



VOLVO

PV 444

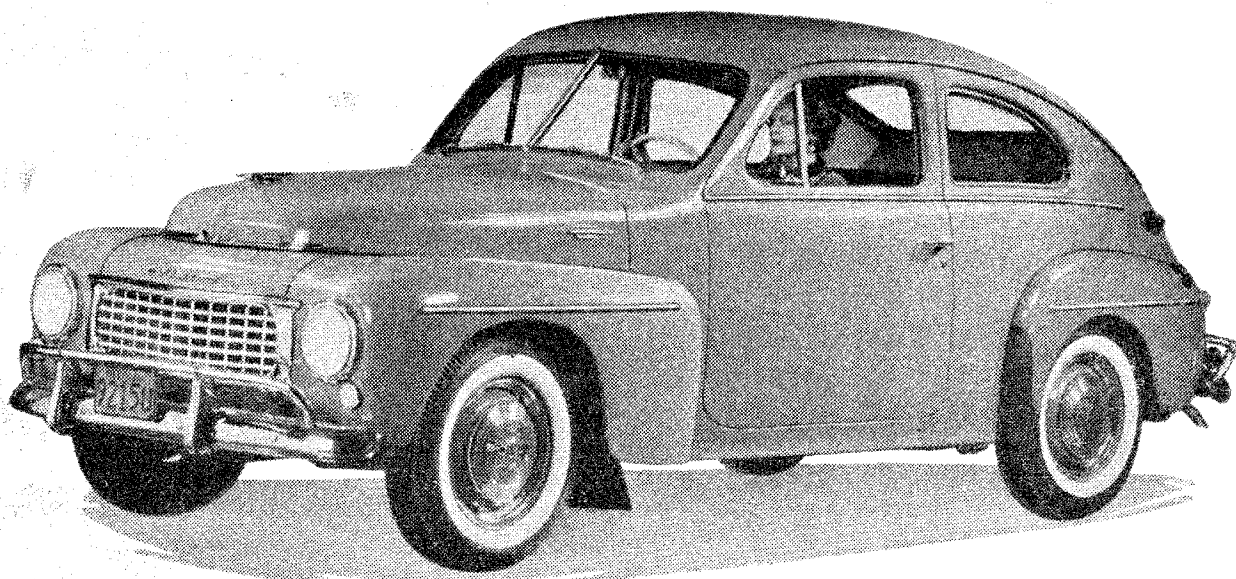
Instruction book

INSTRUCTION BOOK

FOR THE

VOLVO

PV 444



AKTIEBOLAGET VOLVO

Export Service Department

GOTHENBURG · SWEDEN

Handelstryckeriet, Göteborg 1956

FOREWORD

The purpose of this instruction book is to provide you with information concerning the operation and maintenance of your new Volvo PV 444 car.

Lengthy specifications have been avoided as much as possible and illustrations are used extensively.

This book deals with the PV 444 fitted with the Sports engine.

Only adjustments that can be carried out by the owner have been dealt with in detail and the routine maintenance and repairs mentioned should be carried out by an authorized Volvo dealer. In this way, you can be sure of guaranteed service and genuine Volvo spare parts.

We should like to emphasise the importance of regular servicing. Regular lubrication and minor adjustments that are neglected can lead to expensive repair bills.

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

AKTIEBOLAGET VOLVO

Export Service Department

Gothenburg

Sweden

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Type designations

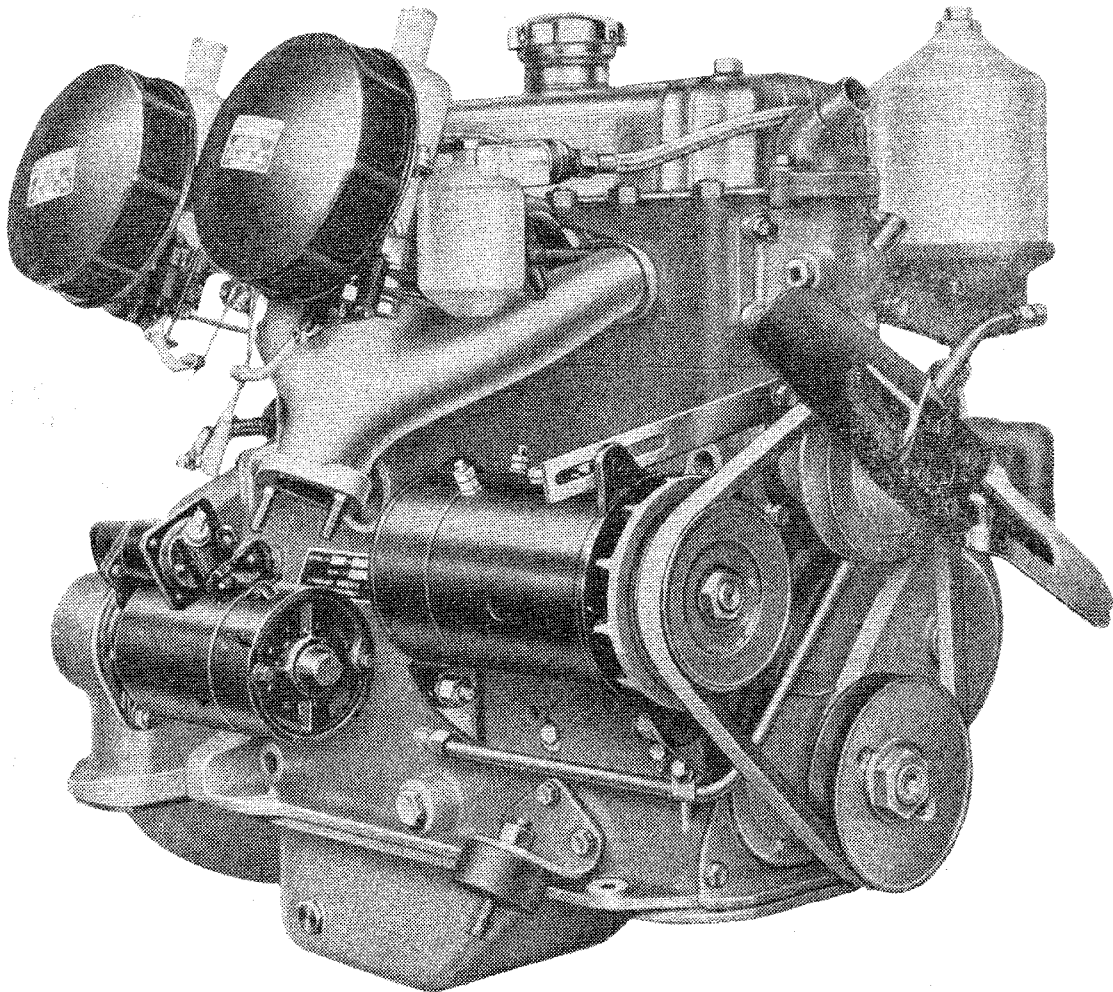
The type designation and chassis number of the car are stamped on a plate attached to the right on the front of the bulkhead under the hood. Engine type and number are stamped on a plate attached to the rear of the engine on the right side. Contact your Volvo dealer who will examine your car and give you any information you may require.

In all correspondence with your Volvo dealer or with the factory and when ordering spare parts, you should always state the type designation of the car and the chassis or engine number.

DESCRIPTION OF THE CAR

Sports engine

Type designation	B14A
Output	70 b.h.p. at 5500 r.p.m.
Torque	75.9 lb/ft (10,5 kgm) at 3000 r.p.m.
Wheelbase	102½" (2600 mm)
Track, front	51" (1295 mm)
Track, rear	51½" (1315 mm)
Weight (including driver)	2290 lb. (1040 kg)



The B14 A engine

Four cylinder valve-in-head engine. Three replaceable main bearings. Light-alloy pistons. Lubrication is carried out by a gear pump which is driven by the camshaft. Twin SU carburetors. The cooling system is fitted with a thermostat and a by-pass to ensure that the engine rapidly attains its normal working temperature.

The body is an integral construction unit. This makes for strength, low weight and a low centre of gravity. The alligator-jaw type hood is hinged at the front end in order to eliminate any danger of it blowing open.

Springing. Individual front wheel suspension. Coil springs front and rear. Hydraulic shock absorbers front and rear.

Clutch. This is of the dry disk type.

Transmission with three forward speeds and reverse. Second and high synchronized. All gears are silent-running.

Brakes of the hydraulic type, self-adjusting and self-centering. The handbrake is mechanical and operates on the rear wheels.

The electrical system is a 6-volt system. Generator. Voltage regulator. The starter motor is operated by means of the ignition key. The ignition switch and the ignition coil are connected by means of an armored cable as an anti-theft precaution.

The car heater is thermostat-controlled and fitted with a fan and a fresh-air shutter. This shutter is used to regulate the supply of air to the windshield.

INSTRUMENTS AND CONTROLS

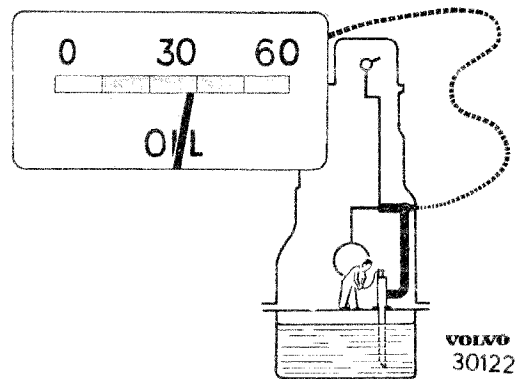
(The numbers in brackets refer to the diagram on the next page).

The various values shown by the instruments on the instrument panel present a picture of the performance of the car. Before driving your new Volvo, notice where the different instruments are placed. Glance at them now and then while you are driving so that any abnormal readings may be detected in good time.

Oil pressure gauge (3)

Indicates the oil pressure in the engine. It does not show the quantity of oil in the pan. The pressure gauge should, when the engine is warm, indicate 42–57 p.s.i.

If the pointer goes back to 0 while the engine is running, stop the engine immediately and determine the source of the trouble.



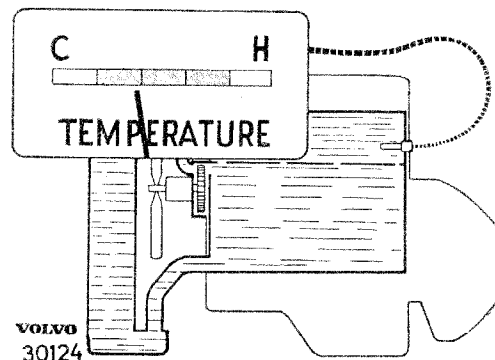
Water temperature gauge (8)

This records the temperature of the cooling water, i.e. the operating temperature of the engine.

The cooling water temperature should normally be 60°–80° C (140°–175° F) corresponding to the two central sections on the scale.

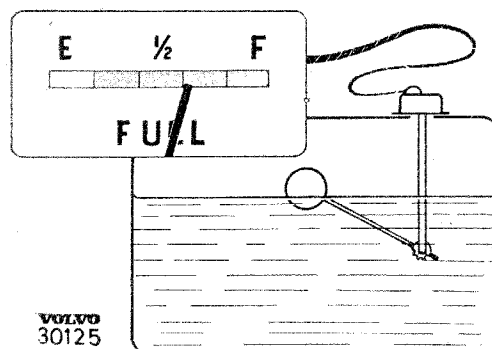
If the operating temperature is too low then the rate of engine wear increases considerably.

If the water temperature gauge shows a high reading for a considerable period of time, this can be due to the fact that some of the water channels are blocked thus hindering circulation.



Fuel gauge

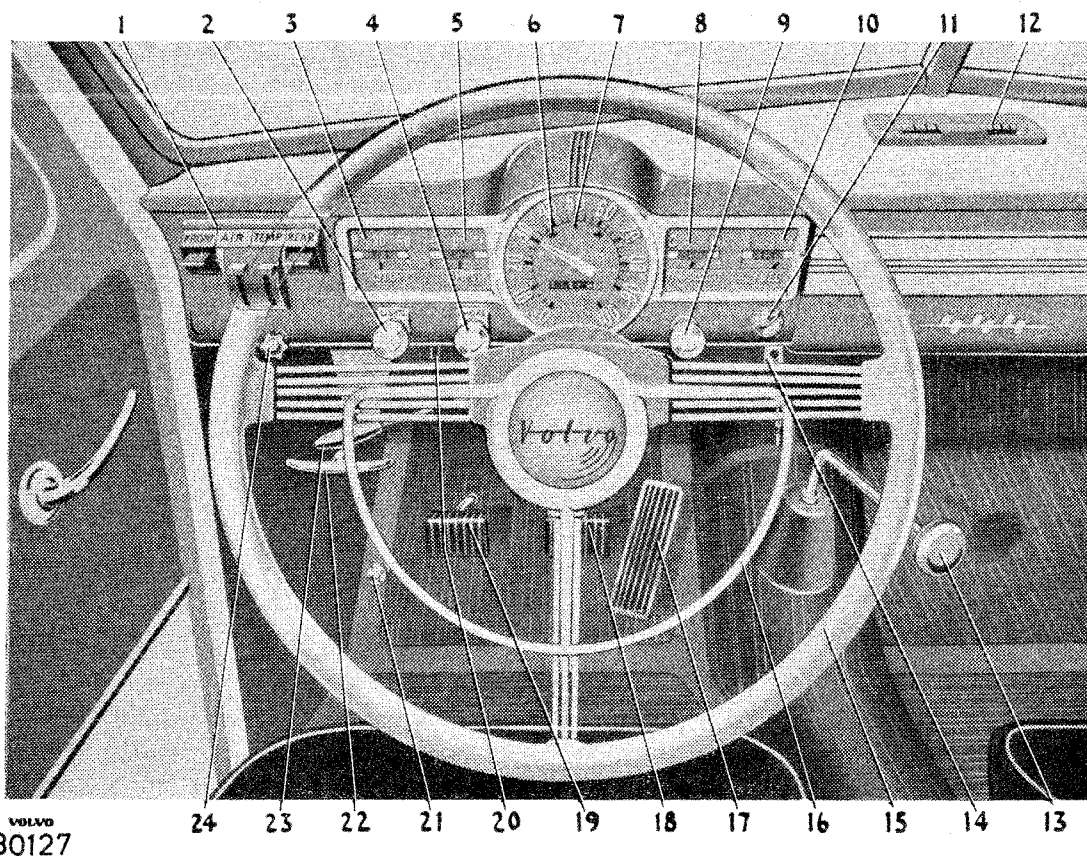
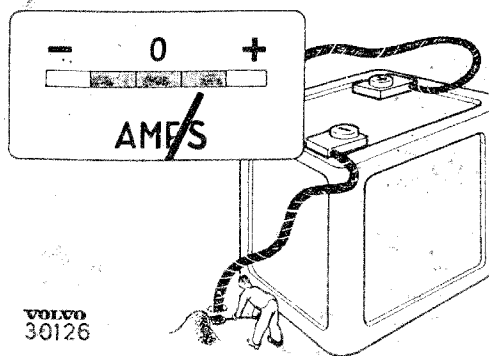
Indicates the contents of the tank when the ignition switch is on.



Ammeter (5)

Indicates the flow of current into or out of the battery.

At low engine speeds, the ammeter gives a negative (—) reading. At high engine speeds there will be a positive (+) reading if the battery is not already fully charged or there is not a great number of current-consuming accessories in use.



Instruments and controls.

- | | |
|---|--------------------------------|
| 1. Heater controls | 12. Ash tray |
| 2. Lighting switch | 13. Gear lever |
| 3. Oil pressure gauge | 14. Radiator blind control |
| 4. Choke control | 15. Steering wheel |
| 5. Ammeter | 16. Horn ring |
| 6. Directional signal warning light | 17. Accelerator pedal |
| 7. Headlamp beam warning light | 18. Brake pedal |
| 8. Water temperature gauge | 19. Clutch pedal |
| 9. Cigarette lighter (optional extra) | 20. Instrument lighting switch |
| 10. Fuel gauge | 21. Dip switch |
| 11. Combined starter switch and ignition switch | 22. Handbrake |
| | 23. Directional signal switch |
| | 24. Windshield wiper control |

Keys

There are four keys in the car when it is delivered, of which two are duplicates.

One of the keys fits the combined ignition and starting switch while the other fits the car door and the lock on the rear compartment.

The numbers, which are stamped on the keys, should be noted on the reference list on the inside back cover of this book. This is a safeguard in case it is necessary to obtain new keys for the car.

The number of the ignition key is stamped on a plate on the key ring. Destroy this plate after noting the number.

If the keys are mislaid, contact the nearest Volvo dealer.

Locks

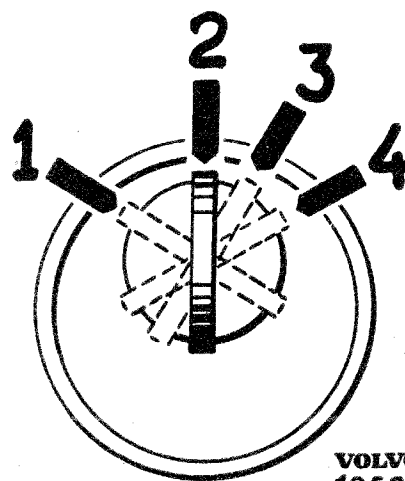
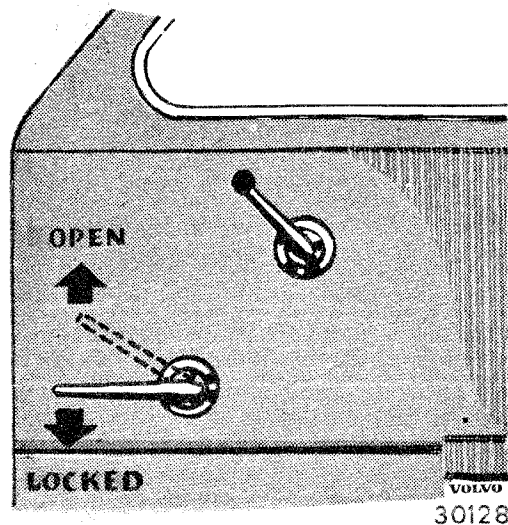
The right-hand door is locked by pressing the inside door handle downwards as shown in the diagram.

The left-hand door is locked from the outside with the same key that is used for the rear compartment. The door handles and locks are automatically coupled so that you cannot lock yourself out of the car by mistake.

If the lock should freeze up in very cold weather be careful not to break the key by trying to force it. Use a cigarette lighter or a match to warm up the key. This will melt the ice that has formed in the lock.

Combined ignition switch and starting switch (11)

The starting switch is combined with the ignition switch. When the switch is turned as far as it will go



in a clockwise direction (position 4) the starter motor is coupled in. Release the key as soon as the engine has started. It will then be in the driving position (3). If the key is turned in an anti-clockwise direction (position 1) it is possible to use the electrical accessories in the car without having to start the engine.

Choke control (4)

When a cold engine is started, it always requires a richer fuel mixture than when warm. To the left on the instrument panel there is a button marked "Choke" which operates by means of mechanical enrichment on the twin SU carburetors.

The choke should be used carefully and only when starting a cold engine. The choke button should be completely pushed in when the engine attains its operating temperature.

N. B. When starting a warm engine, keep the accelerator pedal depressed and do not use the choke. Do not pump the accelerator pedal either since this will make starting more difficult.

Lighting switches (2, 20, 21)

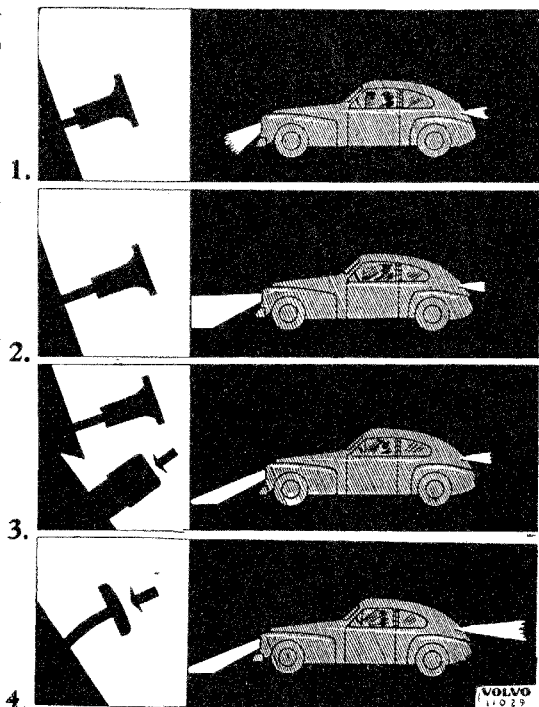
The lighting system is operated by means of two switches, one to the left on the instrument panel ("LIGHTS") and the dip switch to the left on the floor.

The positions of the hand switch are shown in the diagram.

The headlamps are dipped and brought back to the full "on" position by means of the dip switch. The headlamps should always be dipped when meeting oncoming vehicles at night in order to avoid blinding the driver.

There is a red warning light in the upper part of the speedometer which lights up when the headlamps are full "on".

In order to eliminate the menace to traffic safety in the form of "one-eyed" cars, the wiring has been connected in such a way that the parking lights continue to function even though the headlight bulb on that side may have burned out.



1. Parking lights 3. Headlamps full "on"
 2. Headlamps dipped 4. Brake lights

To the left under the instrument panel there is a switch operating the indirect instrument lighting. There is a built-in resistance so that the strength of the instrument lighting may be varied. When the knob is turned as far as it will go in an anti-clockwise direction, then the instrument panel lighting is switched off. The more the knob is turned in a clockwise direction, the brighter the instrument lighting will be.

The roof light is operated by means of a switch on the light housing. This switch has three positions. In the left-hand position, the roof light is on. In the right-hand position, the roof light comes on when the left-hand door is opened. In the central position, the light remains off even when the door is opened.

Windshield wiper control (24)

The windshield wipers are vacuum-operated and are switched on by means of a knob to the left on the instrument panel. The speed of the windshield wipers may be regulated by the extent to which the knob is turned. A vacuum tank is available as an optional extra through which the function of the windshield wipers becomes independent of the loading on the engine.

Directional signal switch (23)

The directional signals (which are of the blinker type) are operated by means of a lever to the left of the steering wheel. They are automatically cancelled when the steering wheel is centred after turning the corner.

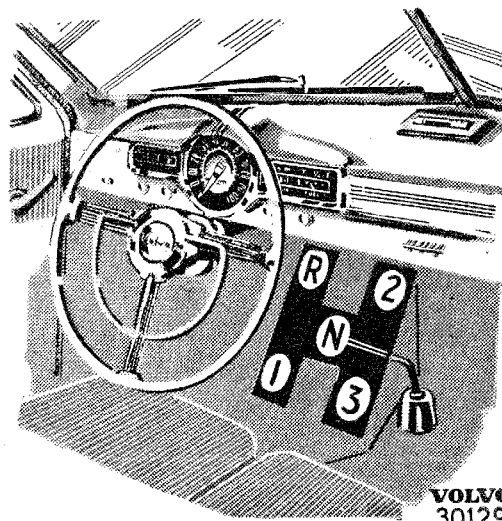
The directional signals are fitted with two warning devices. One is a ticking sound and the other is a green arrow in the upper part of the speedometer which blinks.

Clutch pedal (19)

Make a habit of keeping your foot well away from the clutch except when actually using it. Riding the clutch causes excessive wear on the release mechanism and the clutch facings.

Gearshift lever (13)

The gearshift lever is used to vary the gear ratio between the engine and the rear axle. The car is equipped with a three-speed transmission of which 2nd and high are synchronized. When shifting gear, make a slight pause in the neutral position, before engaging the new gear. The positions of the various gears are shown in the diagram.



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Brake pedal (18)

The brake pedal operates the hydraulic system on all four wheels.

Handbrake (22)

The handbrake control, of the pull rod type, is placed to the left under the instrument panel. The handbrake is normally used only as a parking brake.

When the handbrake is applied, it is automatically locked in the applied position. The brake lever is released by turning it about $\frac{1}{4}$ of a turn in an anti-clockwise direction.

Radiator blind control (14)

Extra equipment includes radiator blinds. In order to attain the normal operating temperature for the engine ($60^{\circ}-80^{\circ}\text{C}=140^{\circ}-175^{\circ}\text{F}$), the blind should be pulled up about half-way when starting a cold engine. While the car is being driven, the blind should be adjusted so that the above temperature is maintained. When driving during the winter months, it is often necessary to have the blind about half-way up all the time.

Cigarette lighter (9)

A cigarette lighter is supplied as an optional extra. This is installed on the right-hand part of the instrument panel. To use, push it in as far as it will go. When the lighter is ready for use, it jumps out automatically.

Ash trays (12)

The car is fitted with three ash trays, of which one is placed in the top of the shelf over the instrument panel and the other two in the arm-rests on the rear seat. The ash trays may be removed for emptying by pulling upwards.

Glove compartment

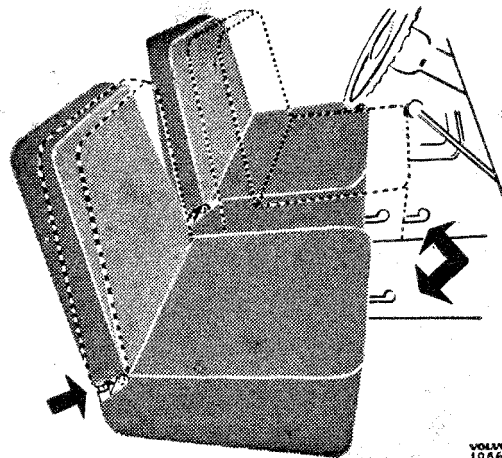
There is a glove compartment in the right-hand side of the instrument panel. It is opened by pressing in the catch.

Front seat adjustment

The front seats may be moved either backwards or forwards in order to suit individual requirements.

The front seats may be moved as required after releasing the catch as shown in the diagram.

N. B. After adjusting the seats, make sure that the catch engages properly; this is to avoid the risk of the seat moving forward when the brakes are applied hastily.



The angle of the back support may be set by adding or removing shims between the support screws and the frame of the back support. See diagram.

Hood lock

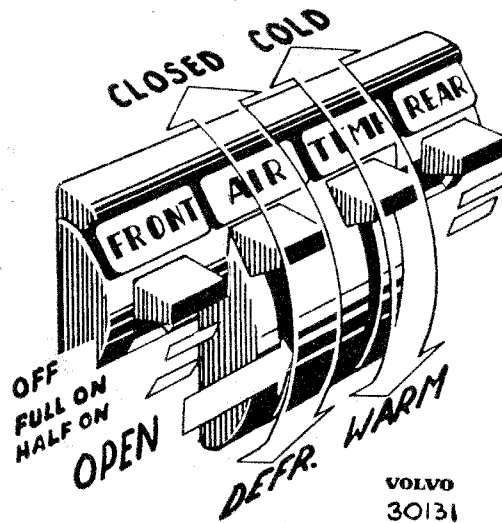
The hood lock is operated from the driver's seat by means of a lever which is centrally placed under the instrument panel. When this lever is pulled backwards, the hood lock is released.

Ventilator windows

These provide draught-free ventilation of the car. When the ventilation windows are closed and the handles pressed down they are automatically locked by means of a pin. This lock is released by pressing the button in the end of the handle.

Heater (1)

A heater is standard equipment on all cars. This is a combined warm air and fresh air system providing heated fresh air during the winter and cool fresh air during the summer.



All the heater controls are assembled in the form of a small control panel to the left on the instrument panel.

The switch on the extreme left, "Front", regulates the fresh air fan. The switch has three positions- "off" in the upper position, maximum effect in the central position and intermediary effect in the lower position. The switch marked "Air" controls the fresh air shutter. The shutter is closed when the switch is in the upper position and fully open

when it is in the central position. When the switch is in the lower position (defroster position) all the air goes to the windshield. The switch marked "Temp" regulates the temperature of the incoming air. When the switch is in the upper position, there is no heating effect at all. The further downwards this switch is, the more the incoming air is heated.

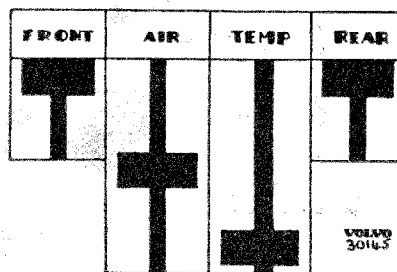
The fresh air fan, "Front", need not be switched on while the car is driven at normal speed. It may be necessary, however, to switch it on when driving very slowly or when the car is not moving.

A fan for the rear window, "Rear", is available as an optional extra. This is operated by the switch at the extreme right; it is used to remove mist or frost from the rear window.

To obtain good ventilation, the ventilation windows should be always very slightly open since the car is so air-tight that otherwise the air might tend to become a little stale.

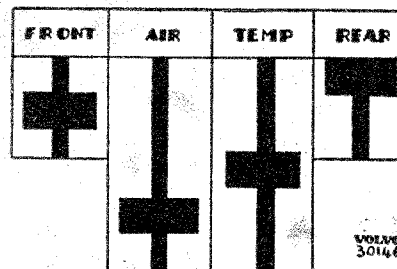
Winter — exceptionally cold weather

1. Open the air shutter, "Air", to defrost (switch in lower position) when starting. When engine has become warm, move switch to fully open (intermediate position).
2. Set temperature switch to desired temperature.
3. If necessary, switch on fresh air fan ("Front").



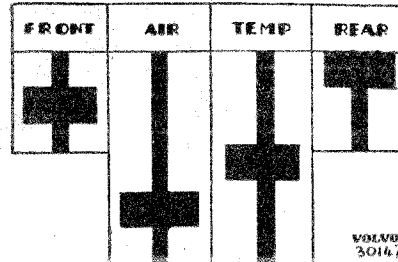
Winter — snowy weather

1. Have fresh air shutter "Air", fully open.
2. Set temperature switch to desired temperature.
3. Move the "Air" switch nearer to defroster position if there are signs of mist on windshield.
4. If necessary, switch on fresh air fan ("Front").



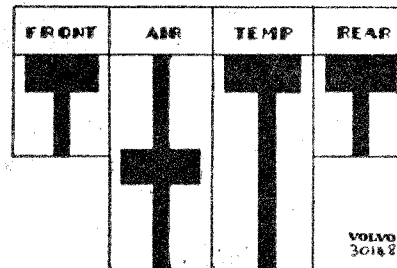
Winter — sleet

1. Open fresh air shutter, "Air", completely.
2. Set temperature switch in intermediary position.
3. If the windshield begins to mist up, move the "Air" switch nearer to the defroster position.
4. Keep the ventilation windows open as much as possible especially when starting a journey.
5. If necessary, switch on the fresh air fan, "Front".



Summer — air conditioning

1. Set the fresh air shutter "Air", in the fully open position.
2. If even more effective ventilation is desired, switch on the fresh air fan, "Front".
3. When driving through districts with unpleasant smells, i.e. certain industrial districts, close the fresh air shutter, "Air".



DRIVING INSTRUCTIONS

The life-time of your car depends entirely on how you look after it and also, to a great extent, on the care you exercise when driving it. This chapter consists of advice and recommendations which, if carefully followed, will increase the life-time of your car and keep down your maintenance costs.

How to treat your new car

The running-in and settling-down period is the most important in the life-time of your car. During this period i.e. the first 1000 miles, you must drive your car especially carefully. The reason for careful running-in is that the pistons, cylinder walls and bearing surfaces in the engine as well as the bearings and gear wheels in the transmission and the rear axle obtain a hard, smooth surface which is the most important factor for long trouble-free service.

Do not drive the car faster than 35 m.p.h. in high gear during the first 300 miles. During the next 300 miles the maximum speed may be gradually increased to 45 m.p.h. Between 600 and 900 miles speed may be gradually increased if due care is exercised. Never drive faster than 55 m.p.h. during this period. Check now and then while driving that the cooling water temperature and the oil pressure are normal. **During this period the engine may not be subjected to heavy loading for long stretches.** Do not drive too slowly either since this can cause excessive carbon deposits on the piston rings with resultant high oil consumption. During the first part of the running-in period before the piston rings have properly settled in, the oil consumption will be somewhat higher than with an engine that has been run in. After 900 miles running, the actual running-in period is over but this does not mean that the engine can be run under heavy loading for long stretches. We recommend that reasonable care should be exercised during the following 1250 miles. Change engine oil more often than usual during the running-in period. Carry out the first oil change after 500 miles running. The sump should be drained, thoroughly rinsed, cleaned and refilled. After 1500 miles change the oil again. The oil should be changed thereafter at intervals of 2500 miles.

Never add lubricant to the fuel since this only causes excessive carbon deposits on pistons, piston rings and valves without improving lubrication at all.

All engines are thoroughly tested at the factory, first of all in a test bench and then, when the car is complete, in a road test. In this way we ensure that all clearances are correct and we cannot accept responsibility for piston or bearing seizures which may occur as the result of careless running-in.

How to start the engine

Before starting the engine, check that:

1. The radiator is full of water (with anti-freeze added during the winter).
2. There is sufficient oil in the pan.
3. There is sufficient fuel in the tank.

Starting a cold engine.

1. See that the hand brake is on.
2. Check that the gearshift lever is in neutral.
3. Pull out the choke rather more than half.
4. Depress the clutch pedal.
5. Turn the ignition key to the starting position. Release the key as soon as the engine fires. If the engine fails to start after a few revolutions, do not operate the starter again until the engine is stationary.
6. When the engine has started, adjust the speed of the engine by using the accelerator pedal.
7. As the engine warms up, push in the choke. By the time the engine has attained operating temperature, the choke should be completely pushed in.

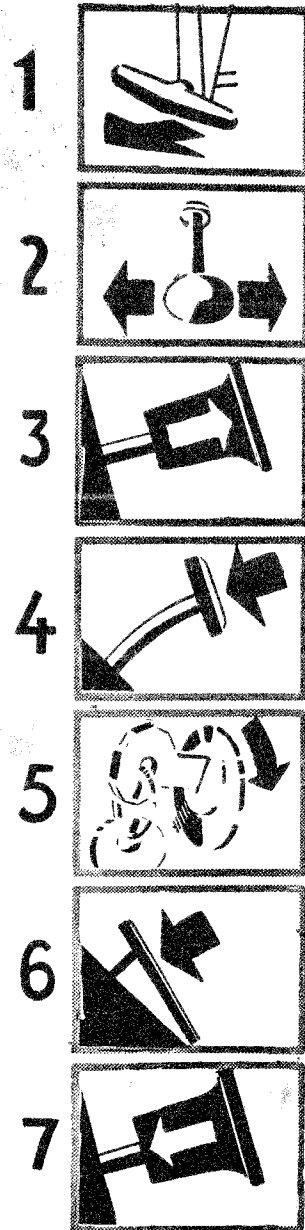
Starting a warm engine

When the engine is warm it is started as above with the exception of points 3 and 7.

The accelerator pedal should be completely depressed when starting a warm engine.

Warming-up period

Experience has shown that engines in vehicles used in delivery service i. e. constant stopping and starting are subject to abnormally rapid wear. The reason is that the engines in these vehicles rarely have a chance to attain the normal operating temperature, the result being that the corrosive acids which are formed by the remaining oxidation



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Never race a cold engine.

products in the engine corrode the cylinders more rapidly than usual. As may be gathered from this example, it is very important to attain the normal working temperature in the engine as soon as possible.

Cover up the radiator by using the radiator blind. After starting the engine, let it run for a minute or so at rapid idling speed. Then engage gear and drive away the car. Do not load the engine too much before it has attained the normal operating temperature.

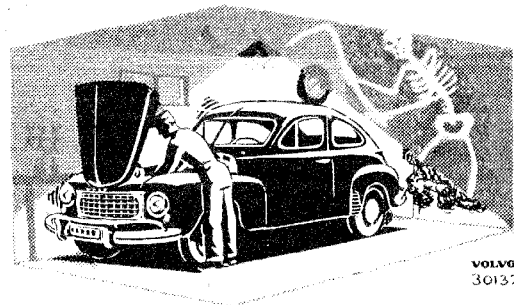
Before engaging gear and driving the car, be sure that the oil pressure is normal.

Do not race the engine while it is cold. Racing a cold engine for only one minute can cause as much engine wear as hundreds of miles of normal driving. While the lubricant is cold it is somewhat thicker and shortly after starting has not yet become thin enough to penetrate into all the bearings.

Do not run the engine in a closed garage

Open all the garage doors before you start your car. The exhaust gases contain a very deadly poison, carbon monoxide. The occurrence of this gas is very difficult to detect since it is colourless and odourless.

Remember that air containing as little carbon monoxide as two parts in one thousand (2/1000) is usually fatal if breathed in for about half an hour.

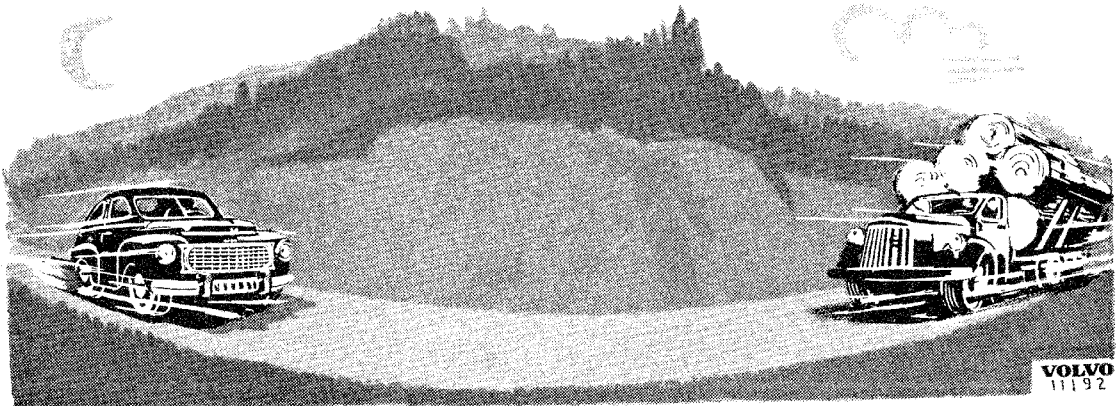


Never run the engine in a closed garage.

How to drive well

Speed

Your new car holds the road so well that you will be tempted to drive very fast. But remember: it is easy to drive fast but harder to drive well. Fast driving is not, as many people believe, a sign of good driving. Remember, too, that speed is limited by rules and regulations. Always



Slow down on curves.

suit your speed to prevailing conditions. Do not try to drive so quickly on a narrow, twisting road as on a broad highway. Do not drive so fast in a built-up area as in the country. Slow down a little and keep well to your own side of the road when approaching a hilltop. You never know what you might meet on the other side. See below for the various speeds which we consider to be ideal under varying conditions.

Braking distances

The braking distances depends on:

- a) The conditions of the brakes
- b) The type of road surface
- c) The state of the road (wet or dry)
- d) The state of the tires

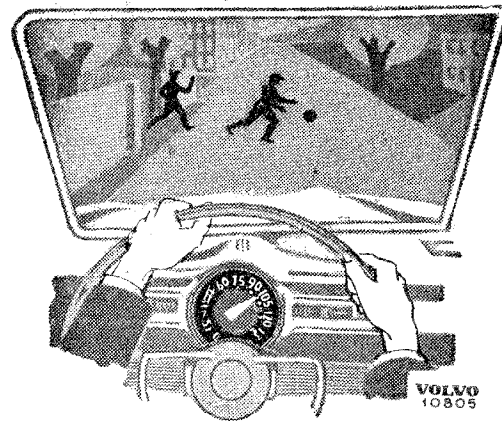
The diagram shows the normal braking distances for this car when driving on a dry concrete road. The diagram shows also the minimal distances which are essential under favourable conditions. If the road is wet, the tires hard or worn or the brakes in bad condition, an even longer braking distance must be reckoned with. Speeds are shown in miles per hour.

Gear shifting

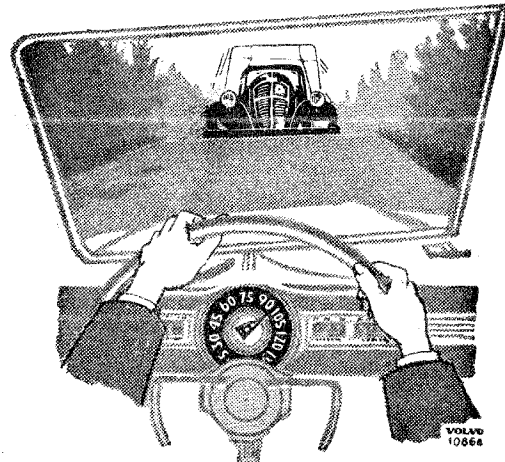
The positions of the various gears have already been shown in the "Description of the car". When shifting gear, always hold the gear-shift lever in neutral for a very short time before engaging the new gear.

2nd and high speed gears are synchronised. If it is necessary to

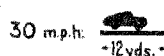
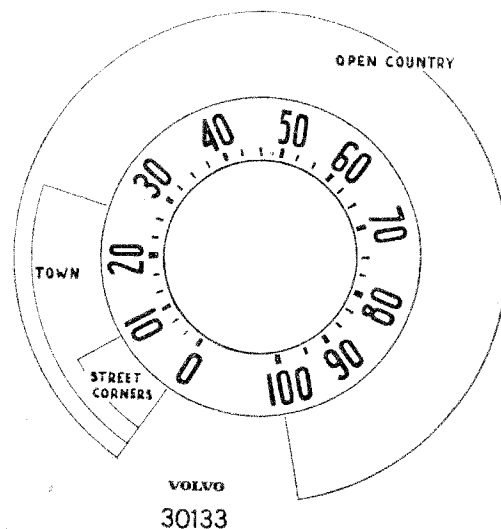
Braking distances (dry concrete road)



Slow down in built-up areas.



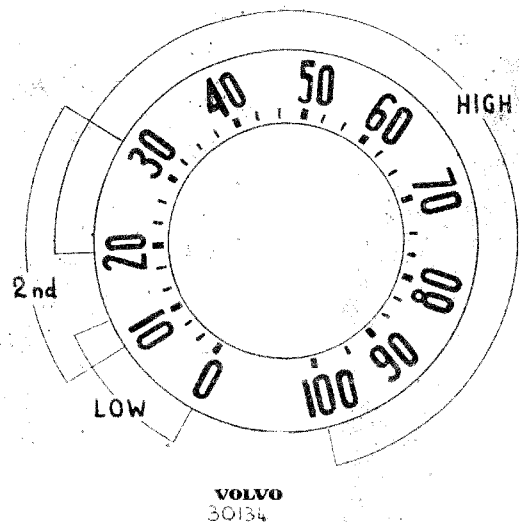
Slow down when taking a hilltop.



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change down to low, however, you must use the "double de-clutching" method.

Do not drive the car too quickly in low as this means increased fuel consumption. On the other hand, do not drive too slowly in top gear. To drive round a corner in town, for example at 6-9 m.p.h. in top gear is a great mistake since the engine and transmission are subjected to heavy and uneven loading. This diagram shows the gears to be used for various speeds. The speeds shown are in m.p.h.



Starting on a hill

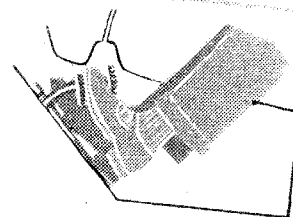
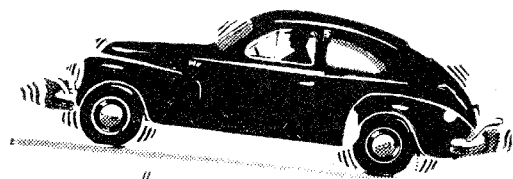
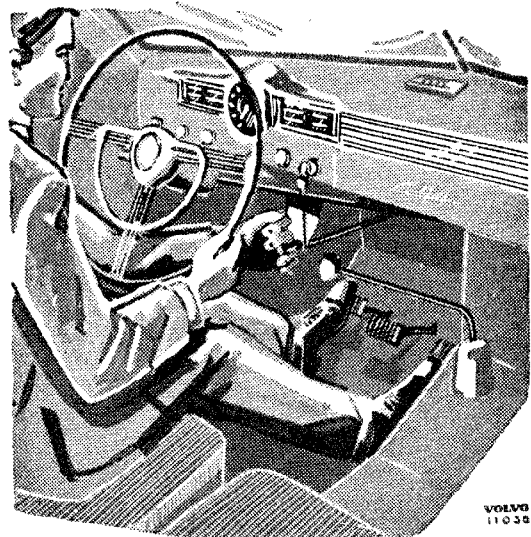
There are two methods which may be employed when starting on a hill.

1. Hold the car stationary by means of the handbrake. Depress the clutch, engage gear and depress the accelerator pedal in order to increase engine speed before letting in the clutch and releasing the hand brake almost simultaneously.

2. Hold the car stationary by using the foot brake. Depress the clutch pedal, engage low gear and then move the foot quickly over from the foot brake to the accelerator to increase engine speed as the clutch is let in.

We recommend the first method but, if the hand brake is badly adjusted, the second method should be used.

If you must stop on a hill do not slip the clutch in order to hold the car stationary as this causes very rapid wear of the clutch facings.



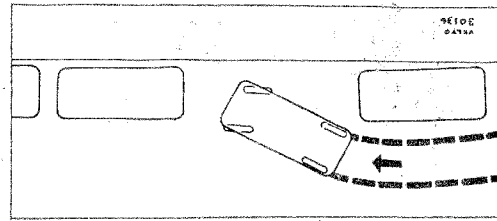
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Do not slip the clutch.

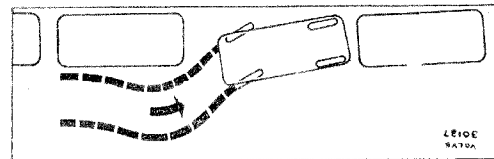
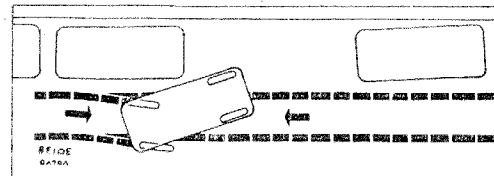
Parking

When you are going to park between two other cars on a street, do not attempt to drive directly into the space available. If you do so then it is most likely that you will finish up with the rear end of the car sticking out into the street. Follow the following procedure instead:

1. Drive up in line with the car in front.
2. Swing the steering wheel hard over and reverse slowly in towards the pavement.
3. As the rear wheels near the pavement, turn the front wheels so that the front end of the car comes in towards the pavement.



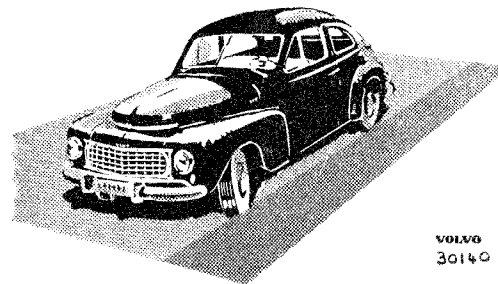
Wrong.



Right.

Parking on a hill

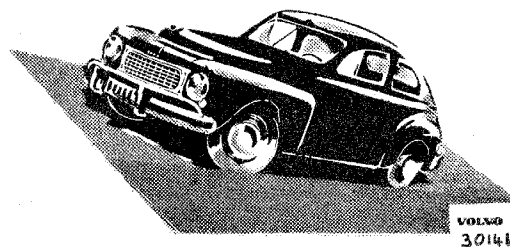
When parking on a hill, always turn the steering wheel so that the car runs into the pavement in the event of it starting to move. If the hand brake is badly adjusted, leave the gear with low or reverse gear engaged depending on whether the car is facing uphill or downhill.



Downhill parking.

Overtaking

Never take any chances when overtaking. Before you overtake the car in front, make sure that there is plenty of room in front of it. In order to overtake a car travelling at 45 m.p.h. you need an open stretch of road at least 140 yards if you are



Uphill parking

travelling at 55 m.p.h. When you have overtaken the other car do not pull in to your own side of the road again before you have glanced at your driving mirror to make sure that you are sufficiently far past the other car.

Hard driving

When driving in exceptionally mountainous country or when the weather is exceptionally hot let the engine idle for a couple of minutes before switching it off. If this is not done then it is possible that some of the coolant may boil off and vapor bubbles may be formed in the fuel channels with resultant difficulties the next time the car is started.

Disengaging gear when running downhill (Free-wheeling)

Investigations have shown that fuel saving by moving the gearshift lever to the neutral position and free-wheeling downhill is almost negligible. Such practice, indeed, involves certain risks since in case of emergency the driver does not have such complete control of the car as he would have if the gear was engaged. It is for this reason that we do not recommend the practice of free-wheeling when travelling downhill.

Tire wear

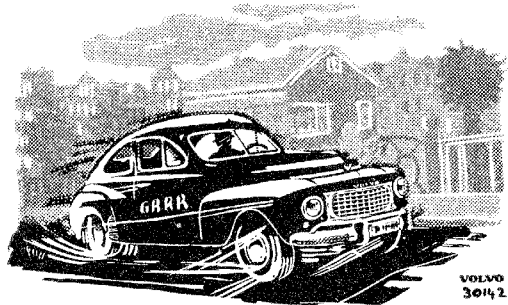
Tire wear is dependent to a great extent on the way in which the car is driven. In order to minimise tire wear, we give the following recommendations:

1. Never drive faster than is necessary.
2. Start smoothly and brake smoothly.
3. Avoid driving over sharp stones, pavement edges etc.

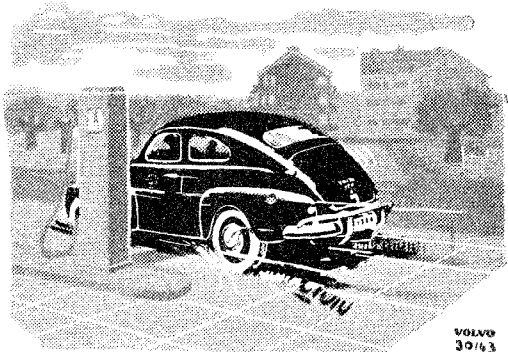
See also maintenance instructions, section D.

Winter driving

When driving on icy roads or under other conditions where the road surface is slippery, a special driving technique is adopted.



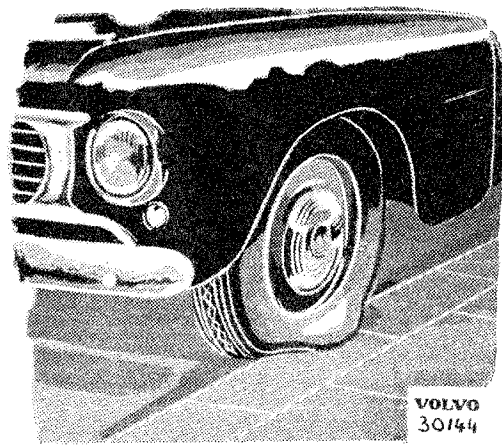
Do not start with a jerk.



Do not brake violently.

1. Start in 2nd gear and accelerate gradually.
2. Use the engine as a brake.
3. Avoid using the brakes as much as possible.
4. Drive particularly carefully.

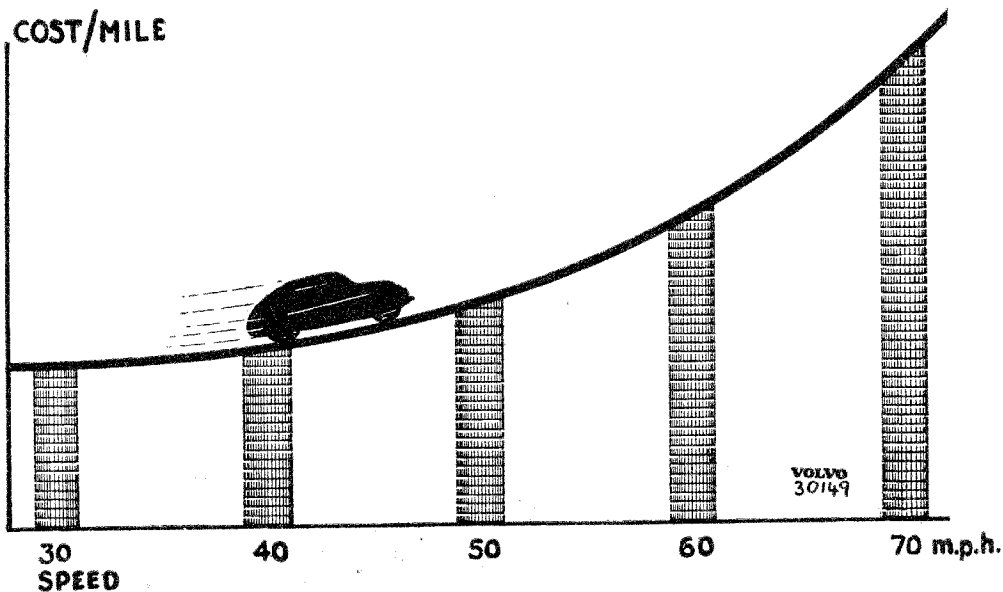
Do not rub or distort your tires against pavement edges.



How to drive economically

If you, like most people, would like to drive as economically as possible then you must drive in the correct way. The same car driven under the same conditions by different people can show widely varying results. If you want to bring down your running costs then follow this advice.

1. Do not drive faster than is necessary. High speed costs money.
2. Avoid rapid acceleration.
3. Maintain as even a speed as possible.
4. Avoid unnecessary stops.
5. Do not run the engine at excessively high speeds in low gear.
6. Do not use thicker oil than recommended.
7. Lubricate the car regularly.
8. Check that the tires have the correct pressure.
9. Make sure that the coolant temperature is maintained at 60°–80° C (140°–175° F).
10. Have the car overhauled twice a year.



Speed costs money

MAINTENANCE INSTRUCTIONS

It is usually sufficient if the car is overhauled thoroughly twice a year. These overhauls may well be carried out when changing over from winter to summer driving and vice versa.

This chapter contains maintenance work that can be carried out by the owner. In order to help the Volvo owner as much as possible we have quoted mileages or time intervals between the various maintenance operations.

We should like to point out that the time intervals are approximate since the need for maintenance varies according to how the car is driven, the state of the roads etc.

Maintenance scheme

In order to summarize the maintenance operations which should be carried out at regular intervals, we have drawn up a maintenance summary.

Each of the operations has been given a number which is used as reference in the explanatory text which follows the maintenance scheme. These reference numbers are given in brackets after each heading.

Check daily before starting the car that:

- a) There is sufficient oil in the engine.
- b) There is sufficient water in the cooling system.
- c) There is sufficient fuel in the fuel tank.

Check once a week:

- a) Tire pressure.
- b) Level of electrolyte in battery.
- c) That headlamps (full and dipped), parking lights and stop and tail lights function properly.
- d) That directional signals (blinkers) function properly.
- e) That the horn functions properly.

Operation	6 months (Spring and fall)	Carried out every			
		1200 miles	2500 miles	6000 miles	12000 miles
A. Engine					
1. Change oil filter cartridge				1	
2. Clean ventilator cover filter			1		
3. Check fuel tank cap	1				
4. Clean fuel filter			1		
5. Clean air filter			1		
6. Have engine decarbonised					1*
7. Have valve clearance checked			1		
8. Clean out cooling system	1				
9. Check cooling system	1				
10. Check fan belt tension	1				
B. Front wheel alignment					
11. Have the front wheel alignment checked	1				
C. Brakes					
12. Have the brakes checked	1				
13. Check brake fluid level			1		
D. Tires and wheels					
14. Change the tires from one wheel to another				1	
15. Have the shock absorbers checked					1
E. Electrical system					
16. Have the headlamp settings checked ...	1				
17. Check the spark plugs			1		
18. Change the spark plugs				1	
F. Body					
19. Polish and wax the car	1				
20. Clean upholstery (vacuum cleaner) and remove stains			1**		
21. Take up floor mats and dry them	1				
G. Lubrication					
22. Change engine oil	1		1		
23. Check oil level in transmission, rear axle and steering gear			1		
24. Change oil in transmission	1				1
25. Change oil in rear axle	1			1	
26. Overall lubrication ¹⁾			1***		
27. Lubrication as shown in lubricating chart	1	1	1	1	
28. Lubricate the body			1		

*) The engine should be decarbonised for the first time after 3000 miles.

***) Or about once per month.

***) Lubrication of the front part of the car, however, should be carried out every 600 miles.

1) Add SAE 5 W oil to SU carburetor damping cylinders.

A. Engine

The engine is accessible after the hood has been lifted. This may be done after the hood catch handle under the instrument panel has been pulled backwards. On the front left hand corner of the hood there is a catch which prevents the hood from falling down by accident. Do not forget to release this catch before closing the hood.



Oil filter (1)

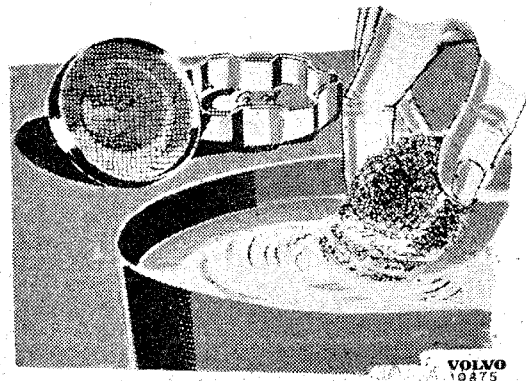
The B14A engine is fitted with a full-flow filter. The oil pressure will gradually drop as the filter clogs. When the oil pressure has decreased by 20 lb./sq. in. after a cartridge has been fitted (pressure should never be allowed to fall below 35 lb./sq. in.) a new cartridge should be fitted.

Ventilator cover filter (2)

The oil filler cap is fitted with a ventilator device for the crankcase. The air passing in is cleaned by means of a filter. This filter must be cleaned regularly with gasoline. This cleaning should be carried out every 2500 miles. Dismantle the cap and remove the filter as shown in the diagram.

Fuel tank cap (3)

There is a small air hole in the fuel tank cap. Check now and then that this hole is not blocked with dirt since this can cause stoppage of the flow of fuel to the engine.



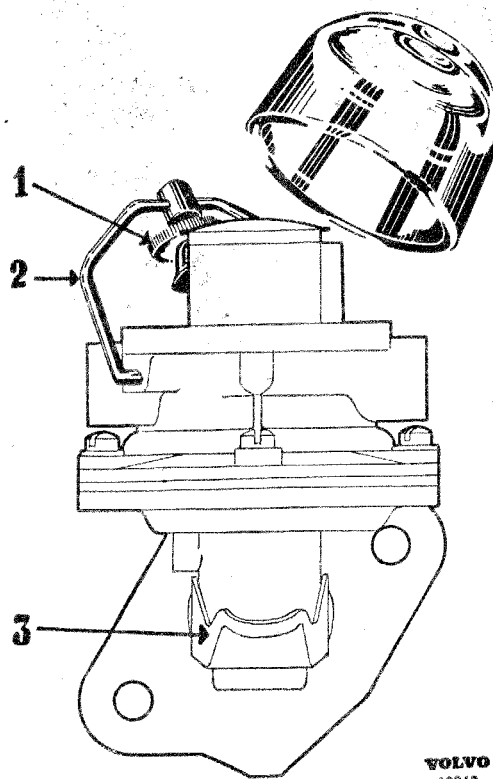
Fuel filter (4)

Before the fuel reaches the carburetor, it passes through a filter which separates out water and other impurities. The fuel filter is built in the same unit as the fuel pump on the left-hand side of the engine.

About once every other month or after every 2500 miles, the filter should be dismantled and cleaned. Loosen the nut (1) and swing the holder (2) to the side. The glass bowl and the filter itself are then removed and cleaned.

When re-assembling, make sure that the gasket fits tightly. Replace the gasket if necessary. Be careful to see that no dirt comes into the fuel pipes.

If the fuel system has been dismantled new fuel can be fed to the carburetor by means of the hand primer pump (3).



Air filter (5)

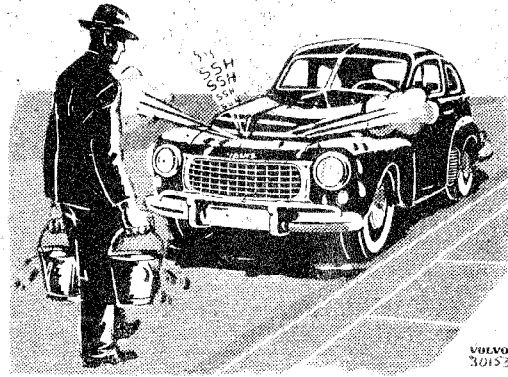
The air filters are attached to the carburetors. They should be cleaned after every 2500 miles. If the car is driven on particularly dusty roads it may be necessary to clean them more often.

The entire air filter units on the twin SU carburetors should be removed and cleaned. Wash the filters in gasoline and let them dry.

Then dip them in engine oil, let the surplus oil run off and then re-assemble.

Valve clearance (7)

Have the valve clearance checked by a workshop now and then. Valve clearances on the B14A engine are 0,50 mm for inlet valves and 0,50 mm for exhaust valves. Valve clearances may not be less than the above values, otherwise the valve seats may be badly burned.



Never pour cold water into a hot radiator.

Filling and draining the cooling system

The cooling system is filled through the top of the radiator after the filler cap has been removed. Never add cold water when the motor is very warm since this can cause cracks in the cylinder head or cylinder block.

The cooling system is emptied by means of two drain cocks, one at the rear of the cylinder block on the right-hand side and the other on the bottom of the radiator on the left-hand side which is accessible when the hood is raised.

Cleaning the cooling system (8)

The cooling system only operates effectively if all the channels in the radiator and the cylinder block are free from deposits and impurities.

Ordinary water contains certain salts which, under the effect of the high temperature in the cooling system, form deposits. These deposits gradually block the cooling channels and reduce the effectivity of the cooling system since they combine with rust and other impurities. The inevitable result is that the engine has a tendency to boil as soon as it is subjected to loading or when the air temperature increases. The above trouble may be avoided by:

- a) using as pure water as possible, preferably rain-water
- b) using an anti-rust agent
- c) regular cleaning of the cooling system with water, steam at a pressure of 14 lb./sq. in. or soda solution.

Antifreeze agents (9)

When the air temperature falls below freezing point, antifreeze agents must be added to the water in the cooling system. The most usual of these are alcohol, glycerine and ethylene glycol. Alcohol is the

cheapest but has a great disadvantage in that it evaporates very rapidly even at as low a temperature as 75° C (167° F). For this reason it is essential that the quantity of alcohol remaining in the cooling system is checked frequently.

Glycerine and ethylene glycol, however, do not evaporate at the normal operating temperature of the engine. If these are used as anti-freeze agents it is only necessary to top up with water now and then, assuming that there are no leaks in the cooling system.

The table below shows freezing points and specific gravities for various mixtures of water and alcohol as well as for mixtures of water and ethylene glycol.

The percentage of ethylene glycol used should never exceed 60 % since this gives maximum depression of freezing point.

Volume % alcohol and ethylene glycol	Specific gravity		Freezing point	
	alcohol	glycol	alcohol	glycol
10	0,988	1,012	- 3°C (26°F)	- 4°C (25°F)
20	0,975	1,027	- 8°C (18°F)	- 9°C (16°F)
30	0,964	1,041	-14°C (7°F)	-15°C (5°F)
40	0,954	1,055	-21°C (- 6°F)	-22°C (- 8°F)
50	0,933	1,068	-30°C (-22°F)	-38°C (-36°F)
60	0,913	1,076	-40°C (-40°F)	-56°C (-69°F)
70	0,897		-54°C (-65°F)	

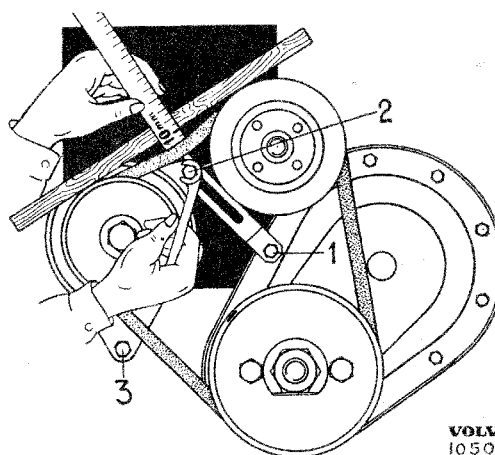
When pouring antifreeze into the radiator, be very careful to see that none is spilt on the car body since it has a very damaging affect.

Twice a year, especially in the fall before adding antifreeze, the cooling system should be checked for leakage and the clamps tightened.

Fan belt (10)

If it is worn or else due to the presence of oil or grease, the fan belt can skid on the pulleys. This results in poor generator output and decreased cooling effect. The fan belt tension is adjusted as shown in the diagram.

First loosen the nuts (1-3) and pull out the generator until the tension on the fan belt is such that it can be pushed in about 1/2" at a point halfway between the pulleys.



Fuel

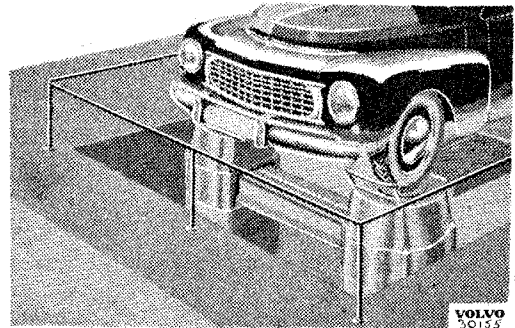
Fuel with an octane value of at least 83 should be used. If fuel with a lower octane value is used, "knocking" may be experienced or lack of power due to the fuel in the cylinders firing prematurely due to glowing carbon deposits (pre-ignition).

If you are going to change over to alcoholic fuels after having used ordinary gasoline for some time, you should clean out the fuel system before the change-over is carried out. The reason for this is that the deposits left by the gasoline are dissolved by the alcoholic fuel with resultant ignition trouble. Do not use bentyl with SU carburetors.

B. Front wheel alignment

In order to avoid excessive tire wear and poor steering properties, the front wheel alignment should be checked regularly, at least twice a year. Authorised Volvo dealers have special equipment for this purpose.

If the car has been involved in an accident or the front wheels have been subjected to a hard blow then the alignment should be checked.



C. Brakes

In order to avoid accidents, it is of paramount importance that the brakes are maintained in excellent condition. For this reason they should be checked at least twice a year.

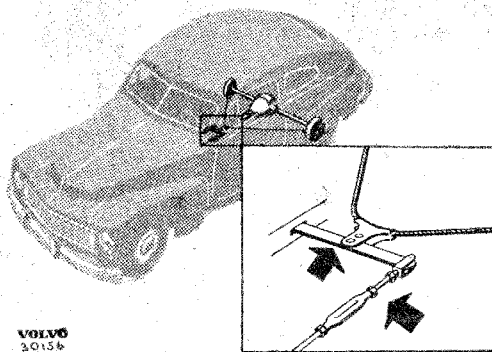
Foot brake (12)

The brakes should only be adjusted in exceptional circumstances. The forward brake shoe on each wheel is self-adjusting and should only be disturbed when changing brake linings. Brake settings and adjustments should be carried out by a workshop.

In extremely wet weather, moisture can creep into the brake band and cause "snatching". This is eliminated by carrying out a long braking with gradually increased pressure. The warmth caused by this braking will evaporate the moisture.

Handbrake (22)

If the handbrake effect is insufficient, there are two adjustment possibilities. The rear brake cable may be shortened by moving it to the other of the two holes. The other method is by shortening the front brake cable by means of the tension adjuster on the rear end of the cable as shown in the diagram. This work should preferably be carried out by a workshop.



Hand brake adjustment.

Addition of brake fluid to the hydraulic brake system (13)

Brake fluid is added, when required, to the hydraulic system master cylinder which is situated under the steering column (accessible after raising the hood). The master cylinder should always be full of brake fluid ($\frac{1}{2}$ " under the edge of the filler hole). Check fluid level after every 2500 miles.

It is very important that low quality brake fluid is never used; it can be risky economy. A high-class brake fluid satisfies very high standards both as regards cold- and heat-resisting properties as well as for the fact that it does not have a damaging effect on the rubber parts of the brake system. Use, therefore, only brake fluid that satisfies SAE 70 R1 specifications (HD quality).

D. Tires and wheels

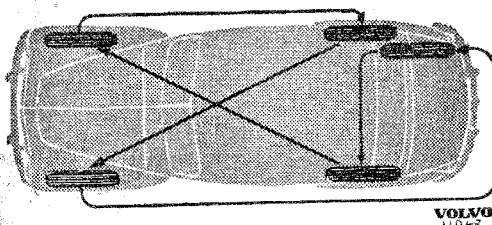
Tire wear (14)

It is very important from an economical viewpoint to keep the tires in good condition.

Check the air pressure frequently (see Specifications). Too low pressure results in excessive wear and damage to the cord. Too high pressure means excessive wear on the centre of the tread. Other reasons for tire wear are high speed driving, excessive loading, faulty wheel settings and faultily adjusted snow chains.

If tire pressure is 7 lb./sq. in. lower than specified then the life of the tire will be 40 % shorter. At a speed of 50 m.p.h. tire wear is 50 % greater than at 25 m.p.h. With an overload of 20 %, the life of the tire will be 30 % less than normal.

These figures may help to give some idea of the unnecessary tire wear caused by careless and thoughtless driving.

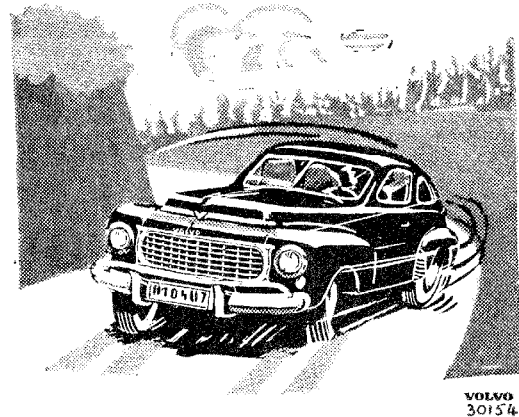


Wear on the rear tires is less than on the front tires. Since the rate of wear increases with the age of the tire, the tires should be changed round periodically, for example after every 6000 miles so that the rate of wear on all tires is equal. See the diagram. If it necessary to use snow chains, make sure that these are properly stretched neither too tightly nor too loosely, and that they fit correctly.

The spare wheel should be used as much as the other wheels.

10 points for lessened tire wear

1. Check tire pressure at least once a week. Maintain the specified pressure.
2. Never drive faster than is necessary.
3. Change the tyres between the front and rear wheels regularly. See the diagram above.
4. Let in the clutch smoothly when starting and never brake violently.
5. Reduce speeds in curves. Do not slide the car round curves.
6. Avoid driving over sharp stones, pavement edges etc.
7. Make sure that the brakes are correctly adjusted. Uneven adjustment means uneven tire wear.
8. Make sure that the front wheel alignment is correct.
9. Use the spare wheel regularly. **Do not slide round curves.**
10. Do not use snow chains unless absolutely essential. When they are used, make sure that they are correctly adjusted.



Changing a wheel

Before changing a wheel, apply the handbrake. If the handbrake is in need of adjustment, lay blocks or stones behind and in front of the other wheels N. B. The handbrake only operates on the rear wheels.



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1. *Prise off the wheel disc with the jack handle.*



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2. *Loosen the wheel nuts slightly with the wrench on the jack handle.*

N. B. The wheel nuts on the left-hand side of the car have a left-hand thread and those on the right-hand side have a right-hand thread.



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3. *Fit the jack into the socket. This is shown in detail on the next page. Jack up the side of the car until the wheel is clear of the ground. Then screw off the wheel nuts.*



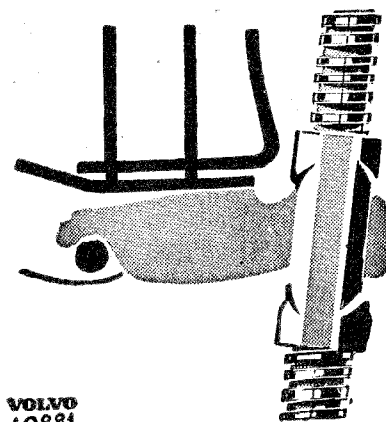
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4. *Lift off the wheel. When tightening the nuts on the new wheel, carry it out a little at a time on each nut. Do not take the nuts one after the other. Instead tighten diametrically opposed nuts at the same time.*

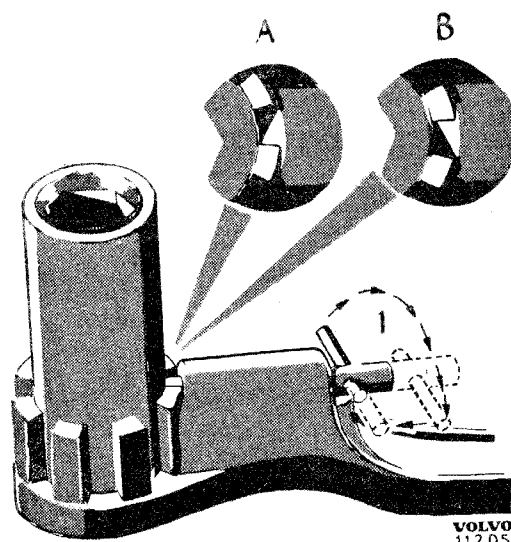
Do not tighten the wheel nuts too much since this might damage the wheel itself.

The ratchet is set for tightening and loosening bolts with left and right hand threads by pulling out the catch (1) and giving it a half turn. See illustration. The catch should engage as shown in the sketches A and B.

N. B. When working under the car do not rely on the jack alone. For safety's sake use blocks as well.



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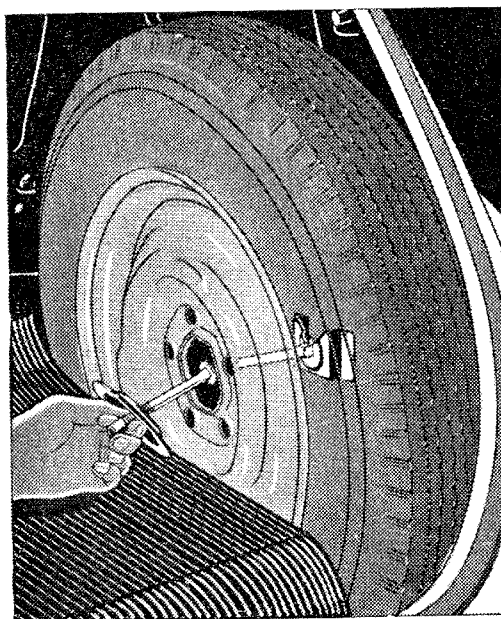
Spare wheel holder

This is as shown in the diagram. To remove the wheel, loosen a few turns and then lift off the screw upwards.

Shock absorbers (15)

The good driving qualities of the car depend to a great extent on the correct functioning of the shock absorbers.

Once a year or after every 20000 km (12000 miles) have the shock absorbers checked by an authorised workshop.



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E. Electrical system

Battery

The battery is on a shelf on the engine side of the cowl; it is accessible after the hood has been raised. The battery must have regular attention. Ensure that the electrolyte level is always about $\frac{1}{2}$ " above the top of the plates. Check this level twice a month and rather more often during the summer when the rate of evaporation is greater. Top up when required with distilled water. Do not add too much water since the acid might then splash over and corrode the engine. Check

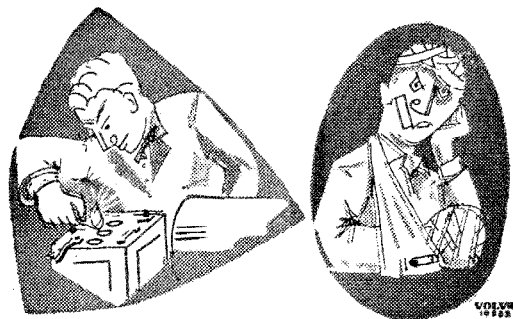
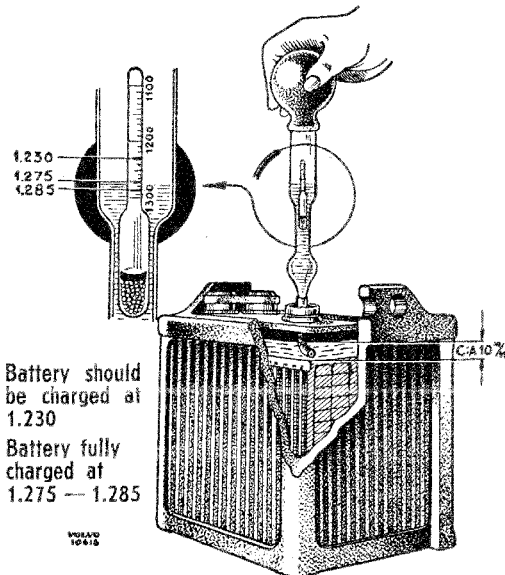
that the battery is firmly attached in position and that the terminals are coated with vaseline and firmly tightened. Do not check the electrolyte level by using a match since there is always risk of an explosion of the hydrogen-air mixture in the top of the battery.

The state of charge of the battery may be determined by using a hydrometer which shows the specific gravity of the electrolyte. When the battery is fully charged, this is 1.275—1.285. When the specific gravity of the electrolyte has decreased to 1.230 the battery should be charged immediately.

During the winter, the loading on the battery is greater due to more difficult starting conditions. Since the risk for damage by freezing increases as the battery becomes more discharged, it must be checked more often during the winter.

If the battery lies unused for some time, it should be sent in for charging.

The greatest load on the battery is exerted by the starter motor. If the car is difficult to start, do not keep the starter motor connected for more than 5—10 seconds at a time. Make a short pause between each attempt to start so that the battery can "recover". Heavy loading for a longer period of time shortens the life of the battery.

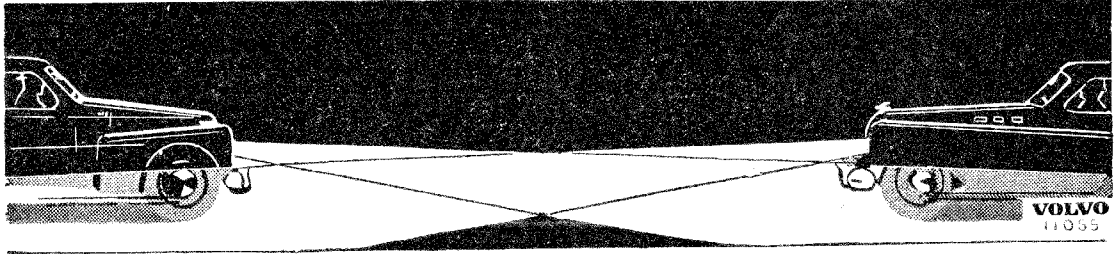


Don't do this — it can lead to this.

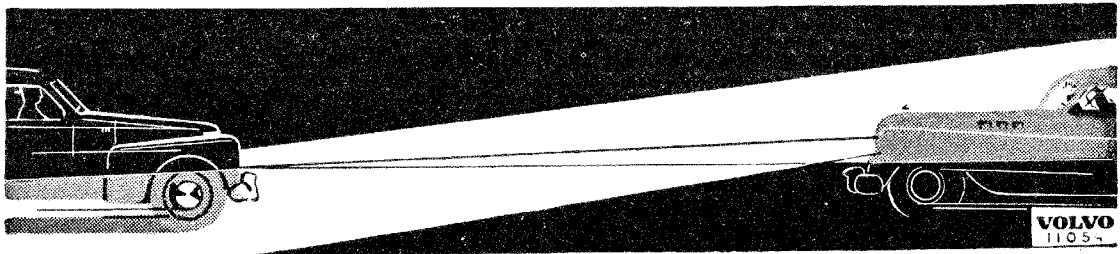
Headlamp settings (16)

Have the headlamps settings checked now and then by a competent workshop. Badly adjusted headlamps constitute a menace to traffic safety.

Remember that even a minor fault in headlamp adjustment can be dangerous partly because the other driver is blinded and partly because the headlamps do not light up the correct section of the road.

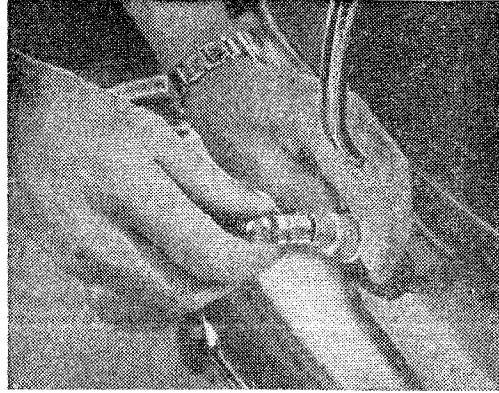
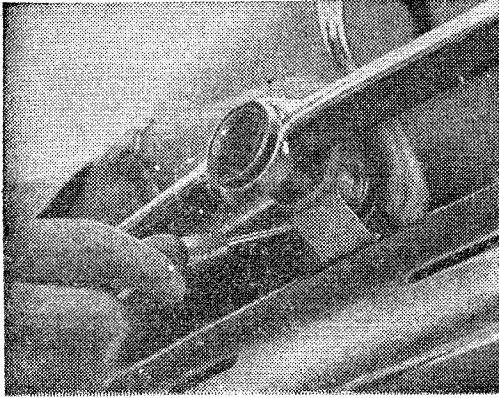


Correctly adjusted headlamps.



Badly adjusted headlamps.

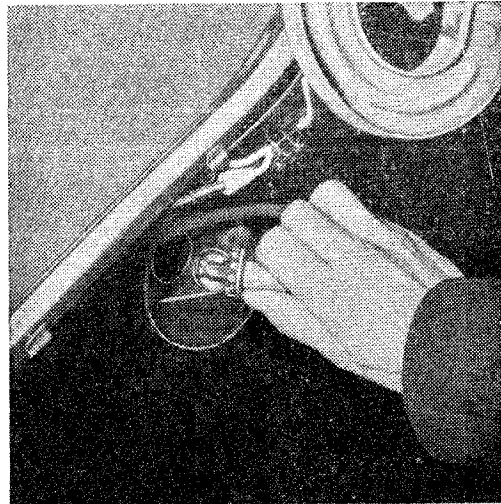
Replacement of bulbs in stop- and rear-lights



The number-plate light bulb is replaced as shown in the above photographs.

The stop- and rear-light bulbs are removed as shown in the third photograph.

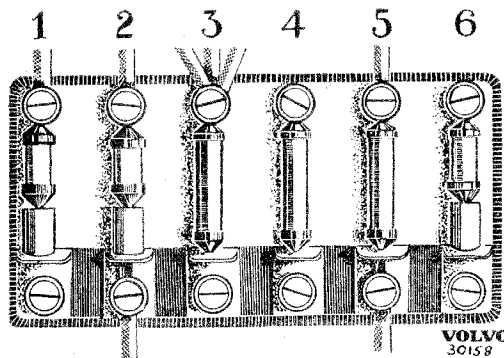
The left-hand rear-light may be used as a rear compartment light by pulling it out as shown.



VOLVO
11059

Fuses

1. Horns (25 amp. fuse)
2. Headlamps (25 amp. fuse)
- 8A. 3. Roof light, stop lights
- 8A. 4. Spotlight, reversing light, fog light
- 8A. 5. Directional signals (blinkers)
6. Heater (25 amp fuse)



The function of the fuses is to protect the electrical system in the event of possible short circuits.

The fuses are situated in a fuse-box attached to the left on the front of the cowl. Three of these fuses are 8 amp. fuses while the other three are 25 amp. fuses. The circuits connected to the various fuses are shown in the diagram. Use only genuine fuses and not makeshift devices such as nails etc. since these can cause burnt-out leads.

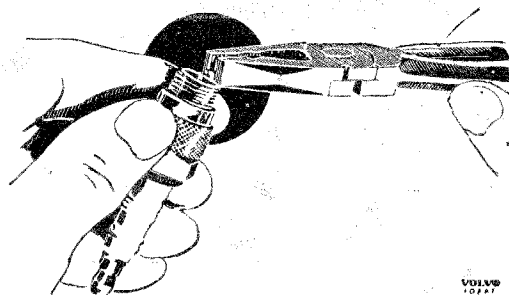
One of the fuses is spare and is available for extra equipment such as spotlight, fog light etc.

Spark plugs (17, 18)

The spark plugs should be checked after every 2500 miles. The spark gaps should be adjusted and soot removed.

When adjusting the spark gap, bend the side electrode and not the center electrode since the plug may easily be damaged in this way. When the electrodes are badly burned, the spark plugs should be replaced.

After every 6000 miles all the spark plugs should be replaced. Make sure that you use the right type. The various types recommended by us are to be found in the specifications.

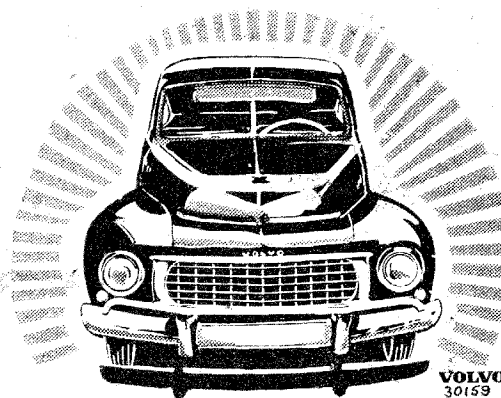


F. Bodywork

Just as much attention should be paid to the bodywork as to the lubrication of the car. In this way the appearance of the car is maintained in a attractive state.

If the car is allowed to stand in the open all the time, the surface finish will soon lose its polish and it will be found necessary to re-spray the car much sooner than if it had been kept in a garage.

Avoid parking the car in strong direct sunlight since this is damaging for the surface finish and the upholstery.



Washing the car

The car should never be washed in direct sunshine.

Wash a new car often since this hardens the surface finish. Otherwise, the car should be washed when it is dirty or very dusty. Dust and dirt that is allowed to remain in contact with the body surface for a long time can be very damaging. When washing, use only clean water, without any added washing compounds. If clean water is not enough, however, a 1–2 % soap solution may be used. Other special washing compounds may not be used unless they are recommended by an expert. The reason for this is that some of the washing compounds on the market can damage the synthetic finish on the car.

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

Polishing (19)

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

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

Waxing (19)

Polishing should be followed by waxing every three or four months. Use good quality wax and follow the directions for use very carefully.

Touching-up

If it is necessary to carry out any touching-up on your car, which has a synthetic finish, you should contact your Volvo dealer or a workshop equipped with the equipment necessary to carry this out. Touching-up of synthetic finish requires special equipment and specially-trained workers.

Chromium-plated parts

If you use the car for driving on gravel roads on which chemical binding agents have been used or if you drive a lot along the sea-coast you should wash all the chromium-plated parts often. After washing apply anti-rust medium or use ordinary wax.

Upholstery (20)

Clean the upholstery with a vacuum-cleaner at least once a month. If there is no vacuum-cleaner available, use a stiff brush instead.

Stains on the upholstery may be removed in the following way:

Use a clean cloth which has been moistened with a little of a recommended stain remover. Start on the outer edges of the stain and rub inwards towards the centre. In this way there is no ring afterwards.

Battery acid.

If battery acid has been spilled on the upholstery, treat with ammonia immediately. After a minute or two remove the ammonia with cold water.

Spilled battery acid must be treated immediately otherwise there will be a hole in the cloth.

Blood.

Rub the spot with a cloth moistened with cold water. Then rub with tepid soap solution (soap flakes dissolved in water).

Chocolate.

Rub first with a cloth moistened with tepid water. If this is not sufficient, rub with a little carbon tetrachloride.

Fat or grease.

Remove with carbon tetrachloride. Do not use gasoline as this often contains lead tetra-ethyl which can leave a stain.

Fruit.

Rub first with a cloth dipped in hot water. If this is not sufficient, rub with a little carbon tetrachloride.

Ice cream.

Rub with a cloth dipped in hot water. If this is not sufficient, rub with a little carbon tetrachloride.

Lipstick.

Pour a little carbon tetrachloride onto the stain and then apply a sheet of clean blotting-paper. Repeat this process until the stain disappears.

Chewing gum.

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

Vomit.

Rub the stain with a cloth dipped in tepid soap solution (soap flakes in water). Then rub with cold water. Treat finally with carbon tetrachloride.

Urine.

Wash with warm soapy water and then rinse with cold water. Then add a weak ammonia solution (1 part ammonia in 5 parts of water). Let this remain for a minute or two and then rinse with clean water.

Floor mats (22)

Take out the floor mats at least twice a year and let them dry. This applies particularly during the winter when ice and snow is brought into the car on the shoes. At the same time, sweep out sand and dirt that has collected under the mats.

G. Lubricating instructions

Lubrication is the most important factor in car maintenance. The cost of good lubricants is negligible compared with the repair costs that can result from inefficient lubrication. Make a habit of having the car lubricated at regular intervals or after certain mileages depending on the type of service the car is called upon to do.

Use only lubricants of reputable manufacture. Make sure before starting that all lubricating points are free from dirt.

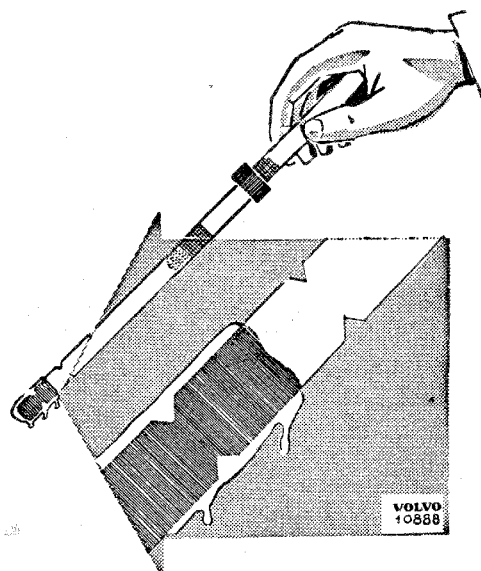
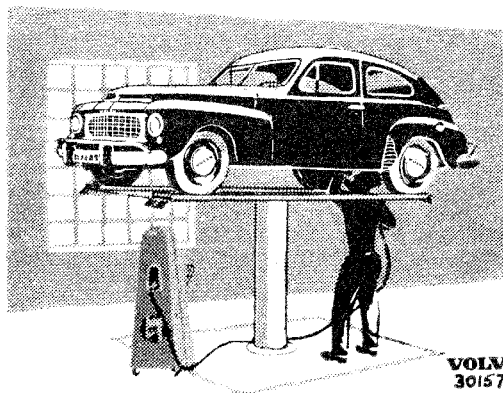
Lubrication is carried out in accordance with the lubrication chart at the end of this instruction book.

Engine (23)

Check daily that the oil level in the pan is as it should be. This control is carried out by means of the dipstick on the left-hand side of the engine. The oil level should be between the two marks on the dipstick.

The oil level should never be allowed to sink below the lower mark.

Never add so much oil that the level is higher than that of the upper mark on the dipstick since the result will be an abnormally high oil consumption.



Recommended oil types for this engine are as follows:

Average air temperature	Oil
Below 32° F	SAE 10 W
32° F—90° F	SAE 20—20 W
Above 90° F	SAE 30

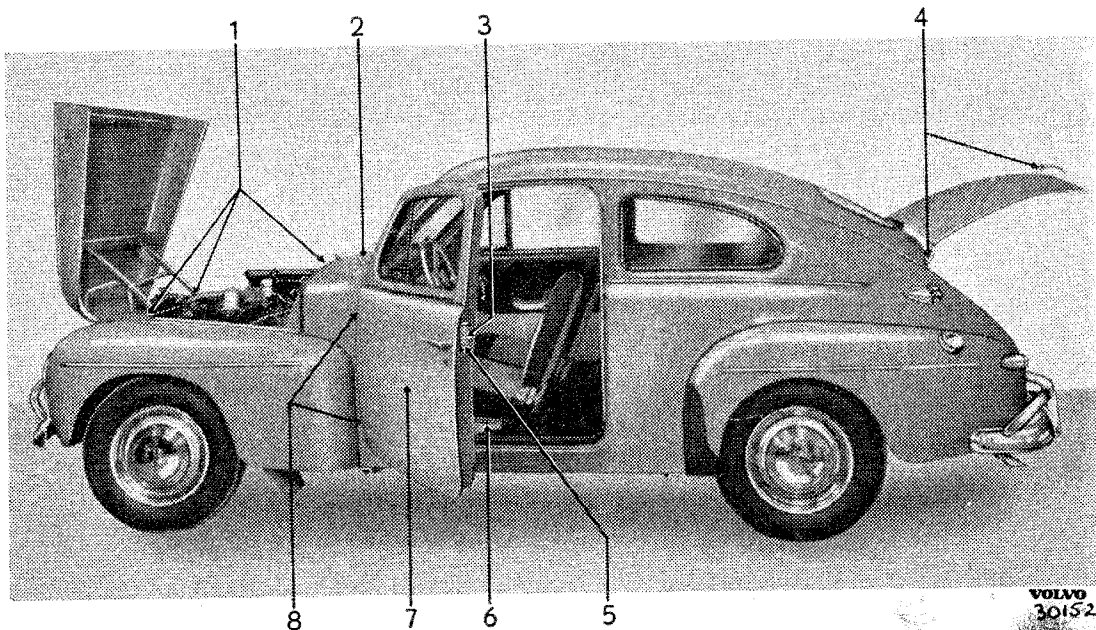
Do not use thicker oil than specified. It is a great mistake to believe that thick oil lubricates better. On the contrary, it is more difficult for thick oil to penetrate through the small passages when it is cold. The result is an increased rate of wear in the engine. The engine is difficult to start in cold weather and fuel consumption will increase due to the increased friction.

Change the engine oil after every 2500 miles.

If the oil appears to be particularly dirty, it must be changed more often. If the car is to be used for much short-distance work with many cold starts, you should change the oil more frequently, particularly during the winter.

When changing oil, the capacity is 8 US pints.

Change oil more frequently during the running-in period. See "Driving Instructions".



1. Hood lock and hinges.
2. Windshield wiper anchorages.
3. Door lock cylinders.
4. Rear compartment lock and hinges. The lock is lubricated by dropping a little anti-rust oil on the key, inserting it in the lock and turning it a few times.
5. Lock cylinders, dovetails and striker plates. Lubricate with paraffin.
6. Front seat guides and ratchets.
7. Door lock mechanism, window winding mechanism (accessible after door inner casing has been removed). Lubricate after every 12000 miles or once a year.
8. Door hinges.

Chassis lubrication (23—27)

Chassis lubrication is shown in the lubricating chart at the end of this book. Accelerator, handbrake and pedal linkages should be greased. Do not lubricate the carburetor linkages since this can interfere with its operation.

Bodywork lubrication (29)

The following points should be lubricated with light engine oil after every 2500 miles.

Starter motor

Lubrication of the starter motor is only necessary when the electrical system is checked, i.e. after every 25000 miles.

H. Winter operation

As has already been pointed out, it is extremely important that the engine temperature is maintained at the normal level. When driving during the winter use the radiator blind. A cold engine means increased wear.

Add antifreeze to the cooling system and change to thinner oil in the engine, gearbox and rear axle. Use snow chains only when driving on loose snow.

I. Equipment for long-distance travelling

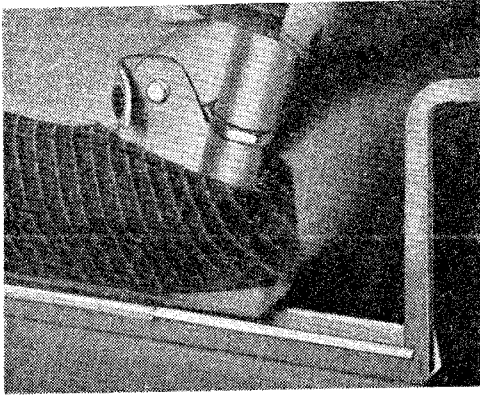
Before undertaking a long journey, for example a tour abroad, have your car overhauled at the nearest Volvo workshop. Tires, lighting, the electrical system and the brakes should be checked. Have the car thoroughly lubricated at the same time.

You should take with you the items specified in the list below. For an exceptionally long journey passing through underdeveloped countries you should take also a spare part set containing further spare parts. You can obtain details concerning the most important spare parts from your nearest Volvo dealer.

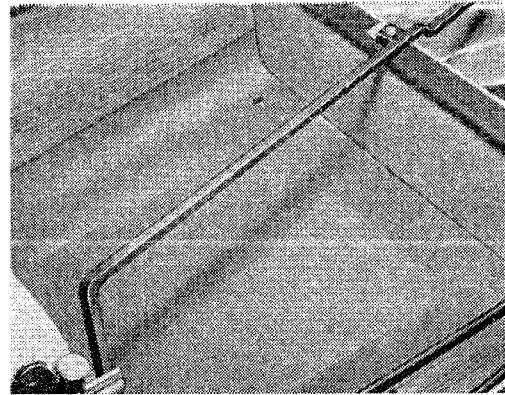
Driving license	Cleaning cloths
Car documents (Carnet etc.)	Work gloves
Instruction book	Overalls
Duplicate keys	Sunglasses
Tools	Maps
Electric torch or inspection lamp	Travel books
Extra bulbs	Note book
Extra fuses	Snow chains
Insulating tape	

J. Sleeping accommodation

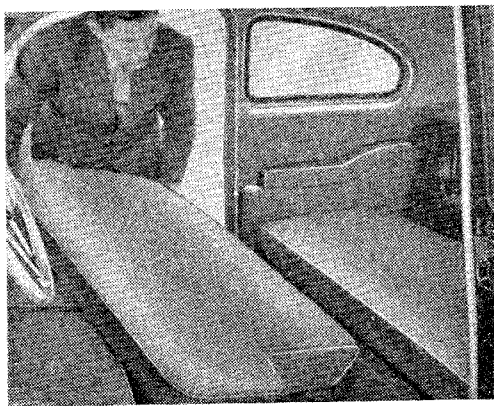
The car can be converted into a sleeper with the help of our bedding set (part. no. 79772) in the following way:



1. The leather straps on the front seat joint bolts are unbuttoned and the backs of the seats removed.



2. Place the support bars in position. The front seats should be pushed as far forward as they will go.



3. Remove the rear seat backrest by lifting upwards. Then move the rear seat back until it is resting on the rear lower sections of the support arms. The rear seat backrest will now fit in between the front and rear seats.

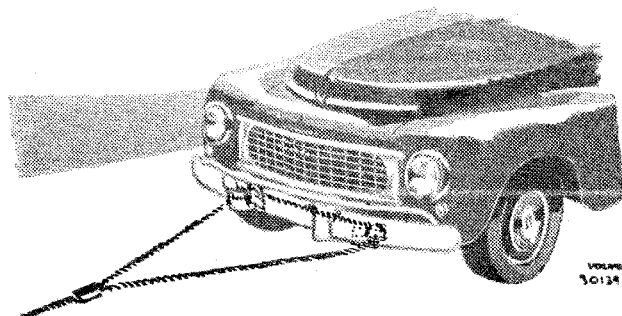


4. The bed may now be made up. The front seat backrests can be placed:
a) On the front seat cushions with the inside facing upwards and the brackets facing forward,
b) In the place normally occupied by the rear seat backrest with the outside forwards and the brackets upwards.

K. Towing

If it ever becomes necessary to have your car towed, make sure that the towline is attached to the bumper supports as shown below. Do not attach the line to the bumpers as these may be damaged.

While being towed, keep the tension on the line as even as possible. Violent jerks can damage the bumper supports.



SPECIFICATIONS

Weight (including driver, 165 lb.) of car with B14A sports engine	2310 lb.
Weight, completely unloaded (but incl. fuel, oil and water)	2127 lb.
Wheelbase	102½"
Track, front	51"
Track, rear	51½"
Turning circle, diameter	35½ ft.
Overall length	177"
Overall width	62½"
Overall height	61½"
Max. wheel pressure	826 lb.
Ground clearance	8"

Engine

Type designation	B 14 A
Output at 5500 r.p.m.	70 b.h.p.
Max. torque	75.9 lb.ft/3000 r.p.m.
Number of cylinders	4
Bore	75 mm.
Stroke	80 mm.
Displacement	1.42 liters (86.65 cu. in.)
Compression ratio	7.8:1
Valves	Valve-in-head

Lubricating system

Oil pressure (with new filter element) ..	42½—57 lb./sq. in.
Oil capacity including oil filter	7¾ US pints

Cooling system



Capacity	17 US pints
Normal operating temperature	140°—175° F

Fuel system

Fuel tank capacity	9¼ US gallons
Carburetors	Twin SU

Valve clearances (warm engine)

Inlet valves	0.5 mm
Exhaust valves	0.5 mm

Transmission

Gear ratio, low gear	3.23:1
„ „ second gear	1.62:1
„ „ high gear	1:1
„ „ reverse gear	2.92:1
Oil capacity of transmission	1 US pint

Pedal free travel

Clutch pedal	about 1"
Brake pedal	about ½"

Rear axle

Type	Semi-floating hypoid
Ratio	4.56:1 (9:41)
Oil capacity	2 US pints

Front wheel alignment

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

Toe-in	0—⅛"
Camber	-¼° to +½°
Caster	-¾° to +¼°
Kingpin inclination	5°

Electrical system

Ignition system

Voltage	6 volts
Order of firing	1-3-4-2
Ignition setting	2° B.T.D.C. (for ROT 83 octane fuel) 5° B.T.D.C. (for ROT 93 octane fuel) Adjuster screw for various fuel octane values
Distributor contact breaker gap	0.4 mm = .0157"
Spark plugs	10 mm thread Champion Y 4 A (early production) 14 mm thread Champion J 6 (late production)
Spark plug gap	0.7—0.8 mm =

.0275" - .0315"

Generator, max. charging current	40 amps.
Battery capacity	85 amp. hours
Fully charged battery, specific gravity	1.275—1.285
Battery to be re-charged when specific gravity has fallen to	1.230
Fuses	See page 39

Lamp bulbs	Watts	Socket
Headlamps	Sealed Beam	
Front directional signal and parking lamps	6/18	BA 15 d spec.
Number plate lamp	5	BA 15 s
Stop and rear lamps and rear directional signal lamps	6/18	BA 15 d spec.
Instrument lamps	2.4	BA 9 S
Directional signal control lamp	2.4	BA 9 S
Headlamp beam control lamp	1.5	BA 9 S
Roof lamp	10	S 8

Tires

Size

5.90—15"

Tire pressure (cold tires):

Front

Rear

Loaded with max. 2 passengers

18 lb./sq. in.

21 lb./sq. in.

Fully loaded

21 lb./sq. in.

24 lb./sq. in.

Wheel nut tightening torque

70—100 lb.ft.

Tools

Jack, ratchet wrench, hammer, pliers, adjustable wrench, screwdriver, sparking plug wrench and tool bag.

Extra equipment

The following extra equipment which is specially manufactured for this car is available from our dealers.

Upholstery protector covers

Luggage rack

Fuel tank lock

Cycle holder

Vacuum tank

Wheel discs

Windshield spray

Chromed wheel rings

Radio

Sun vizard, right-hand

Radio antenna

Clock in rear view mirror

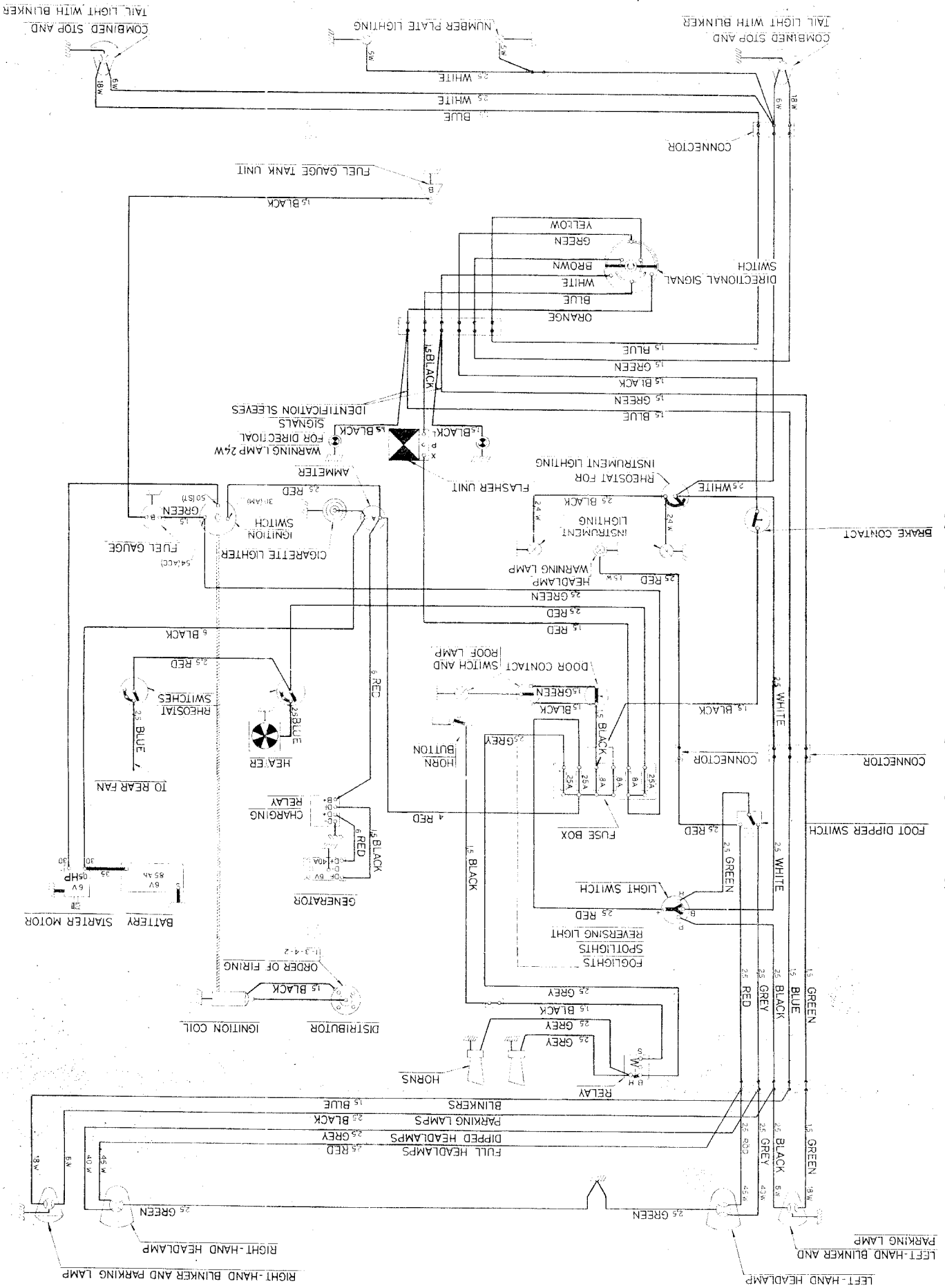
Fan for rear window

Anti-dazzle rear view mirror

Radiator blind

Bedding set

Wiring diagram for the PV 444



(figures refer to the cross section of the cables in sq.mm.)

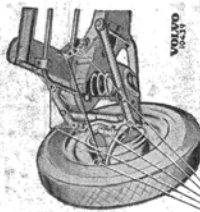
LUBRICATING CHART FOR PV 444

SYMBOLS

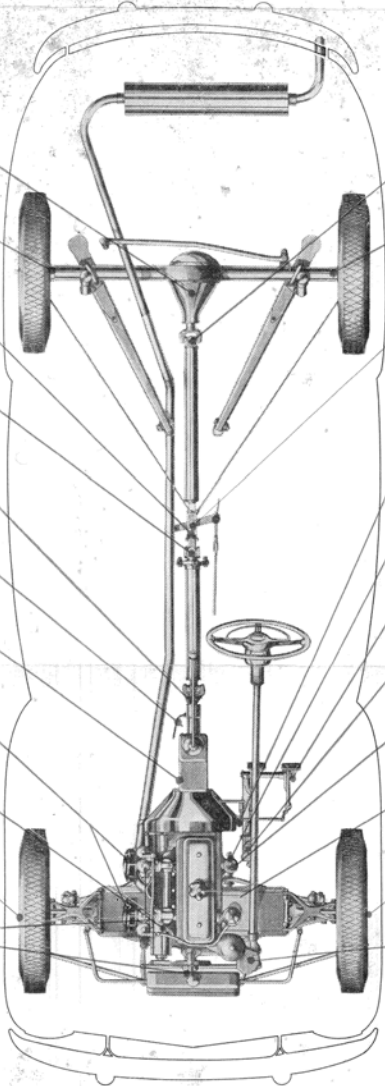
- Chassis lubricant
- Special grease
- Engine oil
- Transmission oil (summer and winter SAE 80)
- Rear axle (Hypoid) oil summer and winter SAE 80)
- Brake fluid
- Light engine oil

	Spring and fall	Spring
Water pump	□	□
Note 1. Carburators	□	□
Note 2. Front wheel bearings	△	△
Generator	□	□
Note 3. Air filters	□	□
Transmission	□	□
Note 4. Transmission	□	□
Note 5. Speedometer drive cable	□	□
Note 6. Forward universal joint	□	□
Intermediate universal joint	□	□
Spline shaft	□	□
Rear wheel bearings	△	△
Note 7. Rear axle	□	□
Note 8. Rear axle	□	□
Note 9. Rear axle	□	□

FRONT WHEEL SUSPENSION



- Lubricate after every 600 miles (Chassis lubricant)
1. Steering knuckles, 3 lubricating points (2 on left side)
 2. Lower control arm
 3. Kingpin, 2 lubricating points
 4. Upper control arm, (3 lubricating points)
 5. Steering knuckle tie rod



	Spring and fall	Spring
Steering gear	□	□
Note 15. Front wheel bearings	△	△
Engine	□	□
Note 14. Engine	□	□
Note 13. Engine	□	□
Note 12. Distributor	□	□
Brake master cylinder	◇	◇
Note 11. Pedal shaft	□	□
Distributor	□	□
Note 10. Clutch pedal shaft	□	□
Handbrake lever, intermediate	□	□
2 lubricating points	□	□
Rear wheel bearings	△	△
Note 7. Rear universal joint	□	□

CAPACITIES

- Engine 7 3/4 US pints
- Transmission 1 US pint
- Rear axle 2 US pints
- Steering gear 1/4 US pint

Note 1. Do not pack too much grease in the bearings. Refill with new heat-resisting bearing grease each time the engine is overhauled.

Note 2. Dismantle and thoroughly clean front wheel bearings every six months or after every 6000 miles. The components are washed in kerosene, dried and then repacked with heat-resisting grease.

N.B. Do not add too much grease to the bearing since there is a possibility that it might penetrate to the brake drum.

Note 3. Wash the filters in gasoline and dry carefully. Then immerse in engine oil, allow the excess oil to run off and re-assemble filters.

Note 4. Change transmission oil spring and fall or after every 12000 miles. Drain the transmission while the engine is warm and rinse out thoroughly before adding new oil.

Note 5. Make sure that the lubricant level is up to the filler plug on the right-hand side of the transmission. Top-up if necessary.

Note 6. Loosen the speedometer drive cable at the speedometer and add a few drops of oil to the upper end of the cable.

Note 7. Remove the plug and grease the bearings through the lubricating nipple. The bearing should be dismantled and cleaned at least every other year or after every 25000 miles. See also Note 2.

N.B. Do not add too much grease to the rear wheel bearings since there is a possibility that it can penetrate to the brake drum. Check that the draining holes are not blocked.

Note 8. Change oil spring and fall or after every 6000 miles. Drain while the engine is still warm and rinse out thoroughly before adding the new oil.

Note 9. Check that the oil reaches up to the filler plug. Top-up if necessary.

Note 10. Add 4-5 drops of oil (SAE 10).

Note 11. Check brake fluid level. Top-up if necessary.

Note 12. Add 5 drops of oil (SAE 10) to wick.

Note 13. Change engine oil. Drain the old while the engine is still warm and rinse out thoroughly before adding the new oil. Check the oil level every day.

Note 14. Change engine oil spring and fall. See also Note 13. Add SAE 5 W oil to SU carburetor damping cylinders.

Note 15. Check that there is sufficient lubricant in the housing. Top up which special lubricant if necessary (Castrol SB Special Gear Oil, Castex Special Oil 250, Esso Gear Oil 250 Special, Kendall 400, Vacuum Mobilube Special steering gear oil).

