



USA/Canada

1975



OWNER'S MANUAL VOLVO 164

Notice to Owner: Your Volvo has been built to comply to all North American safety and anti-pollution regulations and evidence of this can be seen from the certification label attached on the firewall in the engine compartment. For further information regarding these regulations, please talk to your selling dealer.

Personal Information

Name

Address

Tel. No.

Car Information

Vehicle Identification Number (VIN)

Ignition Key No.

Door Key No.

VOLVO 164

Operating Instructions • Description • Servicing

Before you start driving your new Volvo please read through this manual carefully. It contains all the information you need to be able to drive and service your vehicle in the best possible way. By following the instructions given in this manual you will find that your Volvo will come up to all the expectations concerning economical operation and excellent performance that you have every right to expect of a top-quality vehicle.

This is not intended to be a comprehensive technical manual and does not claim to make the reader a perfect car mechanic. It will, however, show you how to look after your vehicle so that trouble in the future can be avoided. The better you know your Volvo, the better service it can give you. Even for an experienced motorist it can contain some valuable information.

The specifications and constructional details given in this book are not binding. We reserve the right to carry out modifications without previous notice.

AB VOLVO • GÖTEBORG, SWEDEN

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VOLVO SERVICE

Volvo Service Organization

To get the most out of the invested capital represented by a car, it must be looked after and serviced regularly. Volvo has gone to a great deal of trouble in the design and selection of material to ensure that the car in question only requires a minimum of servicing. We rely, however, on your co-operation with regard to the future maintenance of your vehicle. To help you with this, Volvo has built up a world-wide service organization.

All Volvo dealers have specially trained personnel and receive a continuous supply of technical information from the Volvo Service Organization concerning repairs and adjustments. They also have special tools, designed at the Volvo factory. Moreover, all Volvo dealers have a comprehensive stock of parts which is a guarantee that the part you get is genuine Volvo. That is why our

dealers are in the best possible position to give your vehicle first-class service concerning both maintenance operations and repairs.

You should also refer to your dealer for any information about your Volvo that is not included in this manual.

Volvo not only has a workshop within easy reach in your own country, it also has a widely distributed service network in other countries.

Warranty and Maintenance Record book

A Warranty and Maintenance Record book accompanies each vehicle when it is delivered. This booklet contains a coupon entitling you to a service inspection after 1 500 miles (2 500 km). If possible let the dealer who supplied the vehicle make this service inspection. Any of our dealers, however, can

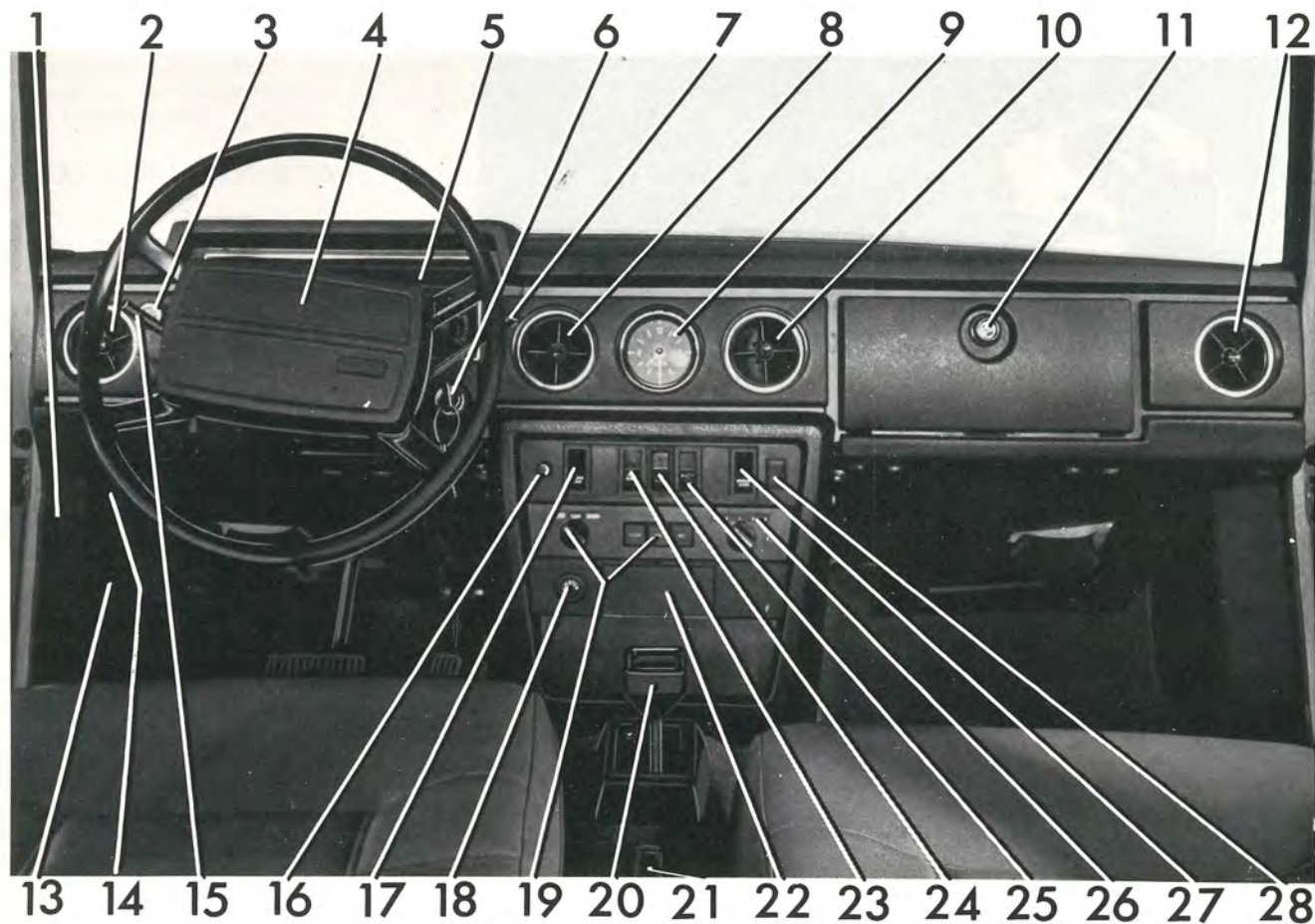
do this if required. If our guarantee is to apply, we make one absolute condition and that is that the above-mentioned inspection is made at roughly the mileage shown and that the vehicle has been looked after in accordance with the instructions given in this manual.

Service Maintenance

After the 1 500 miles (2 500 km) service inspection has been made **you should come to some arrangement with your dealer concerning continued, regular service maintenance in accordance with the suggestions made in our Warranty and Maintenance Record book.** Thorough and regular servicing is of vital importance for the performance and length of life of the vehicle.

Always use genuine Volvo parts.

OPERATING INSTRUCTIONS



INSTRUMENTS AND CONTROLS

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OPERATING INSTRUCTIONS

Parking brake (21)



The parking brake lever is between the front seats and operates on the rear wheels only. When the parking brake is applied and the ignition is on, a red warning light (5 D) shows on the instrument panel.

Apply the parking brake a few times every week in order to prevent the brake system from seizing.

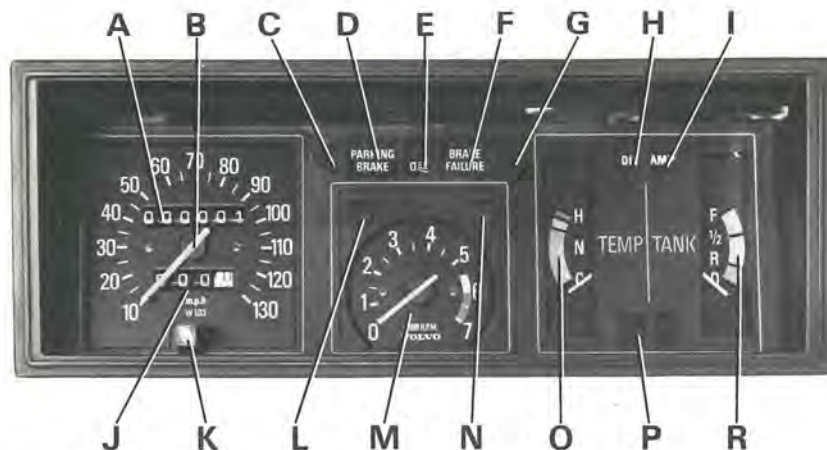
Seat belt reminder light (28)



If either front seat belt is unfastened after the engine has been started with the gear selector in any forward gear, the seat belt reminder light and buzzer will actuate.

Note: If this vehicle is equipped with an ignition interlock system and the ignition key is turned to the starting position without first fastening the front seat belts, the seat belt reminder light and buzzer will actuate and the starter will not engage. Should the light and buzzer actuate while the engine is running, even though the seat belts are fastened, it is an indication that the belt interlock control is out of sequence, and the starter will not engage should the engine stop. In this case, release and re-fasten the front seat belts at each occupied position which should turn off the reminder light and buzzer.

OPERATING INSTRUCTIONS



Combined instrument (5)

- A Odometer
- B Speedometer
- C Left turn indicator light (green)
- D Parking brake warning light (red)
- E Upper beam control light (blue)
- F Brake circuit warning light (red)
- G Right turn indicator light (green)
- H Oil pressure warning light (red)
- I Battery charge warning light (red)
- J Trip odometer
- K Trip odometer reset knob
- L Reminder light, EGR service
- M Tachometer
- N Bulb Integrity Sensor warning light (yellow)
- O Temperature gauge
- P Overdrive control light (green)
- R Fuel gauge

A Odometer

The odometer shows the total distance covered in miles. After 999999 miles it returns to zero and starts to go round again.



PARKING BRAKE

D Parking brake warning light

This light gives a steady, red light when the ignition is on and the parking brake applied.

BRAKE FAILURE

F Brake circuit warning light

This light gives a steady red light should a failure arise in one of the brake circuits. If the light goes on during driving, the car should be driven to a workshop to check the brake system.

Observe due care when driving under these conditions.

When the ignition is switched on, the light should go on and then out again when the engine starts.

OIL

H Oil pressure warning light

This light turns red when the engine oil pressure is too low. When the ignition is switched on, the light should go on and then go out again when the engine starts. Never start driving until the light goes out. If the light goes on during driving, stop the engine and find out the reason for this. In most cases it means that the oil level is

OPERATING INSTRUCTIONS

too low. After hard driving it may happen that the warning light comes on when the engine is idling. This is normal **providing it goes out again when engine speed is increased.**

I Warning light, battery charging

AMP

This lights red when the battery is discharging. Should it light during driving, either there is some fault in the electrical system or the fan belt is not sufficiently tensioned and is thus slipping on the alternator pulley, causing poor charging. When the ignition is switched on, the light should go on and then out again when the engine starts.

J Trip odometer



The trip odometer measures distances of up to maximum 999 miles. The window furthest to the right shows tenths of a mile and is therefore useful for measuring short distances.

K Trip odometer reset knob



The trip odometer is reset to zero by pushing in the knob.

L Reminder light, EGR-service

EGR

If the vehicle is equipped with an EGR (Exhaust Gas Recirculation) 15000 mile service reminder light, as required by the U.S. environmental protection agency, the light will come on at 15000 mile intervals. This is a reminder to take your Volvo to your Volvo dealer to get the EGR valve serviced. The light will stay on until it is reset by your Volvo dealer.

M Tachometer



The tachometer indicates the engine speed per minute. The amber-colored area between 5500 and 6000 rpm covers a temporary speed range and can be used, for example, for rapid acceleration. The speed range 6000–7000 rpm is marked in solid red and must not be used.

N Bulb Integrity Sensor warning light



The light gives a steady yellow light should any of the bulbs for lower beam, tail light or license light go out. If any one of the stop lights is out, the warning light comes on when the brake pedal is applied. The light comes on when the ignition is switched on and goes out when the engine starts.

O Coolant temperature gauge



The temperature gauge shows the temperature of the coolant and thus indicates the working temperature of the engine. The gauge pointer should normally remain within the green sector.

During town driving and idling when the weather is particularly warm, the temperature gauge pointer may enter the solid amber-colored field.

Should the pointer repeatedly point to the red field, coolant and fan belt tension should be checked.

OPERATING INSTRUCTIONS

P Warning lamp, overdrive



The lamp gives a steady green light when the overdrive is engaged. Concerning engaging and disengaging overdrive, see page 23.



Clock (9)

The clock is operated electrically. To reset it, push in the re-setting knob and turn the hands.



R Fuel gauge

The fuel gauge is graduated "full", "half", "reserve", and "empty". The red field between "reserve" and "empty" is a reminder that the tank should be filled. When the gauge pointer is on "reserve", there are approx. 2 1/2 US galls/2 Imp. galls (8 liters) in the tank. The gauge pointer registers when the ignition is switched on.



Switch, electrically operated window winder (17, 27)

The left switch (17) controls the left front door power operated window, the right switch (27) controls the right side door window.

Press in the switch lower part=window down
Press in the switch upper part=window up



Hood release handle (14)

The hood is released by pulling out the handle situated to the extreme left under the dash. This releases the hood which is still held by the safety latch.



The hood is opened by inserting the fingers under the front edge and pressing up the latch as shown in the picture. Check that it shuts properly when closed. The location of the hood when closed can be adjusted if necessary by screwing in or out the rubber plugs underneath the hood at the front end and on the fenders below the windshield.



Combined ignition switch and steering wheel lock (6)

The switch has four positions: (0) **Locking**, (1) **Intermediate**, (2) **Driving** and (3) **Starting**. The key can be taken out of the lock only in the **Locking** position.

The ignition switch is provided with a buzzer to remind the driver should he forget to remove the ignition key when his door is opened.

Removing the key automatically locks the steering wheel.

With the key in the **intermediate** position, the steering wheel is not locked and some electrical components are switched on.

To start the engine, turn the key to the **Starting** position. This engages the starter motor. As soon as the engine starts, release the key which automatically returns to the **Driving** position.

Note: If this vehicle is equipped with an ignition interlock system as required by US Safety Standards, the engine cannot be started unless the driver and front seat passenger have fastened their seat belts. Because of a special sequencing circuit in the belt interlock control, the seat belts must be fastened after the occupant is seated and before the key is turned to the starting position. If the proper sequence is not followed, the seat belt reminder light and buzzer are actuated and the engine will not

start (see Engine Starting Instructions on page 22).

If the car is parked in such a way as to make it difficult to unlock the steering wheel, unlocking can be made easier by slightly turning the steering wheel one way and then the other.

When the ignition is switched on, but before the engine has started, the following lights will be on:

- Oil pressure warning light
- Battery charging warning light
- Bulb Integrity Sensor warning light
- Parking brake reminder light
- Brake circuit warning light
- EGR service reminder light

This is an indication that the lights function. When the engine has started, all lights should be out (except the Parking brake reminder light if the parking brake should be applied).

OPERATING INSTRUCTIONS



Windshield wiper/washer control lever (7)

The windshield wipers have two speeds. Moving the lever downwards one stage operates the wipers at normal speed. This speed is recommended for normal driving in rain or snow. Pushing the lever down fully operates the wipers at full speed. This is recommended only when driving in heavy rain or when driving at high speed in the rain.

The windshield washer is switched on by moving the control lever towards the steering wheel. The washer can be used even when the wipers are not switched on.

For adjustment of water jets, see page 81. The washer container is located in the engine compartment and holds approx. 6.4 qts. (5.8 liters).



Turn signal lever, dimmer and headlight flasher (15)

The lever on the left-hand side of the steering column just below the steering wheel controls turn signals, changing between upper and lower beams and headlight flasher. The lever has a stop point for lane changing. This means that with small turns of the steering wheel (when e.g., changing lanes, passing, etc.) the lever can be moved up or down to this point and kept there. The right of left signal will then start flashing. When the switch lever is released, it automatically returns to its off position. For normal turns of the steering wheel, the lever is moved past this stop point to the end position. Straightening up the steering wheel will return the lever to its off position.

Switching from upper beams to lower beams and vice versa is made by moving the lever towards the steering wheel and then releasing it. Here the lighting switch (3) should be pulled fully out.

The lever is also used for flashing the main beams when the headlights are not switched on. The headlight flasher is switched on by moving the lever towards the steering wheel and it remains switched on until the lever is released.



Headlight (3)

The headlights are operated by a push-pull type switch on the dashboard as well as a lever (15) on the steering column.

All the lights are extinguished when the light switch is pushed fully in. Pulling it out to the half-way position, switches on the parking lights, and when it is fully out, the low or high beams are switched on, depending on the position of the lever (15).

Since the lighting system is not connected across the ignition switch, the lights will function irrespective of whether the ignition key is in position or not.

Your car is equipped with side marker lights. These are located on the sides of the fenders and are switched on by pulling out the switch knob for the headlamp lighting.

OPERATING INSTRUCTIONS

Rheostat for instrument panel light (16)



Rotate knob clockwise to turn on panel light and counter-clockwise to dim it.

Cigarette lighter (18)



To use the cigarette lighter, push it in. The lighter releases automatically when it attains sufficient heat.

Ash tray (22)

To empty the ash tray, pull it straight out all the way while pressing down the tongue inside.

Switch for emergency warning flashers (24)



All four emergency warning lights start flashing when the lower part of the switch is pushed in. A warning lamp in the switch blinks in unison with them.

This warning light is not wired across the ignition and therefore functions irrespective of whether the ignition is switched on or not. Pushing in the switch upper part cancels the flasher lights.

The emergency warning lights should only be used when the car must be stopped where there is danger to other traffic. Note that regulations concerning the use of these lights may vary from place to place.

Switch for electrically heated rear window (23)



In order to obtain a clear rear view during cold and damp weather, the car is equipped with an electrically heated rear window. Heating is provided by wires on the inside of the rear window. **Avoid placing anything near the wires that might damage them.** Observe due care when cleaning the window inside, as rings etc may damage the wires.

The heating is switched on by pushing in the lower part of the switch. This lights up a warning lamp mounted in the switch. Pushing in the upper part of the switch switches off the heating.

Switch off the heating when the rear window is clear of mist and ice in order not to overload the battery unduly.

Fresh-air control (13)

Pushing the control forwards opens fresh-air intake vents on the driver's side. Note that the fan should not be operating if cool air is desired through this intake.

Air vents (2, 8, 10, 12)



Air is supplied to the interior by means of the four air vents. Air is blown through these vents by the blower fan which is operated by switch (26). The vents can be shut off completely by turning the button in the center of each vent a 1/4 turn counter-clockwise. The vents can also be adjusted to point to any particular place in the interior. The two outer vents can even be used for demisting the front door windows.

OPERATING INSTRUCTIONS

Heater/ventilation controls (19, 25, 26)

The heating system is a combined warm air and fresh air system with air conditioner. The system comprises the following controls:

1. TEMP (temperature)
2. FLOOR (floor)
3. DEF (defroster)
4. REC (recirculation)
5. FAN (fan)
6. AIR COND (air conditioner)
and partly also the four air vents, see page 11.

1. **TEMP** controls the incoming air temperature.
Counter-clockwise COOL.
Clockwise WARM.

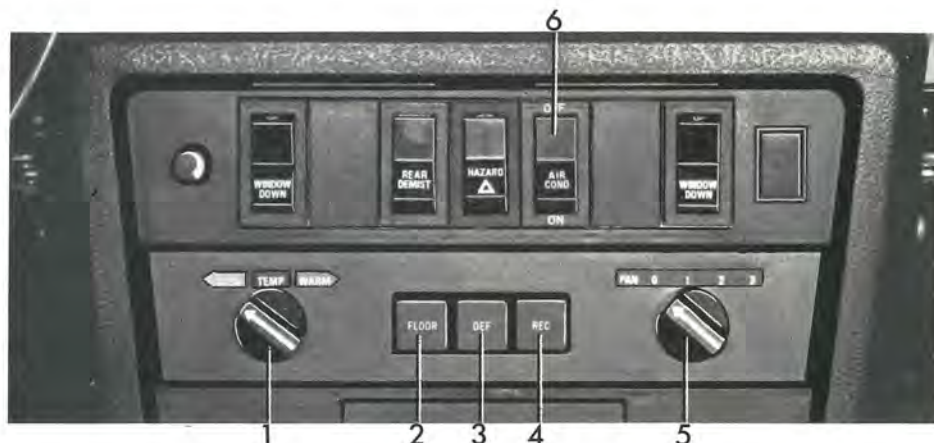
- 2, 3, 4. The three push buttons **FLOOR**, **DEF** and **REC** provide well-balanced standard settings.

No buttons pushed in: No air to floor and very little to defroster. Air can be obtained through the four air vents.

Only FLOOR pushed in: Full air flow to front and rear floor, very little to defroster.

Only DEF pushed in: Full defroster, no air to floor.

Push button REC is intended to be used in combination with air conditioner and should not be used for heating.



5. **FAN** controls the fan speed.
0 = Off.
3 = Full speed (mainly intended for air conditioner).
6. **AIR COND** engages the air conditioner.

In order to obtain maximum heating, adjust:

TEMP fully clockwise.
FAN position 2 (use pos. 3 in extreme cases, only).
FLOOR pressed in, only.
Air vents half way open.

This adjustment reduces the defroster efficiency.

OPERATING INSTRUCTIONS



This is how you engage air conditioner:

1. Switch on the compressor with **AIR COND.**
2. Turn control **TEMP** to COOL (fully counter-clockwise) for rapid cooling. Thereafter, choose desired temperature.
3. Push in button **REC** for rapid cooling. When desired temperature has been obtained, the button may be pulled out again.
4. Select suitable fan speed with control **FAN**.
The AC does not operate unless FAN is on.

To obtain rapid cooling, all windows must be closed and buttons FLOOR and DEF out. Most of the cooled air will then enter the four dash air vents which should be fully open.

If you want to avoid or rapidly remove mist inside the windows, adjust:

TEMP fully clockwise.

FAN position 2 (use pos. 3 in extreme cases, only).

DEF pushed in, only.

The outer air vents half way open.

When starting a snow-covered car, any snow covering the heater air intakes should be removed to avoid misting.

A good tip: For rapid removal of mist, temporarily switch on compressor with **AIR COND** which will dehumidify interior air.

1. **AIR COND** pushed in.
2. **REC** pushed in.
3. **FAN** position 2 (use pos. 3 in extreme cases, only).
4. **TEMP** regulated to desired temperature.

Check the air conditioner yearly at a Volvo shop.

OPERATING INSTRUCTIONS



INTERIOR AND BODY

Length adjustment

The driver's seat can be moved forwards and backwards after the loop handle on the seat front has been pulled upwards. Exert leverage with your feet on the floor and slide the seat to position desired.

Front seat inclination

The front seat inclination is adjustable by the hand wheel on the outside of the seat. A comfortable sleep or rest position is obtained by reclining the seat back completely.

Lumbar support

The front seats are provided with an adjustable lumbar support. This is operated by the knob on the right side of the backrest. To tension the lumbar support, and thus exert more pressure against the small of the back, turn the knob clockwise, "FIRM" and to relieve the pressure against the small of the back, turn the knob counter-clockwise "SOFT".



Driver seat height

There are two levers, each with three positions, for positioning the seat front or seat back vertically.

This means that also the cushion angle can be changed.

When adjusting the seat up-down, check that it is securely latched.



Passenger seat height

The front passenger seat is retained by four brackets each with three positions. The positions are the same as for the driver's seat, but tools must be used to change the positions.

The driver's seat has electrically heated seat cushion and seat back. The seat cushion is provided with a thermostat which cuts in when the cushion temperature is below 57°F (+14°C) and cuts out at 78°F (+26°C). The heater pad is energized only when the ignition is on.

OPERATING INSTRUCTIONS



Seat belts

Always use the seat belt for all types of driving. Remember that it is possible even in slow city traffic to incur serious injury from sudden, unexpected stopping.

Note: If this vehicle is equipped with an Ignition Interlock System as required by U.S. Safety Standards, the engine cannot be started unless the driver and front seat passenger have fastened their seat belts. The seat belts must be fastened after the occupant is seated and before the key is turned to the starting position (see engine starting Instructions on page 22). There is a buzzer and a warning light on the instrument panel which remind the driver that the seat belts have to be fastened. See page 5.

Your car is equipped with automatically retracting inertia seat belts.

To fasten the belt, pull out the strap slowly (with right hand for belt on left-hand side, with left hand for belt on right-hand side) to prevent the mechanism from locking. Normally the belt roller is "unlocked". The roller will lock automatically if pulled out quickly, or if the car brakes or inclines to an angle greater than 10–15° or when taking a bend rather sharply.

The practical design of the belt makes it very easy to use. Place the belt with one strap over the lap and the other across the shoulder—chest and fasten it by pushing the buckle tongue into the slot of the locking device located between the front seats.

A clearly audible clicking sound indicates that the belt is locked. Make sure that those parts of the belt against the body are not twisted.

The belt is released from the lock by pushing in the square red button on the lock. Always make a habit of letting the belt roller pull in the belt strap when the belt is unfastened.

If the belts do not retract fully, this may be due to the fact that they are twisted inside the cover casing. This is remedied by pulling out the belt **fully** and then allowing it to be drawn into the casing.

Note that small children (up to the age of 8–10 years) should not use the seat belts.



Seat belts in rear seat

The seat belts at both sides of the rear seat are also of the automatically retracting type. When fastening these belts pull them out rather slowly to prevent them from locking before being fastened. These belts are fastened by pushing the tongue at the end of one strap into the lock on the other. To unfasten just press in the square red button.



The belt in the middle of the rear seat is manually adjusted. It is fastened and unfastened in the same way as the side belts in the rear seat.

To lengthen the center belt, turn the buckle and pull it out as shown in the picture.

To shorten the belt pull the upper belt strap.



Maintenance

Check now and then that the bolts are secure and the belt in good condition. Use water and a detergent for cleaning.

As the seat belts lose much of their strength when exposed to violent stretching, they should be replaced after collision, even though they may appear to be undamaged. Never modify or repair the belt on your own, but have this done by a workshop.

OPERATING INSTRUCTIONS



Doors and locks

The car is equipped with a lock and key-hole on each of the front doors.

The front doors can be locked from the outside by pressing the lock button on the window ledge down and shutting the door while holding the outside handle pulled out as shown in the picture.

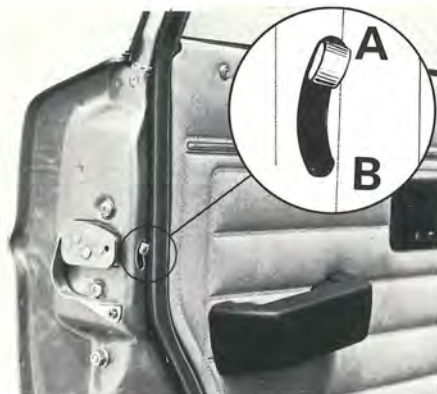
To lock the rear doors, push down the inside lock button. It is not necessary to keep the outside handle pulled out.

Do not leave the keys in the car.

All the doors can be locked on the inside by pressing down the lock button on the window ledge. On the front doors this lock button lifts automatically when the door is opened from the inside. On the rear doors, however, the lock button must first be pulled up before the doors can be opened from the inside.

During driving the lock buttons should not be pushed down as this would only prevent anyone from opening the door on the outside should an accident occur.

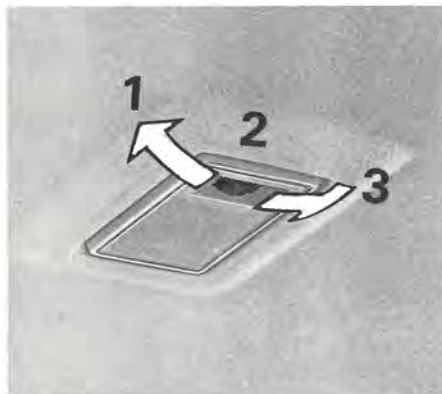
The door locks have been designed to provide maximum possible protection against freezing during the wintertime. As an extra measure, however, you should lubricate the locks regularly during very cold weather with a suitable antifreeze agent. If the lock is already frozen, be careful not to break the key in the lock. Instead, heat the key and immediately place it in the lock. This should unfreeze the lock. Should you lose the car keys, contact your nearest Volvo dealer for new ones and quote the code number of the keys which have been lost.



Child safety lock

On the Volvo 164 there is a small red button located at the very back on the inside of the rear doors. Move this button down to lower position (B). When the door is then closed, it can only be opened from the outside, providing the lock button on window ledge is not depressed.

If the red button is at the upper position (A), the rear door lock will function normally.



Interior light

1. Lamp is always on.
2. Lamp is always out.
3. Lamp lights when front door is opened.

Vehicles equipped with sun-roof have another type of interior light housing.



Sun-roof

Certain models are equipped with a sun-roof. The sun-roof is opened and closed by a winding handle. When not in use, the handle is folded in the recess in the roof between both the sun visors.

To close the sun-roof, wind it forwards fully, then wind back the handle a little and fold it into the recess in the roof.

OPERATING INSTRUCTIONS



Rear view mirrors

The inside rear view mirror is provided with an anti-glare knob at the bottom of the mirror. The mirror is switched to anti-glare by pushing the knob.

The outside rear view mirrors can be adjusted sideways by moving the mirror arm and up and down by moving the mirror itself.



Fuel tank

The door for the fuel tank filler cap is located on the right rear fender. When filling, it is advisable to let the cap rest in a recess on the inside of the door, see the picture.

Note: if the tank cap is replaced, the new one should be of the non-ventilated type.

Note: For vehicles with catalytic converter unleaded fuel must be used. Vehicles not equipped with catalytic converter can use leaded or unleaded fuels.



Trunk

The trunk lid is locked with the same key as that used for the doors. It is opened by turning the knob clockwise and lifting the lid at the same time. **Note that the key must be taken out of the lock in order to turn the knob and open the lid.** The lid is balanced and will remain stationary in its opened position.

The spare wheel is securely held in position to the left. The jack and tool kit are located next to the spare wheel.



STARTING AND DRIVING

Running-in

The maximum permissible speeds given below must not be exceeded in the beginning when the moving parts of the car are in the process of adaptation on order to achieve overall smooth function:

	first 600 miles (1 000 km)		between 600 and 1 200 miles (1 000 and 2 000 km)	
1st speed	20 mph	(30 kmph)	30 mph	(50 kmph)
2nd speed	35 mph	(55 kmph)	45 mph	(75 kmph)
3rd speed	50 mph	(80 kmph)	60 mph	(100 kmph)
4th speed	70 mph	(110 kmph)	80 mph	(130 kmph)

Avoid driving at high speed in low gear and using the kick-down (automatic transmission) during the first 1 200 miles (2 000 km).

1 500-mile Service Inspection

After 1 500 miles the vehicle should be taken to a Volvo workshop for an inspection. Included with the checks and adjustments then made is a change of oil in the engine, transmission and rear axle. It is very important to ensure that the engine oil and filter change is made since during the running-in period the engine oil usually collects a lot of impurities. Subsequent oil changes should be made at approximately those intervals indicated in the maintenance schedule on page 38 and in the lubricating chart at the end of the book. Before being delivered, all Volvo engines are test-run on test benches and in the vehicles on test tracks. We are therefore assured that all clearances are satisfactory and we thus accept no responsibility for damage caused by careless running-in (see Volvo Warranty and Maintenance Record Book).

OPERATING INSTRUCTIONS

Your first drive

Before starting to drive your new Volvo, we would advise you to become acquainted with your car and the various instruments and controls required for the driving. When you are seated comfortably and can locate the various controls easily you are ready to start driving.

Start the engine as follows:

1. Enter the car and fasten the seat belts. If this vehicle is equipped with an ignition interlock system, the engine can not be started unless the driver and front seat passenger have fastened their seat belts. The belts must be fastened after the occupant(s) are seated and before turning the key to the starting position. The seat belt reminder light and buzzer are actuated and the starter will not engage if this sequence is not followed. (See combined ignition switch and steering wheel lock, page 9).
2. Check that the parking brake is on and the gear lever is in neutral (position N or P, autom. transmission).
3. Always make a habit of depressing the clutch pedal until the engine starts.
4. Turn the ignition key to the starting position. Release the key as soon as the engine has started.
5. Avoid repeated **short** attempts to start. (In the case of **each** new attempt, the cold start injector functions and causes fuel to be injected into the inlet duct).

Instead, allow the starter to operate for a rather long time (not more than 15–20 seconds, however) each time.

Do not race the engine up to high speed immediately after starting from cold.

6. If this vehicle is equipped with an ignition interlock system and the seat belt reminder light and buzzer actuate after the engine has started, even though the seat belts are fastened, it is an indication that the belt interlock control is out of sequence, and the starter will not engage should the engine stop. In this case, release and refasten the front seat belts at each occupant position to turn off the light and buzzer (see seat belt reminder light, page 5).

Note: If the vehicle is parked on a steep incline the seat belts cannot be pulled out and, if the vehicle is equipped with an Ignition Interlock System, the engine can not be started as long as either front seat is occupied. If this occurs, or of the Interlock System malfunctions, open the fuse box cover (see page 56) and remove fuse No. 9. This will allow the engine to be started in an emergency. While fuse No. 9 is removed, the seat belt reminder light will remain lit, even if the seat belts are fastened. When the car is on level ground reinstall the fuse and fasten seat belts or see a Volvo Dealer to have the interlock system checked if malfunctioning.

Starting in garage

Before starting your car in a garage, always open the garage doors. The exhaust gases from the engine contain carbon monoxide gas which is poisonous and particularly dangerous since it is invisible and odorless.

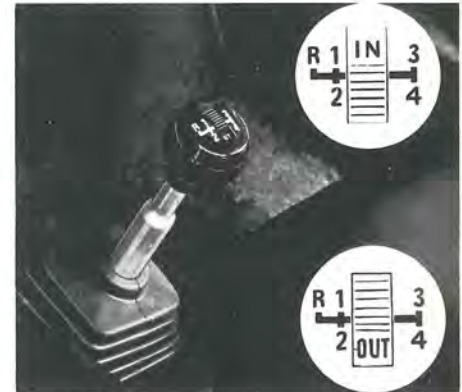
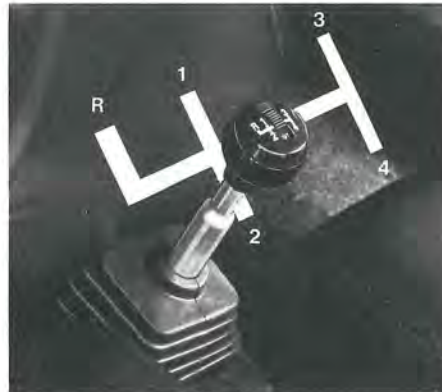
Warming up the engine

Experience has shown that engines in vehicles used for frequent stopping and starting are subject to abnormally rapid wear. The reason for this is that the engine is not given a chance to reach its normal working temperature. When the engine is cold, it should just be taken up to its normal working temperature as quickly as possible. Therefore, do not idle the engine too long but start driving on light throttle as soon as the oil pressure light has gone out.

Driving with the trunk lid open

While driving with the trunk lid partly or fully open, exhaust gases can be sucked into the car through the trunk. Normally, this involves no risk to the passengers. However, the following advice should be followed on such occasions:

1. Keep all windows closed.
2. Set the fresh air and defroster controls to the fully-opened position and the blower switch to full speed.



SHIFTING

The Volvo 164 may have a manual transmission with an overdrive, or it may be equipped with an automatic transmission. The transmission is synchronized on all forward gears. If synchronization is to function satisfactorily, the clutch pedal must be fully depressed. Never let the engine drag in high gear. Shift down in good time.

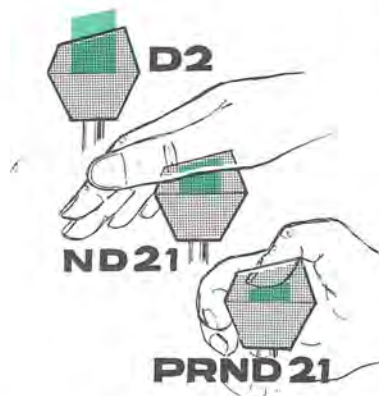
Floor-mounted shift lever

Shifting with a floor-mounted shift lever is quite conventional and the different shift positions are shown in the picture above.

Overdrive

The overdrive, which can be used in fourth gear, is operated by a slide button on the shift lever knob. Thumbing it backwards engages the overdrive, thumbing it forwards disengages it. No extra operation of the clutch pedal or accelerator is normally necessary but engagement of overdrive is facilitated if the accelerator pedal position is maintained steady. When disengaging the overdrive, light pressure on the clutch pedal helps to make this operation smoother. The overdrive should not be used at speeds below 40 mph (60 kmph).

OPERATING INSTRUCTIONS



2-position

In position 2 the transmission can shift up or down automatically between 1st and 2nd gear.

In this position there is no shifting up to 3rd gear.

2 position can be used to obtain immediate downshifting (to 2nd gear) and also when shifting up from 2nd to 3rd gear is not desired, for example, at the following times:

- during certain types of highway driving
- during crawling town driving
- when driving in hilly country
- when overtaking
- in order to increase engine braking

Do not select 2 position for speeds exceeding 80 mph (125 kmph).

Automatic transmission

The shift positions for the selector lever are marked on the console next to the lever.

P=Parking
R=Reverse
N=Neutral
D=Driving
2
1=Low speed

The selector lever can be moved freely between positions **D** and **2** where the other positions are blocked with a gate which is opened by means of the push button in the knob of the selector lever.

To shift from **D** and **2** to positions **N** or **1** all that is required is a light push on the button with the palm of the hand. With the push button in this position, the selector lever can be moved between the four positions, **1**, **2**, **D** and **N**.

To shift to position **R** and **P** more force is required to press down the button. This can be done with the thumb. Similar force is also required to move the selector lever **out of the P position**. In other words, with the push button fully depressed, the selector lever can be moved freely between the various shift positions in the transmission.

1-position

With **1** position there is automatic downshifting **but no upshifting**.

If **1** position is selected at high speed, 2nd gear is engaged. It is only when the speed has dropped to about 6 mph (10 kmph) that 1st gear engages. The 1st gear can also be engaged by kick-down below about 30 mph (50 kmph). If you want to drive in 1st gear without intending to shift up, use **1** position, e.g., when driving in hilly country where maximum engine braking can be obtained in **1** position.

Do not choose 1 position for speeds exceeding 80 mph (125 kmph).

Kick-down

When the accelerator pedal is depressed past full throttle position, kick-down is obtained, that is, there is an immediate shifting down to the next lower gear. As soon as a maximum speed for this gear has been reached or if the accelerator pedal is eased from the kick-down position, automatic shifting takes place to the next higher gear.

Starting

Move the selector to **P** or **N**. The starting switch will be put out of function if the selector is moved to any of the other positions.

Important

Do not select **P** or **R** when the car is moving.

Do not select **D**, **2**, **1** or **R** at an engine speed higher than idling when the car is stationary.

Do not select **2** or **1** at speeds above 80 mph (125 kmph).

STANDARD TRANSMISSION

Recommended max. and min. speeds mph (kmph) for the different gears

Engine	1st gear	2nd gear	3rd gear	4th gear
B 30 F	0-35 (0-55)	10-55 (20-90)	22-85 (35-140)	27- (45-)*

*) 40 mph (60 kmph) with overdrive engaged.

AUTOMATIC TRANSMISSION

Gear speeds at full throttle, kick-down, mph (kmph)

Gear	B 30 F
1-2	40 (65)
2-3	80 (125)

Max. speed when kick-down downshifting, mph (kmph)

Gear	B 30 F
3-2	70 (110)
3-1	30 (50)

OPERATING INSTRUCTIONS



EMERGENCY TOWING (PULLING)

The line should be attached to one of the towing eyelets installed underneath the car.

At the front, the eyelet is situated at the right-hand side (left picture) on the front axle member, and the rear eyelet on the right side (right picture). During pulling, the line should be kept stretched to avoid unnecessary jerking.

The bumper must not be used for lifting or towing.

Towing, automatic transmission

If necessary, your car can be towed with the selector lever in position N, providing that the transmission is properly adjusted and that the oil level is correct. The maximum permissible speed when towing is 20 mph (30 kmph) and the longest distance your car ought to be towed is 20 miles (30 km).

If the car has to be towed longer than this or if you suspect that there is some fault in the transmission, the rear wheels should be raised or the propeller shaft disconnected in order to avoid possible damage to the transmission.

To observe when towing

- Steering must be unlocked
- Observe legal speeds
- Remember that power brake and power steering assists will not be available when engine is inoperative. Pedal pressure is 3–4 times normal and steering effect increased.

Starting by pulling

The towing car should start smoothly and be driven at even speed in 2nd gear. Switch on the ignition.

Standard transmission: Engage 3rd or 4th gear and gradually release the clutch pedal. Once the engine starts running, depress the clutch pedal.

Attention!

Remember that a car with automatic transmission can not be started by pulling. If your car can not be started because of a flat battery, jump start from another battery.

NOTE. Always connect a plus cable from the assist starter battery to the plus pole on the car battery and the minus cable to the minus pole.

Trailer hauling

Driving with a trailer involves no particular difficulties provided you follow the recommendations of the trailer manufacturer concerning equipment and loading.

Your Volvo dealer will certainly give you tips about suitable hitches for your Volvo. The lighting for the trailer and car as well as the car's rear view mirrors must conform to the requirements of the federal and local authorities.

The load in the trailer should be so distributed that there is a certain pressure on the car's hitch tongue, but max. 160–200 lbs (75–90 kg).

Remember to increase the rear wheel tire pressure when the hitch load approaches the maximum allowed.

However, do not exceed the maximum permitted load (see page 69).

IMPORTANT ABOUT BRAKING

When you drive your car in the rain or through pools of water, also when washing the car, water can splash on the brake discs and linings and thereby alter the friction properties of the brake linings so that a certain delay in braking effect can sometimes be noticed.

If you drive some distances in rain or slush, you should **depress the brake pedal lightly now and again** in order to heat up the brake linings and remove the moisture on them. This should also be done after washing the car and after starting in very damp weather.

When the brake servo is not functioning, e.g., on rolling the car with the engine switched off, pressure on the brake pedal will be 3 to 4 times greater to obtain the same braking effect.

Note that the brake pedal travel will be short and stiff.

If one of the brake circuits should stop functioning (the red warning lamp F, see page 6, lights) double pressure on the brake pedal is required in order to achieve approx. 80 % of the normal braking effect. About 50 % braking effect is achieved with normal pedal pressure. **Note that here the pedal stroke will be long but the pedal will then feel stiff and hard in the braking position.** The car should be taken as soon as possible to a workshop for a check on the brake system.

Note

Handling, roadholding

At normal operating load your Volvo has a tendency to understeer. This means that in a certain curve the steering wheel has to be moved further to obtain the same response when driving faster. This makes the car stable and decreases the chances of rear wheel skid.

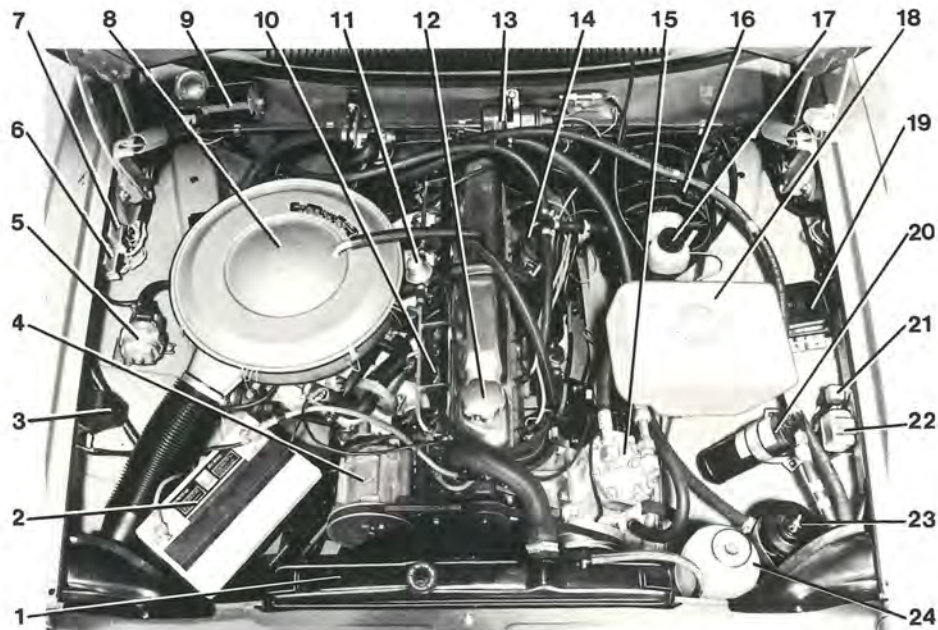
Different loads vary this property. Also the tire pressure is very important for the handling. Volvo advises not to experiment with tire pressures and instead follow Volvo's recommendations.

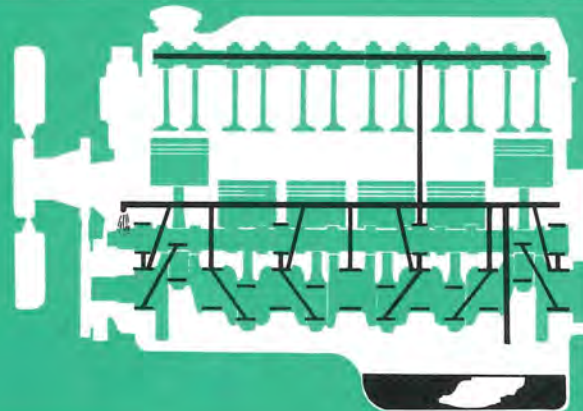
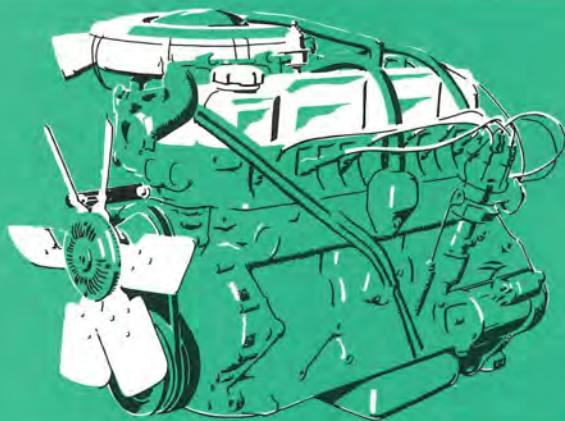
Volvo also warns against mixing tires of different kinds, as for instance diagonal and radial tires, as this considerably alters the car's handling properties.

TECHNICAL DESCRIPTION

Engine compartment

1. Radiator
2. Battery
3. Voltage regulator
4. Air pump (Air injection system)
5. Pressure sensor
6. Relay for fuel pump
7. Main relay for fuel injection
8. Air cleaner
9. Windshield wiper motor
10. Injectors
11. Pressure regulator
12. Oil filler cap
13. Ignition coil
14. Oil dipstick
15. Compressor (Air conditioner)
16. Brake servo
17. Brake fluid container
18. Windshield washer container
19. Ignition system electronic module
20. Receiver-drier (Air conditioner)
21. Main relay for ignition
22. Step relay for high and low beams
23. Oil container for power steering
24. Expansion tank





ENGINE

The engine is a six-cylinder, water-cooled unit with overhead valves. The engine has a very rigid cylinder block made of special cast iron and is cast in one piece. The cylinder liners are machined directly in the block. The cylinder head has separate inlet and exhaust ports, one for each valve.

The statically and dynamically balanced crankshaft is carried in seven main bearings.

Lubricating system

Engine lubrication is taken care of by a gear pump located in the oil pan. The pump is driven by a gear from the camshaft. From the pump the oil is forced through the full-flow type oil filter and then along oilways to the various lubricating points. A relief valve is built into the oil pump and prevents the oil pressure from reaching excessively high values. The oil filter is of the full-flow type, that is, all the oil passes through the filter before continuing on to the engine lubricating points.

Cooling system

The cooling system is of the sealed pressure type and incorporates a circulation pump.

When the engine is cold, the coolant circulates only inside the engine. As the engine warms up, a thermostat valve starts opening the outlet to the radiator.

An expansion tank prevents air from circulating with the coolant as this would cause corrosion in the cooling system. The fan is driven via a slip coupling which permits a max. fan speed of approx. 2500 rpm, resulting in a lower noise level.

TECHNICAL DESCRIPTION

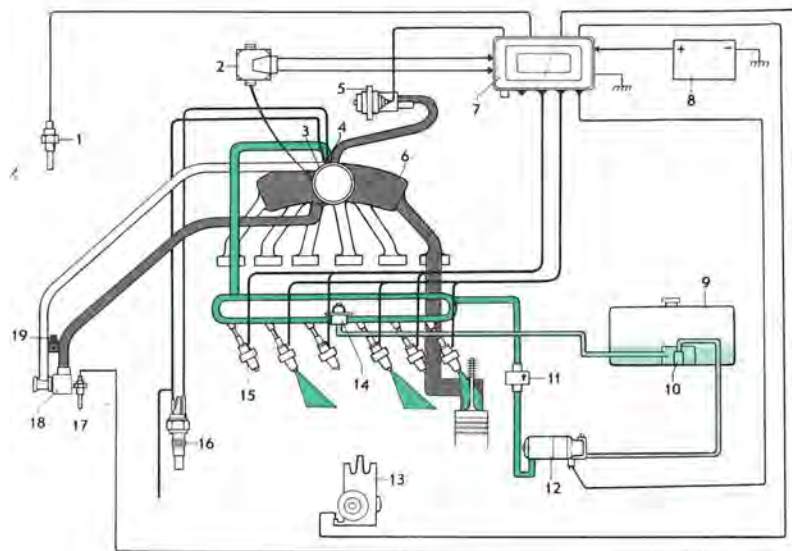
Fuel system

The engine is equipped with an electronic fuel injection system.

This system includes an electronic control unit (7) which converts the impulses from the various sensors in the engine to control signals which regulate the six solenoid-actuated fuel injectors (15). The control signals influence the opening times of the injectors and thereby the amount of fuel injected.

The mixture of fuel and air is modified the whole time according to the conditions under which the engine is running. Engine speed is governed by the triggering contacts (13) in the distributor, the operating temperature by the sensor (17) for the coolant, the temperature of the induced air by the sensor (1) and the engine load by the pressure sensor (5) which is connected to the inlet duct. In addition, the control unit is provided with information concerning the position of the throttle valve by the throttle valve switch (2). This information is "computerized" in the control unit and re-transmitted in the form of control impulses to the injectors.

Fuel is injected into the inlet ports in the cylinder head just before the intake valves. The fuel is delivered to the injectors via an electric fuel pump (12) which maintains a constant pressure of 31 psi (2.2 kp/cm²) in the fuel line with the help of a pressure regulator (14).

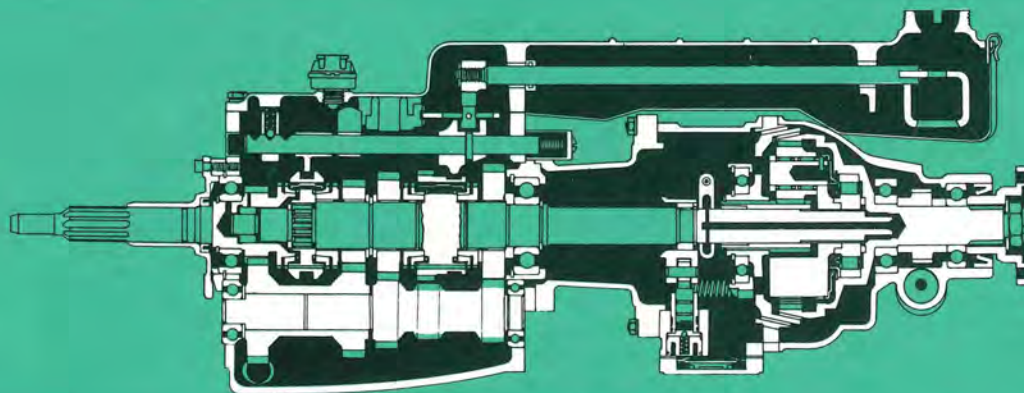


Principle of operation, fuel injection system

1. Temperature sensor for induction air
2. Throttle valve switch
3. Throttle housing
4. Cold start valve
5. Pressure sensor
6. Inlet duct
7. Control unit (electronic)
8. Battery
9. Fuel tank
10. Fuel filter, suction side
11. Fuel filter, discharge side

12. Fuel pump
13. Triggering contacts in distributor
14. Pressure regulator
15. Injectors
16. Thermal timer contact
17. Temperature sensor for coolant
18. Auxiliary air regulator
19. Idling adjusting screw

- Partial vacuum in inlet duct
- Fuel at atmospheric pressure
- Fuel under 31 psi (2.2 kp/cm²) overpressure



Emission control system

The exhaust emission control is accomplished by the electronic fuel injection, the air injection and the exhaust gas recirculation systems, on some models together with a catalytic converter. All models are also equipped with a crankcase ventilation system and an evaporative control system.

POWER TRANSMISSION

Clutch

The function of the clutch is to transmit power from the engine to the transmission. The clutch is of the single dry plate type. Pressure on the pressure plate is obtained from a diaphragm spring which in its turn is controlled by the clutch pedal via a throw-out yoke.

Manual transmission

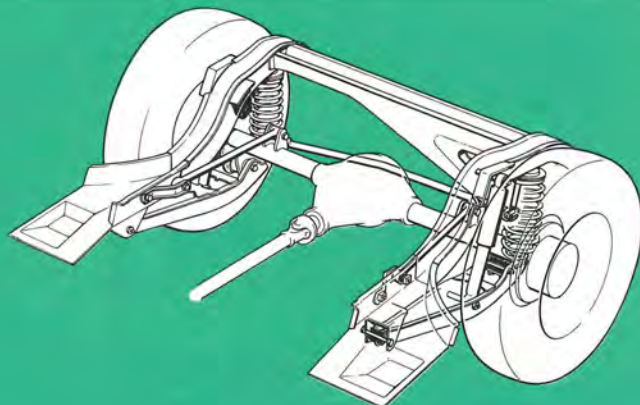
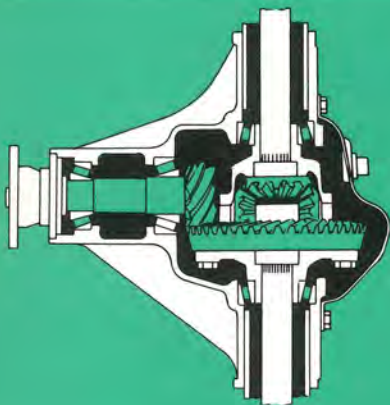
The transmission has synchromesh on all forward gears. Since it is equipped with helical gears and the gear lever is rubber-insulated, excellent sound insulation is obtained.

With the overdrive it is possible to reduce engine speed while maintaining road speed. This is less wearing on the engine and reduces fuel consumption at the same time.

Automatic transmission

As an alternative, your Volvo can be equipped with a BW35 automatic transmission. In principle it consists of two main components—a hydraulic torque converter and a hydraulically operated epicyclic gearbox with a control system. The converter serves as a clutch and as an extra gear between engine and transmission.

TECHNICAL DESCRIPTION



Propeller shaft

The propeller shaft, which is the link between transmission and rear axle, is divided into two sections. The forward section is journaled at its rear end in a rubberized ring.

Final drive

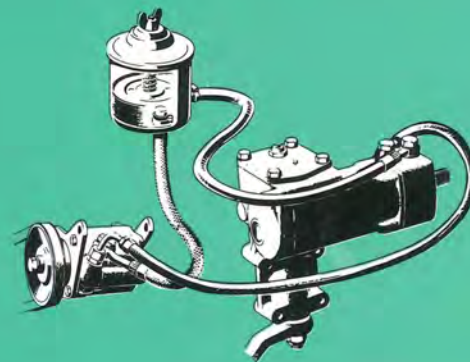
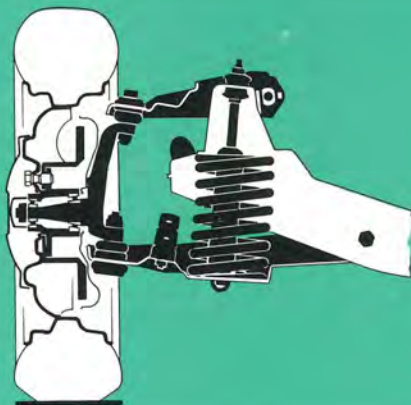
Engine torque is transmitted via the propeller shaft to the rear wheels through the final drive. The final drive is of the hypoid type, that is, the drive pinion lies below the center line of the drive shafts.

Limited slip differential

A limited slip differential can be obtained as extra equipment. A rear axle with a limited slip automatically transmits the tractive power to the wheel having the best road grip when a wheel begins to spin. Except for the differential, the rear axle is similar in design to a conventional rear axle. Do not rotate a jacked-up rear wheel if the other rear wheel is still on the ground. Due to the differential, there is still drive on the wheel in contact with the ground. **Rotating the jacked-up rear wheel would thus move the other rear wheel and may cause the car to topple off the jack.**

Rear axle

The rear axle is connected to the body by two trailing arms. Forces in the car longitudinal direction are transferred by two reaction rods and transversal forces by a track rod.



FRONT END AND STEERING

Front end

The front suspension units are mounted on a strong box member. The member is bolted firmly to the front section of the body. The front wheels are journaled in tapered roller bearings. The front springs consist of coil springs in which telescopic shock absorbers are fitted. The car is provided with stabilizers secured to the lower control arms and to the body.

Power steering

The power cylinder and guide valves are built into the cam-and-roller type steering gear. When the steering wheel is turned, the steering valves direct the pressure oil from the power pump to one of the sides of the piston in the power cylinder. The resultant pressure on the piston side affected assists in turning the steering wheel.

TECHNICAL DESCRIPTION

ELECTRICAL SYSTEM

The electrical system is of the 12-volt type and equipped with a voltage-regulated alternator. The starter motor is operated by the ignition switch. This switch is also the main switch for the rest of the electrical system. The headlights, parking lights and interior lighting, however, are not wired via the ignition switch so they can be switched on and off without the ignition key being in position.

Concerning replacement of bulbs and fuses, see pages 52–56.

Note: The Bulb Integrity Sensor (page 7) is designed for a certain current flow and it is therefore not possible to make extra current taps for trailers etc at any place in the electrical system.

These taps should therefore be made at the firewall where the possibilities exist to make the electrical connections.

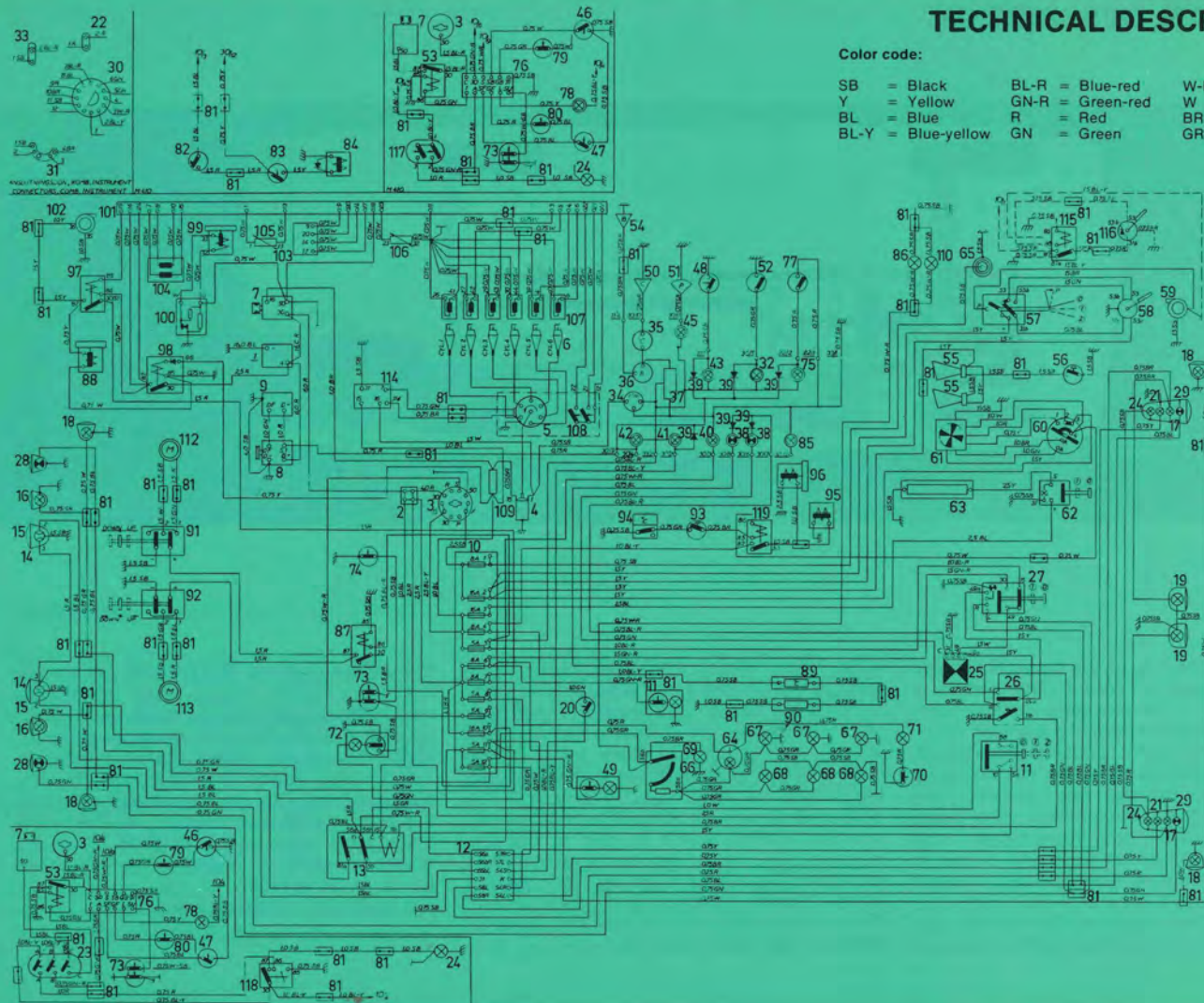
Wiring diagram

1. Battery
2. Connection plate
3. Ignition switch
4. Ignition coil
5. Distributor, Firing order 1–5–3–6–2–4
6. Spark plugs
7. Starter motor
8. Alternator, 760 W
9. Charging relay
10. Fuse box
11. Light switch
12. Lamp failure warning unit
13. Stop relay for upper and lower, beams and headlight flasher
14. Sealed beam unit
15. Lower beam, Sealed beam unit
16. Position lamp, 5 W
17. Tail lamp, 5 W
18. Side marker lamp, 3 W
19. License plate lamp, 5 W
20. Stop light switch
21. Stop lamp, 32 cp
22. Conn. at instrument
23. Contact on gearbox BW 35
24. Back up lamp, 32 cp
25. Flasher unit
26. Turn signal switch
27. Hazard warning signal switch
28. Front turn signal lamp, 32 cp
29. Rear turn signal lamp, 32 cp
30. Conn. at instrument
31. Conn. at instrument
32. Brake failure pilot lamp, 1,2 W
33. Conn. at instrument
34. Tachometer
35. Thermometer
36. Fuel meter
37. Voltage stabilizer
38. Turn signal light pilot lamp, 1,2 W
39. Diode
40. Upper beam pilot lamp, 1,2 W
41. Lamp failure pilot lamp, 1,2 W
42. Charging pilot lamp, 1,2 W
43. Parking brake pilot lamp, 1,2 W
44. Oil pressure pilot lamp, 1,2 W
45. Contact, passenger's seat
46. Contact, driver's seat
47. Parking brake contact
48. Luggage comp, light 15 W
49. Temperature gauge
50. Oil pressure guard
51. Brake failure contact
52. Starter cut-out relay
53. Fuel lever gauge
54. Horn
55. Horn ring
56. Windshield wiper/wash switch
57. Windshield wiper
58. Windshield washer
59. Fan switch
60. Fan 170 W
61. El heated rear window switch
62. El heated rear window, 200 W
63. Clock
64. Cigarette lighter
65. Instrument lighting rheostat
66. Instrument lighting, 2 W
67. Control panel lighting, 1,2 W
68. Gear selector lighting, 1,2 W
69. Glove comp. contact
70. Glove comp. lamp, 2 W
71. Interior lamp, 10 W
72. Door contact, driver's seat
73. Door contact, passenger's side
74. EGR Warning lamp, 1,2 W
75. Belt interlock unit
76. EGR Warning contact
77. Safety belt pilot lamp, 1,2 W
78. Safety belt contact, pass. seat
79. Safety belt contact, driver's seat
80. Junction
81. Overdrive switch M 410
82. Overdrive contact on gearbox M 410
83. Overdrive solenoid on gearbox M 410
84. Overdrive pilot lamp, 1,2 W
85. Buckle lighting, 1,2 W
86. Relay for window lifts
87. Supplementary air valve
88. Heating element with thermostat, driver's seat
89. Heating element, driver's seat, 30 W
90. Switch for window lift r.h.
91. Switch for window lift l.h.
92. Switch for compressor
93. Thermostat
94. Solenoid on compressor
95. Solenoid valve
96. Relay for fuel pump
97. Main relay, fuel injection
98. Starting valve
99. Temperature-time contact
100. Injection control unit
101. Fuel pump
102. Flop valve contact
103. Pressure sensor
104. Temperature sensor I
105. Temperature sensor II
106. Injection valves
107. Release contact
108. Resistor
109. Rear ash tray lighting, 1,2 W
110. Engine comp. lighting, 18 W
111. Motor for window lift r.h.
112. Motor for window lift l.h.
113. Ignition control unit
114. Relay for headlamp wiper
115. Headlamp wiper
116. Contact on gearbox M 410
117. Relay for back up lamp
118. Relay for AC

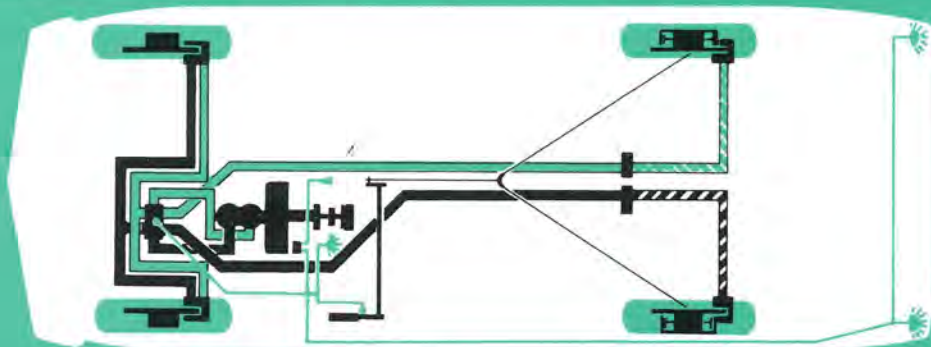
TECHNICAL DESCRIPTION

Color code:

SB = Black	BL-R = Blue-red	W-R = White-red
Y = Yellow	GN-R = Green-red	W = White
BL = Blue	R = Red	BR = Brown
BL-Y = Blue-yellow	GN = Green	GR = Gray



TECHNICAL DESCRIPTION



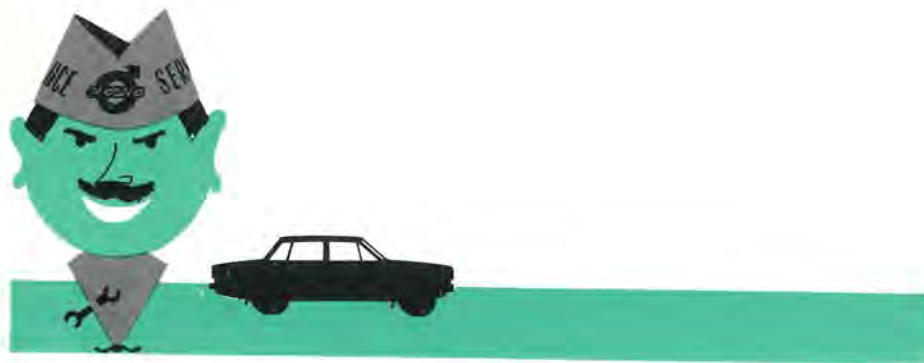
BRAKES

The brake system is of the two-circuit type with disc brakes all round. The system is provided with a tandem-type master cylinder and a directly-operating booster cylinder. When the brake pedal is depressed, the master cylinder operates mechanically via the booster cylinder, this increasing the pedal force about three times. The brake pressure is transmitted hydraulically from the master cylinder through the brake to the wheel cylinders. The pistons in these are then pressed outwards and apply the brake pads. The pressure lines to the rear wheel brakes are provided with a reducer

valve which prevents the rear wheels from locking before the front wheels. The principle of the two-circuit system is that both the front wheels are connected to one rear wheel, that is, should there be a failure in one of the circuits, there is always braking power on both front wheels and the other rear wheel. So at normal pedal pressure the braking effect of one of the circuits is 50 %, but when pedal pressure is increased, about 80 % of the full braking power can be obtained in the one circuit. This provides maximum safety and prevents lateral dragging and rear-end lurching. With

the engine stopped, the booster assists the braking a further two or three times after which the pedal pressure must be increased about three times as much in order to obtain a braking power corresponding to the braking power available with the engine running. The parking brake operates the rear wheels mechanically as the brake discs have also been designed as brake drums in order to incorporate the shoes for the parking brake.

For brake maintenance, see page 45.



GENERAL

Before the vehicle was delivered from the factory it was subjected to a very thorough inspection. Your dealer, in his turn, carried out a further delivery inspection in accordance with the specifications of the Volvo Factory. In addition to this there is a service inspection after 1500 miles (2500 km) when the oil in the engine, transmission and rear axle is changed. Subsequent servicing of the vehicle should follow the routine in the Warranty and Maintenance Record book which is based on service maintenance every 7500 miles. The simplest way to provide the vehicle with the servicing

it requires is to have all the servicing done by a Volvo workshop. The workshop stamp in your Warranty and Maintenance Record book will show when the vehicle was serviced.

The following maintenance programs describe in detail inspections concerning the emission systems. Some points concerning regular maintenance are also involved.

Both are part of the total maintenance service program outlined in the Warranty and Maintenance Record book.

SERVICING

THE FEDERAL CLEAN AIR ACT (USA)

The Clean Air Act requires vehicle manufacturers to furnish written instructions to the ultimate purchaser to assure the proper functioning of those components that control emissions.

The maintenance instructions listed below represent the minimum maintenance required.

These services are not covered by the warranty. You will be required to pay for labor and material used. Refer to your Warranty and Maintenance Record book for further details.

MAINTENANCE OPERATION	Miles	1,500	7,500	15,000	22,500	30,000	37,500	45,000	Description on page
EMISSION CONTROL SYSTEMS									
I ENGINE MECHANICAL COMPONENTS									
Torque Engine Cylinder Head		A							46
Engine Coolant						R			49
Valve Clearance		A		A		A		A	48
Engine Drive Belts		A	I	I	I	I	I	I	46
Engine Oil and Filter*		R	R	R	R	R	R	R	43, 46
Torque Manifold Bolts		A		A		A		A	46
Cooling System Hoses and Connections		I		I		I		I	51
Vacuum Fittings, Hoses and Connections		I		I		I		I	49
Compression test				I		I		I	48
II ENGINE FUEL SYSTEM									
Idle RPM		A		I		I		I	51
Mixture Ratio				A		A		A	51
Air Cleaner Filter						R			47
Throttle Valve Switch (B30F)				I		I		I	48
Fuel (Line) Filter						R			47
Fuel (Tank) Filter				I		I		I	47
Fuel System Cap, Tank, Lines and Connections		I				I			47
Fuel Injection Electrical Connections				I		I		I	48

* Oil and oil filter cartridge are first time replaced at the 1500 mile inspection. Subsequent oil changes are made with 7500 mile intervals or **at least twice a year**. However, under adverse conditions, like hot ambient temperatures, trailer pulling, hill climbing, driving long distances at high speeds, extended periods of idling or low speed operation, short trip operation at freezing temperatures require oil changes more frequently (every three months).

A = Adjust

R = Replace

I = Inspect (Correct or Replace if necessary)

MAINTENANCE OPERATION	Miles	1,500	7,500	15,000	22,500	30,000	37,500	45,000	Description on page
III ENGINE IGNITION COMPONENTS									
Ignition Timing				A		A		A	49
Spark Plugs (see page 49)				R		R		R	49
Ignition Wiring				I		I		I	49
Distribution Cap and Rotor				I		I		I	49
Distributor Advance Mechanism						I			49
IV ENGINE CRANKCASE VENTILATION SYSTEM									
PCV Nipple (Orifice)				I		I		I	46
Ventilation Hoses				I		I		I	46
Oil Filter Breather Cap and Flame Arrester				I		I		I	46
V ENGINE EXTERNAL EXHAUST EMISSIONS									
Exhaust Gas Recirculation Components**				I		R		I	48
Air Injection Reactor System				I		I		I	49
Torque Catalyst Mounting Bolts				A		A		A	49
VI ENGINE EVAPORATIVE EMISSIONS									
Evaporative Control Filter								R	48

** EGR valve is cleaned at 15,000 & 45,000-mile intervals and is replaced at 30,000 miles.

If the vehicle is equipped with an EGR (Exhaust gas Recirculation) 15,000 mile service reminder light, as required by the U.S. environmental protection agency, the light will come on at 15,000 mile intervals. This is a reminder to take your Volvo to your Volvo dealer to get the EGR valve serviced. The light will stay on until it is reset by your Volvo dealer.

SERVICING

MAINTENANCE SCHEDULE (You will be charged for these services)

Below you will find some of the most important maintenance inspection points not involving the emission control system. The

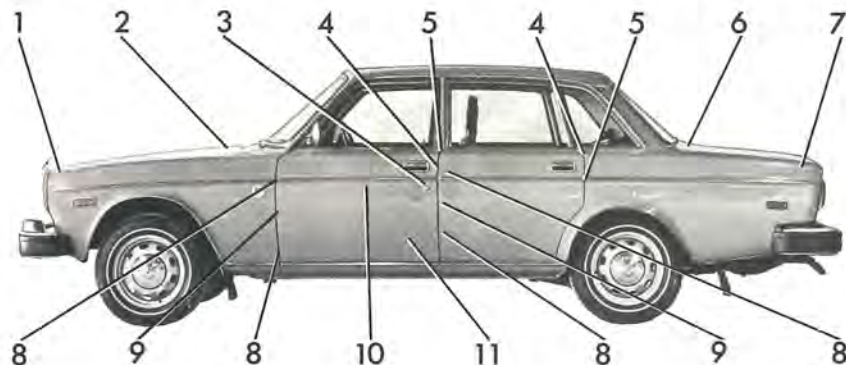
total program is according to the Warranty and Maintenance Record book.

MAINTENANCE OPERATION	Miles	1,500	7,500	15,000	22,500	30,000	37,500	45,000	Description on page
DRIVETRAIN									
Manual Transmission Oil (Aut. see page 44)		R	I	I	I	R	I	I	44
Rear Axle Oil		R	I	I	I	I	I	I	44
BRAKES									
Overhaul the brakes and change brake fluid								R	45
STEERING									
Tire Wear (Align Front End if needed)		I	I	I	I	I	I	I	57
Check power steering fluid level		I	I	I	I	I	I	I	45
BODY									
Trunk, Door and Hood Hinges and Latches		L	L	L	L	L	L	L	42

A = Adjust
 R = Replace
 I = Inspect (Correct or Replace if necessary)
 L = Lubricate

The following items should be checked weekly by driver	Description on page	The following should also be carried out regularly	Description on page
Engine oil level	43	Washing	59
Brake fluid	45	Polishing	59
Radiator coolant level	49	Cleaning	60
Battery water level	52	Rust protection	60
Tire pressure, all five tires	57		
Operation of all lights			
Horns			
Windshield wipers			
Level of windshield washer fluid			

SERVICING



LUBRICATION

Chassis maintenance

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

Engine oil should be changed and oil levels checked after every 7 500 miles in accordance with the lubricating chart at the end of the book. The measures taken in this inspection are also to be found in the lubricating chart. Always use only first-class lubricant of a well-known brand. The right lubricants in the right quantity at the right time will increase both the lifetime and the reliability of your car.

Lubricate body

To avoid rattle and unnecessary wear, the body should be lubricated once a year. The hinges on the hood, doors and trunk lid as well as door stops should be lubricated every 7 500 miles. During the wintertime, the locks in the door handles and trunk lid should also be given reliable anti-freeze to prevent them from freezing up.

No. Lubricating point

1. Hood latch
2. Hood hinges
3. Key hole
4. Striker plate
5. Door lock outer slide surfaces
6. Trunk lid hinges
7. Trunk lid lock
8. Key hole
9. Door hinges
10. Door stop
11. Window regulator Lock mechanism (Accessible after door upholstery panels have been removed)
11. Front seat slide rails and latch devices

Lubricant

Paraffin wax
Oil
Lock oil
Paraffin wax

Paraffin wax
Oil
Lock oil
Grease
Paraffin wax
Oil and grease
Silicon grease

Paraffin wax



by filling through the oil filler hole in the valve cover with new oil of the same type already in the engine. The distance between the dipstick markings corresponds to about 2.1 US qts./1.8 Imp. qts. (2.0 liters).

Check oil level in engine

The oil level in the engine should be checked each time the fuel tank is filled. The check should be done with the engine switched off but warm and, in order to obtain comparable values, about one minute after the engine has been stopped. Wipe dipstick before measuring. The oil level should be between the two marks on the dipstick. It must never be permitted to go down below the lower mark, but on the other hand, it should not be above the upper mark since oil consumption will then be abnormally high. If necessary, top up

Change engine oil and filter

Oil and oil filter cartridge are first time replaced at the 1500 mile inspection. Subsequent oil changes are made with 7500 mile intervals or **at least twice a year**. However, under adverse conditions, like hot ambient temperatures, trailer pulling, hill climbing, driving long distances at high speeds, extended periods of idling or low speed operation, short trip operation at freezing temperatures require oil changes more frequently (every three months).

For engine lubrication, oil grade "For API Service SE" is to be used.

At very low temperatures below $-18^{\circ}\text{C} = 0^{\circ}\text{F}$ multigrade oil SAE 5 W-20 is recommended. However, this oil should not be used when the temperature is continuously above 0°C (32°F).

The old oil is drained off by removing the drain plug on the pan. Draining should take place after driving when the oil is still warm.

Viscosity	Temperature range	Oil change interval*	Oil capacity
SAE 10 W-40 alt SAE 10 W-30 SAE 10 W-50 or SAE 20 W-50	All year round (above $-10^{\circ}\text{C} = +14^{\circ}\text{F}$)	every 7 500 miles or twice a year (under adverse conditions, see above)	Without oil filter: 5.5 US qts./4.5 Imp. qts. (5.2 liters) With oil filter: 6.3 US qts./5.3 Imp. qts. (6.0 liters)

At very low temperatures, see above.

* During running-in the oil should also be changed after the first 1 500 miles.

SERVICING

Transmission with overdrive M410

The oil in the transmission should be checked after every 7500 miles. The oil level should be up to the filler hole. If necessary top up with recommended oil. The overdrive and the transmission have a common oil level and oil filler hole. Make sure when topping-up that the oil runs over into the overdrive.

After every 30 000 miles the oil in the transmission should be changed. The oil is drained out by removing the gearbox drain plug and the cap for the overdrive oil strainer.

At each oil change the overdrive oil strainer should be cleaned. This should be done by a workshop.

In a new or reconditioned transmission the oil should also be changed after the first 1500 miles. The old oil should be drained off immediately after the vehicle has been run while the oil is still warm.

Automatic transmission BW35

The oil level should be checked every 7500 miles. The filler pipe with graduated dipstick is to be found under the hood just in front of the firewall.

Note: The dipstick has different graduation marks for a warm and cold transmission. When the oil level is being checked, the car should be standing level. With the engine idling in position P, the level should be between the upper and lower graduation marks on the dipstick. When topping-up is necessary, use only Automatic Transmission Fluid, Type F (FLM).

The oil is not changed under normal driving conditions. However, for cars used for hard driving, or in hilly countries etc, preventive service including oil change should be carried out by a workshop every 30,000 miles. The dipstick should be wiped with a cloth, paper, etc., but not with anything that leaves fluff on the dipstick.

Rear axle

The oil level in the rear axle should be checked after every 7500 miles. The oil level should be up to the filler hole. If necessary top up with the recommended oil. The oil in the rear axle should be changed after the first 1500 miles. The old oil is drained off by removing the bottom plug. After this only the oil need be checked and topping-up with recommended oil carried out if required.

The oil should then be warm and the magnetic plug must be well cleaned. It is of great importance to the lifetime of the final drive that particles and impurities from running-in are removed.

Oil grade	Viscosity	Oil capacity
Engine oil	SAE 30 or Multigrade SAE 20 W-40	1.55 US qts 1.25 Imp. qts. 1.4 liters

Oil grade	Oil capacity
Automatic Transmission Fluid, Type F (FLM)	9.0 US qts 7.25 Imp. qts 8.2 liters

Oil grade	Viscosity	Oil capacity
Rear axle oil acc. to MIL-L-2105B	SAE 90. At temperatures continuously below 14 °F (-10 °C). SAE 80	1.75 US qts. 1.4 Imp. qts. 1.6 liters

Limited slip differential

Cars equipped with a limited slip differential are delivered from the factory with a rear axle oil MIL-L-2105B with an additive for rear axles with limited slip differential. A similar type of oil should be used for subsequent topping-up and changing. Oil level checking and oil changing are made at the same intervals and in the same way as for a rear axle without a limited slip differential.

Power steering

The oil level in the power steering should be checked every 7 500 miles. Before checking wipe the oil container clean. Then remove the cap and check the level with the engine not running. The oil level should be about 1/4" (5–10 mm) above the level mark in the container. If the level is lower than this, top up with oil, with the engine stopped, to prevent air from being sucked into the container. Start the engine and recheck the oil level which should now fall to the level mark. Stop the engine. The oil level should now be about 1/4" (5–10 mm) above the mark.

The oil and filter in the power steering do not need replacing other than during repairs or reconditioning.

Brake fluid

The brake system is provided with a tandem type brake fluid container with a section for each circuit but with the same filler hole. The brake fluid level should be between the "Max" and "Min" marks.

Every 3rd year or 45 000 miles, the brake system should be drained and the brake fluid replaced. Seals should also be replaced.

This service could conveniently be performed at the same time as the brake booster cylinder air filter is replaced.

At continuous hard driving, mountain driving or similar where the brakes are used extensively, the brake fluid should be changed annually. Extremely humid climates warrant the same recommendation.

Rear axle oil MIL-L-2105B which should have additive for limited slip differential.

Oil grade	Oil capacity
ATF 100	1.3 US qts. 1.0 imp qts 1.1 liters

Brake fluid with designations DOT 3 or DOT 4 should be used (previous designation SAE J 1703).

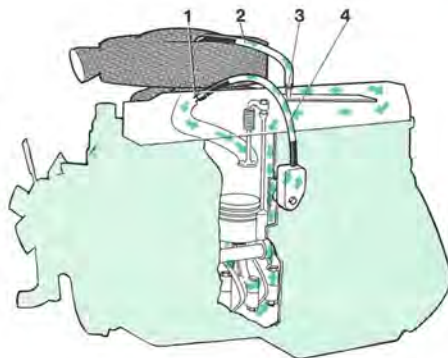
SERVICING

ENGINE

Manifold and cylinder head bolts

The manifold bolts should be torqued at 1 500 mile inspection and then every 15 000 miles. Loose manifold could alter air/fuel ratio and cause an increase in emission and/or poor driveability.

The cylinder head should normally be torqued at 1 500 mile inspection and then not touched. However, loose cylinder bolts will effect sealing properties and to some degree the valve tappet adjustment.



Drive belts

The belt tension can be checked by pressing in the fan belt at a point midway between the alternator and the fan. It should be possible to press down the belt there about 3/8" (10 mm) with normal pressure (16–24 lb=7.5–11 kp). Carry out the same check on the compressor and air injection pump belt, but with a pressure of 20–26 lb (9–12 kp).

The check can suitably be made in a workshop.

Also check the tension on the drive belt for the power pump. It should be possible to depress the belt about 3/16" (5 mm).

Crankcase ventilation system

The engine is provided with positive crankcase ventilation which prevents the gases in the crankcase from being released into the atmosphere. Instead, they are sucked into the intake manifold and take part in the combustion process whereupon they are blown out through the exhaust pipe together with the other combustion gases. Every 15 000 miles remove and clean the nipple (1) and the hoses (2 and 4). Rubber hoses and the flame arrester (3) should also be replaced if they are in poor condition.



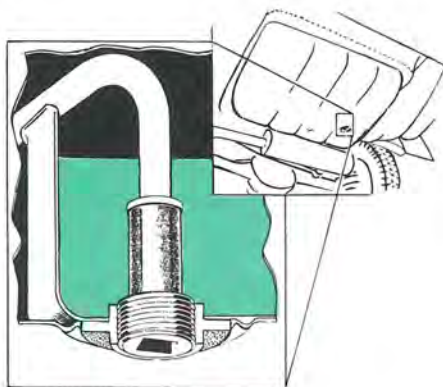
Oil filter

The engine is equipped with a full-flow type oil filter, which means that all the oil passes through the filter on its way from the oil pump to the various lubricating points. Impurities in the oil are collected in the filter and gradually block it. For this reason, the filter must be changed at 1 500 miles and thereafter every 7 500 miles. If the oil filter is replaced without the engine oil being changed, the engine should be topped up with 1.7 US pints/1.4 Imp. pints (0.8 liter).



Fuel filter

The fuel filter is located in front of the fuel tank. This filter is to be changed after every 30 000 miles. The filter is replaced as one complete unit. Filter replacement should be done in a workshop.



Filter in fuel tank

A filter is installed in the suction line in the fuel tank. Its function is to prevent any dirt in the tank from being sucked up to the fuel pump. The filter should be cleaned every 15 000 miles.

Fuel system cap, tank and lines, and connections

The effectiveness of the fuel system to contain hydrocarbons is largely dependent upon a leak free system. Check for proper sealing of gasoline filler cap which contains "O" ring type seals. Check all evaporative hoses in vehicle for tightness and freedom from leaks. Check fuel lines under vehicle and repair if necessary.

Air cleaner

The air cleaner consists of a container with replaceable paper insert. Replace the insert every 30 000 miles. Replace more often when driving under dirty or dusty conditions. No other servicing is required outside the interval just stated. Filter replacement should be done in a workshop.

SERVICING

Evaporative control system

Vehicles intended for the U.S.A. market are equipped with a gas evaporative control system, which prevents gas fumes from being released into the atmosphere. The system consists of an expansion container and a venting filter, which is filled with active carbon.

When the engine starts, air is drawn through the venting filter and into the engine via the inlet duct. Gas fumes stored in the active carbon are drawn by the air flow into the engine where they take part in the combustion.

Evaporative control filter

The carbon filter unit should be replaced after 45000 miles. This work should be done in a workshop.

Valve

The valve clearance should be adjusted at 1500 mile inspection and then every 15000 miles.

The check should be done in a workshop.

Compression test

To get some idea of the condition of the engine, a compression test should be made after every 15000 miles. This test should preferably be made in a workshop.

Check throttle valve switch

The throttle valve switch should be checked every 15000 miles in a workshop.

Inspection of electrical connections and fuel lines

The electrical connections and fuel lines in the injection system should be inspected for chafing and corrosion every 15000 miles in a workshop.

Exhaust gas recirculation system (EGR)

The engine is equipped with an exhaust gas recirculation system. This makes for cleaner exhaust gases when driving on half throttle. The system consists of an EGR channel and an EGR valve operated under a vacuum.

Exhaust Gas Recirculation Components

Clean EGR valve and pipe, manifold nipple and cold start injector every 15000 miles. Replace hose on pipe. Replace EGR valve every 30000 miles.

Change spark plugs

The spark plugs should be changed every 15 000 miles. However, city driving or fast highway cruising require changing after 7 500 miles of driving.

Tightening should preferably be done with a torque wrench. When fitting new plugs, be sure to fit the right type (see page 70). When changing the plugs, check that the suppressor connectors are in good condition. Cracked or damaged suppressors should be replaced.

When changing spark plugs, clean the cables and cable terminals, also the rubber seals. If the car is driven on roads where salt has been placed to counteract skidding, spray the cables with silicone spray.

Ignition timing and dwell angle Distributor advance mechanism

The ignition timing should be adjusted every 15 000 miles. All adjusting work should be done by a workshop with the proper equipment. The distributor is one of the most sensitive units in the engine and careless handling can lead to decreased engine output and high fuel consumption or even serious damage to the engine.

The distributor advance mechanism should be checked every 30 000 miles.

Ignition wiring

Ignition wiring system is composed of primary and secondary systems. The second-

ary systems are the high tension leads connecting the distributor cap with the spark plugs and the coil.

These wires should be inspected at each engine tune-up, and should be replaced if cracked, frayed or damaged from abrasions. It is important to clean all parts of this secondary system thoroughly because dirt greatly reduces the available voltage to the spark plugs.

Distributor cap and rotor

Check the distributor cap and rotor for cracks, carbons formation, dirt and erosion.

Vacuum fittings, hoses and connections

Unstable idle, misfiring or poor emission control is often caused by leaking vacuum hoses or connections. Check hoses and connections on distributor vacuum unit, EGR valve and part if so equipped, heater control servo systems and hydraulic brake servo.

Air injection system

Every 15 000 miles the Air Injection Reactor System should be inspected.

Torque catalyst mounting bolts

The catalytic muffler mounting bolts should be torqued every 15 000 miles.



Check coolant level

The cooling system must be well filled with coolant and not leak if it is to operate at maximum efficiency. Check the coolant level when filling up with fuel. **The level should be between the "Max" and "Min" marks on the expansion tank.** The check should be made with particular thoroughness when the engine is new or the cooling system has been empty.

Do not remove the filler cap other than for topping-up with coolant. Frequent removal may prevent coolant circulation between the engine and the expansion tank during engine warming up and cooling.

SERVICING



Top up with coolant

Top up with coolant by filling the expansion tank when its level has gone down to the "Min" mark. Use all the year round a mixture of 50 % reliable anti-freeze/summer coolant and 50 % water. Top up to the "Max" mark.

NOTE. Do not top up with water only, particularly during the wintertime. Water by itself reduces both the rust-protective and anti-freeze qualities of the coolant. It can also cause damage to the cooling system if ice should form in the expansion tank.

NOTE. In very warm parts of the country where there is little risk of frost, water can be used without anti-freeze.

We recommend, however, to add a rust inhibitor.

Change coolant

The coolant retains its properties for approx. 30 000 miles when it should be changed. A suitable time to do this would be in the autumn to preclude any damage by frost during the coming winter. To drain the cooling system, open the drain cock located on the right-hand side of the engine and disconnect the hose connected to the bottom of the radiator. The expansion tank is emptied by removing it from its brackets and lifting it to a sufficient height so that the coolant can flow into the radiator. Before filling with new coolant, flush the entire system with clean water.



The cooling system is filled with coolant through the filler opening on top of the radiator. When this is being done, the heater control should be set to max. heat to ensure that the entire system is filled.

Fill the radiator to the top and tighten the cap. Then fill the expansion tank to the "Max" level or slightly above this.

Run the engine for a short period, switch off the ignition and allow the engine to cool. Check that the radiator is full and that the coolant in the expansion tank is at "Max". If necessary, top up the system.

Cooling system, hoses and connections

Check all cooling system hoses and connections for defects or deterioration of hoses and loose clamps or fittings.

Checking and adjusting idling speed and mixture ratio

The idling speed should be adjusted at 1500 mile inspection and then checked every 15 000 miles.

The mixture ratio should be adjusted every 15 000 miles.

Fuel

For vehicles with catalytic converter unleaded fuel must be used. Leaded fuel will render the exhaust catalytic converter inoperative and eventual damage to the exhaust system will occur.

Vehicles not equipped with catalytic converter can use leaded or unleaded fuels. Octane rating: 91 RON (Research Octane Number).

However, in the US some octane ratings posted on gas pumps are the average of the Research method and the Motor method of rating fuels. An octane rating of 87 under this method is equivalent to the 91 RON rating.

Special instructions for work on the electronic fuel injection system

1. **Never** let the engine run without the battery being connected.
2. **Never** use a fast charger as a starting aid.
3. When using a fast charger to charge the battery in the vehicle, the battery should be disconnected from the rest of the electrical system.
4. The control unit **must not** overheat above 185°F (+85°C). The control unit must not be connected (the engine started) when the ambient temperature exceeds 158°F (+70°C). (With paintwork, etc., when the vehicle is being stove-heated, it may not be driven out of the oven, it must be conveyed out. If there is risk of temperatures exceeding 185°F (+85°C), the control unit must first be removed.
5. The ignition should be switched off before connecting or disconnecting the control unit.
6. For all work with fuel lines, **great** care must be taken to ensure that no dirt enters the system. Even small dust particles can jam injectors.

Any work to be done on the electronic fuel injection system should be carried out by a shop which has the proper equipment for doing this.

SERVICING

ELECTRICAL SYSTEM

This car is equipped with an alternator.

When changing the battery or when carrying out work involving the electrical system, the following should be observed.

1. A battery connection to the wrong terminal will damage the rectifiers. Before connections are made, check the polarity of the battery with a voltmeter.
2. If assist batteries are used for starting, they must be properly connected to prevent the rectifiers from being damaged.
The negative lead from the assist battery for starting must be connected to the negative terminal stud of the car battery and the positive lead from the assist battery for starting to the positive terminal stud.

3. If a fast charger is used for charging the battery, the car battery leads should be disconnected.
A fast charger may not be used as an aid in starting.

4. Never disconnect the battery circuit (for example, to charge the battery) while the engine is running, as this will immediately ruin the alternator. Always make sure that all the battery connections are properly tightened.

5. If any electrical welding work is made on the vehicle, the ground lead and all the connecting cables of the alternator must be disconnected and all the welder wires placed as near the welding point as possible.

Check battery electrolyte level

Check the battery electrolyte level when filling the tank with fuel. The level should be between 3/16—3/8" (5—10 mm) above the top of the cell plates. If the level is too low, top up with distilled water.

Never check the electrolyte level by lighting a match. The gases formed in the cell are highly explosive.

Replace bulbs

The replacement of bulbs in the various lighting units is shown on the following pages. Make sure when installing bulbs that the guide pin on the socket fits into its corresponding recess.

When installing bulbs, do not touch the glass with your fingers. The reason for this is that grease, oil or any other impurities can be carbonized onto the bulb.



Changing headlights (Sealed Beam)

Sealed Beam headlights are changed as a complete unit.

1. Remove the outer rim by pulling it upwards—forwards.
2. Slacken the screws for the inner rim a couple of turns. Turn the inner rim and lift it off.
3. Remove the headlight contact by pulling it backwards. Lift out the headlight.
4. Install the new headlight and make sure that it is installed properly.

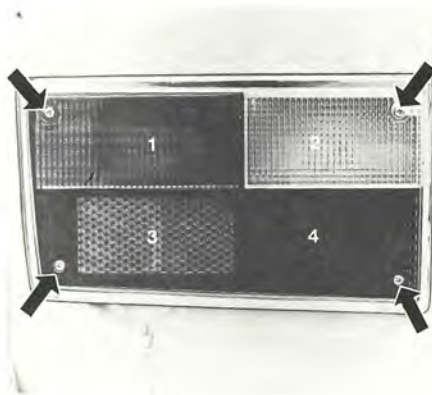
Check headlight alignment.

SERVICING



Replace bulbs for front turn signals and parking lights

Remove the two Phillips screws which hold the glass. The bulbs can now be removed by pressing them inwards and then turning them a little counter-clockwise. The inner bulb (1) is for the parking light, the outer (2) for the turn signal.



Replace bulbs for rear turn signals, parking light, stop lights and back-up lights

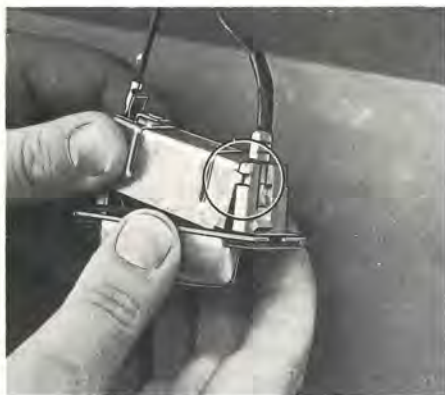
Remove the four Phillips screws which hold the glass. The bulbs can now be removed by pressing them inwards and turning them slightly counter-clockwise at the same time.

1. Turn signal
2. Back-up light
3. Tail light
4. Stop light



Replace bulbs for side marker lights

Remove the two Phillips screws which hold the glass. The bulb can now be removed by pressing it inwards and turning it slightly counter-clockwise.



Replacing the bulbs for the license plate light

The license plate light is provided with two bulbs. Should any of them require replacing, proceed as follows:

1. Press in the tab catch in the bulb housing by inserting a screwdriver in the opening on the left-hand side of the housing. Pull the bulb housing out of its attachment.
2. Pull out the housing end not provided with a guide pin.

3. The bulb is now accessible for replacing. When installing the unit, first insert the guide pins in the sockets (see picture) and then press on the housing. Check that the rubber strip fits properly in position and press the lamp housing securely into position.

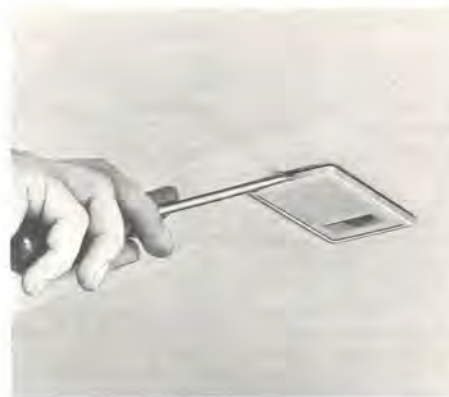
Replace bulbs for engine and trunk compartment lights

Engine compartment light: to gain access to the bulb, remove the screw which retains the lens and the lens.

Trunk light: to gain access to the bulb, remove the Phillips screw which retains the lamp housing and carefully pull out the lamp housing.

Replace bulb for glove locker

Pull the light glass straight down for access to the bulb.



Replace bulb for roof light

To replace the bulb for the roof light, remove the light glass by pressing in the catch with a narrow screwdriver which is inserted in the opening on the right-hand side. Then pull off the glass. The bulb is then accessible for replacement.

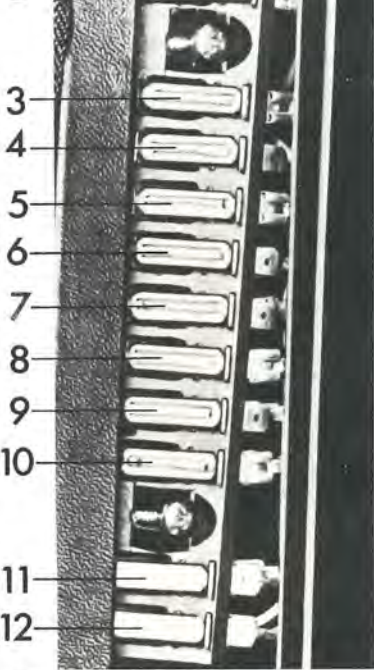
Replace bulbs for instrument lighting and heater control lighting

Owing to the location of the bulbs, their replacement should be made by a shop.

SERVICING

Fuses

There are 12 fuses located at the bottom of the dashboard near the left front door. Reading downwards the fuses protect the following:

- | | | |
|--|------|---|
| 1. Cigarette lighter | 8 A |  |
| 2. Windshield wiper/washer
Horn
Blower | 16 A | |
| 3. El. heated rear window
Overdrive | 16 A | |
| 4. Heater element driver's seat
Back-up light
Seat belt pilot light
Air conditioner | 8 A | |
| 5. Turn signals
Instruments, Warning lights
Power window relay | 5 A | |
| 6. Hazard warning
Engine comp. lighting
Starter cut-out relay
Trunk light | 8 A | |
| 7. Fuel pump
Clock
Glove box light | 8 A | |
| 8. Stop light
Interior light | 5 A | |
| 9. Ignition Interlock
Buzzer, seat belt | 5 A | |
| 10. Power window motor | 16 A | |
| 11. Tail and Parking light, left
Side marker light, front (left), rear
License plate light, left | 5 A | |
| 12. Tail and Parking light, right
Side marker light, front (right)
License plate light, right
Instrument lights | 5 A | |

Note: Fuse No. 9 controls the Seat Belt Ignition Interlock System if the vehicle is so equipped. See page 22 for instructions on removing fuse No. 9 to facilitate emergency starting.

WHEELS AND TIRES

General

The wheels have size 5 1/2 J 15" F.H. All wheels are accurately balanced. The tires are 175 R 15 radial tubeless.

With the 175 R 15 tire, the maximum permissible speed is 115 mph (180 kmph).

If possible, radial tires should always be used, even in the wintertime.

The wheels should always be used on the same side throughout their use. This is particularly important for studded snow tires, otherwise it can happen that the studs loosen.

Studded snow tires should also have a running-in period of between 300–600 miles (500–1000 km). During this period try to avoid driving hard round bends and at high speeds, also hefty braking and acceleration.

Tire **chains** can be used on all the car's four wheels providing that the chains are **fine-linked** and do not project so much from the tire that they can chafe against the brake caliper or other components.

Strap-on emergency chains must not be used since the space between the brake calipers and wheel rims does not permit this.

NOTE: Wheels for previous models of Volvo 164 cannot be used on 1975 year model.

Check tire wear pattern

Check the tires at regular intervals for damage and abnormal wear, also for particles which can fasten in the tread. Have the wheels balanced if necessary. Poorly balanced wheels will rapidly increase the wear on tires as well as make for poor travelling comfort and driving characteristics. The tires have a so-called "wear indicator" in the form of a number of narrow strips running across or parallel to the tread. When about 1/16" (1.5 mm) is left on the tread, these strips show up and warn the car owner in good time that the tire is showing signs of wear.

Check tire pressure

Make a habit of checking the pressure in the tires regularly. The simplest way to do this is to check the pressure at a service station while filling up with fuel. Do not forget the spare wheel when checking the tire pressure.

During driving, the temperature of the tires rises and also the tire pressure in relation to the speed of the vehicle and its load. **Normally the tire pressure should only be checked when the tires are cold.** When the tires are warm, a change in pressure should take place only when air must be pumped into the tires.

Excessively low tire pressure is one of the most common reasons for tire wear. Tires which are insufficiently inflated also result in difficult steering and high fuel consumption. Too high tire pressure tends to make for poor travelling comfort.

Be careful when parking the car next to the pavement not to damage the tires against the curb stone.

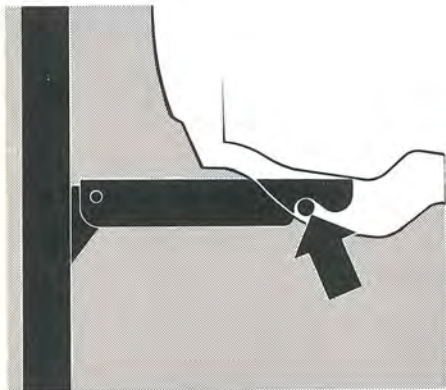
SERVICING



1



2



3



4

Changing a wheel

The spare wheel, jack and tool kit are stowed in the trunk. When the car is to be jacked up, the jack should be on level, firm ground. **Avoid crawling or sliding under the car when it is jacked up since there is risk that the car might topple off the jack, especially if the ground is soft.**

Before the vehicle is jacked up, the parking brake should be applied and one of the gears engaged.

Also block one of the wheels which is standing on the ground.

Removing

1. Unscrew and take off the wheel cap.
2. Loosen the wheel nuts $1/2 - 1$ turn with the help of the wrench. All the nuts have right-hand threads which are loosened by turning them counter-clockwise.
3. Insert the lifting arm of the jack in the appropriate jack attachment of the wheel to be changed. Make sure the jack fits well in the attachment. Jack up the side of the car far enough to lift the wheel off the ground.
4. Unscrew the wheel nuts completely and lift off the wheel. Be careful when lifting off the wheel that the threads of the studs are not damaged.



Installation

1. Clean the contact surfaces between wheel and hub. Install the hub cap on the wheel rim from the inside of the rim.
2. Lift on the wheel.
3. Tighten the nuts until the wheel makes good contact with the flange.
4. Lower the vehicle and tighten the nuts alternately.
5. Install the wheel cap.

Do not rotate the raised wheel if the car is equipped with a limited slip differential as this will also move the other rear wheel on the ground, so that the car may topple off the jack.

BODY

Washing

The car should be washed often since such things as dirt, dust, insects, tar spots etc. adhere firmly to the body and may damage the paintwork. During the winter, special care should be observed to wash off all road salt residue as soon as possible in order to prevent corrosion.

When washing the car, do not expose it to sunlight. Soften up the dirt on the underside with a water jet and then rinse the whole body with a light jet until the dirt has loosened. After this, wash off the dirt with a sponge, using plenty of water. Use preferably lukewarm but not hot water.

A detergent can be used to facilitate washing. Special detergents are now available on the market—even household detergent can be used. A suitable mixture is about 1 1/2—3 1/2 fl. ozs. (5—10 cl) of fluid dish washer to 2.6 US galls=2.2 Imp. galls (10 liters) of water. Asphalt spots and tar pitings can easily be removed with Kerosene or Tar Remover but this should be done after the washing.

When a detergent is used, the car should be well rinsed down with clean water afterwards. Then dry carefully with a soft clean chamois leather. Use different leathers for the windows and the remainder of the car, otherwise using the same leather can cause greasy smears on the windows.

When washing the car, remember to clean the drain holes in the doors and bottom rails.

Chromed parts

Chromium-plated and anodized parts should be washed with clean water as soon as they become dirty. This is particularly important if you drive on gravel roads which are treated with chemicals to keep the dust down or in the winter when salt is used to melt the snow. After the car has been washed, apply wax or anti-rust preparation.

Polishing (waxing)

The vehicle does not need polishing until the surface finish begins to lose its lustre and normal washing is no longer sufficient to make it shine again and remove the layer of dirt in the surface. Under normal conditions it is sufficient to polish the vehicle a couple of times a year on condition that it is carefully looked after and thoroughly washed as soon as it has become dirty. Before the vehicle is polished, it should be carefully washed and dried to avoid scratches on the paintwork.

Before applying wax, make sure that the surface is absolutely clean.

It may often be necessary to use kerosene for cleaning.

Waxing should neither be considered as a substitute for polishing nor as a necessary protection for the paintwork against unfavorable weather. For the most part waxing is not necessary until one year after delivery of the car.

SERVICING

Cleaning the upholstery

The upholstery in your Volvo is a combination of plush and plastic or leather and plastic.

Generally the plush in the upholstery can be cleaned with soapy water or a detergent. For more difficult spots caused by oil, ice-creame, shoe polish, grease etc. **trichloroethane** can be used.

The **plastic** in the upholstery can be washed with a mild detergent or in more difficult cases with some household detergent.

Leather upholstery can be cleaned with a damp cloth or a mild soap solution.

For more difficult spots, consult an expert for choice of cleaning agent.

On no account must gasoline, naphta or similar cleaning agents be used on the plastic or the leather in the upholstery since these can damage the plastic and leather.

Cleaning floor mats

The floor mats should be vaccumed or brushed clean regularly, especially during the winter when they should be taken out for drying. Take the opportunity of cleaning thoroughly at the same time where the mats have lain.

Spots on textile mats can be removed with a mild detergent.

Rust protection

Your Volvo is anti-rust treated at the factory. Inspection and any touching-up of the rust protection should be done at regular intervals and at least once a year. The enclosed body sections should also be anti-rust treated by spray application at least once a year. If any touching-up of the rust protection is necessary, this should be done immediately to prevent moisture from seeping in and consequently damaging it.



Paint touch-up

Paint damage requires immediate attention to avoid rusting. Make it a habit to check the finish regularly and touch-up if necessary, for instance when washing the car. Paint repairs require special equipment and skill and you should contact your Volvo dealer for any extensive damages.

Minor scratches can be repaired by using Volvo touch-up paint.

NOTE: Use the paint code which you will find on the Vehicle Designation Plate when ordering touch-up paint from your Volvo dealer.

Scars on the surface where the paint has not been completely penetrated, can be made directly after light scraping to remove dirt.

Deeper scars, down to the bare metal:

1. Scrape or sand the damaged surface lightly and break the edges of the scar.
2. Thoroughly mix the primer and apply it with a small brush or a match.
3. When the primed surface is dry, the paint can be applied by a brush. Mix the paint thoroughly, apply several thin paint coats and let flush after each application.

NOTE: The vehicle should be well cleaned, dry and have a temperature exceeding 60°F (+15°C).

BEFORE A LONG-DISTANCE TRIP

If you are thinking of traveling abroad with your car or taking a long journey, you should have the car checked at a shop. You will enjoy your journey better if you know that your car is in perfect trim. Irritating incidents can be avoided as well as expensive and time-absorbing stoppages. Wherever you go there should be a Volvo workshop within easy call to attend to your car if required.

Remember when filling up with fuel to observe the existing fuel recommendations. If you prefer to look over your vehicle yourself, the following tips are worthwhile noting:

1. Check brakes, front wheel alignment and steering gear.
2. Check engine and drive units with regard to fuel, oil, coolant leakage.
3. Examine tires carefully. Replace worn tires.
4. Check engine is running satisfactorily and that fuel consumption is normal.
5. Examine state of charge of the battery and clean terminals.
6. Check tool equipment.
7. Check lighting.

COLD WEATHER

When cold weather is on the way, it is time to think of the winter servicing of your car. The first night of frost can come as an unpleasant surprise unless preventive precautions have been taken.

Engine cooling system

A good quality anti-freeze/summer coolant should be used all the year round. Thus, the cooling system should always contain water plus anti-freeze and rust inhibitor, even during the summer. Experience has also shown that extremely weak anti-freeze solutions (10–20%) are very unfavorable from the point of view of rust protection. For this reason, the quantity of anti-freeze/summer coolant should amount to about 50% of the coolant, that is, 5.6 U.S. qts. = 4.7 Imp. qts. (5.3 liters), this lowering the freezing point to –30°F (–35°C). Alcohol is not recommended as an anti-freeze agent since it evaporates at normal engine temperature.

SERVICING

Engine fuel system

During the wintertime with its wide variation in temperature, condensate forms in the fuel tank and this can impair the running of the engine. This can be eliminated by adding a suitable gas-line anti-freeze (but not methylated spirit) to the fuel. Also, there is less risk of condensate forming if the tank is kept well-filled.

Engine lubricating system

Multigrade oil SAE 10W-40 (SAE 10W-30, SAE 10W-50) should be used all year round for the engine lubricating system. At very low temperatures (below $-0^{\circ}\text{F} = -18^{\circ}\text{C}$) multigrade oil SAE 5W-20 is recommended. These oils reach the lubricating points in the engine more easily at low temperature and also facilitate cold starting. See page 43.

Electrical system

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

Brake system

During very cold weather, the brakes are subjected to splash and condensate which can result in the parking brake freezing up if left on. When you park the car, do not apply the parking brake but engage first gear or reverse and if possible place blocks behind the wheels. See also page 27.

Windshield washer

Just as anti-freeze is added to the cooling system during the winter to prevent frost damage, anti-freeze should also be added to the water container for the windshield washer. This is particularly important because the windshield during the winter frequently becomes dirty and is often splashed with water which rapidly freezes and thus necessitates the frequent use of the windshield washer and wipers. 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 this in good time and lubricate the locks in advance with some suitable anti-freeze agent. Such agents are now available in small handy tubes which can easily find room in a handbag or coat pocket.

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

Note: An asterisk "*" following the item under the Corrective action in the chart indicates the point to be serviced by an authorized Volvo dealer.

Condition: Starter fails to operate (or operates very slowly)

Possible cause	
Seat belt not fastened.	If the vehicle is equipped with an Ignition Interlock System, check to see if the front seat belts have been fastened after the occupants have been seated and before the ignition key is turned to the starting position. See page 22 for instruction on emergency starting.
Weak battery or dead cell in battery.	With the ignition switch in the "Driving" or "On" position, check to see if the warning lights on the dashboard come on and if they go out when the starter is engaged. If the lights do not come on or if they go out when the starter is engaged, the battery is discharged, or see below.
Loose or corroded battery cable terminals.	Check battery terminals and clamps, clean or replace if necessary. Check that the starter cable is tightened. A ground strap, which connects the body and the rear end of the engine, should also be checked for corrosion and looseness.
Open circuit between ignition/starter switch and ignition terminal on starter.	The circuit is closed if a clicking sound is heard from the starter when it is engaged. If no clicking sound is heard, check that the blue wire at the starter is tightened. If still no clicking sound is heard, the ignition lock or the wire are defective.*

SERVICE DIAGNOSIS

Condition: Starter motor operates but engine does not start.

Possible cause	Correction
No fuel reaching engine.	<p>Check for fuel in the tank.</p> <p>Check that the fuel pump operates approx. 2 seconds when the ignition is switched on. If the fuel pump does not operate:</p> <p>Check fuse No. 7.</p> <p>Check that the fuel pump relay is operating. (A clicking sound should be heard when the ignition is switched on.)</p> <p>Check that the fuel pump wires and wire connections are in order (also the fuel pump ground wire).</p> <p>If fuse and relay are in order, fuel pump, control box, wiring harness or fuel lines might be defective.*</p>
No spark, or insufficient spark at spark plug.	<p>Remove the high tension leads at one of the spark plugs and screw out radio interference suppressor. Hold the lead approx. 3/4" from the valve cover and run the starter. If there is no spark, check:</p> <p>High tension leads and distributor cap for cracks and dirt.</p> <p>Rotor and distributor cap center contact for dirt or defects.</p> <p>Coil, ignition lock or wires for defects.*</p>
Spark plugs defective.	<p>Check the spark plugs for dirt and wear.</p>
Trigger contacts defective.	<p>Use tri-chloro-ethylene to clean the trigger contacts and lubricate sparingly.*</p>
Misc.	<p>If no fault is found according to above, see a Volvo dealer as the fault might be:*</p> <p>Incorrect fuel pressure.</p> <p>Injectors defective.</p> <p>Cold start injector, thermal time switch, auxiliary air valve, temperature sensors or control box defective.</p> <p>Imperfect wire contacts.</p>

Condition: Erratic running

Possible cause	Correction
Defective wire connections.	<p>Check that the battery ground strap at the battery shelf is clean and tight.</p> <p>Check the fuel pump fuse for corrosion.</p> <p>Check that the fuel pump ground connection is clean and tight.</p> <p>Check wires in connection box, wires at trigger contacts, air pressure sensor and temperature sensors for imperfect connections. Check connectors and receptacles.</p>
Throttle and throttle switch defective.	<p>Check that the throttle plate is tight and adjusted correctly.</p> <p>Check that the throttle switch is adjusted correctly.*</p>
EGR valve defective.	<p>Disconnect the hose, connecting the intake manifold and the EGR valve, at the intake manifold.</p> <p>Apply a vacuum to the hose (by mouth or other convenient method).</p> <p>The engine should now stop or run very erratically.</p> <p>If this does not happen, the valve is defective and should be replaced.*</p>
Incorrect idle.	<p>Check idle RPM and CO.*</p>
Defective ignition system.	<p>Check high tension leads and cap for cracks and dirt.</p> <p>Check the rotor for defects.</p> <p>Check spark plugs for corrosion and wear.</p> <p>Check the timing.*</p>
Uneven compression	<p>Test the compression of each cylinder.*</p>
Misc.	<p>If no faults have been found acc. to above, see a Volvo dealer as the fault might be:*</p> <p>Incorrect fuel pressure.</p> <p>Leaking injectors.</p> <p>Cold start injector, temperature sensors, air pressure sensor or control box defective.</p>

SERVICE DIAGNOSIS

Condition: Engine stalls at irregular intervals

Possible cause	Correction
Defective wire connections.	Check that the battery ground strap at the battery shelf is clean and tight. Check the fuel pump fuse for corrosion. Check that the fuel pump ground connection is clean and tight. Check wires in connection box, wires at trigger contacts, air pressure sensor and temperature sensors for defective connections. Check connectors and receptacles.
EGR valve defective.	Disconnect the hose, connecting the intake manifold and the EGR valve, at the intake manifold. Apply a vacuum to the hose (by mouth or other convenient method). The engine should now stop or run very erratic. If this does not happen, the valve is defective and should be replaced.*
Incorrect idle.	Check idle RPM and CO.* Check that the idle compensating valve is functioning when the Air Conditioner is switched on.*
Fuel lines or fuel filter clogged.	Check that fuel hoses, tank ventilation line and line from tank to carbon canister not are clogged or damaged.*
Misc.	If no faults have been found acc. to above, see a Volvo dealer, as the fault might be:* Air pressure sensor, temperature sensors or control box.

Condition: Low top speed, loss of power

Possible cause	Correction
Throttle or throttle switch defective.	Check that the throttle is opened completely when the throttle pedal is floored. Check that the throttle and throttle switch are adjusted correctly.* Check that the throttle switch acceleration contacts are in order.*
Defective ignition system.	Check high tensions leads and distributor cap for cracks and dirt. Check the rotor for defects. Check spark plugs for corrosion and wear. Check timing and spark advance mechanism.*

Uneven compression.	Check the compression of each cylinder.*
Air filter or exhaust pipe clogged.	Check that the air filter is not clogged. Check that the exhaust pipe is not clogged or damaged.
Fuel lines or fuel filter clogged.	Check that fuel hoses, tank ventilation line, or line from tank to carbon canister not are clogged or damaged.* Check that the tank fuel filter not is clogged.* Check the fuel tank for impurities.* Check that fuel filter or fuel pump not are clogged.*
Misc.	If no faults have been found acc. to above, see a Volvo dealer, as the fault might be:* Coil, alternator, voltage regulator, fan belt, fuel pressure, injectors, temperature sensors, air pressure sensor or control box.

Condition: Excessive fuel consumption

Possible cause	Correction
Spark plugs defective.	Check the spark plugs for corrosion and wear.
Ignition system defective.	Check timing and spark advance mechanism.*
Engine operating temperature incorrect.	Check for correct engine operating temperaure. Check wires and wire connections of temperature gauges and senders.
Fuel leaks.	Check that the fuel lines are in order.
Misc.	If no faults have been found acc. to above, see a Volvo dealer, as the fault might be:* Incorrect fuel pressure, incorrect compression, leaking injectors a air filter clogged. Temperature sensors, cold start injector, thermal time switch, air pressure sensor or control box defective.

Condition: Deceleration backfiring

Possible cause	Correction
Diverter valve faulty	Check diverter valve*

SPECIFICATIONS

Type Designations

In all correspondence concerning your vehicle with the dealer and when ordering parts, the V.I.N. number should always be quoted.

1. V.I.N. (Vehicle Identification Number)

V.I.N. plate located at the foot of the left door port. The V.I.N. is also stamped on right door pillar.

2. Safety Certification Label

Your Volvo has been built to comply to all North American safety and anti-pollution regulations and evidence of this can be seen from the certification label attached on the firewall in the engine compartment. For further information regarding these regulations, please talk to your selling dealer.

3. Model Plate

Vehicle type designation, code number for color and upholstery: on right wheel-house member.

4. Tire Information Plate

MFG. BY VOLVO GOTHENBURG SWEDEN

VEHICLE TYPE	ENGINE	TRANSMISSION	DRIVE SHAFT	AXLES
400 GLE	1900 CC	5 SPEED	FRONT	REAR

VEHICLE IDENTIFICATION NUMBER (V.I.N.)

1

VEHICLE TYPE	ENGINE	TRANSMISSION	DRIVE SHAFT	AXLES
400 GLE	1900 CC	5 SPEED	FRONT	REAR

2

VEHICLE TYPE	ENGINE	TRANSMISSION	DRIVE SHAFT	AXLES
400 GLE	1900 CC	5 SPEED	FRONT	REAR

4

VEHICLE TYPE

ENGINE

TRANSMISSION

DRIVE SHAFT

AXLES

VEHICLE IDENTIFICATION NUMBER (V.I.N.)

3

MEASUREMENTS AND WEIGHTS

Length	192"	(487 cm)
Width	67.1"	(171 cm)
Height, curb weight	56.7"	(144 cm)
Wheel base	107"	(272 cm)
Ground clearance, full load	4.9"	(12.5 cm)
Track, front	53.2"	(139 cm)
rear	53.2"	(135 cm)
Turning circle, between curbs	34'	(10.3 m)
Curb weight	3195—3245 lbs	(1450 kg—1473 kg)
	depending on vehicle type	
Gross vehicle weight (GVW)	4260 lbs	(1930 kg)
Vehicle capacity weight	920 lbs	(420 kg)
Permissible axle pressure, front	2020 lbs	(915 kg)
rear	2300 lbs	(1040 kg)
Permissible roof rack load	220 lbs	(100 kg)
Max. permissible trailer weight	2000 lbs	(910 kg)
Max. hitch load	160—200 lbs	(75—90 kg)

ENGINE

Type designation	B 30 F
Output (SAE J 245)	130 hp/5250 rpm
with catalytic converter	125 hp/5250 rpm
Max. torque (SAE J 245)	150 lbft/4000 rpm
with catalytic converter	145 lbft/4000 rpm
Number of cylinders	6
Bore	3.50" (88.9 mm)
Stroke	3.15" (80 mm)
Displacement	2.978 liters
Compression ratio	8.7:1
Valve clearance, warm and cold	
inlet	.020— .022"
	(.50— .55 mm)
exhaust	.020— .022"
	(.50— .55 mm)
Idling speed (warm engine)	900 rpm
	(800 rpm with BW 35)

SPECIFICATIONS

Cooling system

Type	Positive pressure 10 psi = (.7 kp/cm ²) closed system
Thermostat, begins to open at	180°F (82°C)
fully open at	195°F (90°C)

Ignition system

Firing order	1-5-3-6-2-4
Ignition setting	
stroboscope setting	10° BTDC, 600-800 rpm
(vacuum governor disconnected)	
Spark plugs	Bosch W 200 T35*
spark plug gap	.028-.032" (.7-.8 mm)
tightening torque	25-29 lbft (3.5-4.0 kpm)
Distributor, direction of rotation	Counter-clockwise

ELECTRICAL SYSTEM

Voltage	12 V
Battery, type	Tudor 6 EX4 F o.p.*
Battery, capacity	60 Ah
Battery, electrolyte, specific gravity	1.28
Battery, recharged at	1.21
Alternator max. output	770 W
Alternator max. current	55 A
Starter motor, output	1.1 hp (0.81 kW)

* or corresponding

Lights, 12 volt	US bulb No.	Power	Socket	No. of bulbs
Headlights	7" Type 2 Sealed Beam			2
Parking Lights, front	67	5 W	Ba 15 s	2
Turn Signals	1073	32 cp	Ba 15 s	2
Tail Lights	67	5 W	Ba 15 s	2
Brake Stop Lights	1073	32 cp	Ba 15 s	2
Back-up Lights	1073	32 cp	Ba 15 s	2
Side Marker Lights	57	3 W	Ba 9 s	4

The following bulbs may be obtained from your nearest Volvo dealer:

License Plate Light	5 W	S 8.5	2
Interior Light	10 W	S 8.5	1
Engine Comp. Light	18 W	S 8.5	1
Glove Locker Light	2 W	Ba 9 s	1
Instrument Panel Light	2 W	W 2.2 d	3
Lighting, Control Panel	1.2 W	W 1.8 d	3
Shift Positions,	1.2 W	W 1.8 d	1
Autom. Transm.			
Rear ash tray light	1.2 W	W 1.8 d	1
Buckle light	1.2 W	W 1.8 d	1
Trunk light	15 W	S 8.5	1

Warning Lamps:

Charging	1.2 W	W 1.8 d	1
Turn Signals	1.2 W	W 1.8 d	2
Brakes	1.2 W	W 1.8 d	2
Headlights	1.2 W	W 1.8 d	1
Oil Pressure	1.2 W	W 1.8 d	1
Overdrive	1.2 W	W 1.8 d	1
Emergency Warning Flashers	1.2 W	W 1.8 d	1
El. Heated Rear Window	1.2 W	W 1.8 d	1
Seat Belts	1.2 W	W 1.8 d	1
Bulbs	1.2 W	W 1.8 d	1
EGR reminder light	1.2 W	W 1.8 d	1

Fuses (number and size)

5	5 A
4	8 A
3	16 A

POWER TRANSMISSION

Clutch

Release lever free travel approx. 3/16" (4 – 5 mm)

Transmission

Type designation	M 410	BW 35	
Reduction ratios:			
1st speed	3.54:1	2.39:1	} × the converter ratio
2nd speed	2.12:1	1.45:1	
3rd speed	1.34:1	1:1	
4th speed	1:1	—	
(with overdrive)	0.797:1	—	
Reverse	3.54:1	2.09:1	

Rear axle

Type	Hypoid
Reduction ratio	3.73:1 3.31:1 (for BW35)

Speed in mph (kmph) at 1000 engine rpm

Rear axle	3.73:1
Transmission	M 410
1st speed	5.9 (9.5)
2nd speed	9.6 (15.5)
3rd speed	15.2 (24.5)
4th speed	20.5 (33.0)
4th speed + overdrive	25.5 (41.0)
Reverse	5.9 (9.5)

FRONT WHEEL ALIGNMENT

The alignment values apply to an unladen car but include fuel, coolant and spare wheel.

Toe-in	1/8" (2 – 5 mm)
Camber	0 to + 1/2°
Caster	+ 1 1/2° to + 2 1/2°
King pin inclination	7.5°

WHEELS AND TIRES

Rim size	5 1/2 J 15 F.H.
Tire size	175 R 15

Tire size	Recommended tire infl. pressure cold tires, psi (kp/cm ²)				Max. permitt. inflation pressure psi kp/cm ²)
	1 – 3 persons		Full load		
	Front	Rear	Front	Rear	
175 R 15	25 (1.7)	26 (1.8)	26 (1.8)	30 (2.1)	36 (2.5)

For driving at speeds above 75 mph for one hour or more, inflation pressure must be increased 4 psi (0.3 kp/cm²).

SPECIFICATIONS

CAPACITIES

Fuel tank	15.8 US galls./13.2 Imp. galls. 60 liters
Cooling system	11 US qts./9.3 Imp. qts. 10.5 liters (of which expansion tank 1.5 US qts./ 1.3 Imp. qts./1.5 liters)
Oil capacity,	
engine, at oil change	approx. 5.5 US qts./4.5 Imp. qts. (5.2 liters)
engine, incl. oil filter	approx. 6.3 US qts./5.3 Imp. qts. (6.0 liters)
transmission (M 410)	approx. 1.55 US qts./1.25 Imp. qts. (1.4 liters)
transmission (BW 35)	approx. 9.0 US qts./7.25 Imp. qts. (8.2 liters)
rear axle	approx. 1.75 US qts./1.4 Imp. qts. (1.6 liters)
power steering	approx. 1.3 US qts./1.0 Imp. qts. (1.1 liters)

TOOL KIT

The tool kit contains:
wheel nut and spark plug wrench,
tommy bar,
Phillips screw driver
open end wrench

CONSUMER INFORMATION

Acceleration and passing ability

Vehicle stopping distance

Tire reserve load

The information about the 1975 Volvo 164 shown in the following pages is presented in accordance with Federal requirements for comparison with other makes and models. The exacting test procedures established by the National Highway Traffic Safety Administration were followed to obtain the figures.

Notice: The information presented represents results obtainable by skilled drivers under controlled road and vehicle conditions and the information may not be correct under other conditions.

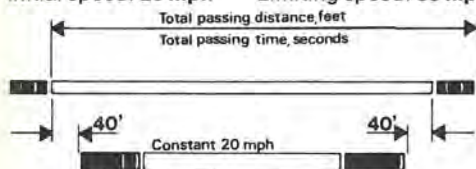
Acceleration and Passing Ability

This chart indicates passing times and distances that can be met or exceeded by 1975 Volvo 164 in the situations diagrammed below.

LOW SPEED

The low-speed pass assumes an initial speed of 20 mph and a limiting speed of 35 mph.

Initial speed: 20 mph Limiting speed: 35 mph



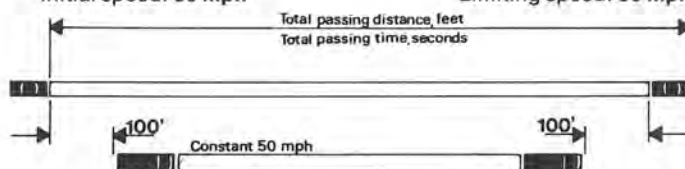
55' Truck

Model Description of Vehicle	Low Speed (20-35 mph)	
	Feet	Seconds
164 Overdrive (w. catal. conv.)	390	8.1
164 Automatic	423	9.3
164 Overdrive, California vehicles	390	8.1
164 Automatic, California vehicles	423	9.3

HIGH SPEED

The high-speed pass assumes an initial speed of 50 mph and a limiting speed of 80 mph.

Initial speed: 50 mph Limiting speed: 80 mph



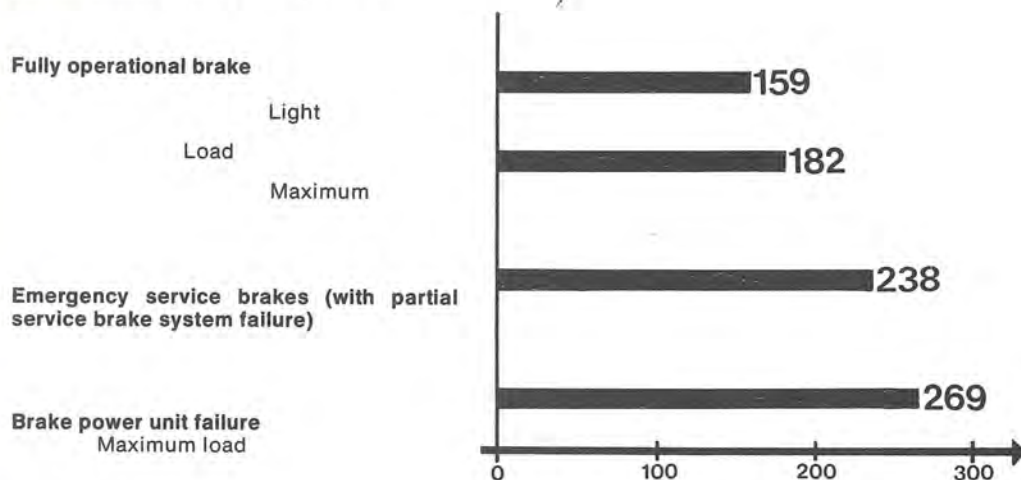
55' Truck

Model Description of Vehicle	High Speed (50-80 mph)	
	Feet	Seconds
164 Overdrive (w. catal. conv.)	1200	12.8
164 Automatic	1273	13.6
164 Overdrive, California vehicles	1200	12.8
164 Automatic, California vehicles	1280	13.7

CONSUMER INFORMATION

Vehicle Stopping Distance

This chart indicates braking performance that can be met or exceeded by 1975 Volvo 164 without locking the wheels, under different conditions of loading and with partial failures of the braking system.



Stopping distance in feet from 60 mph

Tire Reserve Load

This chart lists the tire size designations recommended by Volvo for use 1975 164 with the recommended inflation pressure for maximum loading and the tire reserve

load percentage for each of the tires listed. The tire reserve load percentage indicated is met or exceeded by each vehicle to which the chart applies.

Model	Manufacturer's Recommended Tire Size	Recommended psi Cold inflation Pressure		Tire Reserve Load (%)
		Front	Rear	
164	175 R 15	26	30	3.4

The difference, expressed as a percentage of tire load rating, between (a) the load rating of a tire at the vehicle manufacturer's recommended inflation pressure at

the maximum loaded vehicle weight and (b) the load imposed upon the tire by the vehicle at that condition.

WARNING. Failure to maintain the recommended tire inflation pressure or to increase tire pressure as recommended when operating at maximum loaded vehicle weight, or loading the vehicle beyond the capacities specified on the tire placard affixed to the vehicle, may result in unsafe operating conditions due to premature tire

failure, unfavorable handling characteristics, and excessive tire wear. The tire reserve load percentage is a measure of tire capacity not of vehicle capacity. Loading beyond the specified vehicle capacity may result in failure of other vehicle components.

LUBRICATING CHART

Symbols



Engine oil
Grade: "For API Service SE"
See also page 43



Rear axle oil
Grade: MIL-L-2105B
Viscosity: See page 44



Brake fluid
Grade: DOT 3 or DOT 4 should
be used

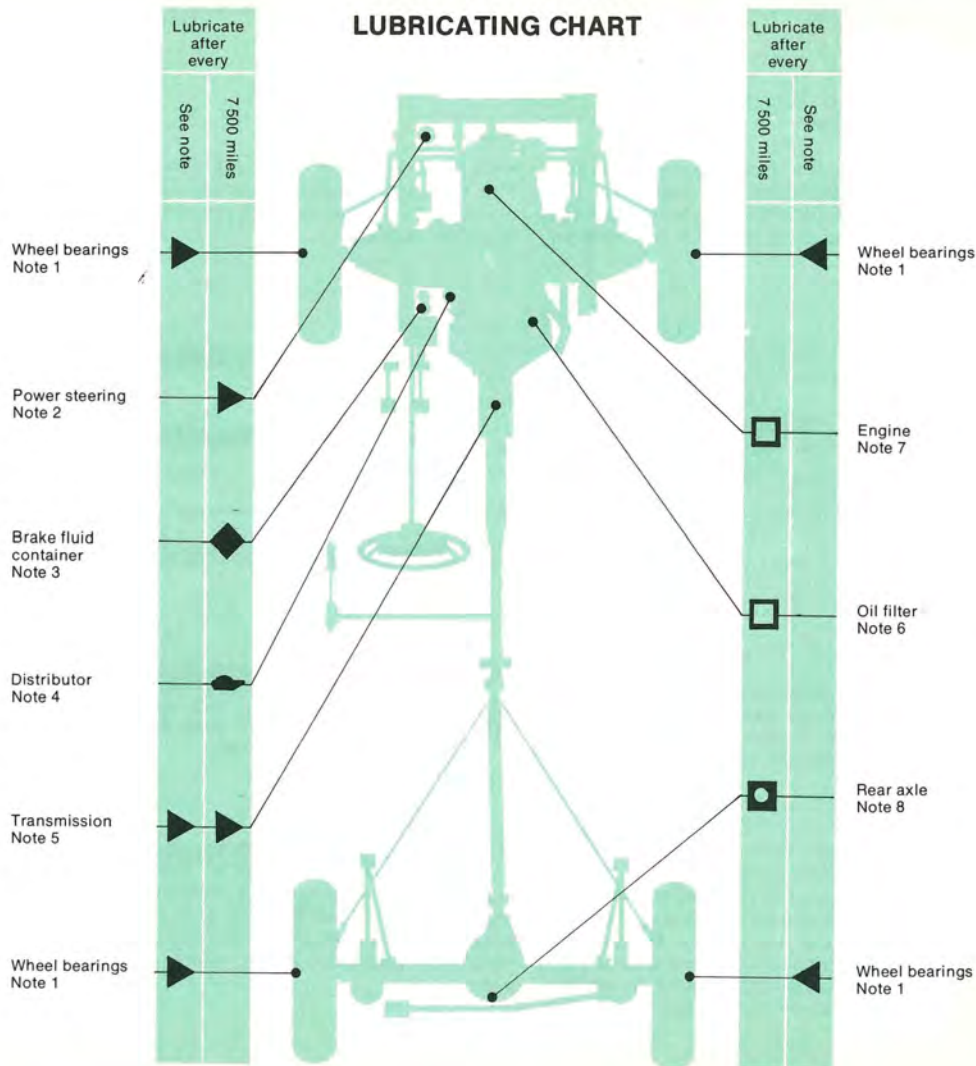


Special lubricants
See resp. note



Light engine oil

LUBRICATING CHART



Notes to lubricating chart

Note 1. The wheel bearings are packed at the factory with a special type of grease intended to last the entire lifetime of the bearings. In connection with such workshop operations involving uncovering the wheel bearings, the bearings should be cleaned and then lubricated with high class, durable grease according to the instructions in the service manual. Except on the above occasion, subsequent adding or changing of lubricant is not required.

Note 2. Power steering: Check that the level in the power steering oil container is 1/4" (5—10 mm) above the level mark. Use Automatic Transmission Fluid.

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

Note 4. Lubricate the felt wick under the rotor.

Note 5. Check every 7 500 miles that the oil reaches up to the filler plug. Concerning oil change, see page 44.

OBSERVE. The type of transmission will decide the type of lubricant to be used.

Note 6. Change the oil filter every 7 500 miles. See page 46.

Note 7. Check the oil level when filling the tank. Concerning oil changing, see page 43.

Note 8. Check every 7 500 miles that the oil reaches up to the filler plug. Concerning lubricant for rear axle with limited slip differential, see page 45.

Oil capacities

Engine excl. oil filter	approx. 5.5 US qts./4.5 Imp. qts. (5.2 liters)
Engine incl. oil filter	approx. 6.3 US qts./5.3 Imp. qts. (6.0 liters)
Transmission M 410	approx. 1.55 US qts./1.25 Imp. qts. (1.4 liters)
Transmission BW 35	approx. 9.0 US qts./7.25 Imp. qts. (8.2 liters)
Rear axle	approx. 1.75 US qts./1.4 Imp. qts. (1.6 liters)
Power steering	approx. 1.3 US qts./1.0 Imp. qts. (1.1 liters)

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WHEN FILLING THE TANK

Octane rating 91 (see page 51).

For vehicles with catalytic converter **unleaded fuels must be used.**

Vehicles not equipped with catalytic converter can use leaded or unleaded fuels.

Engine oil level

The oil level should be between the marks on the dipstick. Top up with multi-grade oil. The distance between the dipstick marks is equivalent 2 quarts (2 liters).

Coolant level

The level should be between the MAX. and MIN. marks on the expansion tank. Top up with a mixture of 50 % anti-freeze/summer coolant and 50 % water.

Washer fluid level

The washer fluid container should always be adequately filled (wintertime with water and an anti-freeze solvent).

Brake fluid level

The level can be checked without removing the cap. The level should be above the MIN. mark on the transparent fluid container. Top up with brake fluid, designation DOT 3 or DOT 4 (previously SAE J 1703).



Check every second time you fill the tank:

Battery electrolyte level.

The level should be 3/16—3/8" (5—10 mm) above the cell plates. Only distilled water may be filled.

Recommended tire pressures.

Tire size	Recommended tire infl. pressure cold tires, psi (kp/cm ²)				Max. permitted inflation pressure psi kp/cm ²)
	1—3 persons		Full load		
	Front	Rear	Front	Rear	
175 R 15	25 (1.7)	26 (1.8)	26 (1.8)	30 (2.1)	36 (2.5)

For driving at speeds above 75 mph for one hour or more, inflation pressure must be increased 4 psi (0.3 kp/cm²).

The washer jets must sometimes be adjusted

The jets should meet the windshield 4—8 inches from the upper edge and approx. 12 inches from the windshield pillar.



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