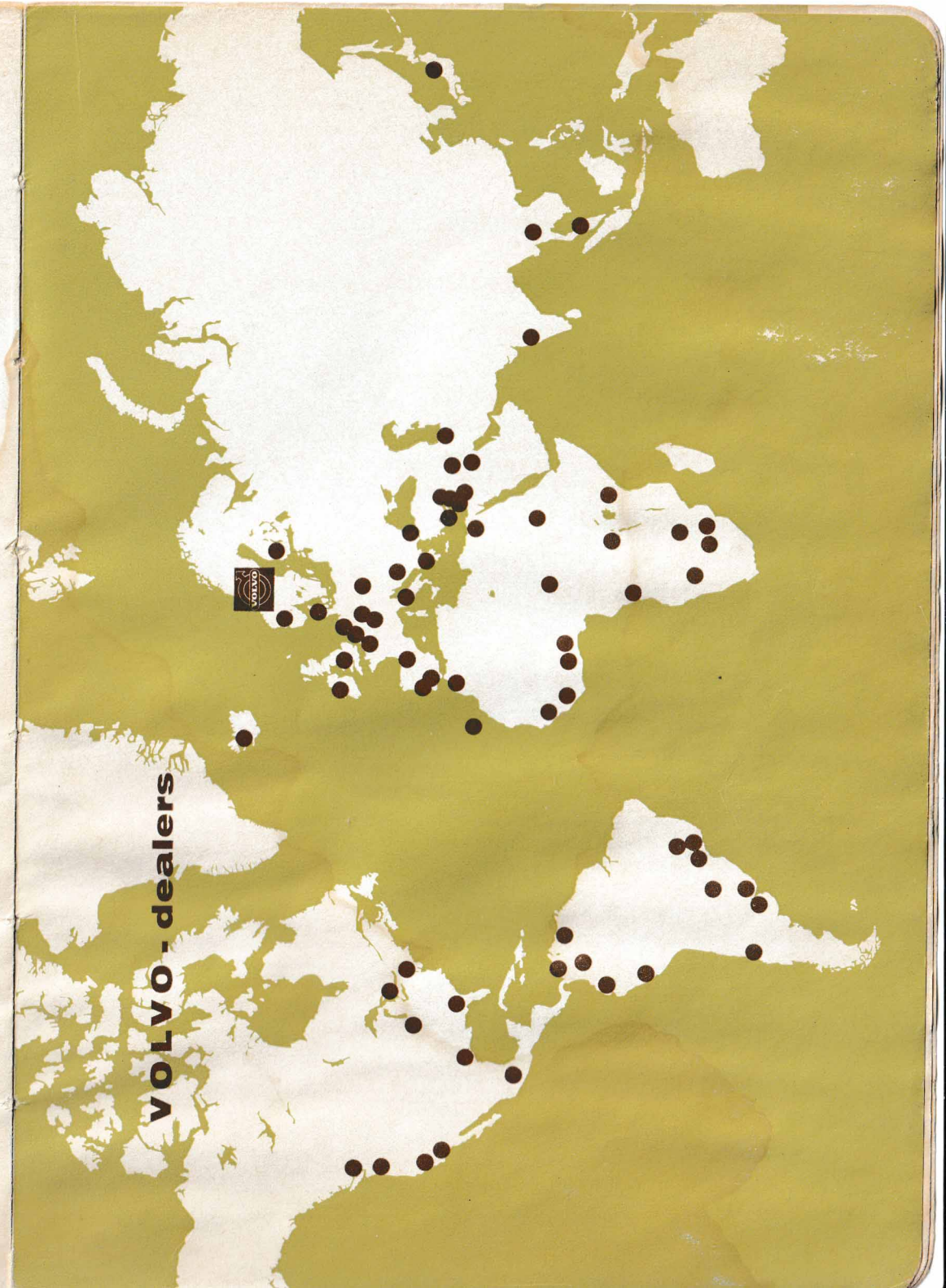
4 If you are not sure whether the engine is functioning perfectly and that the fuel consumption is normal, you can save both time and money by having a thorough check carried out.

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

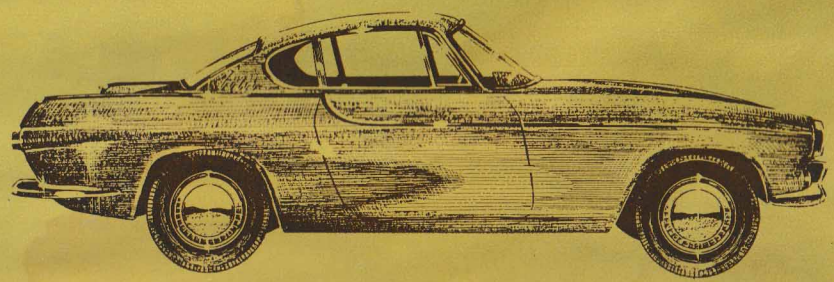
6 Check the brakes, the front wheel alignment and the steering gear.

7 Check over the tool kit and check the spare wheel.

8 Check the lighting and adjust your headlamps for left- or right-hand traffic where necessary.



SPECIFICATIONS



This chapter contains technical data which may be useful to you as owner of the car. Consult your dealer if you require more information.

DIMENSIONS AND WEIGHTS

Length	173 1/4″	(4400 mm)
Width	67″	(1700 mm)
Height	50 1/2″	(1285 mm)
Wheelbase	96 1/2″	(2450 mm)
Track, front	51 3/4″	(1315 mm)
rear	51 3/4″	(1315 mm)
Ground clearance	6″	(155 mm)
Turning circle	31 ft 2″	(9500 mm)
Curb weight (including driver)	Approx 2650 lb. (1200 kg)	

CAPACITIES

Fuel tank	approx. 45	liters (12 US galls.=10 Imp. galls.)
Cooling system	approx. 9	liters (19 US pints=16 Imp. pints)
Engine, when changing oil	approx. 3.25	liters (3 1/2 US qts.=3 1/4 Imp. qts.)
„ incl. oil filter	approx. 3.75	liters (4 US qts.=3 1/2 Imp. qts.)
Transmission (Gearbox),		
M 40	approx. 0.75	liter (1 1/2 US pints=1 1/4 Imp. pints)
M 41	approx. 1.8	liters (2 US qts.=1 3/4 Imp. qts.)
Rear axle	approx. 1.3	liters (2 3/4 US pints=2 1/4 Imp. pints)
Steering box	approx. 0.2	liter (1/2 US pint=3/8 Imp. pint)

ENGINE

Type designation	B 18 B	
Output (SAE)	108 b.h.p. at 5800 r.p.m.	
Output (DIN)	96 b.h.p. at 5600 r.p.m.	
Max. torque (SAE)	109 lb.ft. (15.2 kgm) at 4000 r.p.m.	
Max. torque (DIN)	103 lb.ft. (14.3 kgm) at 3800 r.p.m.	
Number of cylinders	4	
Bore	3.312″	(84.14 mm)
Stroke	3.15″	(80 mm)
Displacement	108.6 cu.in.	(1.78 liters)
Compression ratio	10:1	
Valves	Overhead	
Valve clearances, warm and cold engine, inlet	0.020″—0.022″	(0.50—0.55 mm)
exhaust	0.020″—0.022″	(0.50—0.55 mm)
Idling speed	600—800 r.p.m.	
Carburetors, make and designation	SU-HS 6	

Cooling system

Type	Pressure	
Thermostat		
starts to open at	167—172° F	(75—78° C)
fully open at	192° F	(89° C)
Fan belt, designation	HC 38×35″	

Ignition system

Order of firing	1-3-4-2
Ignition setting, stroboscope at 1500 r.p.m.:	
97 octane (Research Method)	14—19° before TDC
100 octane (Research Method)	17—19° before TDC
Spark plugs, type	Bosch W 225 T 1*
Spark plug gap	0.028″—0.032″ (0.7—0.8 mm)
Spark plug tightening torque	27—30 lb.ft. (3.8—4.2 kgm)
Distributor dwell angle	60°

* Or corresponding types.

ELECTRICAL SYSTEM

Voltage	12 V
Battery, type	Boliden 107 GM 60 or corresponding type
Battery capacity	60 Ah
Battery electrolyte, specific gravity	1.275—1.285
Battery electrolyte, specific gravity when recharging necessary	1.230
Generator, rated effect	240 W
Starter motor, rated output	1 h.p.
Fuses	35 A (3)

Lamp bulbs (12 V)

	Number	Effect
Headlamps	2	45/40 W
Directional signals/parking lights, front	2	21/6 W
Directional signals/tail-lights	2	21/6 W
Brake stoplights	2	21 W
License plate lighting	2	4 W
Interior lighting	2	6 W
Reversing light	1	21 W
Instrument lighting	9	2 W
Map-reading lamp	1	6 W
Warning lamp, directional signals	1	2 W
Warning lamp, full-beam headlamps	1	2 W
Warning lamp, charging	1	2 W
Warning lamp, overdrive	1	2 W

POWER TRANSMISSION SYSTEM

Clutch

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

Transmission (Gearbox)

Type designation	M 40	M 41
Ratios 1st	3.13:1	3.13:1
2nd	1.99:1	1.99:1
3rd	1.36:1	1.36:1
4th	1:1	1:1
Overdrive	—	0.76:1
Reverse	3.25:1	3.25:1

Rear axle

Type	Spiral bevel (hypoid)	
Ratio	4.1:1	4.56:1

FRONT WHEEL ALIGNMENT

(Unloaded car but including fuel, water and spare wheel)

Toe-in	0—0.16″ (4 mm)
Camber	0—+1/2°
Caster	0—+1°
King pin inclination (with 0° camber)	8°

WHEELS AND TIRES

Wheel size	4 1/2 J×15 L
Type of tires	Braced tread with inner tube
Tire size	165—15
Tire pressure (cold tires):	
Front	26 lb./sq.in (1.8 kg/cm²)
Rear	29 lb./sq.in. (2.0 kg/cm²)

TOOL KIT

Jack with lever
Socket wrench with lever
Adjustable wrench
Pliers
Screwdriver
Philips screwdriver
Tool bag

SYMBOLS

Engine oil
Grade: "For Service MS"
Viscosity: Below 0° C (32° F) SAE 10 W*)
Between 0° and 30° C (32°—90° F) SAE 20*)
Above 30° C (90° F) SAE 30*)

Rear axle oil
Grade: Hypoid oil
Viscosity: SAE 90 (continuously below 0° C=32° F SAE 80).

Chassis lubricant

Special lubricant
See notes

Brake fluid
Grade: SAE 70 R 3

Light engine oil

*) Or multigrade oil SAE 10 W-30

NOTES FOR LUBRICATING CHART

Note 1 Check that the oil is up to the filler plug.

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

Note 3 Check that the fluid level is about 3/4" (15—20 mm) below the upper edge of the container.

Note 4 After every 12 500 miles (20 000 km), disconnect the drive cable from the instrument, pull about 8" (20 cm) out of the sleeve, wipe it off and smear with a *thin* layer of grease. Do not use oil since this can seep up into the instrument.

Note 5 Lubricate the pull rod at the cotter pin with light engine oil.

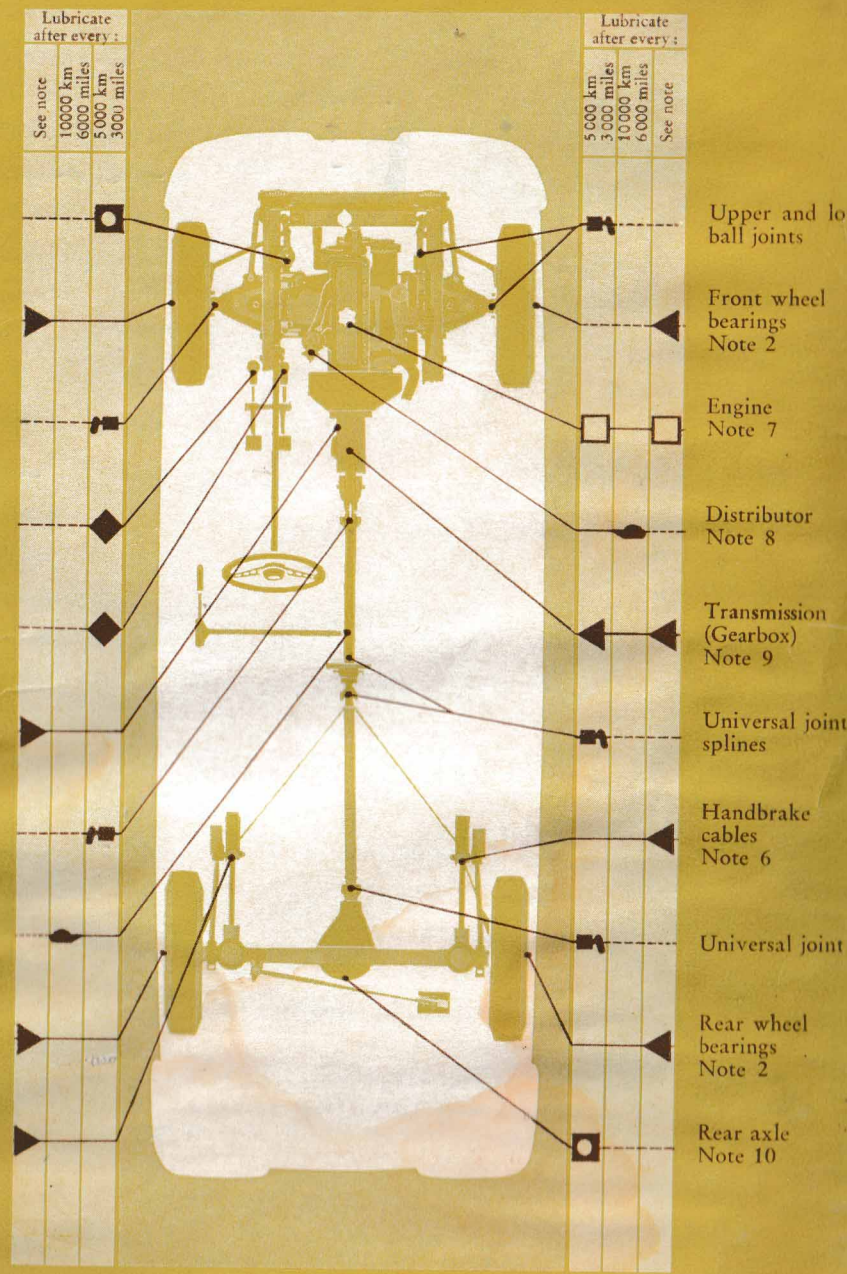
Note 6 Have the handbrake cables lubricated with graphite grease a couple of times a year.

Note 7 Check the oil level when tanking or at least every 14 days. Change the oil every 3 000 miles (5 000 km) as well as spring and autumn when changing over to oil of another viscosity. Each time the engine oil is changed, top-up the carburetor damping cylinders — see the detailed description on page 33.

Note 8 After every 6 000 miles (10 000 km) drop a little light engine oil on the felt wick under the rotor in the distributor. The rotor can be lifted off the shaft after the distributor cap has been removed. At the same time, lubricate the outside edge of the cam with a very thin layer of vaseline.

Note 9 Check the oil level after every 3 000 miles (5 000 km) and change the oil after every 25 000 miles (40 000 km).
Lubricant:
Car without overdrive (M 40): See page 29.
Car with overdrive (M 41): SAE 30 engine oil. The overdrive drain plug is marked "Drain". Fill up with oil relatively slowly so that the oil runs down into the overdrive. Check that the oil level does not go down when it comes up to the filler hole.

Note 10 Check the oil level after every 3 000 miles (5 000 km). Change the oil after the first 3 000 miles (5 000 km). After this, the oil level only needs checking and topping up when necessary.



Servo Unit (1228540) (657897) 242.24 17.56
Rebuild Kit (276556-8) o/h unit 38.68 {3838 SP 2230

8-6 Ft Worth Volvo (Sat: 8-12)

(530) B 478-0412 4½ s. of 820 on Mansfield Hwy
Ram Automotive (Dallas)

Personal information

Name .....

Address .....

Tel. No. .....

Driving license No. .....

Insurance Company .....

Insurance Policy No. .....

.....

.....

Nearest Volvo Dealer

Name .....

Address .....

Tel. No. .....

Garage Manager .....

Tel. No. .....

Car information

Type designation 183451 M

Chassis No. * 18345 1-F 022133

Engine No. .....

Registration No. .....

Ignition key No. 321253

Door key No. FS ~~853~~ 943

Fuel tank lock, key No. "

License CPN595

Color Ugh

AB VOLVO GÖTEBORG SWEDEN

VOLVO

1800S

TP 206/3 3000. 7. 64 (Engelska) Printed in Sweden RUNDQUISTS